Digitale Infrastructuur voor Toekomstbestendige Mobiliteit

Beyond Roads: how the DITM project is contributing towards a digital infrastructure for future-proof mobility!

Amsterdam, April 17

BRAINPORT DEVELOPMENT
economische ontwikkelingsmaatschappij

rai
AUTOMOTIVE INDUSTRY NL

Agenda

- Introduction of the DITM project
- Technology for higher levels of automation
  ◦ Digital maps
  ◦ Traffic management
- Usecases
- Transition Paths
- Q&A

Goal: Enable higher levels of autonomous driving

Lead partner

BRAINPORT DEVELOPMENT
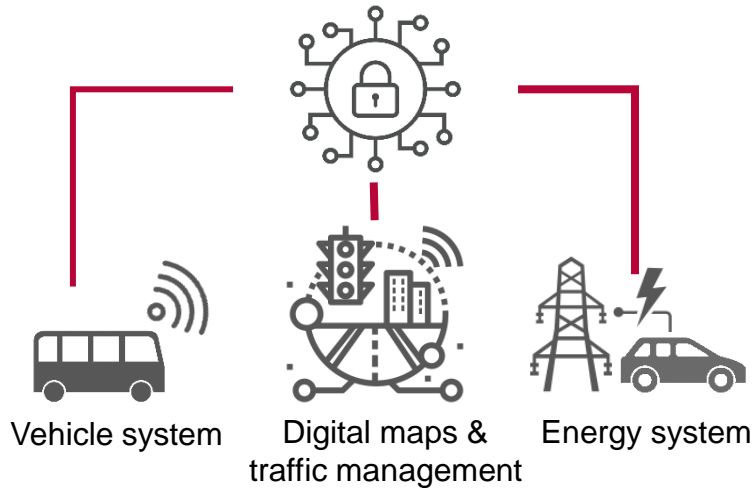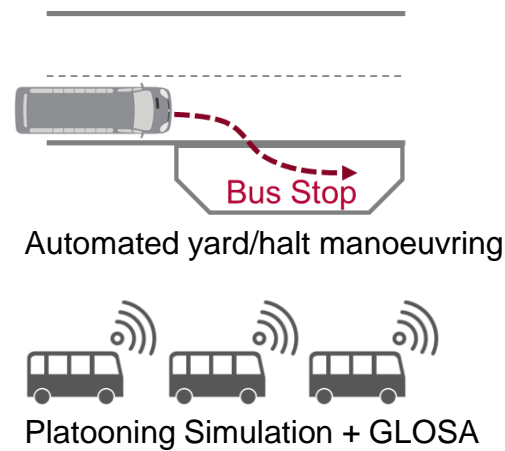economische ontwikkelingsmaatschappij

20 Partners **16** Companies

Digitale Infrastructuur voor
Toekomstbestendige Mobiliteit

Vehicle system

Digital maps & traffic management

Energy system

Use Cases

Bus Stop

Automated yard/halt manoeuvring

Platooning Simulation + GLOSA

tomtom VDL heliox TNO innovation for life

NXP AI/M AI IN MOTION SIOUX TECHNOLOGIES monotch smart mobility platforms

GEOMAAT ekeo SIEMENS TU/e EINDHOVEN UNIVERSITY OF TECHNOLOGY

SCHOLTenergy Elaadnl NKL Infiniot

v.tron INQUISITIVE BRAINPORT DEVELOPMENT economische ontwikkelingsmaatschappij rai AUTOMOTIVE INDUSTRY NL

€ 60 million

1 Oct 2022
1 Oct 2026

Website **link**

Supported by:

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The DITM project is made possible by the Ministry of Infrastructure and Water Management (I&W). DITM is funded by the European Union-NextGenerationEU and DITM partners.

