



# MegaBITS: Mobilizing Europe's Green Ambition through Bicycles and ITS

Advisory Group Meeting, 12 November 2024

Interreg  
North Sea



Co-funded by  
the European Union

MegaBITS



**MegaBITS**

Mobilizing Europe's Green Ambition through  
Bicycles and Intelligent Transport Systems

provincie  Overijssel



# Initiatives/projects of AG members

- Jørgen Wanscher: BIKE project
- Eric van Dijk: ShareDiMobiHub project
- Reiner Dölger: Cooperation with Open Street Map
- Mirelle Peters: Update on NAPCORE work on cycling data standardization
- Joost de Kruijf: DMI-ecosystem



# The BIKE eco-system

Bicycle, Insight, Knowledge, and Evaluation

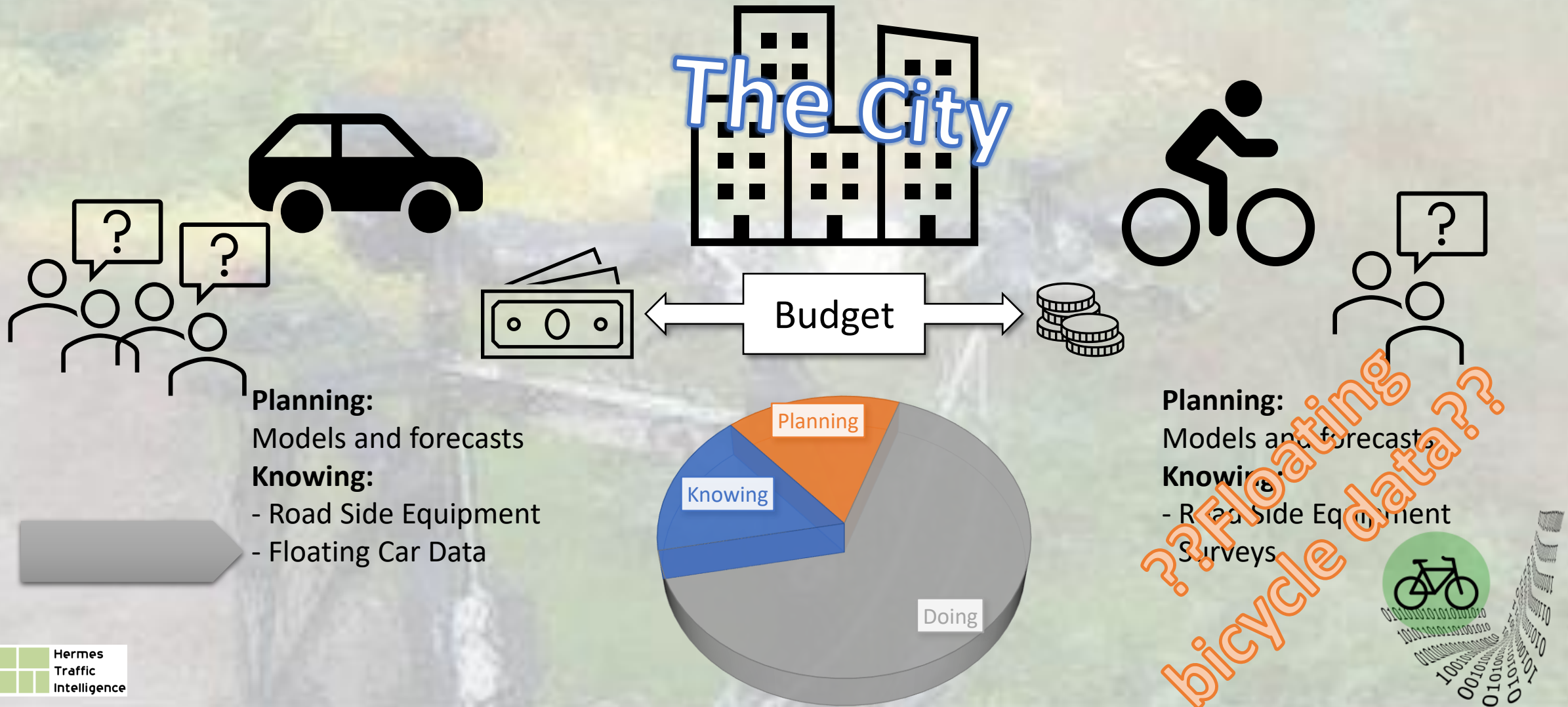
A privacy compliant collaborative revenue sharing eco-system for floating bicycle data

