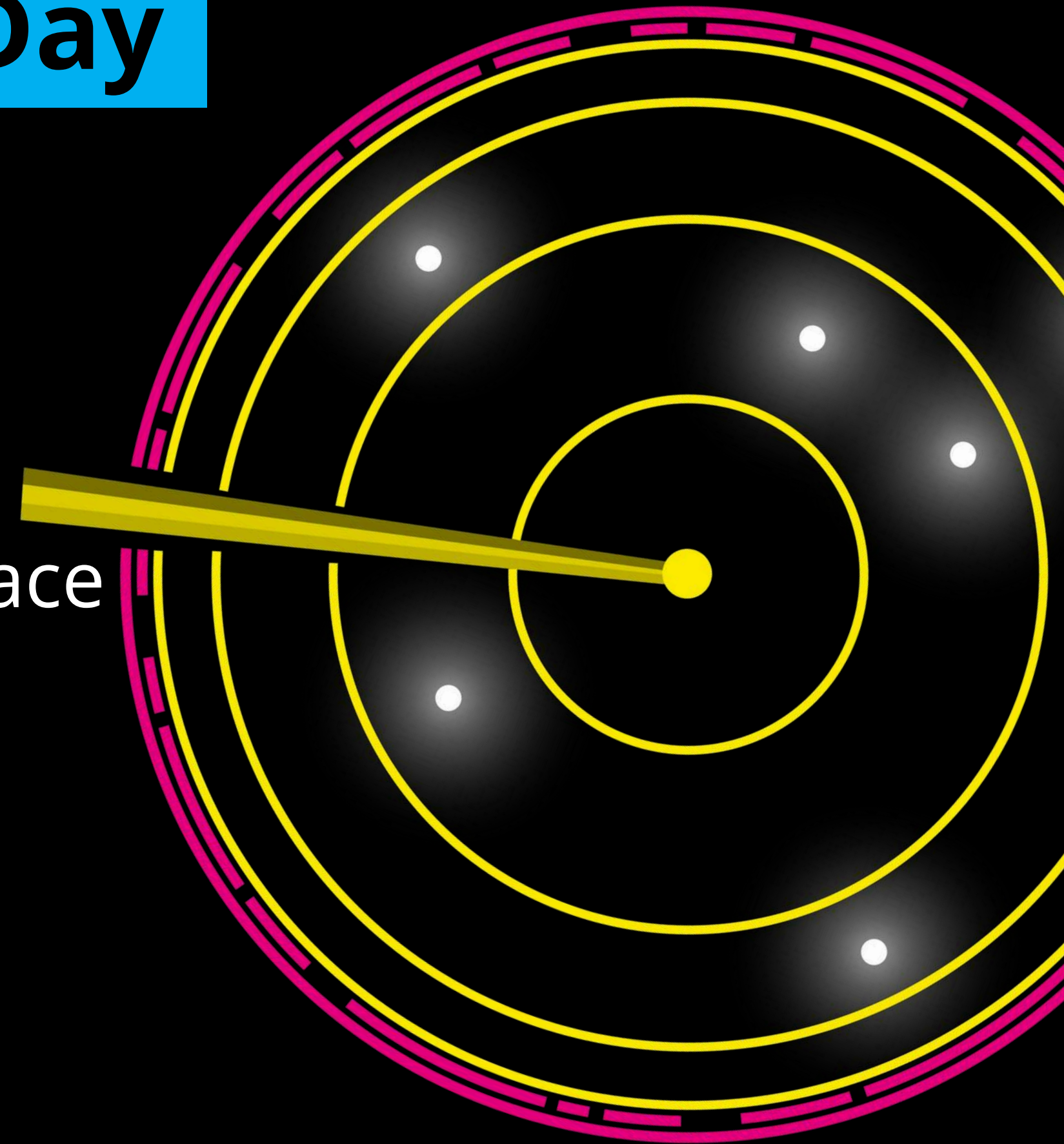


Data Spaces Discovery Day

October 19, 2023 | Vienna

The Value of Data Spaces
Samples from the Mobility Data Space

Michael Schäfer
CEO / CTO Mobility Data Space

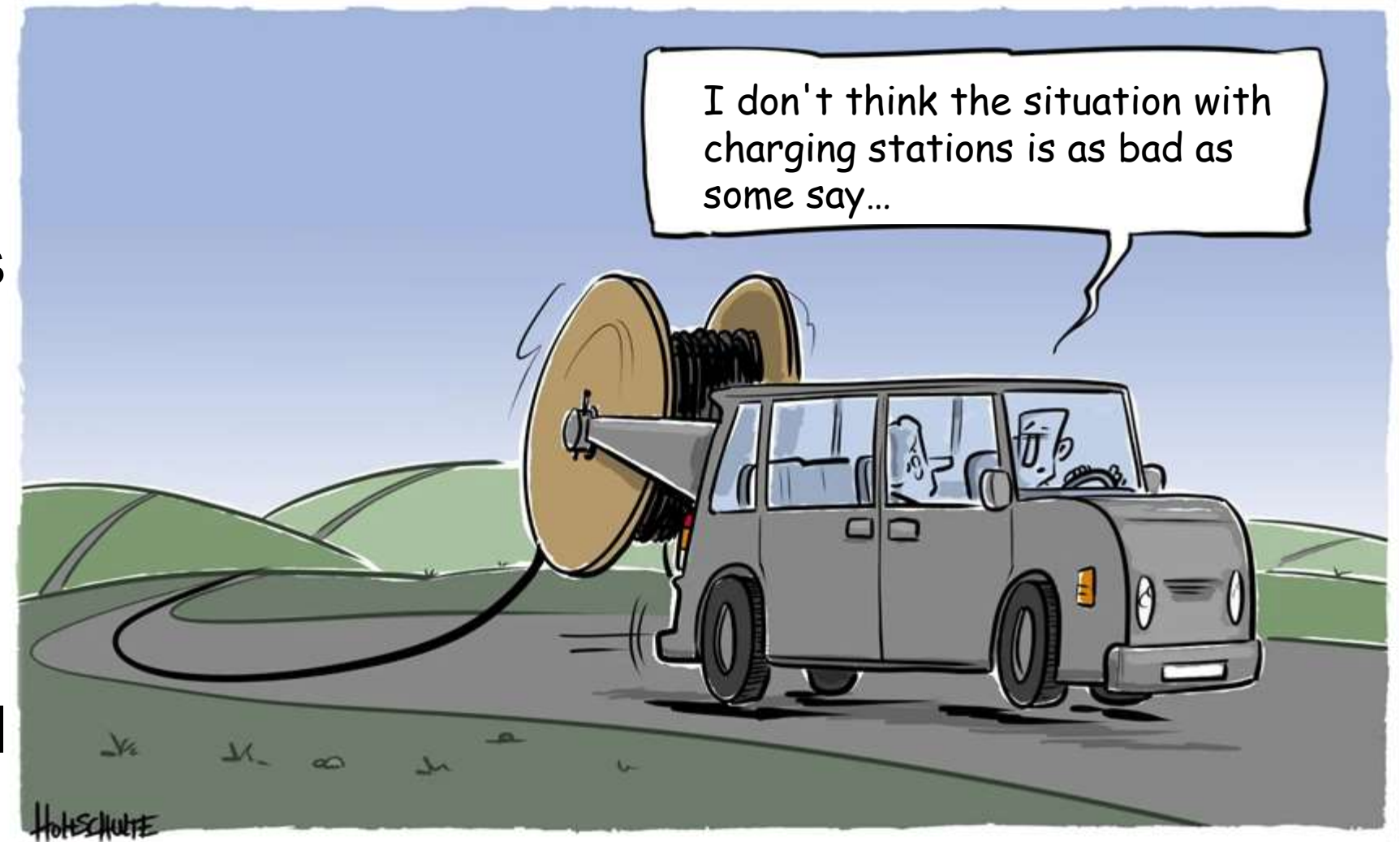


Challenges



Opportunities resulting from e-Mobility

- Electromobility "saves" individual transport
- "Booster" for further development of battery technologies → also impact on other industries and domains.
- Embedding e-cars into smart grids (V2G) - "extending the home battery" –
- Enables the vision of greener transportation systems
- Particularly municipalities can manage traffic flows by "clever" placement of charging stations
- E-Mobility is a prerequisite for future autonomous driving
- And autonomous driving is (or will be) a key to social integration and participation





Obstacles for ...

