Application Platform for Intelligent Mobility (AIM) and Testbed Lower Saxony

Prof. Dr. Frank Köster / Dr. Martin Fischer
ITS Europe, 21.06. 2017

Niedersächsisches Ministerium für Wirtschaft, Arbeit und Verkehr

Niedersächsisches Ministerium für Wissenschaft und Kultur
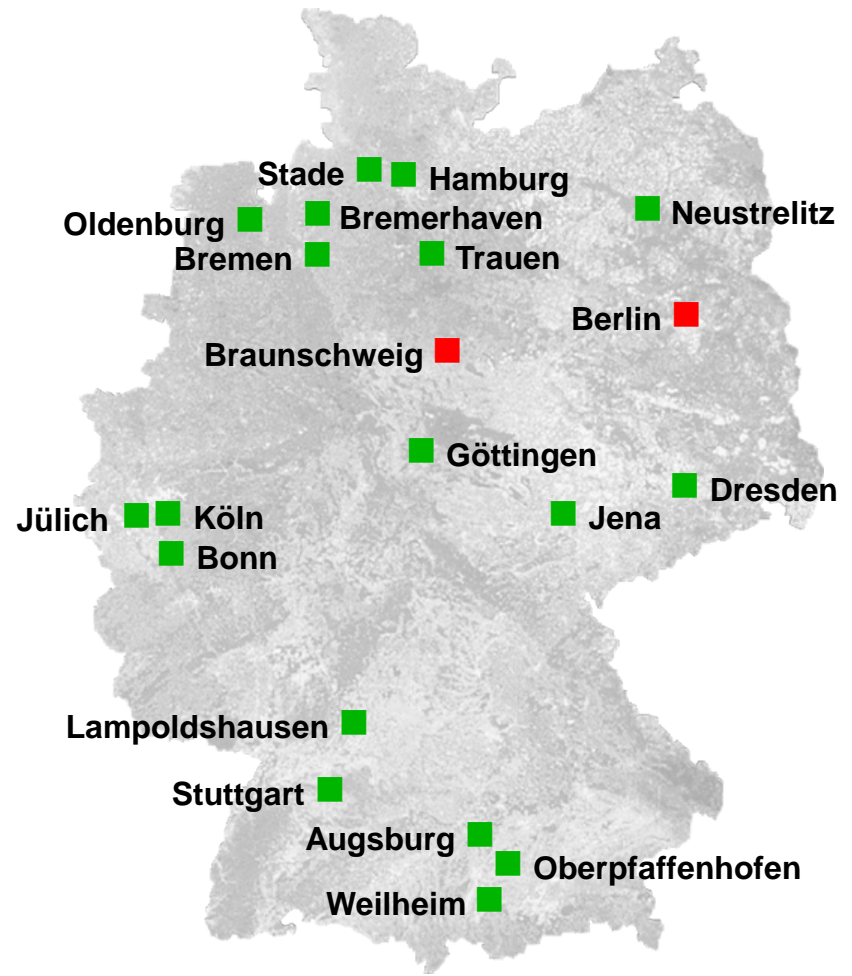
DLR Braunschweig

Wissen für Morgen

DLR

German Aerospace Center
(Deutsches Zentrum für Luft- und Raumfahrt e.V.)

Research branches

- Aeronautics
- Space
- Transport
- Energy
- Safety

Around 8.000 employees working in more than 30 research institutes and facilities at 20 sites in Germany.

Offices in Brussels, Paris, Washington, and Tokyo.

Automated & Connected Driving

Advanced driver assistance systems and automated driving will be major building blocks of our future mobility.

Vehicles will be interconnected and cooperative – they will be able to exchange data/information e.g. with other vehicles, the traffic infrastructure and data/service-platforms.

→   safety / efficiency / comfort

→   automated and connected driving will be an enabler for innovative business models

