EIT Urban Mobility

SOUL

A DSS TO PLAN AND IMPLEMENT SMART MULTIMODAL MOBILITY HUBS

Framework of Action: A New Tool

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Making Decisions about Urban Mobility Hubs

Decisions distributed across spatio-temporal scales and stakeholders:

- Policy decision: e.g., new data sharing regulation
- Planning decisions: e.g., location choice in the public transport network
- Design decisions: e.g., electric bus charging station
- Management decisions: e.g., schedule disruption due to inclement weather
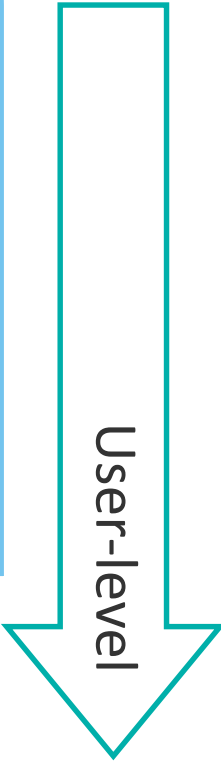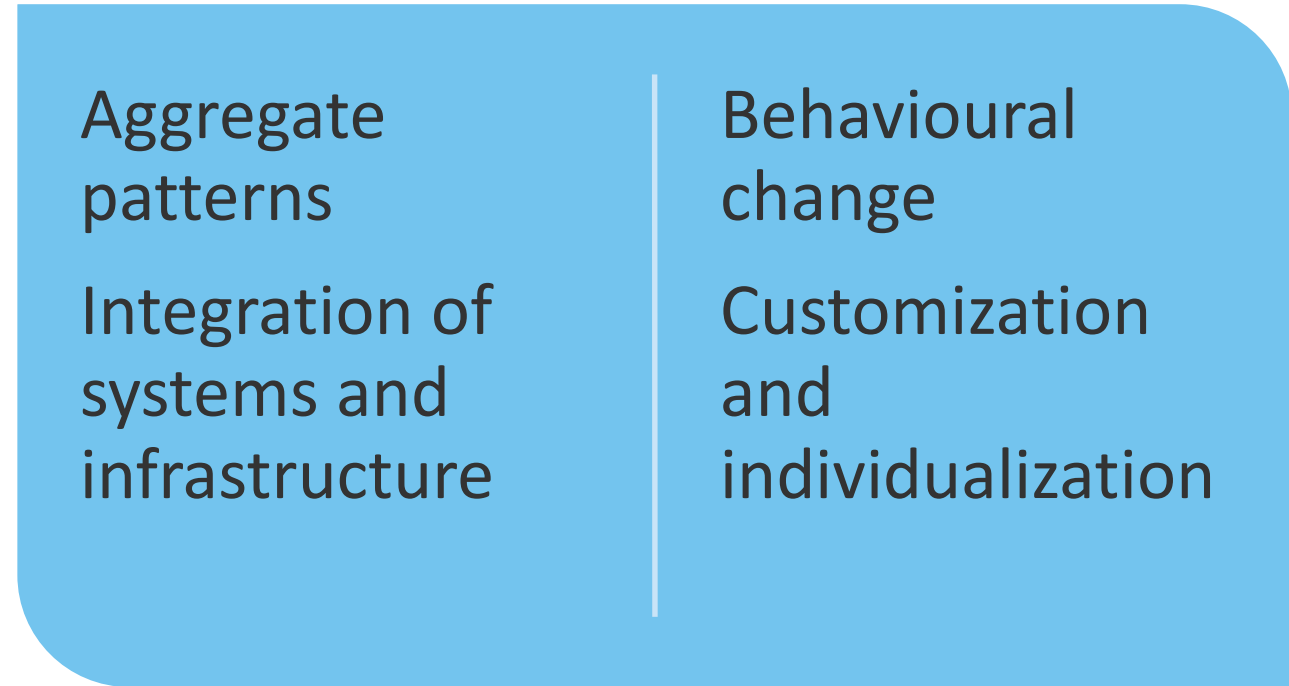
Sources of uncertainties:

- Many emerging and uncertain technologies and services
- Many infrastructural components of various sizes and level of digitalization
- Multiple services operating in the hub
- Large number and large diversity of users with different requirements

Effectiveness of Urban Mobility Hubs

The need to prioritize
(often conflicting) goals:

- Carbon emissions
- Energy consumption
- Noise
- Safety
- Security
- Accessibility
- Operating revenue

