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This document may contain forward-looking statements and information on the markets in which the HELLA Group is active as well as on the business development of the HELLA Group. These statements are based on various assumptions relating, for example, to the development of the economies of individual countries, and in particular of the automotive industry. Various known and unknown risks, uncertainties and other factors (including those discussed in HELLA’s public reports) could lead to material differences between the actual future results, financial situation, development or performance of the HELLA Group and/or relevant markets and the statements and estimates given here. We do not update forward-looking statements and estimates retrospectively. Such statements and estimates are valid on the date of publication and can be superseded.

This document contains an English translation of the accounts of the Company and its subsidiaries. In the event of a discrepancy between the English translation herein and the official German version of such accounts, the official German version is the legal valid and binding version of the accounts and shall prevail.
HELLEA Company Presentation Q1 FY 2018/19

Outline

- HELLEA Financial Results Q1 FY 2018/19
- HELLEA at a Glance
- HELLEA’s view on Automotive Market Trends
Positive sales growth and EBIT increase in Q1 FY 2018/19
Financial Highlights Q1 FY 2018/19

Sales

- **HELLA Group** currency adjusted sales grew by 10.3% YoY to 1.8 bill. EUR

Profitability

- Adjusted Gross Profit margin at 28.0% (+0.6%-points YoY)
- Adjusted EBIT +15 mill. EUR (+12.0% YoY) at 140 mill. EUR
- Adjusted EBIT margin +0.1pp to 7.8%

Liquidity

- Adjusted Free Cash Flow from operating activities increased by 9 mill. EUR (+18.5% YoY) to 59 mill. EUR

Note: Adjustments of profitability figures include restructuring expenses. Please note that where sums and percentages in the presentation have been rounded, differences may arise as a result of commercial rounding.
HELLA top line growth with strong development in Q1 FY 18/19
Financial Highlights Q1 FY 2018/19

---

**HELla Group sales (EUR millions)**

<table>
<thead>
<tr>
<th>Quarter</th>
<th>adj. growth</th>
<th>FX</th>
<th>Q1 FY 18/19</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q1 FY 17/18</td>
<td>1,629</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q1 FY 18/19</td>
<td>168</td>
<td></td>
<td>1,787</td>
</tr>
</tbody>
</table>

**Comment**

- **Currency adjusted** growth HELLA Group at 10.3%
- **Reported** sales growth HELLA Group at 9.7% *(increased by 157 mill. EUR to 1,8 mill. EUR)*
  - Automotive +11.2% to 1.383 mill. EUR. Demand for energy management products, radar solutions and advanced lighting systems *(front, rear, interior)* drives business
  - Aftermarket* total sales +6.8%, positive demand from Independent Aftermarket and strong Workshop business
  - Special Applications +0.8% to 100 mill. EUR, positive development in agriculture and construction

*The figures for the Aftermarket segment exclude the items from wholesale distribution. Wholesale items included on Group level*
HELLA Automotive outperforming all important regions
Financial Highlights Q1 FY 2018/19

### HELLA Automotive external sales by region (in EUR millions)

<table>
<thead>
<tr>
<th>Region</th>
<th>Q1 FY 15/16</th>
<th>Q1 FY 16/17</th>
<th>Q1 FY 17/18</th>
<th>Q1 FY 18/19</th>
</tr>
</thead>
<tbody>
<tr>
<td>Global</td>
<td>1,138</td>
<td>1,163</td>
<td>1,227</td>
<td>1,372</td>
</tr>
<tr>
<td>Europe</td>
<td>762</td>
<td>754</td>
<td>762</td>
<td>859</td>
</tr>
<tr>
<td>North &amp; South America</td>
<td>208</td>
<td>228</td>
<td>264</td>
<td>290</td>
</tr>
<tr>
<td>Asia &amp; RoW</td>
<td>167</td>
<td>181</td>
<td>201</td>
<td>223</td>
</tr>
</tbody>
</table>

### Light vehicle production (in million units)

<table>
<thead>
<tr>
<th>Region</th>
<th>Q1 FY 15/16</th>
<th>Q1 FY 16/17</th>
<th>Q1 FY 17/18</th>
<th>Q1 FY 18/19</th>
</tr>
</thead>
<tbody>
<tr>
<td>Global</td>
<td>20.5</td>
<td>21.8</td>
<td>22.1</td>
<td>22.3</td>
</tr>
<tr>
<td>Europe</td>
<td>4.8</td>
<td>4.9</td>
<td>4.9</td>
<td>5.0</td>
</tr>
<tr>
<td>North &amp; South America</td>
<td>5.2</td>
<td>5.2</td>
<td>5.0</td>
<td>5.2</td>
</tr>
<tr>
<td>Asia &amp; RoW</td>
<td>10.3</td>
<td>11.3</td>
<td>11.7</td>
<td>11.7</td>
</tr>
</tbody>
</table>

### HELLA Automotive growth vs. market (Light vehicle production growth):

-4.0%  +4.2%  +10.7%  -4.3%  +1.3%  +9.6%  +9.2%  +19.9%  +6.4%  -2.1%  +7.4%  +11.2%

Source: HELLA; IHS (as of July 2018)
GPM increase due to strong overall business development
Financial results Q1 FY 2018/19

Adj. Gross Profit
EUR millions

<table>
<thead>
<tr>
<th></th>
<th>Q1 FY 15/16</th>
<th>Q1 FY 16/17*</th>
<th>Q1 FY 17/18*</th>
<th>Q1 FY 18/19</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adj. Gross Profit</td>
<td>399</td>
<td>421</td>
<td>448</td>
<td>501</td>
</tr>
</tbody>
</table>

Adj. Gross Profit margin
% sales

<table>
<thead>
<tr>
<th></th>
<th>Q1 FY 15/16</th>
<th>Q1 FY 16/17*</th>
<th>Q1 FY 17/18*</th>
<th>Q1 FY 18/19</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adj. Gross Profit margin</td>
<td>26.7</td>
<td>27.1</td>
<td>27.5</td>
<td>28.0</td>
</tr>
</tbody>
</table>

Highlights

- Adj. Gross Profit increased by 53 mill. EUR (+11.9%) to 501 mill. EUR
  - Automotive +16.9% to 353 mill. EUR
  - Aftermarket** +8.6 % to 61 mill. EUR
  - Special Applications -3.8% to 40 mill. EUR

*Restated for the reclassification of costs. For details see quarterly financial report
**The figures for the Aftermarket segment exclude the items from wholesale distribution. Wholesale items included on Group level
Continuous high R&D expenses to secure future growth and to support production ramp-up

Financial results Q1 FY 2018/19

**R&D expenses**
EURO millions

<table>
<thead>
<tr>
<th></th>
<th>Q1 FY 15/16</th>
<th>Q1 FY 16/17*</th>
<th>Q1 FY 17/18*</th>
<th>Q1 FY 18/19</th>
</tr>
</thead>
<tbody>
<tr>
<td>R&amp;D</td>
<td>140</td>
<td>140</td>
<td>147</td>
<td>168</td>
</tr>
</tbody>
</table>

