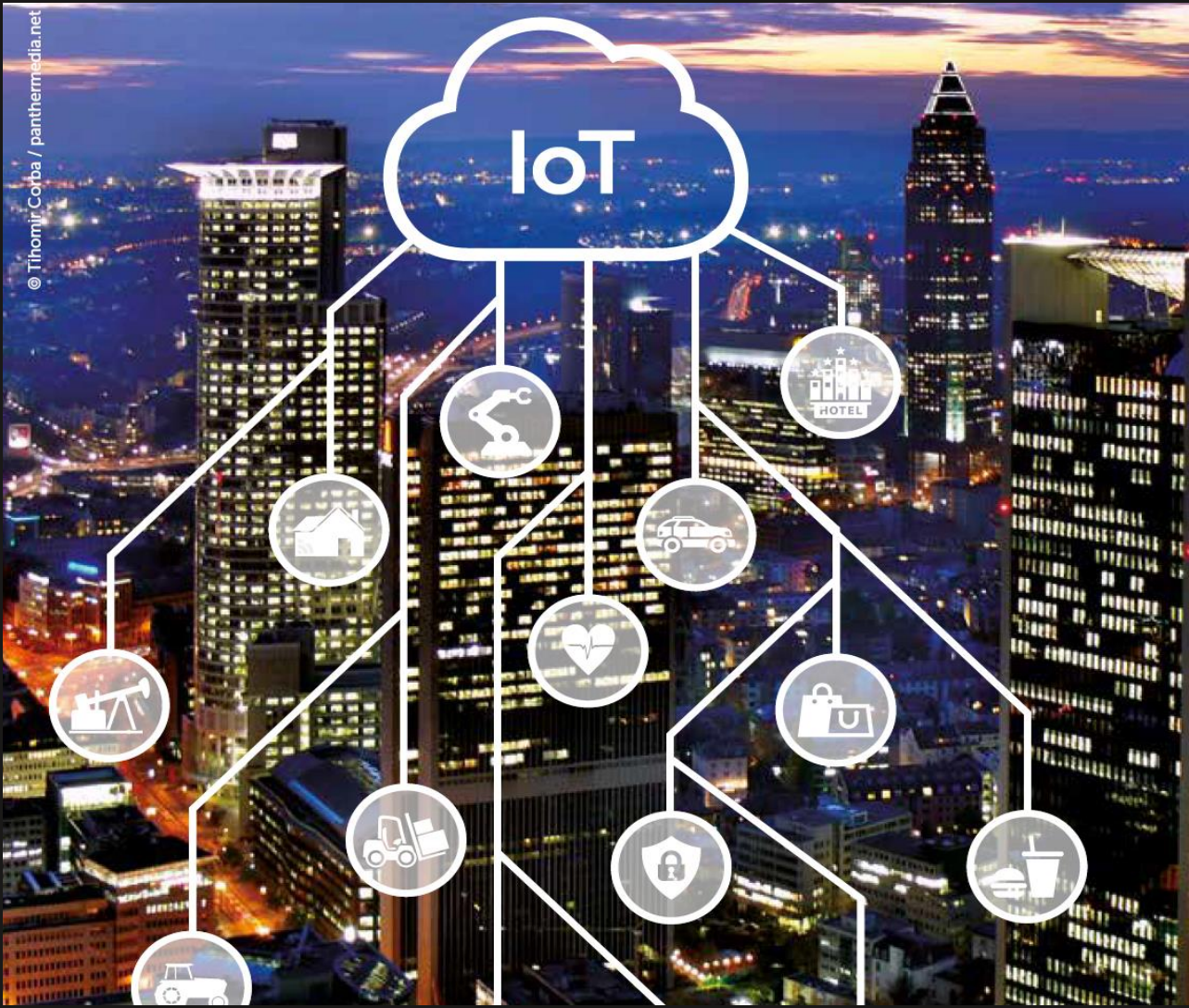


Presentation of the main workshop results in the plenary session

Peter Seitz, Photonics21 WG5 Chair



WG5 Inspiration – The IoT (Internet of Things) Revolution



IoT Pervasive Solutions ... and a Huge Market

THE TOP IoT GROWTH INDUSTRIES



The primary industrial sectors leveraging IoT that will be at the forefront of disruptive value creation in the global business ecosystem.

