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ACUTE

Accessibility and Connectivity knowledge hub for
Urban Transformation in Europe

URBAN  EUROPE



This project is supported by the European Commission and funded under the Horizon 2020 ERA-NET Cofund scheme under grant agreement N° 875022

PARTNERS

- University of Natural Resources and Life Sciences, Institute of Production and Logistics / h2 projekt.beratung KG, Austria - Coordinator (BOKU / h2pro)
- Université Gustave Eiffel, France (UEiffel)
- Cerema - Centre for Studies and Expertise on Risks, the Environment, Mobility and Urban Planning, France
- Latvia University of Life Sciences and Technologies, Latvia (LBTU)
- University of Latvia, Latvia (LU)
- RISE - Research Institutes of Sweden, Sweden
- University of Westminster, United Kingdom (UoW)
- Malmö University, Sweden
- Graz Energy Agency, Austria
- VTI/Sweden's national centre for research and education on public transport (K2), Sweden
- University of Innsbruck, Department of Infrastructure, Unit of Intelligent Transport Systems, Austria
- Power Circle



CONSORTIUM INVOLVEMENT IN RUNNING ENUAC PROJECTS

- **ASAP:** BOKU, h2pro
- **CATAPULT:** RISE
- **EX-TRA:** UoW
- **GeoSence:** RISE, UoW
- **MyFairShare:** LU, LBTU
- **SORTEDMOBILITY:** UEiffel



GOALS

- Overcome the fragmentation of findings and experiences
- Space for stakeholder exchange and co-creation
- Foster cross-project cooperations
- Consolidate and synthesise knowledge
- Support practitioners and the mainstreaming of research results
- Provide strategic support for Program “Driving Urban Transitions”





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WP 2: Research Synthesis

Steven SARASINI

Senior researcher

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ENUAC midterm meeting

15-16th May 2023



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WP2 Objectives

- **Extract and synthesize research findings** from ENUAC projects to address the knowledge needs of researchers, policymakers and practitioners
- **Identify research and implementation gaps** to provide the DUT with strategic advice

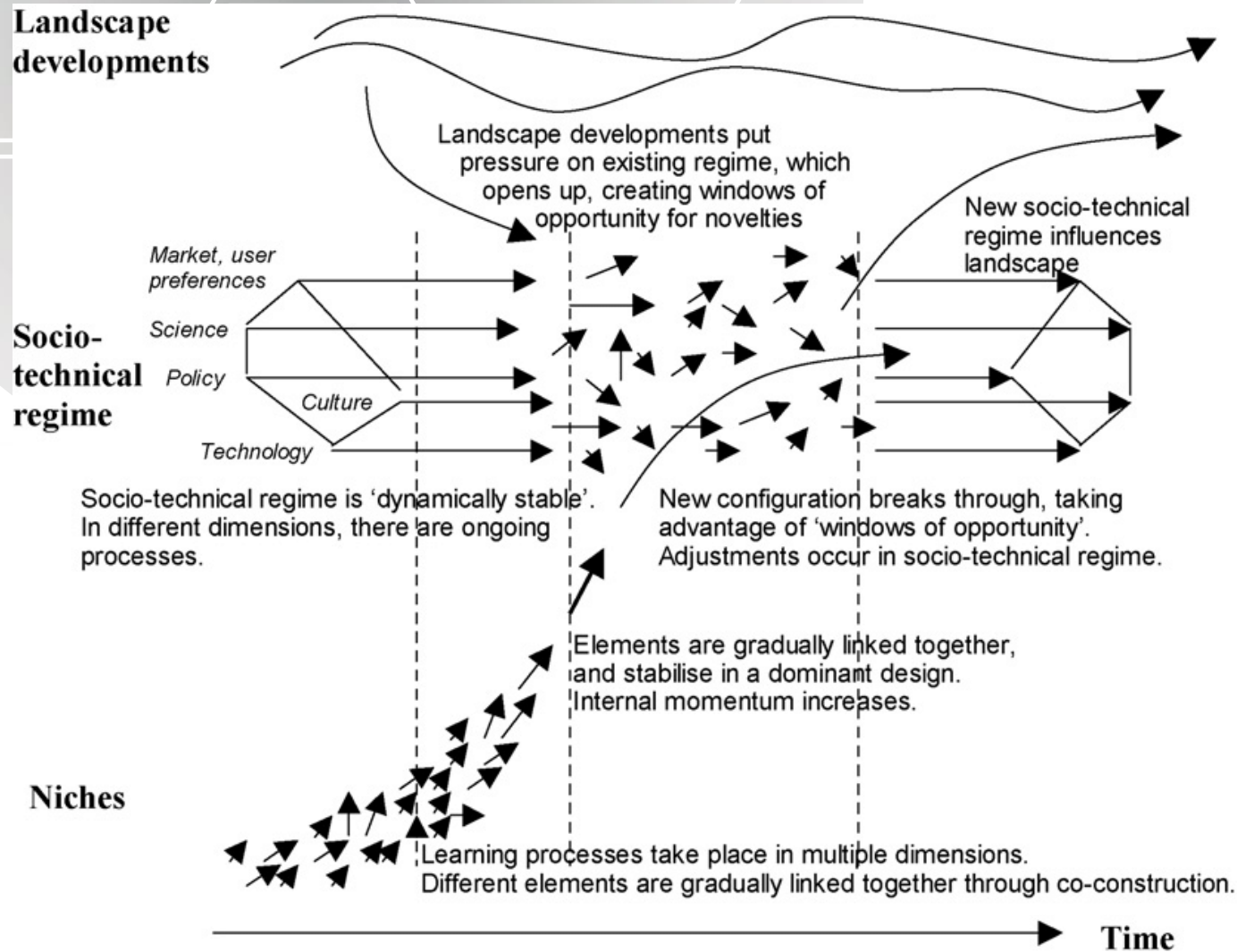


Analytical framework

What should the framework do?

1. **Analyse the dynamics of transitions** to more accessible and sustainable mobility systems within urban settings
2. **Assess** the potential for different innovations and solutions to contribute to **sustainability goals** in the social and environmental dimensions
3. Derive key implications for **good governance**





The Multi Level Perspective

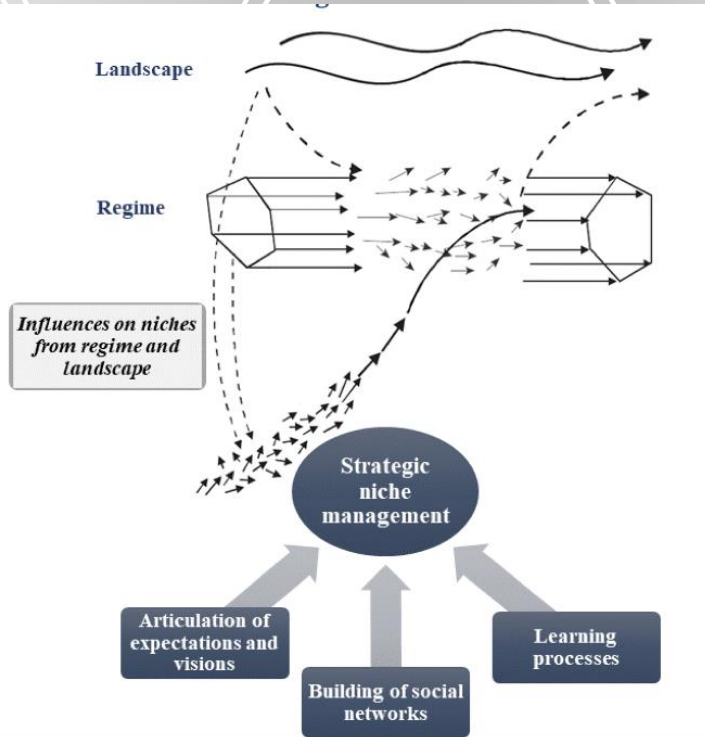
Landscape: global trends and problems such as digitalisation, urbanisation, climate change, etc

Regime: multiple factors intertwine, such as travel patterns and behaviour, transport policies, industry networks, markets, etc.

Niche: site for experimentation with radical innovations through e.g. mobility pilots and field operational tests

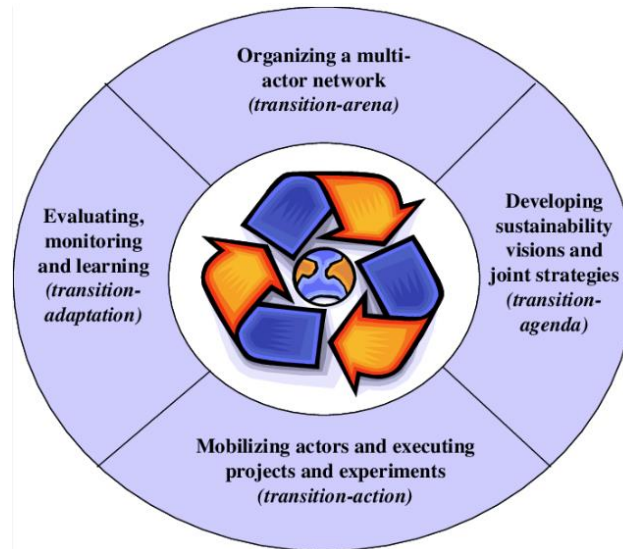
Source: Geels, F. W. (2002). Technological transitions as evolutionary reconfiguration processes: a multi-level perspective and a case-study. 31, 1257-1274.

Strategic niche management



Sources: Loorbach, D. A. (2007). Transition management: new mode of governance for sustainable development. 1-328.
 Schot, J., & Geels, F. W. (2008). Strategic niche management and sustainable innovation journeys: theory, findings, research agenda, and policy. *Technology Analysis & Strategic Management*, 20(5), 537-554.

Transition management



Iterative approaches to transport governance

Visioning: Roadmaps, policy goals & targets, etc.

Social networks: new mobility partnerships and ecosystems, new competences, venture capital, etc.

Experimentation: pilots and tests, entrepreneurship, policy labs, etc.

Monitoring & learning: sustainability assessments, policy evaluation, etc.

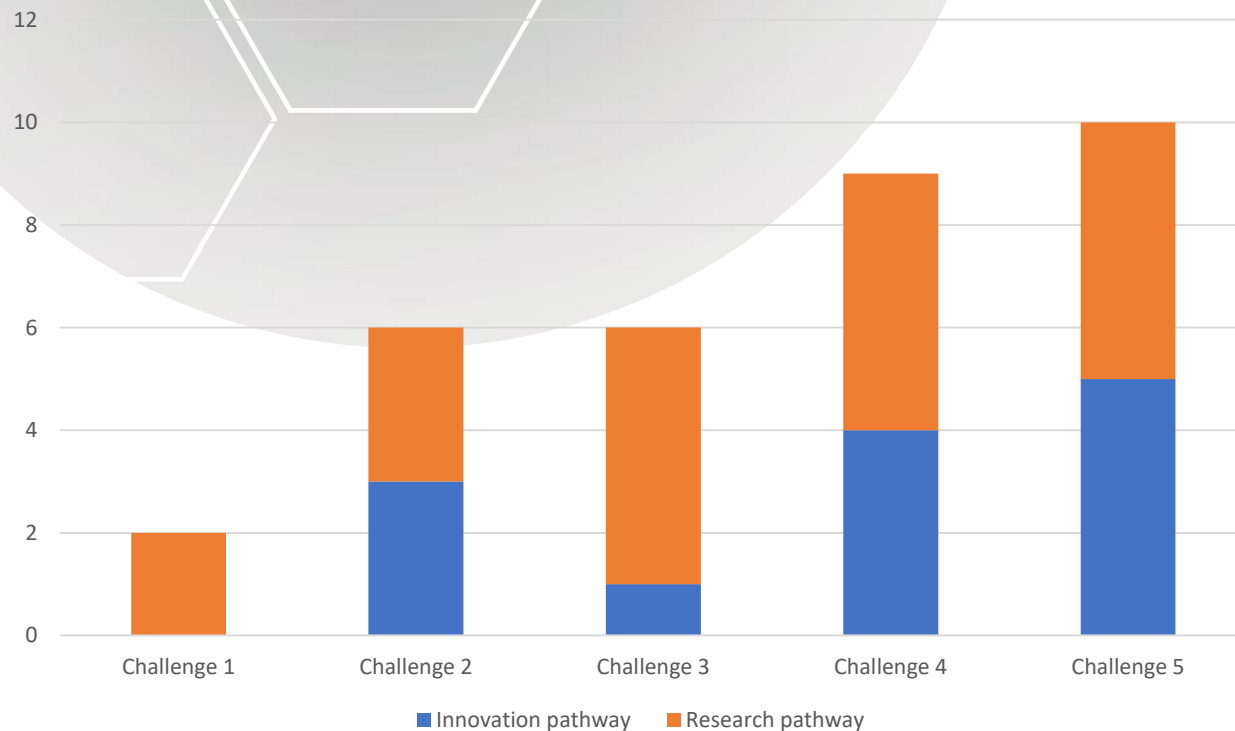
Learning, monitoring and evaluation

Sustainability perspectives:

- Ecological: reduced transport emissions, particulate matter, noise etc.
- Economic: implementation and scaling, innovation, job creation,
- Social: connectivity, accessibility, equity and inclusion



Initial scoping: what types of projects exist in the ENUAC portfolio?



