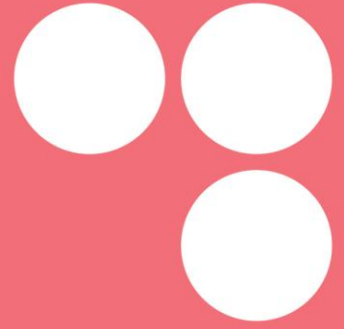


TWIN2EXPAND



# Working Group Studio – B1

**WORKING GROUP STUDIO B- Research Excellence**  
**07.06.2023 - 09.06.2023**  
**GOTHENBURG, SWEDEN & ONLINE**

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 Working Group Studio B (WGSB) in June 2023, online and onsite at the SMOG lab, in the Department of Architecture Department of Architecture and Civil Engineering (SB I), of the Chalmers University of Technology.  
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Version	Date	Summary of changes	Initials	Changes marked
1				
2				

## Working Group Studio B – introduction

WGS B - research excellence (Chalmers); these activities will focus on the project's scientific impact and raising the research profile of UCY and its staff. These studios will 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 1:

WGS B1 took place at Chalmers in Gothenburg, Sweden, on 7-9 June 2023 (WGSB1). 18 people participated in WGSB1 and 3 more attended the sessions. 8 team members from all partners participated in person and 6 online. 7 external participants presented in person, of which 3 (43%) were from academia, 3 (43%) from the private sector and 1 (14%) from the public 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). See the overall agenda in Appendix 2.

### 1. Working Group Studio B 1- Day 1: Building Research Excellence

WGSB1 kicked-off with the presentation of the Spatial Morphology Group (SMoG) at Chalmers. The consortium was introduced to the research practices and background of the SMoG and the International Spatial Morphology Lab (SMoL). Research and teaching activities relevant to EBDP were presented and similarities to the SURF lab as well as knowledge exchange potentials were identified. Research infrastructure including data management plans, integrated data models and FAIR principles was also in focus during the first day.

## 1.1. Session A1 – SMOG- SURF lab. Similarities- differences

Meta Berghauer Pont<sup>1</sup>, Professor in Urban morphology and Urban design and leader of the Spatial Morphology Group (SMoG) at Chalmers University of Technology led the 1<sup>st</sup> session. The SMOG is an international research group based at Chalmers, Department of Architecture and Civil Engineering, Division of Urban design and planning. It was founded in 2015 by Meta Berghauer Pont (MBP) and Lars Marcus. MBP presented the development of the group during the last 8 years, its research strategy and activities, its research priorities regarding funding, infrastructure, publications, recruitments, outreach to practice and so on. She also highlighted the challenges a new research group faces. The purpose was to outline similarities to the newly founded SURF lab and provide guidance and good practices, transferring knowledge and experiences from the SMOG. The session attended other members of the SMOG giving the opportunity to network with other project participants from UCY, UCL and PoliTo.



## 1.2. Session A2- SMoL- International Spatial Morphology Lab. Research framework

Meta Berghauer Pont together with Ioanna Stavroulaki, Associate professor and member of the SMOG, presented the International Spatial Morphology Lab (SMoL), a kick-off 3-year research project that introduced and solidified the group in the international scientific community.

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<sup>1</sup> Leader of T2E\_WP4.

First, the theoretical & methodological background of the project was described, linking urban morphology to space syntax in an international comparative study of urban form. Then the different published studies within the project were presented including comparative morphological studies, but also large-scale empirical studies linking urban form to socioeconomic processes, such as pedestrian flows and economic activity. The project case studies consisted of three European capitals (Amsterdam, the Netherlands; London, UK; and Stockholm, Sweden) as well as two more Swedish cities of different sizes (Gothenburg and Eskilstuna). Further, a large-scale collection of real-world data on pedestrian movement, focusing on its methodology, results, but also potentials and challenges, was presented. Then the methodological developments that were the result of the SMOl were highlighted, leading to many spin-off projects that got funded, enabling the viability of the research group and enriching its research agenda. Another session was dedicated to the development of new tools that also resulted from the SMOl, as for example the new version of the analytic software Place Syntax Tool (PST)<sup>2</sup> and the design-oriented software Urban Calculator<sup>3</sup>. Lastly the strategy of the SMOl regarding data models and data outputs and publications was presented.

