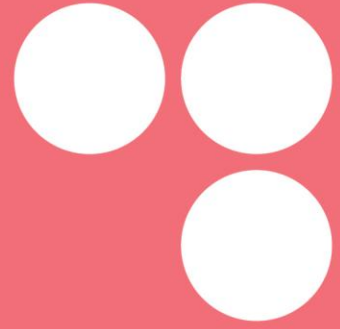


TWIN2EXPAND



Working Group Studio – B

WORKING GROUP STUDIO B- Research Excellence
15.05.2024 - 17.05.2024
ONLINE (CHALMERS)

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



Document Description: This document provides a summary of discussions and panels that took place over the course of the 2nd Working Group Studio B 2 (WGSB2) that was held online in May 2024, organised by the Spatial Morphology Group (SMoG), Department of Architecture Department of Architecture and Civil Engineering, Chalmers University of Technology.
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 (2024). 2nd Working Group Studio B2 Report. Nicosia. TWIN2EXPAND project: 101078890 (Horizon Europe), 10052856 & 10050784 (UKRI).

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Views and opinions expressed are those of the author(s) only and do not necessarily reflect those of the European Union or the European Research Executive Agency (REA). Neither the European Union nor the granting authority can be held responsible for them.

Version Control Sheet

Report Name	2 nd Working Group Studio B2 Report.
WP / WP number	WP2
Type	Report
Dissemination level	Internal
Lead beneficiary	Chalmers
Contributors	Ioanna Stravroulaki, Iason Giraud
Reviewer(s)	Nadia Charalambous
Changes with respect to the Grant Agreement	None
Dissemination and uptake	N/A

Revision history

Version	Date	Summary of changes	Initials	Changes marked
1				
2				

Working Group Studio B – introduction

WGS B - research excellence (Chalmers); these activities focus on the project's scientific impact and raising the research profile of UCY and its staff. These studios bring together experts and professionals from various strands of EBDP (design theory, spatial analysis, spatial planning, urban analytics, integrated urban modelling, urban design, sustainable development). The aim is to establish a unified conceptual framework of EBDP, open avenues for methodological development and inform the project's research activities, producing the scientific outputs (papers, conceptual model, comparative evidence) which will have an important impact on the broader scientific community.

After the completion of each studio, there will be a period of testing and implementation of the agreed model and tools through the research work, serving as a proof of concept to demonstrate empirically the value and significance of the proposed framework and methods. This approach will increase the scientific impact of the network [MS4, D2.1, D3.1, D3.2, D4.1, D4.2, D4.3, D4.4]

Working Group Studio B 2

WGS B2 (WGSB2) took place online on 15-17 May 2024. It was organised by the Spatial Morphology Group (SMoG), Chalmers University of Technology. 13 team members from all partners participated. 6 external guests presented, 5 of which were from academia (72%) including 1 from academic leadership. 1 external guest was from the private sector. See the detailed list of participants in Appendix 1.

Following the aims of the Working Group Studio B, which is to focus on research excellence, inform the project's research activities and raise the research profile of UCY and its staff, the 3-day sessions facilitated the meeting of the team members with experts, academics and professionals from various strands of EBDP based in Sweden (design theory, spatial analysis, spatial planning, urban analytics, integrated urban modelling, urban design, sustainable development).

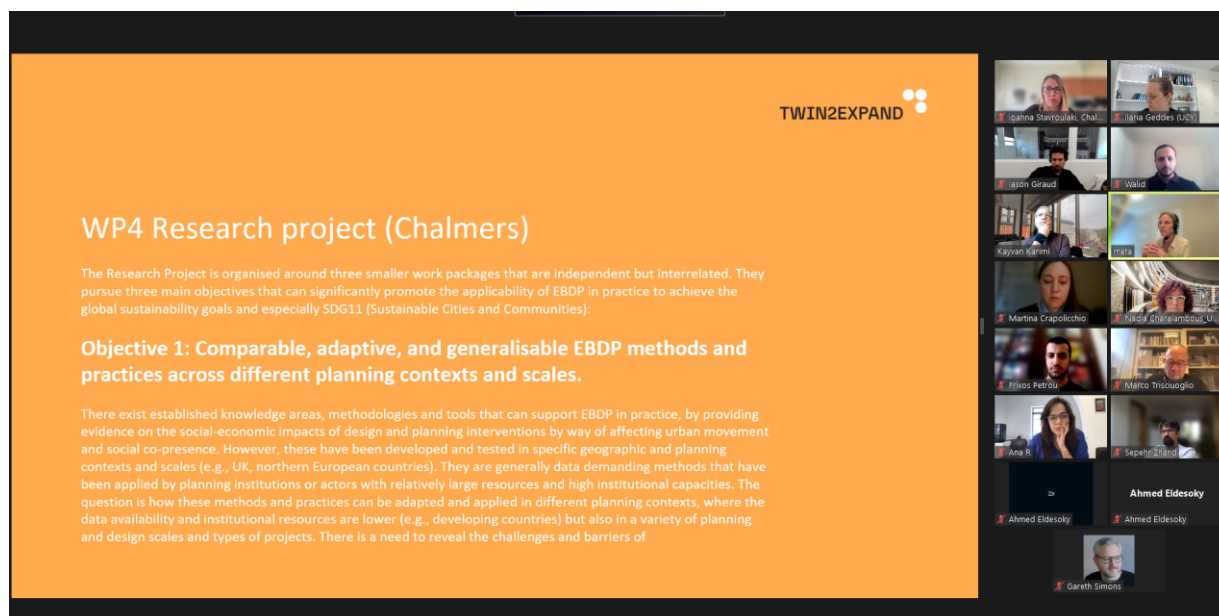
Working Group Studio B2 (WGS_B2) expanded on themes introduced and discussed during WGS_B1, as well as followed up on topics raised during WGS_C2 held in London in April 2024.

