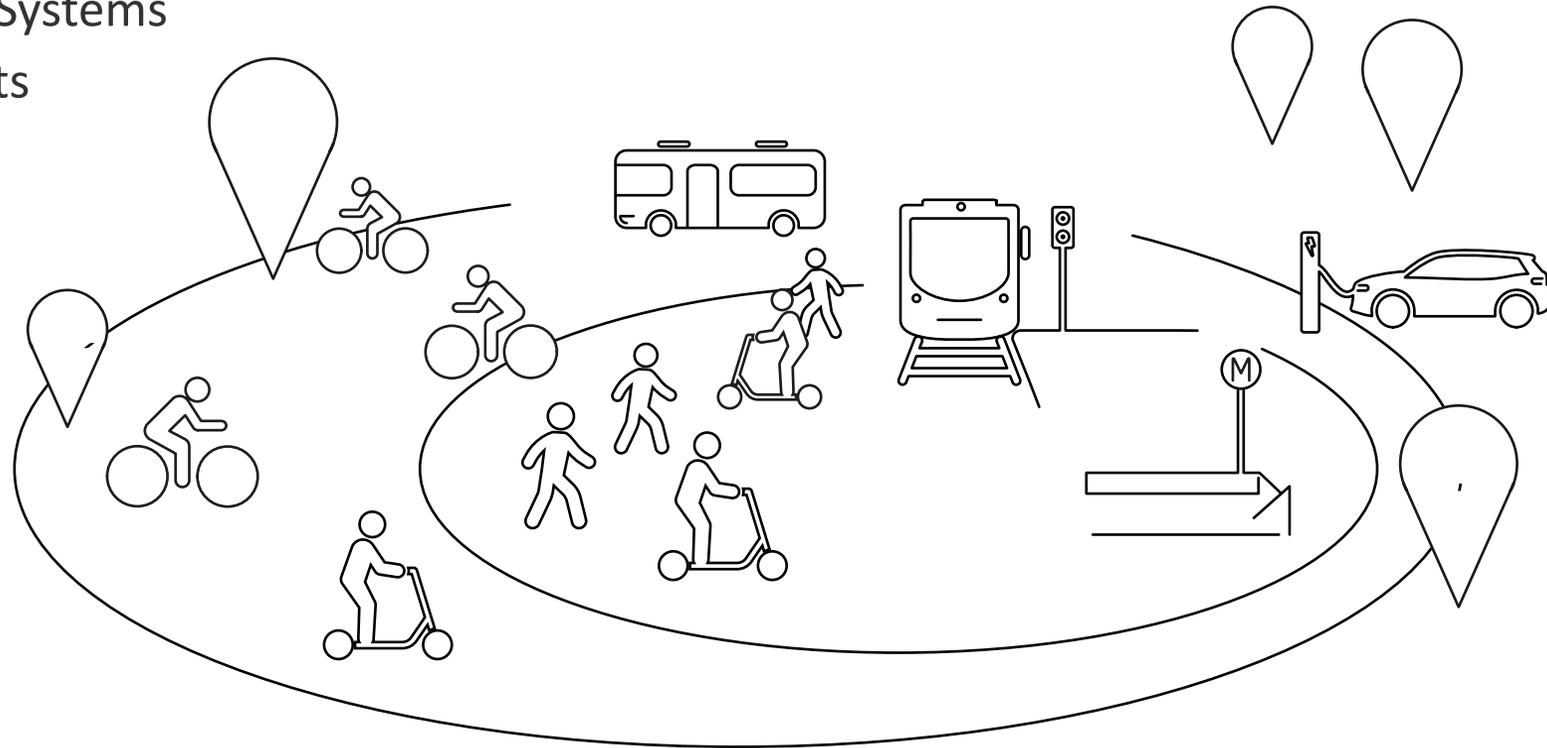


SOUL – Smart mObility hUb pLatform  
A design thinking approach

Marco Kellhammer  
TU Munich  
Professorship of Urban Design

# A Decision Support for Mobility-Hubs

- Various hub users and potential users
- Various stakeholders involved in planning and decision making
- Product-Service-Systems
- Many touchpoints



