

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



# ADVANCING SUSTAINABLE URBAN DEVELOPMENT THROUGH EVIDENCE-BASED DESIGN AND PLANNING

TWIN2EXPAND

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SUSTAINABLE  
URBAN  
DEVELOPMENT  
THROUGH  
EVIDENCE-BASED  
DESIGN  
AND  
PLANNING



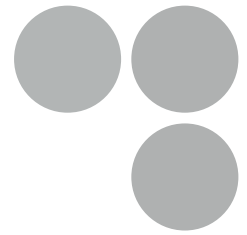
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# THE TWIN2EXPAND PROJECT



## **Twinning towards research excellence in Evidence-Based Design and Planning (EBDP).**

TWIN2EXPAND is a Horizon Europe twinning project designed to strengthen the University of Cyprus's research capacity in Evidence-Based Design and Planning. It advances a more systematic use of data, spatial modelling, and scientific evidence in urban decision-making. The project positions Cyprus as a strategic context for developing and testing EBDP methods. The island's rapid urbanisation, climatic vulnerabilities, and evolving governance frameworks create conditions where robust analytical tools and evidence-informed planning can have timely policy relevance. Through collaboration with leading European institutions, TWIN2EXPAND builds the competencies, networks, and research excellence needed to support more transparent, informed and accountable urban planning processes.

**Duration:** 3 Years (January 2023 – December 2025)

**Coordinator:** University of Cyprus (UCY) – Society and Urban Form (SURF) Research Lab

### **Consortium Partners:**

University College London (UCL), UK  
Chalmers University of Technology, Sweden  
Polytechnic University of Turin (Politecnico di Torino), Italy  
Space Syntax Limited, UK

This project has received funding from the European Union's Horizon Europe Research and Innovation Programme under Grant Agreement No. 101078890 and from the UK Research and Innovation (UKRI) under the UK government's Horizon Europe funding guarantee under grant numbers 10052856 and 10050784.

TWIN2EXPAND

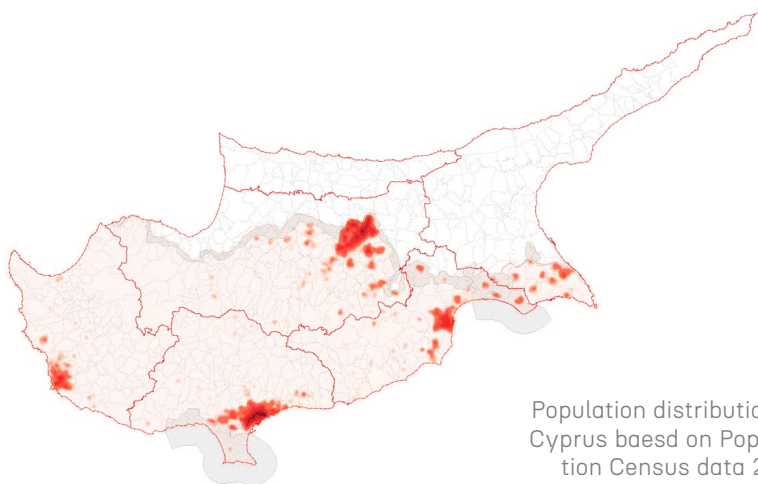


# THE CHALLENGES WE ADDRESS

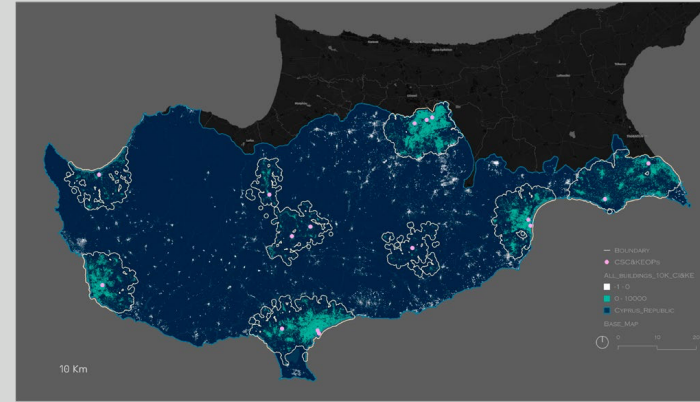
Cyprus, and many Mediterranean cities, faces a convergence of pressures: rapid urbanisation, fragmented planning systems, climate stress, uneven access to public services, and growing expectations for more transparent and accountable governance. These evolving conditions challenge the capacity of public authorities to respond effectively, not because of a lack of commitment, but because the tools, data infrastructures, and analytical frameworks needed for integrated decision-making are still developing.