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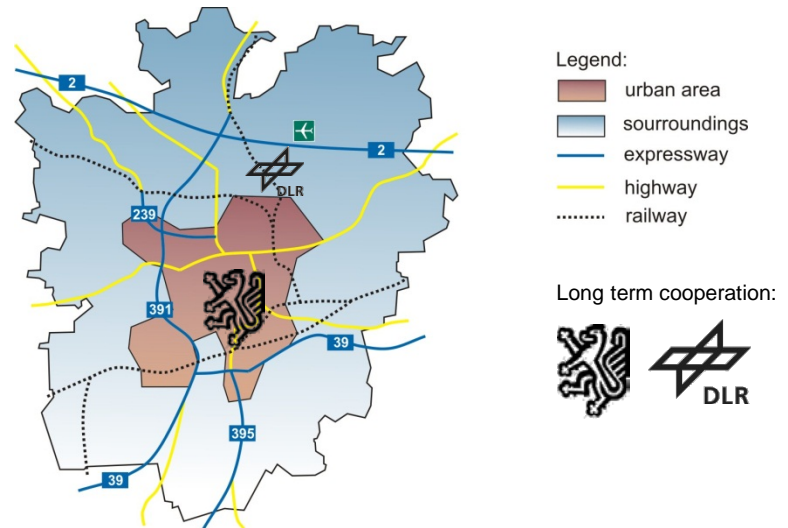
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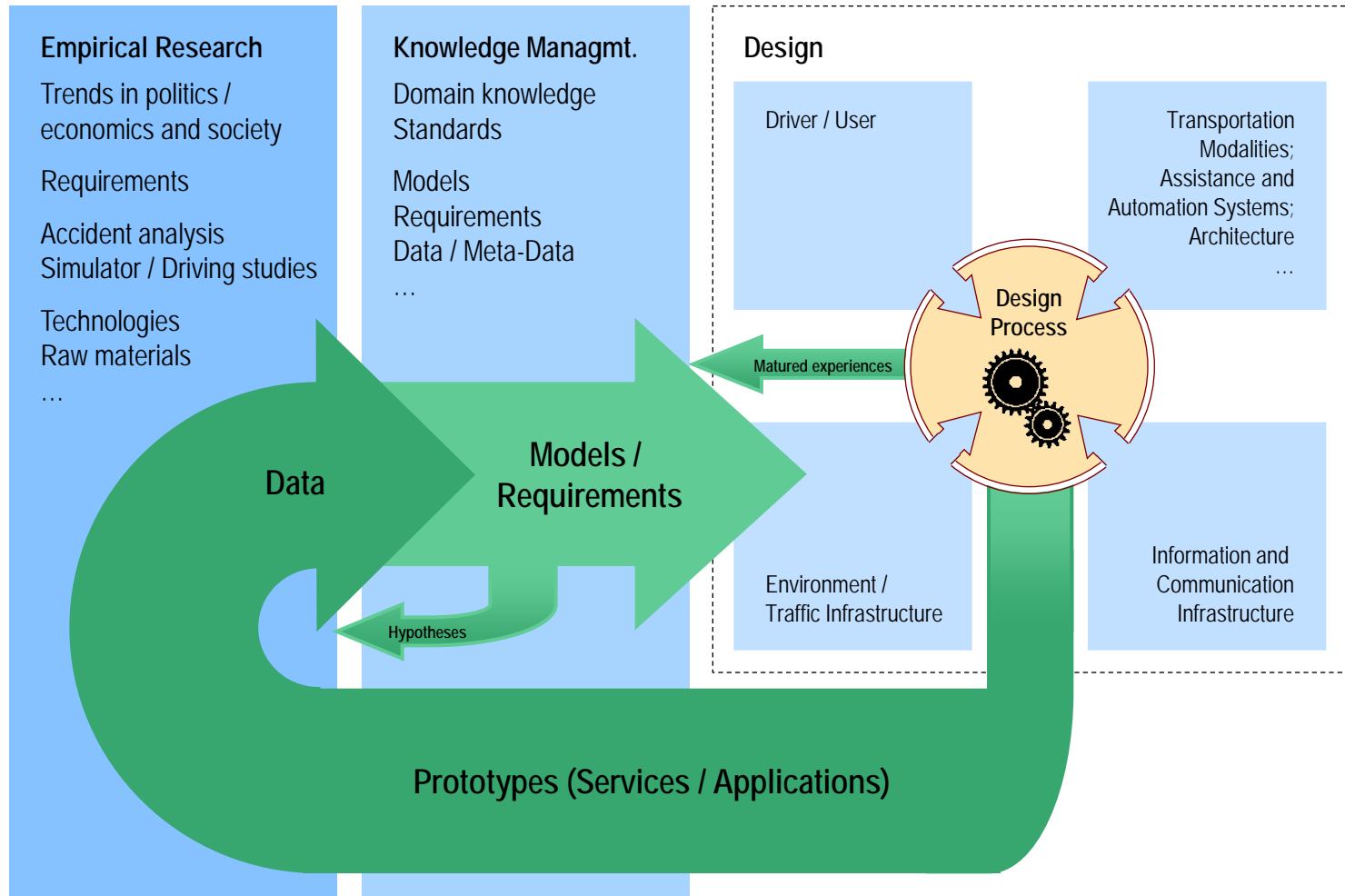- ⊐ selected parts of the surrounding regions.

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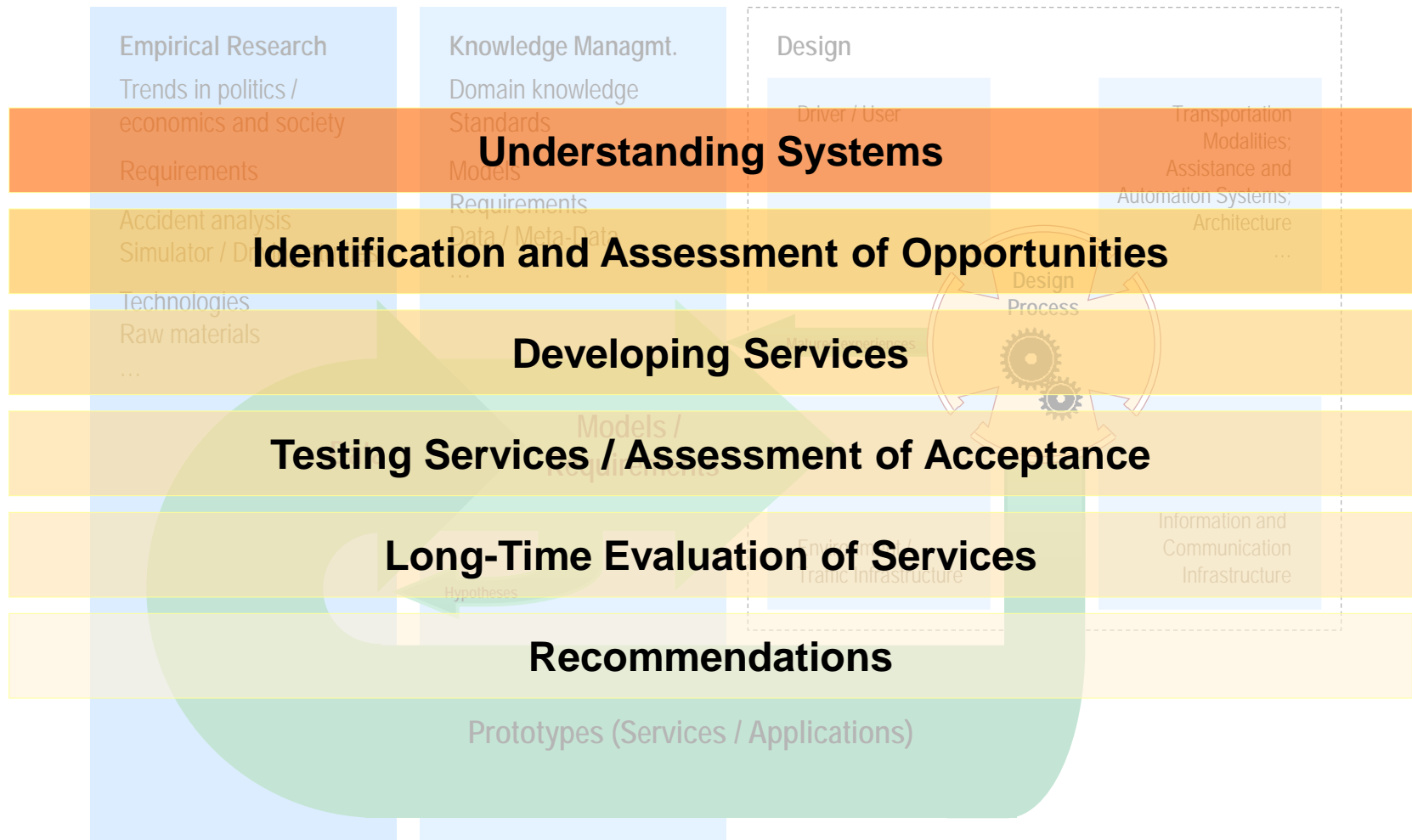
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- urban area
- sourroundings
- expressway
- highway
- railway

