

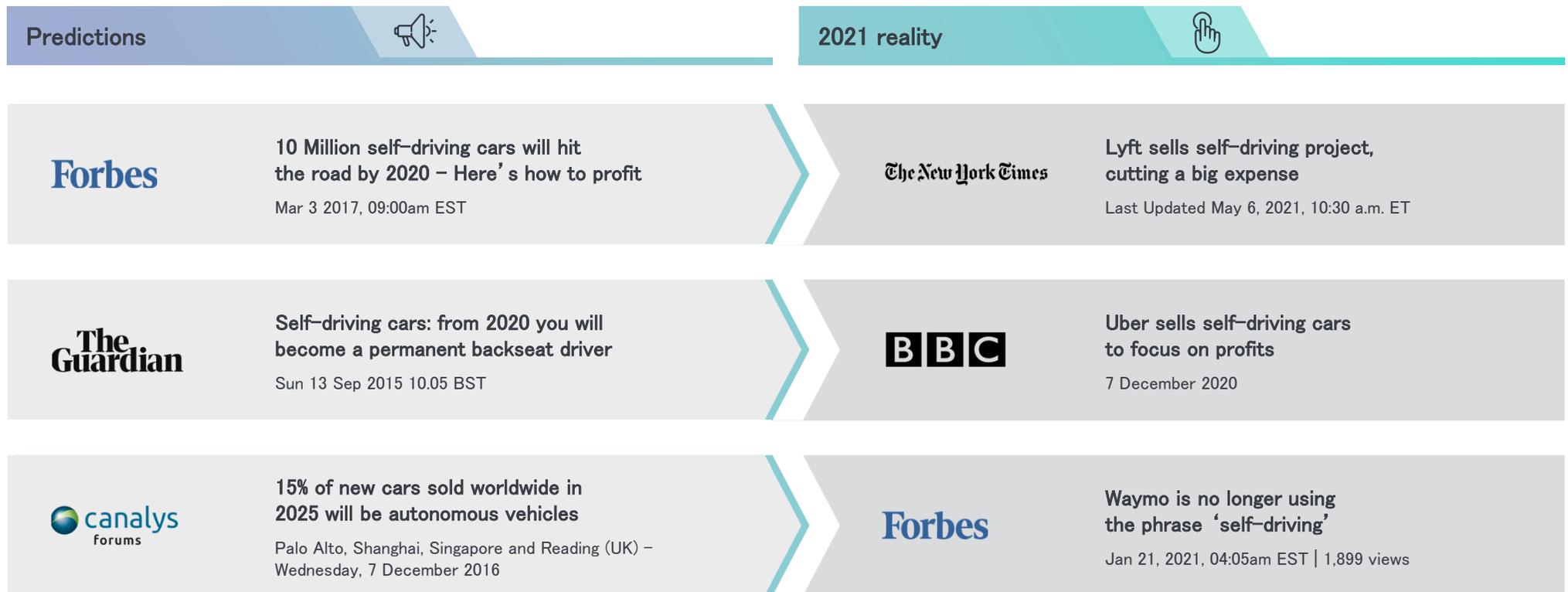


Fully automated mobility with location intelligence

Akihiro Takahashi, VP Sales, HERE Technologies
SIP ADUS Workshop/Dynamic Map
November 2021