**R&D expenses ratio**
% sales

<table>
<thead>
<tr>
<th></th>
<th>Q1 FY 15/16</th>
<th>Q1 FY 16/17*</th>
<th>Q1 FY 17/18*</th>
<th>Q1 FY 18/19</th>
</tr>
</thead>
<tbody>
<tr>
<td>% sales</td>
<td>9.3</td>
<td>9.0</td>
<td>9.0</td>
<td>9.4</td>
</tr>
</tbody>
</table>

**Highlights**

- **Absolute R&D expenses** increased by 21 mill. EUR (+14.3% YoY) to **168 mill. EUR**, mainly:
  - Secure and strengthen technology leadership along the market trends
  - Preparation and realization of production ramp-ups
  - Continuous development of international R&D capacities

- **Q1 FY 18/19** ratio +0.4pp to **9.4%** with over-proportional increase in absolute R&D expenses

*Restated for the reclassification of costs. For details see quarterly financial report
Relatively stable development of SG&A costs
Financial results Q1 FY 2018/19

Adjusted SG&A expenses
EUR millions

<table>
<thead>
<tr>
<th>Quarter</th>
<th>Adj. SG&amp;A expenses</th>
<th>&quot;+17 mill. EUR, +8.8%&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q1 FY 15/16</td>
<td>166</td>
<td></td>
</tr>
<tr>
<td>Q1 FY 16/17</td>
<td>178</td>
<td>+12</td>
</tr>
<tr>
<td>Q1 FY 17/18</td>
<td>187</td>
<td>+9</td>
</tr>
<tr>
<td>Q1 FY 18/19</td>
<td>204</td>
<td>+17</td>
</tr>
</tbody>
</table>

Adjusted SG&A expenses ratio
% sales

<table>
<thead>
<tr>
<th>Quarter</th>
<th>Adjusted SG&amp;A expenses ratio</th>
<th>&quot;+0.4ppt&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q1 FY 15/16</td>
<td>11.1</td>
<td></td>
</tr>
<tr>
<td>Q1 FY 16/17</td>
<td>11.5</td>
<td>+0.4</td>
</tr>
<tr>
<td>Q1 FY 17/18</td>
<td>11.5</td>
<td>0.0</td>
</tr>
<tr>
<td>Q1 FY 18/19</td>
<td>11.4</td>
<td>-0.1</td>
</tr>
</tbody>
</table>

Highlights

- Adj. SG&A costs increased (+17 mill. EUR, +8.8%) to 204 mill. EUR
- Higher logistic costs with additional sales
- Continuous investments in processes, systems and functions

*Restated for the reclassification of costs. For details see quarterly financial report

Highlights

- Adj. SG&A ratio decreased (-0.1ppt) to 11.4%
Adjusted EBIT and EBIT margin above prior-year’s level
Financial results Q1 FY 2018/19

Adjusted EBIT
EUR millions

<table>
<thead>
<tr>
<th></th>
<th>Q1 FY 15/16</th>
<th>Q1 FY 16/17</th>
<th>Q1 FY 17/18</th>
<th>Q1 FY 18/19</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adj. EBIT</td>
<td>101</td>
<td>118</td>
<td>125</td>
<td>140</td>
</tr>
<tr>
<td>Increase</td>
<td>+17</td>
<td>+7</td>
<td>+15</td>
<td></td>
</tr>
</tbody>
</table>

Highlights

- Adj. EBIT increased by 15 mill. EUR (+12.0%) to 140 mill. EUR, mainly:
  - increase in adj. Gross Profit by 53 mill. EUR (+11.9%)
  - higher R&D expenses (+21 mill. EUR, +14.3%)
  - increase in adj. SG&A (mainly distribution expenses) by 16 mill. EUR (+8.8%)

Adjusted EBIT margin
% sales

<table>
<thead>
<tr>
<th></th>
<th>Q1 FY 15/16</th>
<th>Q1 FY 16/17</th>
<th>Q1 FY 17/18</th>
<th>Q1 FY 18/19</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adj. EBIT margin</td>
<td>6.8</td>
<td>7.6</td>
<td>7.7</td>
<td>7.8</td>
</tr>
<tr>
<td>Increase</td>
<td>+0.9</td>
<td>+0.1</td>
<td>0.1</td>
<td></td>
</tr>
</tbody>
</table>

Highlights

- Adj. EBIT margin increased by 0.1%-points to 7.8%:
  - increase of adj. GPM by 0.6pp
  - higher R&D expenses ratio (+0.4pp)
  - lower JV contribution (-0.1pp)
## P&L including reconciliation

### Financial results Q1 FY 2018/19

<table>
<thead>
<tr>
<th>FY comparison</th>
<th>HELLA GROUP</th>
<th>Q1 FY 17/18</th>
<th>Q1 FY 18/19</th>
</tr>
</thead>
<tbody>
<tr>
<td>in EUR mill.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gross Profit *</td>
<td>reported</td>
<td>447.1</td>
<td>500.8</td>
</tr>
<tr>
<td></td>
<td>Adjustments</td>
<td>0.6</td>
<td>0.03</td>
</tr>
<tr>
<td></td>
<td>adjusted</td>
<td>447.7</td>
<td>500.8</td>
</tr>
<tr>
<td>Other income and expenses</td>
<td>reported</td>
<td>5.1</td>
<td>6.9</td>
</tr>
<tr>
<td></td>
<td>Adjustments</td>
<td>1.2</td>
<td>0.7</td>
</tr>
<tr>
<td></td>
<td>adjusted</td>
<td>6.2</td>
<td>7.6</td>
</tr>
<tr>
<td>Distribution*</td>
<td>reported</td>
<td>139.6</td>
<td>152.3</td>
</tr>
<tr>
<td></td>
<td>Adjustments</td>
<td>0.0</td>
<td>0.6</td>
</tr>
<tr>
<td></td>
<td>adjusted</td>
<td>139.6</td>
<td>151.7</td>
</tr>
<tr>
<td>EBIT</td>
<td>reported</td>
<td>123.2</td>
<td>138.5</td>
</tr>
<tr>
<td></td>
<td>Adjustments</td>
<td>1.8</td>
<td>1.4</td>
</tr>
<tr>
<td></td>
<td>adjusted</td>
<td>124.9</td>
<td>140.0</td>
</tr>
<tr>
<td>Net financial result</td>
<td></td>
<td>-11.9</td>
<td>-11.7</td>
</tr>
<tr>
<td>Taxes</td>
<td></td>
<td>-28.4</td>
<td>-31.5</td>
</tr>
<tr>
<td>Earnings for the period</td>
<td></td>
<td>82.9</td>
<td>95.4</td>
</tr>
<tr>
<td>Earnings per share (EUR)</td>
<td></td>
<td>0.74</td>
<td>0.86</td>
</tr>
</tbody>
</table>