As a result, planning processes face challenges to coordinate across sectors, to anticipate long-term impacts and to consistently use evidence when addressing issues such as sustainable mobility, access to green and social infrastructure, spatial inequality, climate resilience and loss of biodiversity.

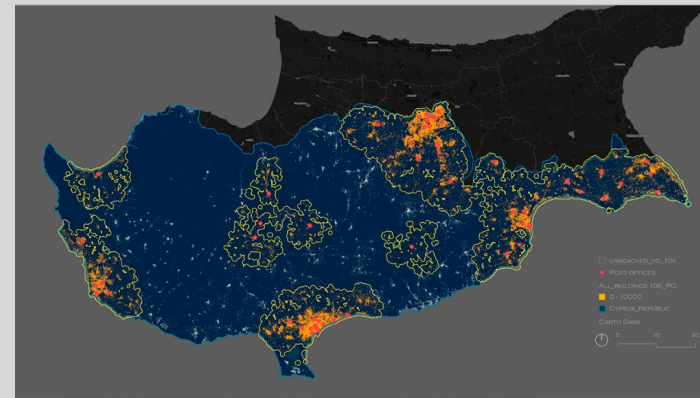
TWIN2EXPAND addresses these challenges by strengthening the analytical foundations and institutional capacity required for evidence-informed urban design, planning and policy.



Population distribution in Cyprus based on Population Census data 2021



Population reached by the CSC service points is approximately %59 within 10 km.



The population reached by post office service points is approximately %78 within a 10 km radius, highlighting the strategic value of converting post offices to strengthen local service coverage without establishing entirely new centres.

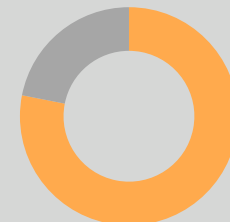
## Sustainable Location Strategies for Citizens' Services

TWIN2EXPAND analysed accessibility to Citizens' Service Centres and Citizens Centres across national, regional, and local scales to understand how location affects equitable access, regional cohesion, and climate-conscious planning in Cyprus. The results underpin the **Policy Brief 2: Sustainable Location Strategies for Citizens' Services**, which offers targeted, evidence-based recommendations.



59%

Population Reach by existing citizens services CSC and CC within 10km distance

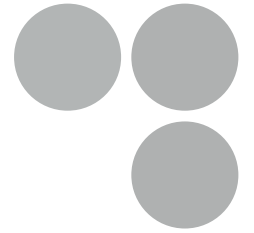


78%

Population Reach by existing Post Offices within 10km distance



## OUR VISION



TWIN2EXPAND envisions a planning ecosystem where scientific evidence and stakeholder knowledge form a shared foundation for decision-making. The project builds a research environment in Evidence-Based Design and Planning (EBDP) that links analytical tools, stakeholder engagement approaches, and European expertise to support fair, climate-resilient, and data-informed urban futures.

**Our vision is a planning culture where decisions are transparent and grounded in evidence, where knowledge moves fluidly between researchers, practitioners, and institutions, and where cities can test choices early, so outcomes are better for people, places, and the environment.**

We see Cyprus as both a unique context (climate and history) and a bridge to wider international learning: a place where new methods can be developed, tested, and then transferred to other settings. By strengthening research excellence at the University of Cyprus and building a strong European network, we aim to grow an ecosystem where science, public institutions, and communities co-produce knowledge and use it to improve social, economic, and environmental outcomes.



spatial  
analytics



stakeholder  
engagement



policy  
relevance



research  
excellence

# MEET THE CONSORTIUM

TWIN2EXPAND brings together complementary expertise across academia and practice to co-develop shared methodologies, advance joint research, and ensure results translate into usable tools and skills—through mentoring, exchanges, workshops, and real-world testing.