"On the way towards full autonomous vehicles, we develop the underlying technologies for advanced driver assistance systems (ADAS) which provide the safe and increasingly autonomous experiences that will reshape our relationship to transport.- Brian de Bart, NXP

NextGenerationEU

WP Overview

Work package 1: Technical coordination and systems architecture

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TNO innovation for life

Work package 2:
Vehicle system

Lead
VDL

TNO innovation for life

SIEMENS

SIOUX TECHNOLOGIES

v·tron·

NXP

TU/e EINDHOVEN UNIVERSITY OF TECHNOLOGY

AIM

Application in Use-cases
Use-case 2.1: Yard manoeuvring
Use-case 2.2: Lane manoeuvring

Work package 3:
Energy system

Lead
heliox

VDL

Elaadnl

NKL

Infiniot

INQUISITIVE

SCHOLTenergy

NXP

EKEO

TNO innovation for life

Use-case 3.1: Validation
Energy/Pod
Use-case 3.2: Chain Validation
Use-case 3.3: Congestion Case
Use-case 3.4: Testing
security/ethical hacking

Work package 4:
Digital maps &
Traffic Management

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tomtom

Mmonotch
SMART MOBILITY PLATFORMS

GEOMAAT

v·tron·

SIEMENS

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Use-case 4.1: ISA
Use-case 4.2: Navigation

Work package 5: Validation lab (hardware/software facilities)

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TNO innovation for life

SIEMENS

Ministerie van Infrastructuur en Waterstaat

Ministerie van Infrastructuur en Milieu

RDW

ndw

smart wayz.nl

Provincie Noord-Brabant

EINDHOVEN

Gemeente Helmond

transdev
the mobility company

ENEXIS NETBEHEER

Workpackage 4
Digital maps and
Traffic Management

WP Leader — monotch Smart Mobility Platforms · GEOMAAT · tomtom · v·tron · SIEMENS · TNO innovation for life

Data-sharing environment connecting to Automotive- and Big-Tech sectors (Overture)

Powering next generation Map- and Traffic management products from interoperable open map data shared between Private- and Public sectors

Data-sharing environment connecting to Realtime Road-authority data (TN-ITS, RTTI, ...)

Example case:
Data sharing concept to innovate the ADAS markets for Digital Maps

HD map production for ADS

Keep HD-Maps up-to-date from
Crowdsourced Sensor-data (Camera, Radar)

Governments digitizing Roadinfra

Producing highly-accurate map data from
Mobile Mapping sources (Lidar)

Powering next generation map products by creating reliable maps from interoperable open map data between the Automotive- and Public mapping sector

Vehicles with ADAS sensors

Sensor Derived Observations

Daily HD-Map updates

Updates public databases

Sensor Derived Observations

GPS probe data

Aerial imagery HD sources

Survey Vehicles

HD-MAP FACTORY FOR AUTOMOTIVE MAPS

Automation production HD-map updates from multiple sources

Change detection Service to keep common 'ground-truth' map features up-to-date

Sharing Open Map Data via the Overture platform

HD-MAP FACTORY FOR PUBLIC MAPS

Automation feature extraction from MoMa sources

Survey Vehicles

Global LiDAR Market

1.5 Bn
XX.XX
XX.XX
XX.XX
XX.XX
XX.XX
XX.XX
XX.XX
XX.XX
4.83 Bn

2021 2022 2023 2024 2025 2026 2027 2028 2029 2030

Private Mobile Mapping industry driving MoMa fleets to create maps for the Automotive and Enterprise sectors
(Upscaling problem for ADAS)

Private Mobile Mapping industry driving MoMa vehicles updating regional maps for Public sector
(Freshness problem for Traffic Mgt)

Founded in 2022 under the Joint Development Foundation

Collaborative Map Building

Sourcing and curating high-quality, up-to-date, and comprehensive map data from disparate sources is difficult and expensive.

Overture aims to incorporate map data from multiple sources including Overture Members, civic organizations, and open data sources.

Global Entity Reference System

Multiple datasets reference the same real-world entities using their own conventions and vocabulary, making them difficult to merge and combine.

Overture Maps will simplify interoperability by providing a system that links entities from different data sets to the same real-world entities.

Quality Assurance Processes

Map data is vulnerable to errors and inconsistencies.

Overture Maps data will undergo validation checks to detect map errors, breakage, and vandalism to help ensure that map data can be used in production systems.

Structured Data Schema

Open map data can lack the structure needed to easily build map products.

Overture will define and drive adoption of a common, well-structured, and documented data schema to create an easy-to-use ecosystem of map data.