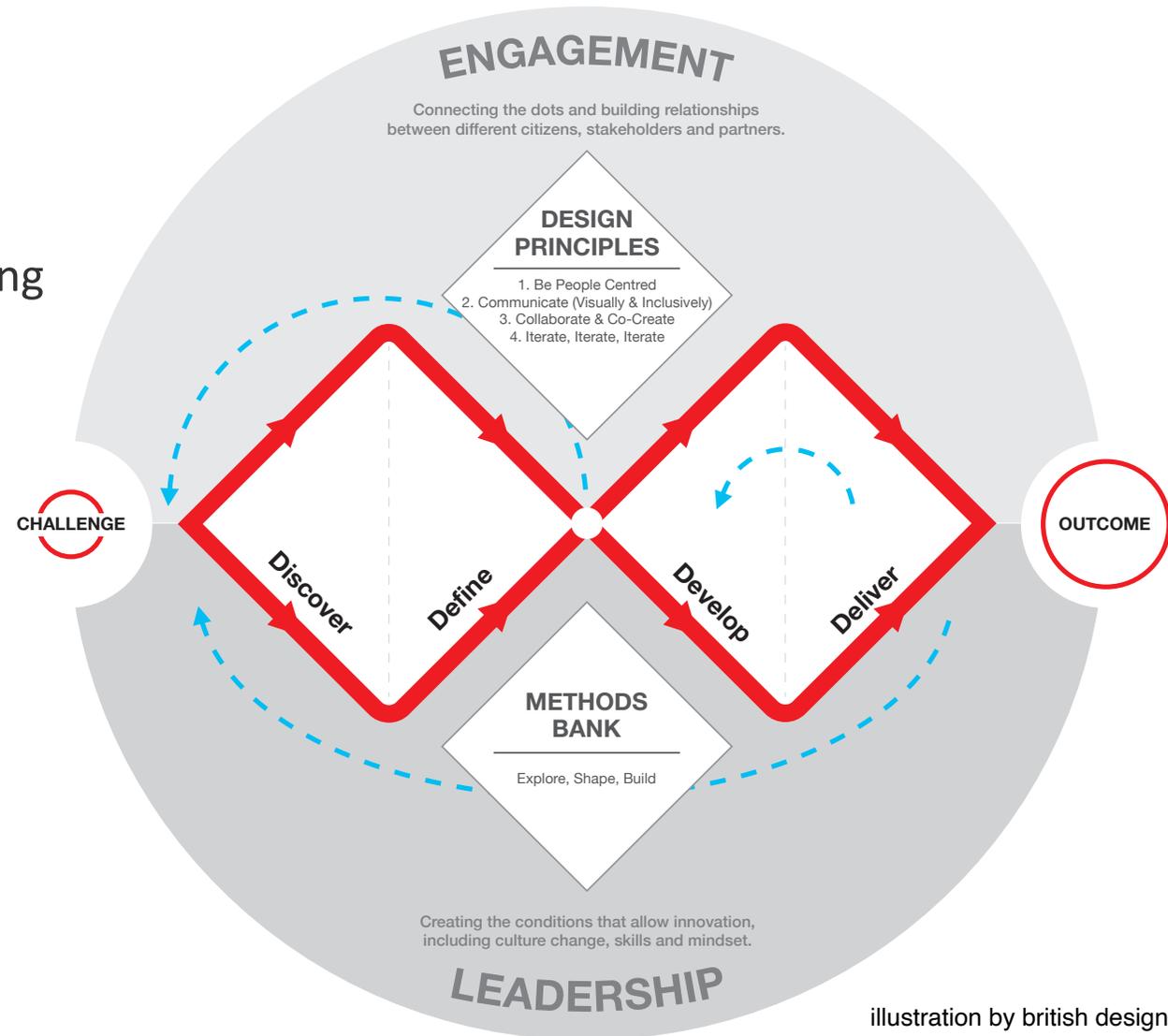
# Design Thinking Approach

Discover: identifying user needs

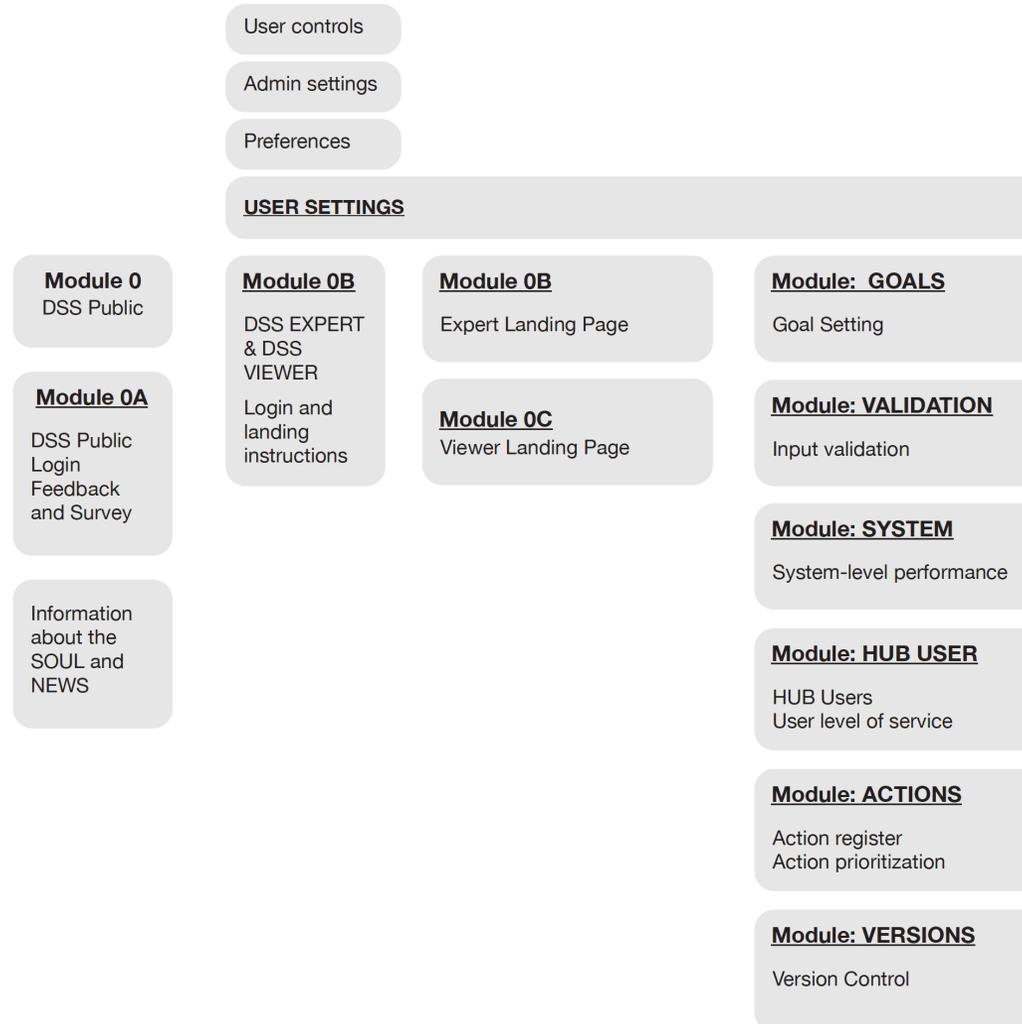
