AUTOPilot

Emerging Need for Data and Market Places in the area of Automated Fleets

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LIFE IS FOR SHARING.
DEUTSCHE TELEKOM AND T-SYSTEMS
PROFILE

CUSTOMERS & MARKETS

CUSTOMERS
- 168 m mobile customers
- 28 m fixed-network customers/19 m broadband customers
- Approx. 7.4 m TV customers
- Some 1.8 m managed workplace systems

MARKETS
- Present in 50 countries
- Germany, Europe and the USA: with own infrastructure
- T-Systems: global presence & alliances via partners

FACTS & FIGURES

TELEKOM IN FIGURES
- Revenue € 74.9 bn
- Adjusted EBITDA € 22.2 bn
- Free cash flow € 5.5 bn

EMPLOYEES & RESPONSIBILITY
- Employees worldwide: 217,000
- 6,500 trainees and cooperative degree students in Germany
- Pioneer of social issues (climate protection, data privacy, diversity, etc.)

Source: DT 2017 annual report/TMUS annual report to shareholders 2017
T-SYSTEMS – DEUTSCHE TELEKOM’S SUBSIDIARY FOR MAJOR CORPORATIONS

6.9 billion € revenue
38,000 employees

We provide all building blocks to generate IoT benefits for our customers

IT & TC Services in all industries
AUTO & MI
PUBLIC
HEALTH
TRAVEL & TRANSPORT
RETAIL
ENERGY

Pioneer in Cloud Computing
Multinational corporations & public sector

IoT Connectivity & Devices
IoT Platforms & Analytics
Consulting & Integration
Industry Solutions

Financial figures: DT’s 2017 annual report
NUMEROUS TRANSPORT & MOBILITY CHALLENGES IN EUROPE
>70% of Products fail in their Go-to-Market Phase

Highly automated vehicles just started to appear in the market, so there is hardly any experience of fleets running in real road conditions

Nothing is as powerful as an idea whose time has come (Blaise Pascal, 1623-1662)
THE „INTERNET OF THINGS“ – COMMUNITIES AND VALUE PROPOSITIONS BY ECOSYSTEMS

SMART LOGISTICS
Monitoring of supply chains in real-time

SMART CITY
Intelligent management of street lighting or waste containers

SMART RETAIL
Generating customer insights based on behavior data

SMART PARKING
Navigates drivers to the next vacant parking spot

EQUIPMENT MONITORING
Localization and optimal maintenance of machines

SMART HEALTHCARE
Remote patient monitoring, tracking of assets or cold chains

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## Connected Mobility – Challenges from the Market

### Line-Fit

**Daimler Vehicle Backend**
- Development and global operations of connected car platform.
- Mio. of registered connected cars

**M2M Connectivity, Consulting and System Integration Projects**

### Aftermarket

**Mercedes Me Adapter**
- OBD-based B2B solution for remote diagnostics for passenger cars & vans

**Digital Drive**
- OEM-independent B2B solution for fleet and crash management, finished car logistics

### Urban Mobility

**EU Project Autopilot**
- IoT-based Autonomous Driving

**Smart Parking Solution**
- Complete parking process (find-book-park-pay) in one app. Sensor fusion technology. Start in Hamburg, several cities to follow.

### Fleet / Logistics / I.T.S.*

**MAN Telematics**
- Fleet management solution, 45,000 registered trucks

**EU Project Aeolix**
- Architecture for EU-wide logistics information exchange

**Synchrolog**
- Research project for dynamic slot booking in smart hubs

### IoT Consulting & Integration
- Business Processes, Integration, Applications

### Connected Things Management
- Horizontal Analytics Tools, Service Management, Device Management

### IoT Connectivity
- Connectivity Management, Physical Connectivity

### Devices
- M2M Devices, Sensors
AUTOPilot – Services and Project Objectives

- Merge automotive and IoT technologies to shift automated driving towards a new dimension
- Enhance driving environment perception with “IoT enabled” sensors
- Integrate IoT platforms in the vehicles using cloud and IoT platforms
- Deploy an eco-system of IoT sensors (pedestrians, vehicles, infrastructure …)
- Share IoT sensor data to create new mobility services with fully automated vehicles
- Assess IoT suitability and benefits for automated driving, users and business exploitation

T-Systems Contribution: Business Modelling and Go-to-Market Analysis
HOW DOES IT WORK?

1. Objects provide data to IoT platform using IoT standardized protocols.
2. Objects are created virtually in the IoT platform.
3. AUTOPilot IoT platform develops applications using data from IoT sources.
4. AUTOPilot applications enable services that support autonomous driving.