Shift to e-mobility
sale of e-cars
Cleaner city centers
Environmental protection

Real life obstacles:

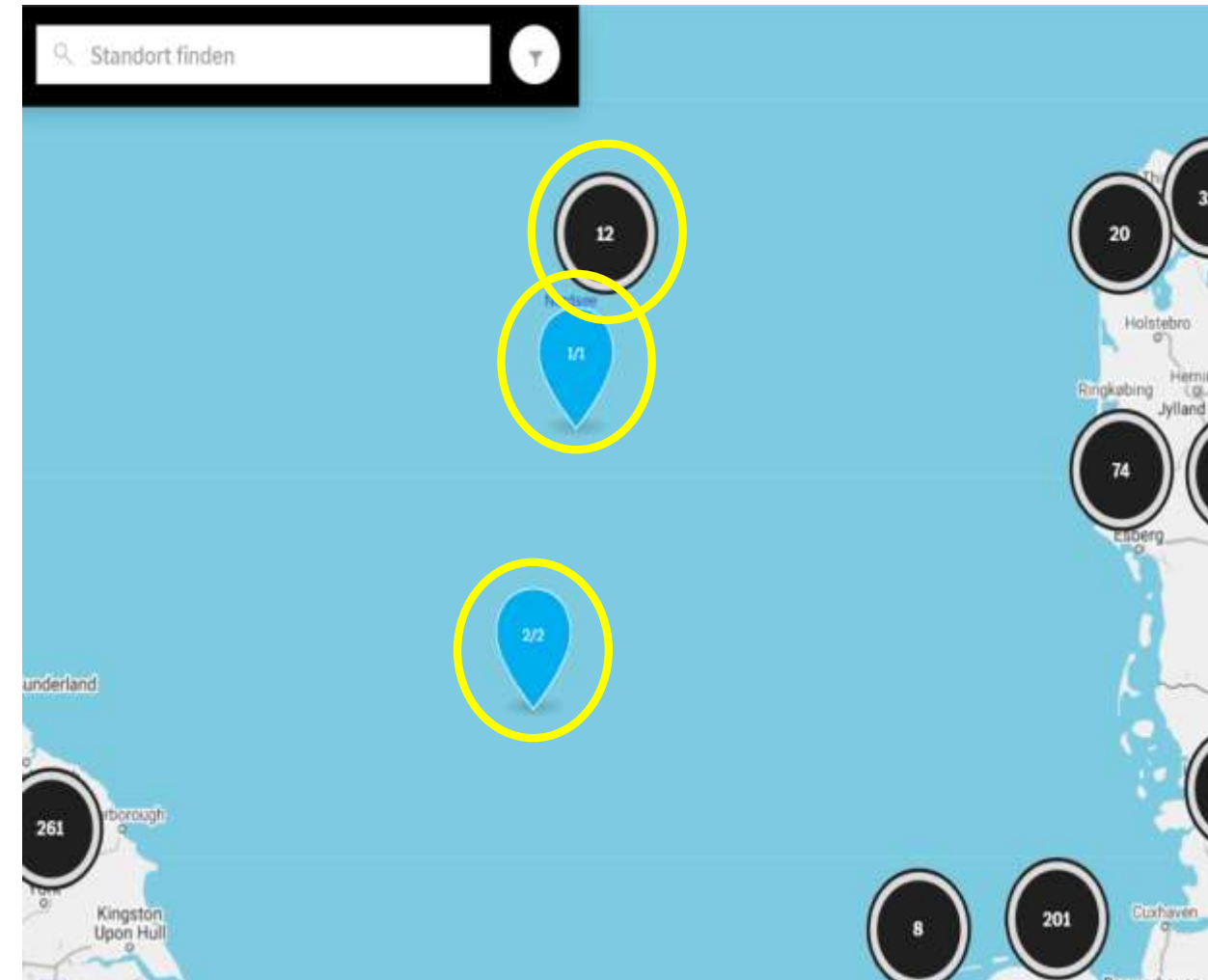
- Many trips to charging stations are unsuccessful → charging station search traffic
- Longer trips must be planned very well
- Can the vehicle be charged at home or in the immediate vicinity? Especially also in rural areas

Further limitations:

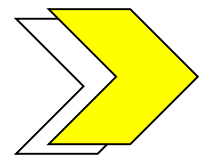
- High initial cost
- Limited range and high charging times (“refueling”)
- Limitations of battery technology and supply chain
- Consumer perception and awareness: many consumers still have misconceptions or limited knowledge about electric vehicles

Where is the next charging station?

The GEO locations of more than 20% of the existing charging ocations are incorrect*



Challenge

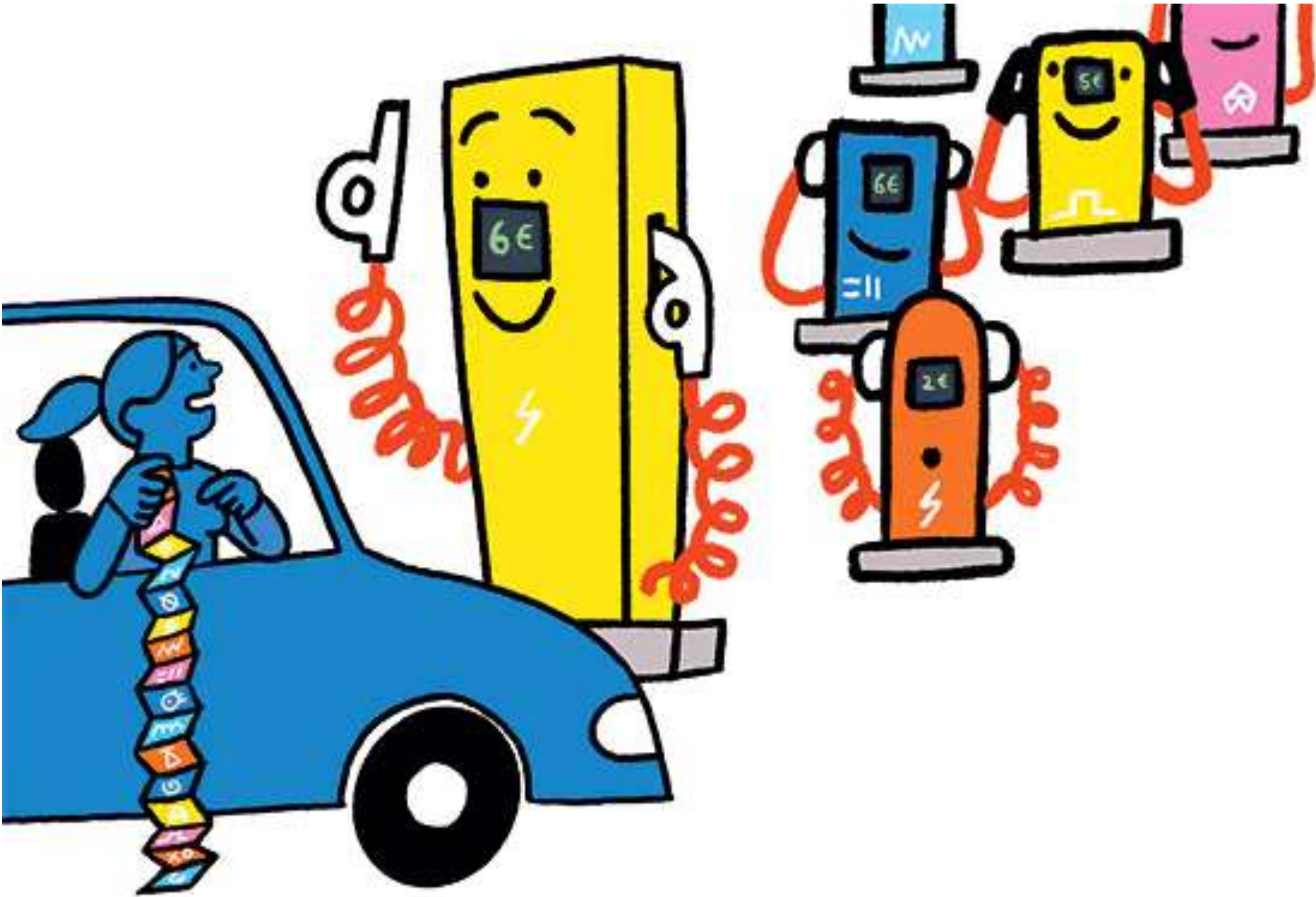


Insufficient or incorrect data of the charging infrastructure information in the satnavs lead to "poor experience" of drivers of e-cars and prevent people from switching to e-mobility

Can I access the charging station?