Define: problem framing

Develop: seeking inspiration and co-designing

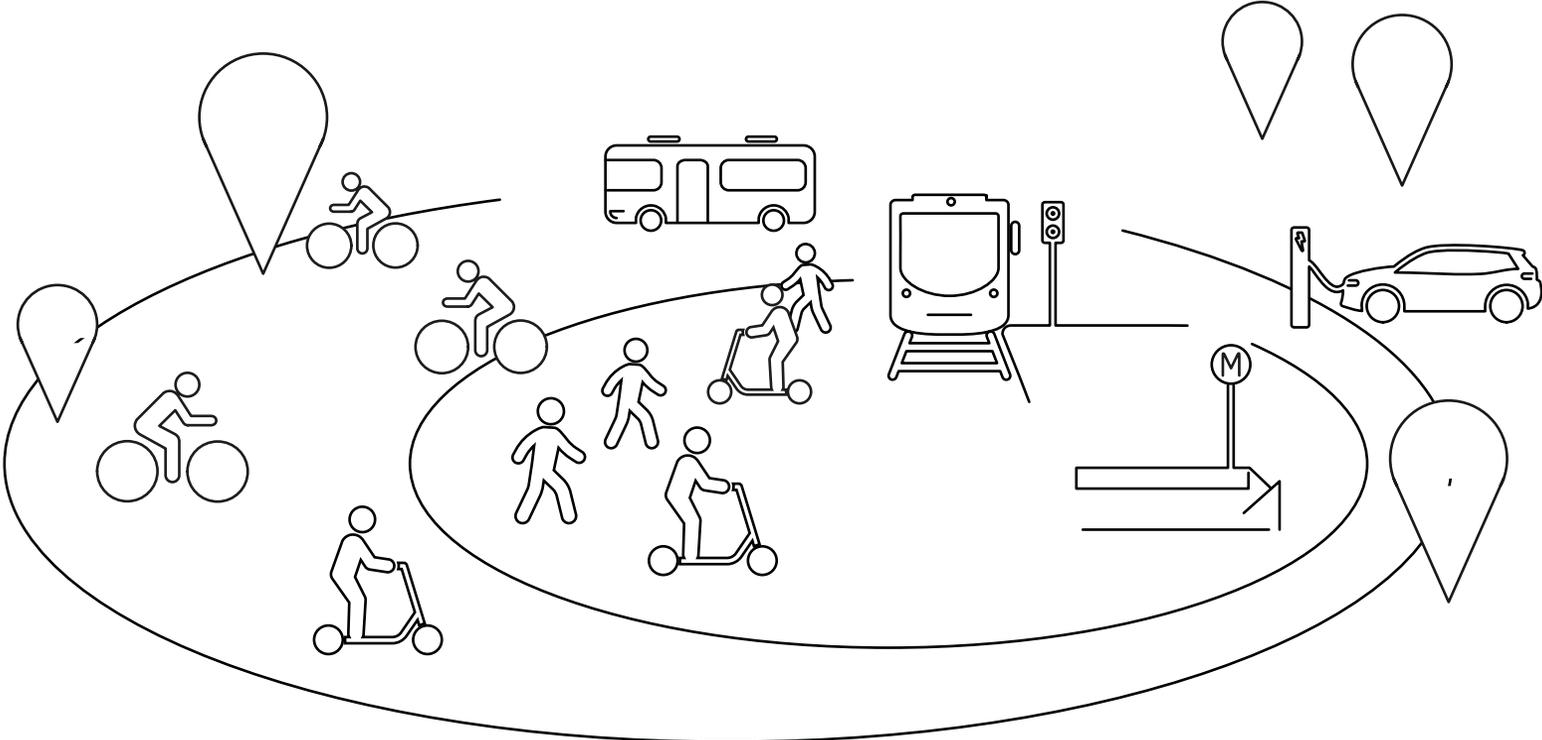
Deliver: testing out different solutions