*Q1 FY 17/18 restated for the reclassification of costs. For details see quarterly financial report

### Comments

- Reported EBIT Q1 FY 18/19 increased by 15 mill. EUR (+12.5%) to 139 mill. EUR, EBIT no major impact from restructuring
- Net financial result decreased slightly after local financing in Mexico
- Earnings for the period increased driven by strong growth and lower one-offs
- Result driven higher tax payments, tax rate around 25% comparable to PY. Excl. JVs tax rate at 27.1%, improved vs PY (28.5%)
- EPS increased by 12 Cent (+16%) to 0.86 EUR
Adj. Free Cash Flow from operating activities increased due to higher funds from operations
Financial results Q1 FY 2018/19

Adj. FCF from operating activities

<table>
<thead>
<tr>
<th>EUR millions</th>
<th>Q1 FY 15/16</th>
<th>Q1 FY 16/17</th>
<th>Q1 FY 17/18</th>
<th>Q1 FY 18/19</th>
</tr>
</thead>
<tbody>
<tr>
<td>-54.3%</td>
<td>67</td>
<td>31</td>
<td>50</td>
<td>59</td>
</tr>
<tr>
<td>+63.8%</td>
<td>+17.7%</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Highlights

- Adj. Free Cash Flow from operating activities increased by 9 mill. EUR to 59 mill. EUR, mainly due to higher funds from operations and improved WC consumptions
- Cash Conversion\(^1\) ratio increased by 2.3pp to 42.4%

Net CAPEX\(^2\)

<table>
<thead>
<tr>
<th>EUR millions</th>
<th>Q1 FY 15/16</th>
<th>Q1 FY 16/17</th>
<th>Q1 FY 17/18</th>
<th>Q1 FY 18/19</th>
</tr>
</thead>
<tbody>
<tr>
<td>106</td>
<td>106</td>
<td>145</td>
<td>149</td>
<td></td>
</tr>
<tr>
<td>-1</td>
<td>+39</td>
<td>5</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Highlights

- Net CAPEX increased by 5 mill. EUR to 149 mill. EUR
- Continuous investments in customer-specific equipment and capacity extensions
- No reimbursements included (in Q1 FY 17/18 11 mill. EUR)

\(1\) Adj. Free Cash Flow from operating activities / adj. EBIT

\(2\) In accordance with IFRS 15 reimbursement not deducted from CAPEX in Q1 FY 18/19.
Note: Adjustments of FCF include restructuring expenses, factoring (Q1 FY 16/17 only)
Automotive segment with increasing growth and profitability
Financial results Q1 FY 2018/19

Automotive Sales
- Growth of 11.2% with ongoing production ramp-ups and higher demand for:
  - energy management and driver assistance products
  - innovative / advanced lighting products incl. headlamps, rear-lamps and interior lighting with international launches
  - Demand driven by Europe, NSA and China

Automotive Profitability
- Increase of adj. EBIT by 16.1% to 106 mill. EUR:
  - increased GPM with increase in production volume with several launches in Electronics and Lighting
  - increase in R&D to prepare production ramp-ups and expand the international R&D network
  - higher SG&A with investments in logistics and corporate functions
Non Automotive segments with positive contributions
Financial results Q1 FY 2018/19

**Aftermarket**

- **Total sales** growth (+6.8%) due to strong workshop business and positive IAM demand
- **Increase in adj. EBIT margin** by 0.2pp to 8.4% mainly due to higher GPM: Growth with leverage of fix costs especially in workshop business and positive product mix effect in the Independent Aftermarket segment

**Special Applications**

- **Modest top-line growth** (+0.8%):
  - increasing demand in Construction and Agricultural sector
  - other product groups e.g. Trailer and Trucks also growing
  - End of production in Australia with negative effect on growth and margin
- **Profitability** down by 19.4%
  - high comparable basis PY with pre-production in Australia and positive one-offs (total 4 mill. EUR)

*The figures for the Aftermarket segment exclude the items from wholesale distribution.*
## Overall market FY 18/19 expected to grow by 1.5% according to IHS Outlook

<table>
<thead>
<tr>
<th>Region</th>
<th>Expected LVP (in m units)</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Europe</td>
<td>22.4</td>
<td>■ Slightly decrease in 2018/19 expected. Europe excluding Germany expected to grow by 1.5% to 17.0m units, Germany with an expected decline of 4.7% to 5.5m units</td>
</tr>
<tr>
<td>NSA</td>
<td>21.0</td>
<td>■ After negative previous year (-2.4%), strong growth in 2018/19 expected</td>
</tr>
<tr>
<td>China</td>
<td>28.6</td>
<td>■ China expected to grow 1.7% in 2018/19 to 28.6m units, Asia/RoW expected to grow by 2.0% to 52.3m units</td>
</tr>
<tr>
<td>Global</td>
<td>97.4</td>
<td>■ Overall market expected to grow by 1.5%</td>
</tr>
</tbody>
</table>

Source: IHS (as of July 2018)
Company specific development for FY 2018/19 continuously positive

Guidance

Presuming no serious political, economic or social crises, we expect a positive business development for the HELLA Group in fiscal year 2018/19:

- **Sales growth**
  - Growth excluding FX and portfolio effects between 5-10%

- **Adj. EBIT growth**
  - Growth excluding restructuring and portfolio effects between 5-10%

- **Adj. EBIT margin**
  - Margin excluding restructuring and portfolio effects approximately equivalent to prior year’s level
HELLEA Company Presentation Q1 FY 2018/19

Outline

■ HELLEA Financial Results Q1 FY 2018/19

■ HELLEA at a Glance

■ HELLEA’s view on Automotive Market Trends
As one of the top 40 automotive suppliers worldwide HELLA specializes in innovative lighting systems and vehicle electronics

HELLA at a Glance – Overview

KEY FACTS

- Founded 1899 in Lippstadt (Germany)
- Global footprint with over 40,000 employees at more than 125 locations in some 35 countries
  - Thereof 41 research & 28 production sites
- Integrated business portfolio in Automotive, Aftermarket, and Special Applications
- Leading market positions in automotive Lighting and Electronics
- One of the top 40 automotive suppliers in the world and one of the 100 largest German industrial companies

SALES BY BUSINESS SEGMENT

external sales, fiscal year 2017/18

<table>
<thead>
<tr>
<th>Business Segment</th>
<th>Sales (in EUR millions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Automotive Lighting</td>
<td>€3,014</td>
</tr>
<tr>
<td>Aftermarket</td>
<td>€1,225</td>
</tr>
<tr>
<td>Automotive Electronics</td>
<td>€2,368</td>
</tr>
<tr>
<td>Special Applications</td>
<td>€418</td>
</tr>
<tr>
<td>Total</td>
<td>€7.1 billion group sales</td>
</tr>
</tbody>
</table>