Suitable plug / socket, charging power, pricing?



Charging station infrastructure & reduction of inner-city search traffic



Case

- Correction of the charging stations' geo-positions provided by the satnavs and the fleet data of the OEMs

Benefits

- Increasing the social acceptance of e-mobility by greater convenience when searching for available charging stations
- Reduction of inner-city charging station search traffic



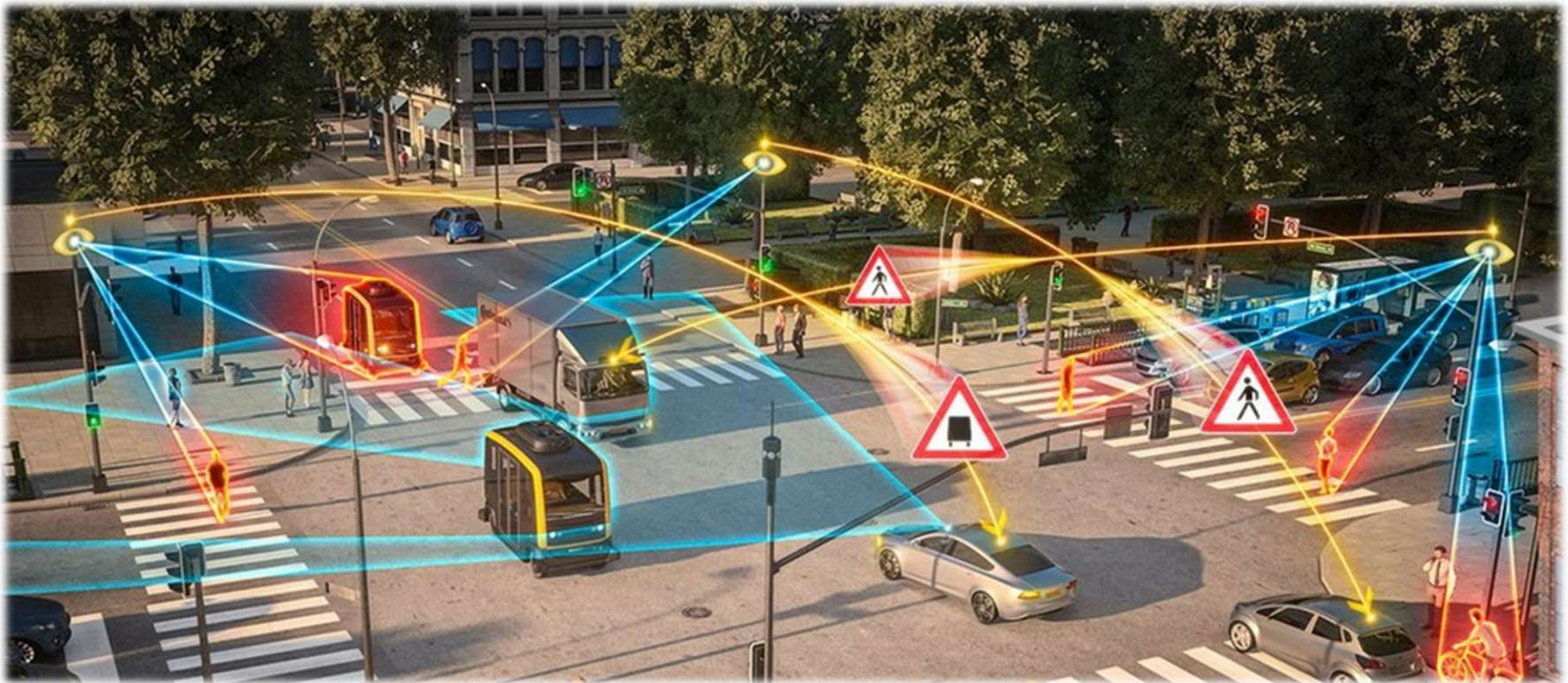
Participants

- BMW, Mercedes-Benz, Hubeject, TomTom, HERE, Parkopedia, Eco-Movement, Digital Charging Solutions

MDS' role

- independant actor
- Manage M:N relationships with one interface
- Monetization of data
- Networking and additional sales channel

AI / Real time scenario sample: autonomous driving



AI / Real time scenario sample: autonomous driving

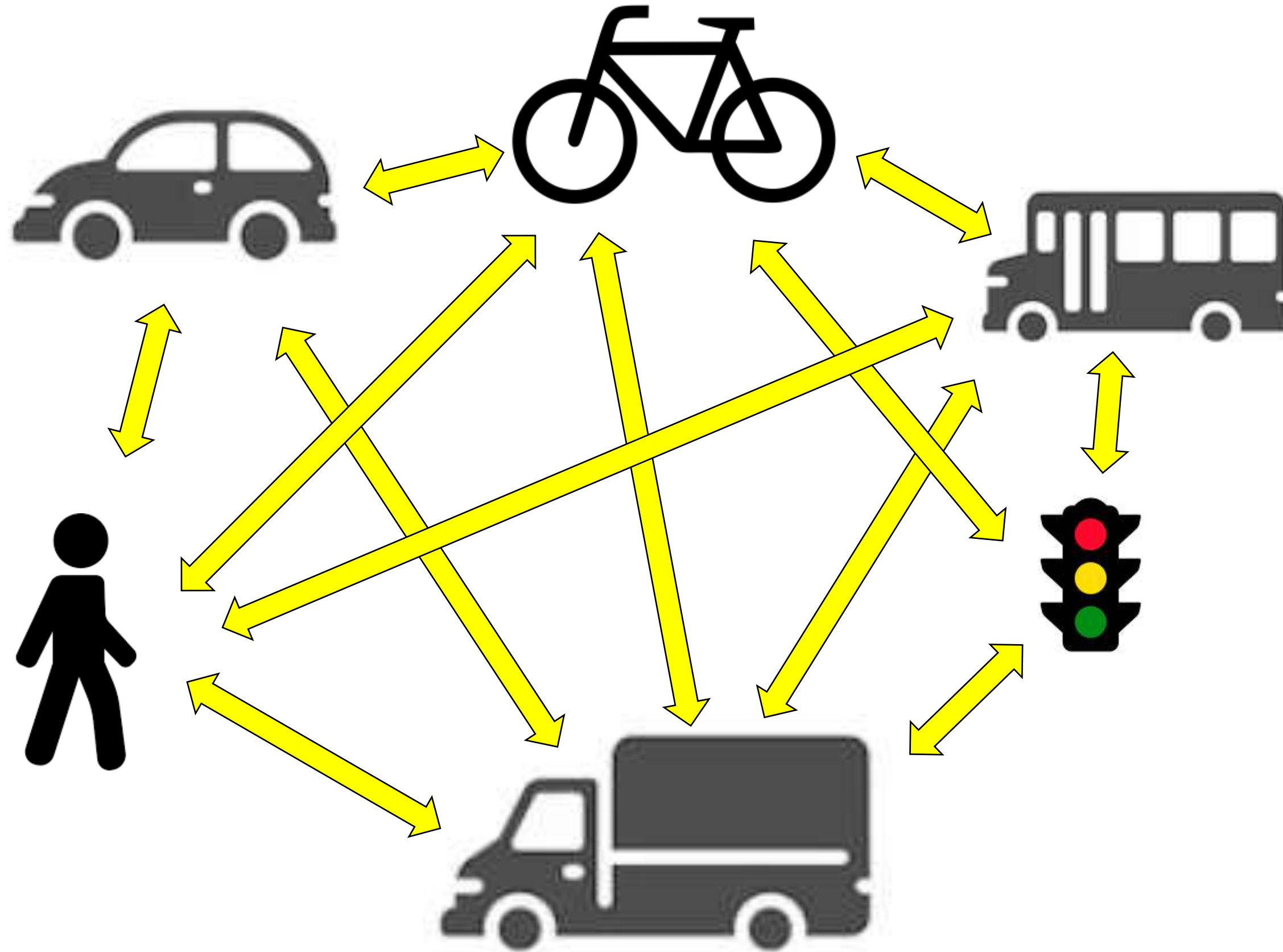
- Cars
- Bikes
- Lorries
- Buses
- Pedestrians