# DSS modular structure



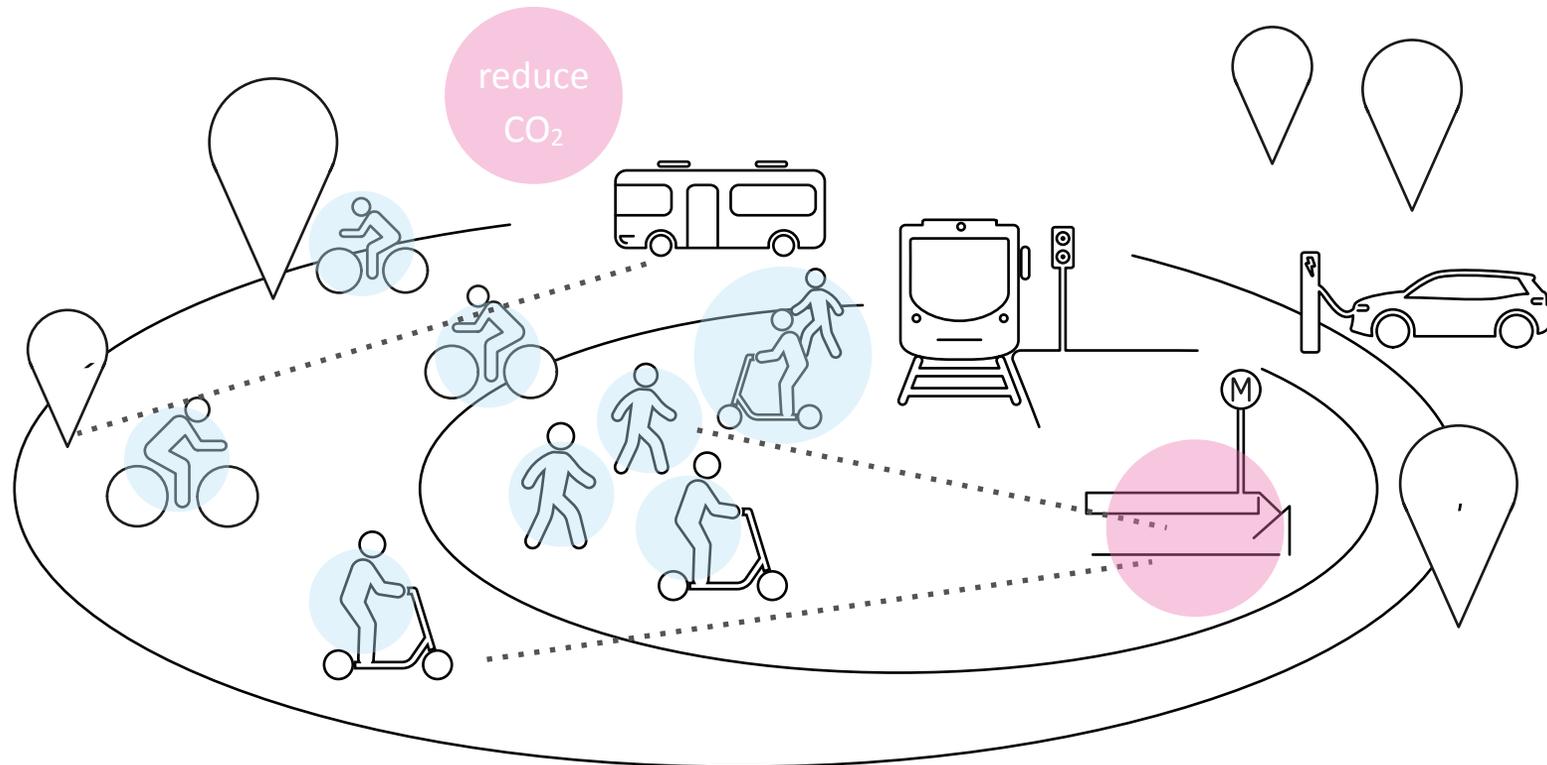
# A Decision Support for Mobility-Hubs





# Define the challenges

Focus on specific parameters from the discover phase



**Module: GOALS**

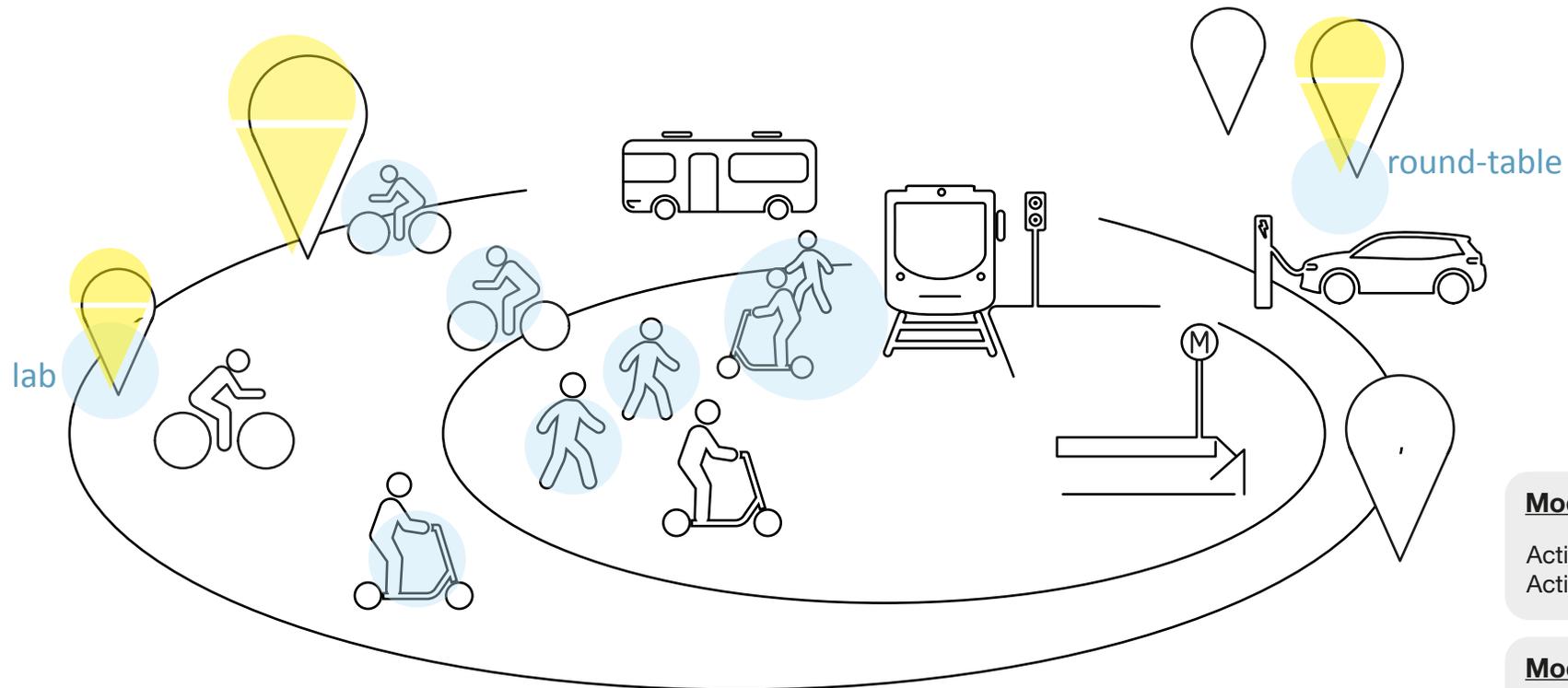
Goal Setting

**Module: VALIDATION**

Input validation

# Develop / Encourage participation

Work together on different answers to the defined problem,  
co-design, bring people and stakeholders together  
Get inspired