Innovation pathway	5
Research pathway	9
Not stated	1

Projects using analytical concepts	8
Justice	4
Walkability	2
Sufficiency	1
Nudging	1

NB: 4 projects address one challenge only

Challenge 1:

Evolving solutions for an integrated approach on sustainable urban physical mobility and transport, land use and digital connectivity

Challenge 2:

Develop and support the implementation of innovative mobility systems and services with a potential to contribute to sustainable urban mobility

Challenge 3:

Transform and re-organise urban spaces to pave the ground for sustainable urban mobility and accessibility at local level, from the street scale to the district

Challenge 4:

Develop effective policy options for achieving a shift towards sustainable urban accessibility and connectivity

Challenge 5:

Change behaviours and perspectives towards sustainable urban accessibility and connectivity





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Thank you!

Steven SARASINI

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ENUAC projects' text analytics

WP4: Strategic Support for DUT

15-16 May 2023



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Approach with computational methods

- 1. Supplement to qualitative analysis approach performed in WP1-WP3.**
2. Scalable - can process tens and hundreds of documents (proposals, mid-term reports, final reports, etc.):
 - Text analysis methods: bag of words (unordered).
 - Data mining techniques to discover new knowledge for future calls: string of words (ordered).
3. Manually adjustable (define stop-words, define precision).
4. Not perfect but it is semi-automated.

Projects' proposals text similarity analysis

- 15 ENUAC project' proposals and *Driving Urban Transitions (DUT) to a Sustainable Future Roadmap 2022*
- Project' proposal text selected parts:
 - Quality of Work, Project Objectives and Targets (4.)
 - ✓ Project objectives and targets (4.1.)
 - ✓ Project realization (4.2.)
 - ✓ Overall project type (4.3.)
 - ✓ Consortium experience and complementary with other projects of the partners (4.4.)
 - Added Value of International Co-operation (5)
 - Key activities and work programme description (6)
 - Relevance – Contribution of the Project to the Aims of the Call (8)

- ASAP_Full_Proposal_-pages-4-9,20_cleaned
- CATAPULT_Full_Proposal_-pages-3-8,19_cleaned
- COCOMO_Full_Proposal_-pages-4-9,23_cleaned
- Dynamic_Mobility_Nudge_Full_Proposal_-pages-5-8,10-11,24_cleaned
- DUT-Roadmap-2022-komprimiert_cleaned
- EASIER_Full_Proposal_-pages-4-10,27_cleaned
- EX-TRA_Full_Proposal_-pages-6-9,11-12_cleaned
- GeoSence_Full_Proposal_-pages-7-12,27_cleaned
- ITEM_Full_Proposal_-pages-3-8,16_cleaned
- JUSTICE_Full_Proposal_-pages-4-9,28_cleaned
- MyFairShare_Full_Proposal_-pages-4-9,21_cleaned
- SmartHubs_Full_Proposal_-pages-4-9,22_cleaned
- SORTEDMOBILITY_Full_Proposal-pages-3-8_cleaned
- TAP_for_uncertain_futures_Full_Proposal_-pages-4-9,28_cleaned
- TuneOurBlock_Full_Proposal_-pages-4-9,24_cleaned
- WalkUrban_Full_Proposal_-pages-3-8,22_cleaned



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1. Text normalization

by removing punctuation, cases, and numbers,
common words (= stopwords)

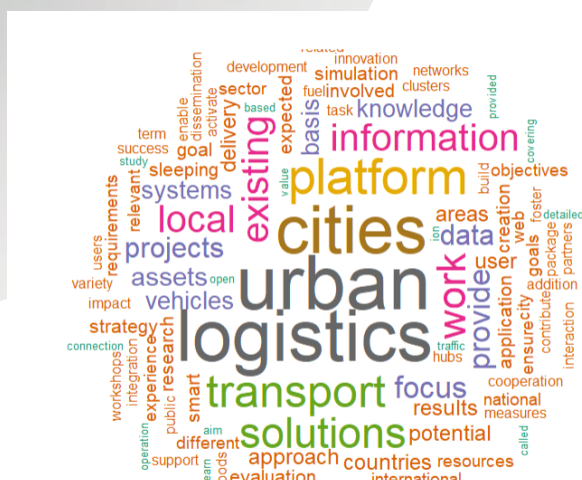


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DUT

CATAPULT

COCOMO



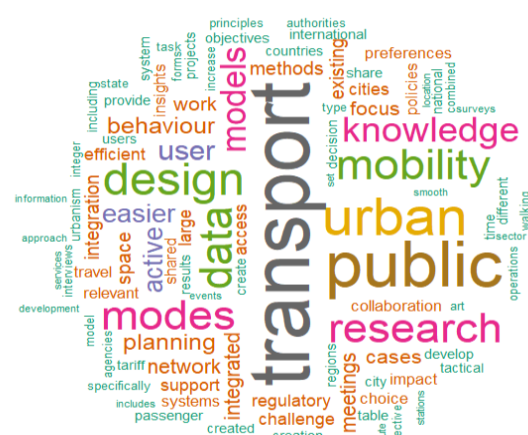
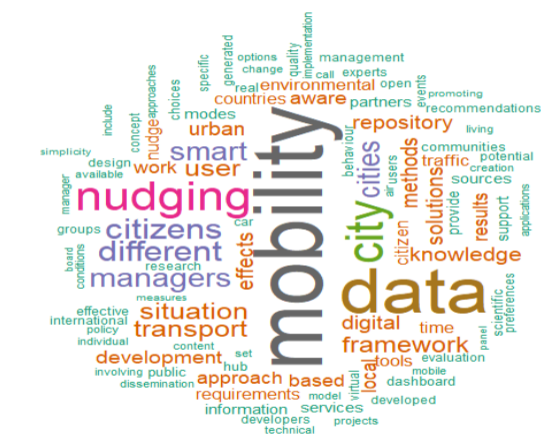
shared micro-mobilities

Dynamic

Easier

Ex-TRA

Geo-Sence

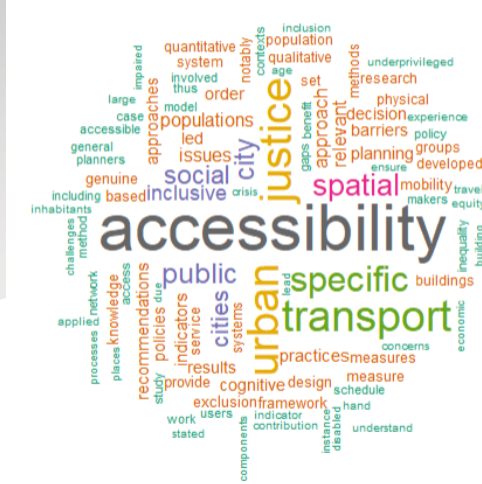


Words frequencies in a single project proposal text (2/2)

ITEM



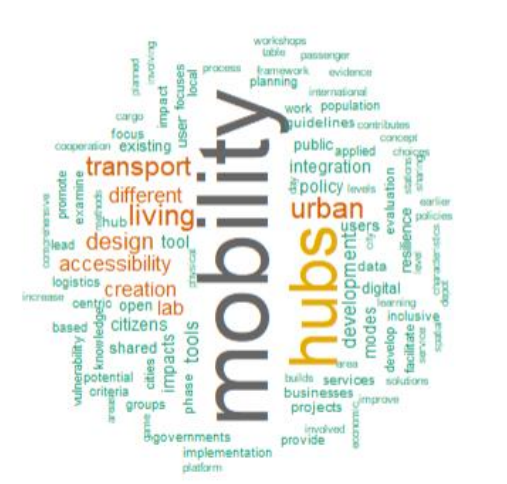
JUSTICE



MyFairShare



SmartHubs



SortedMobility



TAP



TuneOurBlock



WalkUrban





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2. Words relation in a single proposal text and comparison with DUT Roadmap text



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The 14 most frequently repeated words (%) in the DUT Roadmap and single project proposal text (1/2)

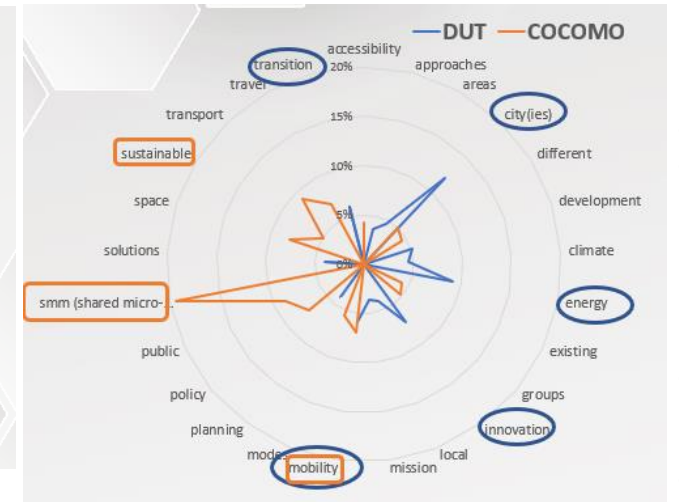
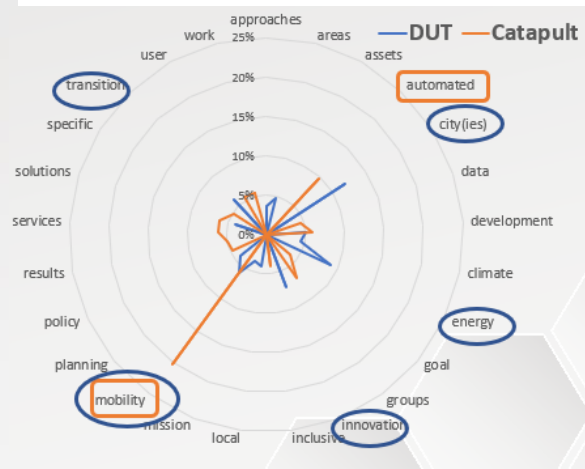
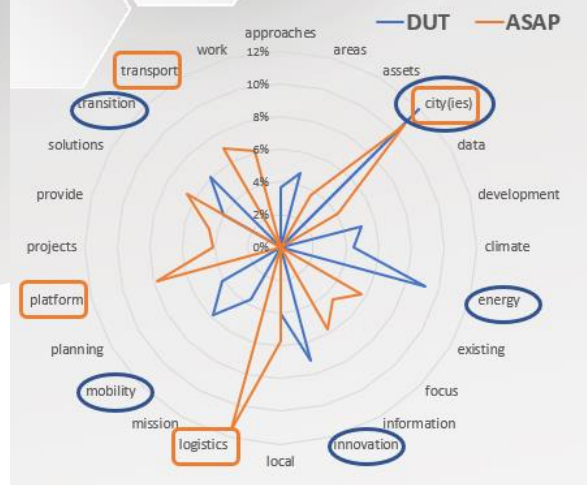
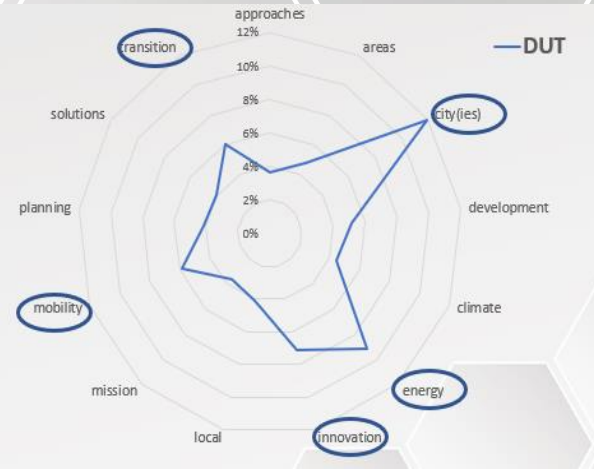
DUT