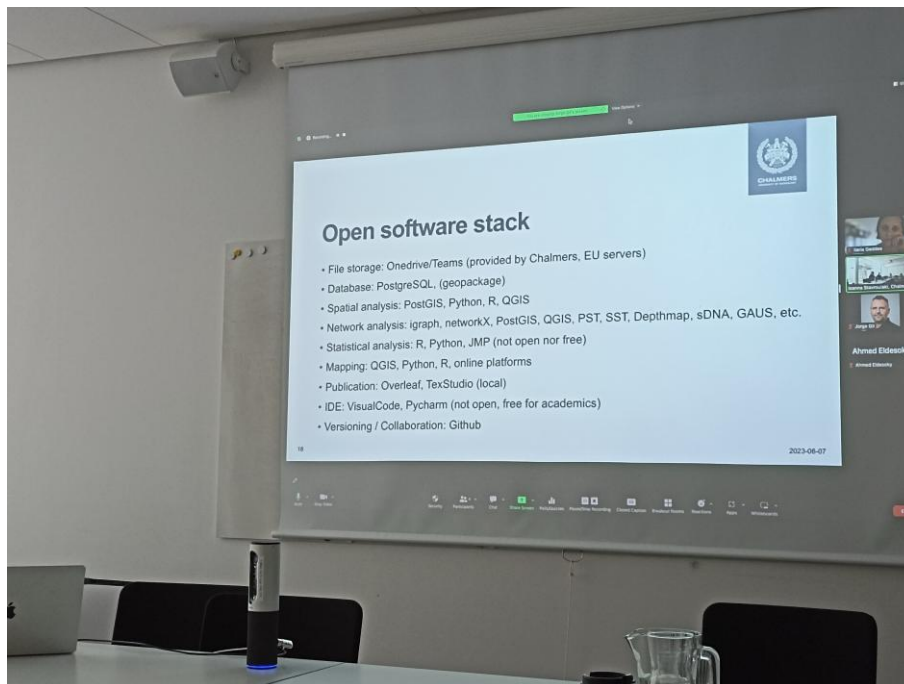
### 1.3. Session A3- Integrated data models, data management and infrastructure

Jorge Gil, Associate professor of Urban analytics and Head of the Urban design and planning division and member of the SMOG led the session on Integrated data models, data management and infrastructure. A general overview was presented, as well as best practices, such as the FAIR principles. Open science strategies regarding data were also in focus, including for example open science platforms and data repositories that are available and recognised by the scientific community. This session had a direct input for the T2E project and in specific for finalising the Data Management Plan.

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<sup>2</sup> PST is a tool for spatial analysis developed by SMOG, KTH, Spacescape. PST is a plugin to QGIS (<https://smog.chalmers.se/projects/pst-plugin-for-qgis/>)

<sup>3</sup> <https://urbancalculator.se>



#### 1.4. Session A4- Twin2Expand. Outline of Research Framework

The last session of the Day 1 was a collaborative project planning session. It was led by the T2E project coordinator Nadia Charalambous, Associate professor at UCY. Together with the project participants from UCL, namely Kayvan Karimi<sup>4</sup>, professor of Urban analytics and spatial design at the Space Syntax laboratory of the Bartlett School of Architecture and director of Space Syntax Limited, and researchers dr. Sepehr Zhang and dr. Gareth Simons, from the same group, outlined the T2E Research Framework, a key deliverable of the project.

## 2. Working Group Studio B 1- Day 2: EBDP in education and Practice

The second day discussed the introduction of EBDP in education and practice. A session including practitioners from the private and public sector focused on the role and applications of EBDP in current Swedish planning practice, highlighting the potentials and challenges of including spatial analysis in the decision making and design process. The session also included a presentation of digital tools for spatial analysis, including user-friendly and design-oriented tools that can facilitate the inclusion of spatial analysis in everyday design practice.