## University of Cyprus (UCY) - Coordinator

Department of Architecture  
Society and Urban Form (SURF) research lab,

UCY, is a leading national public research university. Within UCY, the Department of Architecture, School of Engineering advances an integrated design culture that connects humanities and technology, addressing contemporary challenges in the built environment. **SURF** is a multidisciplinary research lab focused on understanding how the built environment impacts society and translating evidence into design practice and policy. The lab builds capacity and excellence in urban design, planning, and governance, with expertise across EBDP, urban morphology, healthy cities, and participatory design practices.



## University College London (UCL)

The Bartlett School of Architecture & Space Syntax Laboratory

UCL is a leading multidisciplinary university with a strong international community. Within the **Bartlett School of Architecture**, research is inherently cross-disciplinary and designed to influence real-world challenges. The **Space Syntax Laboratory** is internationally recognized for developing and advancing space syntax theory and methods, investigating how spatial configurations affect social, organisational, and economic outcomes in buildings and cities.



## Chalmers University of Technology Department of Architecture and Civil Engineering, Spatial Morphology Group (SMoG)

**Chalmers** conducts research and education in technology and natural sciences at a high international level. The **SMoG** focuses on urban research spanning urban morphology, space syntax, and urban analytics, examining how urban form and spatial structure influence human behaviour and urban processes such as segregation, local markets, and ecology.



## Politecnico di Torino (PoliTo) Department of Architecture and Design (DAD), Joint Research Unit Transitional Morphologies & Research Technology Transfer and Innovation Department (RIMIN)

**PoliTo** is a historic European technical university (founded in 1859) known for excellence in engineering, architecture, design, and planning. The **DAD** investigates the art and science of design across architectural, urban, and product scales and hosts the **Joint Research Unit Transitional Morphologies**, with expertise in urban morphology. PoliTo also brings strong institutional support for research competitiveness through its **RIMIN**, which helps researchers identify funding opportunities and succeed in proposal development and project delivery.

## Space Syntax Space Syntax Limited (SSL)

**SSL** works with public, private, and community organisations, applying science-based digital modelling to architecture and urban planning with a strong human-focused approach. SSL's work spans strategic spatial models, micro-simulations, and integrated urban models combining social, economic, and environmental datasets, aiming to create thriving life in buildings and urban places.



# our approach

We develop and apply spatial urban analysis models that underpin Evidence-Based Design and Planning, and we make them more usable for policymakers and planners, so they can answer concrete questions and compare options with confidence.



## A. Advancing Spatial Evidence

- Develop analytical models for accessibility, mobility and spatial networks, and environmental performance.
- Integrate diverse datasets to support green infrastructure and urban design decisions.
- Test model workflows in Cyprus case studies and compare approaches across contexts.



## B. Building Research Capacity

- Specialist technical trainings, short courses, and hands-on design studios.
- Research exchanges and placements with European partners to accelerate learning and joint publications.
- Co-development of EBDP methodologies tailored to data scarce contexts, governance structures, and data realities.



## C. Engaging Stakeholders

- Dialogues with municipalities, ministries, professional bodies, and civil society.
- Participatory methods to co-define priorities, indicators, and trade-offs for spatial scenarios.
- Accessible communication outcomes that make evidence legible beyond the research community.



## D. Translating Evidence into Practice

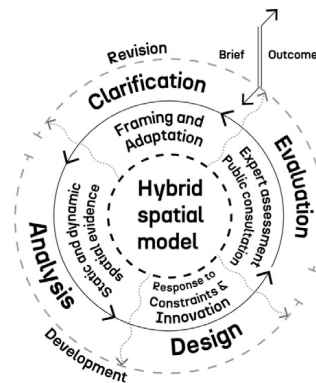
- Decision-support outputs.
- Guidance for planners and policymakers on using evidence in design briefs, masterplans, and policy choices.
- Alignment with European priorities (Green Deal, New European Bauhaus, EU Cities Mission).

# WHY EVIDENCE-BASED DESIGN AND PLANNING

Planning and design decisions shape cities for decades. Once built, streets, parks, mobility networks, and public facilities are difficult—and often costly—to correct. Evidence-based approaches reduce this risk by allowing planners, municipalities, and communities to test ideas early, explore alternatives, and identify potential impacts before commitments become irreversible.

EBDP strengthens decision-making by evaluating whether a proposed plan or design is likely to achieve its intended outcomes. Through the models developed in TWIN2EXPAND, stakeholders can assess scenarios, optimise proposals, and compare options while there is still time to refine or redirect them.