*IoT eco-system: objects of the physical world, which are capable of being identified and integrated into communication networks.
**IoT platform: interconnecting things based on existing and evolving interoperable information and communication technologies.
Enhancing new business models along SUMP for demand responsive and automated transport systems will lead to higher acceptance of PT and convenient shared transportation modes.

**PROBLEMS**

- **Cities suffer** from traffic related congestion and pollution. Due to EC regulations now low emission zones, driving bans and restrictions caused further political challenges.
- **PT operators suffer** from gaps in the comprehensive introduction of business models for shared mobility services with connected, cooperative and automated vehicles.
- **Citizens suffer** from missing interconnection between Public Transport and other transport modes (e.g. private car, taxi, bike, P&R, and shared transportation).

**CHALLENGE**

Business models for shared mobility and public transportation must be designed to bring value for cities, PT operators and citizens and the same time.

**THE VALUE PROPOSITION**

- **New mobility concepts** including comprehensive harmonized planning and implementation of adequate charging infrastructure for electric vehicles and automation ensure reduction of air pollution.
- Integration of PT and non-PT shared mobility services into MaaS / LaaS platforms. Development of comprehensive integrated mobility strategies for urban, peri-urban and rural regions (boundary conditions) to increase planning security for companies.
- Enhancing new business models along SUMP for demand responsive and automated transport systems will lead to higher acceptance of PT and convenient shared transportation modes.
FROM OPEN DATA MARKETS TO PROFIT-&-LOSS FORECASTS

Figure 1: Methodology for exploitation in AUTOPILOT

1. Gather AUTOPILOT partner expertise
2. Provide input to T4.3 (business models and podium discussions)
3. Match available input with market view (from studies)
4. Compare differences and similarities to identify upscaling potential
5. Analysis of the preliminary report
6. Input from all relevant project results
7. Interviews for lessons learned

Step 1: Information gathering
Step 2: Preliminary analysis
Step 3: Full exploitation plan and recommendations

D5.5 Preliminary version (April 2019)
D5.5 Full version (November 2019)
### Profit & Loss Forecast

<table>
<thead>
<tr>
<th>Year</th>
<th>Y 1</th>
<th>Y 2</th>
<th>Y 3</th>
<th>Y 4</th>
<th>Y 5</th>
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<tbody>
<tr>
<td><strong>Revenue</strong></td>
<td>1.728.000 €</td>
<td>1.814.400 €</td>
<td>1.905.120 €</td>
<td>2.000.376 €</td>
<td>2.205.415 €</td>
</tr>
<tr>
<td><strong>Total revenue</strong></td>
<td>1.728.000 €</td>
<td>1.814.400 €</td>
<td>1.905.120 €</td>
<td>2.000.376 €</td>
<td>2.205.415 €</td>
</tr>
<tr>
<td><strong>Costs</strong></td>
<td>2-4 FTE</td>
<td>2 FTE</td>
<td>1 FTE</td>
<td>1 FTE</td>
<td>1 FTE</td>
</tr>
<tr>
<td><strong>Personal</strong></td>
<td>240.000 €</td>
<td>120.000 €</td>
<td>60.000 €</td>
<td>60.000 €</td>
<td>60.000 €</td>
</tr>
<tr>
<td><strong>Marketing</strong></td>
<td>120.000 €</td>
<td>120.000 €</td>
<td>60.000 €</td>
<td>60.000 €</td>
<td>60.000 €</td>
</tr>
<tr>
<td><strong>Operation</strong></td>
<td>1.780.200 €</td>
<td>1.780.200 €</td>
<td>1.780.200 €</td>
<td>1.780.200 €</td>
<td>1.780.200 €</td>
</tr>
<tr>
<td><strong>Total costs</strong></td>
<td>2.140.200 €</td>
<td>2.020.200 €</td>
<td>1.900.200 €</td>
<td>1.900.200 €</td>
<td>1.900.200 €</td>
</tr>
<tr>
<td><strong>P&amp;L / Brutto</strong></td>
<td>-412.200 €</td>
<td>-205.800 €</td>
<td>4.920 €</td>
<td>100.176 €</td>
<td>305.215 €</td>
</tr>
</tbody>
</table>

3 – 5 Y Forecast = ROI „Hockey Stick“

### Key Steps

THE MOBILITY CONCEPT OF THE FUTURE
ALL TOPICS NEED TO BE MANAGED THROUGH DIGITIZATION AND INTEROPERABLE ICT PLATFORMS
FROM CORPORATE SOCIAL RESPONSIBILITY TO „CORPORATE DIGITAL RESPONSIBILITY“
Thank for your attention

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