Long term cooperation:

Basic Services provided by AIM

- ⊐ Reference tracks in the BS region – virtual
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Framework to Support the Development of Advanced Driver Assistance Systems and Automated & Connected Driving

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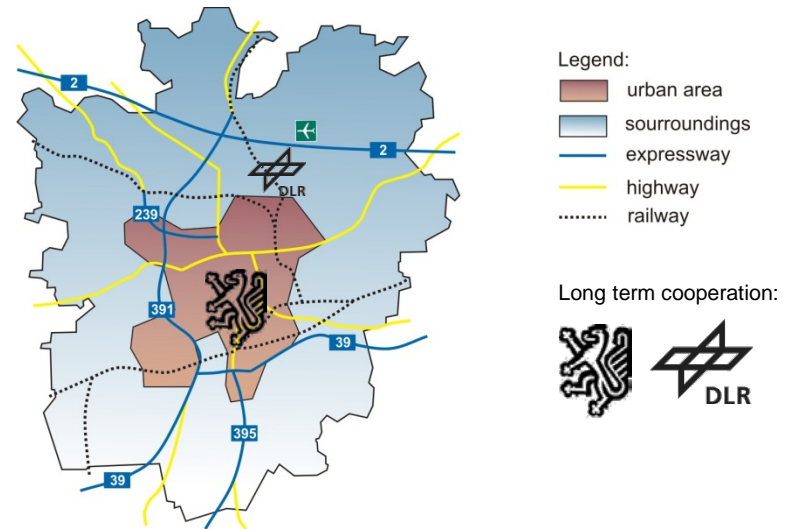
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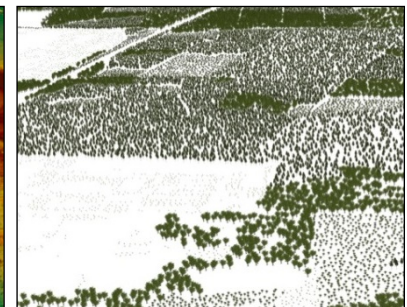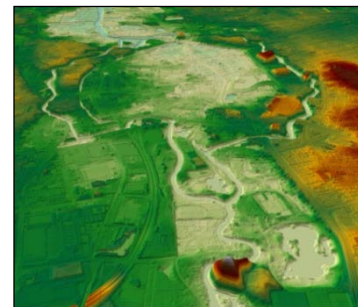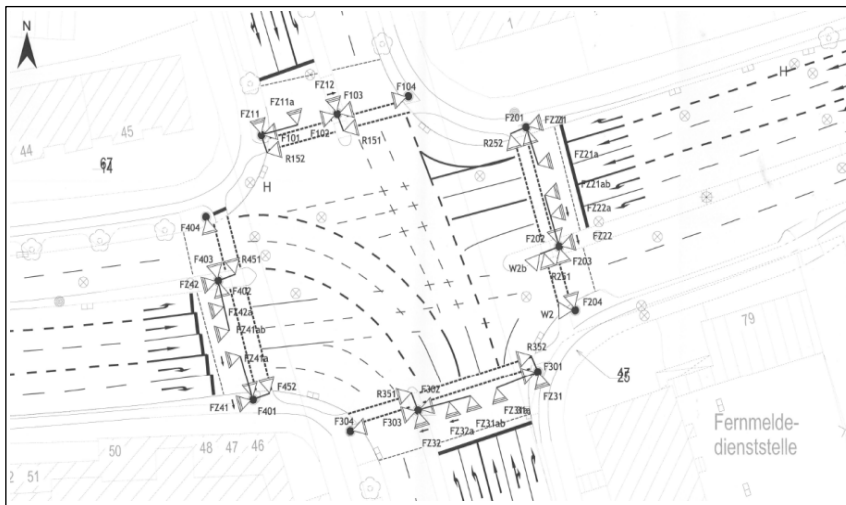
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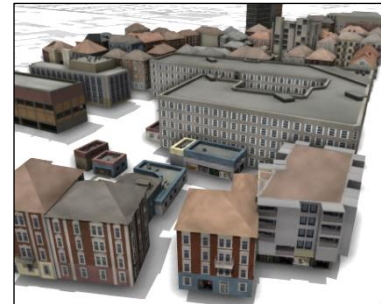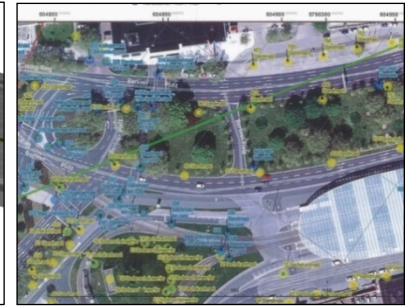
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- ~~~~~rtual
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- ~~~~~ **Service Cluster Maps & Simulation**
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Service-Cluster Maps & Simulation
→ e.g. supporting Experiments in virtual Environments