Connected Buildings & Smart Homes

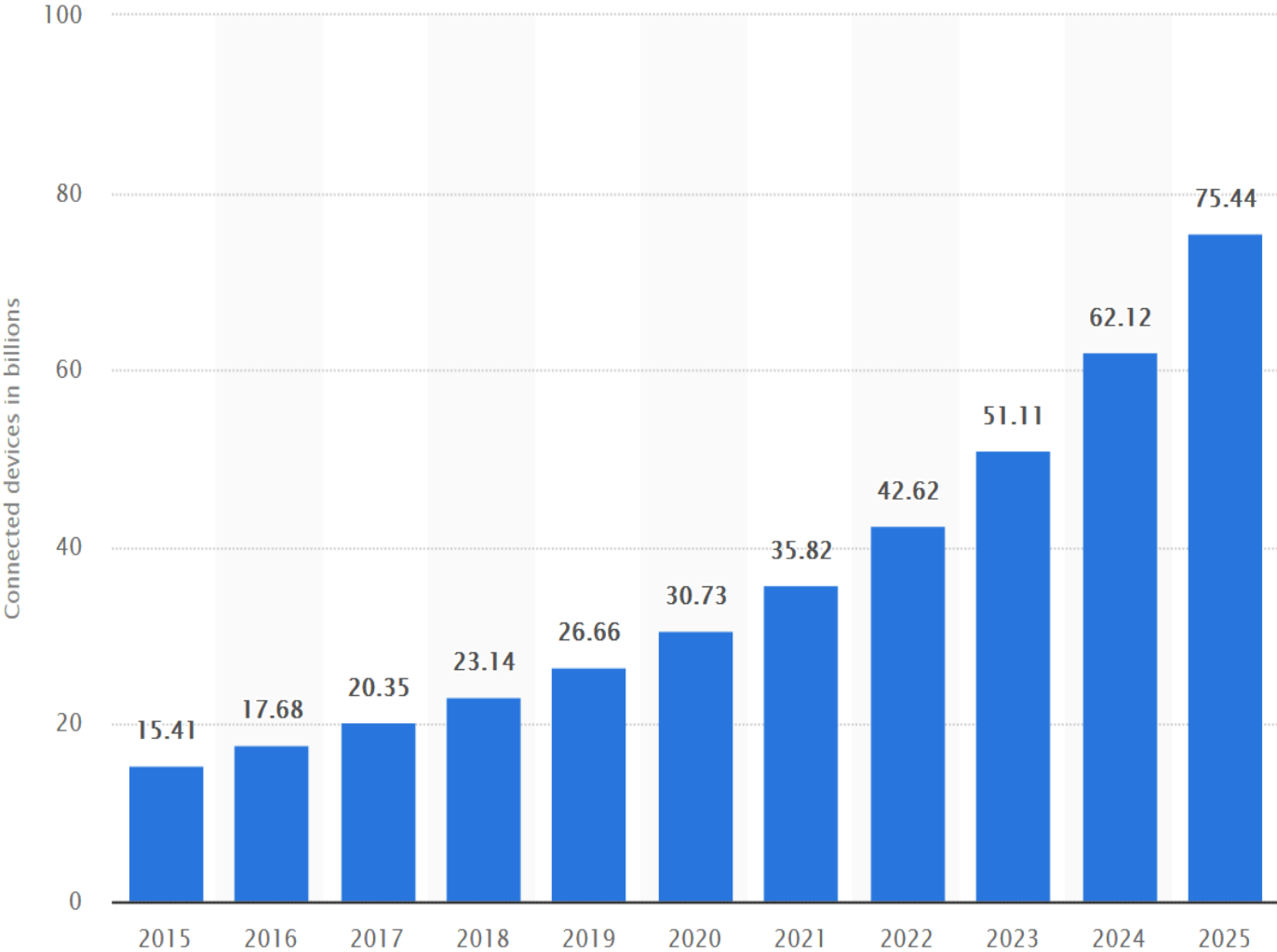


By 2030, a majority of home devices will connect to the internet. 43% of building managers in the US believe that IoT will significantly affect overall building operations within the next three years¹⁶. Particular benefits include: Energy savings, ease of access control, intelligent surveillance and monitoring, improved building operations and support for sustainability efforts.

Oil & Gas Mining



By 2020, 5.4 million IoT sensors, devices & systems¹⁷ will be used on oil extraction sites to track and measure environmental, performance and productivity metrics. Particular benefits include: predictive maintenance & monitoring of drilling equipment and the distribution pipeline network, to ensure safe & efficient midstream operations and workflow automation.