A description of the separate sessions follows. For the overall agenda, see Appendix 2.


1. Working Group Studio B 2- Day 1: Research project presentations

WGSB2 kicked-off with the presentation of the ongoing research activities included in WP4, that is the Research project: 'Expanding the application of Evidence-Based Design and Planning (EBDP) using comparative data models across different contexts'. The Research

project is led by Chalmers but is exemplified in three related 3 sub-projects led by UCY, UCL and Chalmers respectively.



The screenshot shows a Zoom meeting interface. On the left, a presentation slide is displayed with an orange background. The slide content is as follows:

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WP4 Research project (Chalmers)

The Research Project is organised around three smaller work packages that are independent but interrelated. They pursue three main objectives that can significantly promote the applicability of EBDP in practice to achieve the global sustainability goals and especially SDG11 (Sustainable Cities and Communities):

Objective 1: Comparable, adaptive, and generalisable EBDP methods and practices across different planning contexts and scales.

There exist established knowledge areas, methodologies and tools that can support EBDP in practice, by providing evidence on the social-economic impacts of design and planning interventions by way of affecting urban movement and social co-presence. However, these have been developed and tested in specific geographic and planning contexts and scales (e.g., UK, northern European countries). They are generally data demanding methods that have been applied by planning institutions or actors with relatively large resources and high institutional capacities. The question is how these methods and practices can be adapted and applied in different planning contexts, where the data availability and institutional resources are lower (e.g., developing countries) but also in a variety of planning and design scales and types of projects. There is a need to reveal the challenges and barriers of

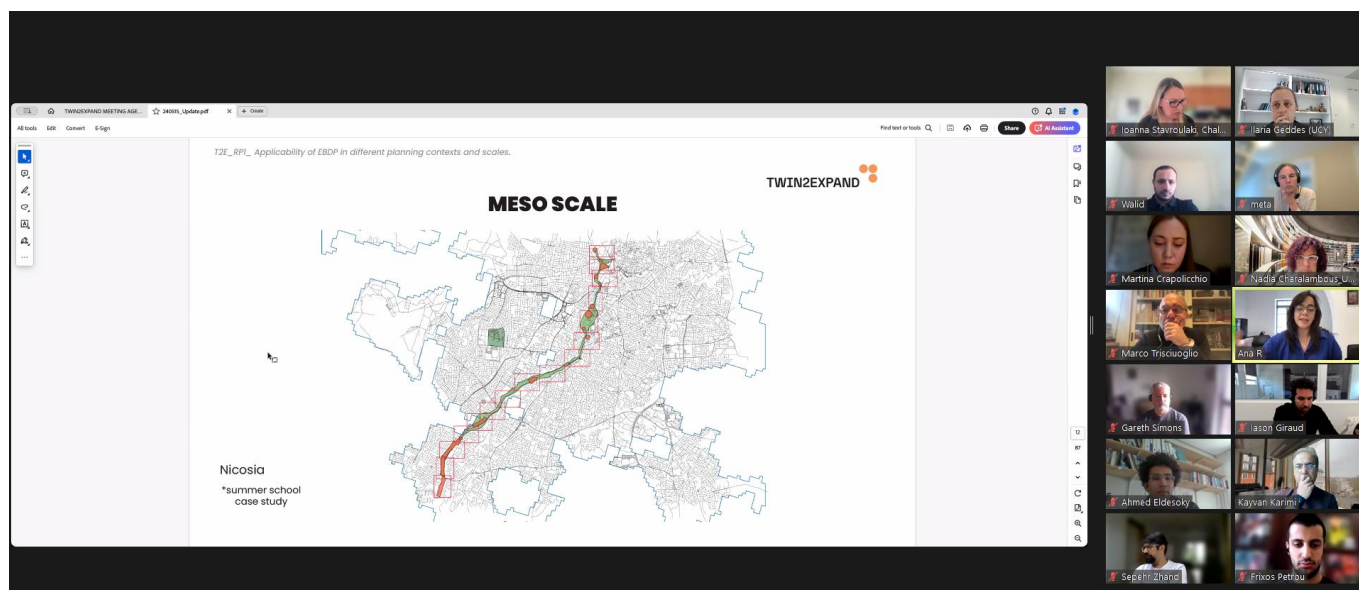
On the right side of the screenshot, a grid of 15 video thumbnails shows participants in the meeting. Visible names include: Ioanna Stavroulaki (Chal...), Ilana Geddes (UCY), Işılın Giraud, Walid, Kayvan Karimi, Maria, Martina Crapolechio, Nadejda Gerasimova (U...), Ezzos Petrou, Marco Triscoglio, Ana R., Sepehr Ziliani, Ahmed Eldesoky, and Gareth Simons.