A separate session focused on EBDP in education discussing different ways to teach EBDP in a School of Architecture and bridge research to education and practice, where learnings from

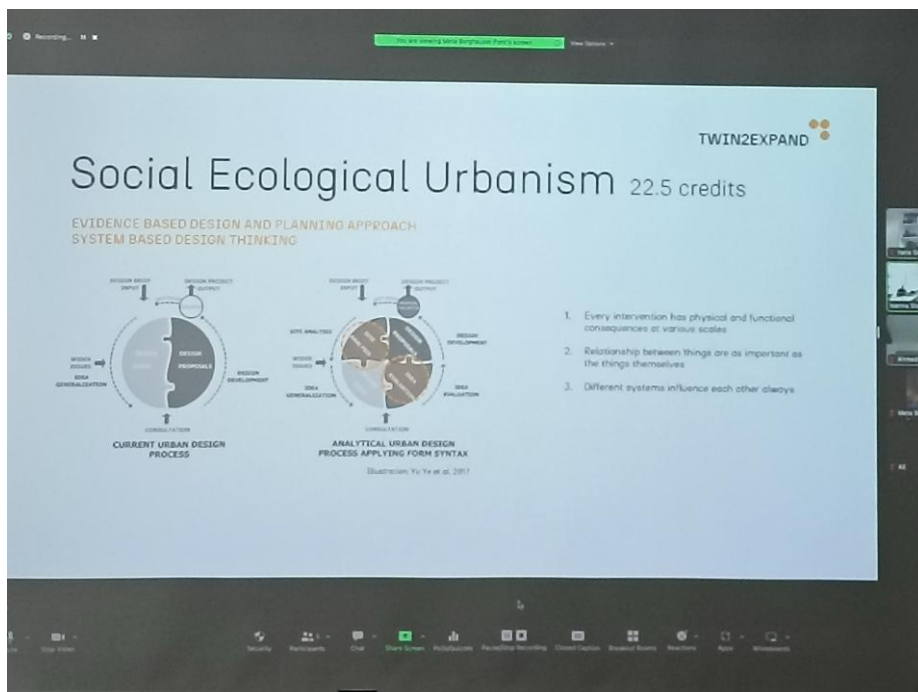
<sup>4</sup> Kayvan Karimi is the leader of T2E, WP3.

an EBDP master studio at Chalmers and a program of professional education in Swedish municipalities were presented.

## 2.1. Session B1- EBDP in education.

### 2.1.1. Social Ecological Urbanism studio

Meta Berghauer Pont introduced an EBDP design studio, named Social-Ecological Urbanism studio, that is conducted by the SMOG and is part of the two Master programs of the Department of Architecture at Chalmers. She highlighted the challenges and potentials of introducing EBDP in an urban design studio, and specifically of introducing spatial analysis methodologies within the creative design process. The structure and content of the studio were presented, as well as examples from the students' projects. The key learnings and best practices from this studio were also outlined. The Social-Ecological Urbanism studio served as an example to initiate the discussion of how to introduce EBDP in the curriculum of Architectural and Urban design education. It also exemplified how a research group can transfer knowledge from research to teaching and so effectively influence future practitioners, in this case in practicing EBDP and employing spatial analysis as an integral part of the design process.



## 2.2. Session B2- EBDP in Practice 01

Two sessions were dedicated to the application of EBDP in practice, showcasing different ways to pursue this goal.

The first session focused on tool development presenting spatial analysis tools developed by SMOG that facilitate the application of EBDP in practice. Ioanna Stavroulaki presented the development of Place Syntax Tool (PST)<sup>5</sup>, a spatial analysis software that is being developed by SMOG and partners from KTH Stockholm, and already has a wide international user base from researchers and GIS specialists. Among others, PST is used by spatial planning offices in Swedish municipalities (e.g. Gothenburg, Stockholm, Norrköping) to analyze and assess urban development projects.

Evgeniya Bobkova, post-doctoral researcher and CEO of Urban Calculator presented a design-oriented standalone software based on PST but tailored for urban designers and planners. Urban Calculator is a user-friendly version of PST that does not require prior knowledge of GIS and can be easily integrated in the design process. It is currently used by Swedish municipalities (e.g. Norrköping, Helsingborg, Gothenburg) and Universities (e.g. Breda University, Chalmers university) in teaching urban design studios.