Virtual representation of relevant aspects of the city of Braunschweig and surrounding regions – static situation as well as dynamic views

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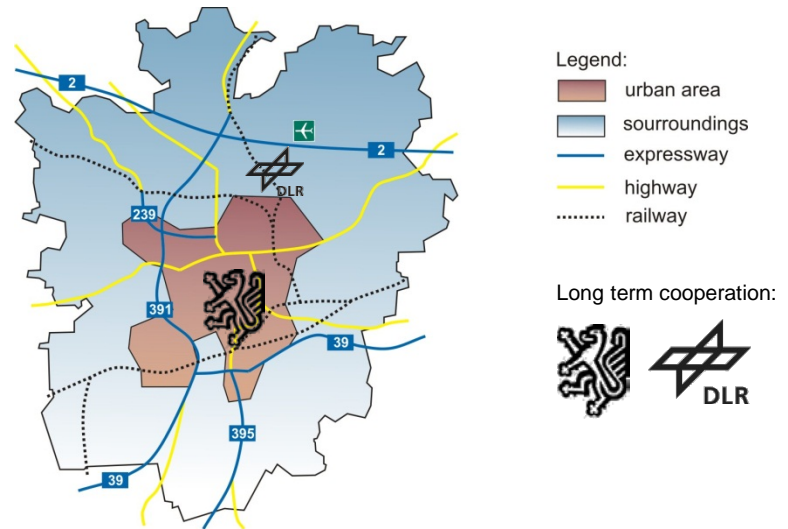
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Service Cluster Driving Simulation
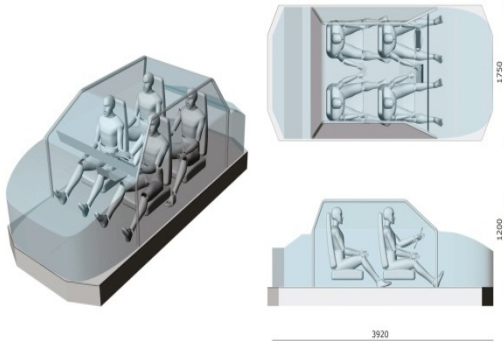
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Service-Cluster Driving Simulation – MoSAIC

Support the development of cooperative driver assistance and automation systems – core-system consists of three fixed-base driving simulators.

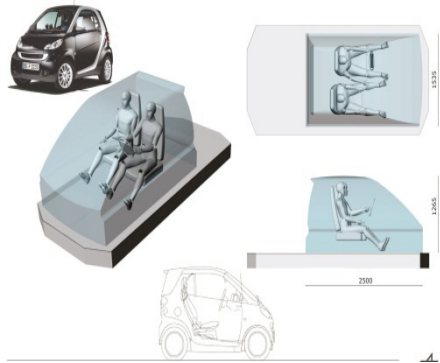Coupling with other simulators as well as Vehicle-in-the-Loop facilities possible.

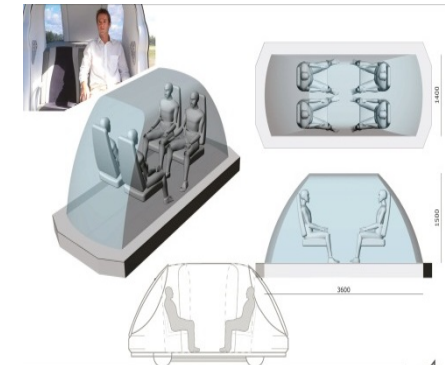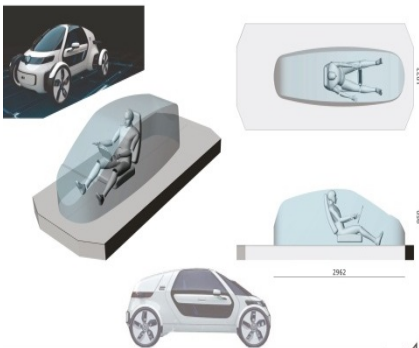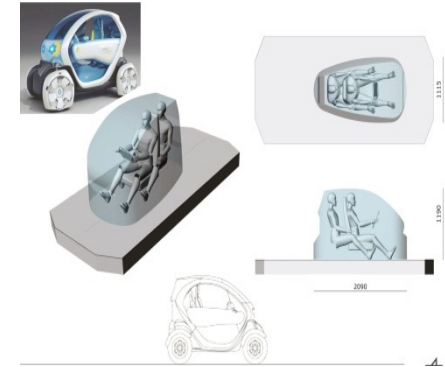# Service-Cluster Driving Simulation – Modular MockUp (Concepts)
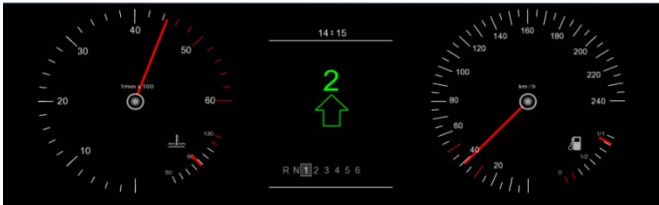
Allround