Jørgen Wanscher, PhD, CTO, Co-founder

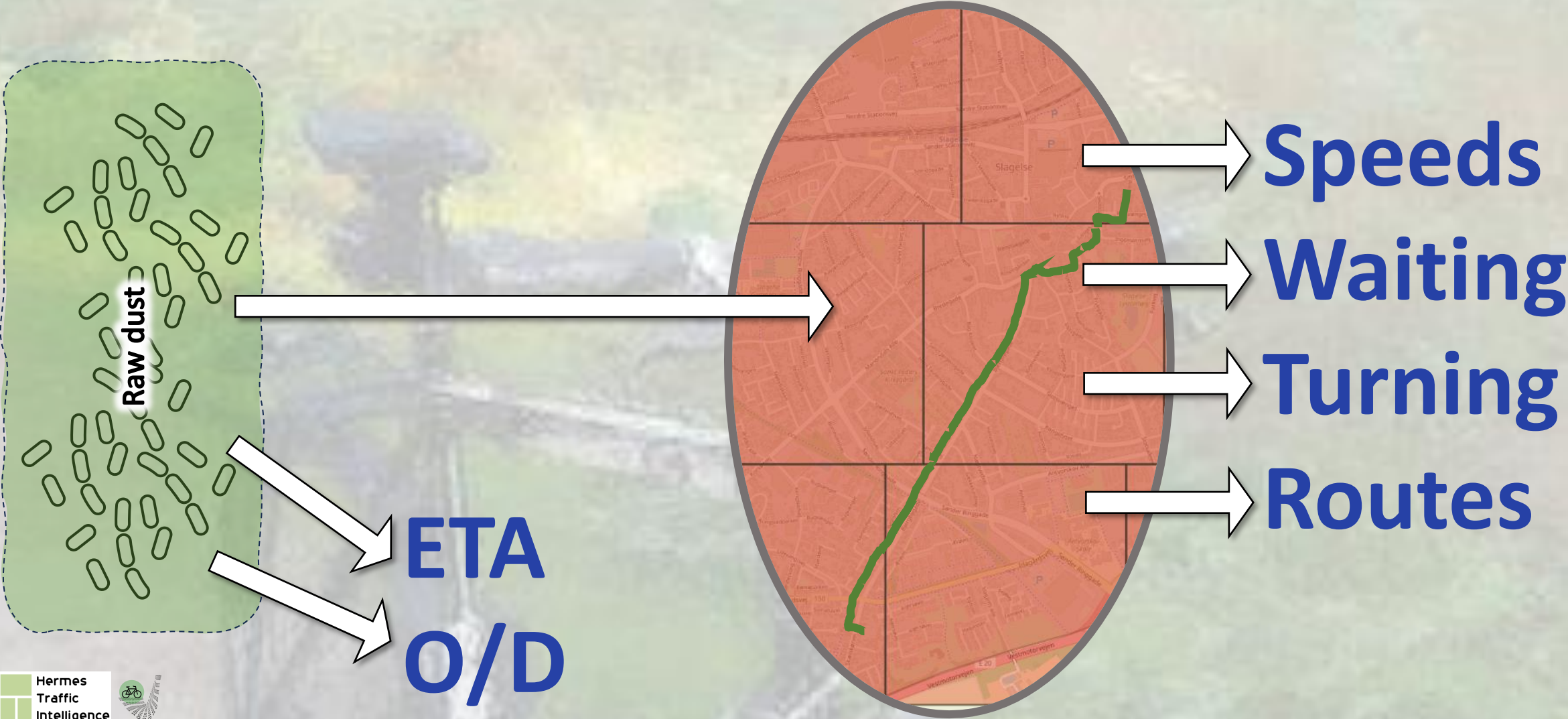
Hermes Traffic Intelligence



# Why?



# Raw dust, traces, and use-cases



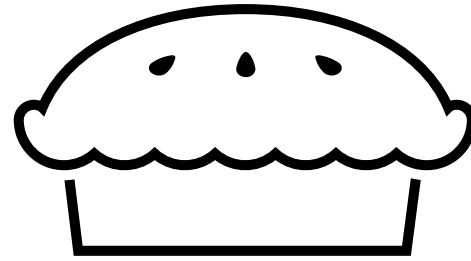
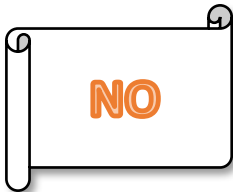
# Data is what you need!



