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Do we really need Digital Twins?: **Investigating stakeholders' need for a new transport planning tool**

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MoST

Trøndelag fylkeskommune
Tröndelagen fylhkentjielte

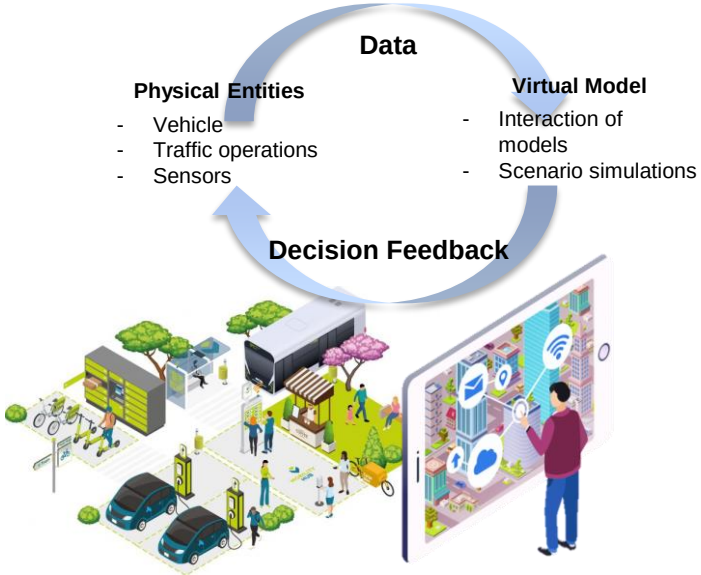
green 2050

Miljøpakken
– bedre by

Sustainable transport planning & Digital Twin

An efficient, environmentally friendly and safe transport system throughout the country in 2050

Easier daily travel and increased competitive ness for the business world	Contribute to achieve Norway's climate and environmen tal goals	Zero vision for the killed and seriously injured	Effective use of new technology	More for the money



Research Questions

1. What are the **stakeholder's needs** to improve planning process towards sustainable transportation system?
2. To which extent **digital twin can fulfil the need** of transportation planning improvement?

We did **interview** to stakeholders in transport planning & **document analysis**

Role	Institution
• Transport planner • Transport engineer • Urban planner • Transit planner • Strategic advisor (urban planning & transport)	• County & Municipality • Road Authority • Transit operators

Flow of Interview

- Understanding current planning process
- Needs of data, model, tools
- Future transport planning tools
  - Required quality & functionality
  - Future mobility system

Stakeholder's need on Data, Model & Tool

Data

Data Collection	Data Integration & Processing	Formalization to Acquire Data
• Bike & pedestrian • Traffic count data in city level • Queuing & delay • Parking • Quality travel survey	• PT data • Travel survey data (timely processing) • Automatic update	• Micromobility • Car sharing data • Toll payment system • Freight data

Model

Interaction between different models	Network resolution	Development of methods

• Interaction between :
  ○ LUTI,
  ○ Demand model
  ○ Operational model
• Seamless flow of output
	• Spatial & temporally more granular
	• Consider intervention → level for impact measurement
		• Trip chaining & muti-modal
		• Active mobility
		• Freight
		• Involve element of intervention
		  ○ Parking
		  ○ Lane priority
		  ○ Bike lane

Tool

Data & Information coordination & collaboration	Dynamic visualization	User-friendly Scenario building	Tools & Models Integration

Digital twin can be **useful for**:

- Automate data collection & integration
- Interaction between different models & tools
- Enhance visualization

When utilizing Digital Twin, we should be **aware of:**

- Risk & cost → how worth is it for strategic planning? How is the **best-use** of it?
- More fundamental study on **model development** for intervention towards sustainable transport system, before feeding it to DT
- Functionality & usability → **governance & user' competence**

Refining the concept of DT before developing **"A Usable Digital (Twin)"** is important