Automated vehicle functions
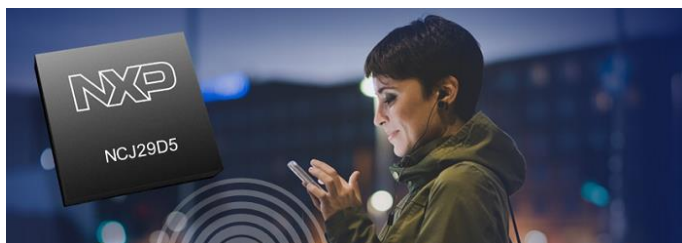
UWB positioning
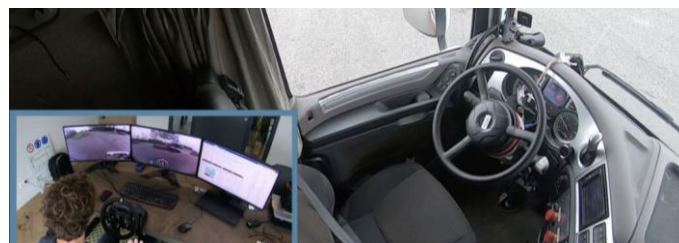
Tele operation

Automated driving bus

Radar positioning

Digital Infra

Digital twin

Research with VDL CITY BUS
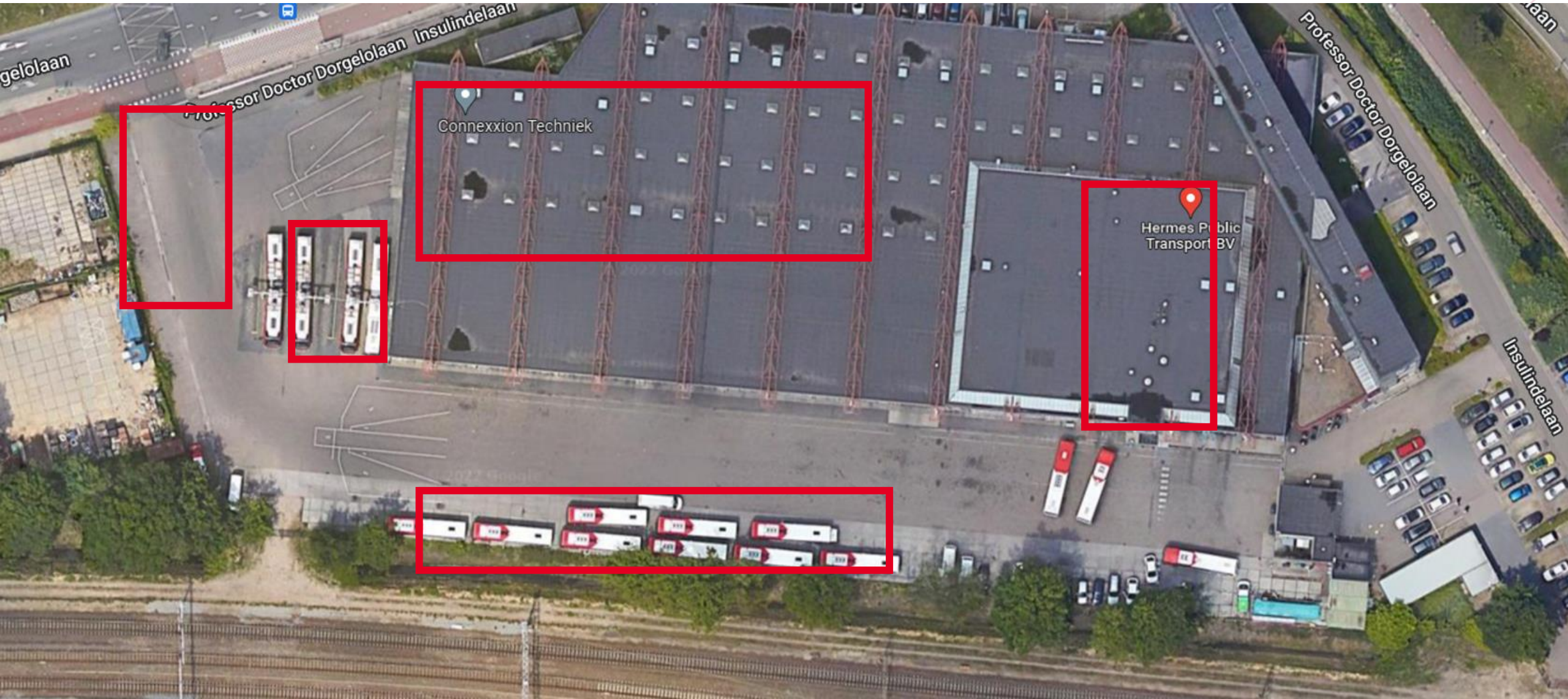
Automated Yard Maneuvering
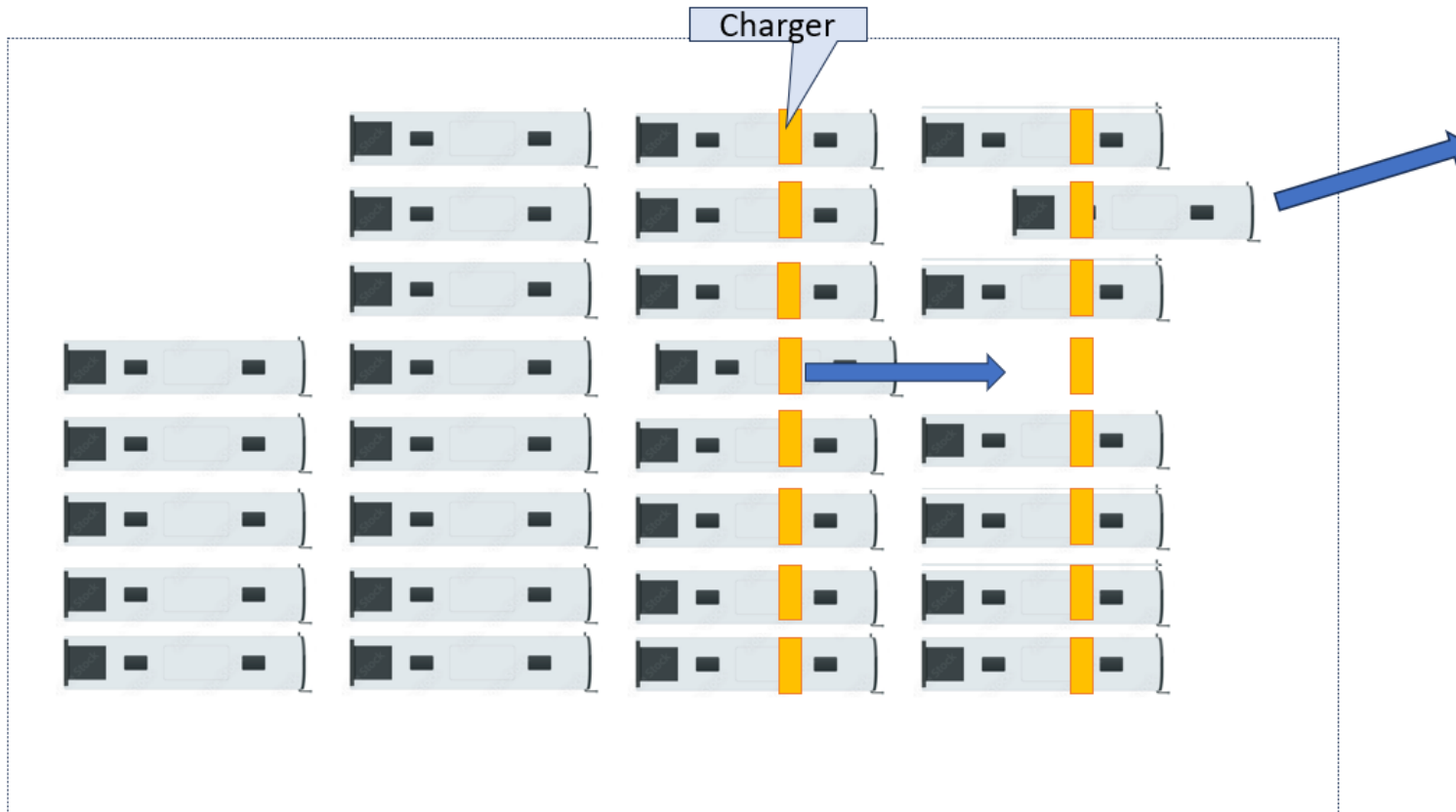
Teleoperation
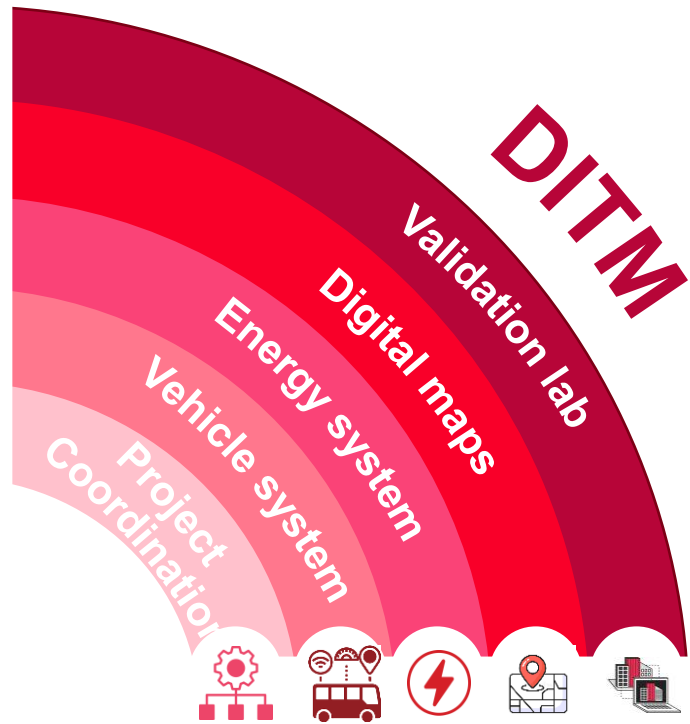
Automated Halt Maneuvering

