Blueprint for Vehicle-Oriented, Data Strategy

Return of Experience

Kevin Valdek
CTO & founder HIGH MOBILITY

November 12, 2019 GENIVI Tech Summit
CONTENTS

1. About HIGH MOBILITY
2. Today’s data market
3. 3rd party opportunities
4. Monetization blueprint
5. Outlook
CONTENTS

1. About HIGH MOBILITY
2. Today’s data market
3. 3rd party opportunities
4. Monetization blueprint
5. Outlook
We are a car data company.

We are an alumni of

STARTUFAUTOBAHN

BMW Startup Garage

Startupbootcamp

Trusted by

Porsche

Volkswagen

Mercedes Benz

Sixt

Recognized with awards by

Nokia

Gartner

Frost & Sullivan

BMW

Mini

Iveco

Nissan

KTM
The HIGH MOBILITY platform
Powering the new mobility ecosystem.

SDKs
Comprehensive resources for developers to adopt Auto API.

Auto API
A binary cross-OEM protocol for connected vehicles.

Production Mode
Developers get verified access to data from vehicles from Mercedes-Benz, BMW & Mini. More platforms added over time.

Develop Mode
Prototype with 300+ data points and a dozen different vehicle simulators that run in your browser.

Data Integrations
We are compliant with the Extended Vehicle framework as Neutral Server (NS), and also can do integrations beyond NS scope.

Workspaces
Enables carmakers to run a data marketplace.

7500+
developers joined
300+
prototypes created
2.000.000+
API calls prior to production
CONTENTS

1. About HIGH MOBILITY
2. Today’s data market
3. 3rd party opportunities
4. Monetization blueprint
5. Outlook
Our mobility experience is increasingly defined by services built by 3rd parties
From individual ownership to Mobility as a Service

Individual vehicle ownership is declining in cities but vehicle usage is increasing. We will see major growth in fleets.

The future of mobility is data! Every current and future mobility company needs data and vehicle interfaces.
Case study: CarSharing in Berlin

While there is already a range of carsharing offerings, the market is dominated by OEM mobility brands.
Mobility service providers face several issues

**Avoiding Hardware**
- Fixing issues with hardware is costly.

**OEM-Authorized Route**
- Data quality and availability is significantly increased when getting the data from the source.

**Fragmentation**
- Working with each carmaker individually does not scale.
Car data availability in Europe

BMW and MINI Cardata.

The requirement is that a customer must give the service provider access permission for the release of their data and must have a Telematics enabled vehicle allocated to a BMW ConnectedDrive or MINI Connected customer profile.

We move the world by data.
What’s possible today: data bundle examples

- **PAYD Insurance**
  Starting from €0,39 /mo

- **Fueling**
  Starting from €0,29 /mo

- **Charging**
  Starting from €0,29 /mo

- **Damage prevention**
  Starting from €0,29 /mo

- **Theft prevention**
  Starting from €0,29 /mo

- **Parking**
  Starting from €1,56 /mo

- **Fleet management**
  Starting from €2,34 /mo

- **Maintenance**
  Starting from €0,78 /mo
Choose the permissions for your app

Select one or more available permissions and check which carmakers are available for your development

APP PRESET
Choose an app preset

Show all permissions

- Charging
- Climate
- Diagnostics
- Door locks
- Engine
- Fraud
ACEA Position Paper

Access to vehicle data for third-party services
Extended Vehicle & Neutral Server recap

EXTENDED VEHICLE

• Sharing of vehicle telematics data with 3rd parties
• Both anonymous and personalised vehicle data
• Customer consent and customer choice in focus
• Read-only data

NEUTRAL SERVER

• Independent intermediary engaged by OEMs
• Allowed to broker data to 3rd parties within allowed scope
• Protects direct visibility of 3rd party business models from OEMs
Reception from 3rd parties

3RD PARTIES PROS
• Finally a scalable model
• No need for to administer hardware or dongles
• Choice in selecting which Neutral Server to integrate with
• Possible to integrate once and continuously support new car brands
• Can avoid individual negotiations with each OEM

3RD PARTY CHALLENGES
• Trade-off when it comes to data update rates
• Pricing and request limits vary significantly
• SLAs of high importance to invest in the effort
Car data availability in Europe in the next years
CONTENTS

1. About HIGH MOBILITY
2. Today’s data market
3. 3rd party opportunities
4. Monetization blueprint
5. Outlook
Almost every new car is a data transmitter

<table>
<thead>
<tr>
<th>Year</th>
<th>Europe</th>
<th>US</th>
</tr>
</thead>
<tbody>
<tr>
<td>2017</td>
<td>16M</td>
<td></td>
</tr>
<tr>
<td>2018</td>
<td>34M</td>
<td></td>
</tr>
<tr>
<td>EST 19</td>
<td>51M</td>
<td></td>
</tr>
<tr>
<td>EST 20</td>
<td>69M</td>
<td>40M+</td>
</tr>
<tr>
<td>EST 21</td>
<td>90M</td>
<td></td>
</tr>
<tr>
<td>EST 22</td>
<td>111M</td>
<td></td>
</tr>
<tr>
<td>EST 23</td>
<td>136M</td>
<td></td>
</tr>
<tr>
<td>EST 24</td>
<td>166M</td>
<td></td>
</tr>
<tr>
<td>EST 25</td>
<td>195M</td>
<td></td>
</tr>
<tr>
<td>EST 26</td>
<td>224M</td>
<td></td>
</tr>
<tr>
<td>EST 27</td>
<td>254M</td>
<td></td>
</tr>
<tr>
<td>EST 28</td>
<td>283M</td>
<td></td>
</tr>
<tr>
<td>EST 29</td>
<td>313M</td>
<td></td>
</tr>
<tr>
<td>EST 30</td>
<td>342M</td>
<td></td>
</tr>
</tbody>
</table>