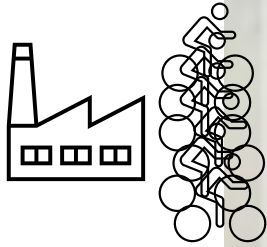
Focus

Budget

Tech support



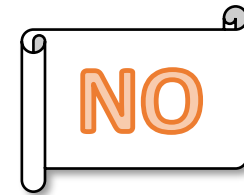
ROI



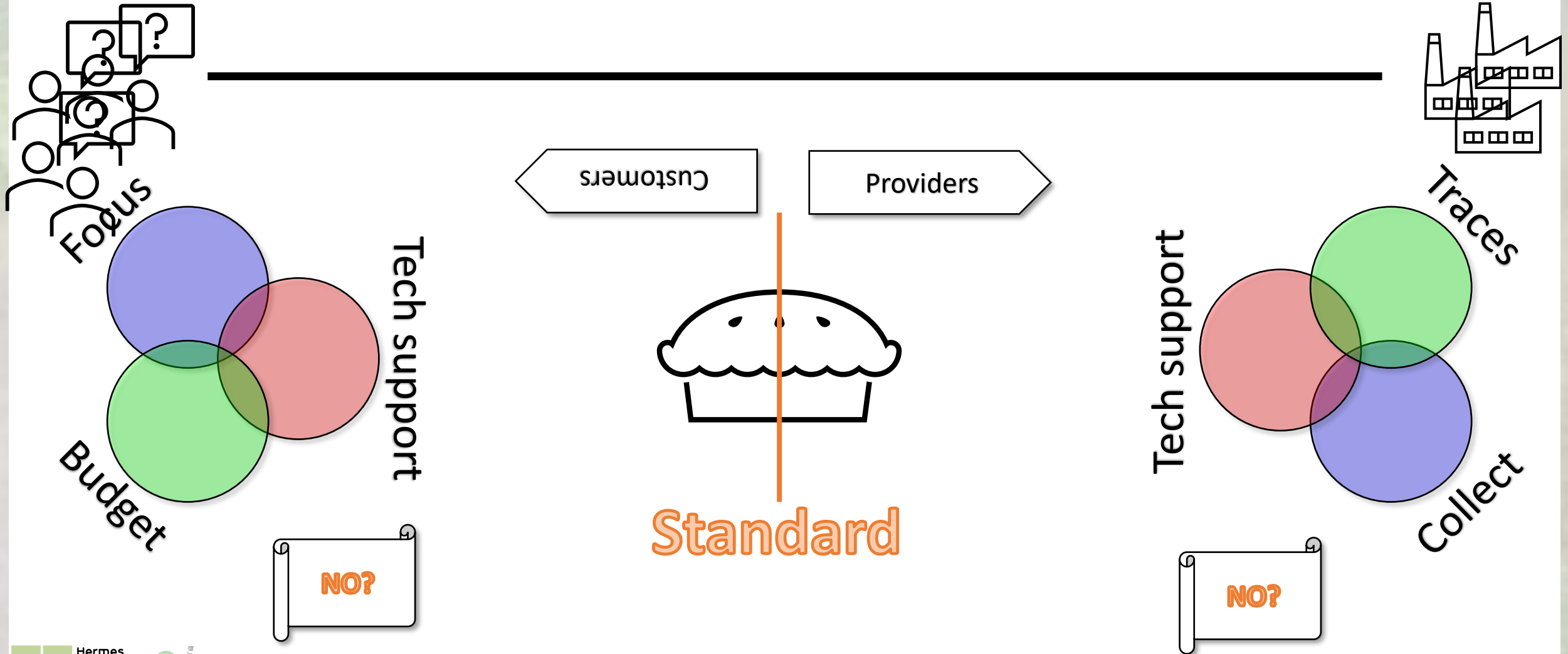
Traces

Tech support

Collect



# Solving it by standards?

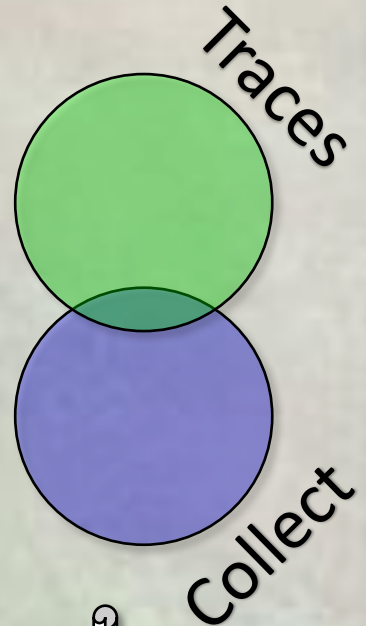
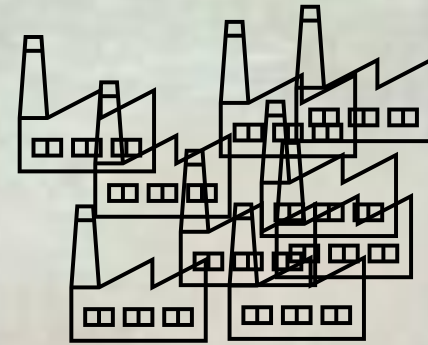


# Plan A: BIKE eco-system



Standard/API

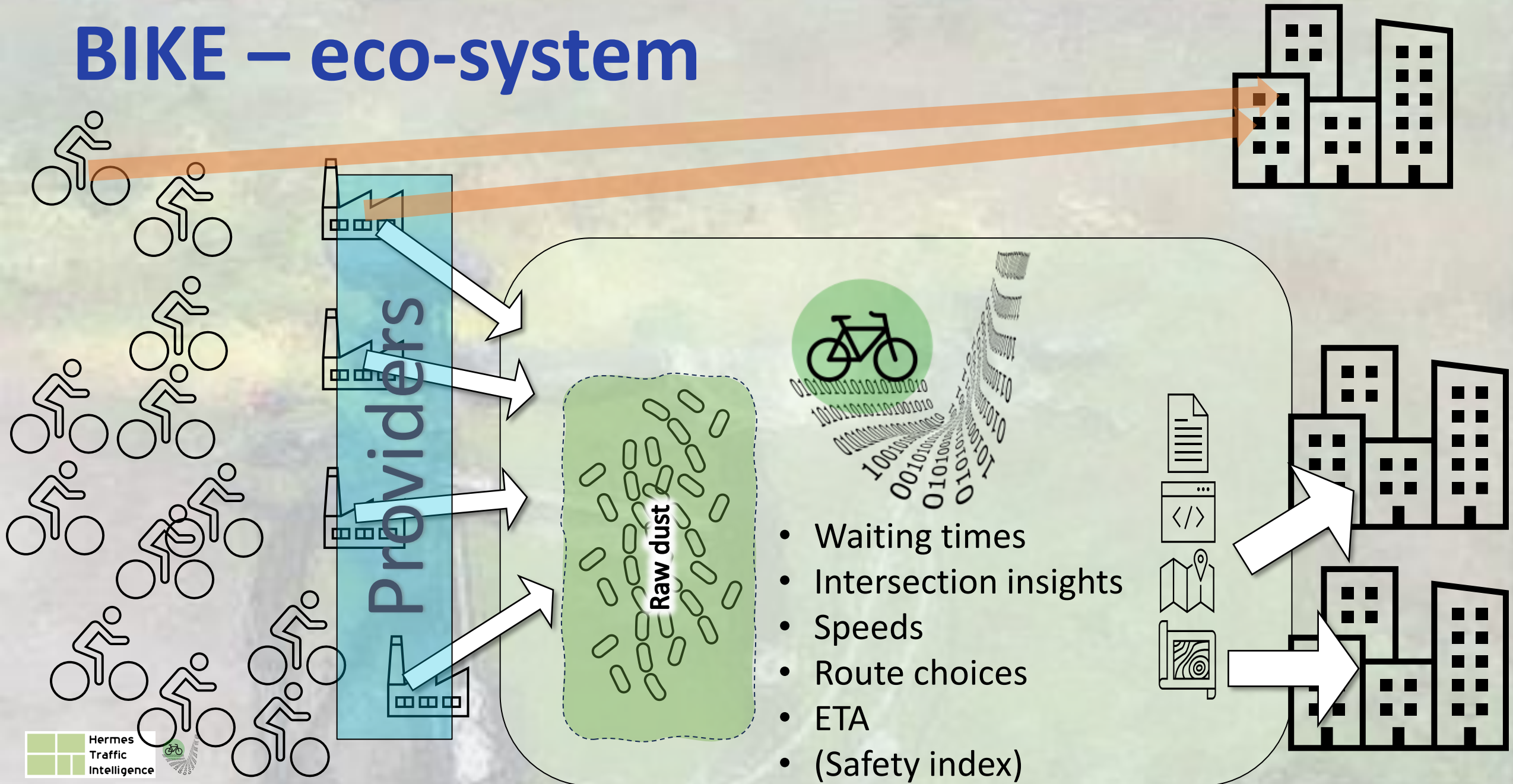
## BIKE eco-system



Kickstart/feasibility study co-funded by ESA



# BIKE – eco-system



# Why and what do we need?

With the BIKE eco-system we bring:

- Knowhow
- Outreach
- Potential funding

We need:

- Committed stakeholders



# Are you in?



- Jørgen B. Wanscher – [jbw@hermestraffic.com](mailto:jbw@hermestraffic.com)
- [www.hermestraffic.com](http://www.hermestraffic.com)
- [bike.hermestraffic.com](http://bike.hermestraffic.com)

**Shared and Digital Mobility Hubs**

# ShareDiMobiHub

[Shared & Digital Mobility Hubs ShareDiMobiHub | Interreg North Sea](#)

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ShareDiMobiHub

# Shared and Digital Mobility Hubs

*ShareDiMobiHub increases urban accessibility and liveability for its citizens and visitors by introducing shared mobility hubs at a city or metropolitan or regional scale in the North Sea Region. The project supports public authorities to implement similar solutions.*



How? By:

- increasing the introduction and the uptake of shared mobility hubs,
- integrating them into the Mobility as a Service (MaaS) ecosystem and public transport networks,
- applying a holistic approach, so including policies, incentives

# What are mobility hubs?

- Physical clusters of shared and electric mobility modes
- Tailored to local conditions & needs: neighbourhoods, city centres
- Can be linked together in a network, as well as connected to the existing PT-network
- Bring together e-bikes, e-cargo bikes, e-scooters and/or e-cars and charging infrastructure
- Can vary in size, type of location, and type of offer
- Integration with transport system through MaaS



# Why this project?

Many shared mobility initiatives are still detached from the general mobility system. Integration is needed if we are to reap all the benefits of implementing Mobility as a Service and mobility hubs.