System-level

User-level

Aggregate patterns

Integration of systems and infrastructure

Behavioural change

Customization and individualization

Requirements for Supporting Decision Processes

- Cross-modal integration

- Dealing with emerging mobility technologies

- Ability to account for multiple experts' inputs

- Wide-scale public engagement throughout the decision processes

- Aligning physical and digital design

- Evaluating distributive impacts

- Providing data access to multiple parties

- Capacity to operate with limited data sources

- Reduce time for implementation

- Improve cost efficiency
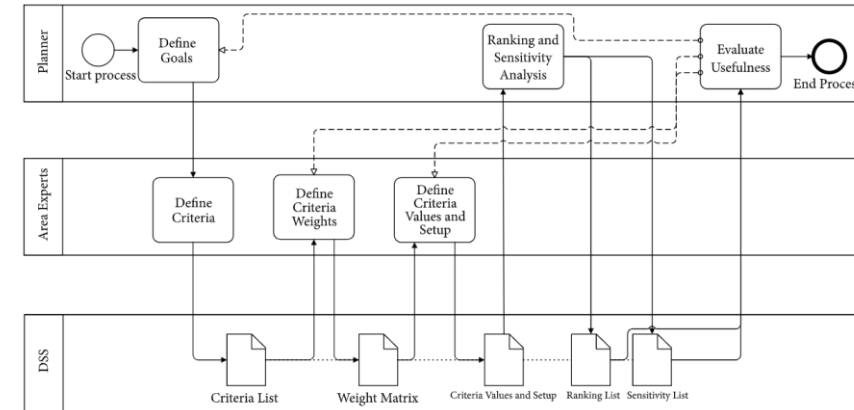
Two Major Gaps in the Current State-of-the-art in Decision Support Tools – Commercial and Open Source

Usability gap: tool users cannot use well the provided functionality

- The tool lacks transparency, as models or variables are not visible to the user;
- The tool lacks capacity to directly respond to users' questions or suggestions;
- The tool requires too high or too low data resolution;
- The tool takes too much calculation time;
- The tool does not provide reliable outcomes;
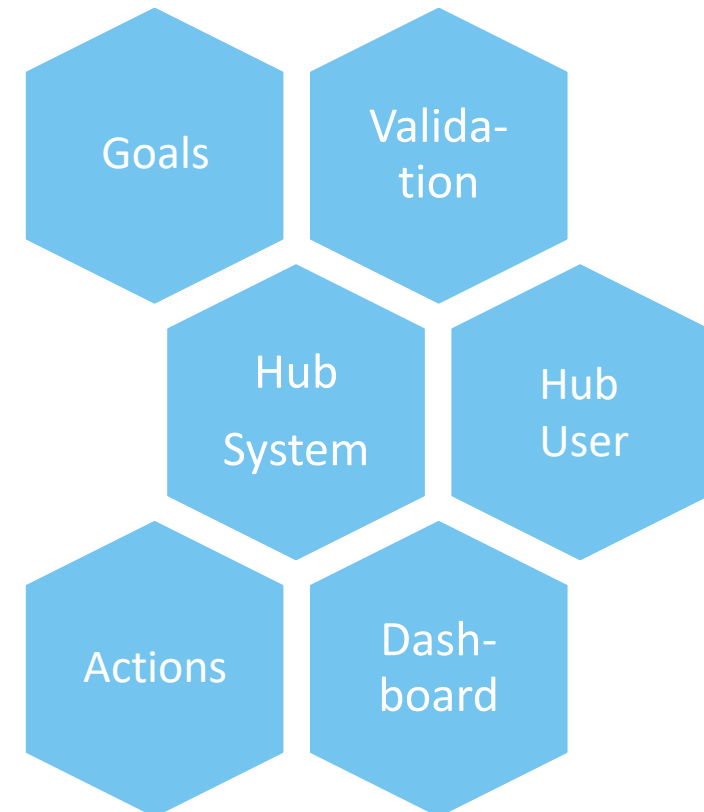- The tool lacks updates and technical support;

Usefulness gap: users cannot use functionality for the purpose needed in specific planning/design/management domain.

- The tool is not flexible enough to be applied for diverse and emerging tasks;
- The tool does not provide the level of details needed;
- The tool does not take all the relevant dimensions into account;
- The tool does not provide visual output useful for communicative purposes;

The Focus of SOUL Decision Support System

- Understanding interdependencies between hub-level and hub-user perspectives
- Providing access and interpretation of different knowledge for DSS users
- Facilitating communication and discussion between those involved in decision processes
- Facilitating useful data analysis for multidimensional evaluation
- Iterations through design thinking
- Process memory and version control

- Web-based modular DSS design
- Different user access levels for DSS modules

Goals

Valida-tion

Hub System

Hub User

Actions

Dash-board

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EIT Urban Mobility is supported by the EIT, a body of the European Union

Thank you!

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