## **Module: ACTIONS**

Action register  
Action prioritization

## **Module: HUB USER**

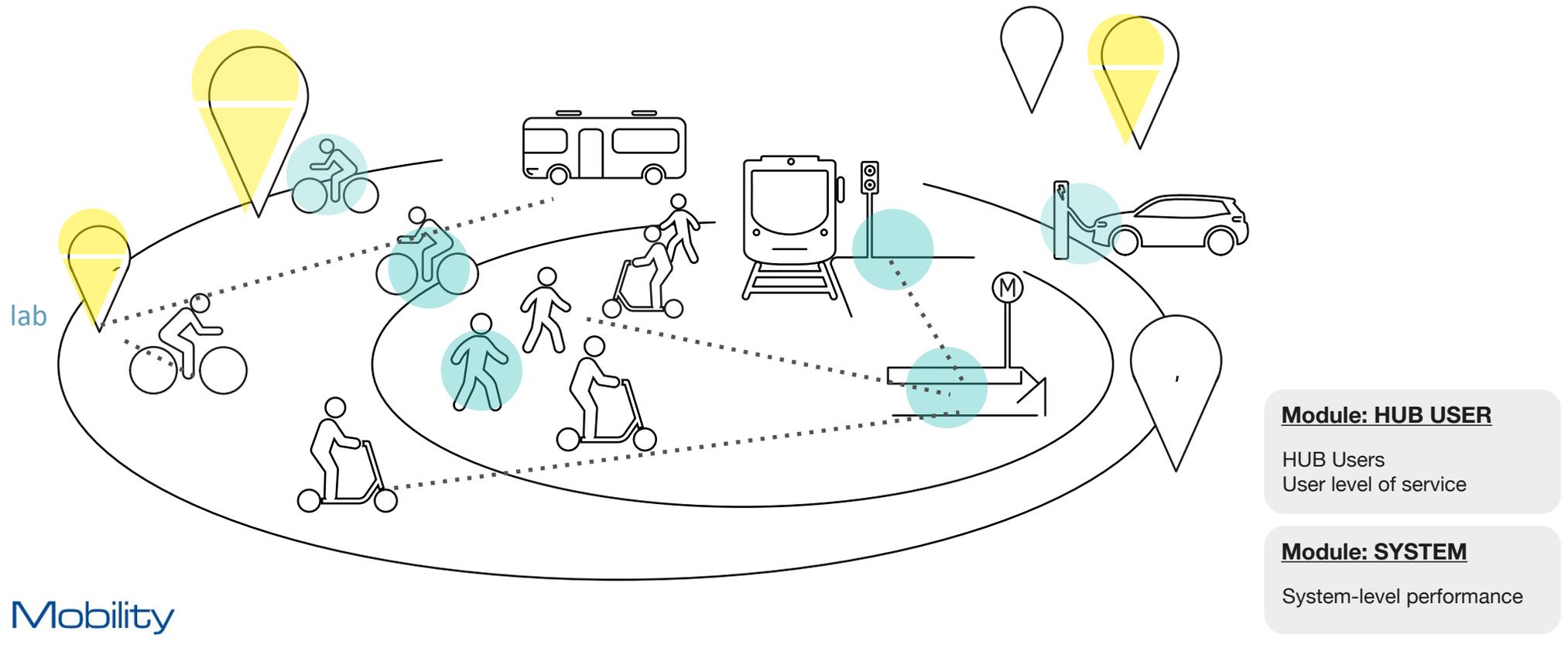
HUB Users  
User level of service

# Deliver – prototype and test

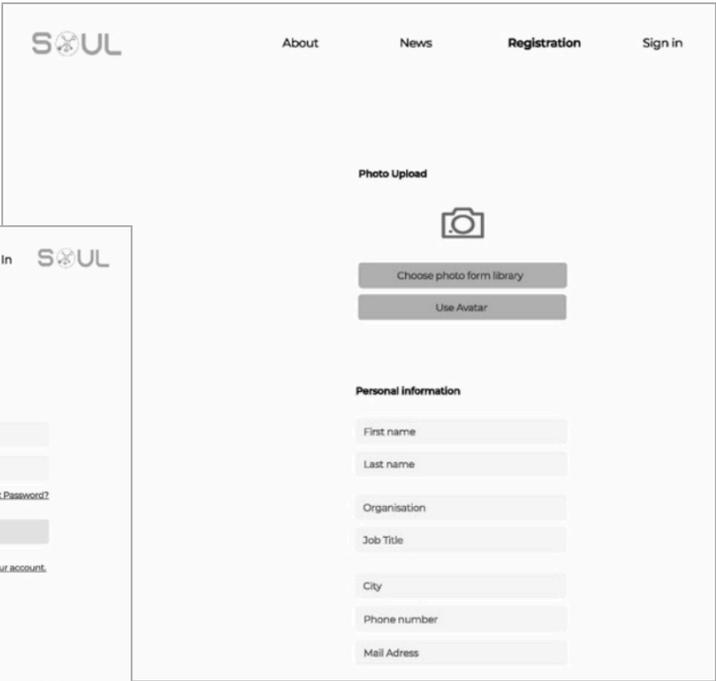
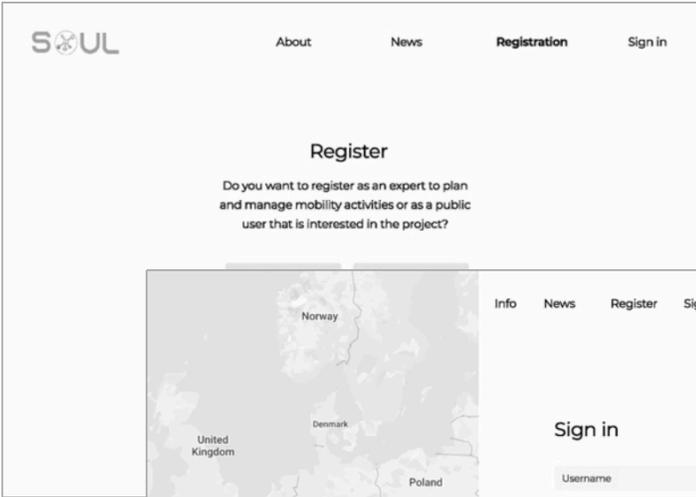
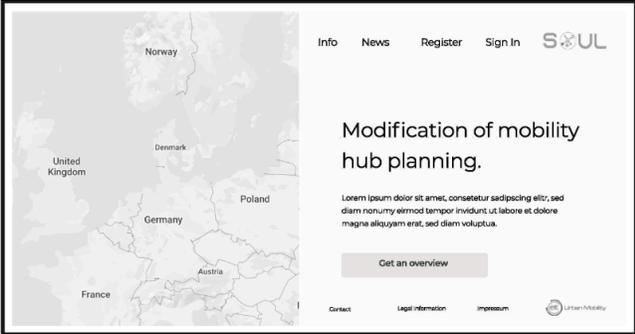
Test out potential small-scale solutions

Evaluate

Improve



# Web Based DSS



# Hub user and action module

The screenshot displays a web application interface for a 'Hub' user and action module. The interface is organized into several sections:

- Header:** Includes navigation links for 'About', 'Hubs', and a user profile for 'Max Muster'. The current location is 'Milano Centrale' and the time is '14:30 pm - Monday, 21st October 2020'.
- Dashboard:** A vertical sidebar on the left contains icons for 'Dashboard', 'Goals', 'Validation', 'System', 'Hub User', 'Actions', and 'Versions'.
- HUB PERSONAS:** A section titled 'HUB PERSONAS' with an 'Add new persona +' button. It displays four user avatars: Maria Cortez, Josef Baru, Isabella Mille, and Susanna Bocelli.
- HUB SOCIONAS:** A section titled 'HUB SOCIONAS' with an 'Add new sociona +' button. It displays four categories: Incomers, Families, Old people (<65 yo), and Disabled.
- STATISTICS:** A section titled 'STATISTICS' for 'LUX Metro' featuring a circular radar chart and three performance metrics:
  - New Users: 512 (Goal: 1000)
  - Frequency: 30k (Goal: 40k)
  - Duration in vehicle: 55min (Goal: 32 min)
- VOICES:** A section titled 'VOICES' showing three user-generated comments from 'Hub Part: 2123' dated '03.09.20, 19:45 pm'. Each comment is from 'Marc Andrew, 54 years old' and includes the hashtag '#noair #filter'. The text of the comments is: "I would wish for more fresh air in the metro. It's too much people here inside."

# Hub user and action module

Have an insight in user perspectives in your hub.

14:30 pm - Monday, 21st October 2020

Milano Centrale

**HUB PERSONAS** Add new persona +

Maria Cortez Josef Baru Isabella Mille Susanna Bocelli

**HUB SOCIONAS** Add new sociona +

Incomers Families Old people (<65 yo) Disabled

**STATISTICS** < LUX Metro >

New Users 512 / 1000 Goal

Frequency 30k / 40k Goal

Duration in vehicle 8min / 32 min Goal

**VOICES**

Hub Part: 2123 Date: 03.09.20, 19:45 pm  
Marc Andrew, 54 years old  
#noair #filter  
"I would wish for more fresh air in the metro. It's too much people here inside."

Hub Part: 2123 Date: 03.09.20, 19:45 pm  
Marc Andrew, 54 years old  
#noair #filter  
"I would wish for more fresh air in the metro. It's too much people here inside."

Hub Part: 2123 Date: 03.09.20, 19:45 pm  
Marc Andrew, 54 years old  
#noair #filter  
"I would wish for more fresh air in the metro. It's too much people here inside."

Decide which action you want to follow.

14:30 pm - Monday, 21st October 2020

Milano Centrale

**CURRENT ACTIONS WITH PRIORIZATION**

Prio	Action	Status
1	Pathways to/from the hub using Connected Goals: xxx	Progress bar, edit, up/down arrows
2	traffic signals for cyclists / green wave	Progress bar, edit, up/down arrows
3	increase bike sharing	Progress bar, edit, up/down arrows
4	install bike stalls next to station free for daily commuters	Progress bar, edit, up/down arrows
5	Pathways to/from the hub using different modes	Progress bar, edit, up/down arrows

**ACTIONS MAY FOLLOW**

- Hub user participation
- city/road tax for cars going to station
- benefits for using bike incentives
- Pathways to/from the hub using different modes

**POSSIBLE NEW ACTIONS** Search for actions

Map, Grid, Map, Network

Map showing Milano Centrale and surrounding areas with numbered markers 1 and 2.

Welcome back, Max Muster!

14:30 pm - Monday, 21st October 2020

Milano Centrale

**ACTION OVERVIEW**

- Rank
- Title
- Category
- Connected actions
- Actors
- Stakeholders
- Site ID
- Socionas
- Guidelines & Regulations

**DETAIL VIEW**

1. Pathways to/from the hub using different modes
2. Pathways through the hub using different modes
3. Waiting and queuing areas
4. Vertical integration of areas
5. Micro-mobility service system
6. Vehicle sharing service system
7. Parking system and usage scheme (incl. charging)
8. Pick-up / drop-off system and usage scheme
9. Schedule coordination between different modes
10. Information systems
11. Navigation systems
12. Long term and short-term scheduled promotional events
13. Responses for disruptions and irregular events
14. Entertainment, cultural, or commercial information
15. Travel and accessibility information

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Prof. Benedikt Boucsein

Thank you!



Marco  
Kellhammer



Elif Simge  
Fettahoğlu-Özgen



Svenja  
Nevermann