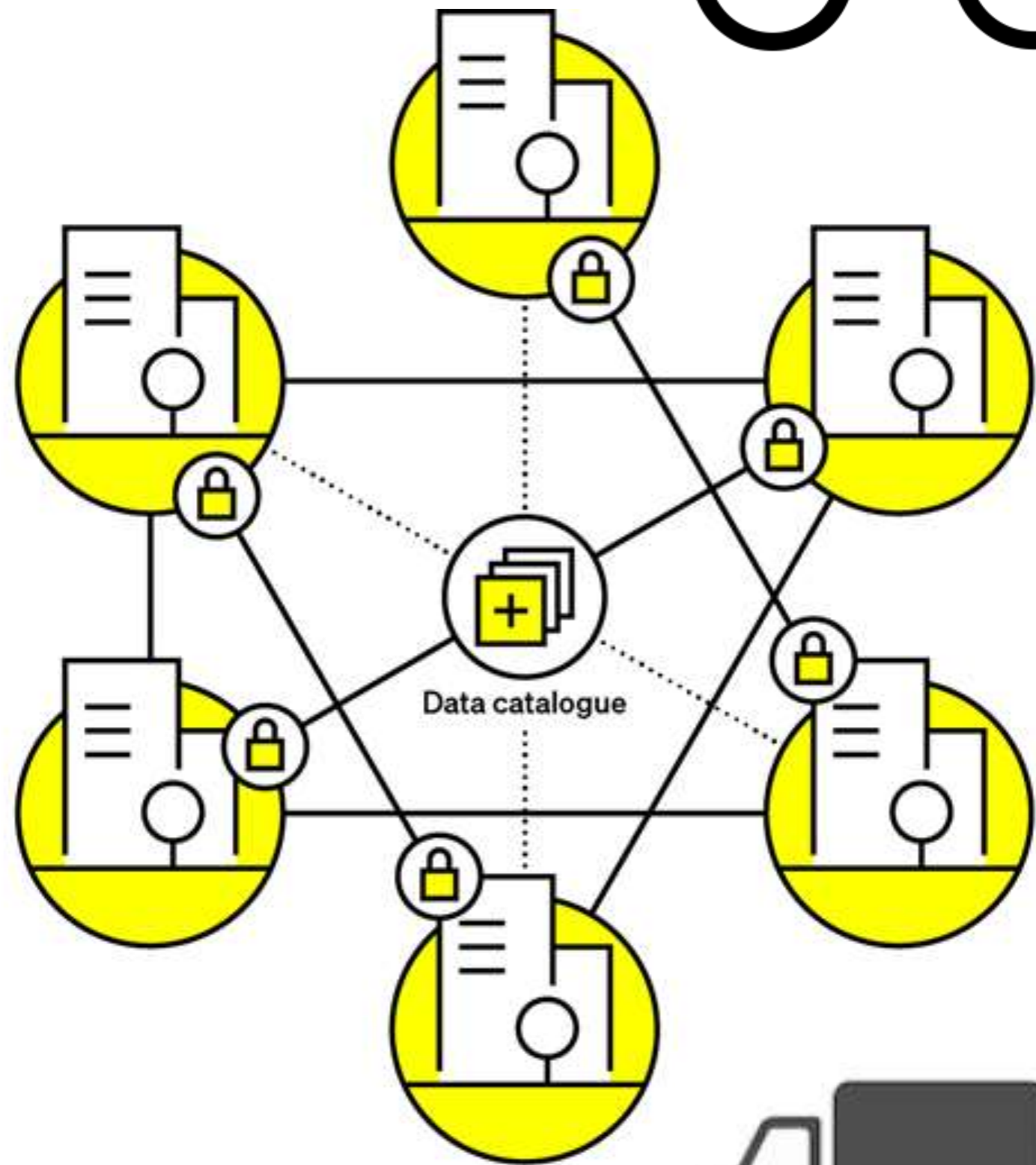
- Traffic lights
- Congestions
- Roadside
- Topology
- Crosswalks
- .
- .
- .

AI / Real time scenario sample: autonomous driving

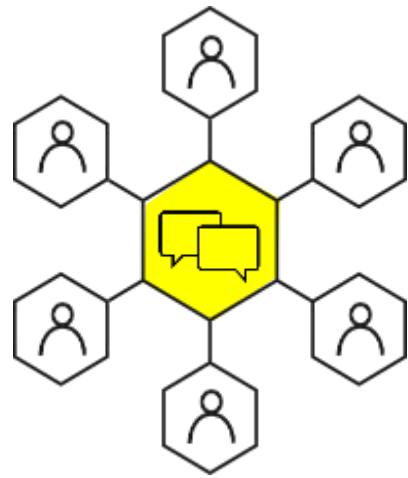
Peer-2-peer data transmission with cooperative behavior



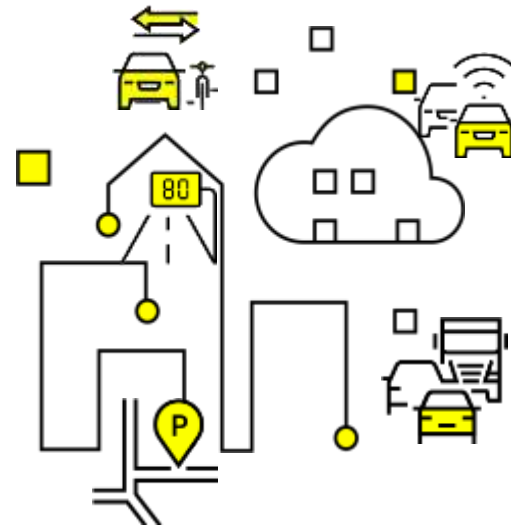
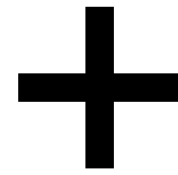
AI / Real time scenario sample: autonomous driving ... using a data space



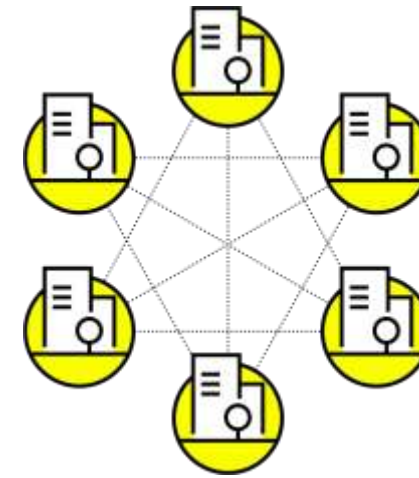
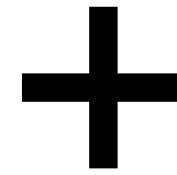
MDS - The Formula for Data Economics



