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Photonics - New Market Studies Substantiate Outstanding Success of Key Technology

Light technologies provide tremendous potential for growth and innovation, as shown by two new studies by VDMA and Photonics21. Strong core areas, impressive growth rates far above the gross domestic product and high expenditures on research and development indicate successful outlooks up to the year 2020.

Munich, Frankfurt, Düsseldorf, Brussels, 26th of June 2017. - As a key enabling technology, photonics is a guarantee of growth – this is substantiated by two new complementary market studies by VDMA and the European Technology Platform Photonics21. Since 2005, the photonics industry has grown around twice as fast as the national and global gross domestic product by an average of 6 to 7 percent. Europe and Germany were also able to claim leading market positions in the core photonics areas. The research rate of almost 10 percent of revenue emphasises the innovation potential of photonics. The current industry data will be introduced jointly by Photonics21 and VDMA at the start of the Laser World of Photonics 2017 trade fair in Munich.

Photonics grows faster than the GDP

According to Photonics21 and VDMA, the global photonics market grew from 228 billion euro (2005) to 350 billion euro (2011) and up to 447 billion euro in 2015. With a long-term growth rate averaging 7 percent annually, this is more than the growth of the worldwide gross domestic product by factor of almost two. In Europe, which has now moved up to second place in the world ranking list, photonics production has risen from 44.2 billion euro (2005) to 69.7 billion euro (2015). This means the European photonics industry has grown on the average by 4.6 percent per year. Photonics companies in Germany generated a total of 31 billion euro in 2016. Eleven billion euro of this alone is attributable to the core photonics areas for industrial equipment. Hence, starting with a volume of 17 billion euro in 2005, the German photonics industry was able to grow by an average of 5.6 percent per year. The photovoltaics industry has a particular influence on the development of photonics. After record investments initially made photovoltaics into the strongest growth driver of photovoltaics, subsequent massive international competition has led to subdued growth. Without this special effect, photonics would have even grown by an average of 6 percent in Europe and 6.3 percent in Germany respectively per year since 2005. The future perspectives of photonics are also very promising. By the year 2020, the VDMA study expects that German photonics production will increase by an average of 6 percent per year to a total of 39 billion euro.

Leading global market position in core areas

The German and European photonics industry was well able to maintain its leading market position in the core areas of production technology (laser material processing, lithography), image processing and measurement technology, as well as medical technology and life sciences. Both Europe as well as

Germany have traditional global market shares in these areas that lie far above the average of the region: in production technology, this is 50 percent for Europe (around 30 percent of this is from Germany); in image processing and measurement technology, it is 35 percent (53 percent of this is from Germany); in medical technology and life sciences, the amount realised by Europe is 28 percent (58 percent of this is from Germany). The global market share of European companies in image processing and measurement technology has increased by 2 percent since 2011, and the VDMA study verifies for the German industry, that this area registered a full 9 percent growth in 2016 alone. The relevant drivers are the increased automation and flexibility of manufacturing as well as implementation of digitalisation concepts in terms of Industry 4.0.

Research and export rates far above the manufacturing sector
With an average of almost 10 percent of revenue, the R&D rate of the photonics industry in Germany and Europe is clearly above that of the manufacturing sector with less than 5 percent. This emphasises the importance of photonics for growth and innovation as a research-intensive industry sector. According to the VDMA study, the 2016 R&D rate in the communications technology area (15 percent) is particularly impressive, followed by the areas of production technology (especially lithography), image processing and measurement technology and displays (especially display materials). The European photonics industry also invested almost 10 billion euro in 2015 for direct investments in addition to research and development. The investment volume in new systems (Capex/Revenue) reached 4.6 percent, as reported by Photonics21 in its study.

The VDMA study emphasised that at a good 70 percent, the export rate of manufacturers of photonics products was far higher than the average of 48 percent achieved in the manufacturing sector. The export rate in the photonics sector even increased slightly since 2011, driven in particular by increased sales to Asia in the area of image processing and measurement technology.

China becomes global market leader, Europe takes second place
Shares in the global photonics market have shifted strongly in recent years. In 2015, China displaced the longstanding global market leader Japan with a 26.6 percent share of production. The countries were still tied in 2011 each with 21.3 percent. With a market share of 15.5 percent, Europe nudged out Japan (15.4 percent) to become the second-largest photonics producers. North America, which lost more than 4 percent of the global market share between 2005 and 2011, was able to increase its market share to 13.6 percent in recent years. The market share positions within Europe only shifted slightly. Germany kept its top position with around 41 percent share of production. It is followed by the Netherlands, which experienced positive development especially in the area of lithography, France, the UK and Italy.

Employment
Altogether, there are 301,000 people who work directly in the European photonics industry, as substantiated by the study from Photonics21. If the photovoltaics segment is left out, 55,000 new jobs have been created in Europe since 2005 despite the financial crisis in the interim. The study from Photonics21 expects continuous job growth up to 313,000 employees by the year 2020. According to VDMA, a total of 124,000 employees in Germany have been working with manufacturers of photonics products based on the year 2016. Job perspectives are also very good here. By the year 2020, the study expects that an additional 13,500 employees will be working in the direct production of photonics products in Germany, which means the workforce will increase up to a total of 137,500 employees.