Finally, Meta Berghauer Pont presented the interactive interface Smart Density<sup>6</sup> that synthesizes results of 229 empirical studies on the positive and negative socioeconomic and environmental effects of densification. 'Smart Density' served as an example of transferring findings from research to practice by synthesizing and building an evidence base that covers, as broadly as possible, the relevant links between density and environmental, social, and economic outcomes.

## 2.3. Session B3- EBDP in Practice 02

The second session of 'EDBP in practice' focused on the role of spatial analysis and EBDP for municipal planning practice and on the role of professional education. The session included practitioners from the private (Ramboll) and public sector (Gothenburg municipality) focusing on applications of EBDP in current Swedish planning practice, highlighting the potentials and challenges of including spatial analysis in the decision making and design process.

First, Job van Eldijk, urban planner at Ramboll, one of the largest global architecture, engineering and consultancy companies, and post-doctoral researcher at SMOG, presented the experience of applying EBDP on a key urban development and infrastructure project in Linköping, Sweden. He presented how evidence from spatial analysis formed a common base

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<sup>5</sup> PST is a tool for spatial analysis developed by SMOG, KTH, Spacescape. PST is a plugin to QGIS (<https://smog.chalmers.se/projects/pst-plugin-for-qgis/>)

<sup>6</sup> <https://smog.chalmers.se/projects/smart-density/>

for discussion between the different planning actors, namely Linköping municipality and the Swedish national transport authority, that were pursuing conflicting objectives. He showcased how EBDP processes led to reaching consensus on a longstanding conflict that had hindered the completion of the project for years.

Second, Shraddha Kapri, urban planner from the spatial planning office of Gothenburg municipality, shared her experiences from using spatial analysis during her work with municipal urban development projects in different scales, from the comprehensive and strategic to the detailed planning. Via different examples she showcased how evidence from spatial analysis facilitated and guided decision making in different planning and design stages. Malin Klarqvist, GIS specialist at Gothenburg municipality, also joined the session commenting on the applicability of EBDP related to her role as GIS specialist, for instance in relation to data management.



Finally, Ann Legeby, Professor in Applied Urban Design at KTH Royal Institute of Technology in Stockholm, presented several projects bridging research to practice, especially focusing on segregation, one of the main contemporary urban challenges in Sweden and internationally. She also presented STIP, a program of professional education focusing on spatial analysis and EBDP, that has been offered to numerous Swedish municipalities (e.g. Stockholm, Gothenburg, Eskilstuna, Norrköping). Shraddha Kapri also shared her experience from attending this program of professional education (STIP) related to spatial analysis.



## 2.4. Session B4- Data management

The second collaborative project planning session of WGS B1 concluded the second day, focusing on Data management practices within the T2E project. The session was led by UCY, namely Ilaria Geddes, Research fellow at UCY. One of the aims was to discuss the Data Management Plan, one of the main deliverables of the project.

## 3. Working Group Studio B 1- Day 3: Twin 2 Expand Research projects

The third day of WGS B1 outlined the research project of the T2E, the main content of WP4. The two main directions were outlined.

### 3.1. Session C1- Research project 01: Comparative research and data models

In the first session, the project coordinator and leader of the UCY team Nadia Charalambous presented the first direction and objective of the research project, that is to test the applicability of Evidence-based Design and Planning (EBDP) in different planning contexts and scales. She described the research focus on creating comparable, adaptive, and generalizable methods for EBDP and to enhance the effectiveness of EBDP by addressing the challenges posed by diverse geographic and institutional contexts, particularly within Cyprus. Nadia Charalambous also presented the post-doctoral researcher recruited by UCY to contribute to the research activities, Ana Maria Ricchiardi Hernandez. Ana then presented herself, her research background, and her aspirations of working with the T2E project.



### 3.2. Session C2- Social- ecological urbanism: Theoretical and methodological background

The second session was led by Meta Berghauer Pont, and aimed to introduce the consortium to the Social-Ecological Urbanism (SEU) framework. The SEU is a conceptual framework that extends the urban descriptions and analyses to include, in combination, the built environment with the green and blue infrastructures, and considers the urban green (and blue) as an integral part of the built environment. To present the theoretical and methodological background of the SEU, Åsa Gren, Associate professor in the University of Gävle, Sweden and the Stockholm Resilience centre was invited. She is one of the main researchers who introduced the SEU framework and has a broad experience in working with urban ecosystem services and the social-ecological impacts of urban development, such as climate change and adaptation, urban health and biodiversity.