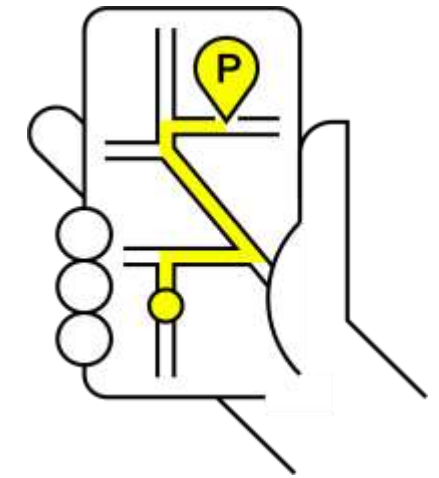
Partner &
Community



Data relevant
for mobility

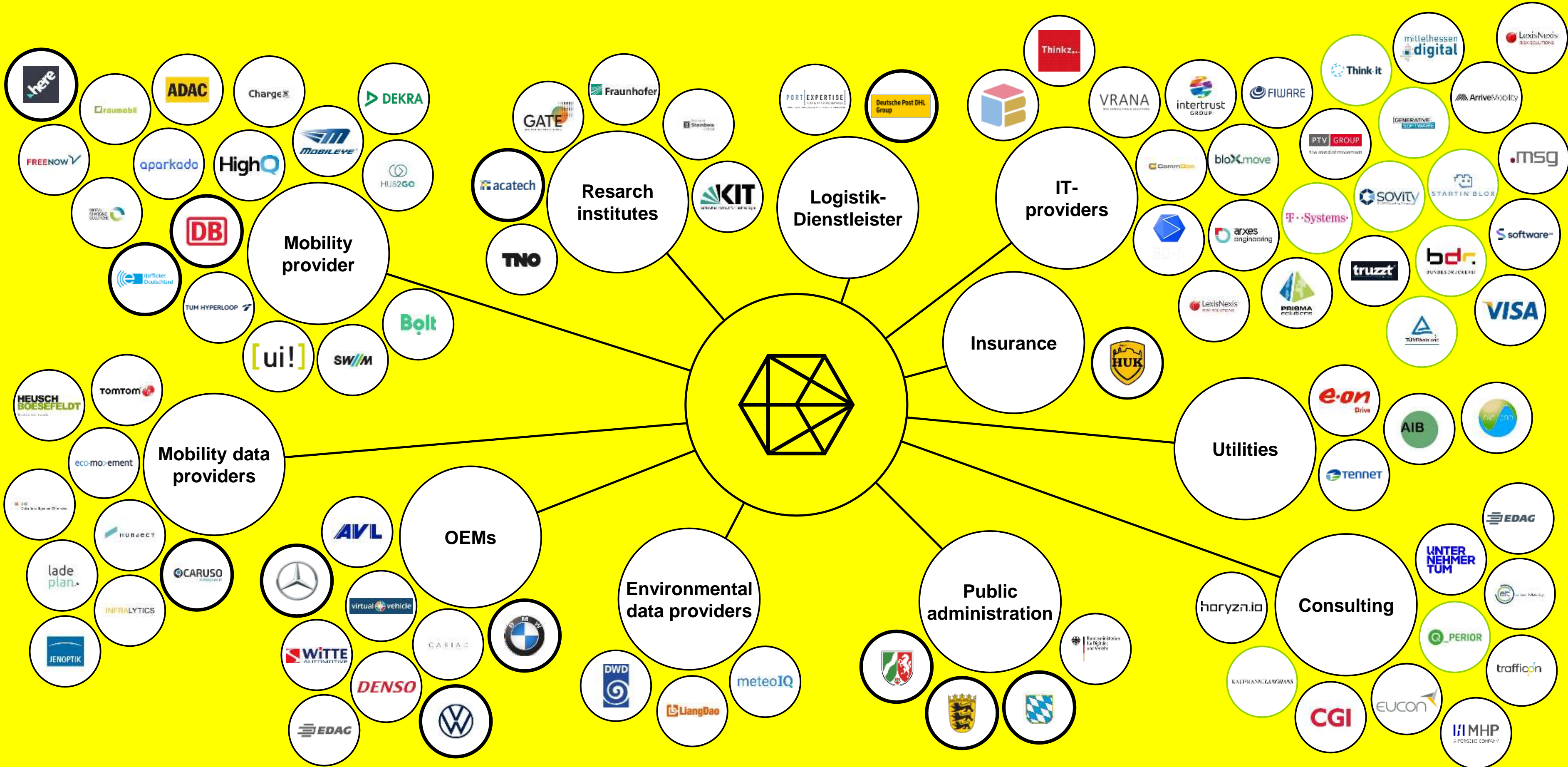


Trusted
infrastructure

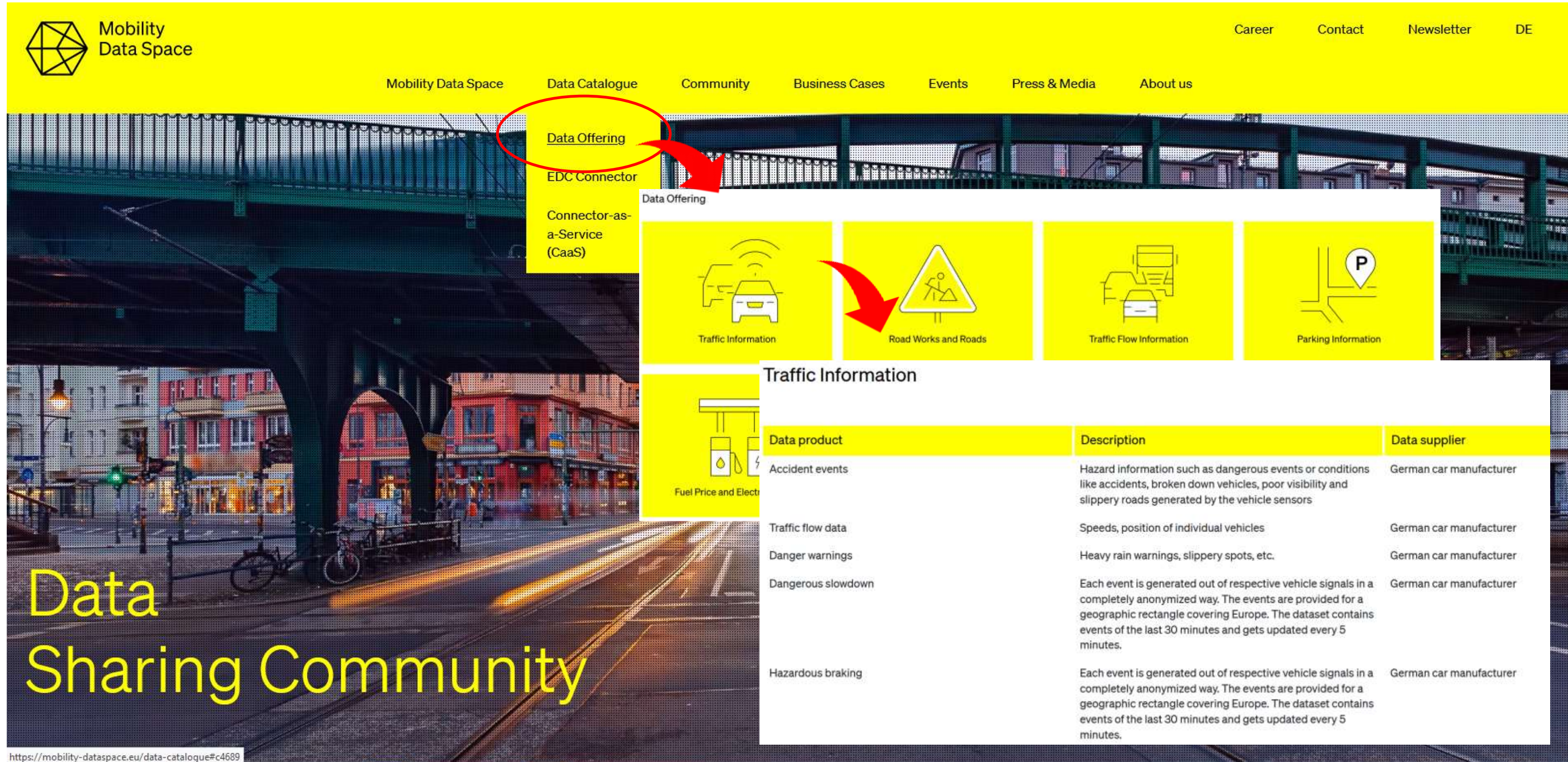


Innovative services,
products, analysis, etc.

The ecosystem



Tons of data relevant for mobility



The screenshot shows the Mobility Data Space website interface. The top navigation bar includes links for Career, Contact, Newsletter, and DE. The main navigation menu includes Mobility Data Space, Data Catalogue, Community, Business Cases, Events, Press & Media, and About us. The Data Catalogue menu is expanded, showing options for Data Offering, EDC Connector, and Connector-as-a-Service (CaaS). A red circle highlights the Data Offering option, with a red arrow pointing to a detailed view of the Traffic Information data product. This view includes a table with columns for Data product, Description, and Data supplier.

| Data product | Description | Data supplier |
|--------------------|--|-------------------------|
| Accident events | Hazard information such as dangerous events or conditions like accidents, broken down vehicles, poor visibility and slippery roads generated by the vehicle sensors | German car manufacturer |
| Traffic flow data | Speeds, position of individual vehicles | German car manufacturer |
| Danger warnings | Heavy rain warnings, slippery spots, etc. | German car manufacturer |
| Dangerous slowdown | Each event is generated out of respective vehicle signals in a completely anonymized way. The events are provided for a geographic rectangle covering Europe. The dataset contains events of the last 30 minutes and gets updated every 5 minutes. | German car manufacturer |
| Hazardous braking | Each event is generated out of respective vehicle signals in a completely anonymized way. The events are provided for a geographic rectangle covering Europe. The dataset contains events of the last 30 minutes and gets updated every 5 minutes. | German car manufacturer |


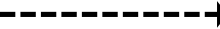

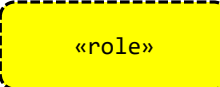
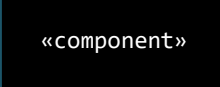