1.1. Session A1 – Sub-project 01, led by UCY.

Ana Ricchiardi, post-doctoral researcher, presented the status of the sub-project 01 named ‘Applicability of EBDP in different planning contexts and scales’. The sub-project investigates the applicability of existing EBDP models in different geographic and planning contexts and design and planning projects of different scales (e.g., neighbourhood, district, city, region) of different data availability and data demand and of different institutional capacity. It is structured in several distinct stages:

1. Data Audit and Collection
2. Development of the Lightweight Model (LWM) for Cyprus, related RP_wp2
3. Development of a Complete Model
4. Model Testing Across Scales and Case Studies
5. Workflow re-definition and Adaptation

Ana presented the results of the completed tasks and informed the consortium about the progression of the ongoing ones. Lastly, she presented the next steps, including the delivery of the scientific publication (Deliverable 4.2).



The presentation was followed by a Q&A session and discussion among the partners.

1.2. Session A2 – Sub-project 02, led by UCL.

Following up on Session A1, UCL research fellows Gareth Simons and Sepehr Zhand presented the status of the interrelated sub-project named 'A Lightweight Modelling Approach for EBDP in the EU: Enhancing Replicability and Comparative Analysis', led by UCL. The sub-project investigates the accuracy of EBDP models in different situations of data availability comparing models that are data-intensive (complete models) and models that are less data-intensive (light-weight models) and was conducted in close collaboration with UCY's postdoctoral researcher Ana Ricciardi.


The researchers presented the results of the completed tasks including developed automated workflows based on Python that can be applied to all EU high-density urban clusters (700+) to develop lightweight data models (e.g. street network, buildings, population, greenery). Using the lightweight models developed for Cyprus and Gothenburg, different measures have been calculated, such as, land use accessibilities, population densities, access to greenery, urban morphological characteristic, street network centralities. The researchers also informed the consortium about the progress of the ongoing tasks, that is comparisons between city boundaries and different regions (London, Gothenburg, Madrid, Nicosia), and comparisons between lightweight models and location-specific models from previous studies in Gothenburg, Sweden, Nicosia, Cyprus, Madrid, London.

The session was followed by a discussion focusing on the collaboration of the 2 interrelated projects jointly pursuing Task4.2 of WP4.

Comparisons / validation strategies...

- The T2E research team is looking at ways to evaluate the performance of lightweight models to assess their potential
- We will be using three datasets for cross-checking utility
 - Gothenburg - Chalmers
 - Cyprus - UCY
 - Madrid - open large-scale municipal streets and landuses datasets
- Planning to compare:
 - Performance of centrality measures on minimally cleaned OSM, algorithmically cleaned OSM, and manually prepared networks
 - Tradeoffs in quality vs. time required for cleaning networks
 - Performance of OSM based landuse accessibilities against official higher quality landuse datasets
- ML models and clustering to reveal patterns and comparative analysis

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Ahmed Eldesoky
Ahmed Eldesoky

1.3. Session A3 – Sub-project 03, led by Chalmers.

Ahmed Eldesoky, post-doctoral researcher responsible for the sub-project related to WP4_Task4.3., in close collaboration with post-doctoral researchers from UCY, presented the status of the research activities. Task 4.3. aims to investigate and advance the relevance of EBDP methodologies to SDGs. Ahmed presented how this general aim has been exemplified to address an identified gap in EBDP methodologies; they focus almost solely on the socio-economic impacts of urban design and planning. The sub-project led by Chalmers aims to expand the conceptual and methodological framework of EBDP to include the socio-ecological impacts of urban development, especially important to tackle contemporary urban challenges within the current climate emergency that has multidimensional implications for humans and nature (e.g. biodiversity, human health and wellbeing).

Ahmed presented completed tasks, including:

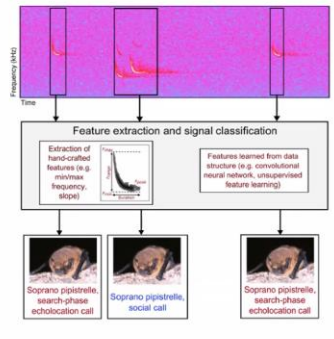
- the Conceptual framework to understand the connections and dynamic interactions between urban form, people and animals, adopting a stock-flow system dynamics modelling approach.
- A pilot study (data collection and analysis) at Campus Johanneberg (Chalmers) to explore the utility of combining low-cost acoustic sensing and machine learning (ML) for collecting empirical data about the presence and diversity of different animal species within cities.

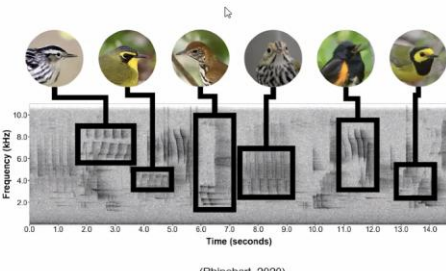
He then informed about the progress of the ongoing tasks:


- A large bioacoustics study in 30 locations in Gothenburg. The study and data collection started in April 2024 and will last until June 2024. More rounds of collecting data will follow.
- Big-data processing and analysis
- A webpage to inform the citizens about the species found in the different locations around Gothenburg, to build awareness and engagement
- Development of the integrated spatial (GIS) model
- Development of a typology of urban green spaces based on their patch geometric and configurational characteristics, and their location in terms of built density and centrality.

Finally, he presented different outputs and dissemination activities, including popular publications, interviews and podcasts to Swedish media raising awareness.