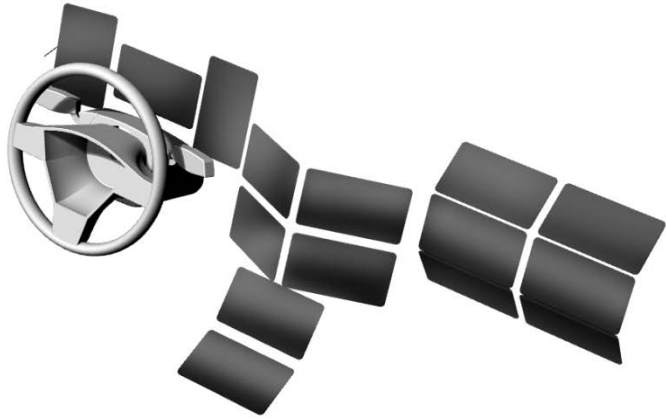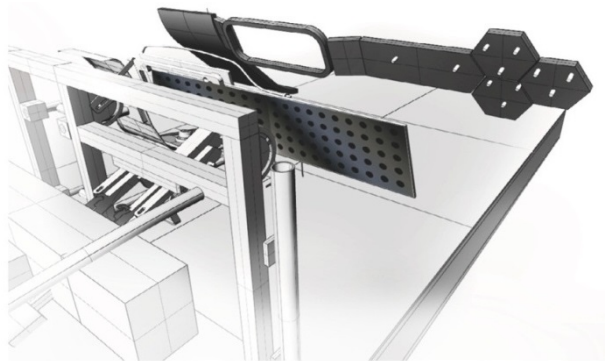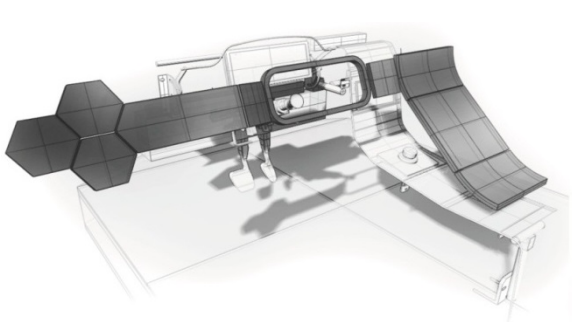**Urban**

Green / Fun

Commuter

Automated

People Moover

Service-Cluster Driving Simulation – Modular MockUp (HMI)

Flexible and open (hard-/software) framework

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Service Cluster Infrastructure

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Service-Cluster Infrastructure – Reference Tracks (1/2)

Car2X-infrastructure (802.11p, 802.11b/g/n, Bluetooth, LTE); 11,2 km

Overview Camera
Detail View Camera
Radar
Infrared flash
Network cable (fiber)