The transition from the own car to shared mobility is progressing only slowly as we are still in the chicken and egg dilemma: offering enough shared mobility to the user requires the availability of space that is now used to park private cars. And why use shared mobility if you possess a car?

Need to create a critical mass to change this



**A GREEN  
TRANSITION**



# ShareDiMobiHub builds on past projects

## Building blocks providing input for pilots and upscaling actions

<p>Standardized communication between Shared Mobility Providers and MaaS providers (TOMP-api)</p> <p>eHUBS project</p>	<p>Standardized communication between Shared Mobility Providers and public authorities (City Data Standard - Mobility)</p> <p>eHUBS project</p>	<p>Heat maps for best locations of shared mobility hubs based on data analysis (population density, public transport availability, etc.)</p> <p>eHUBS project</p>	<p>Templates for agreement between city authorities and shared mobility providers / regulatory framework and policy frameworks</p> <p>eHUBS project</p>	<p>Implementation guide for effective public-private collaboration</p> <p>Mobi-Mix project</p>	<p>Public participation in innovative mobility methods</p> <p>BSR-Electric project</p>
<p>Best practice reports about planning shared mobility hubs in cities (bottom-up, top down or mixed approaches)</p> <p>eHUBS project</p>	<p>10 recommendations to influence behavior towards shared mobility and to convince car owners to try out shared mobility</p> <p>eHUBS project</p>	<p>Technical and functional requirements description of shared mobility hubs</p> <p>eHUBS project</p>	<p>Several examples of public tenders to select shared mobility providers or to license them to operate in a city</p> <p>eHUBS project</p>	<p>Framework to measure impact</p> <p>Mobi-Mix project</p>	<p>Demonstrating potential applications of various types of urban e- mobility</p> <p>BSR-Electric project</p>
<p>Location selection criteria methodology</p> <p>eHUBS project</p>	<p>Insights into different business models + understanding of business case of shared mobility providers versus city societal goals</p> <p>eHUBS project</p>	<p>Examples of branding and communication material and a toolkit for behavior change</p> <p>eHUBS project</p>	<p>Insights on most interesting target groups, travel behavior change and barriers for change (nudging techniques)</p> <p>eHUBS project</p>	<p>10 Golden rules for Shared Mobility + Book: A Planner's Guide to the Shared Mobility Galaxy Share-North project</p>	<p>Guidance for public authorities, companies, planners and transport providers for integrating sustainable solutions into urban transport strategies</p> <p>BSR-Electric project</p>





# Partnership

1. Province of Utrecht (NL)
2. Capital Region of Denmark (DK)
3. Vestfold County Council (NO) and subpartners:
  1. Norwegian Public Roads Administration
  2. Tønsberg municipality
4. Promotion of Operation Links with Integrated Services aisbl (POLIS)
5. City of Amsterdam
6. City of Leuven
7. University of Antwerp (BE)
8. Transport Authority for the Amsterdam Region (NL)
9. Mpact (BE)
10. Autodelen.net (BE)
11. City of Rotterdam (NL)
12. Hamburg University of Applied Sciences (DE)
13. University of Applied Sciences Utrecht



# Partnership

## Regional authorities and cities



PROVINCIE :: UTRECHT



leuven



The Capital Region  
of Denmark

✗ Gemeente  
✗ Amsterdam  
✗



Vestfold  
FYLKESKOMMUNE



Gemeente  
Rotterdam



TØNSBERG  
KOMMUNE

## Transport authorities



Statens vegvesen  
Norwegian Public Roads  
Administration



Vervoerregio  
Amsterdam

## Universities



HAW  
HAMBURG



University of Antwerp  
| TPR | Department of Transport  
and Regional Economics



UNIVERSITY  
OF APPLIED  
SCIENCES  
UTRECHT

## Network organisations



AD  
AUTODELEN.NET

mpact

POLIS

CITIES AND REGIONS FOR TRANSPORT INNOVATION

# Project outputs: implemented pilots

Five implemented pilots concerning shared mobility hubs in:

- Tønsberg (NO) with hubs as part of public transport
- Rotterdam (NL) to test hubs with specific target group approaches
- Leuven (BE) to test hubs with target group approaches by using a multifunctional parklet
- Leuven (BE) to test hubs with combinations of target groups, including also privately owned shared mobility



# Project outputs: upscaling plans

Implementation of upscaling plans in:

- Amsterdam (NL): 50 to 100 more hubs throughout the city
- Transport Authority Amsterdam: 20 hubs around Amsterdam
- Vestfold Region
- Leuven

Upscaling strategies developed and adopted in:

- Province of Utrecht
- Rotterdam
- Capital Region of Denmark



# Project outputs: digitalisation plans

Development and implementation of digitalisation plans in:

- Leuven
- Vestfold Region
- Amsterdam
- Transport Authority Amsterdam
- Province of Utrecht



# Support to organisations outside project

The consortium aims to support an additional:

- 14 cities
- 6 regions
- 4 public transport authorities
- 4 MaaS-operators and
- 12 shared mobility providers

Leading to increased institutional capacity of these organisations about shared mobility hubs



# Thank you



Share-  
DiMobiHub

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# Cooperation within public authorities and Open Street Map to improve cycling Network Data