EBDP is equally valuable at the beginning of a planning process. It enables visioning, scenario testing, and the exploration of long-term implications in a structured and analytical way. By advancing hybrid and less resource-intensive spatial models, TWIN2EXPAND makes evidence-informed assessment feasible even in contexts with limited data, tight timelines, or constrained institutional capacity.



A possible scenario for an optimized feedback loop that incorporates different formats of evidence. (Karimi, et al 2025).

Definitions of EBDP vary across disciplines, but they consistently converge on three core principles: *decisions should be grounded in empirical evidence, informed by spatial analysis, and enriched by stakeholder participation.* Together, these elements create a planning process that is transparent, adaptive, and accountable.

## KEY ACHIEVEMENTS

### TOOLS, METHODOLOGIES AND MODELS

- 1 **SOAR:** A Scalable, Open, Automated and Reproducible urban data model approach, enabling comparable evidence across cities.
- 2 **Hybrid spatial modelling workflows<sup>1</sup>** that remain useful in data-scarce settings combining open data, curated local data, and transparent assumptions.
- 3 **Open datasets** released for Cyprus case studies (street networks, transit, buildings, services, schools) through Zenodo.
- 4 **EBDP Applicability Matrix:** a readiness assessment tool and a diagnostic framework to evaluate conditions for evidence-based approaches before and during project initiation.
- 5 **Social Ecological Approach:** An analytical framework for assessing social-ecological performance of urban form. Creating new evidence about the relationship between urban density and biodiversity.
- 6 **Stakeholder engagement and co-evaluation methods** advocacy meetings, focus groups, structured workshops, mapping walkshop, panel discussions, exhibitions.

1. A spatial hybrid model integrates different modelling approaches and datasets onto a spatial network base, enabling relationships across varied forms of evidence to be examined in parallel through the spatial and movement networks. As new information arises or underlying assumptions are questioned, the model can be revised, reconfigured, or expanded, sustaining an ongoing cycle of analysis, design exploration, and evaluation. In this way, hybrid modelling becomes a vehicle for iterative refinement, evolving with the questions and insights that unfold throughout the design process (Karimi et al., 2025).

## HIGHLIGHTS

80+ activities

8

Research Trainings

2

Summer Schools

4

Long Term Academic Placements Training

4

Short Term Staff Exchanges

3

Industry Internships

8

Advocacy Meetings

2

Exhibition in public space

3

Stakeholder & community workshops

6

Panel Discussions

8

Participations in practice

11

Academic Conferences

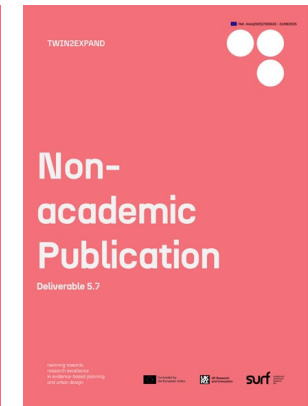
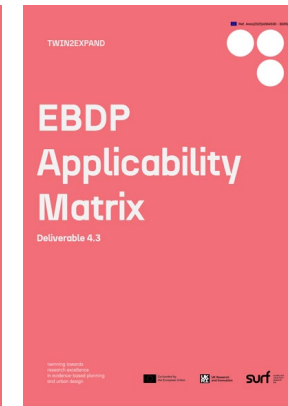
20+

Publications

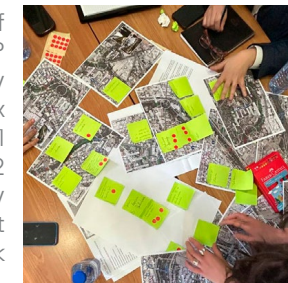
# KNOWLEDGE OUTPUTS

## FRAMEWORKS, POLICY BRIEFS & STRATEGIC REPORTS

- 1 **Review of the State of the Art of EBDP:** An analytical, multi-scalar and iterative framework to structure Evidence-Based Design and Planning (EBDP) from question to decision.
- 2 **Policy Briefs:** [1] “Greener for Whom?” How Accessibility and Amenities Proximity Shape Inclusive Urban Green Space in Cyprus. [2] Sustainable Location Strategies for Citizens’ Services.
- 3 **White Paper:** A Pathway to Evidence-Based Urban Design and Policy.
- 4 **Non-academic Publication:** Smarter, More Inclusive Urban Planning in Data-Scarce Contexts. Lessons from Nicosia.
- 5 **Scientific Publications:** Peer-reviewed journal and conference papers advancing EBDP methods and applications.
- 6 **Medium Blog:** Short, accessible articles translating research into practical insights.
- 7 **Book:** Evidence-Based Urban Design and Planning - Principles, Practices, and Prospects, Springer.
- 8 **Reports:** Stakeholder engagement Reports, Research Report, Capacity Building Reports.