<https://mobility-dataspace.eu/data-catalogue#c4689>

Data Sharing Community

MDS – The Data Sharing Architecture

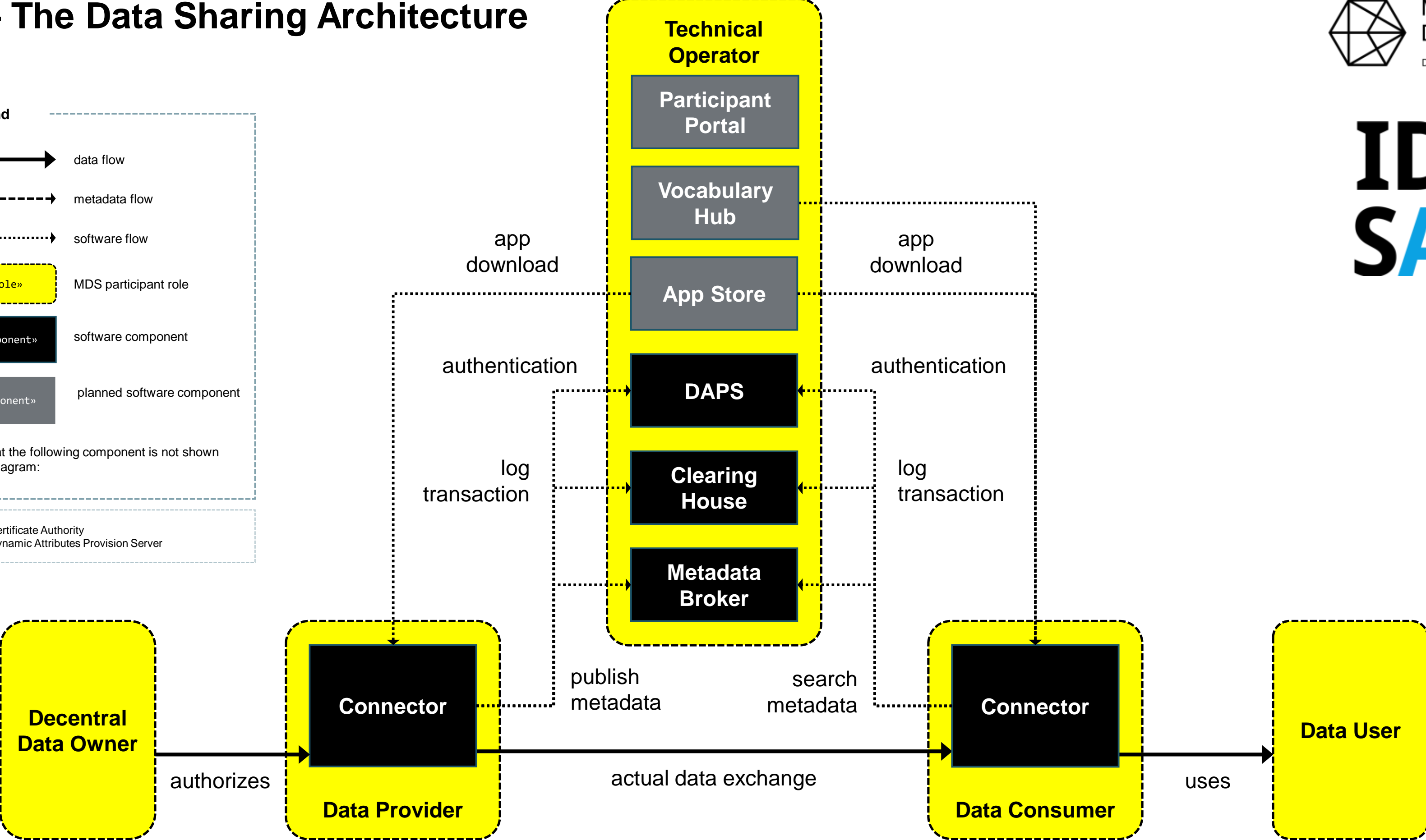


Legend

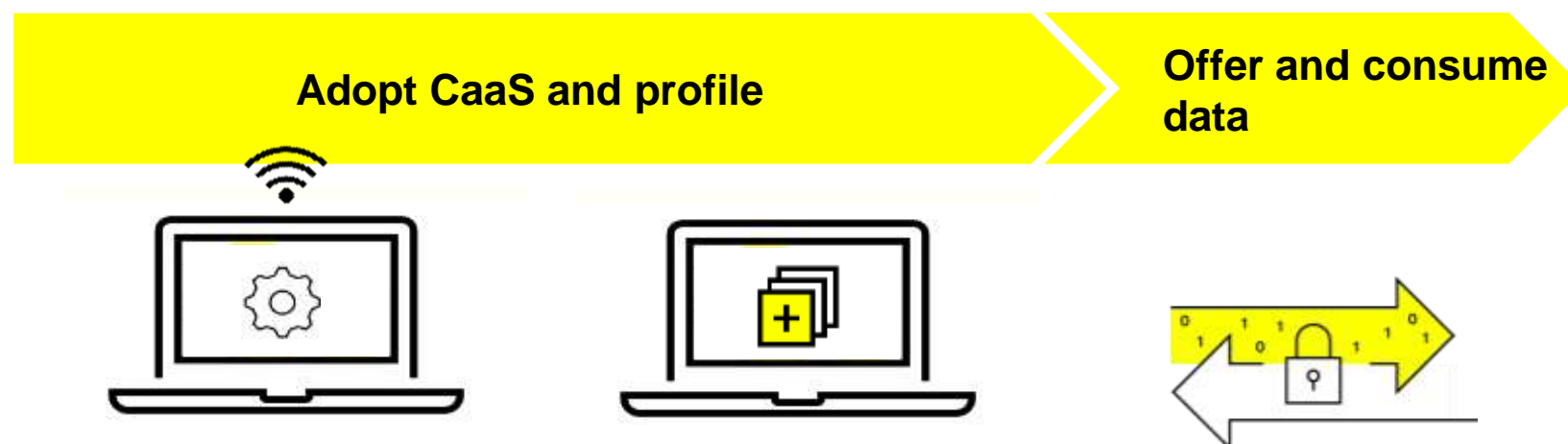
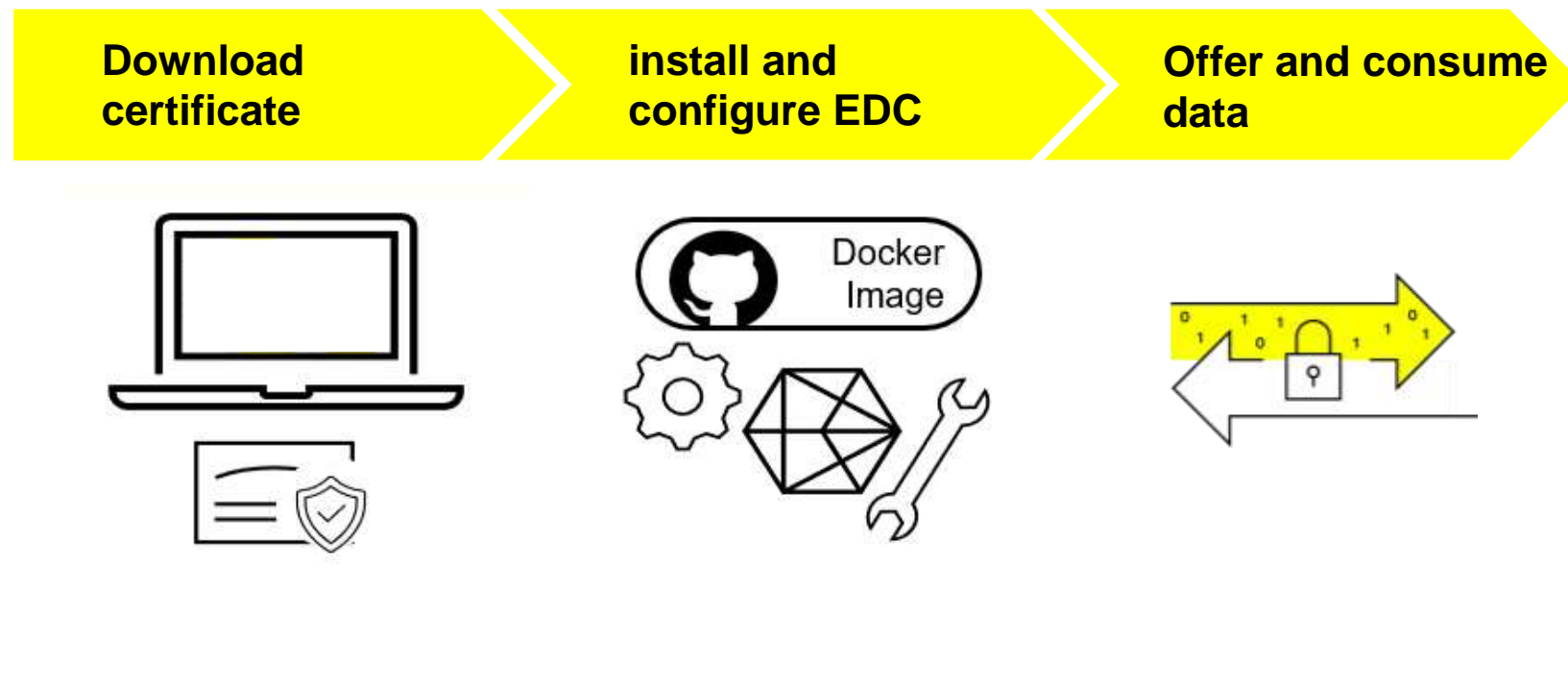
-  data flow
-  metadata flow
-  software flow
-  «role» MDS participant role
-  «component» software component
-  «component» planned software component