Connected platoon on intersection
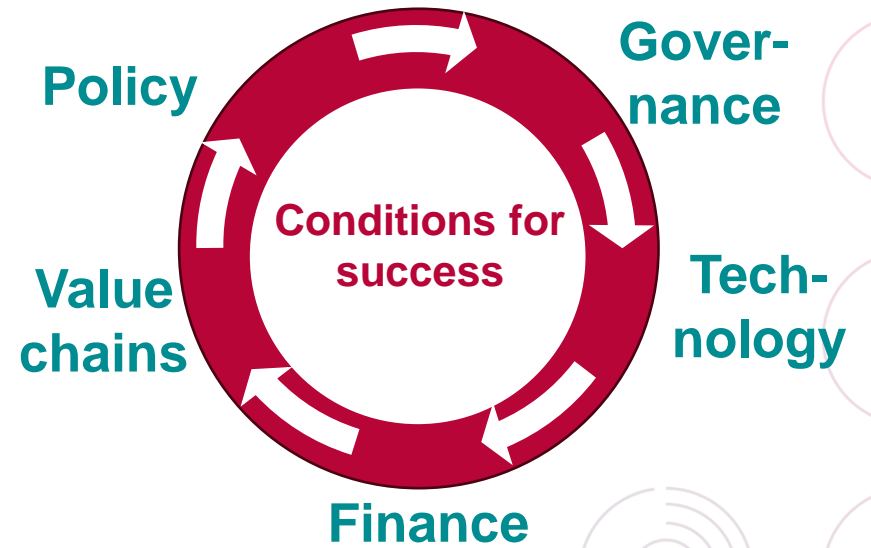
Automated Yard Maneuvering

Parking with charger

Theory of change

DITM

Validation lab
Digital maps
Energy system
Vehicle system
Project Coordination

2050 vision
Towards vision ZERO

2030 impact
Contribute to a system change

Policy · Governance · Technology · Finance · Value chains

Conditions for success

- Less congestion in the energy sector
- Better accessible (public) facilities
- Improved sustainability
- Improved 'BV Nederland'
- Accelerate large-scale deployments