ASAP

CATAPULT

COCOMO

shared micro-mobilities

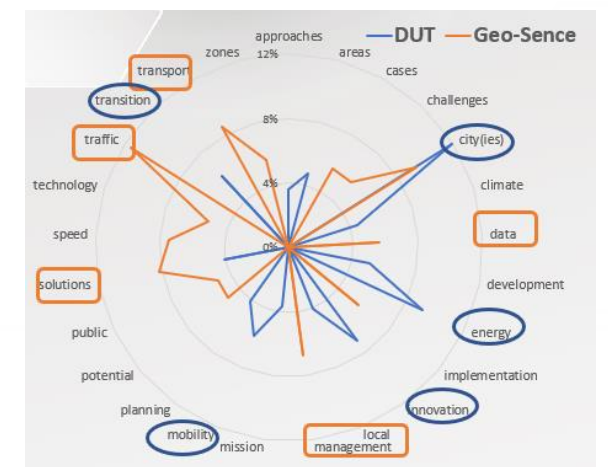
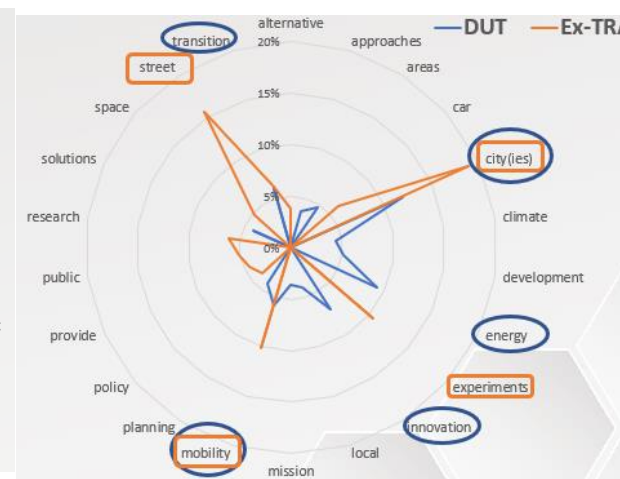
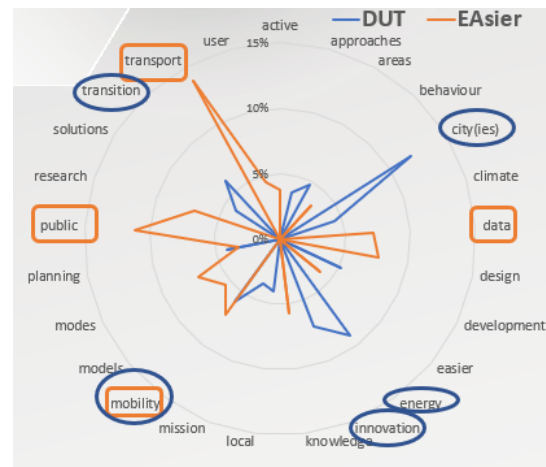
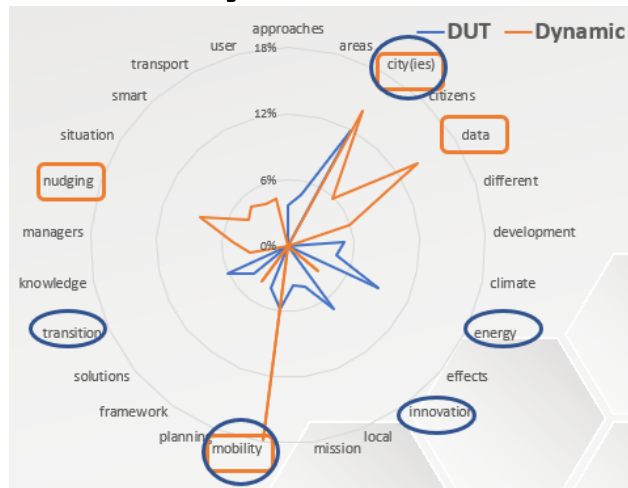


Dynamic

Easier

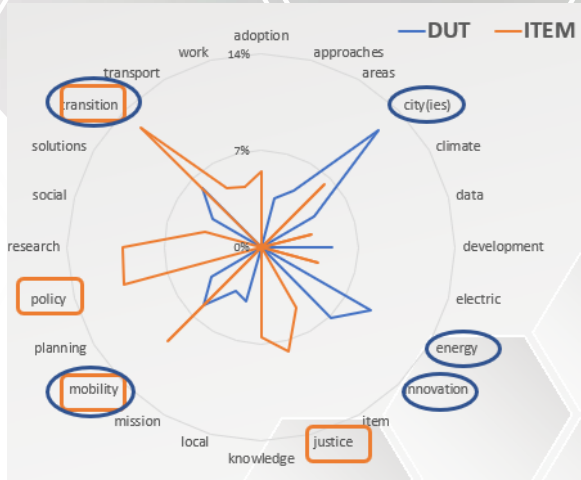
Ex-TRA

Geo-Sence

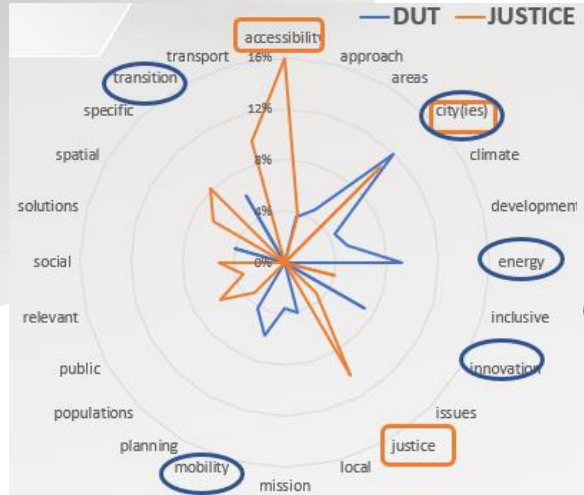


The 14 most frequently repeated words (%) in the DUT Roadmap and single project proposal text(2/2)

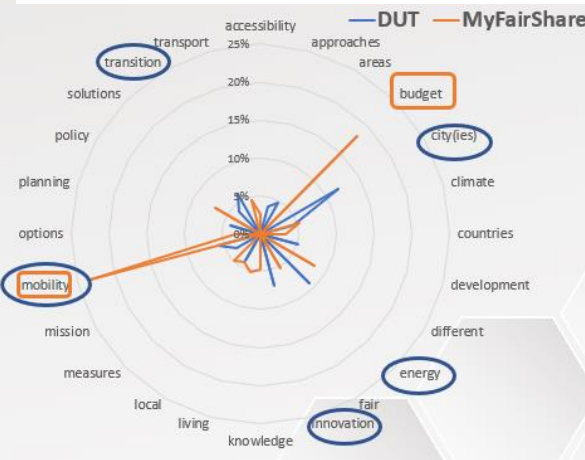
ITEM



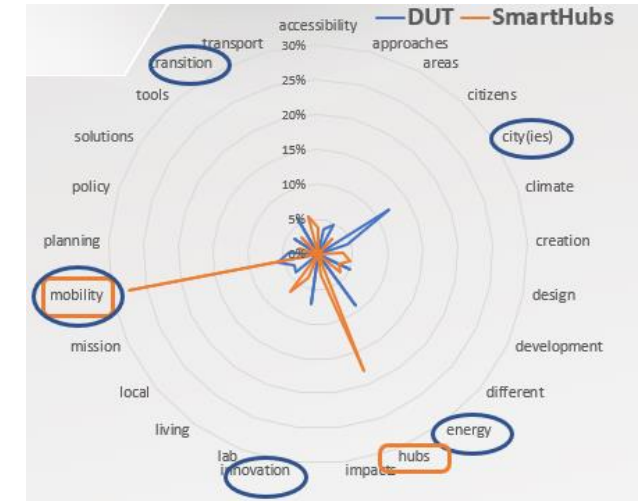
JUSTICE



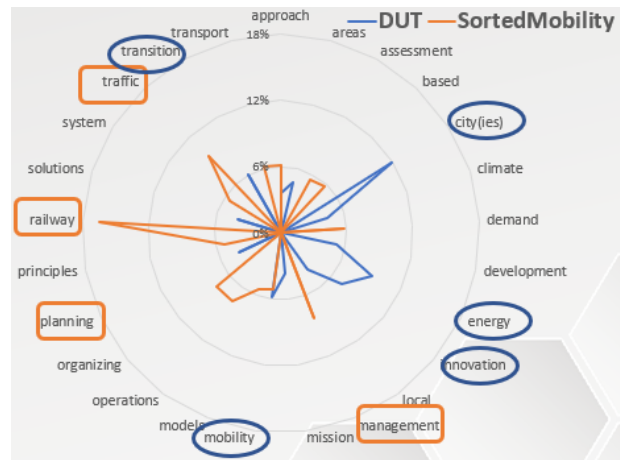
MyFairShare



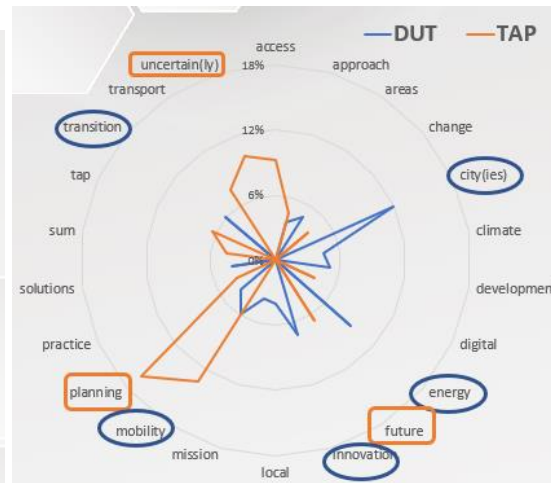
SmartHubs



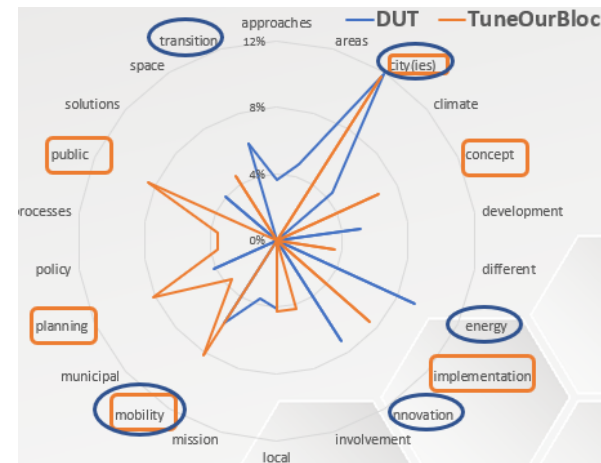
SortedMobility



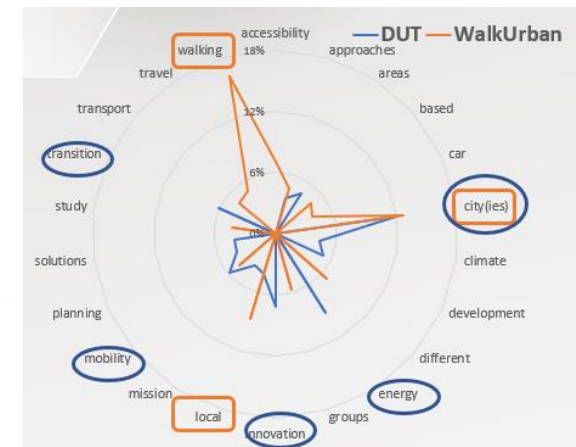
TAP



TuneOurBlock



WalkUrban





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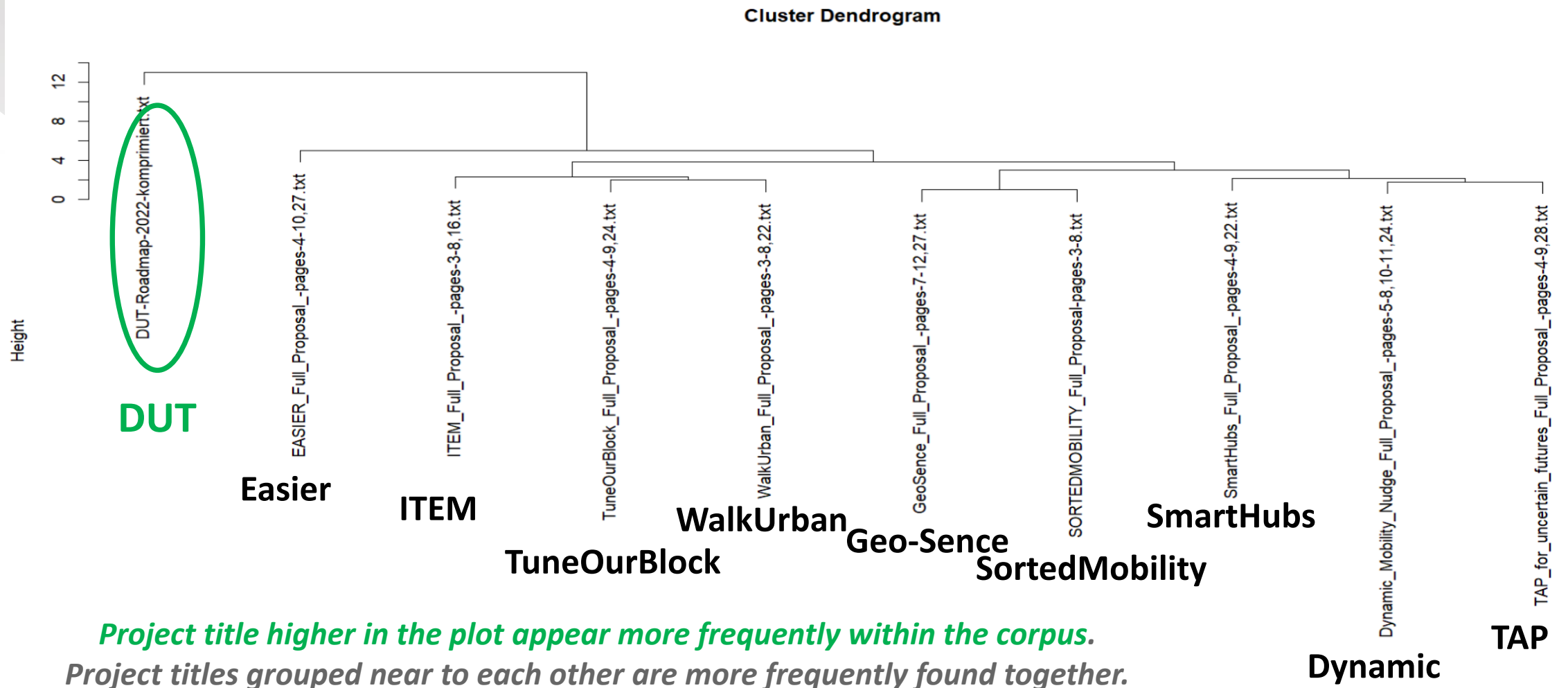
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3. Relationships of project's texts proposals