1. Review of the State of the Art of EBDP
2. EBDP Applicability Matrix
3. Policy Brief 1
4. Policy Brief 2
5. Report: Accessibility Mapping workshop at Pedieos Park



6. Report: Collaborative Stakeholders workshop to evaluate the Strategic Master Plan for the Pedieos River.
- 7,8. Panel Discussions at Cyprus Forum 2025





## KEY BENEFICIARIES



**Municipalities and  
Local Authorities**



**Academic  
community**



**Government  
bodies**



**Citizens and  
civil society**

## WHAT TWIN2EXPAND OFFERS STAKEHOLDERS

TWIN2EXPAND strengthens the capacity of public authorities, planners, and communities to make informed, future-oriented decisions. The project offers:

### **New insights for policy and planning**

Research on accessibility, spatial equity, green infrastructure, and urban resilience provides evidence that can inform strategic planning, sectoral policies, and long-term investment decisions.

### **Analytical and spatial modelling tools**

Hybrid spatial models support scenario testing, location analysis, and evaluation of design proposals. These tools help identify strengths, gaps, and opportunities across urban systems.

### **Decision-support for governance**

Methods developed through TWIN2EXPAND enable institutions to compare alternatives, test early-stage ideas, and align planning choices with measurable outcomes. They offer a structured foundation for transparent, accountable planning processes.

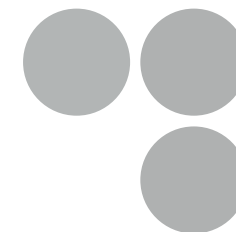
### **Capacity-building and skills development**

Training programmes, workshops, and exchanges with leading European partners enhance the technical and analytical competencies of civil servants, researchers, and practitioners.

### **Pathways for sustainable and inclusive urban transitions**

By combining evidence-based analysis with stakeholder engagement, the project supports policies and designs that improve access to services, reinforce social and spatial equity, and strengthen climate resilience.

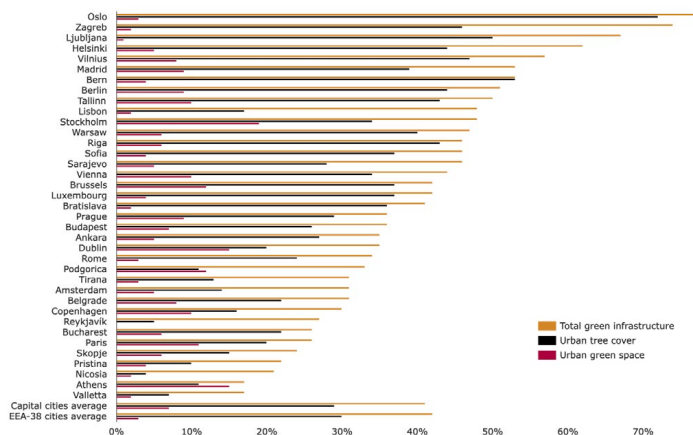
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# EUROPEAN RELEVANCE

TWIN2EXPAND strengthens the science-policy ecosystem for sustainable urban governance by expanding EBDP capacity in a Mediterranean context and linking local case studies to European priorities.

- Contributes to the European Green Deal’s direction of a socially fair transition to climate neutrality.
- Aligns with the New European Bauhaus vision of solutions that are sustainable, inclusive, and beautiful.
- Supports the EU Mission for Climate-Neutral and Smart Cities by strengthening evidence and experimentation capacity for urban transitions.
- Adds Mediterranean-specific evidence and transferable methods to the European research landscape.