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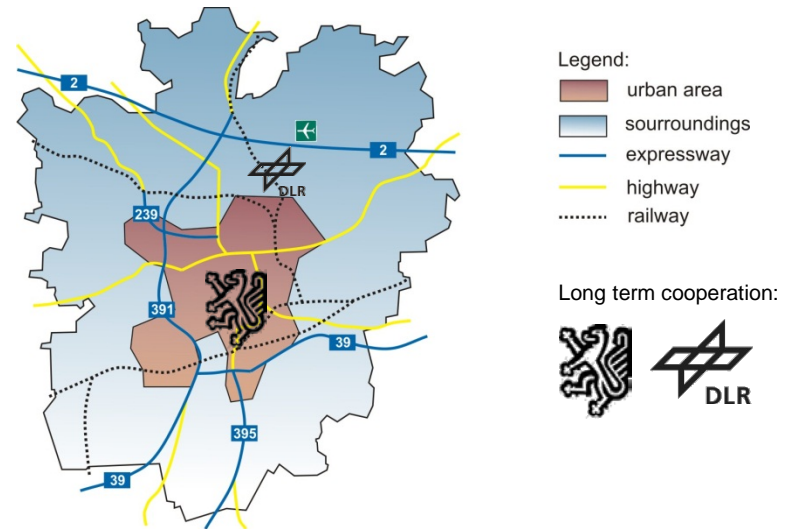- real urban areas, and
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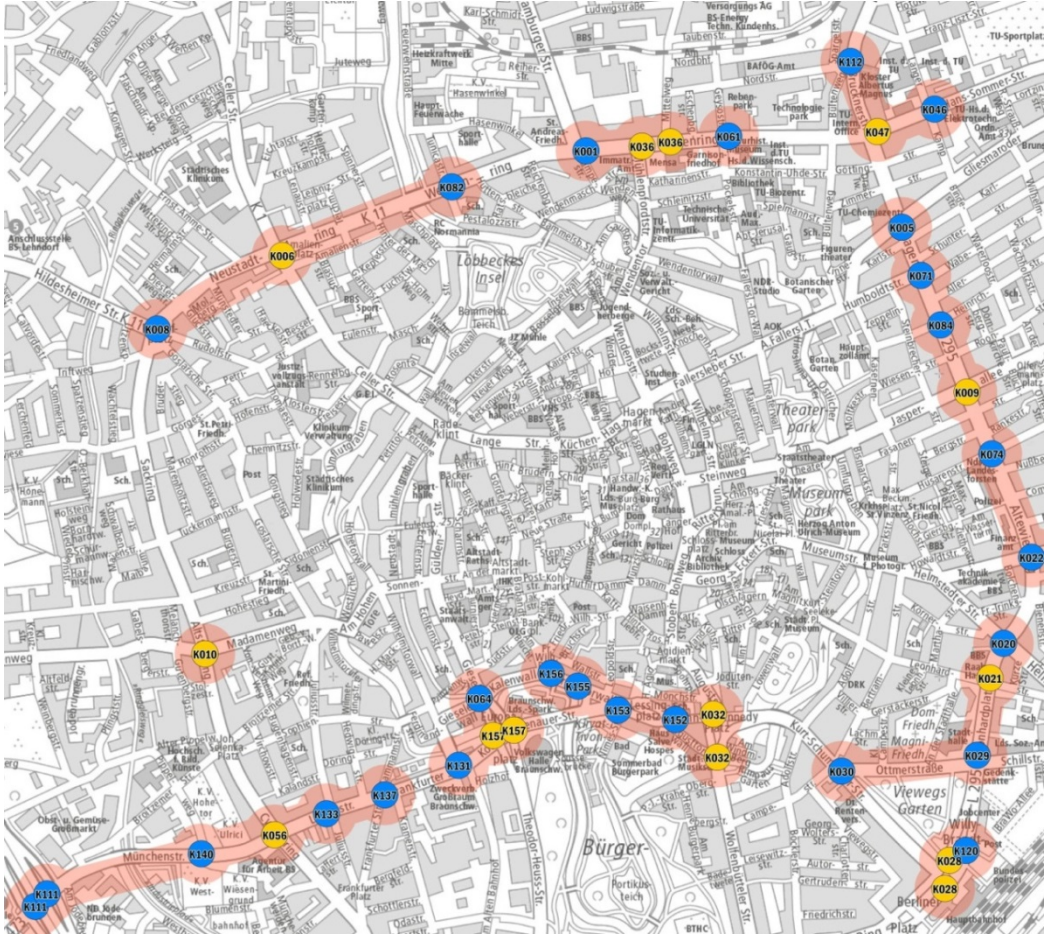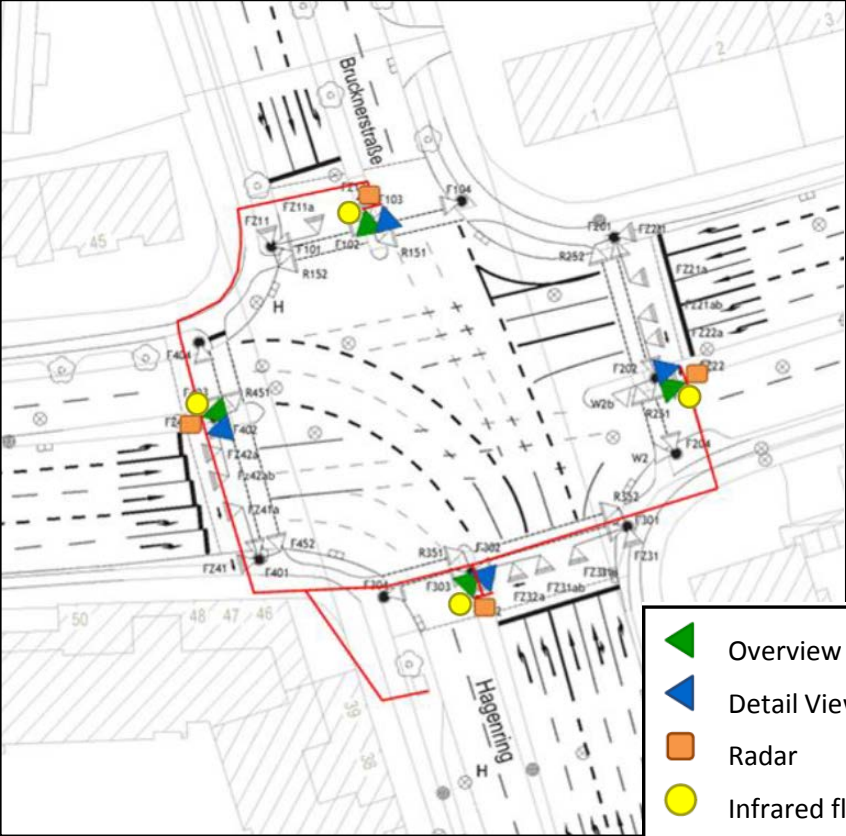- Modular and Scalable Application Platform for ITS Components

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Service Cluster Vehicles & Mobile Devices

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Service-Cluster Vehicles & Mobile Devices (Selection)

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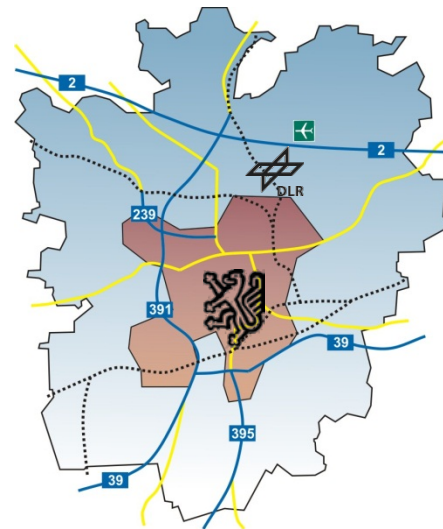
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Service Cluster Backend

DLR

Service-Cluster Backend – Overview

Mobility Portal for Customers

Portlet Service b

Portlet Reservation Of Charging Infrastr.

Service Provider

Portlet Product Management

Bestandsdienste / Legacy-Services

Mobilitäts-reporting

MIV-Navigator

ÖPNV-Navigator

...

Multimodale Reiseplanung

Car Pool

Ladesäulen-management

Parkraum-management

IKT Services / Applications

Service A

Service B

...

Service ...

Service ...

B2B Gateway

Identity Manage-ment

Authentication & Autorisation

ESB

Business Activity Monitoring

Service Registry & Repository

Supported by partners of the project IKT-Plattform (Schaufenster für Elektromobilität – Nds.): In particular, T-Systems and Volkswagen.

Administr. & Config. Mgmt.

PKI & CA MNO Mgmt.

...

APM System-Monitoring

Central Platform Services

Product Mgmt.

Customer Mgmt.

...

Order Mgmt.

Revenue Mgmt.

Generic Business Support Services

Routing

...