Peer Review, Mainz/Germany, September 2024

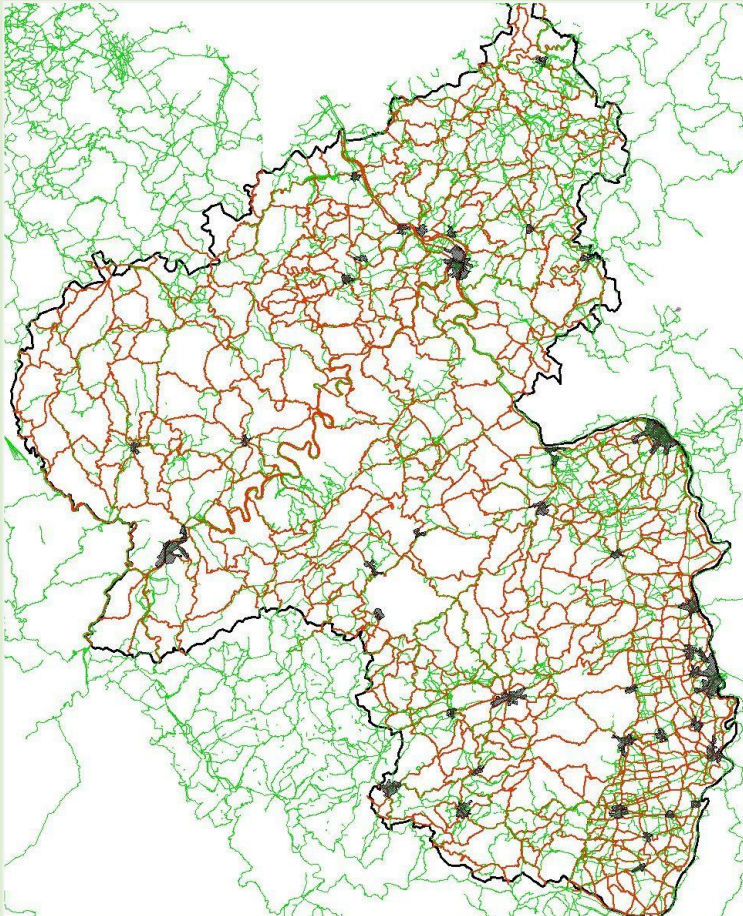




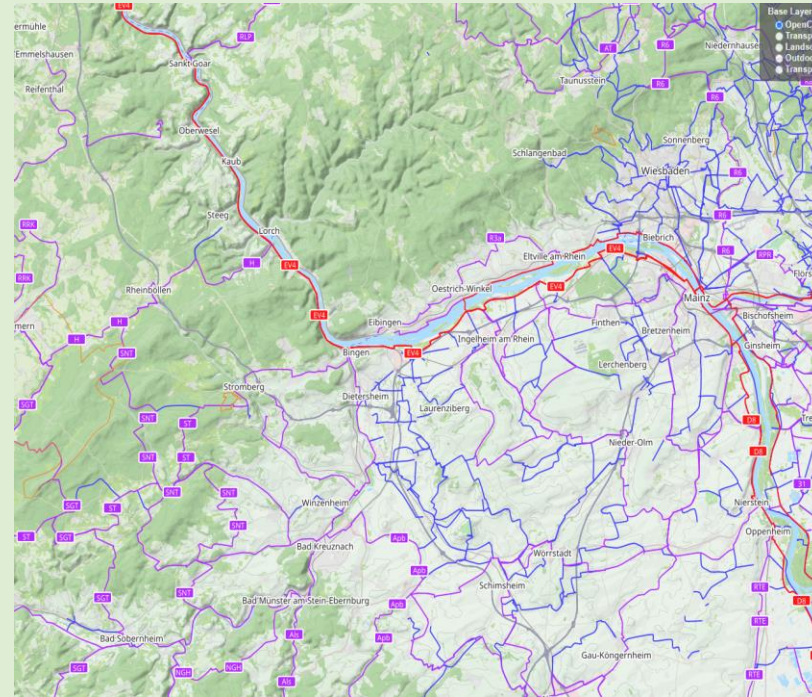
## Some facts about Rheinland-Pfalz

- 4 million people, 5% of Germany, 1% of EU
- Modal Share of cycling: 8% in 2016, today probably higher
- Very many E-Bikes are being sold: approx. 100.000 /Year, representing a private invest of 250 Million €
- Cycling policy is focus area
- Many tourists esp. along the rivers, leisure cyclists and quite a number of commuters
- Cycling networks in all regions, but quality differs
- Rheinland-Pfalz road agency LBM has established cycling teams in all regions and runs a common database

## Some maps of Rheinland-Pfalz



Administrations cycle network, in brown



OSM cycle network, in pink and red

## Importance of Cycling Network

More than road modes, safety and comfort for cyclists depend a lot on the network:

- Safety may be compromised by heavy or fast car traffic, lorries, unsafe crossings, descents, inundations, snow/ice , rails
- Travel time is impacted by traffic lights , detours, stops at intersections, conflict with pedestrian, ascents
- Comfort is reduced by rough surfaces, dirt, inexistent signage, darkness, narrow lanes
- Guiding cyclists through scenic or high quality surroundings can increase joy in riding
- Health is not compromised by emissions, noise, constant attention
- Road works or blocked lanes can be circumnavigated or avoided
- Mobility Options are missed by unclear access to stations, unsafe parking, futile tries to transport the bike in the train

Finding the best way and prioritising the most urgent needs can do a lot for fun in cycling and modal split in mobility

## Some Usages of cycling network data

1. Universal Routing applications like Google Maps, Komoot, etc
2. Region-wide routing applications and information services (like Bayernnetz für Radler). These can be linked to cover entire member states (like Radroutenplaner Deutschland)
3. Specific routing advice to public transport, touristic points of interest, schools etc.
4. Setting up cycling schemes
5. Setting up traffic models and accessibility models
6. Systems to support maintenance of the cycling network, including signposting
7. SUMPS (Strategic Urban Mobility Plans)
8. ...

## Sources of cycling network data

1. Traffic Administration, Public bodies, national, regional or local
2. Open Street Map
3. Survey Agencies, mainly regional or national
4. Commercial service providers
5. ...

