Bitte decken Sie die schraffierte Fläche mit einem Bild ab.

Evercore ISI Autotech & AI Forum
Autonomous Mobility

Ticker: CON
ADR-Ticker: CTTAY
http://www.continental-ir.com

Frank Petznick, Head of Business Unit ADAS
September 21, 2021
Autonomous Mobility
Leading Player with Track Record of Profitable Growth

### Facts & Figures

**1999**
Provided long range radar for first adaptive cruise control system

**>100 million**
Number of radar sensors on the market worldwide

**25 OEMs >300 Models**
Diverse and global customer base

**>5,000 Engineers**
Experienced, talented and dedicated work force

### Solid Financials

<table>
<thead>
<tr>
<th>Year</th>
<th>Revenue</th>
<th>Adj. EBIT Margin (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015</td>
<td>€0.9 bn</td>
<td>~4%</td>
</tr>
<tr>
<td>2016</td>
<td>€1.2 bn</td>
<td>~8%</td>
</tr>
<tr>
<td>2017</td>
<td>€1.6 bn</td>
<td>~8%</td>
</tr>
<tr>
<td>2018</td>
<td>€1.9 bn</td>
<td>~9%</td>
</tr>
<tr>
<td>2019</td>
<td>€2.0 bn</td>
<td>~10%</td>
</tr>
<tr>
<td>2020</td>
<td>€1.7 bn</td>
<td>~2%</td>
</tr>
</tbody>
</table>

1 Before amortization of intangibles from PPA, changes in the scope of consolidation and special effects. Historical financials based on figures as reported in each respective year.
## Autonomous Mobility

**Sizable Mid-term Growth Opportunities from Higher AD\(^1\) Levels**

### Growing Quote Pipeline

<table>
<thead>
<tr>
<th>Orders(^2) by year of award</th>
<th>Awarded to Continental</th>
</tr>
</thead>
<tbody>
<tr>
<td>2018 – 2020</td>
<td>€9.1 bn</td>
</tr>
<tr>
<td>~ €35 bn</td>
<td></td>
</tr>
<tr>
<td>2022E – 2024E</td>
<td>~ €70 bn</td>
</tr>
</tbody>
</table>

### Drivers

**Continental's addressable content per vehicle**

- L2: > €200, predominately sensors
- L2+/++: > 2-4x L2, including AD HPC\(^2\)
- L3: > 10x L2, including AD HPC\(^2\) and Lidar

**Content growth**

- Full system stacks becoming increasingly relevant
  - Trend toward centralized architectures
  - Customers increasingly looking for optimized system solutions
  - Significance of software growing rapidly

**From components to systems**

**Services, system integration and functions**

**Emerging new business areas and models**

- Based in the cloud
- Software as a Product
- Mobility as a Service

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\(^1\) Assisted/automated Driving. \(^2\) Expected lifetime sales of business awarded.
Our Strategy
Investing to Meet Today’s and Tomorrow’s ADAS Market

Market

Near term:
L2 / L2+ / L2++ for passenger cars

Medium term:
L3 / L4 for passenger cars, trucks and fleets

Current & Upcoming Customer SOPs

Continental

4D Radar
Surround Radar

Smart camera
Satellite cameras

Flash lidar

AD High
Performance
Computer

Full system +
driving functions

• Intelligent Speed & Left Turn Assist
• Lane Keeping, Departure & Centering
• Adaptive Cruise Control
• ...

Strategy based on:
• Investments in own know-how
• Partnerships
• Independent organization
Our Strategy
Utilize Position & Partnerships to Expand Full Stack Capabilities

Continental’s Full Stack Today

Continental’s Full Stack in Mid-term

Data Management
- Cloud
- Maps & Localization
- Simulation

Compute & Software
- Integration & Functions
- Artificial Intelligence
- Perception
- OS & Middleware
- Chip

Sensors
- Radar
- Camera
- Short Range Lidar
- Ultrasonic

Cloud
Maps & Localization
Simulation
Mobility as a Service

Integration & Functions
Artificial Intelligence
Perception
OS & Middleware
Chip

Radar
Camera
Short Range Lidar
Long Range Lidar
Ultrasonic
## Sensors
### Strategic Cooperation with Lidar Leader AEye