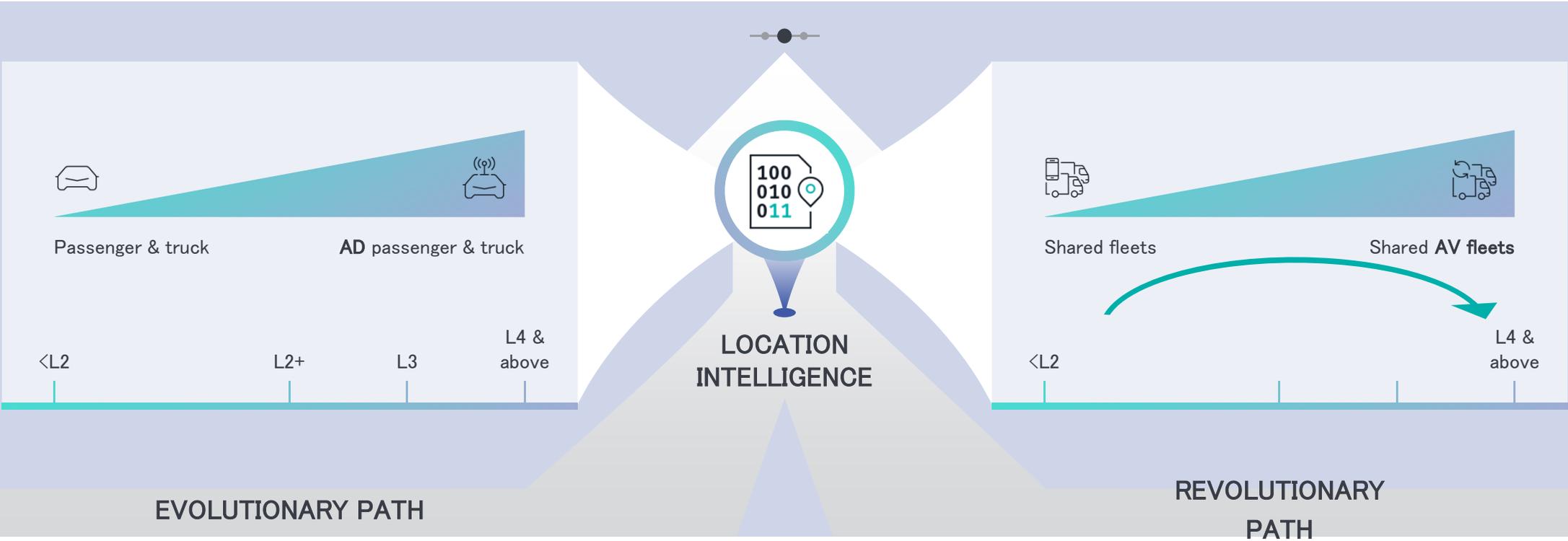
Automated driving – forecast versus reality today

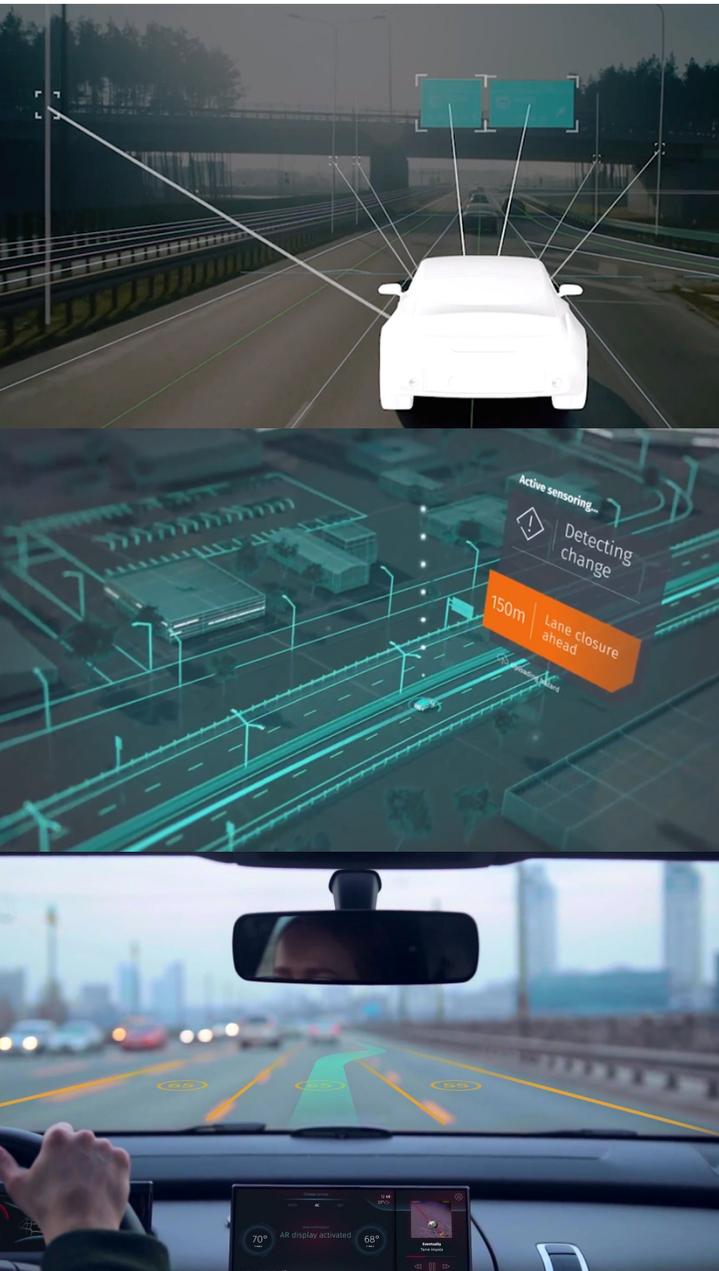
Status quo



Two roads towards the future of mobility

Reaching fully automated mobility with location intelligence





The evolutionary path – the role of location in vehicles with automated driving modes