Number of connected vehicles
Read-access paves the way, write-access scales the created value

**PAYD Insurance**
- Odometer

**Logbook**
- Odometer
- GPS at trip start/end

**Charging**
- SoC
- EV range

**Digital Rental**
- Odometer
- Fuel level

**PHYD Insurance**
- Odometer
- GPS

**Fleet**
- Door Locks
- Ignition

**Car Rental**
- Odometer
- GPS
- More...

API needs:
- Odometer
- GPS at trip start/end
- SoC
- EV range
- Odometer
- Fuel level
- Odometer
- Accelerator
- More...
- Door Locks
- Ignition
- More..
Price per car per month seems the most scalable model

Price for developer circa 3.48€-€30 annually

Developer earnings
CONTENTS

1. About HIGH MOBILITY
2. Today’s data market
3. 3rd party opportunities
4. Monetization blueprint
5. Outlook
HIGH MOBILITY’s journey with OEMs towards data monetization

EARLY PHASE
Building a developer toolkit
Building and testing the SDKs and sample apps through various UX concepts with carmakers.

TRANSITIONING PHASE
Platform MVP
Made available to developers via open innovation competitions with Mercedes-Benz and Porsche.

GROWTH PHASE
Added production data
Data platform completed and launched with data from Mercedes-Benz, BMW, and MINI.

Open innovation around vehicle data

2018

2019

TBA

2020
<table>
<thead>
<tr>
<th>Metric</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Avg Registrations</td>
<td>1,055</td>
</tr>
<tr>
<td>Number of registrations on</td>
<td>TOTAL</td>
</tr>
<tr>
<td>microsites per competition.</td>
<td></td>
</tr>
<tr>
<td>Avg Active users</td>
<td>604</td>
</tr>
<tr>
<td>Number of developers who</td>
<td>TOTAL</td>
</tr>
<tr>
<td>have completed their</td>
<td></td>
</tr>
<tr>
<td>registration by creating a</td>
<td></td>
</tr>
<tr>
<td>developer account.</td>
<td></td>
</tr>
<tr>
<td>Total Projects</td>
<td>272</td>
</tr>
<tr>
<td>Number of users who have</td>
<td>TOTAL</td>
</tr>
<tr>
<td>created a project for their</td>
<td></td>
</tr>
<tr>
<td>app.</td>
<td></td>
</tr>
<tr>
<td>Submitted projects</td>
<td>70</td>
</tr>
<tr>
<td>Number of projects submitted</td>
<td>TOTAL</td>
</tr>
<tr>
<td>for the competition's final</td>
<td></td>
</tr>
<tr>
<td>deadline.</td>
<td></td>
</tr>
<tr>
<td>Top 5 Capabilities Used</td>
<td></td>
</tr>
<tr>
<td>1. Diagnostics</td>
<td>212,540</td>
</tr>
<tr>
<td>2. Vehicle Status</td>
<td>127,280</td>
</tr>
<tr>
<td>3. Race</td>
<td>105,404</td>
</tr>
<tr>
<td>4. Vehicle Location</td>
<td>68,179</td>
</tr>
<tr>
<td>5. Charging</td>
<td>35,977</td>
</tr>
</tbody>
</table>
Implementing a 3rd party onboarding process

Prototype & test
Use digital car emulators

Pick a pricing plan
Based on the permissions you need

Operate
Pay according to data usage

DEVELOP MODE
PRODUCTION MODE
MaaS live
API previews to 3rd parties

18/01/2018

Our first experimental API.

First experimental API:

Connected Vehicle

Pay special attention to our first experimental API! "Connected Vehicles" allows you to get access to important telematics data, status info and vehicle functions from virtual Mercedes-Benz cars. Experiment with individual status data from the car’s current location to tire pressure status and the option to remotely open and close the car’s doors. Note: “Connected Vehicle” is not fully developed. Nevertheless our approach allows you to play and gain experience with these APIs at a very early stage. Our API version for real Mercedes-Benz vehicles will follow soon.
Simulation environment
Handling customer consent
Handling customer consent
Handling customer consent
Handling customer consent
Handling customer consent
Handling customer consent
Handling customer consent
1. About HIGH MOBILITY
2. Today’s data market
3. 3rd party opportunities
4. Monetization blueprint
5. Outlook
CARS ARE THE NEXT 3rd PARTY PLATFORM

The automotive industry will change more in the next five years than it has in the last 50.

Oliver Blume / Chairman of the Executive Board, Porsche AG
Thank you for listening!

founders@high-mobility.com   www.high-mobility.com