SALES BY REGION

based on the HQs of HELLA’s customers, fiscal year 2017/18

<table>
<thead>
<tr>
<th>Region</th>
<th>Sales (in EUR millions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Germany</td>
<td>€2,134</td>
</tr>
<tr>
<td>North &amp; South America</td>
<td>€1,221</td>
</tr>
<tr>
<td>Asia, Pacific, RoW</td>
<td>€1,208</td>
</tr>
<tr>
<td>Rest of Europe</td>
<td>€2,497</td>
</tr>
<tr>
<td>Total</td>
<td>€7.1 billion group sales</td>
</tr>
</tbody>
</table>

KEY FINANCIALS

in EUR millions and % of sales

<table>
<thead>
<tr>
<th>Category</th>
<th>FY 2016/17</th>
<th>FY 2017/18</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales</td>
<td>6,585</td>
<td>7,060</td>
<td>+7.2%</td>
</tr>
<tr>
<td>Adjusted EBIT</td>
<td>534</td>
<td>581</td>
<td>+8.8%</td>
</tr>
<tr>
<td>Adjusted EBIT margin</td>
<td>8.1%</td>
<td>8.2%</td>
<td>+0.1% points</td>
</tr>
<tr>
<td>Adjusted Free Cash Flow</td>
<td>149</td>
<td>241</td>
<td>+61.7%</td>
</tr>
</tbody>
</table>
HELLA has shown sustainable profitable growth since automotive crisis

**HELLA at a Glance – Sales and EBIT development**

**SALES**

<table>
<thead>
<tr>
<th>Fiscal Year</th>
<th>Sales in EUR millions</th>
<th>Sales % of sales</th>
</tr>
</thead>
<tbody>
<tr>
<td>FY 12/13</td>
<td>4,835</td>
<td></td>
</tr>
<tr>
<td>FY 13/14</td>
<td>5,343</td>
<td></td>
</tr>
<tr>
<td>FY 14/15</td>
<td>5,835</td>
<td></td>
</tr>
<tr>
<td>FY 15/16</td>
<td>6,352</td>
<td></td>
</tr>
<tr>
<td>FY 16/17</td>
<td>6,585</td>
<td></td>
</tr>
<tr>
<td>FY 17/18</td>
<td>7,060</td>
<td></td>
</tr>
</tbody>
</table>

**ADJUSTED EBIT**

<table>
<thead>
<tr>
<th>Fiscal Year</th>
<th>Adjusted EBIT in EUR millions</th>
<th>Adjusted EBIT % sales</th>
</tr>
</thead>
<tbody>
<tr>
<td>FY 12/13</td>
<td>306</td>
<td>6.3</td>
</tr>
<tr>
<td>FY 13/14</td>
<td>399</td>
<td>7.5</td>
</tr>
<tr>
<td>FY 14/15</td>
<td>445</td>
<td>7.6</td>
</tr>
<tr>
<td>FY 15/16</td>
<td>476</td>
<td>7.5</td>
</tr>
<tr>
<td>FY 16/17</td>
<td>534</td>
<td>8.1</td>
</tr>
<tr>
<td>FY 17/18</td>
<td>581</td>
<td>8.2</td>
</tr>
</tbody>
</table>

- **Sustainable growth** during the last years mainly driven by Automotive
- **Aftermarket** and **Special Applications** also with positive growth

- **Continuous EBIT increase** despite large investments in global structures and R&D
- **Overall stable margin level** through growth driven by technology leadership and increased efficiency
To further secure profitable growth path HELLA continuously expands its global footprint

HELLA at a Glance – Footprint

GLOBAL FOOTPRINT

USA Northville
New administration & technical center for Electronics
Opening in early 2019

Germany Lippstadt
New visitor, administration and exhibition center
Opening mid-2019

Lithunia Kaunas
New Electronics plant
SOP mid-2018

China Wuqing
New Lighting plant with Joint Venture-Partner BHAP
SOP in 10/2017

China Shanghai
Extension of Electronics plant, SOP mid-2018

Mexico Guanajuato
New Electronics plant
SOP in early 2018

Germany Lippstadt
Digital Innovation Campus, in collaboration with Hamm-Lippstadt University and other partners; opening in 2020

Mexico Irapuato & Guadalajara
Extension of two Lighting plants
SOP in 11/2017

India Mehsana
New Electronics plant
SOP in early 2019

India Coimbatore
Additional R&D center for lighting technology
Opening in 07/2017

Recent openings since mid 2017

Outlook

SOP: Start of production
To secure profitable growth path HELLA has further developed its well-established partner network

HELLA at a Glance – Partnership Network

<table>
<thead>
<tr>
<th>TREND</th>
<th>Partnership examples</th>
<th>Kind of partnership</th>
<th>FOCUS</th>
</tr>
</thead>
<tbody>
<tr>
<td>AUTONOMOUS DRIVING</td>
<td></td>
<td></td>
<td>Development and marketing of modern assistance systems and autonomous driving functions</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Open Cooperation</td>
<td>Radar-based system technologies by combining radar sensors from HELLA and radar system chips from NXP</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Joint Venture</td>
<td>Development of radar systems; InnoSenT exclusively sells all products and services in its automotive portfolio to HELLA</td>
</tr>
<tr>
<td>EFFICIENCY &amp; ELECTRIFICATION</td>
<td></td>
<td></td>
<td>Development of innovative electric actuating solutions; first joint project will be the production of an electric purge pump significantly reducing CO2 emissions</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Open Cooperation</td>
<td>Development of a cloud-based air quality management system</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Innovative software solution for cloud-based communication of vehicle data to workshops</td>
</tr>
<tr>
<td>CONNECTIVITY &amp; DIGITALIZATION</td>
<td></td>
<td></td>
<td>Development of individualized HMI concepts, e.g. innovative touch displays &amp; gesture control devices</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Seed Investment</td>
<td>Design, development, production and logistics of individualized, integrated front-end modules</td>
</tr>
<tr>
<td>INDIVIDUALIZATION</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

FOCUS

- Development and marketing of modern assistance systems and autonomous driving functions
- Radar-based system technologies by combining radar sensors from HELLA and radar system chips from NXP
- Development of radar systems; InnoSenT exclusively sells all products and services in its automotive portfolio to HELLA
- Development of innovative electric actuating solutions; first joint project will be the production of an electric purge pump significantly reducing CO2 emissions
- Development of a cloud-based air quality management system
- Innovative software solution for cloud-based communication of vehicle data to workshops
- Development of individualized HMI concepts, e.g. innovative touch displays & gesture control devices
- Design, development, production and logistics of individualized, integrated front-end modules
High financial stability ensures long-term growth perspective and provides freedom for entrepreneurship