<table>
<thead>
<tr>
<th>Successful Partnership</th>
<th>Timeline</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>AEye’s leading technology</strong></td>
<td><strong>October 2020</strong></td>
</tr>
<tr>
<td>› Patented novel advanced MEMS technology</td>
<td>Partnership established;</td>
</tr>
<tr>
<td>› Dynamic spatial resolution enabling concurrent far range, high</td>
<td>Continental invests in AEye</td>
</tr>
<tr>
<td>resolution and high sensitivity at minimized power consumption</td>
<td></td>
</tr>
<tr>
<td><strong>Continental’s system &amp; industrialization capabilities</strong></td>
<td><strong>July 2021</strong></td>
</tr>
<tr>
<td>› AEye technology integrated into full sensor stack solution</td>
<td>First samples produced by</td>
</tr>
<tr>
<td>› Production line established at existing automotive-grade</td>
<td>Continental</td>
</tr>
<tr>
<td>production facility in Ingolstadt, Germany</td>
<td></td>
</tr>
<tr>
<td>› Different designs in preparation to adapt to various applications</td>
<td><strong>Today</strong></td>
</tr>
<tr>
<td><strong>Joint business development</strong></td>
<td>Active in numerous</td>
</tr>
<tr>
<td>› Product demonstrations on B0-samples ongoing; very positive</td>
<td>RFQ opportunities</td>
</tr>
<tr>
<td>customer feedbacks received so far</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>2024</strong></td>
</tr>
<tr>
<td></td>
<td>Planned SOP</td>
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</tbody>
</table>
Compute & Software
Our Goal is Higher Efficiency and Lower Cost In-Vehicle ADAS

Chip Performance / Power Consumption

L1
- 0.256 TOPS / 2.5W
  - Camera
  - 0.4 TOPS / 0.3W
  - More efficient software
  - w/o CNN accel.

L2
- 2.5 TOPS / 3W
  - Camera
  - 0.4 TOPS / 0.3W
  - From smart sensors to AD HPC

L2 +/++
- 12 TOPS / 6W
  - AD HPC
  - 8 TOPS / 1W
  - Sensor fusion / system approach

L3
- 24 TOPS / 10W
  - AD HPC
  - 100 TOPS / 8W
  - Optimized hardware-software co-design

L4
- 128 TOPS / 40W
  - AD HPC
  - 128 TOPS / 40W

Competitor
- In production
- Roadmap

Continental’s technology advantage results in:
- Higher efficiency
- Lower power
- Lower cost

1 Power consumption by System-on-Chip (SoC) to generate required trillions of operations per second (TOPS).
2 Convolutional Neural Network.
Compute & Software
JV with Horizon Robotics to be Strategic Advantage for Chinese Market

Background
› Founded by Dr. Yu Kai in 2015 and headquartered in Beijing
› Focused on advanced automotive applications
› Launched Journey J2, China’s 1st automotive-grade AI Processor in 2019
› In volume production at numerous Chinese OEMs

Planned Joint Venture

- Components
- Full sensing stack with fusion
- Industrialization and manufacturing

- Computer Vision
- SoC solution
- Privileged access to Chinese customers

Solution for L2+ / L2++
› Smart camera concept based on Horizon Robotics’ computer vision SoC solution
› Four customer RFI/RFQ engagements ongoing

Target SOP: 2022

Solution for L2++ / L3
› Satellite camera’s and ADCU by using Horizon Robotics CV SoC solution
› Three RFQ engagements ongoing

Target SOP: 2023
Autonomous Mobility Summary

We are a leading player in autonomous mobility with a track record of profitable growth

We will benefit from sizable mid-term growth opportunities from increasing autonomous driving levels

We will sustain our leading position by:
› Utilizing our strong full stack capabilities
› Investing in expanding our know-how
› Integrating complementary technologies from innovative partners
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Continental
The Future in Motion