Sources:

- Market Research Study Photonics 2017, Editor Photonics21 – European Technology Platform, Brussels, Düsseldorf, Tägerwilen, May 2017
- Photonics in Germany, Industry Report 2017, Editor VDMA , Frankfurt, June 2017

Further Information / Download:

- http://photonik.vdma.org/
- http://www.photonics21.org/downloads/download_brochures.php

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Annex: Charts

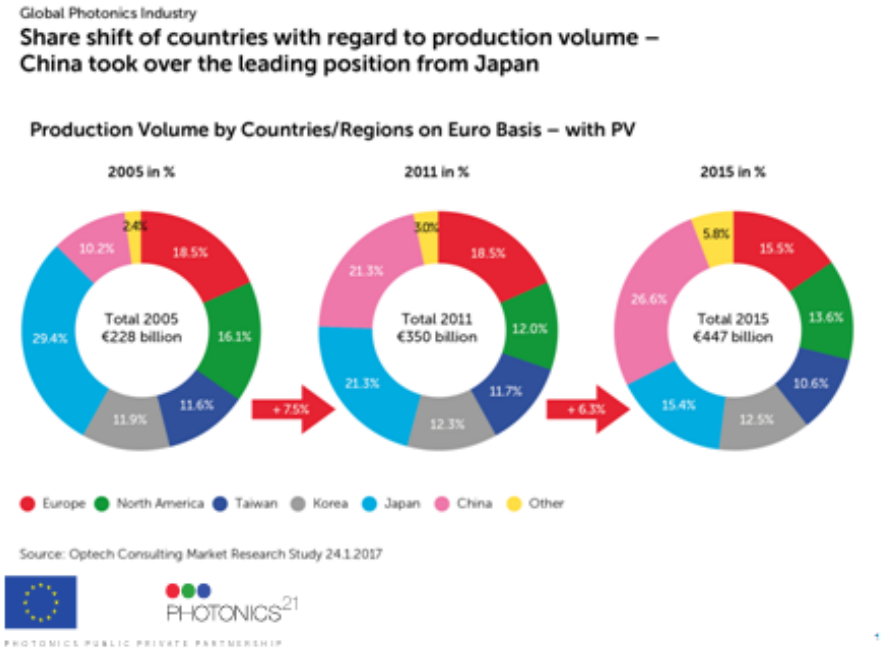

Figure 1: World Market Photonics 2005 - 2015 (Source: Photonics21 - Market Research Study Photonics 2017)

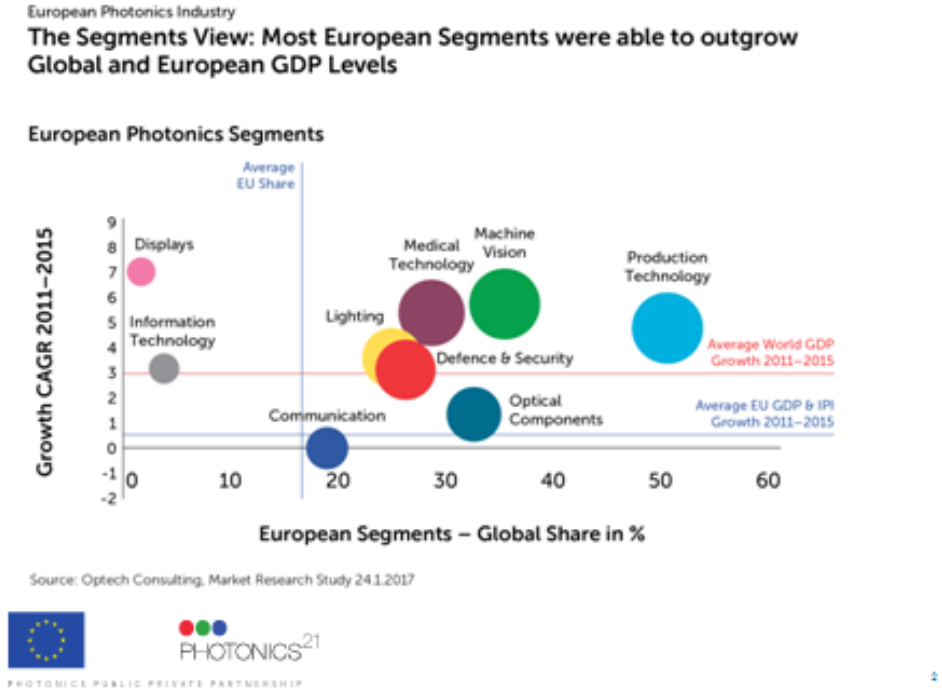

Figure 2: Core Areas of European Photonics Industry (Source: Photonics21 - Market Research Study Photonics 2017)