## Requirements for cycling network data

1. Accurate
2. Detailed
3. Comprehensive in coverage and content
4. Matchable
5. Available
6. Standardised

No single source fits all requirements

## **Collaboration Approach (1):**

When cross-tabled, administration data and OSM come closest to fulfil the requirements, if combined

- This does not block other cooperations -

Collaboration should work in two ways:

1. Administrations using OSM Data: already happening, but not efficient
2. OSM using administration data: probably already happening, but not efficient

## **Collaboration Approach (2):**

Issues identified:

- Ownership of data, licensing
- Usage of Tools
- Compatibility of attributes
- Automatic matching and reference
- Fit of Role models
- Compatibility to standards (INSPIRE, DATEX II, national standards)



## Ideal Solution

- Administration data and OSM data are largely consistent and each of them better than before
- Cross-border quality profits in particular
- Temporary data (roadworks, blocked sections,..) can be easily linked to „static“ data
- Attributes available from administration data are easily added
- Administrations can use OSM tools to input data
- Data Fusion and aggregation can happen without legal fuzz
- Service providers, start-ups and everybody else find it easy to create new things
- Organisation of Cycling data is a role model for other topics

## Way Forward

- Roadworks and restrictions data shall be published in a pilot region (Region of Trier) in an OSM friendly way
- Contacts between the mapper community and administration on a regional shall be explored
- Obvious differences between OSM and administrative data shall be looked into casewise, using own or OSM Tools
- On a larger scale, data on signposting shall be examined for an organised edit, after communication with the OSM community
- Ministry will broaden the contacts with the community and participate in OSM events
- Ministry will evaluate results and report to national/international level



# Use cases for cycling data standardisation

*12 November 2024*

Mirelle PETERS



# Program

- Introduction
- What we did so far
- First results
- What's next

# Cycling data standardisation

Need harmonize standards for cycling data (static/dynamic) => **W H Y**

- standards exist for certain domains, but not the same for all countries
  - adapt standards to use cases, if specific need or open innovation
- => **EU Declaration on cycling (signature, 03 April 2024)**

Cycling community (experts and representative authorities) => **W H O**

- analyze requirements with respect to cycling and cycling infrastructure data
- collect relevant use cases, where standardisation would be an added value

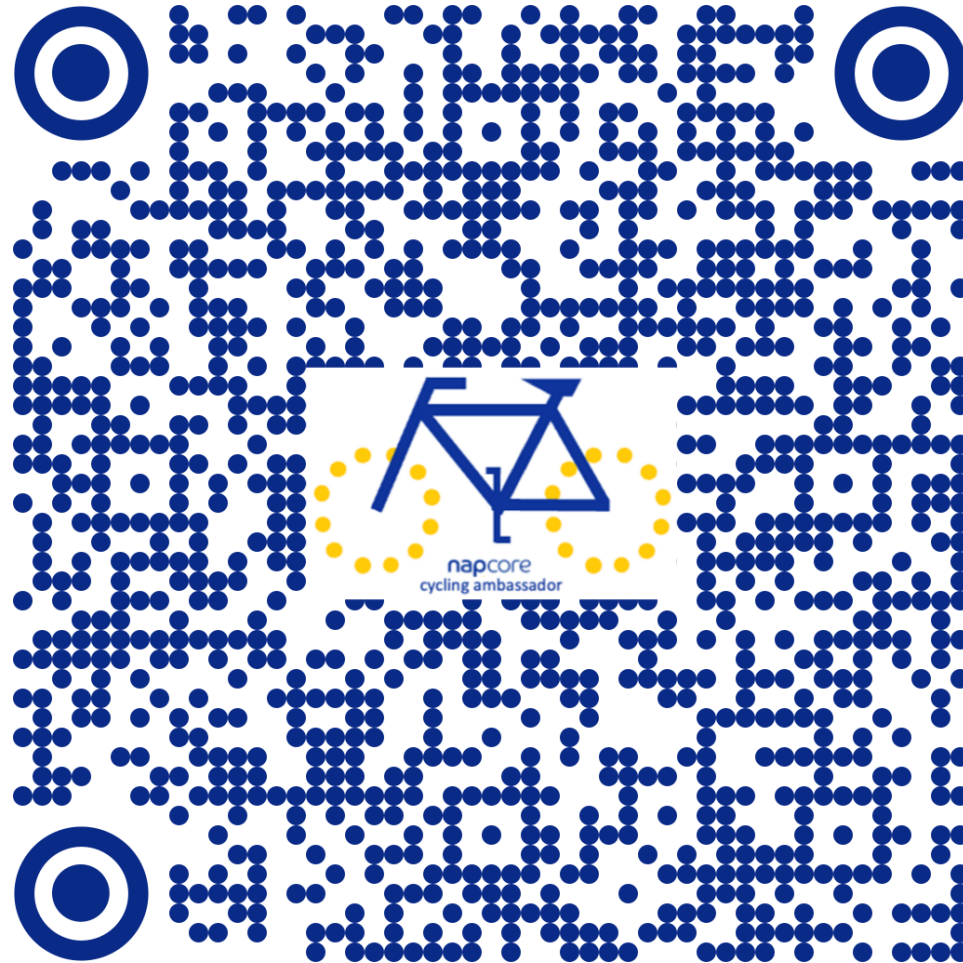
Actions (internal analysis, external workshops) => **H O W**

=> **Workshops and conferences**

# What we did since last year

- Strengthen the partnership with POLIS to organize a joint workshop with their members
  - Objective: collect use-cases from cities & regions
- Organise an open workshop with the cycling community
  - Objective: widen use-cases and discuss data types & existing standards
- Deep-dive in data types & existing standards to identify the gaps to cover with a focus on
  - Parking data
  - Infrastructure description
  - Real-time data
- One more deep-dive to conduct: counting data

# Canva link



# Main use-cases identified

- Workshops co-organized with POLIS (11th April online and 22nd May in Utrecht) allowed to collect typical use cases according to key themes:

<b>Building Use Cases</b> <b>Key Themes</b> <ul style="list-style-type: none"><li>• Infrastructure data</li><li>• Parking data</li><li>• Real-time data</li><li>• Counting data</li></ul>	<b>Safety</b> Assessing the safety of cycling infrastructure and identifying high-risk areas. Understanding the influence of regulations, policies and enforcement that are in place and might need to be adjusted, changed, or implemented	<b>Planning</b> Understanding the purposes of trips (e.g., commuting, leisure) and how these influence cycling behaviour. Identifying the most popular cycling routes and destinations within the city	<b>Infrastructure performance</b> Measuring and evaluating the infrastructure in place, quantitative and qualitative, including user perceptions, for improvement and further implementation prioritisation.
	<b>Multimodal Mobility</b> Exploring how cycling integrates with other modes of transport, such as public transport. Regarding multimodal traffic management, the main questions raised were about cyclists' prioritisation of traffic lights, the location of multimodal hubs, and improving traffic modelling.	<b>Traffic Management</b> Analysing cycling patterns to determine peak hours and how they can be better managed. Measuring cyclists' average speeds and their variations throughout the day or week.	<b>Modal share</b> Measuring the modal share of cycling, understanding performance and mobility transition. As well as differences
	<b>Parking</b> Improve, increase and prioritise parking provision by understanding popular destinations, mobility hubs/stations and similar locations, and improve and ensure the safety and security of parking facilities.	<b>Communication</b> Improve communication on specific situations (e.g., upcoming road works or planned changes), target specific users, improve services, and increase reach to different users or desired users.	<b>Investments (infrastructure)</b> Assessing current infrastructure, users' behaviours and other parameters for prioritisation and planning of future investments.