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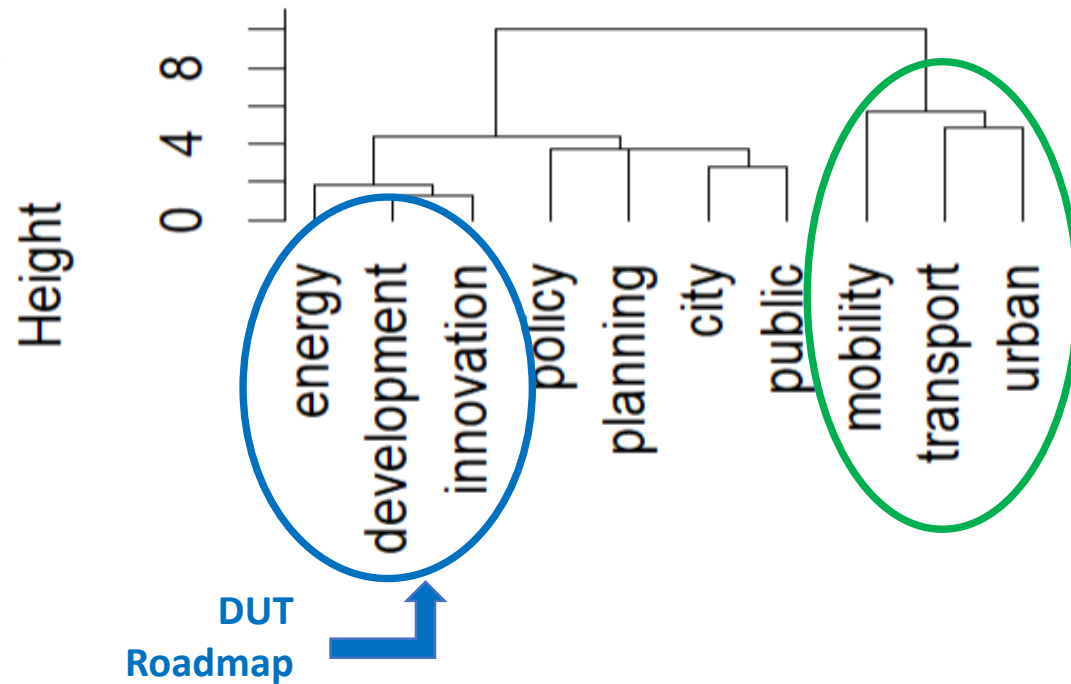
DUT Roadmap and all project proposals text similarity



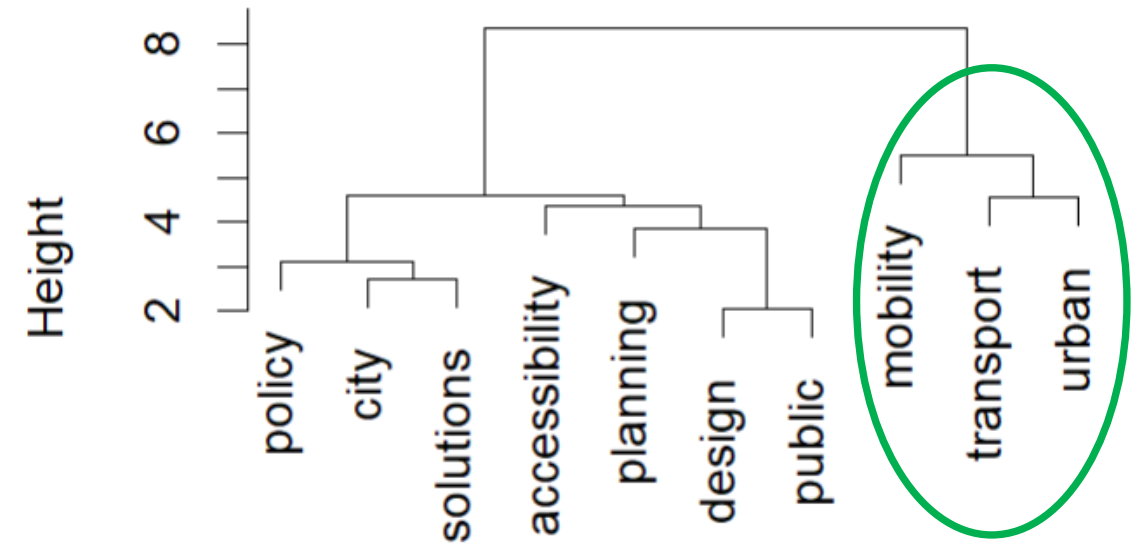
DUT Roadmap and all project proposals text similarity

All project proposals text similarity

Cluster Dendrogram



Cluster Dendrogram



Terms higher in the plot appear more frequently within the corpus.

Terms grouped near to each other are more frequently found together.

4. Unique terms identification:

TF-IDF (*Term Frequency - Inverse Document Frequency*) how important a word is to a document in a collection (corpus).

$$TF = \frac{\text{number of times the term appears in the document}}{\text{total number of terms in the document}}$$

$$IDF = \log\left(\frac{\text{number of the documents in the corpus}}{\text{number of documents in the corpus contain the term}}\right)$$

#	Project acronym	Unique terms: significant words in a collection of documents (corpus)
1	ASAP	logistics; platform; activate; clusters; web; simulation
2	CATAPULT	automated; game(s); requirements; inclusive; confidential
3	COCOMO	smm (shared micro-mobilities); space; transportation; equity; pedestrians
4	Dynamic	nudging; managers; repository; dashboard; simplicity; tanks; weather
5	EASIER	easier; models; tariff; choice; urbanism; programming; journeys; backbone
6	EX-TRA	experiments; street(s); temporary; alternative; districts; regulation
7	GeoSence	zones; speed; demonstrations; technology; vehicle; regulation; rules; acceptability
8	ITEM	justice; electric; households; recognition; adoption; charging; electric
9	JUSTICE	justice; populations; buildings; disabled; inhabitants; underprivileged; led; indicators
10	MyFairShare	budgets; fair(ness); scenarios; climate; living; protection; awareness; radical; attitude
11	SmartHubs	hubs; living; governments; vulnerability; resilience; businesses; cargo; portable
12	SORTEDMOBILITY	railway; operations; rail trains; centralized; organization; simulation; principles
13	TAP	tap; uncertainty; handbook; equivalent; triple; affect; consult; regime
14	TuneOurBlock	municipal; civil; transformation; streets; localize; politician; expand; exploratory
15	WalkUrban	walking; satisfaction; subjective; railway; neighbourhood; attitudes; routes



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5. Learnings from results



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Directions for use for funders and individual ENUAC projects

1. Value for funders:

- Identify gap between past and existing call projects and future DUT programme.
- Synergies with other funding programmes, initiatives specific on critical urban sectors of DUT:
 - The 15-Minute City Transition Pathway (15minC),
 - The Circular Urban Regenerative Economies Transition Pathway (CURE),
 - The Positive Energy Districts Transition Pathway (PED).

2. Value for individual ENUAC projects:

- Similarity to other funding programmes and individual projects.
- Identification of uniqueness of the individual projects.
- New developments and trends.





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6. Next steps – added value framework



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Analytical framework DUT project outcomes and gaps

Analytical framework for added value creation

1. Scalable analytical framework/method for proposal/outcome/trend gap identification
 - DUT framework to proposals.
 - DUT framework to final reports.
 - Project proposals to final report.
 - EU agenda/trends to DUT project outcomes.
2. Knowledge accessibility framework for practitioners and researchers
 - Problem mapping.
 - Method mapping.
 - Solution mapping.
 - Proposed policy mapping.
 - Use case mapping.
 - Potential practitioner, stakeholder identification and mapping.
 - Uncertainty mapping
3. Generating the pathway framework to:
 - Data.
 - Projects.
 - Practitioners.
 - Stakeholders.





ACUTE – ENUAC Knowledge Hub

ENUAC projects mapping survey- first preliminary results

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WP1 – ENUAC Cross-research Community

- **Work Package 1** (lead University of Westminster and Université Gustave Eiffel)
- Core of the WP1 is to **support funded projects** and **enable cross-project cooperation**
 1. To enable knowledge sharing between ENUAC funded projects.
 2. To map key projects that address urban transformation with a focus on accessibility and connectivity.
 3. To consolidate a community of researchers & practitioners that work with urban accessibility and connectivity in Europe



ENUAC projects mapping survey

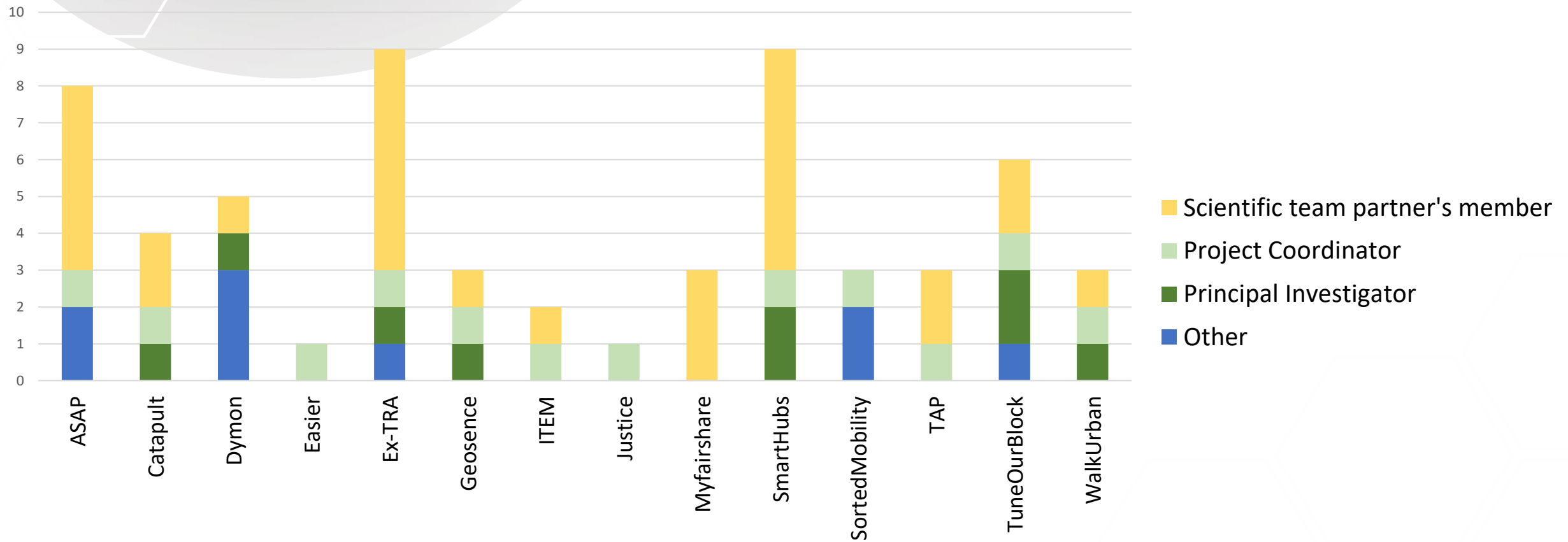
- **Online survey of ENUAC projects** aimed at creating
 - To cross-analyse ENUAC projects
 - To map and categorize ENUAC projects and their links with other projects
 - To understand links/overlaps between different project outputs, in order to facilitate knowledge exchange
 - To inform next research steps that will include interviews and focus groups
 - To understand what further support is needed, and what Knowledge Hub tasks should be prioritised
- Analytical framework: transition management
- Launched in March 2023. 60 responses collected.

Still in
time to
reply!