HELTA at a Glance – Financial Stability

Solid capital structure

Leverage (Net debt / EBITDA)

<table>
<thead>
<tr>
<th>Month</th>
<th>Leverage</th>
</tr>
</thead>
<tbody>
<tr>
<td>May 13</td>
<td>0.7x</td>
</tr>
<tr>
<td>May 14</td>
<td>0.6x</td>
</tr>
<tr>
<td>May 15</td>
<td>0.2x</td>
</tr>
<tr>
<td>May 16</td>
<td>0.3x</td>
</tr>
<tr>
<td>May 17</td>
<td>0.3x</td>
</tr>
<tr>
<td>May 18</td>
<td>0.2x</td>
</tr>
</tbody>
</table>

Debt and maturity profile*, in millions EUR

<table>
<thead>
<tr>
<th>Year</th>
<th>Bond (2.375%)</th>
<th>Bond (1.00%)</th>
<th>Aflac*** bond I</th>
<th>Aflac bond II</th>
<th>Other Debt**</th>
</tr>
</thead>
<tbody>
<tr>
<td>2020</td>
<td>500</td>
<td>300</td>
<td>70</td>
<td>105</td>
<td>352</td>
</tr>
<tr>
<td>2024</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2032</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2033</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Gearing (Net debt / Equity)

<table>
<thead>
<tr>
<th>Month</th>
<th>Gearing</th>
</tr>
</thead>
<tbody>
<tr>
<td>May 13</td>
<td>0.3x</td>
</tr>
<tr>
<td>May 14</td>
<td>0.3x</td>
</tr>
<tr>
<td>May 15</td>
<td>0.1x</td>
</tr>
<tr>
<td>May 16</td>
<td>0.1x</td>
</tr>
<tr>
<td>May 17</td>
<td>0.1x</td>
</tr>
<tr>
<td>May 18</td>
<td>0.1x</td>
</tr>
</tbody>
</table>

Additional Revolving Credit (2022) of EUR 450m with 10 core banks as back-up facility

Strategic flexibility

HELTA has a stable and solid financial fundament which forms the basis for its future strategic plans

→ Prudent financial policy throughout the cycle with leverage < 1.0x
→ Financing of long-term growth strategy secured
→ Well balanced debt portfolio
→ New issuing (senior, unsecured / bearer debt) for attractive conditions
→ Mid term target: Leverage < 1.0x

→ Capital-market-oriented capital structure with investment grade rating
→ Good liquidity profile and consistent liquidity management
→ EUR 117m dividends (1.05EUR/share) paid October 2018
→ Equity ratio at 41.9% and cash & assets at 1,021 mill. EUR

* As of August, 2018; Euro Bond I: 2.375%, Euro Bond II: 1.00%; Aflac bonds hedged values ** Mostly long term debt; starting with Aug 2018 lease liabilities according to IFRS 16 *** Abbreviation for “American Family Life Insurance Company”
In the Automotive segment, HELLA develops and produces innovative solutions for automobile manufacturers worldwide.

HELLA at a Glance – Business Segment Automotive

**BUSINESS OVERVIEW***

<table>
<thead>
<tr>
<th>Lighting</th>
<th>Electronics</th>
</tr>
</thead>
<tbody>
<tr>
<td>▪ Headlamps</td>
<td>▪ Components</td>
</tr>
<tr>
<td>▪ Rear Combination Lamps</td>
<td>▪ Energy Management</td>
</tr>
<tr>
<td>▪ Small Lamps</td>
<td>▪ Driver Assistance Systems</td>
</tr>
<tr>
<td>▪ Interior Lighting</td>
<td>▪ Body Electronics</td>
</tr>
<tr>
<td>▪ Lighting Electronics</td>
<td>▪ Steering</td>
</tr>
</tbody>
</table>

- #1 market position in LED headlamps Europe
- #3-4 global and #1-2 European market position in OE passenger car lighting
- #2-3 global and #1-2 European market position in defined automotive electronic segments

**KEY FINANCIALS**

<table>
<thead>
<tr>
<th></th>
<th>FY 2016/17</th>
<th>FY 2017/18</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>External Sales</td>
<td>4,980</td>
<td>5,383</td>
<td>+8.1%</td>
</tr>
<tr>
<td>Adjusted EBIT**</td>
<td>444</td>
<td>457</td>
<td>+2.8%</td>
</tr>
<tr>
<td>Adjusted EBIT margin**</td>
<td>8.8%</td>
<td>8.5%</td>
<td>-0.3% points</td>
</tr>
<tr>
<td>Ext. Sales Lighting</td>
<td>2,788</td>
<td>3,014</td>
<td>+8.1%</td>
</tr>
<tr>
<td>Ext. Sales Electronics</td>
<td>2,191</td>
<td>2,368</td>
<td>+8.1%</td>
</tr>
</tbody>
</table>

**AUTOMOTIVE SALES BY CUSTOMERS**

fiscal year 2016/17

- OEM: 43%
- Tier X: 29%
- Other***: 6%
- Asia, Pacific, RoW: 13%
- US OEM: 11%
- German OEM: 29%

**AUTOMOTIVE SALES BY REGIONS**

fiscal year 2017/18

- North & South America: €1,112 million
- Germany: €1,827 million
- Asia, Pacific, RoW: €987 million
- Rest of Europe: €1,457 million

*) All figures related to the selected markets and product categories based on HELLA’s portfolio, as covered in an external market study commissioned by HELLA (2014)

**) Adjustments including restructuring expenses

***) Including European OEM (ex Germany) and trucks.
HELLA will benefit in its core business thanks to favorable positioning along major automotive market trends

**HELLA at a Glance – Automotive Technology Highlights**

<table>
<thead>
<tr>
<th>MAJOR AUTOMOTIVE MARKET TRENDS</th>
<th>AUTONOMOUS DRIVING</th>
<th>EFFICIENCY &amp; ELECTRIFICATION</th>
<th>CONNECTIVITY &amp; DIGITALIZATION</th>
<th>INDIVIDUALIZATION</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1.png" alt="Autonomous Driving Icon" /></td>
<td><img src="image2.png" alt="Camera" /></td>
<td><img src="image3.png" alt="48V DC/DC-Converter" /></td>
<td><img src="image4.png" alt="Particulate Matter Sensor" /></td>
<td><img src="image5.png" alt="Passive Entry System" /></td>
</tr>
<tr>
<td><img src="image6.png" alt="Camera Software" /></td>
<td><img src="image7.png" alt="77 GHz Radar Sensor" /></td>
<td><img src="image8.png" alt="Purge Pump" /></td>
<td><img src="image9.png" alt="Battery Mgmt. System" /></td>
<td><img src="image10.png" alt="Ambient &amp; Relaxing Interior lighting" /></td>
</tr>
<tr>
<td><img src="image11.png" alt="Driving Status Projections" /></td>
<td><img src="image12.png" alt="LED Technology" /></td>
<td><img src="image13.png" alt="High Definition headlamp" /></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
HELLA with a comprehensive offering of automotive parts, diagnostics, and services within Europe