Complement perception systems

Providing information beyond line of sight (e.g., in poor weather)



Enhance planning

For maneuvers and when driver needs to take over control



New KPI

Drive the furthest, fastest and on more roads in AD mode



Boost positioning accuracy

With HD Maps or cloud positioning services (HD GNSS)



Map maintenance

Continuous updates of real-world changes using diverse sources

HD Live Map – structure



Cloud based

A cloud service enabling delivery of HD Live Map



Layered

Integrated, scalable, off the shelf offering with logical grouping of content by layer



Tiled

Allows for over the air updates in an efficient (data size) manner

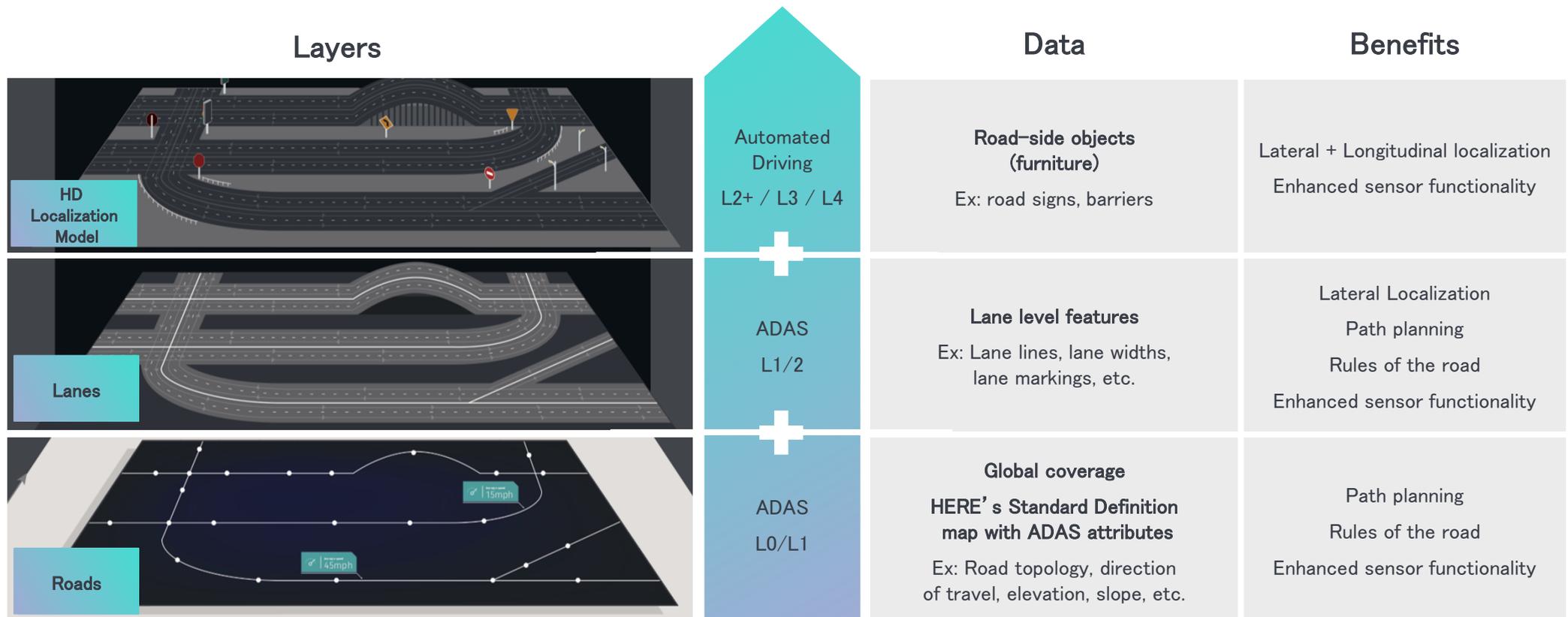


Format

Published in two data formats, HERE Native Format (Protobuf) and NDS.