### 3.3. Session C3- Research project 02

Building on the content and discussions of Session 3.2., Meta Berghauer Pont outlined the second research direction of the project in relation to the SEU framework, which is to extend the conceptual framework of EBDP to address besides the social-economic impacts, also

social-ecological impacts of planning and design interventions. The project addresses a current gap in spatial analysis for EBDP that mainly focuses on social-economic phenomena such as pedestrian flows, segregation, or the distribution and development of economic activities. The research direction outlined by MBP aims to develop beyond the state-of-the-art knowledge to explore the relationship between urban form and various social-ecological phenomena in cities, such as biodiversity, under and in response to climate emergency. In the last part of the session, the post-doctoral researcher Ahmed Hazem Eldesoky, recruited by Chalmers to contribute to the research activities was also introduced. Ahmed presented himself, his research background and his aspirations of working with the T2E project.

### 3.4. Session C4- planning ahead

The 3<sup>rd</sup> day concluded with an intensive collaborative session. The main purpose was to discuss the potential case studies of the research project. Further, the next steps of the T2E project were outlined. The partners of the consortium planned for 2024-2025, set a tentative schedule of the main activities, discussed the immediate deliverables, and clarified roles and responsibilities.

### 3.5. Session C5 Closing discussion, Summary of WGS B1

The TWIN2EXPAND partners from the consortium met in Chalmers, in Gothenburg, for the working studio B\_01 (WGSB1) on research excellence. The group's activities focused on the project's scientific impact and examined examples and cases from both academic research and practice on how Evidence-Based Design and Planning (EBDP) can be applied in this context. The WGSB brought together experts, researchers, and professionals from various strands of EBDP, such as design theory, spatial analysis, spatial planning, urban analytics, integrated urban modeling, urban design, and sustainable development.

The main objective of the WGS B1 was to establish a unified conceptual framework of EBDP, open avenues for methodological development and inform the project's research activities, that will produce the scientific outputs, such as papers, conceptual model, and comparative evidence.

During the 3-days event, the consortium was introduced to the research practices and background of the Spatial Morphology Group (SMoG) and the International Spatial Morphology Lab (SMoL). The groups' representatives, Meta Berghauer Pont, Ioanna Stavroulaki and Jorge Gil also hosted informative sessions about integrated data models, data management and FAIR principles.

The working group comprised two main themes: how EBDP is applied in education and how EBDP is applied in practice, with presentations from academia, the Social-Ecological Urbanism Studio and from practice with tools that have been developed such as Place Syntax Tool (PST) and Urban Calculator. The group explored how EBDP is applied in practice and how municipal planning can improve decision-making capacities by examining specific case studies. The

WGSB1 concluded with an intensive collaborative session, where the case studies of the research project were discussed, and the research framework was outlined.

## 4. Social activities and informal networking meetings

During the 3-day WGS B1, the partners of the consortium had the chance to meet with other researchers from the Spatial Morphology Group, the division of Urban Design and Planning at Chalmers and research from other universities in Sweden. They interacted more informally during lunch time and coffee breaks. The team also enjoyed a walk and dinner around Gothenburg and benefited from the northern long days, good weather and masterfully designed urban landscape.



## Appendix 1.

### A. Project participants

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

Meta Berghauser Pont, Professor (leader of WP4)

Ioanna Stavroulaki, Associate professor

Ahmed Hazem Eldesoky, Post-doctoral researcher (online)

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

Nadia Charalambous, Project coordinator, Associate professor

Ilaria Gedded, Senior researcher (online)

Iason Giraud, PhD candidate

Ana Maria Ricchiardi Hernandez, Post-doctoral researcher (online)

**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 (online)

**A4. Politecnico di Torino (PoliTo)**

Marco Trisciuglio, Professor

Riccardo Biondi, PhD candidate

**B. Guest presenters**

Ann Legeby, Professor, KTH, Sweden

Åsa Gren, Associate professor, University of Gävle, Sweden and Stockholm Resilience centre