ENUAC projects mapping survey

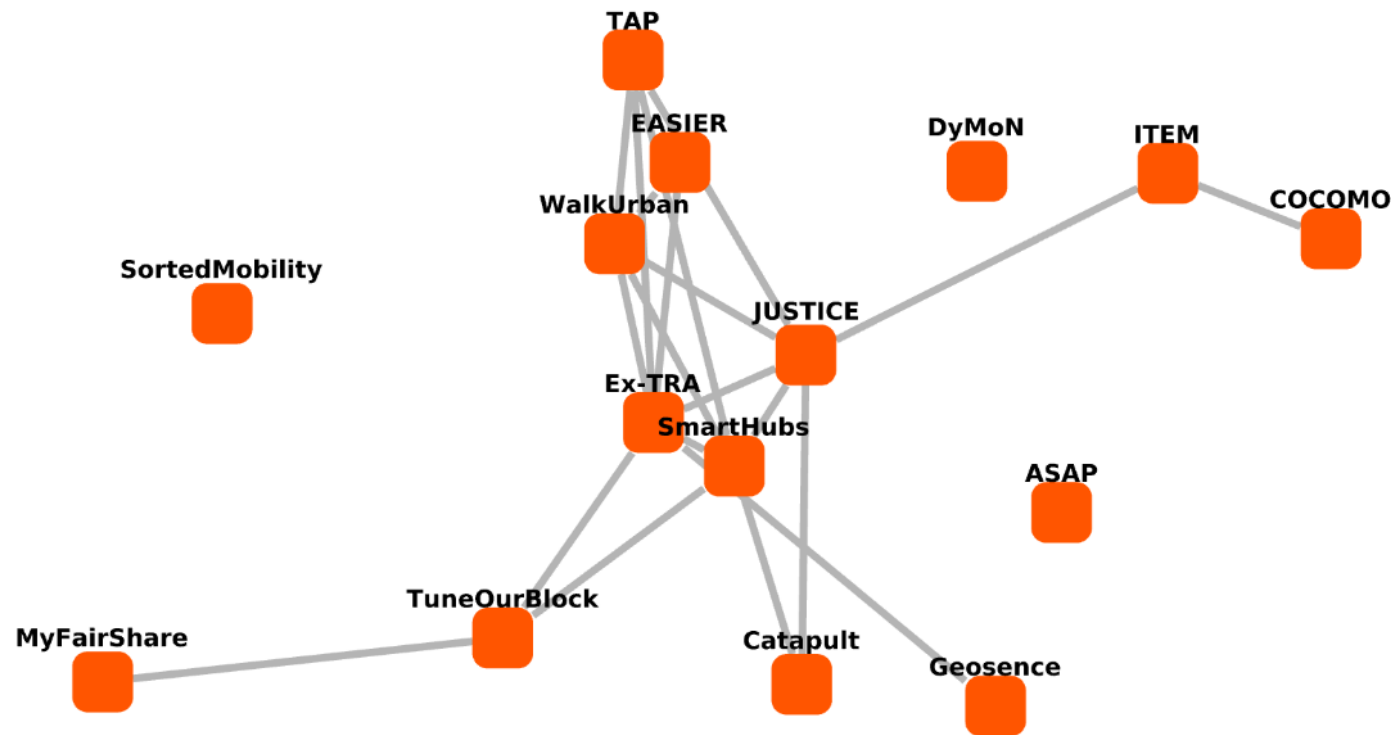
Responses per projects



ENUAC projects mapping survey

ENUAC projects networks

■ ENUAC projects

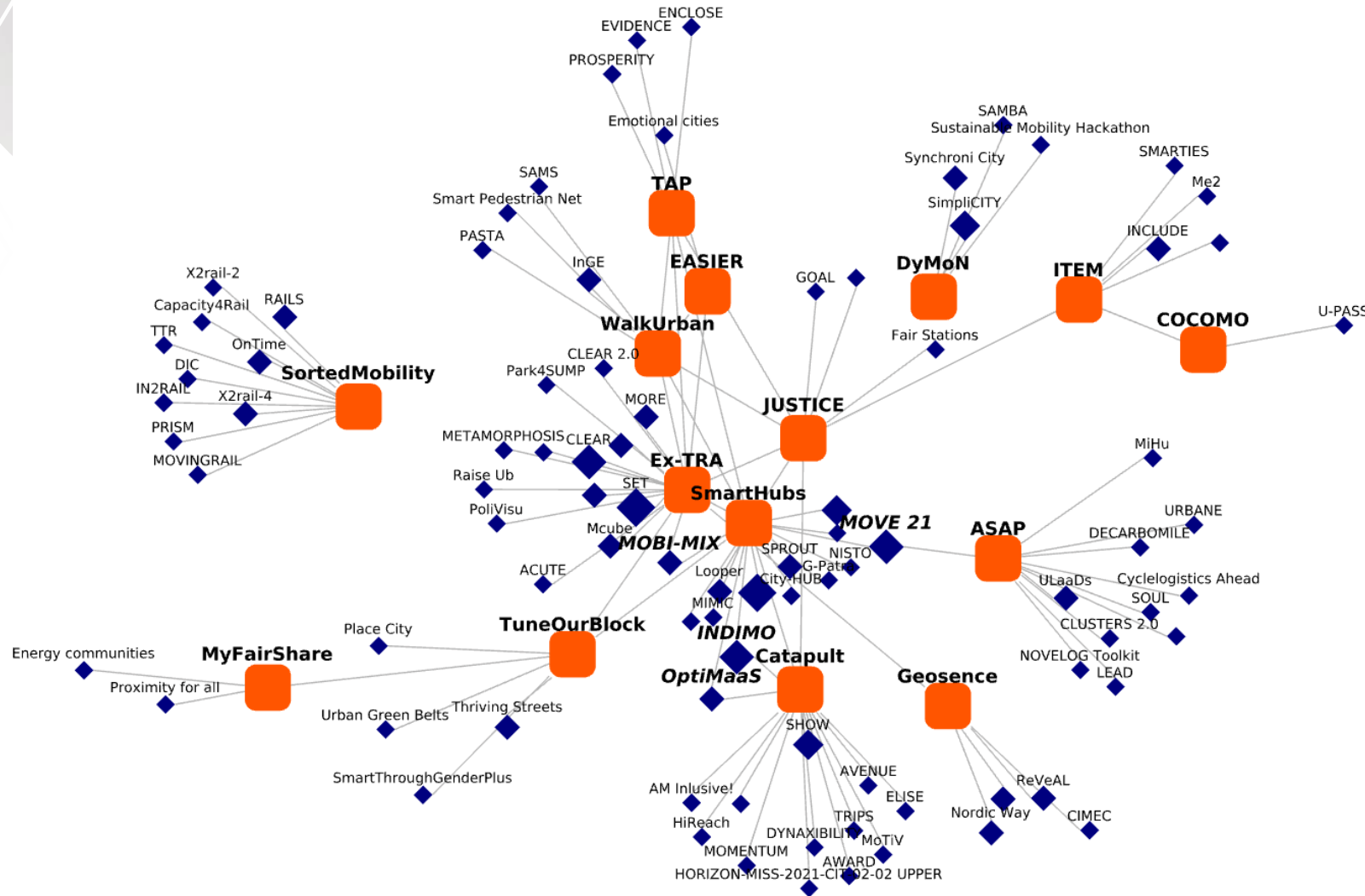


— Links between projects -
projects named by another
project in:

- Online survey Q14
- Submitted proposal
- Annual progress report Y1

ENUAC projects mapping survey

ENUAC projects networks



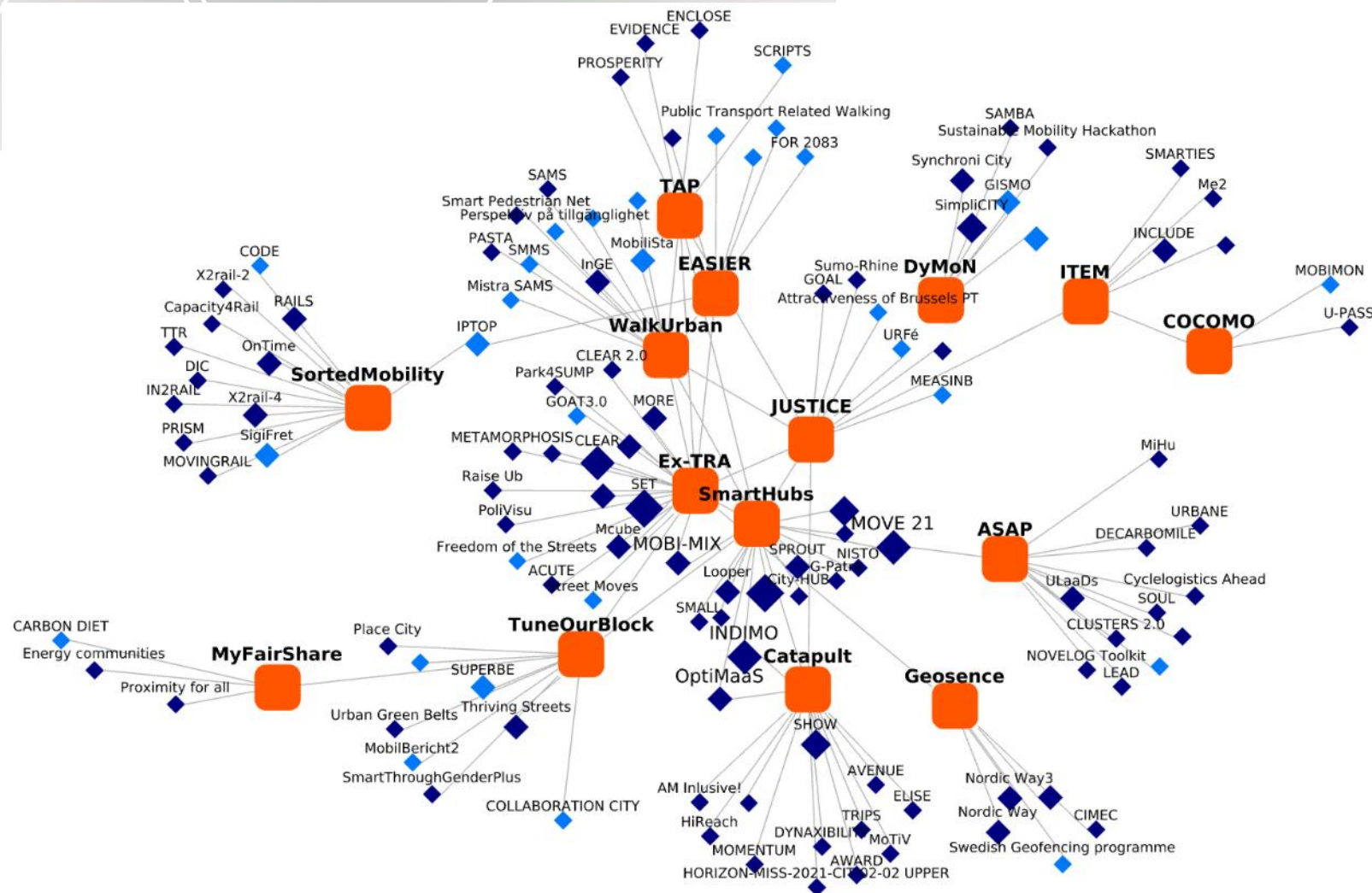
- ENUAC projects
- ◆ European projects

Links between projects - projects named by another project in:

- Online survey Q14
- Submitted proposal
- Annual progress report Y1

ENUAC projects mapping survey

ENUAC projects networks

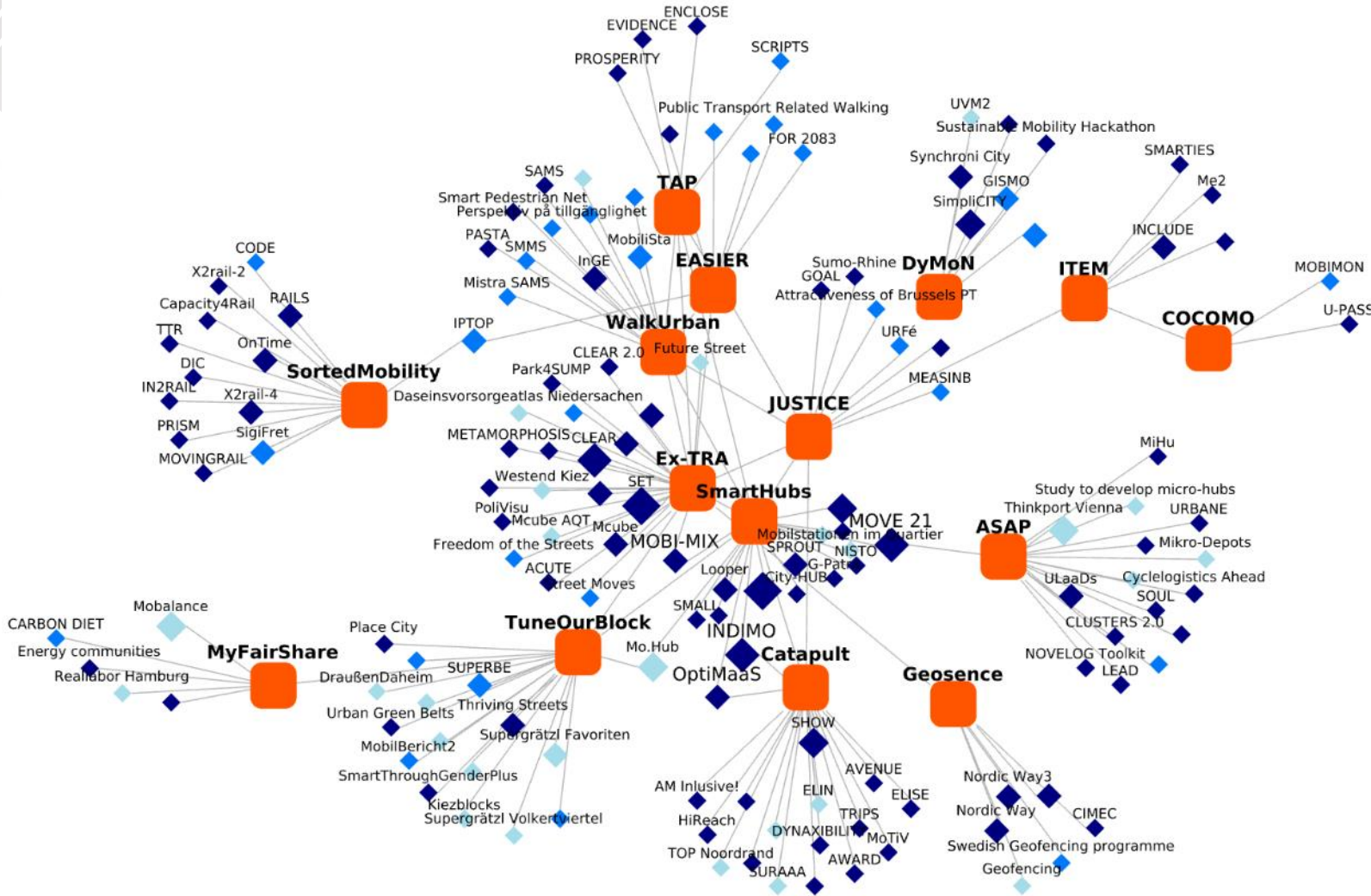


- ENUAC projects
- ◆ European projects
- ◆ National projects

Links between projects -
projects named by another
project in:

- Online survey Q14
- Submitted proposal
- Annual progress report Y1

ENUAC projects mapping survey



■ ENUAC projects

◆ European projects

◆ National projects

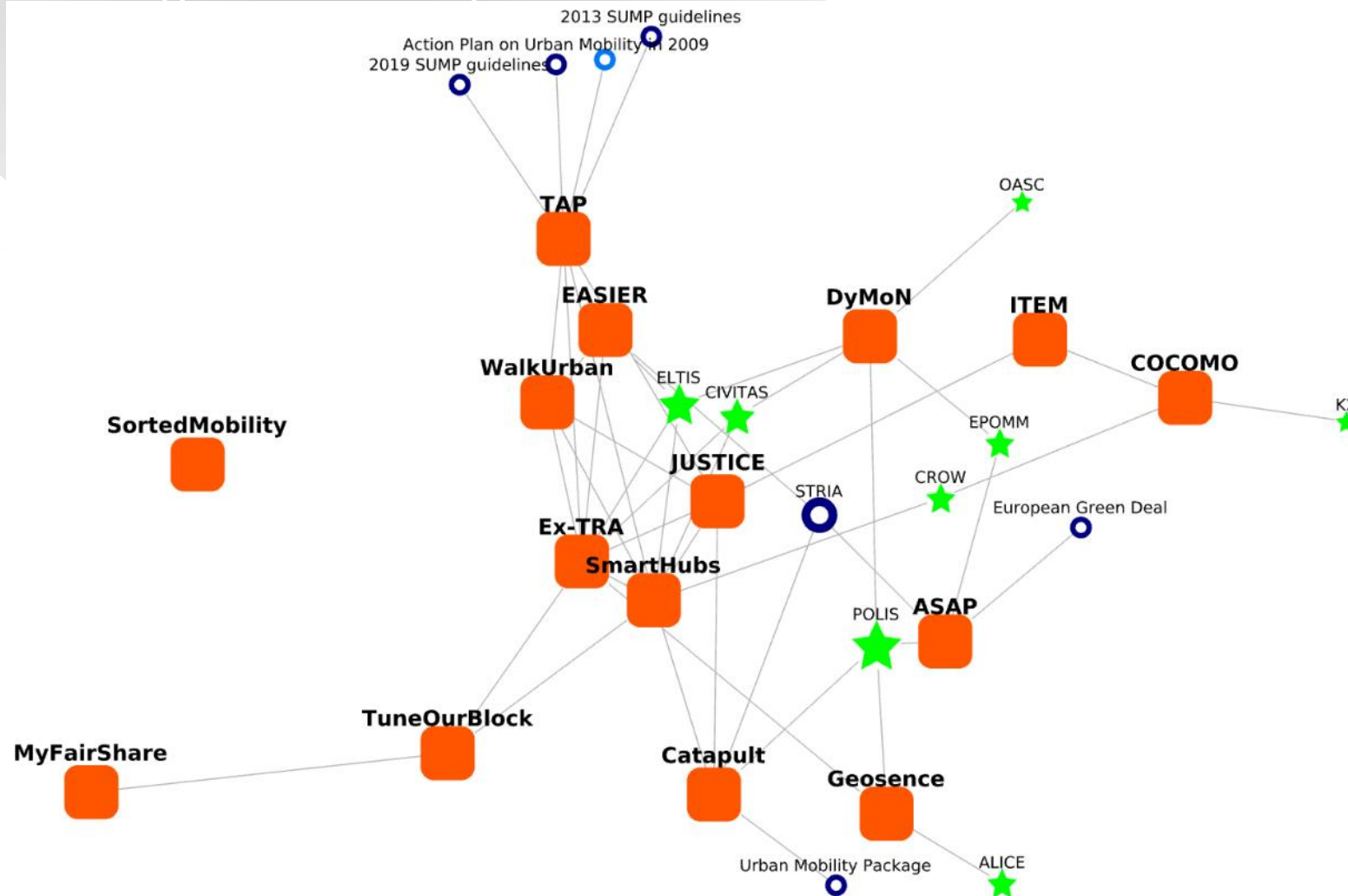
Local projects

Links between projects -
projects named by another
project in:

- Online survey Q14
- Submitted proposal
- Annual progress report

ENUAC projects mapping survey

ENUAC projects networks



 ENUAC projects

 Policies

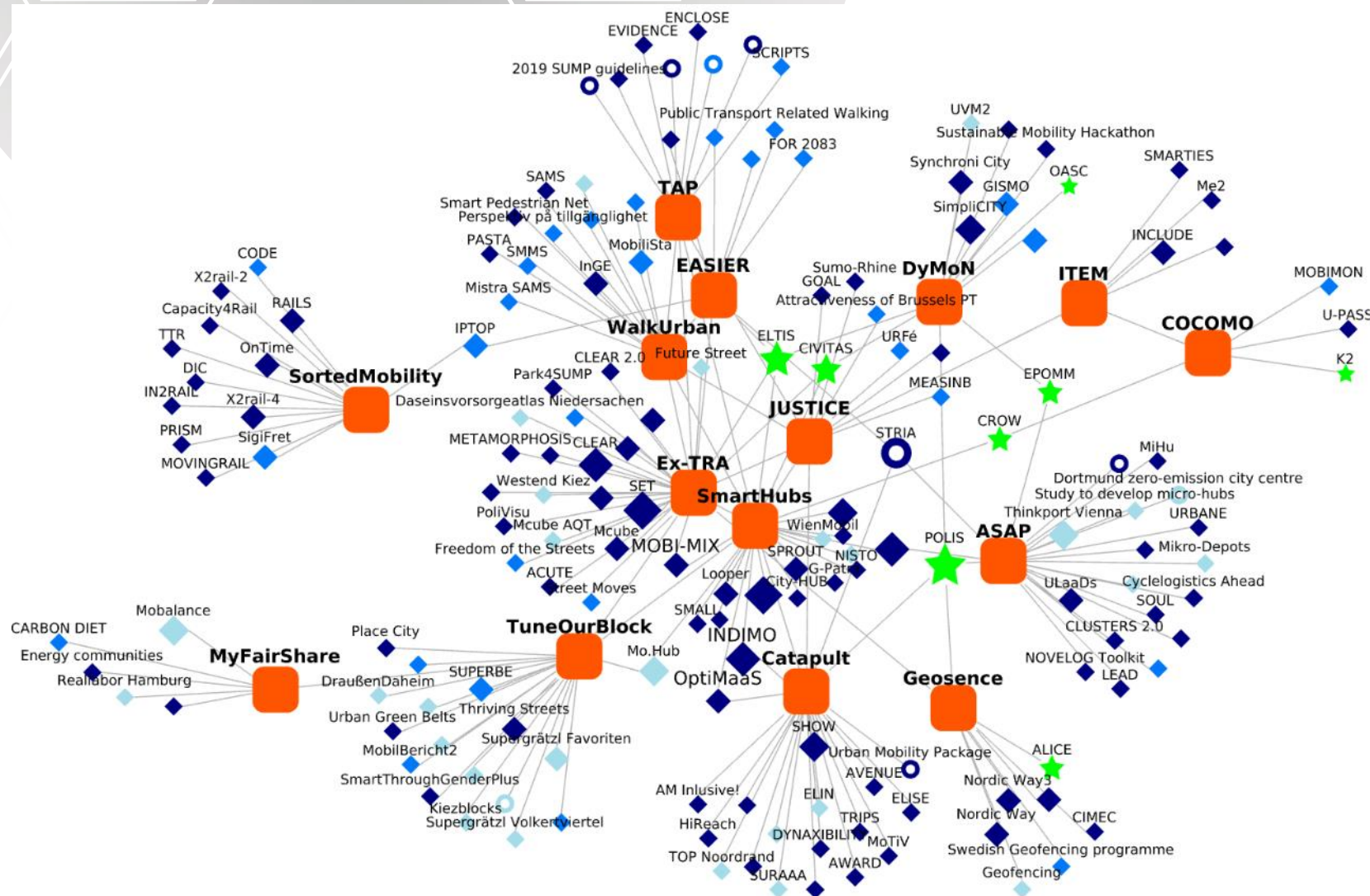
 Networks

Links between projects -
projects named by another
project in:

- Online survey Q14
- Submitted proposal
- Annual progress report Y1

ENUAC projects mapping survey

ENUAC projects networks

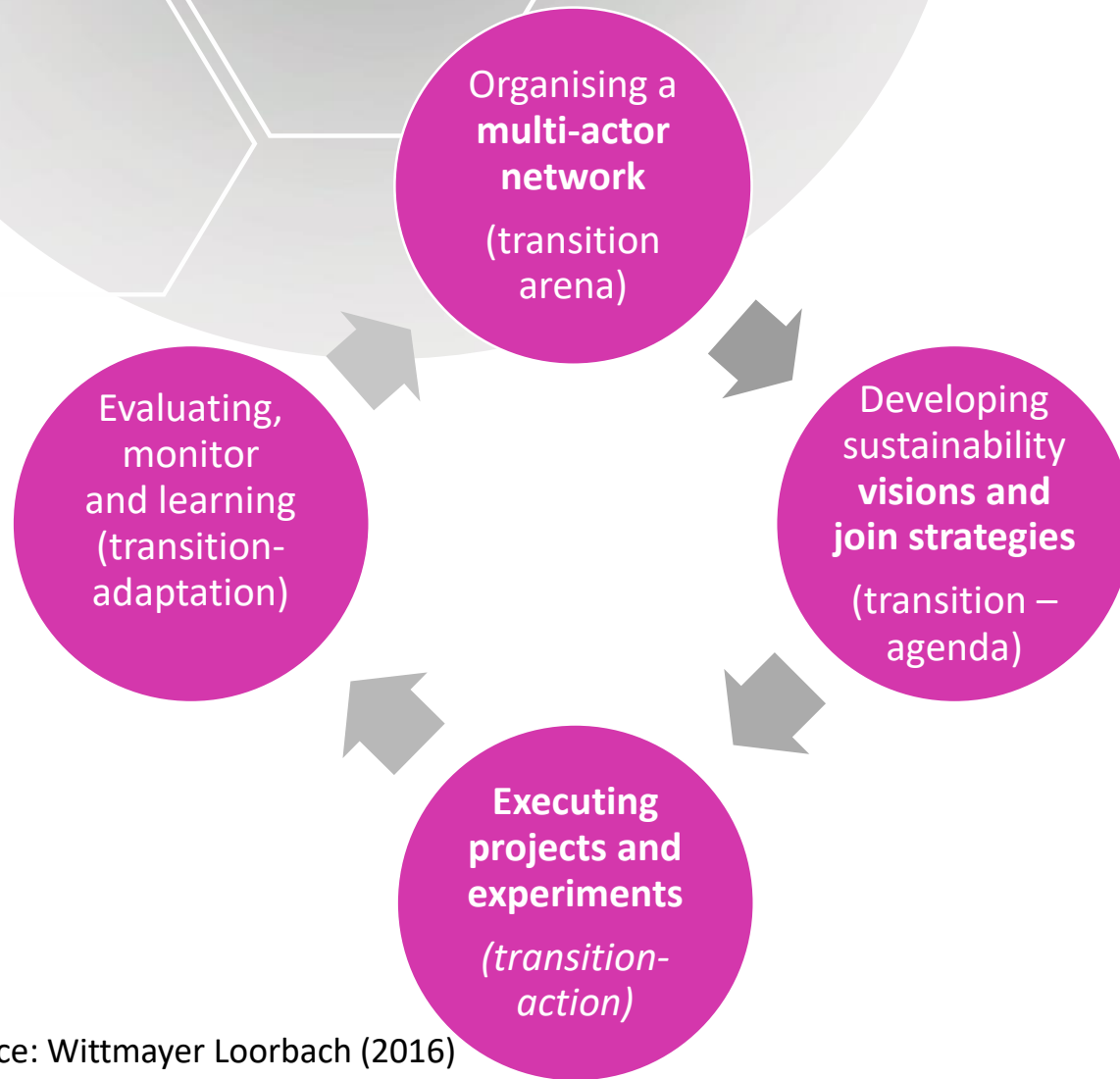


- ENUAC projects
- ◆ European projects
- ◆ National projects
- ◆ Local projects
- Policies
- ★ Networks