HD Live Map – Content

Data layers providing key benefits – Published in NDS and HERE Native formats

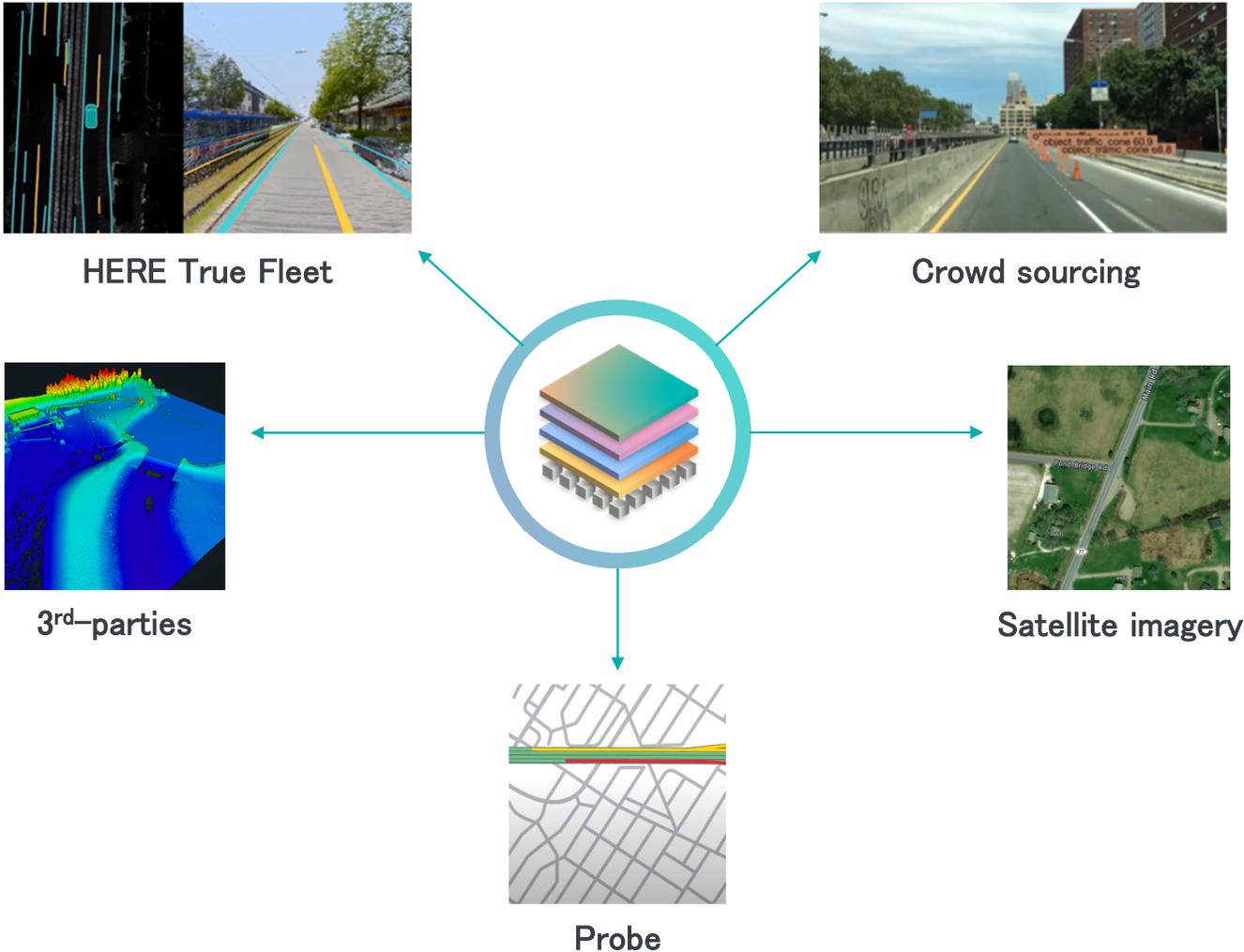


Multi-sources fusion

At the core of what we do

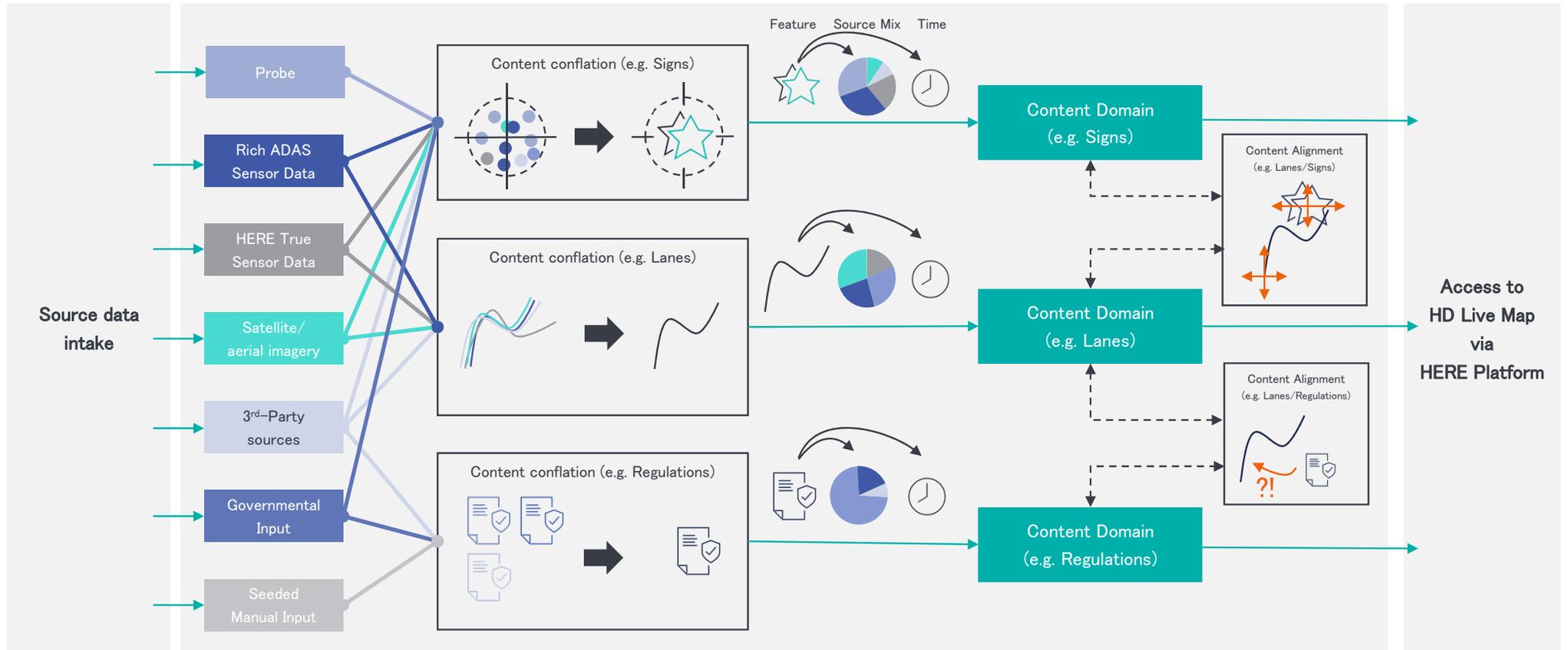
-  **True Fleet:** highest quality capture in the industry
-  **Crowd sourcing:** detecting through vehicles and devices road features that change often
-  **Satellite imagery:** birds eye view to complement road level
-  **Probes:** detecting movement
-  **3rd parties:** location platform open to partners

AI-based data processing



Conflation

Multi-source conflation of Input for geo-spatial content creation



HD Maps for Automated Driving

Design wins SOPs – updates

2021



Mercedes Benz Drive Pilot L3

2022



2023



4 major OEM Groups developing L2+ & L3 with HERE HD Map & Platform in Western Europe and North America



First available in new S-Class on German Highway Network

The system will be integrated into additional Mercedes-Benz models and expanded to cover suitable sections of motorways in further regions

MB Drive Pilot

First commercially available L3 system – Q4 21

“In combination with extensive sensor data, DRIVE PILOT receives information about the road geometry, route profile, traffic signs and unusual traffic events (e.g. accidents or roadworks) from HERE’s Digital HD map – which is one key element for automated driving. Its ultra precise positioning system goes well beyond the usual GPS system. This enables us to give our customers back one of the most precious things in life: time – combined with a luxurious driving experience.”