Note that the following component is not shown in this diagram:
CA

CA – Certificate Authority
DAPS – Dynamic Attributes Provision Server



Ease of use and operations



→ EDC Connector (on premise)

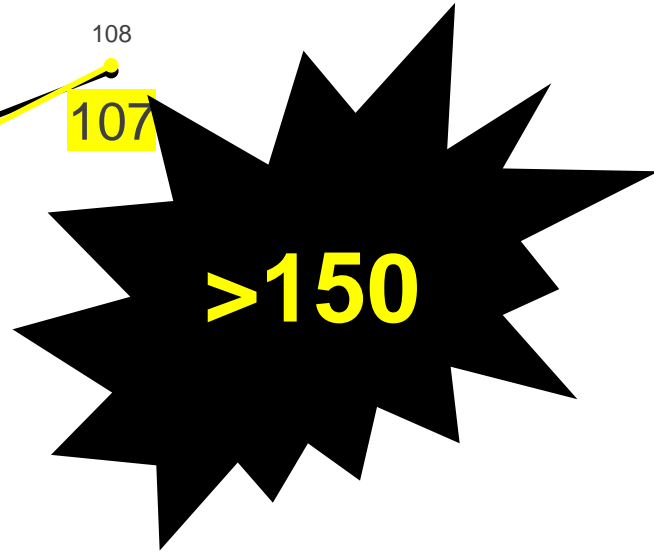
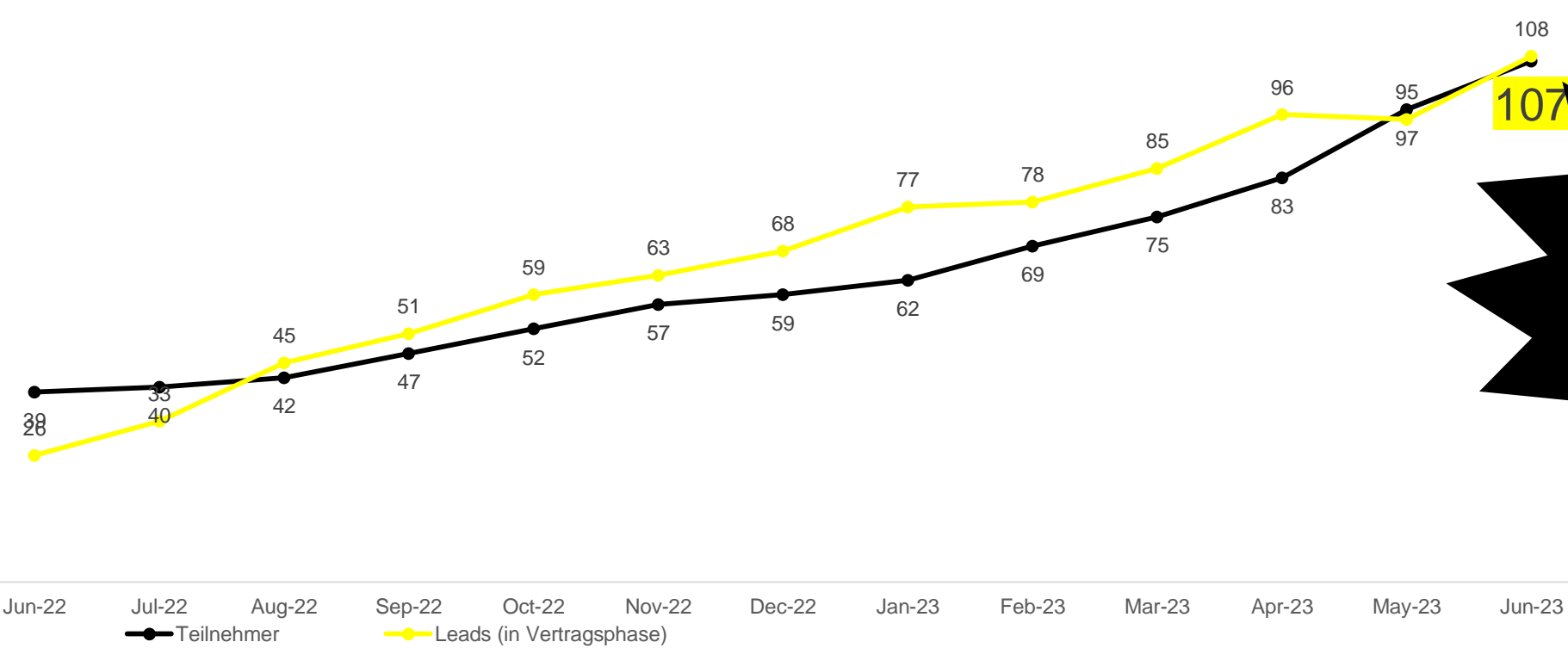
- Open source software component that enables secure, simple and efficient connection between partners/participants
- Usage is simple, reliable and highly scalable
Decentralized architecture = guarantee of sovereignty

→ Connector as a Service (cloud based)

- Browser-based service with own user profile
- Fast and easy data exchange and synchronization between systems
- Connectors are preconfigured and ready to use
- Can be operated with hardly any IT knowledge
- Decentralized architecture = guarantee of sovereignty