# Cycling Infrastructure Data - (Some of) The main use cases

*Different perspectives -> different use cases*

- Cyclists
  - How to get from A to B?
  - Is the route suitable for my skills / type of cycle / special needs (“Qualitative”)?
- Infrastructure managers
  - How does the infrastructure perform (“Weather”; “Design”; “Safety”)?
  - What are the maintenance / investment needs (“Maintenance”)?
- Policy makers / funding institutions
  - How much cycle infrastructure do we have? (Quantitative)
  - How much do we need (“Usage, continuity and connections”; “Monitoring”)? How much will it cost?



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Bicycles and Intelligent Transport Systems

# Real-time data for cycling

- *Incident sensitive routing (road works/events)*
- *Condition sensitive routing (weather/traction)*
- *Green time extension for bicycles / green waves*
- *Flow information / congestion impact*
- *Availability - Parking, charging, mending, bridges, etc*
- *Not elevation!*
- *(Floating Bicycle Data and derivative information)*

# Parking data - main use cases and data types

- One shared objective in identified use cases: To support modal shift and/or uptake of cycling for commuters
- Some relevant use-cases:
  - Integration in trip planning
  - Increase safety for cyclists
  - Cycling & Tourism
  - Investment in infrastructure
- Data types Parking description, capacity and usage

# Conclusions

- *What are the next steps identified by the Ambassadors*
  - *Technical work with standards experts (DATEXII, NeTEX, SIRI, others FBD?)*
  - *Legal work for Delegated Regulations (SRTI, RTTI, MMTIS, other logistics, railway...?)*
  - *Strategic work for coordination of the cycling ecosystem (NAPCORE X, CE...)*



*Thank you for your attention!*

[mirelle.peters@ndw.nu](mailto:mirelle.peters@ndw.nu)

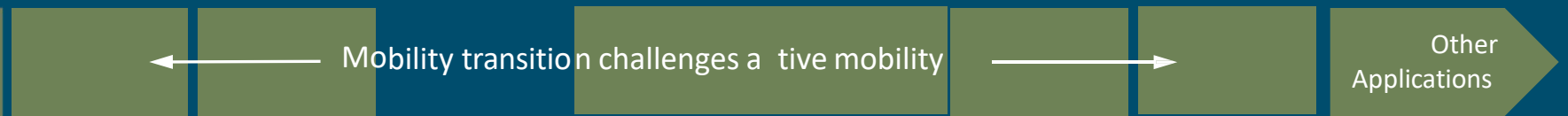
[cristina.buraga@cerema.fr](mailto:cristina.buraga@cerema.fr)