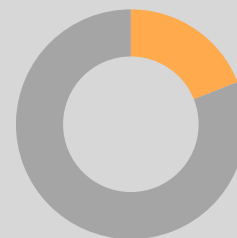


The chart depicts the percentage of total green infrastructure, green urban areas and tree cover of 37 capitals (EEA-38, excluding Liechtenstein) as a percentage of their respective surface area. Copernicus Land Monitoring Service. (2022)

## Greener for Whom?

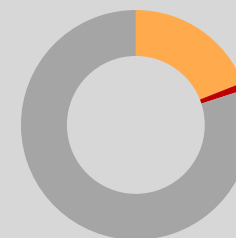
How Accessibility and Amenities Proximity Shape Inclusive Urban Green Space in Cyprus.

TWIN2EXPAND evaluated the 14 km Pedieos Linear Park and its new Strategic Masterplan through spatial analysis and participatory workshops with stakeholders and the community. The findings inform inclusive design recommendations and underpin **Policy Brief 1: Greener for Whom? How Accessibility and Amenities Proximity Shape Inclusive Urban Green Space in Cyprus.**



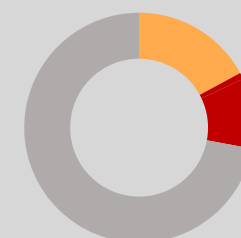
19%

Nicosia's population lives within a 15-minute walk from an entrance of Pedieos Linear Park



1%

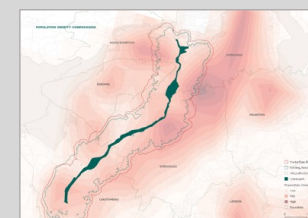
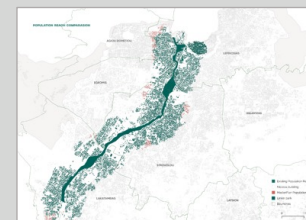
increase in population reach, after adding 17 new entrances to the Park



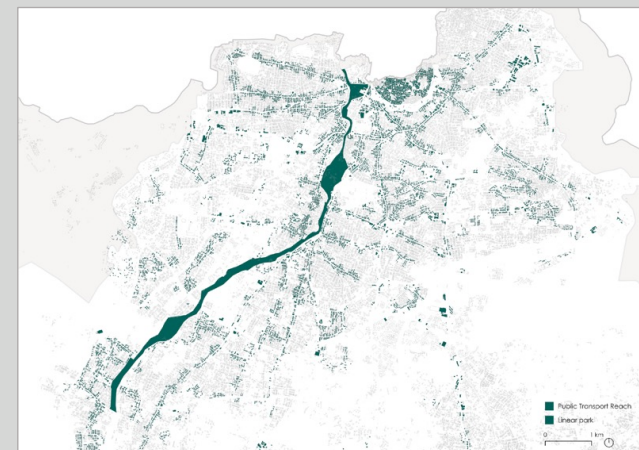
31%

of the population could easily reach the park with a short bus ride and walk

Population Reach within a 15-minute walk



Population Reach by Public transport

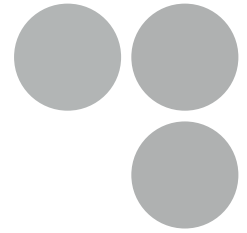




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## LOOKING FORWARD



TWIN2EXPAND is building a stable, evidence-driven culture and capability for urban planning and design in Cyprus. In the next phase, the project will:

- Release additional open datasets, reproducible workflows, and clear documentation to support reuse by practitioners, public authorities, and researchers.
- Strengthen collaboration with municipalities and national agencies through co-designed pilot applications that test tools in real planning contexts.
- Expand policy and practice outputs—policy briefs, guidance notes, and visual explainers—to help embed evidence into everyday planning decisions.
- Sustain and grow the international EBDP network through joint projects, exchanges, and the establishment of a long-term evidence-based planning hub at UCY.

## CONTACT US IF

**You represent a Municipality:** And are looking for tools to support equitable green planning and climate adaptation.

**You are a Policymaker:** And need evidence-based support for national spatial strategies and EU mission alignment.

**You are a Researcher:** And want to access open datasets, join our training cycles, or collaborate on urban analytics.

**You are a Citizen:** And want to participate in transparent planning processes for better public spaces.

# CONTACTS

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**Space Syntax Limited:** Ed Parham

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Find out more: [TWIN2EXPAND Website](#); [Zenodo](#); [OSF](#).

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# TWIN2EXPAND



**HYPE**  
CULTURE

2021