Karten

Generic Mob. Services

Special Devices & Vehicle Gateway

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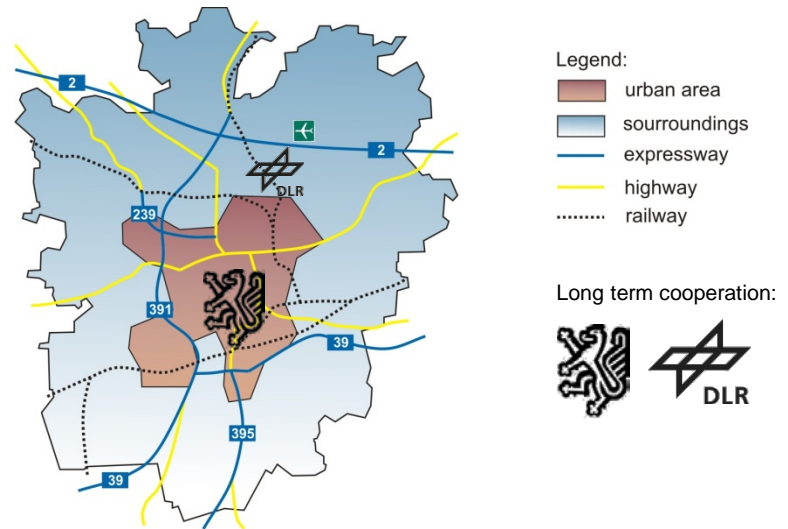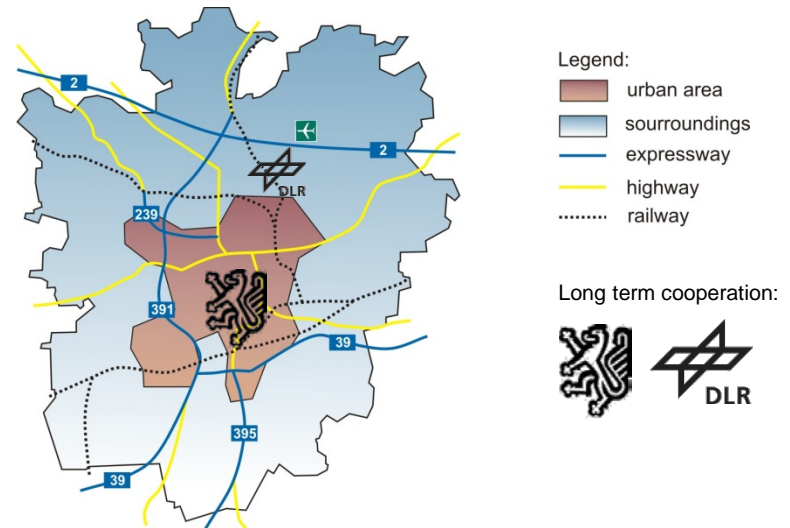- ⇁ real urban areas, and
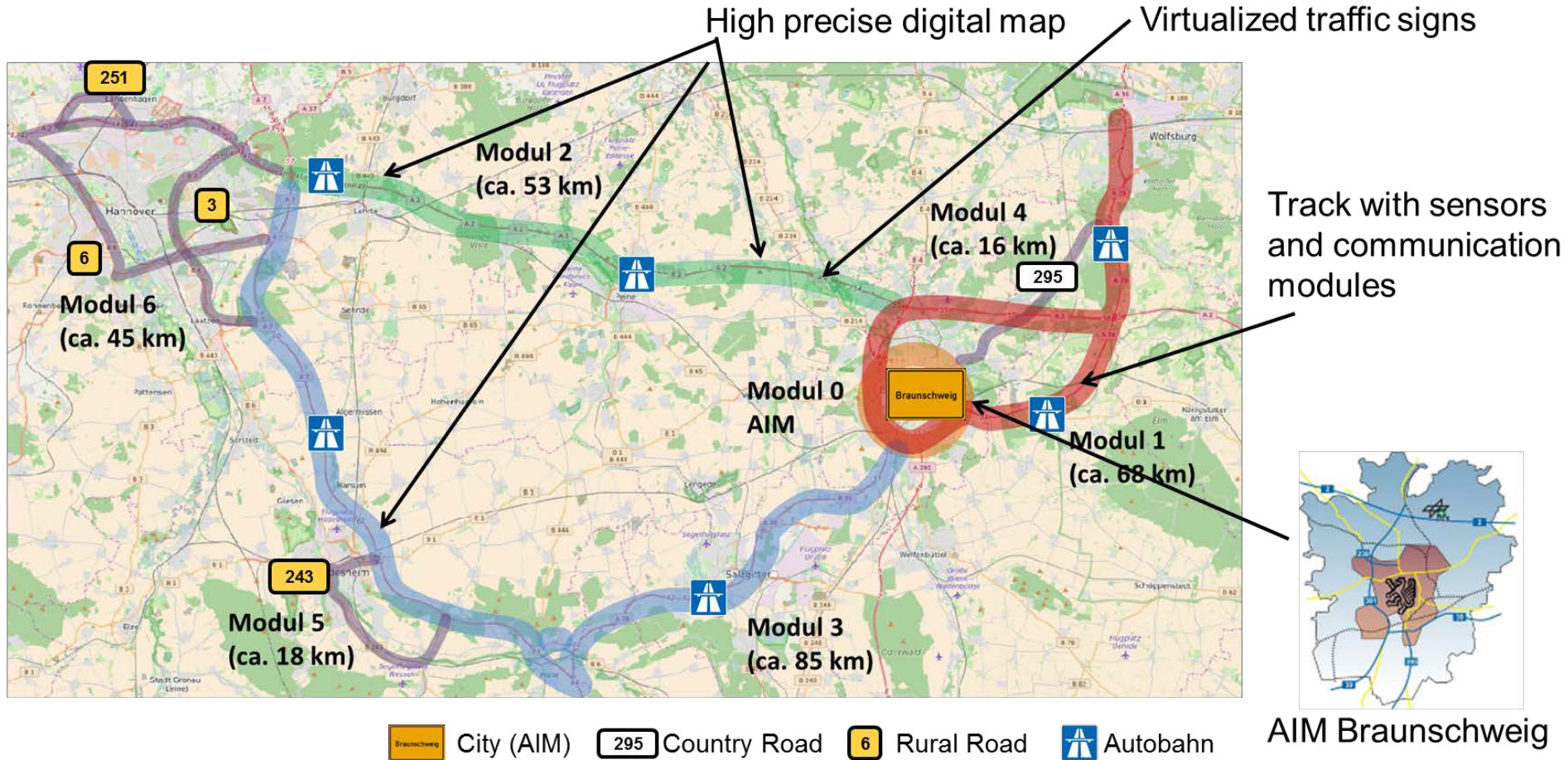- ⇁ selected parts of the surrounding regions.