Advances in machine learning help to identify wildlife by their sound and hence study their presence and diversity

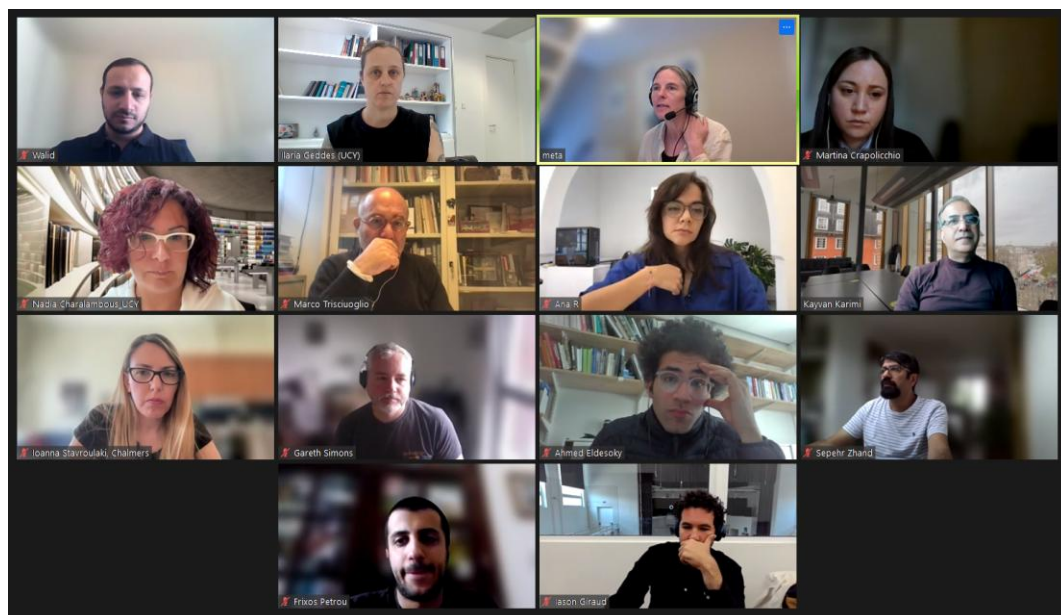






1.4. Session A4 - Closing discussion

The presentation of the 3 sub-projects that jointly pursue the aims of WP4 was followed by a group discussion focusing on two main objectives. First, the measures that are taken to enhance collaboration between the 3 sub-projects were discussed both in relation to the organisation (e.g. researchers' meetings, data syncing) and to content (e.g. lightweight models for Cyprus, lightweight models to support ecological analysis). Second, the issue of linking the outcomes of the research activities to other activities and products of T2E were discussed, especially in relation to the 2nd Virtual training and the 1st Summer school.



2. Working Group Studio B 1- Day 2: Building research excellence 01

The second day consisted of three sessions addressing key issues of building research capacity and excellence. The first focal point was integrated modelling and spatial analysis, where methodological advancements were presented by external guests and team members. This included discussions on a hybrid model coupling network model to ABM to predict pedestrian movement, a key target of EBDP, as well as a multimodal network model to integrate urban and public transport planning in spatial analysis and modelling.

The second session focused on research utilization, emphasizing its importance as a key indicator of research excellence. A seminar organized by the vice-head of research utilization at Chalmers and a member of the Chalmers Innovation office provided insights into this topic. The final session initiated the discussion on the topic of Policy Briefs, deliverable D4.4., hosting an expert from Frederick University, Nicosia.

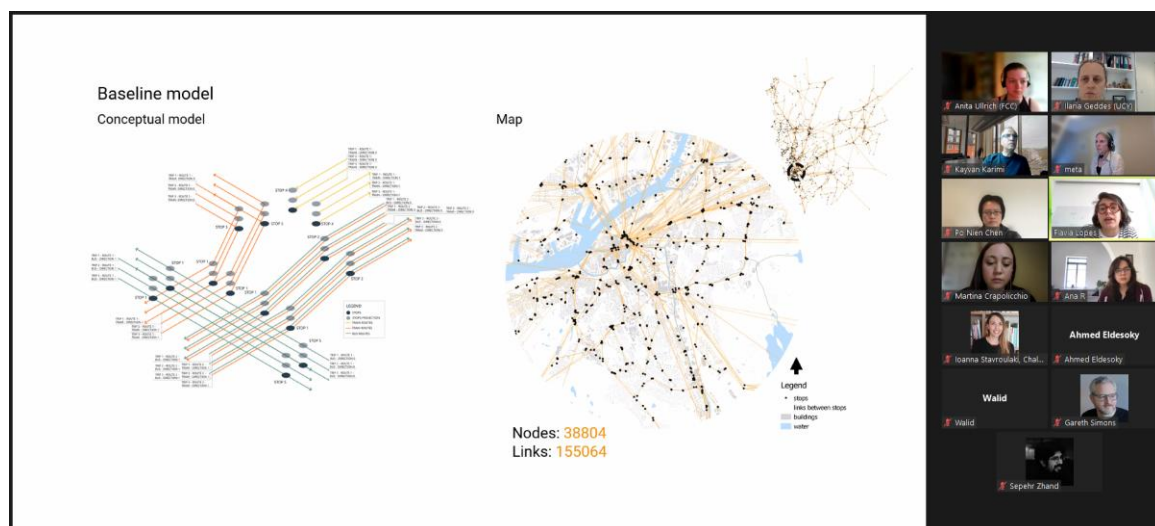
2.1. Session B1- Integrated data models.

