Connected & Automated Driving

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Largest transportation data supplier in the world

Employs 6,000 people in 55 countries

Produces maps for nearly 200 countries, real-time traffic for 58 countries, multi-modal routing

Enables nine out of ten in-car nav systems in North America

Enables mobile, web, and enterprise solutions for global industry leaders

Powering the next generation of map, dynamic data, and analytics for Connected & Automated Driving
HERE has a unique relationship with automotive
Strong DOT, Fleet, Enterprise & Mobile Consumer Base

Government Transportation Agencies

Fleet Safety, Navigation and Telematics

Enterprise

Consumer
Powering the next generation of mobility with maps, dynamic data, and analytics
The evolution of mapping assets to Automated Vehicles...

Static flat maps
25 years ago map creation started out by digitizing physical map sources

Computable Roads
Collection grew to precise road geometries with rich sets of attributes to make them computable

Computable Reality
We are creating fully interconnected and attributed 3D models, combining aerial and street level technologies

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**HD Live Map**

**HD Map**
Precise positioning for lateral & longitudinal control of vehicle on the road surface

**Live Roads**
Accurate planning of vehicle control maneuvers beyond sensor visibility.

**Humanized Driving**
Making automated driving comfortable and acceptable for humans
# HD Live Map: designed for connected and automated driving

<table>
<thead>
<tr>
<th>Problem</th>
<th>HERE Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Where am I exactly?</td>
<td>Lane level precision &amp; localization</td>
</tr>
<tr>
<td>What lies ahead?</td>
<td>Real-time environment awareness</td>
</tr>
<tr>
<td>How can I get there comfortably?</td>
<td>Advanced analytics for human driver behavior</td>
</tr>
</tbody>
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[Image of HD Live Map features]

- 7.2 million probe points
- 2009 - 2014
Leveraging HERE True System technology
HD Map that can be consumed by automotive companies
Reality Lens gives intuitive access to 3D data
HERE Humanized Driving
Live Roads
Mercedes showcases self-driving S500 powered by HERE

Historic route from Mannheim to Pforzheim in Germany 1st driven 125 years ago
02
Connecting Vehicles & Infrastructure
Establish the ‘Beyond the Vehicle Sensor Horizon’ View

Establish the loop between transportation agency and vehicles through intelligent connectivity over existing wireless networks

Manage directed, low latency, safety-critical and efficiency messaging
Data from Vehicle Sensors

HERE created an open spec across automotive companies

HERE published an open specification for integrating vehicle sensor data and has a platform to process this data

Analytical data

- Inform drivers of conditions ahead
- Decisions for automated vehicles
- Maintenance data for road authorities
Data from Transportation Agencies

HERE is working with agencies to integrate infrastructure data

Data Examples

• Road and lane closures
• Traffic signal data
• Dynamic speed limits
• Dynamic tolling and lanes
• Snow clearing

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Michigan Connected & Automated Driving

HERE supporting with HD mapping, real-time, and cloud computing technologies
HERE and Colorado Department of Transportation Announce First of its Kind Connected Vehicle Project in North America
Smart Guidance Example: Jaguar Land Rover Connected Navigation powered by HERE

Real-time awareness with route personalization

Capabilities
• Navigation maps
• Places
• Smart route guidance
• Personal preferences
• Real-time traffic
• Parking availability & prices
• Companion app on mobile
Intelligent Car Example: Continental’s Dynamic eHorizon powered by HERE

Driver assistance for braking, steering, reduced fuel use

Scania trucks

Capabilities
- Advanced safety maps
- Truck specific routing
- Beyond the horizon real-time awareness
Service to Truck Fleets to Optimize Routing, Reduce Fuel Costs & Emissions

Predictive Cruise Control using HERE Slope Data

3% Fuel Savings with no travel time penalty

GREEN BAY, Wis. – May 2, 2012 – Schneider National announced it will transform its fleet to reduce environmental impact. New trucks manufactured by Freightliner will include Predictive Cruise Control to save fuel and reduce CO2 emissions.

Source: Schneider National
Map 2020: data is the new currency

50X more data of higher quality at faster speed

23B connected devices

250M connected cars

Sensor data explosion
Thank you!

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