Industry Report Photonics 2013
Management Report – Germany
Photonics in Germany

Strong Export Share Well Beyond The Average Of Manufacturing Industry

Export Share Of Selected German Sectors in 2012

Source: Deutsche Bank, DB Research, Chartbook; 04.03.2012, Optech Consulting/own calculations
Photonics in Germany

Core Segments Gain Importance – Will Contribute To 80 % Of Sales And Jobs

Shares of Photonics Segments in Germany

- **2005**: 17 billion Euro
  - Production oriented Segments: 14%
  - Optical Components & Systems, Safety- and Defence Technologies: 17%
  - Medical Technology & Life Science: 16%

- **2011**: 27 billion Euro
  - Production oriented Segments: 10%
  - Optical Components & Systems, Safety- and Defence Technologies: 15%
  - Medical Technology & Life Science: 17%

- **2020**: 44 billion Euro
  - Production oriented Segments: 11%
  - Communication Technology, Information Technology, Displays: 19%
  - Light Sources: 6%
  - Photovoltaic: 20%

Source: BMBF, SPECTARIS, VDMA, ZVEI (pub.), ‘Branchenreport Photonik 2013’, Optech Consulting, Study ‘Photonik 2013’/Own calculations
Photonics in Germany

Job Engine >> About 30,000 New Jobs Since 2005

Number of Employees in Photonics Segments in 2005, 2011 and Expectations 2020

<table>
<thead>
<tr>
<th>Year</th>
<th>Total</th>
<th>2005</th>
<th>2011</th>
<th>2020</th>
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<tbody>
<tr>
<td></td>
<td></td>
<td>88,900</td>
<td>118,500</td>
<td>145,900</td>
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<tr>
<td></td>
<td></td>
<td>(without Suppliers)</td>
<td>(without Suppliers)</td>
<td>(without Suppliers)</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>101,500</td>
<td>134,000</td>
<td>165,000</td>
</tr>
</tbody>
</table>

- Production Technology
- Measurement & Automated Vision
- Optical Components & Systems, Safety- and Defence Technologies
- Medical Technology & Life Science
- Communication Technology, Information Technology, Displays
- Light Sources
- Photovoltaic

Source: BMBF, SPECTARIS, VDMA, ZVEI (pub.), ‘Branchenreport Photonik 2013’, Optech Consulting, Study ‘Photonik 2013’/Own calculations
Photonics in Germany 2011

Four Strong Core Segments Driving Growth And Innovation

Growth of German Photonics Segments in 2005–2011 compared to GDP Growth (without PV)

Bubble size indicates worldwide production volume in 2011
Source: BMBF, SPECTARIS, VDMA, ZVEI (pub.), ‘Branchenreport Photonik 2013’, Optech Consulting, Study ‘Photonik 2013’/Own calculations
Photonics in Germany

Our Expectations: Remaining Strong Focus On Four Strong Core Segments

Expected Growth of German Photonics Segments 2011–2020 compared to GDP Growth

Bubble size indicates worldwide production volume in 2020
Source: BMBF, SPECTARIS, VDMA, ZVEI (pub.), ‘Branchenreport Photonik 2013’, Optech Consulting, Study ‘Photonik 2013’/Own calculations
Photonics in Germany
27 Billion Euro Market With Strong Export Contribution

Domestic Production Germany 2011 – Total 27 billion Euro

- Production Technology 12%
- Measurement & Automated Vision 19%
- Optical Components & Systems, Safety- and Defence Technologies 16%
- Medical Technology & Life Science 16%
- Information Technology & Communication Technology, Displays 10%
- Light Sources 9%
- Photovoltaic 18%