Two presentations comprised the first session of the second day, focusing on integrated modelling, a cutting-edge topic of advanced spatial modelling and analysis that is of key importance to EBDP.

First, Ioanna Stavroulaki, team member, together with Anita Ullrich, PhD student from Fraunhofer-Chalmers Centre, presented a hybrid modelling workflow coupling a network model to an ABM (Agent Based Model) to predict pedestrian movement. Prediction of pedestrian movement in scenario analysis in different scales of urban design and planning is

one of the pillars of EBDP. However, such hybrid methodologies that can allow for seamless modelling of pedestrian movement throughout the scales, from aggregated flows to individual trajectories, are still scarce. The original research was presented to the consortium before its first publication in a scientific journal.

Second, Flavia Lopes, post-doctoral research at Chalmers, presented an original multimodal network model that aims to support integrated spatial planning, and more specifically integrated urban and public transport planning and decision-making. The model was developed as part of her post-doc and was presented in the WGSB2 before its first scientific publication. The inclusion of public transport modelling in EBDP is one of the key needs of researchers and practitioners currently working in the field.



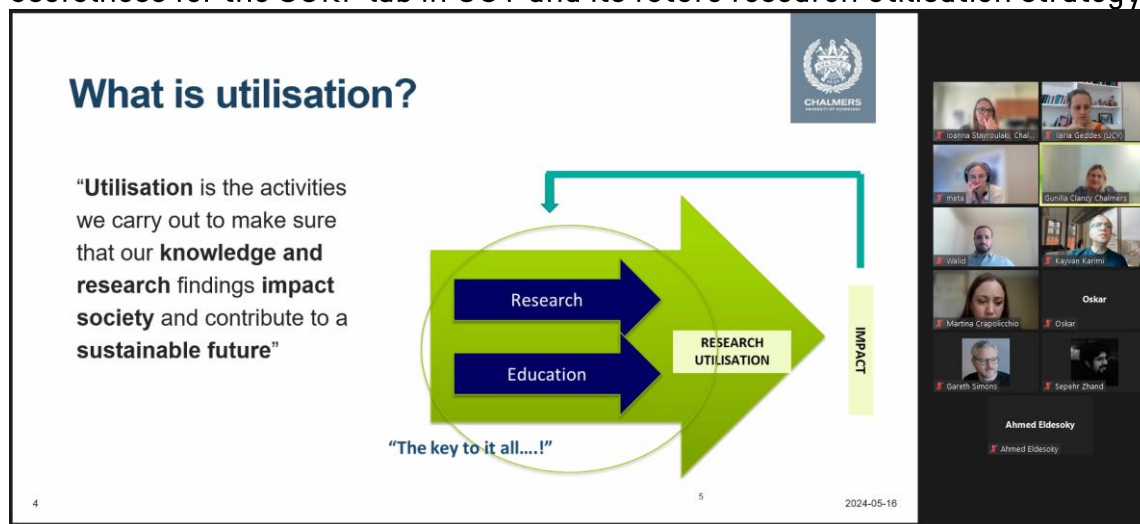
2.2.Session B2- Research Utilisation

Oskar Modin, Vice-head of the Department of Architecture and Civil engineering, together with Gunilla Clancy, expert from the Chalmers Innovation office, held a seminar on Research Utilisation. The first presentation introduced what is research utilization, what are the knowledge assets and why utilisation is important to achieve high societal impact. Then, Research utilisation strategies and outputs were presented, as well as methods to document and assess research utilisation products. Three different tools were demonstrated:

- IAI – Intellectual Assets Inventory
- Impact planning canvas
- Pitch – Max-Neef matrix

The seminar concluded with a joint discussion with the consortium regarding the stated and unstated research utilisation products and knowledge assets of T2E and ways to document and enhance their societal impact.

Apart from the important input concerning the T2E project, the seminar had a broader usefulness for the SURF lab in UCY and its future research utilisation strategy.



What is utilisation?

"Utilisation is the activities we carry out to make sure that our **knowledge and research** findings **impact society** and contribute to a **sustainable future**"

RESEARCH UTILISATION

IMPACT

Research

Education

"The key to it all...!"

CHALMERS UNIVERSITY OF TECHNOLOGY

4 5 2024-05-16

Zoom Meeting Participants:

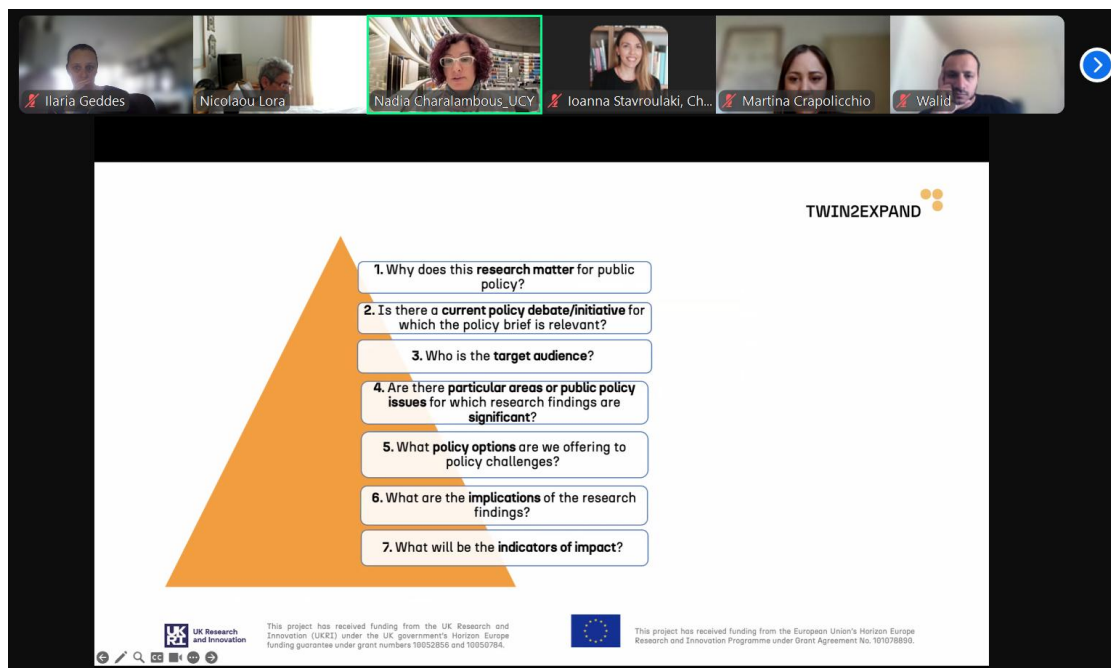
- Ioanna Stergiou, Chalmers
- Olivia Geodes (UCY)
- Prata
- Gunilla Clancy Chalmers
- Wald
- Kayvan Karimi
- Martina Crapolicchio
- Oskar
- Gareth Simons
- Sepehr Ziaid
- Ahmed Edesoky

2.3.Session B3- Policy Briefs

The T2E project leader, Nadia Charalampous (UCY) led the session on Policy Briefs. Together with Lora Nicolaou, an expert on the subject from Frederick University, Nicosia they introduced the topic to the rest of the consortium through concrete examples. Different types and formats of policy briefs were presented, specifying their aim and target audience.

Following the presentations, the team members brainstormed on the objectives, content and target audiences of the Policy Briefs that will be created within the T2E project and discussed on the best format support the T2E aims and objectives.

The discussion on Policy Briefs aimed to set a starting point and will be followed up on the next WGS, since Policy Briefs are key deliverables of WP4 (D4.4).



3. Working Group Studio B 1- Day 3: Building research excellence 02

The last day included a morning session dedicated to 'Transferring knowledge from research to EBDP practice' and an afternoon planning session. Also, Walid S. Abdeldayem, the new post-doctoral researcher at UCY shortly presented his research background and experience, as well as his first tasks within the T2E research project.

3.1. Session C1- EBDP in Practice

On the theme of transferring knowledge from research to practice, two presentations were organized discussing applications, good practices, and challenges. First, Joel Hernbäck, Urban designer from Spacescape, Stockholm, a leading consultancy firm from Sweden, presented their work in relation to EBDP. With expertise on spatial analysis and a long experience on consulting Swedish municipalities, Joel presented relevant and interesting urban development projects bridging between research and practice in concrete ways.

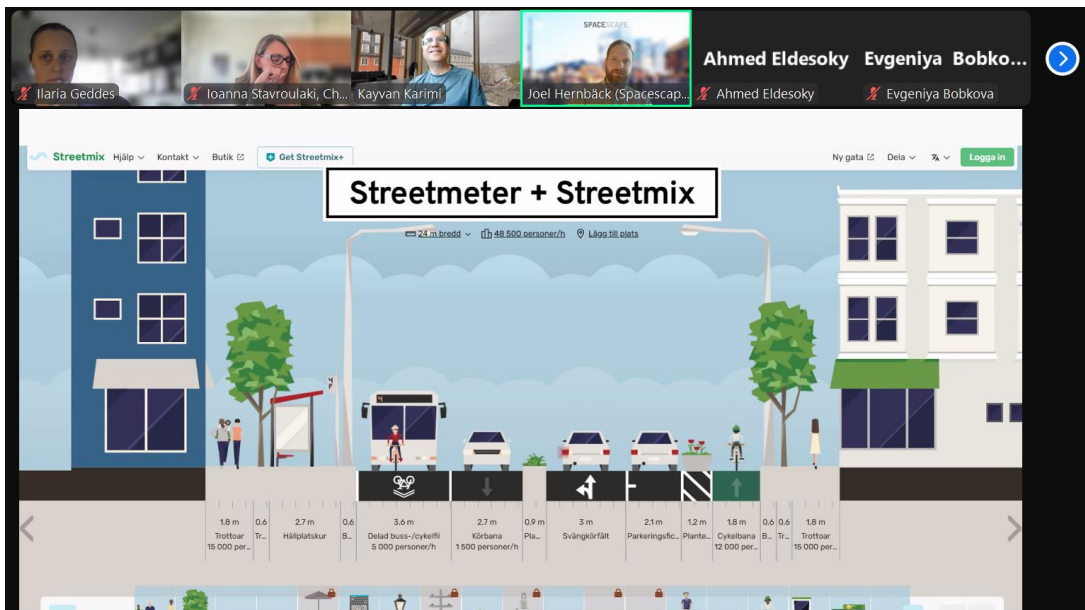


Healthy neighbourhoods

Steps per day

- 3000 - 3500
- 3500 - 4000
- 4000 - 4500
- 4500 - 5000
- 5000 - 5500
- 5500 - 6000
- 6000 - 6500
- 6500 - 7000
- 7000 - 7500