Links between projects - projects named by another project in:

- Online survey Q14
- Submitted proposal
- Annual progress report Y1

Transition management - How the project is applied in a real-life settings



Source: Wittmayer Loorbach (2016)

ENUAC projects mapping survey

How the project is applied in a real-life settings

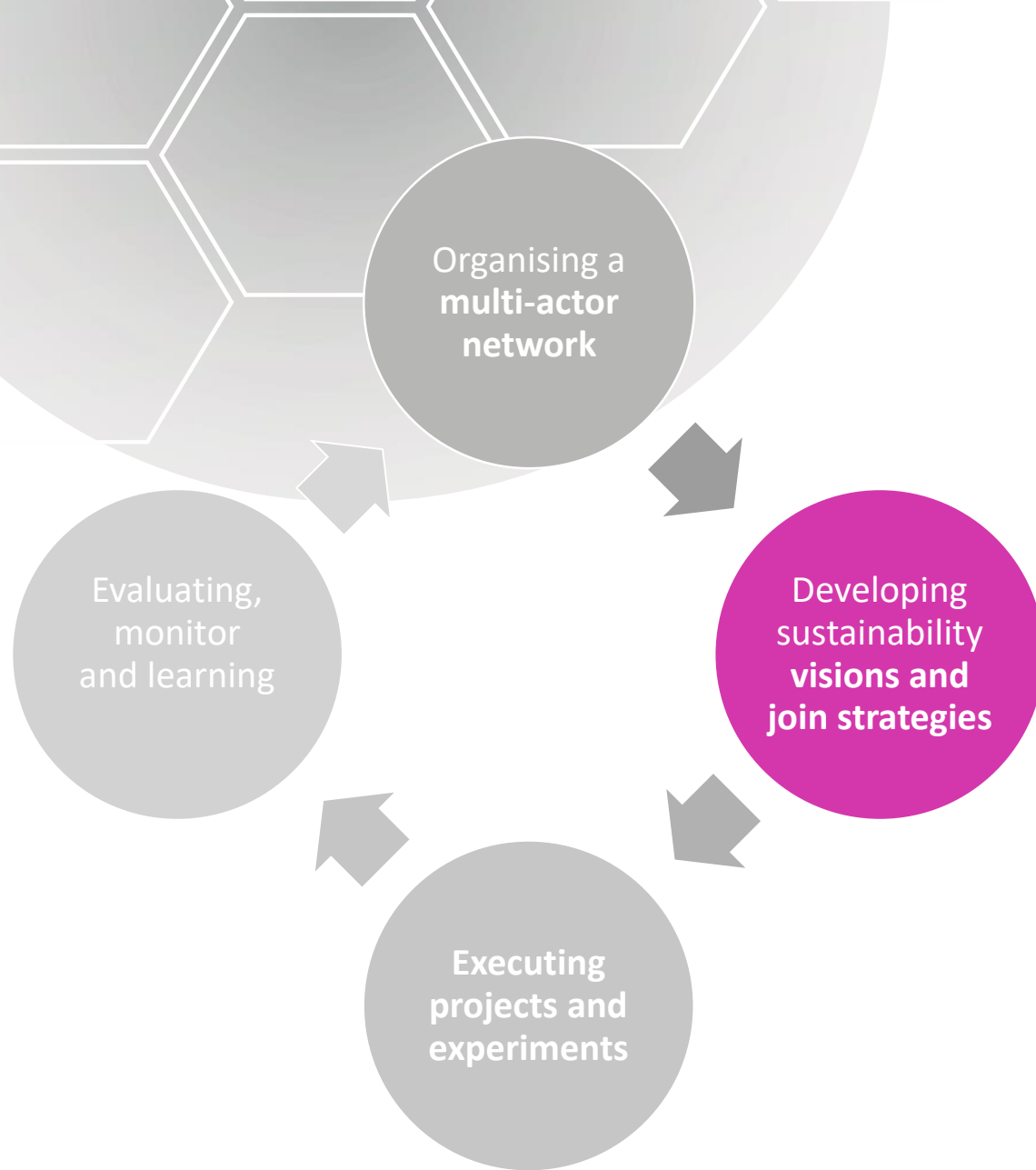


STAKEHOLDER NETWORK FACILITATION

- e.g. 'Community of Practice' LinkedIn group (TAP)

ENUAC projects mapping survey

How the project is applied in a real-life settings

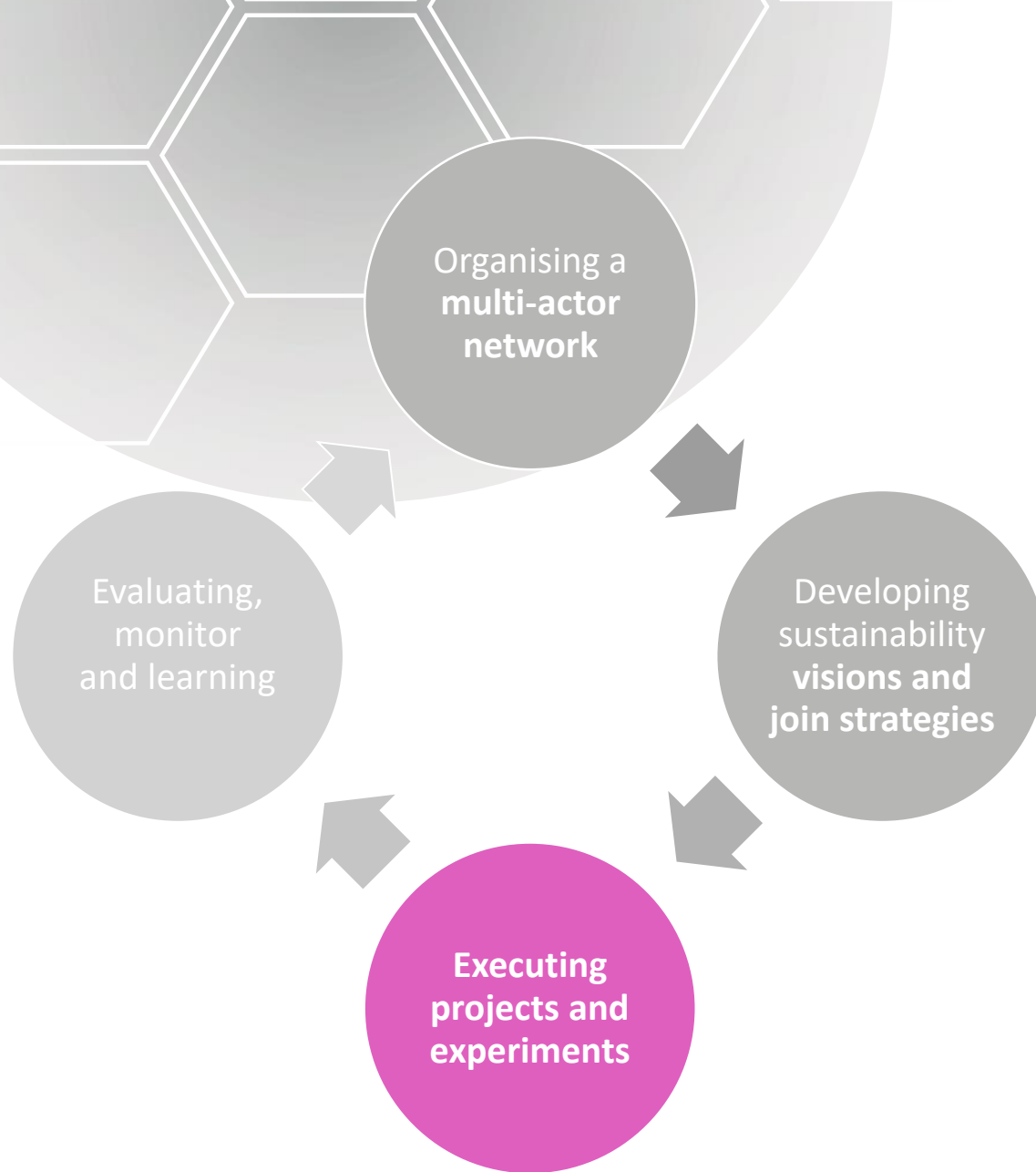


KNOWLEDGE CO-CREATION

- Scenario-building (TAP, Justice)
- Community workshops (Cocomo)
- Action research (SmartHubs, TAP)

ENUAC projects mapping survey

How the project is applied in a real-life setting



LIVING LABS

- Tool testing with stakeholders
- Proof of concept testing
- Pilots

(Catapult, ASAP, Myfairshare, SmartHubs, Dymon, GeoSense, Ex-TRA)

PROTOTYPES

- e.g. mobility hub prototype development (SmartHubs)

ON-SITE METHODOLOGY TESTING

- Development and testing of new methods and methodologies (TuneOurBlock, Catapult, SortedMobility, Easier, GeoSense, SmartHubs, WalkUrban)

ENUAC projects mapping survey

How the project is applied in a real-life settings



FINDINGS DISSEMINATION

- Findings shared with decision-makers and community groups (WalkUrban, TuneOurBlock, ASAP, Cocomo, Ex-TRA, SmartHubs, ITEM)

EXPERT TOOLS

- Serious game creation (Catapult)
- Software/App development (Dymon, ASAP, Ex-TRA)
- Digital Info Kiosk (SmartHubs)

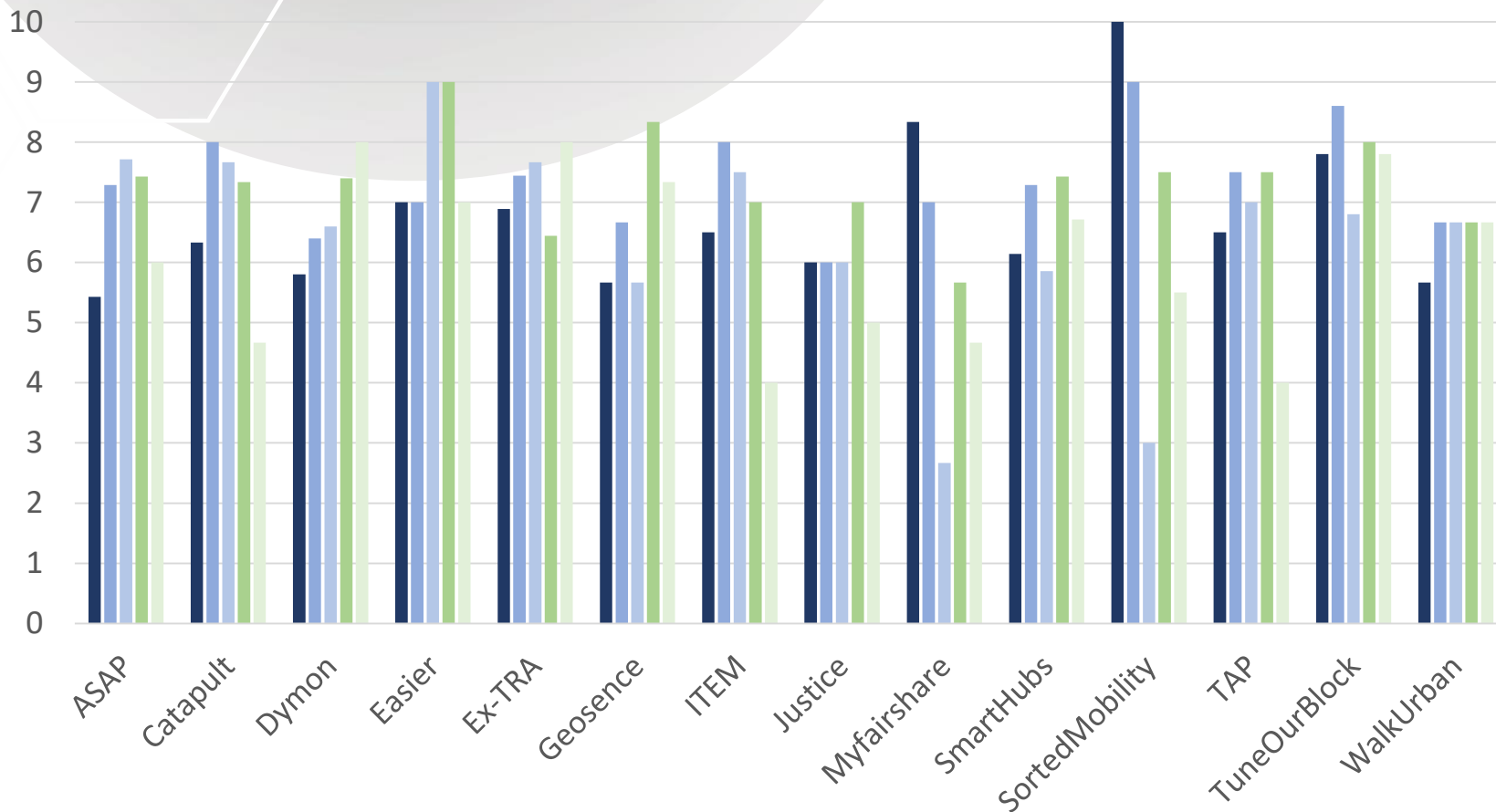
GUIDELINES/ POLICY RECOMMENDATIONS

- Development of guidelines for practitioners and policy-makers (Easier, Ex-TRA)

ENUAC projects mapping survey

Projects as potential triggers of socio-technical transitions (self assessment)

- How would you rate (from 1 to 10) your project in terms of the following **criteria**?