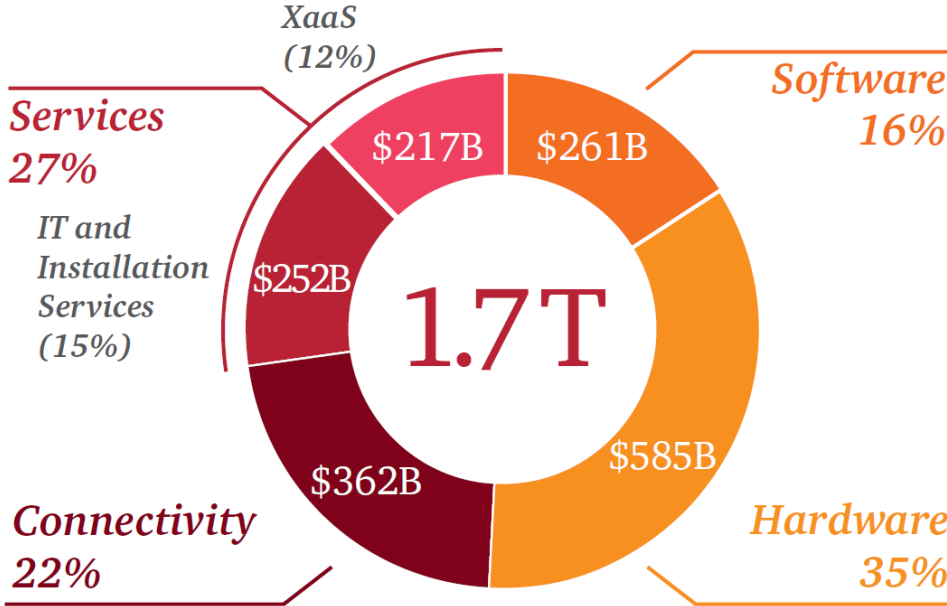


IoT Products : Costs Dominated by Hardware ...

Investment in IoT solutions: An exponential growth path

According to current projections:

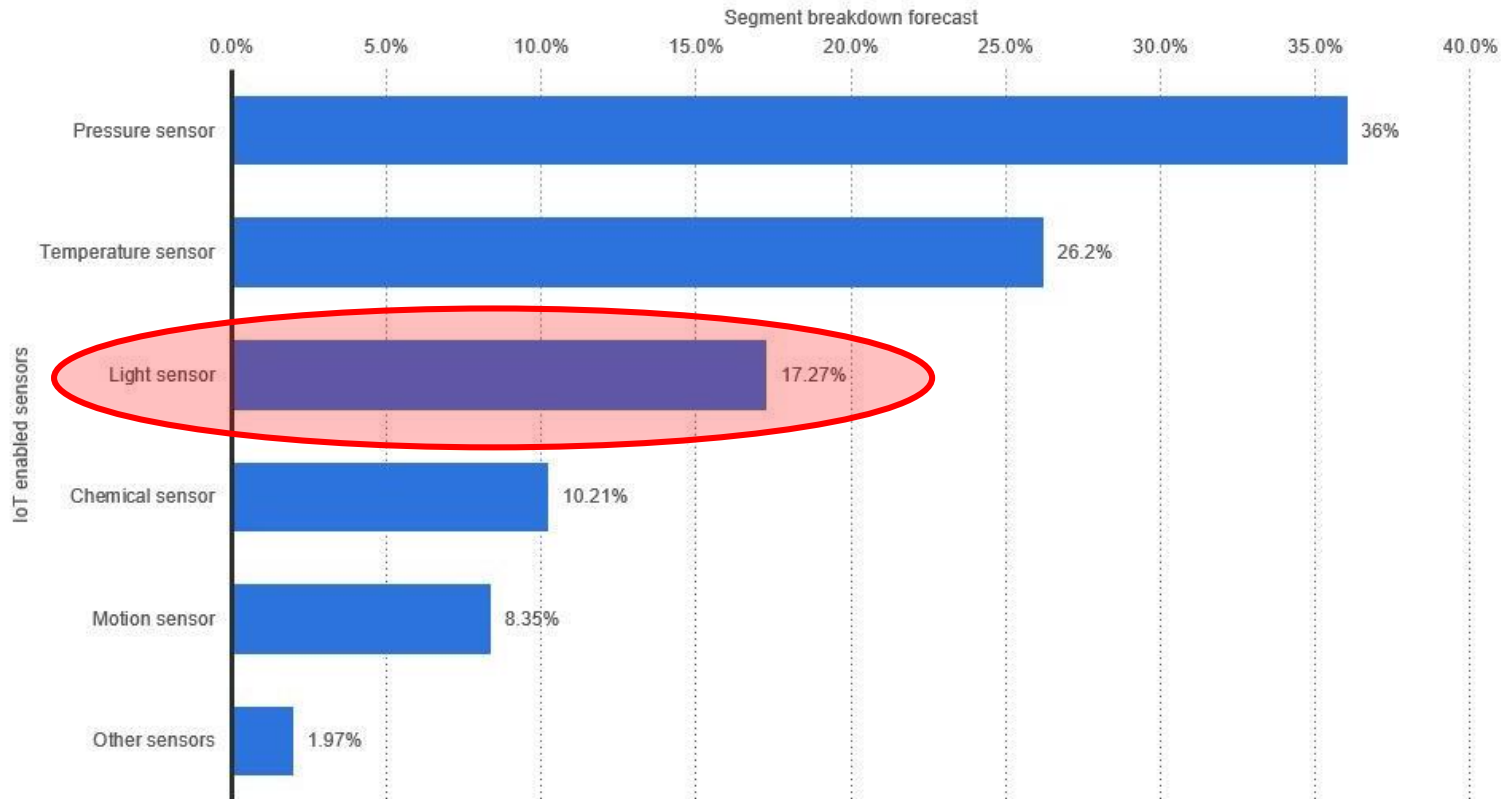
- A cumulative total of US\$6 trillion will be spent on IoT solutions between 2015 and 2020.
- IoT investments by businesses will grow from US\$215 billion in 2015 to US\$832 billion in 2020, while consumer spending on IoT solutions will rise from U\$72 billion to US\$236 billion.
- According to IDC, the IoT marketplace will be worth US\$1.7 trillion in 2020, with the biggest portion being hardware, followed by services, connectivity and software.