Key Performance Indicators | General Development

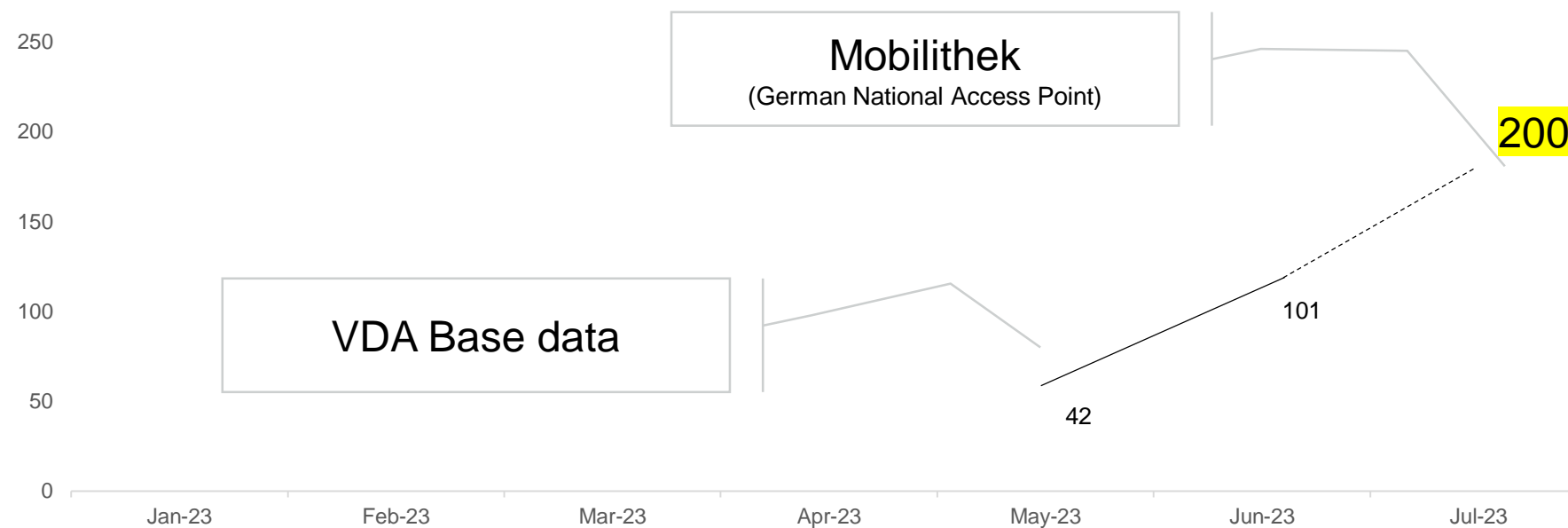
Customer scaling and „Leads“



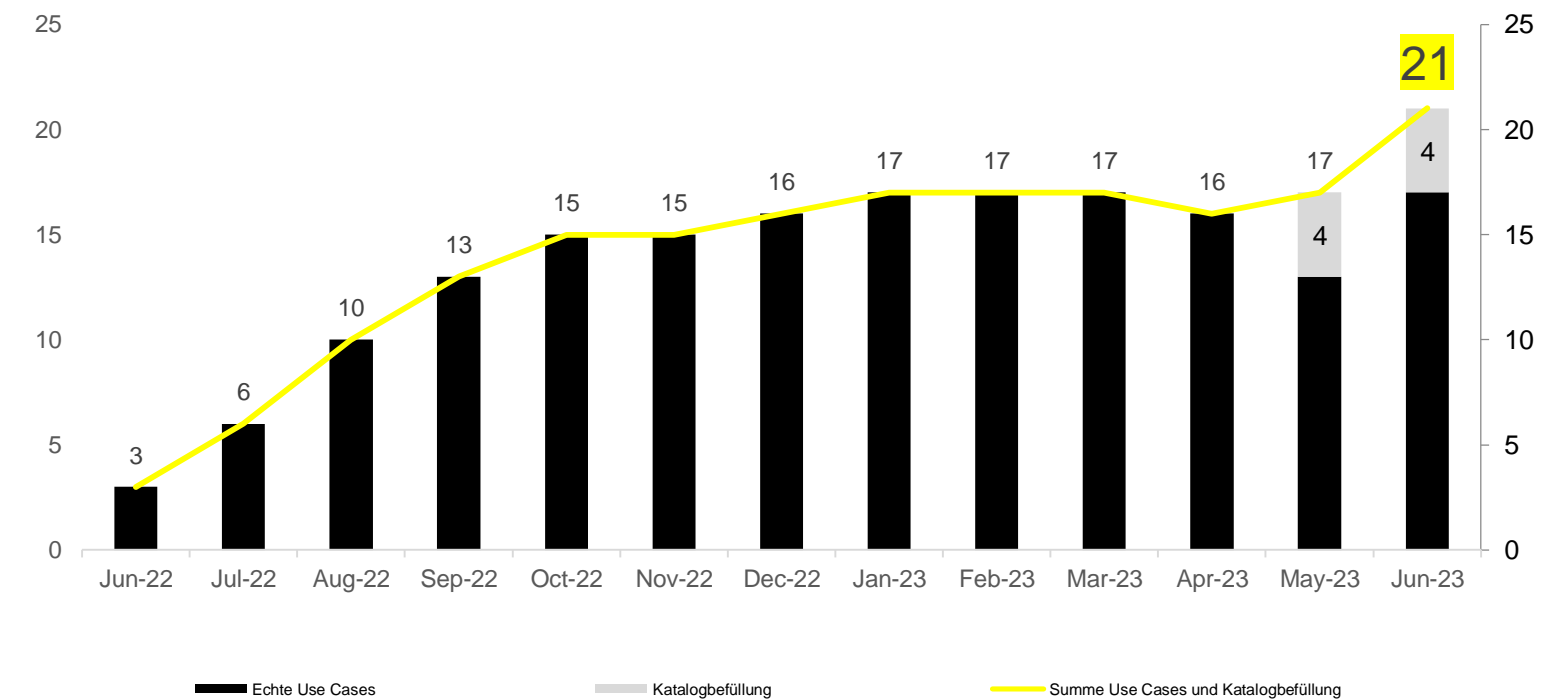
Some new customers:

- City of Gelsenkirchen
- TIER Mobility SE
- City of Hamburg & Hamburger Hochbahn AG
- IW Consult – Institut der dt. Wirtschaft
- Invenium Data Insights GmbH
- Mitsubishi Electric Europe B.V.
- IBM

Shop window

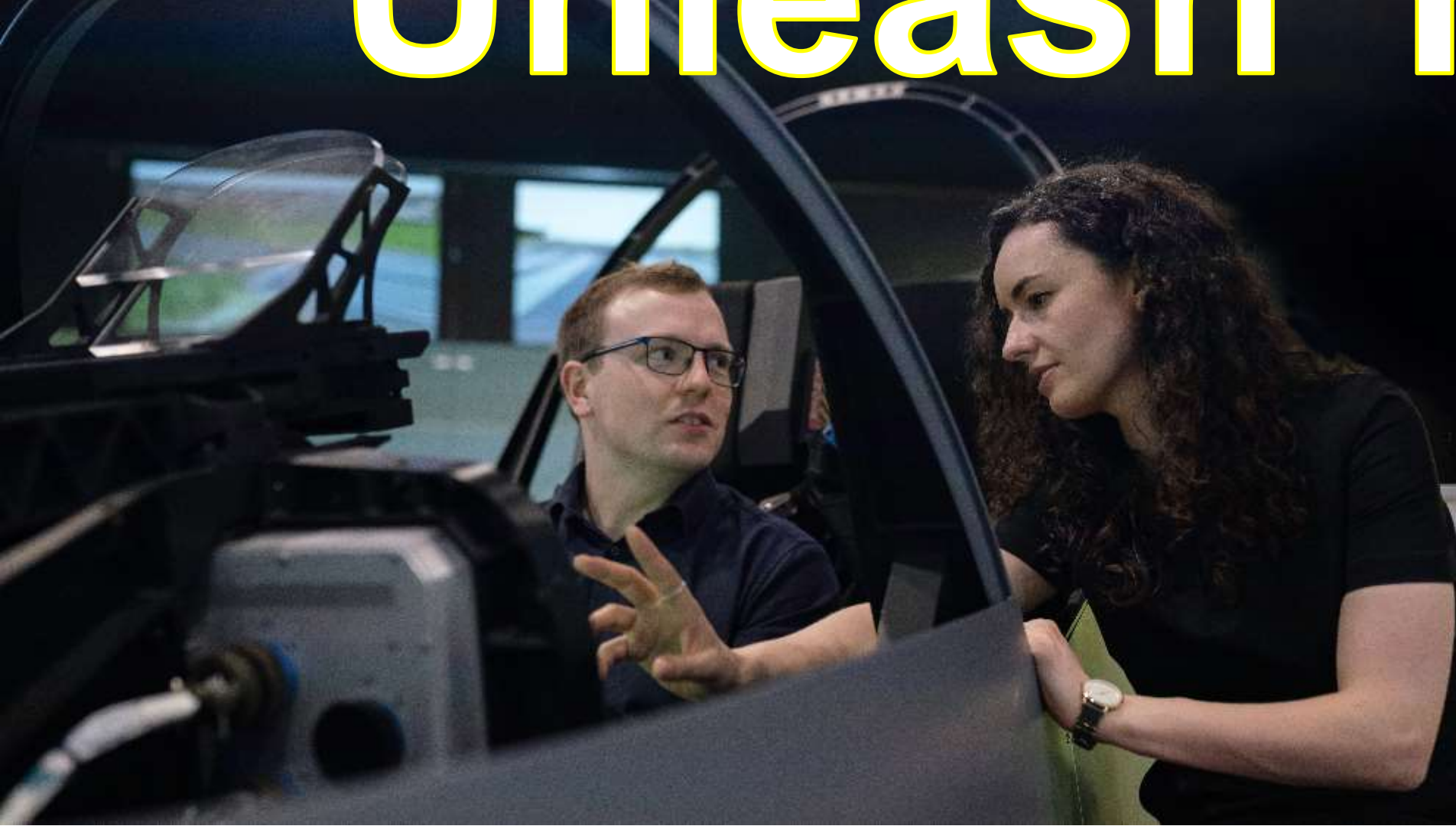


Use cases





Unleash Your Data!



Michael Schäfer

michael.schaefer@mobility-dataspace.eu



DRM Datenraum Mobilität GmbH
Karolinenplatz 4
D-80333 München

Gefördert durch:



Bundesministerium
für Verkehr und
digitale Infrastruktur

aufgrund eines Beschlusses
des Deutschen Bundestages