Hälsoläget (HSB, 2024)



Streetmeter + Streetmix

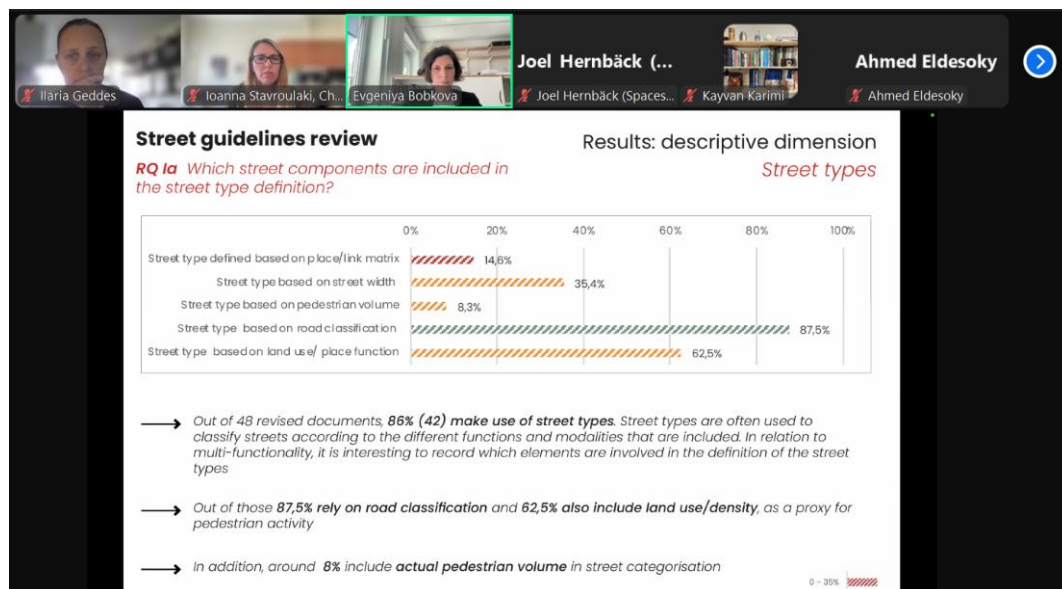
24 m bredd | 48 500 personer/h | Lägg till plats

1,8 m	0,6	2,7 m	0,6	3,6 m	2,7 m	0,9 m	3 m	2,1 m	1,2 m	1,8 m	0,6	0,6	1,8 m
Trottoar	Tr...	Hälsplatskur	B...	Delad buss-/cykelri	Körbana	Pla...	Svängkörfält	Parkeringsfsc...	Plante...	Cykelbana	B...	Tr...	Trottoar
15 000 per...				5 000 personer/h	1 500 personer/h					12 000 per...			15 000 per...

Joel's presentation was followed by Evgeniya Bobkova, post-doctoral researcher at Chalmers, who raised the issue of disciplinary conflicts between urban design and transport planning practice which hinder the application of EBDP in practice. Taking the example of street design practice, evidence from a systematic review of street design guidelines were presented, revealing gaps, lock-ins mechanisms and disciplinary conflicts between urban design and transport planning practice hindering research-informed and holistic street design. Evgeniya

shared her original research results as well as an outline of a prototype that can support holistic street design including the configurational and multiscale aspect on street design guidelines, before final publication in a scientific journal.

Both presentations raised interest and a lot of discussion for the partners.



3.2. Session C2 - Meet the post-doc

Walid S. Abdeldayem, the new post-doctoral researcher at UCY shortly presented his research background and experience, as well as his first tasks within the T2E research project. His upcoming placement at UCL and Chalmers in Autumn 2024 was also organised and the objectives and content of his training were decided.

Assessing the capability of the urban structure to face various states of flood risk

- New desert cities where facing challenges regarding **climate change**, where level of **hazard degrees** changed from low to high specially in flood risks.
- The ideas was to asses urban structure through an overlay between **flood simulation** data to **syntactic analysis** as well as the **land use plan**

Abdelkayem, Walid S., El-Khouly, Tamer. (2019). "A macroscopic view of water management of the new administrative capital city of Egypt, assessing the capability of the urban structure to face various states of flood risk" 12 Space Syntax Symposium, 439, Beijing, China

3.3. Session C3- planning ahead

The 3rd day concluded with an intensive collaborative session. The main purpose was to discuss the next steps of the T2E project, especially the 2nd Virtual training and the related 1st Summer school taking place on May and June 2024 respectively. In particular, the synching between the two in terms of participants and content was elaborated.

Another point on the agenda was the organization of the collaborative writing of the Interim report and the related presentation.

Finally, the preregistration of the research project was discussed, and final decisions were made.

4. Social activities and informal networking meetings

WGSB2 was fully online and therefore no social activities were included.

Appendix 1.