# Tour de Force objective 20% increase of cycling kilometers



## NATIONAL FUTURE VISION CYCLING



Strengthening  
cycle network



Improving  
parking facilities



Stimulating  
bicycle use





# CYCLE POLICY



Strengthening cycle network



Improving parking facilities

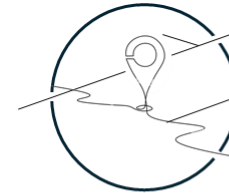


Stimulating bicycle use



# DMI-FIETS

# DIGITAL SYSTEM MOBILITY DATA



Fietsnetwerk



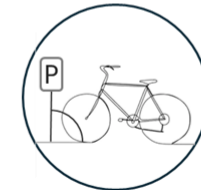
Verplaatsingsdata



Routebelevingsdata



Fietsteldata



Parkeerdata



Asset data



Verkeerslichten



Fiets | Fietser



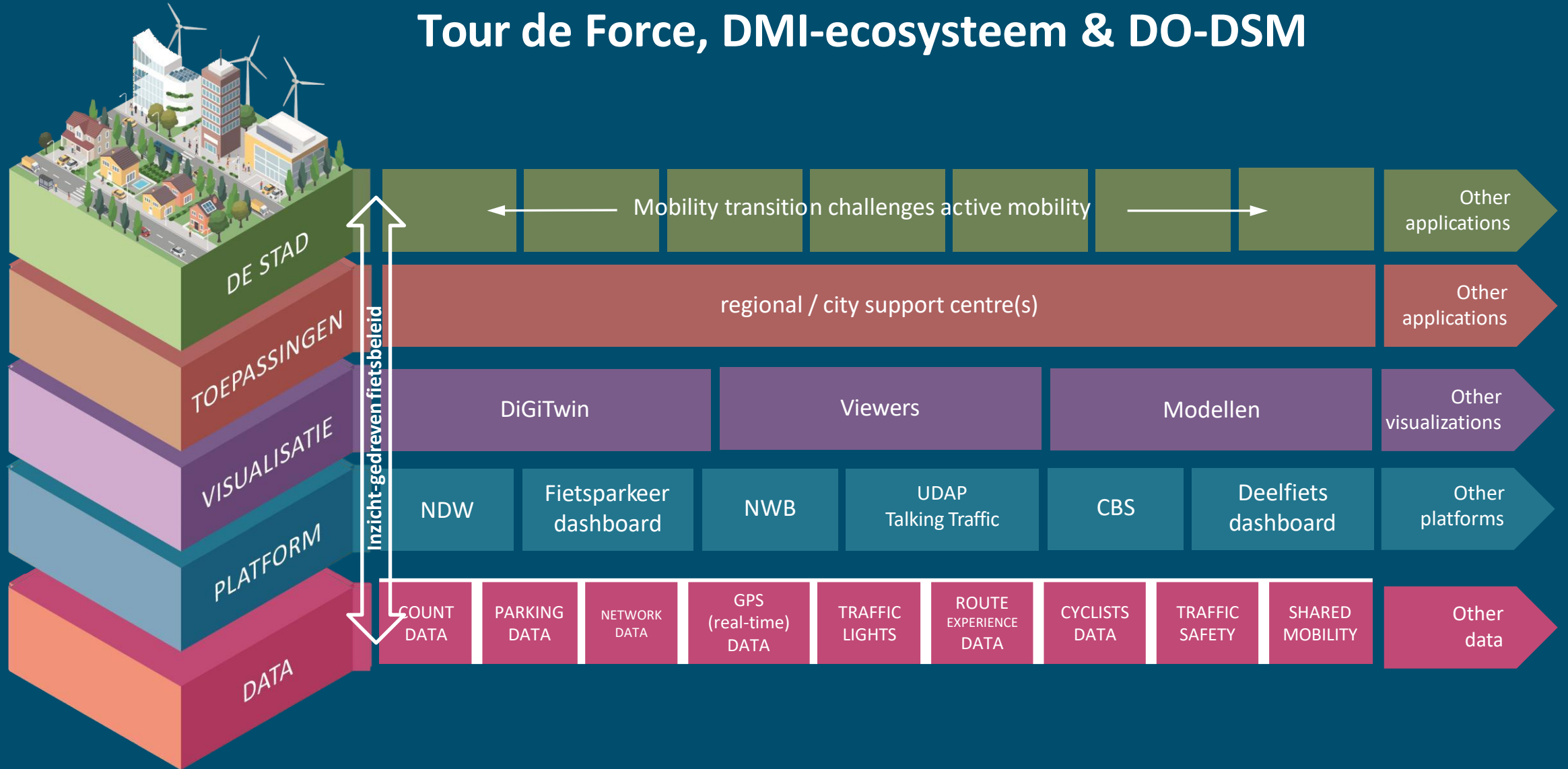
Verkeersveiligheid



Deelfietsdata



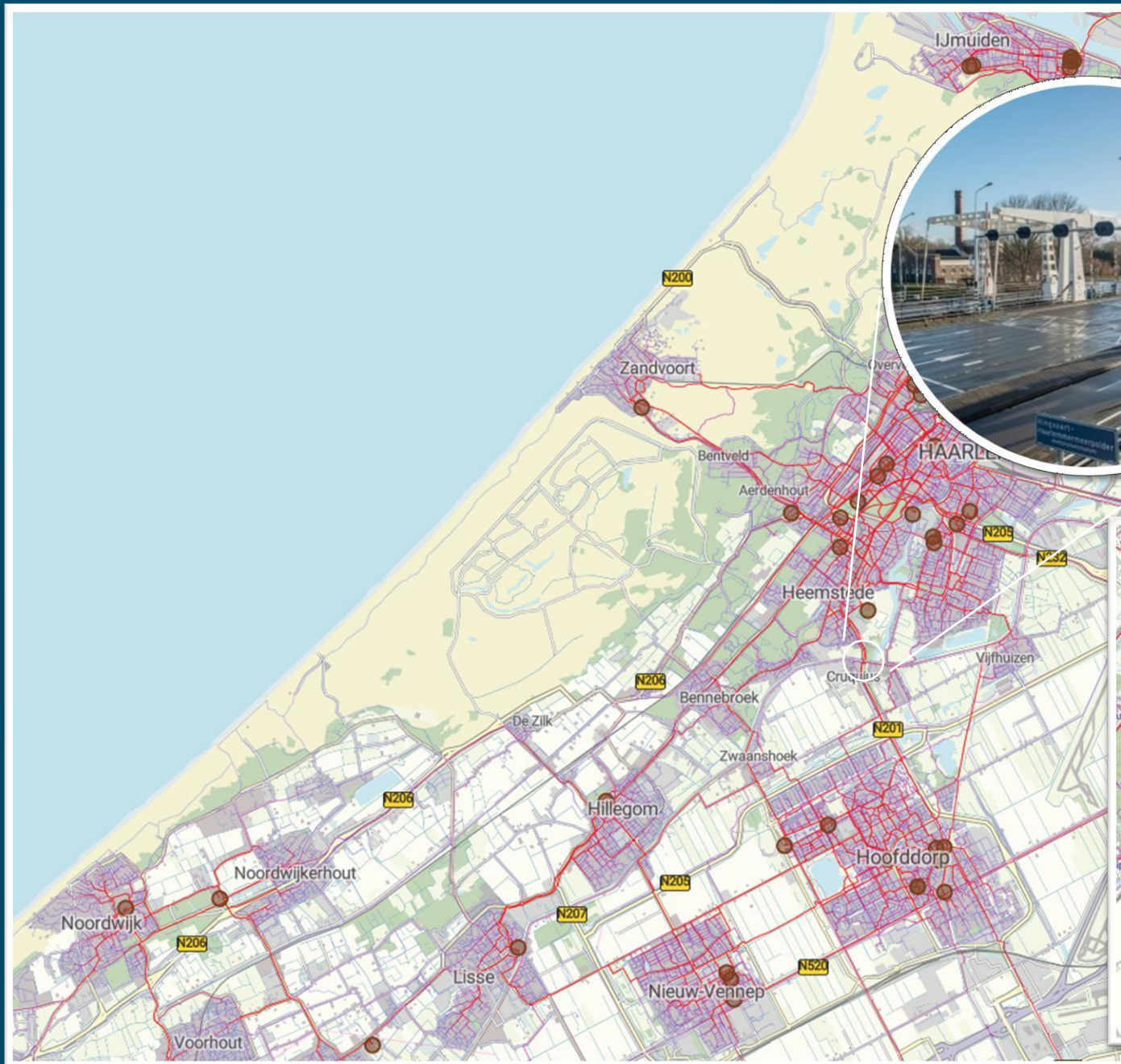
# Tour de Force, DMI-ecosysteem & DO-DSM



# Main data nodes - cycle data



# Effects Large Infra Maintenance



# Collaboration DSM en DMI is unique

- Currently only synergy on theme Cycling between DSM - DMI
- Recent elaboration on structures has positive effects on both data and policy side
- Provinces Zuid-Holland, Utrecht, Noord-Brabant/Limburg explore DMI-ecosysteem
- Integration with Tour de Force is of crucial importance! DSM-DMI is an accelerator and has to be supportive for cycle policy development
- Biggest challenge:
  - Keeping it simple between data-ecosystem (DSM) and policy-ecosystem (Tour de Force) without getting lost in translation of data and information