HELLA at a Glance – Business Segment Aftermarket

BUSINESS OVERVIEW

**Independent Aftermarket (IAM)**
- Sale of **own and third-party spare parts** to IAM wholesalers
- **Own sales presence** in >25 countries
- **Strong position** of sales network and brand presence **in European market (#1-3)**

**Workshop Equipment**
- Premium provider of **workshop solutions, diagnostic tools** and advanced **equipment** to garages
- Offering of **professional services**, e.g. technical data/hotline, trainings & financial services
- **market position: #1 DE CH #3 IT**

KEY FINANCIALS

<table>
<thead>
<tr>
<th></th>
<th>FY 2016/17</th>
<th>FY 2017/18*</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sales</strong></td>
<td>1,222</td>
<td>647</td>
<td>n.m.</td>
</tr>
<tr>
<td><strong>Adj. EBIT</strong></td>
<td>73.0</td>
<td>52.6</td>
<td>n.m.</td>
</tr>
<tr>
<td><strong>Adj. EBIT margin</strong></td>
<td>6.0%</td>
<td>8.1%</td>
<td>n.m.</td>
</tr>
<tr>
<td><strong>Sales IAM</strong></td>
<td>553</td>
<td>568</td>
<td>+2.7%</td>
</tr>
<tr>
<td><strong>Sales Garage Equipment</strong></td>
<td>66</td>
<td>67</td>
<td>+2.6%</td>
</tr>
</tbody>
</table>

STRATEGIC FOCUS

- **Further strengthen IAM product portfolio**
  e.g. enhance offering of Electronics/ Electrics and universal lighting products, expand partner network, push roll-out of 3rd party products to additional markets

- **Further enhance workshop products and services**
  e.g. set-up new digital offers and software driven business models (remote fleet manager, workshop broker platform), develop calibration solutions for complex cars

*excludes Wholesale business (9 months). Closing September 3, 2018 for FTZ and INTERTEAM*
New high end diagnostic device mega macs 77 enables fast trouble code reading and interpretation as well as other features

HELLA at a Glance – Aftermarket Technology Highlight

**New diagnostic device for workshops:** mega macs 77

---

**VALUE PROPOSITION: HIGH-END TECHNOLOGY COMBINED WITH USER GUIDANCE**

- **Successor product** of the diagnostic unit which is **market leading** in the DACH region
- **Higher usability** through Full HD 15.6” touchscreen and refined user interface
- **Real-time-repair concept** making daily workshop business faster and therefore more profitable
- Further step towards **fully guided repair**: step by step instructions and guided measurement with automated verification of results
- **Reduction of errors** through automatic VIN-identification with automated link to parts catalogue

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**OUTLOOK**

- **International roll-out started** in March 2018
- mega macs 77 hardware and software **architecture as platform for further products**
- **Next-generation software at Automechanika 2018**, taking guided repair another step forward
In Special Applications HELLA incorporates the extensive technological expertise in lighting and electronics

HELLA at a Glance – Business Segment Special Applications

BUSINESS OVERVIEW

- Development, production and sale of lighting and electronics products for special vehicle manufacturers
- “Fast follower” of technological innovations in automotive segment along megatrends LED, energy efficiency and safety
- Application of know-how through own research and development resources and dedicated production footprint
- Strong market position in lighting product areas based on long-standing experience, in particular in Europe
- Focusing on a variety of attractive target groups

TARGET GROUPS

- Off-highway
- Highway & Leisure Vehicles
- Premium & Special Vehicles

KEY FINANCIALS

in EUR millions and % of sales

<table>
<thead>
<tr>
<th></th>
<th>FY 2016/17</th>
<th>FY 2017/18</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales</td>
<td>385</td>
<td>430</td>
<td>+11.6%</td>
</tr>
<tr>
<td>EBIT</td>
<td>19.7</td>
<td>48.0</td>
<td>+143.7%</td>
</tr>
<tr>
<td>EBIT margin</td>
<td>5.1%</td>
<td>11.2%</td>
<td>+6.1% points</td>
</tr>
</tbody>
</table>

STRATEGIC FOCUS

- Drive further LEDfication
e.g. build-up competences in intelligent lighting solutions, push Visiotech technology, broaden innovative roadmap (LED matrix beam, Shapeline), increase number of vehicle specific lighting projects

- Boost growth of Electrics / Electronics business
e.g. extend electronics scope (focus on sensors and actuators), foster cooperation and M&A opportunities

- Penetrate growing customer segments
e.g. drive growth in segments mining, power sports, and marine, push solutions for e-cars and small cars, explore further growth potential of truck business
Innovative HELLA technologies for special vehicles increase workplace safety, the operator’s comfort and individualization.

HELLA at a Glance – Special Applications Technology Highlight

Innovative projection system for special purpose vehicles: „VISIOTECH“

VISION
- Increasing workplace safety and the operator’s comfort
- Visually warn or alert other vehicles or passersby
- Lead customer (Projection Module): LINDE (triangle symbol with a forklift)

Module 50 Spot
- Creates a bright warning spot on the ground

SL60 LED
- Creates a line on the ground
- Customization option: Add a customer logo on the backside of the lamp

Projection Module
- Projects exclamation mark as warning symbol
- Perfect view even under daylight conditions
- Other symbols / working area warning projections possible
HELLA Company Presentation Q1 FY 2018/19

Outline

- HELLA Financial Results Q1 FY 2018/19
- HELLA at a Glance
- HELLA’s view on Automotive Market Trends
To benefit from latest market developments, HELLA has incorporated their major implications into its strategic action plan.

HELLA’s view on Automotive Market Trends

<table>
<thead>
<tr>
<th>AUTONOMOUS DRIVING (AD)</th>
<th>EFFICIENCY &amp; ELECTRIFICATION</th>
<th>CONNECTIVITY &amp; DIGITALIZATION</th>
<th>INDIVIDUALIZATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>▪ Safety regulations (NCAP) are pushing AD level 1-3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>▪ Increasing number of partnerships for AD level 4-5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>▪ Higher willingness of consumers to pay for AD features</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>▪ Accelerated penetration of electrified vehicles due to incentives and regulatory push</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>▪ Especially increasing demand for mild-hybrid solutions</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>▪ Strong growth in China</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>▪ Increasing importance of software: Increase in functionalities with car value shift from hardware to software</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>▪ 75% of vehicles estimated to have internet connection by 2020</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>▪ Stronger focus of OEMs and consumers on vehicle design features</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>▪ Increasing demand for passenger related applications and functionalities</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Increasing relevance of system competence and partnerships
- Substantial growth opportunities for HELLA (worldwide, but especially in China)
- New business opportunities e.g. cloud-based solutions, domain computer, digital aftermarket solutions
- Additional growth opportunities for HELLA especially in the field of interior and car body lighting
For continuous organic growth, HELLA offers sensors and software for the road to autonomous driving