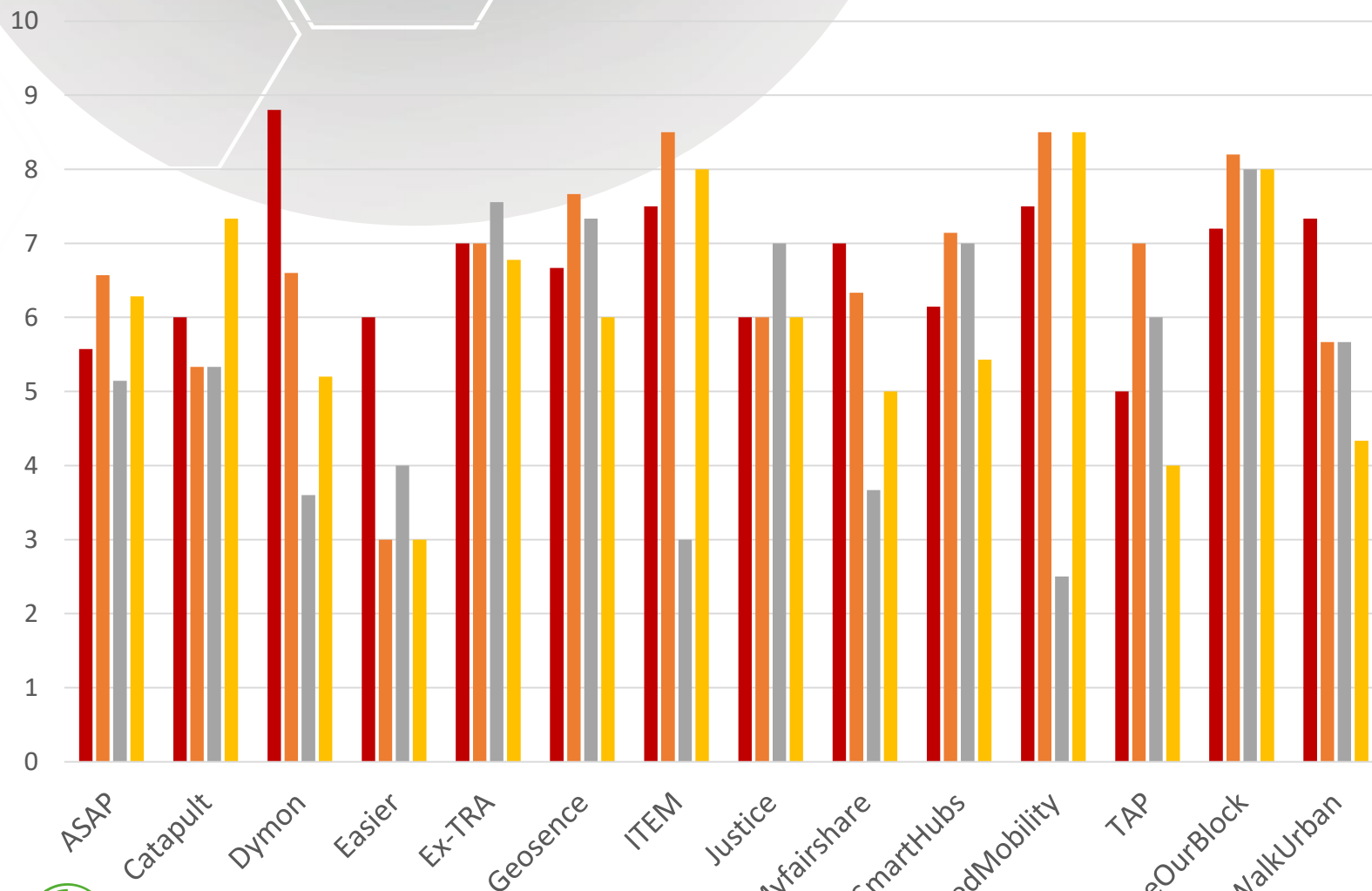


- Radical:** the project fundamentally differs from dominant practices
- Challenge-driven:** The project moves toward a potentially long-term change pathway to address a societal challenge
- Feasible:** The project can be implemented quickly and with readily available resources
- Strategic:** The project generates lessons for reaching envisioned fundamental changes
- Communicative:** The project reaches and mobilises the broader public

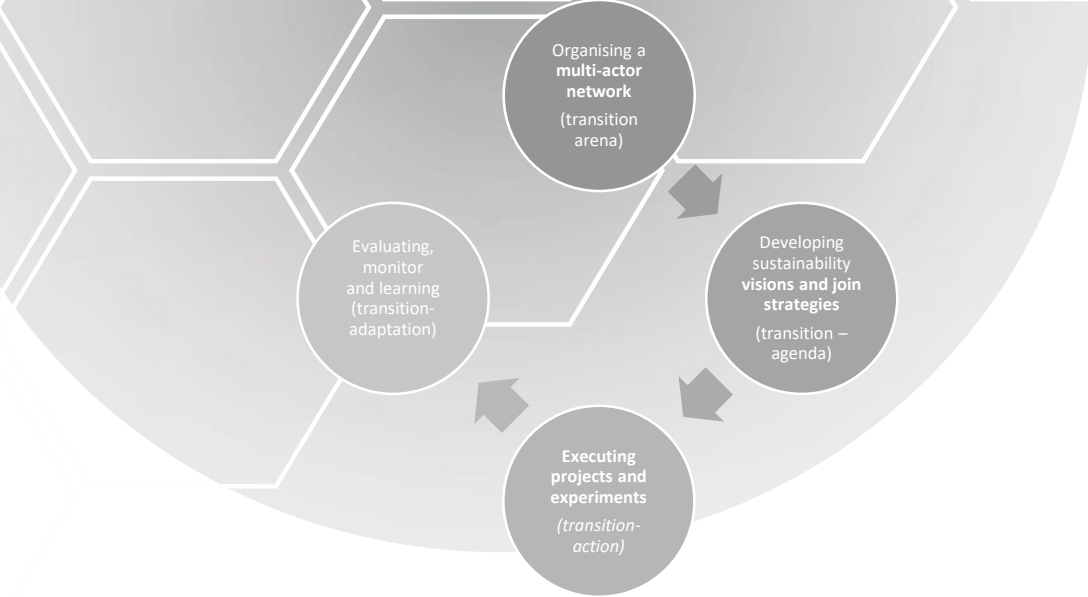
ENUAC projects mapping survey

Projects as potential triggers of socio-technical transitions (self assessment)

How would you rate your project (from 0 to 10) in terms of the following **dimensions of change**?



- Average of Behavioural: the project has the potential for a shift in individual use and behaviour?
- Average of Institutional: the project has the potential for alterations to city-wide mobility and public space policies, legal and financial frameworks, and cultural/social norms
- Average of Material: the project has the potential for a physical change in the composition of the streetscape
- Average of Organisational: the project has the potential for a change in the network of players, organisations and/or state, market, and civic collaborations



ENUAC projects mapping survey

ENUAC projects impacts

- Which future activities would you put in place to **increase your project's impact**?

DISSEMINATION

- Workshops with stakeholders
- Podcasts
- Press releases, conferences
- Documentary creation
- Further consortium meetings for findings integration

STAKEHOLDER INVOLVEMENT

- Stakeholder co-creation workshops
- Gaining further access to network of city representatives

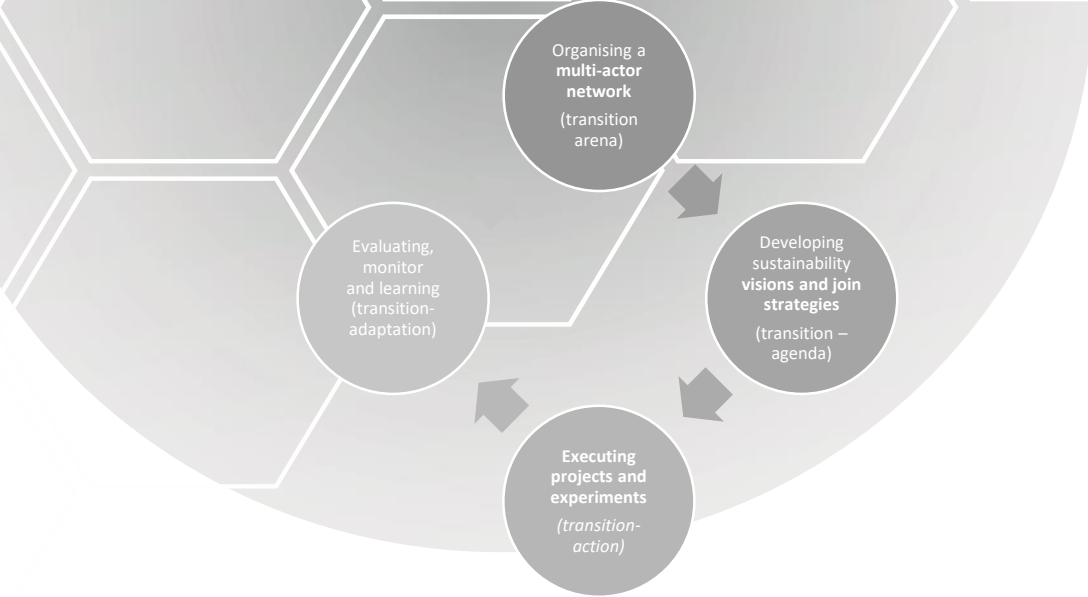
TOOLS & RESOURCES

- Development of open-source guidelines
- Digital tools for public use

POLICY INFLUENCE

- Guidelines for integration of results into mobility policies
- Raising awareness amongst decision-makers and public





ENUAC projects mapping survey ENUAC projects impacts

- which kind of **support would be needed** (both on the research level/practitioner level)?

RESOURCES FOR

- Further research & data collection
- Testing of real-life applications
- Cities to participate in pilots
- Allowing adoption of guidelines
- Further innovation
- Setting up additional living labs
- Developing policy labs

KNOWLEDGE EXCHANGE

- Meetings for sharing best practice/findings
- Amongst multiple stakeholders including the public and practitioners
- Space for researchers to provide training for use of tools
- Events/networking
- Effective communication/dissemination

ENHANCED COOPERATION CHANNELS

- Inter-disciplinary cooperation beyond academia
- Better coordination between researchers and practitioners
- More practitioner partners for testing out solutions
- Technical support from private sector



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Electricity for sustainable energy



ACUTE – ENUAC Knowledge Hub

ENUAC projects workshop

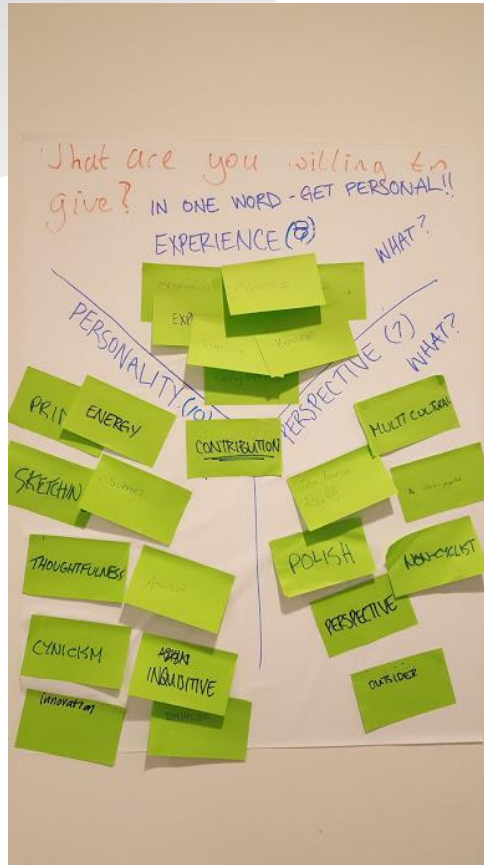


This project is supported by the European Commission and funded under the Horizon 2020 ERA-NET Cofund scheme under grant agreement N° 875022



1-2-4 ALL Sequence of Steps and Time Allocation

1. Silent self-reflection by individuals on a shared challenge **1 min**
2. Generate ideas in pairs, building on ideas from self-reflection **2 min**
3. Share and develop ideas from your pair in foursomes (notice similarities and differences) **4 min**
4. Each group shares one important idea with all **5 min**



Questions #1 - organising and strengthening multi-actor network

- What **actions** do you recommend to **create links** with other research projects, cities and practitioners?



Please
leave your
comfort
zone!

- Link for online participants:
- https://jamboard.google.com/d/1QUCR9BQ3HIBCqfq-Zo5pvTZh2khaCh3_InkVGW3oAAs/viewer?f=0

Questions #2

- What **actions** do you recommend to apply your research results in real-life settings in other cities?

-

- Link for online participants:
- https://jamboard.google.com/d/1QUCR9BQ3HIBCqfq-Zo5pvTZh2khaCh3_InkVGW3oAAs/viewer?f=0





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