Sources: “IDC’s Worldwide Internet of Things Taxonomy, 2015,” IDC, May 2015; “Worldwide Internet of Things Forecast, 2015 – 2020,” IDC, May 2015.



... Where Photonics Plays a Role (Which Could Be Much Increased)

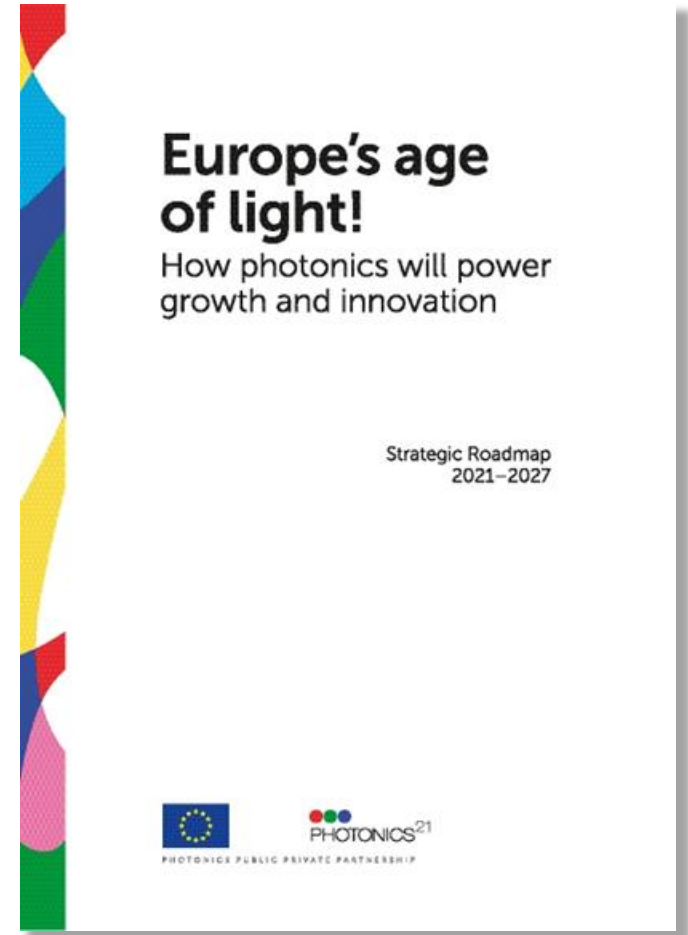


IoT enabled sensors – Segment breakdown forecast for 2022 (Statista 2017)



If Photonics succeeds in the IoT market, it will succeed everywhere !

1. Systems, not components
2. Miniaturization
3. Cost-effectiveness
4. Platforms, not individual solutions
5. AI-empowerment
6. Multi-analytes
7. Maintenance-free
8. Robustness
9. Low Power
10. Eco-Friendliness
11. Focus on high-growth/high-value markets



Main WG5 Proposals for Operable Call Topics

- 1. Photonics-enabled IoT systems for Personalized Medicine and Environmental Monitoring**
- 2. High-speed hyperspectral VIS/NIR/MIR imaging for security and industrial applications**
- 3. High-performance room-temperature NIR/MIR/FIR sensing solutions**