HELLA’s view on Autonomous Driving

- Enable the transition to increased automation as key supplier of ADAS, as strong component and (sub-) system supplier
- Thorough allocation of development resources to continuously increase radar share and penetrate camera software market
- Develop new functionalities and use cases from assisted to automated driving

MARKET Development

- **Strong ADAS penetration increase** especially coming from L2-3 with a CAGR of 26% (2017-2022), radar, camera and Lidar as strongest drivers
- **ADAS sensors demand increasing globally**, existing driver assistance functions are key enablers for automated driving
- **AD L4 and L5 functionalities important beyond 2022**, penetration increase of L5 starting 2025

MARKET

Autonomous Driving Level | Technologies per car**
--- | ---
Level 1 | 2-5
Level 2 | 7-10
Level 3 | 15-21
Level 4 | 17-22
Level 5 | 17-24

Number of manufactured vehicles (in mill. units) and penetration of level* | MARKET
--- | ---
2017 | 2022

- 76 (82%) | 53 (50%)
- 18 (19%) | 49 (47%)
- 4 (4%) | 0.3
- 0.009

-6% | +24% | +187% | - | -

* Based on global LVP, source: IHS, Strategy Analytics, HELLA analysis
** Includes radar sensors (24 GHz and 77 GHz), front camera software functionalities (traffic sign, lane, light, object detection), LIDAR, and SHAKE. Potential # of sensors includes redundancies
To seize business potentials from Autonomous Driving, HELLA pursues a strategic approach based on three essential pillars:

**HELLA’s view on Autonomous Driving – Strategic approach**

**HELLA as strong components supplier**
- Scalable and cost-optimized solutions for assisted and automated driving

**HELLA as Tier 1 system provider & network partner**
- HELLA as Tier 1 partner for functions and subsystems (e.g. parking)
- HELLA as integrated network partner for OEMs and Tiers for overall system solutions

**HELLA as service and feature provider**
- Services and software solutions in the area of automated driving
HELLA offers scalable and cost-optimized solutions for assisted and automated driving e.g. sensing technologies

HELLA’s view on Autonomous Driving – Components supplier

<table>
<thead>
<tr>
<th>24GHz / 77GHz Radar</th>
<th>SHAKE*</th>
<th>LIDAR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scalable radar family for complete information on vehicle surrounding</td>
<td>Modular system architecture as key technology for intelligent touch &amp; vibration sensing</td>
<td>Scalable LIDAR technologies developed with strong USPs in regard to costs and integration</td>
</tr>
</tbody>
</table>

- Strong focus on Driver Assistance and NCAP relevant functions as driver for surround view
- Consequent modular platform approach to create flexible customer-oriented solutions

- Shake sensor for automated driving functions (≥ L2)
- Sensor system allows several low & high speed functions such as damage detection and road condition sensing

- LIDAR as additional technology for Autonomous Driving
- Tailor made HELLA solution based on existing serial competence

*Structural Health And Knock Emission; (1) Intelligent damage detection, (2) Adaptive impact detection, (3) Smart touch detection, (4) Predictive maintenance, (5) Road condition sensing
HELLA’s 77 GHz radar sensor solution enables efficient 360° environment recognition for the entire vehicle
HELLA’s view on Autonomous Driving – Technology Highlight

TECHNOLOGY
77 GHz Radar Sensor

KEY FACTS
- Highly integrated RF-CMOS Radar System Chip
- Higher functional object detection performance

KEY BENEFITS
- Reduced size & weight (significant package reduction compared to previous sensors)
- Identifies & reacts to approaching vehicles from front-side when entering a junction or pulling out forward from parking space
- Identifies & warns of objects in blind spot

MAIN FUNCTIONALITIES
- Intersection Assistant
- Automated Parking
- Automated Driving
HELLA’s multi lens array improves comfort and safety by supportive road projects for different driving situations
HELLA’s view on Autonomous Driving – Technology Highlight

TECHNOLOGY
Multi Lens Array

KEY FACTS
- Generation of sharp, contrasting and homogeneous images
- No loss of the graphic even by partially dirty lens, 170 micro projection lenses per Multi-Lens-Array generating 1 image
- Integration of projections with car sensors

KEY BENEFITS
- **Enhances safety** through communication with pedestrians and other vehicles
- **Evokes emotions** by dynamic / changing lighting
- **Enables information** about autonomous driving status

MAIN FUNCTIONALITIES
- Welcome Light
- Driving Status Projections
- Safety Projections
- First to market
- Future option

HELLA Company Presentation | Q1 FY 2018/19
HELLA addresses the gradual shift from combustion engine to battery electric vehicles

HELLA’s view on Efficiency & Electrification

**Technologies per car**

- Internal Combustion Engine (ICE): 2
- 48V Mild Hybrid (MHV): 4
- Full- (FHEV) & Plug-in Hybrid (PHEV): 8-15
- Battery Electric Vehicle (BEV): 7-23

**MARKET Development**

- Gradual Shift within powertrain concepts with strong momentum for penetration of electrified vehicles
- Internal combustion engines will continue to be relevant beyond 2030, but are expected to decline
- Mild hybrid as intermediary solution to achieve CO2 emissions and E-quote with strongest growth and biggest beneficiary
- Further efficiency gains drive growth of new technologies such as HV converters

**HELLA Position**

- Focus on solutions for the energy managing of all powertrain concepts, carry and strengthen top market position for ICE by next generation products (check)
- Leverage Hybrid and Electric Vehicle competence with further investments in development of DC/DC converters to benefit from increasing trend for mild-hybrids
- Resources allocation to BMS and High voltage products

* Based on global LVP, source: Strategy Analytics, HELLA analysis
** E.g. IBS, DC/DC converter (12V and 48V), BMS (incl. e.g. current sensor, cell monitoring device, battery control unit, isolation monitoring device)
Consequent roll-out of 48V DC/DC converter in order to participate in growing 48V market, especially in China

HELLA’s view on Efficiency & Electrification – Technology Highlight

TECHNOLOGY
48V DC/DC-Converter

MAIN FUNCTIONALITIES
- Enhanced Start-Stop
- Engine-Off-Coasting
- Boosting
- High Power Braking
- Backup Energy
- Fuel Economy

KEY FACTS
- Conversion efficiency > 95%
- Power rating according to alternator up to 3kW
- Scalability thanks to multi-phase approach

KEY BENEFITS
- Enables new applications such as stop/start and idle cruising, whilst ensuring the supply of fuel-efficient power loads such as electrical power-steering actuators
- Innovative vehicle applications, which support fuel efficient drive concepts such as high power regenerative braking or engine-off coasting applications