A. Project participants

A1. Chalmers. Spatial Morphology Group (SMoG), Division of Urban Design and Planning

Meta Berghauer Pont, Professor (leader of WP4)

Ioanna Stavroulaki, Associate professor

Ahmed Hazem Eldesoky, Post-doctoral researcher

A2. University of Cyprus (UCY). Society and Urban Form research lab (SURF)

Nadia Charalambous, Project coordinator, Associate professor

Ilaria Gedded, Senior researcher

Iason Giraud, PhD candidate

Ana Maria Ricchiardi Hernandez, Post-doctoral researcher

Walid S. Abdeldayem, Post-doctoral researcher

Frixos Petrou, MSc student

A3. UCL. Bartlett school of Architecture. Space Syntax Lab.

Kayvan Karimi, Professor (leader of WP3), director of Space Syntax Limited

Gareth Simons, Research fellow

Sepehr Zhang, Research fellow

A4. Politecnico di Torino (PoliTo)

Marco Trisciuglio, Professor

Martina Crapolicchio, Research fellow

B. Guest presenters

Oscar Modin, Vice-head of Research Utilisation, Department of Arch. and Civil Eng., Chalmers

Gunilla Clancy, Innovation Office, Chalmers

Joel Hernbäck, Urban Designer, Spacescape Stockholm

Flavia Lopes, Post-doctoral researcher, Chalmers, Sweden

Evgeniya Bobkova, Post-doctoral researcher, Chalmers, Sweden

Anita Ullrich, PhD student, Fraunhofer-Chalmers Centre

Lora Nicolaou, Architect, Professor Frederick University, Nicosia

Appendix 2.

WED May 15th		
10:00-10:30 CET	WGS B: BUILDING RESEARCH EXCELLENCE Opening session > Scope and aim of WGSb > Agenda	Meta Berghauser Pont Gianna Stavroulaki
10.30-12:00 CET	Research project _ UCY > Progress > Next steps > Plan for Scientific paper _ D4.2.a_M28	Presentations by UCY: Ana Maria Ricchiardi Hernandez Nadia Charalambous Ilaria Geddes Group Discussion
12.00-13.15 CET	<i>Lunch break</i>	
13.15-14.30 CET	Research project _ UCL > Progress > Next steps > Plan for Scientific paper _ D4.2.b_M28	Presentations by UCL: Gareth Simons Sepehr Zhand Kayvan Karimi Group Discussion
14.30-15.45 CET	Research project _ CHALMERS > Progress > Next steps > Plan for Scientific paper _ D4.2.c_M28	Presentation by CHALMERS: Ahmed Eldesoky Meta Berghauser Pont Group Discussion
15.45-16.00 CET	<i>Coffee break</i>	
16.00-16.30 CET	> Collaboration of UCY-UCL-CHALMERS projects (Application of light-weight models, data sync, include green in light weight-models etc) > Linking the projects to other T2E activities and products	Group Discussion
THU May 16th		
10:00-12:00 CET	'Developing Integrated network models' > Session introduction > 01. A hybrid model coupling network model to ABM to predict pedestrian movement. > 02. Multimodal network model to integrate urban and public transport planning	Presentations by: Franziska Hunger/ Anita Ullrich <i>Fraunhofer-Chalmers Centre</i> Gianna Stavroulaki <i>SMoG, Chalmers</i> Flavia Lopez <i>SMoG, Chalmers</i>
12.00-13.15 CET	<i>Lunch break</i>	

13.15-15.00 CET	<p>'Research utilisation'</p> <ul style="list-style-type: none"> > Session introduction > Research utilisation seminar: What is research utilisation and why is it important? Utilisation strategies and outputs Documentation and assessment Scientific and societal relevance <p>Stated and unstated utilisation products of T2E</p>	<p>Presentations by: Oscar Modin <i>Vice-head for research utilization, ACE</i></p> <p>Guest presenter tba <i>Chalmers Innovation Office</i></p> <p>Group Discussion</p>
15.00-15.15 CET	<i>Coffee break</i>	
15.15-16.30 CET	<p>Policy briefs</p> <ul style="list-style-type: none"> > Aim and scope. Target users > Content 	<p>Session led by: Nadia Charalambous UCY</p>
FRI May 17th	WGS B: BUILDING RESEARCH EXCELLENCE	
10:00-12:00 CET	<p>'Transferring knowledge from research to EBDP practice. Potentials and challenges'</p> <ul style="list-style-type: none"> >Session introduction >Using research and spatial analysis to inform urban design and planning projects. Experience from Spacescape, Stockholm. >Evidence from a systematic review of street design guidelines. Gaps, lock-ins and disciplinary conflicts to applying holistic street design in practice. 	<p>Presentations by: Joel Hernbäck <i>Spacescape</i></p> <p>Evgeniya Bobkova <i>SMoG, Chalmers</i></p>
12.00-13.15 CET	<i>Lunch break</i>	
13:15-13:40 CET	<ul style="list-style-type: none"> > Meet the post-doc 03 Research background, role and responsibilities in T2E 	<p>Presentation by: Walid Samir Abdeldayem</p>
13.40-14.40	<p>Planning session:</p> <p>Finalising coming activities:</p> <ul style="list-style-type: none"> > Preregistration > Virtual training B and Summer school > Interim report <p>Planning for 2025 Summary and final remarks</p>	<p>Session led by: Nadia Charalambous UCY</p>
<p>For questions, contact: gianna.stavroulaki@chalmers.se, 0046729626830, 00306974876231</p> <p>Zoom link: https://chalmers.zoom.us/j/61346267381</p>		