Georges Massing

Vice President MBOS: Automated Driving, Powernet & Integration E/E, Mercedes-Benz AG

L3 coming soon H2 CY21: Mercedes New S-Class, Drive Pilot w/ ODD

The key enabler: Operational Design Domain (ODD) comprises the geographical area and conditions which Automated Driving System features. The conditions are weather, traffic, lighting and road types.

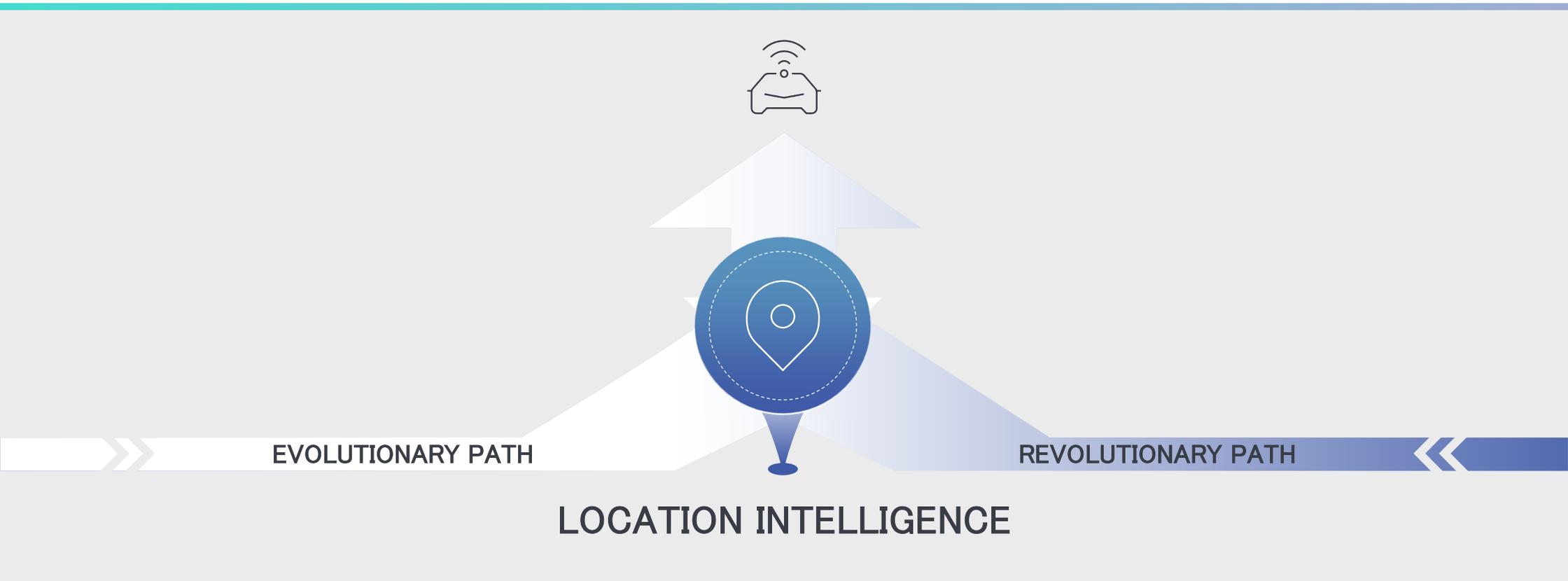
ODD is limited to fully access-controlled highways up to a specific max speed, having at least 2 lanes of each direction with no intersections, needing machine-detectable lane markings, no tunnels, no toll booth and no traffic control devices.

<https://www.youtube.com/watch?v=cH2SPE0LkU>
<https://www.daimler.com/documents/innovation/other/2019-02-20-vssa-mercedes-benz-drive-pilot-a.pdf>



Reaching fully automated mobility with location intelligence

Location helps
evolution and
revolution merged



Comparison: Infrastructure requirements for AD

Operational Design Domains for private vehicles and transportation systems

Evolution and Revolution path exist in parallel



Evolutionary path
As a Product

1

Limited Access Roads with physical divider

2

No pedestrians expected

3

Road surface in good condition and opt. friction

4

Absence of tunnels / tolls

5

Optimal temperature and visibility

6

Reliable mobile connectivity



Revolutionary path
As a Service

1

Pre-defined routes in geofenced areas with regular traffic on HOV lanes and public transport lanes



To be truly
Revolution

The positive impact of autonomous mobility on society



Thank you

HERE Japan

HERE Technologies VP Sale Akihiro Takahashi

www.here.com/jp