Awarded by 3 Customers
HELLA offers the electronics solution for lithium-ion battery management system

HELLA’s view on Efficiency & Electrification – Technology Highlight

TECHNOLOGY
BATTERY MANAGEMENT SYSTEM

MAIN FUNCTIONALITIES

CALCULATE BATTERY STATE
- State of Charge
- State of Health
- Power capability
- Resistance

PROTECT BATTERY AND VEHICLE DRIVER
- Battery overheating
- Over voltage and current
- Contactor State of Health (SoH)

MEASURE
- Current
- Cell voltages
- Cell temperatures
- Battery voltages

CONTROL
- Contactor
- Communication
- Limp home
- Pre-charge

KEY FACTS

BMS ECU: Battery state calculation and control of safety functions

Cell Controller: Voltage and temperature measurements as well as cell balancing

High Voltage Current Sensor: Measurement of battery current

Insulation Monitoring Device: Measurement of insulation resistance between HV and LV

(Integrated) Relay Box: Charge, pre-charge and main relays packaged including control electronics

KEY BENEFITS

- Modular and scalable platform for 12V, 48V and high voltage lithium-ion batteries
- Best-in-class insulation monitoring device in exclusive cooperation with BENDER

HELGA Company Presentation | Q1 FY 2018/19
HELLA pushes the digitalization of LED headlamp technologies in both mass and premium segments

HELLA’s view on Connectivity & Digitalization

MARKET Development

- Strong LED penetration growth globally (CAGR 35%), Xenon to be replaced, Halogen stays as low cost solution
- Europe with highest LED penetration, growth esp. from standard and high LED, demand for high innovative solutions starting 2020
- NAFTA demand for standard LED increasing strongly despite regulation, LED high also with double digit CAGR
- China with lowest LED penetration but strongest LVP growth and strongest increase of standard LED solutions

HELLA Position

- Capture growth from increasing LED penetration by offering broad technology portfolio to global customer base, focus on operational efficiency and process to penetrate mass markets
- Leading edge solutions for high-end demand especially in Europe
- Localization strategy and ramp-up of resources to serve high LED demand in China and NSA

* Based on global LVP and technical share of headlamp technologies (Source: IHS LVP forecast, HELLA estimates), **per vehicle, content differences based on global average market prices and future potential prices, ***LED high includes LED Advanced package and LED Advanced next generation
Software-controlled high definition headlamp accelerates functionalities and customer benefits
HELLA’s view on Connectivity & Digitalization – Technology Highlight

TECHNOLOGY
High definition headlamp

KEY FACTS
- High definition lighting system with over 50,000 Pixel

KEY BENEFITS
- State of the art functions, e.g. bend light, glare-free high beam, etc. with optimized end-user impact
- New functionalities, e.g. C2P (Car To Pedestrian) and C2D (Car To Driver)
- High end resolution

NEW FUNCTIONALITIES
- Pedestrian marking
- Projection of cross-walk
- Highlight the walk way
Innovative approach to optimize air quality in the vehicle based on particulate matter sensor and cloud-based solutions

HELLA’s view on Connectivity & Digitalization – Technology Highlight

TECHNOLOGY

Cloud-Based Air Quality Management

KEY FACTS

- Particulate Matter Sensor (PM2.5)
- For vehicles with automatic climate control
- Measurement of air properties, in the range of 25 µg/m³ - 500 µg/m³
- Particle size distribution detection by scattered light detection // amplitude of diffractive light depends on PM concentration

KEY BENEFITS

- Detection of particulate matter < 2.5 µm (fine dust) in the inner cabin & ambient air
- Greater driving comfort due to continual optimization of the air quality in the vehicle
- High particle concentration leads e.g. to: sensor function for ventilation flap controlling (lowers in-cabin pollution level) or fine dust pollution level display as warning feature

MAIN FUNCTIONALITIES

- Pollution Notifications
- Cloud-Based Clean Routing Option
- Cloud-Based Health Recommendations
HELLA offers interior and car body lighting solutions with individualized and connected features

HELLA’s view on Individualization

MARKET Development

- Increased demand for personalization of vehicle design and features drives need for lighting packages in- and outside the car far beyond standard offering
- Advanced ranks 1st in terms of market size in 2022, substituting standard packages especially in Europe
- Innovation with strongest growth over all regions, penetration starts together with AD L4 and L5

** MARKET **

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<thead>
<tr>
<th>2017</th>
<th>2022</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard¹</td>
<td>59</td>
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<tr>
<td>Advanced²</td>
<td>40</td>
</tr>
<tr>
<td>High-end³</td>
<td>20</td>
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<tr>
<td>Innovation⁴</td>
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</tbody>
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** HELLA Position **

- Offer smart lighting solutions to cover increasing individualization demand, focus on ambient interior and effect exterior (surround) light
- Introduce multi color LED modules that interact with driver
- Enable MLA technology for new lighting features around the car linked to sensor data

** Content differences**

<table>
<thead>
<tr>
<th>1 (baseline)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard¹</td>
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<td>Innovation⁴</td>
</tr>
</tbody>
</table>

** Number of manufactured vehicles with lighting packages (in mill. units)**

** CAGR 2017-2022 **

-4%
+8%
+11%
+47%

** HELLA Position **

- Offer smart lighting solutions to cover increasing individualization demand, focus on ambient interior and effect exterior (surround) light
- Introduce multi color LED modules that interact with driver
- Enable MLA technology for new lighting features around the car linked to sensor data

* Taking into account technology penetration and estimated LVP; source: IHS LVP forecast, HELLA estimates)
** Content differences based on global average market prices and future potential prices
1) Includes courtesy lamp; 2) includes dome and static ambient lighting; 3) includes dome and dynamic ambient lighting; 4) includes dome and dynamic ambient lighting and grill illuminations; 5) plus car body lighting (MLA – Multi Lens Array); 6) plus car body lighting (MLA and grill)
HELLA’s dynamic ambient lighting systems enhance user experience, safety and support automated driving scenarios.

HELLA’s view on Individualization – Technology Highlight

**TECHNOLOGY**

Dynamic Ambient Lighting System

**KEY FACTS**

- Competence in light & electronics
- Light as a complementary information source for driving tasks
- Infinite number of high speed light scenarios

**MAIN FUNCTIONALITIES**

- Advanced Welcome Scenario
- Collision Warning
- Ambient & Relaxing

**KEY BENEFITS**

- Integration in customer E/E architecture
- Supports partially and high automated driving
- Enhances safety in complex traffic situations through warning function
- Improves driving comfort by personalization of light
Thanks for your attention

Dr. Kerstin Dodel, CFA
Head of Investor Relations

Office phone       +49 2941 38 - 1349
Facsimile            +49 2941 38 - 471349
Mobile phone      +49 174 3343454
E-Mail                  kerstin.dodel@hella.com
Internet                www.hella.com