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Testbed Lower Saxony – Overview

High precise digital map

Virtualized traffic signs

Track with sensors and communication modules

Modul 2 (ca. 53 km)

Modul 4 (ca. 16 km)

Modul 6 (ca. 45 km)

Modul 0 AIM

Modul 1 (ca. 68 km)

Modul 5 (ca. 18 km)

Modul 3 (ca. 85 km)

AIM Braunschweig

Braunschweig City (AIM)   295 Country Road   6 Rural Road   Autobahn

Testbed Lower Saxony – Communication and Sensing Technology

Kreuz Wolfsburg/Königslutter
(A2 / A39)

Sensors and Communication

**Digital Map
Virtualized Traffic Signs**

Communication

Dreieck Braunschweig
Süd-West
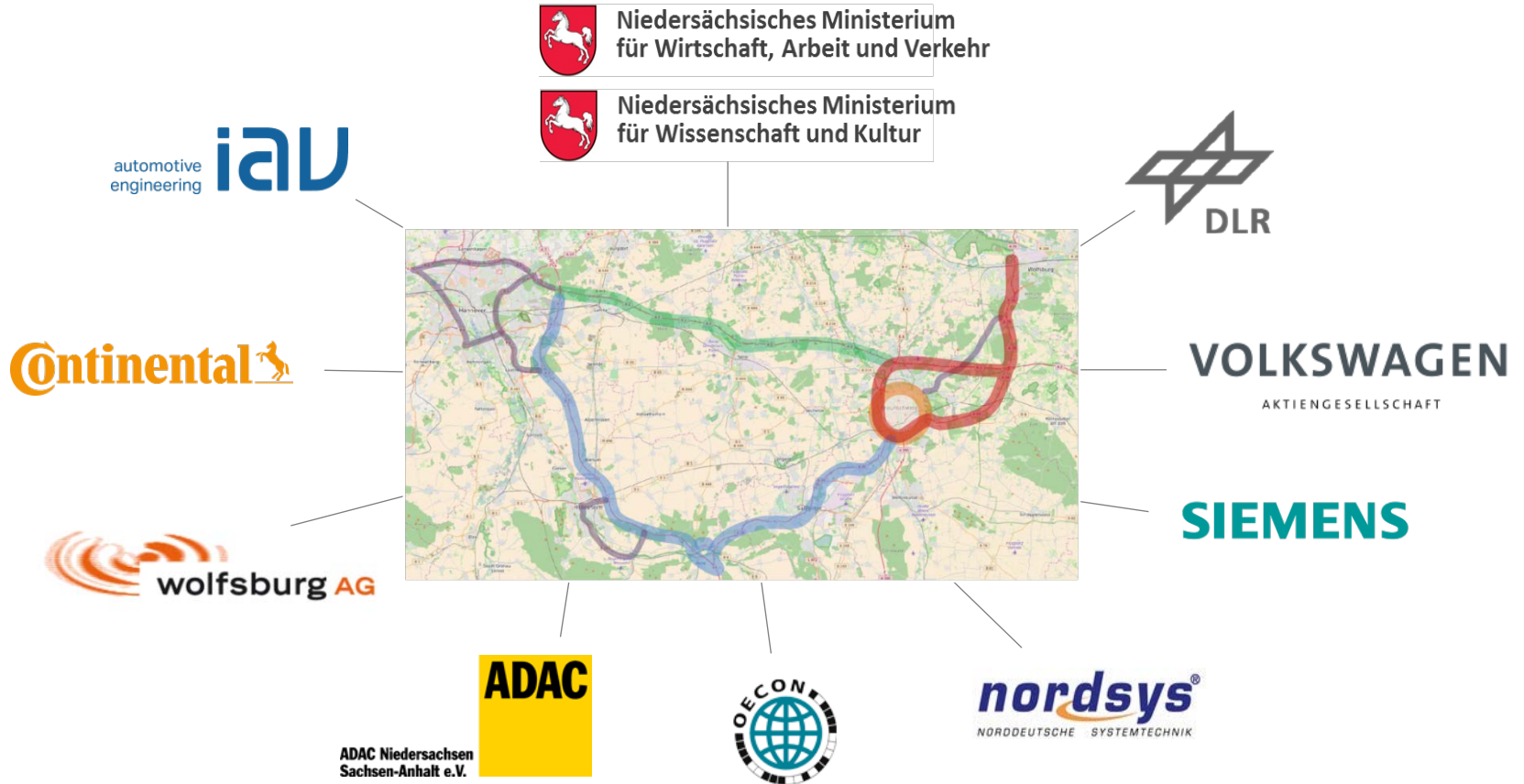(A39 / A391)

Anschlussstelle
Cremlingen
(A39)

0   1000   2000   3000   4000 m

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Testbed Lower Saxony – Core partner

Karte: © OpenStreetMap-Mitwirkende

Thank you for your Attention …

Contact:

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