Evgeniya Bobkova, CEO of Urban Calculator, post-doctoral researcher

Job van Eldijk, Urban planner, Ramboll, Sweden

Jorge Gil, Head of Division of Urban design and planning, Associate professor, Chalmers

Shradda Kapri, Urban planner. Gothenburg municipality, Urban planning office, Sweden

## Appendix 2.

<b>WED June 7<sup>th</sup></b>		
<b>WGS B: BUILDING RESEARCH EXCELLENCE</b>		
10:00-12:30 CET	> Opening-Introductions  SMOG (Spatial Morphology Group) > SMOG – SURF lab. Similarities-Differences	<i>Session led by</i> Meta Berghauser Pont <i>Presentations by</i> Meta Berghauser Pont Discussion
12.30-13.45 CET	<i>Lunch break</i>	
13.45-15:00 CET	SMOl – International Spatial Morphology Lab. Research framework > Theoretical & methodological background. > Morphological and empirical studies > Methodological developments > Spin off projects and tools > SMOl data models	<i>Session led by</i> Ioanna Stavroulaki <i>Presentations by</i> Meta Berghauser Pont /Ioanna Stavroulaki Discussion
15.00-15.20 CET	<i>Swedish fika break</i>	
15.20-16.10 CET	> Integrated data models, data management and infrastructure	<i>Session led by</i> Ioanna Stavroulaki <i>Presentation by</i> Jorge Gil Discussion
16.10-18.00 CET	> Twin2Expand. Outline of Research framework	<i>Session led by</i> Nadia Charalambous <i>Presentation by</i> UCL (Kayvan Karimi / Gareth Simons) Group discussion
19.15 CET	<i>Dinner</i>	
<b>THU June 8<sup>th</sup></b>		
<b>EBDP in Education and Practice</b>		
10:00-12:00 CET	EBDP in Education: > Social Ecological Urbanism studio > EPDB in the curriculum	<i>Session led by</i> Meta Berghauser Pont Presentation by Meta Berghauser Pont Discussion
12.00-13.15 CET	<i>Lunch break</i>	
13.15-14.00 CET	EBDB in Practice: Tool development: > Place Syntax Tool (PST). New developments > Design oriented tools (Urban Calculator, Smart density)	<i>Session led by</i> Ioanna Stavroulaki Presentations by Ioanna Stavroulaki / Evgeniya Bobkova Discussion
14.00-15.30 CET	EPDB in Practice: > The role of spatial analysis and EPDB for municipal planning practice. Collaborations, experiences, input > The role of professional education	<i>Session led by</i> Meta Berghauser Pont Presentations by Job van Eldijk / Ann Legeby /

		Shradda Kapri Discussion
15.30-16.00 CET	<i>Swedish fika break</i>	
16.00-17.00 CET	> Data management	<i>Group discussion led by Iason Giraud</i>
<b>FRI June 9<sup>th</sup></b>	<b>TWIN 2 EXPAND Research projects</b>	
10:00-12:30 CET	Research project 01. Comparative research and data models > Outline of research project 01. > Meet the post doc 1.	<i>Session led by Nadia Charalambous Presentations by Nadia Charalambous / Ana Maria Ricchiardi Hernandez Group discussion</i>
12.30-13.45 CET	<i>Lunch break</i>	
13.45-14.15 CET	Social-ecological Urbanism. Theoretical and methodological background	<i>Session led by Meta Berghauser Pont Presentation by Åsa Gren</i>
14.15-14.45 CET	Research project 02. > Outline of research project 01. > Meet the post doc 2.	<i>Session led by Meta Berghauser Pont Presentations by Meta Berghauser Pont / Ahmed Hazem Eldesoky Group discussion</i>
14.45-15.15 CET	<i>Swedish fika break</i>	
15.15-16.15 CET	Planning ahead > Next steps. Immediate deliverables > Clarify roles	<i>Session led by Nadia Charalambous Group discussion</i>
16.15-17.00 CET	Closing discussion. Summary of WGS b Outline of WGS c	Meta Berghauser Pont / Kayvan Karimi, Gareth Simons Group discussion
	<i>Optional activity tba</i>	