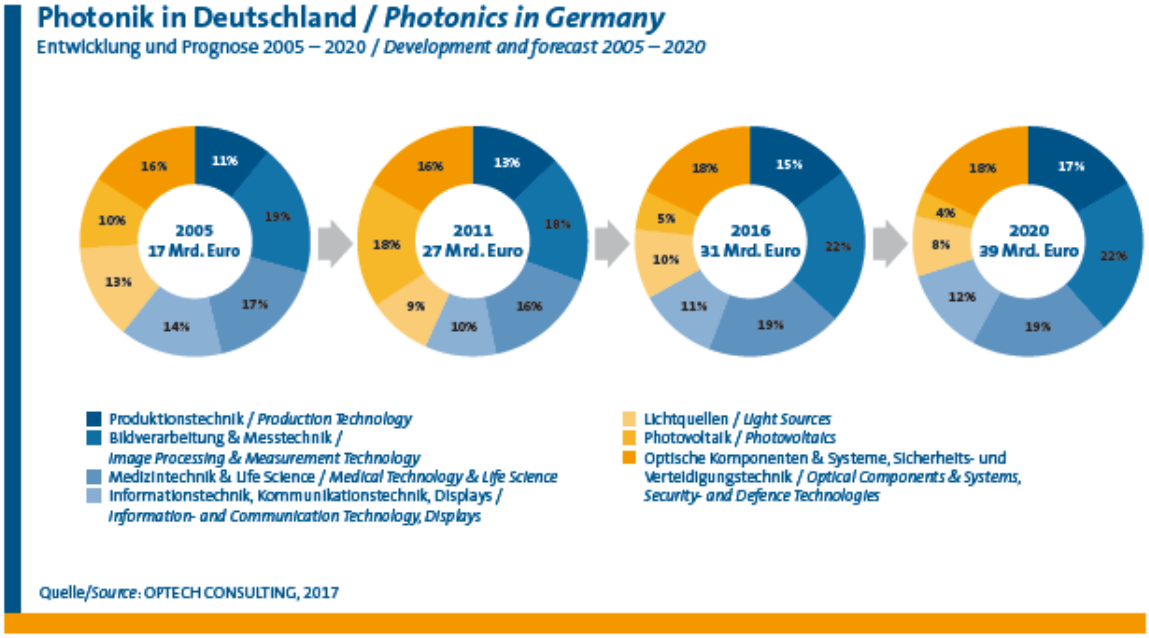

Figure 3: Development of the German Photonics Industry (Source: VDMA, Photonics in Germany, Industry Report 2017)

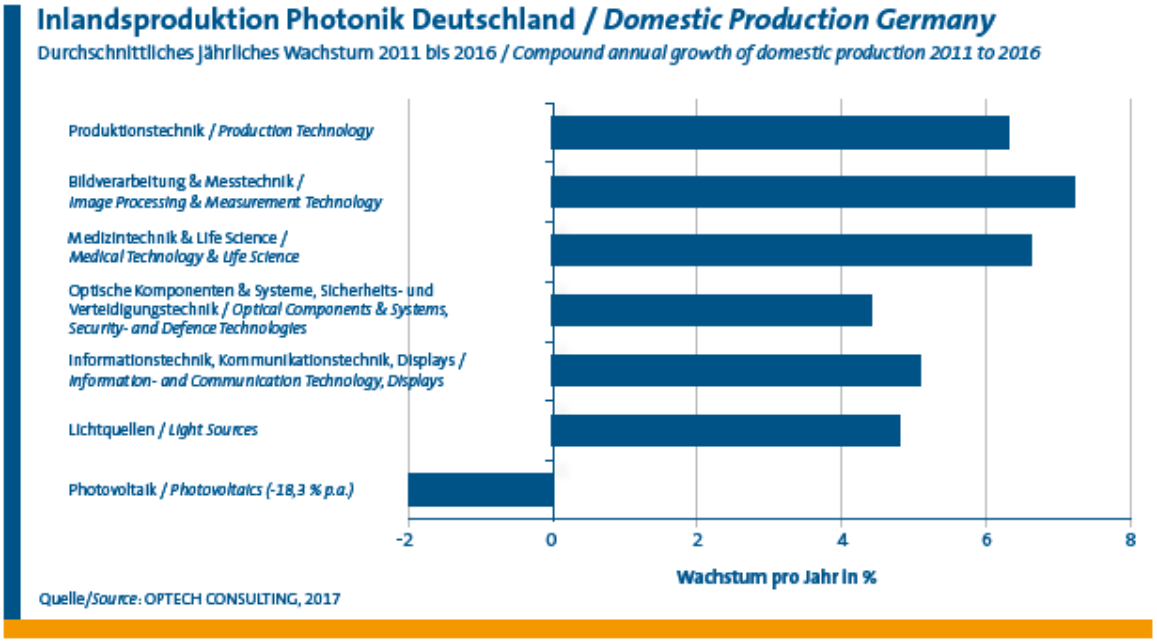

Figure 4: Growth Rates of German photonics areas (Source: VDMA, Photonics in Germany, Industry Report 2017)