Key enabling technologies

Development of self-driving functionalities

Improvement in cyber security

Increased public private collaboration

New improved standards

Short-term outcomes

Reference design for a future digital infrastructure

Long-term outcomes

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16 May 2024

Inspired by: LC3

DITM envisions multiple transition pathways

Optimised balancing of the electricity network through intelligent and flexible electric (vehicle) charging
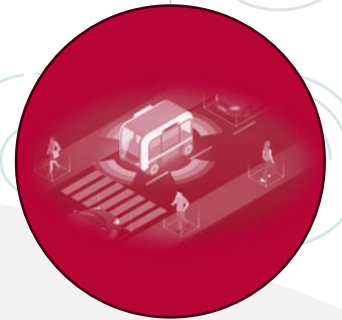
Digital maps as a key enabler for CCAM and digital twin development
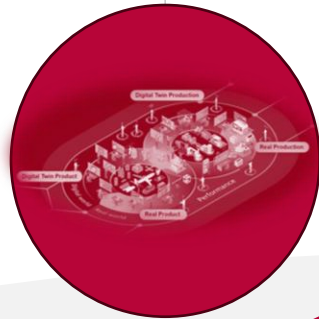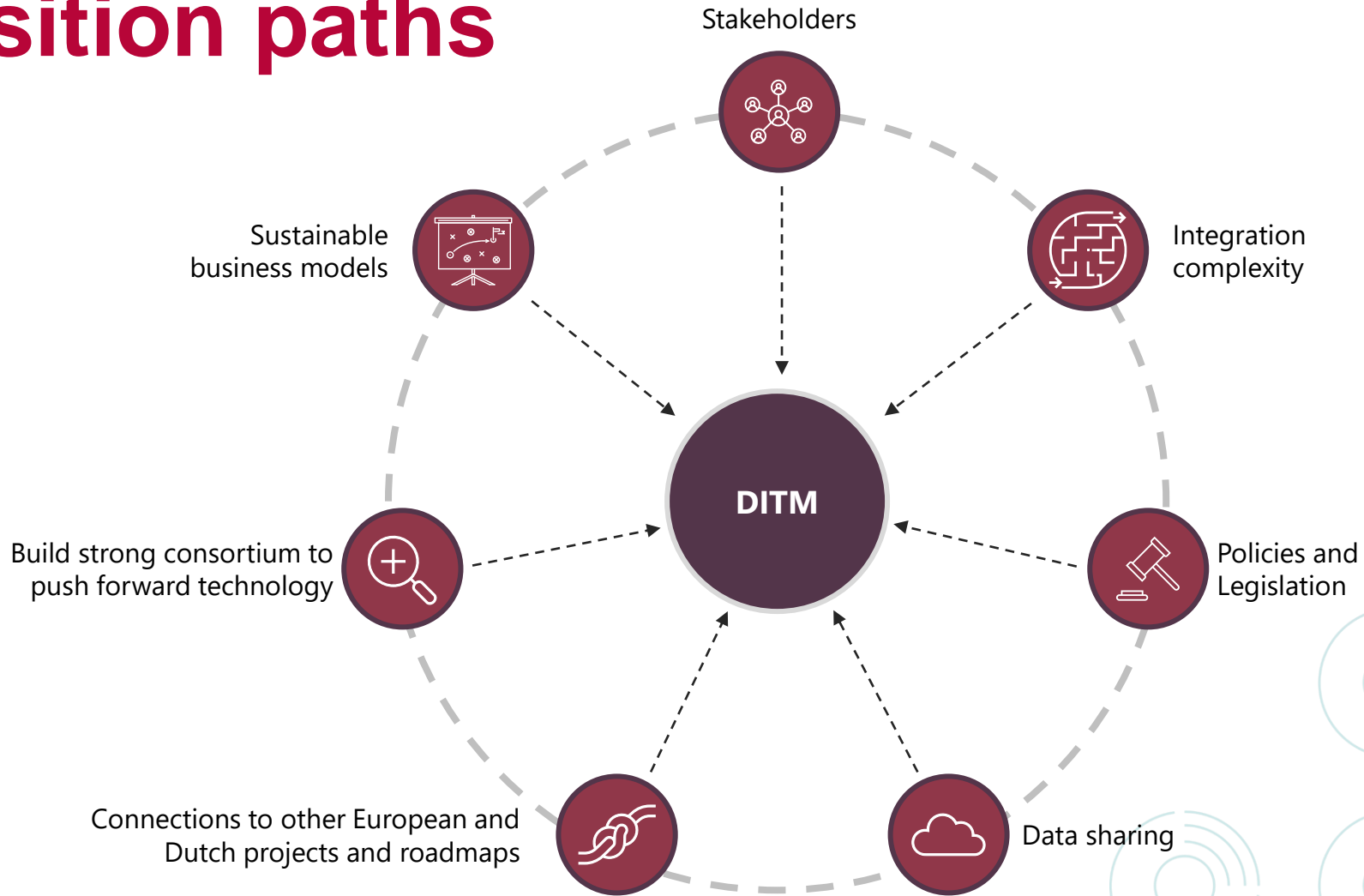
Merging physical and digital worlds through Digital Twin solutions to enable acceleration of CCAM innovations
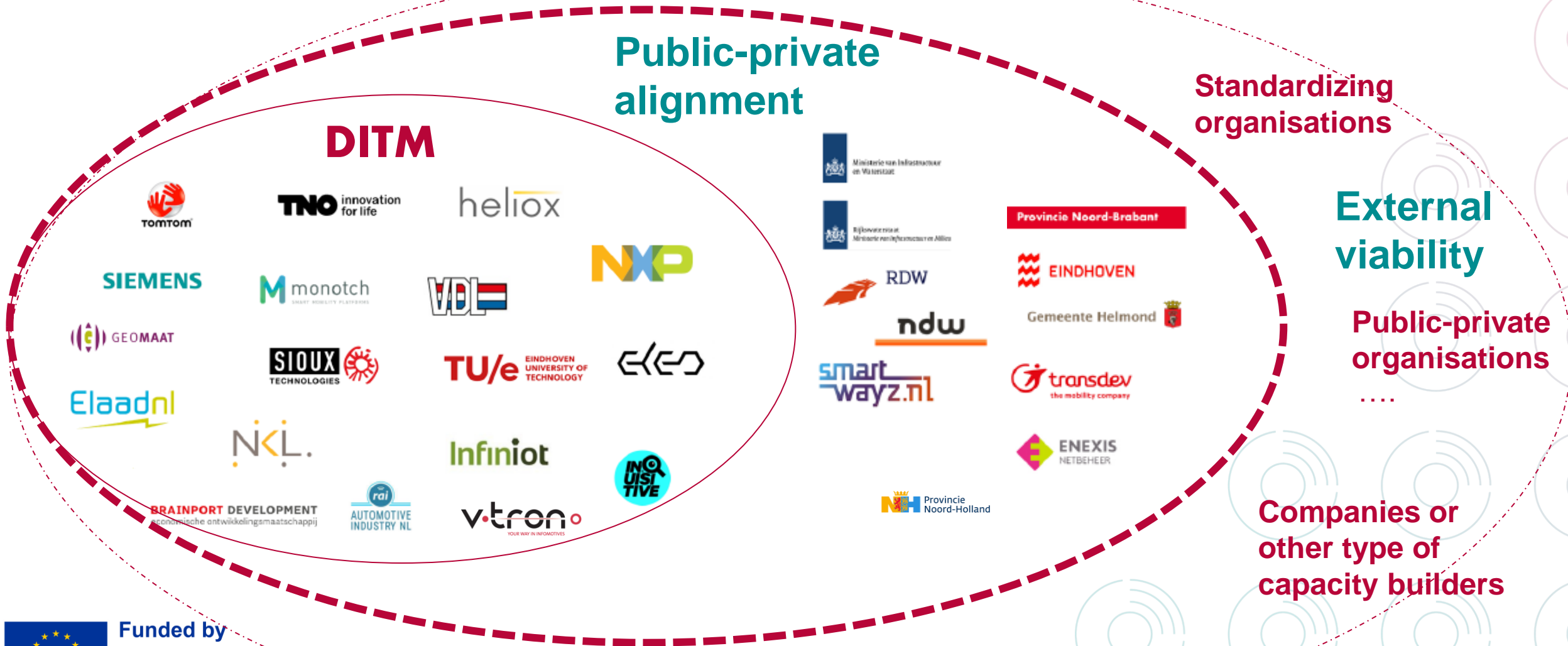
Towards a smart and responsible introduction and integration of CCAM-based solutions in The Netherlands.

Identifying key themes for DITM transition paths

Stakeholders

Integration complexity

Sustainable business models

DITM

Policies and Legislation

Build strong consortium to push forward technology

Connections to other European and Dutch projects and roadmaps

Data sharing

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Moving together and further through collaboration in & with the DITM project

Public-private alignment

DITM

Standardizing organisations

External viability

Public-private organisations
....

Companies or other type of capacity builders

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Before you leave…..

And… What do we need to achieve 'liftoff'? And how can we strengthen each other?

What do you consider as 'the' point on the horizon?

DITM envisions multiple transition pathways

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Thank your for your attention.

b.Hendrix @raivereniging.nl

j.van.der.werf @vdlets.nl

roland.vanvenrooy @tomtom.com

ernst_jan.vanark @tno.nl

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