

# **The European Technology Platform**

## **Photonics21**

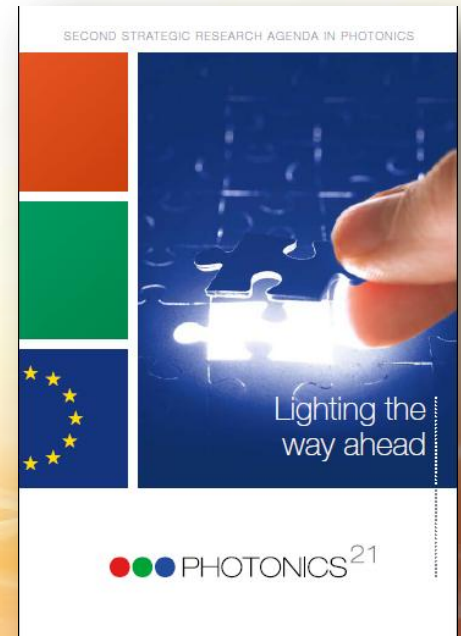
### **A Brief Portrait**

# Photonics – The Science and Technology of Harnessing Light

***“Photonics is the science and technology of the harnessing of light.***

***Photonics encompasses the generation of light, the detection of light, the management of light through guidance, manipulation and amplification, and most importantly its utilisation for the benefit of mankind .***

***Photonics bears the same relationship to light and photons as electronics does to electricity and electrons.”*** (SRA 2010)



*The Second Strategic Research Agenda in Photonics (SRA) “Lighting the way ahead” was published by photonics21 in 2010*

## About Photonics21: Unifying the Community

*Situation in 2005, before Photonics21 was established:*

- *European photonics community was not existing*
- *Photonics was not perceived as a strategically relevant technology by the European Commission or member state governments*
- The European Technology Platform **Photonics21** was founded in 2005 to unite the European photonics community and to speak with a single voice.
- Photonics21 is built on personal membership and is free of charge.
- Photonics21 unites the European photonics industry and research institutions.



**Inform ♦ Network ♦ Meet ♦ Join**

# Photonics – A Key Enabling Technology of Europe with enormous economic potential

## Economic Potential of Photonics:

- Photonics global market estimated to be € 300 billion, Europe has an overall share of 20%
- Photonics companies employ 290000 people in Europe, sector is largely based on SME
- A EU commissioned study “The Leverage Effect of Photonics Technologies” estimates, that photonics positively impacts 10 % of the European economy
- Photonics contributes to the solution of many societal challenges like ageing society, energy efficiency, knowledge society

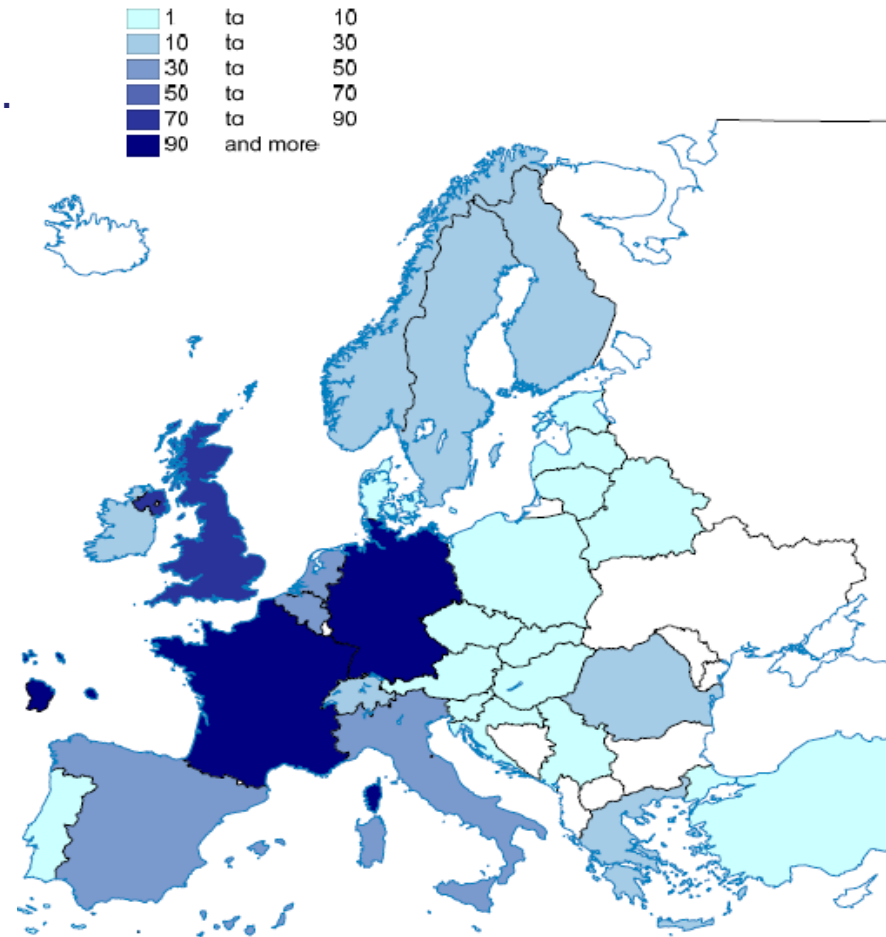


*In 2009 Photonics was recognized as a Key Enabling Technologies of Europe and is part of the European Commission's KET initiative*

## Our Members - Representatives from Industry, Academia and Politics

**Photonics21 members represent leading photonics stakeholders along the whole economic value chain throughout Europe.**

- Over 1800 members from all the EU countries
- Broad, representative membership composition
  - University-science-industry-associations
  - Multiple markets (telecommunication, lighting, manufacturing, health)
  - Throughout the value-chain (components-systems)
  - Most main industrial companies



## The Photonics21 Executive Board

**President:**

Martin Goetzeler, COO Osram

**Vice Presidents:**

Bernd Schulte, COO Aixtron

Malgorzata Kujawinska, Warsaw University of Technology

Giorgio Anania, Chairman Cube Optics

Work Group Chairs:

Information  
and  
Communication

Alfredo Viglienzoni,  
Head Strategic  
Programs Ericsson

Industrial  
Production/  
Manufacturing &  
Quality

Eckhard Meiners,  
CEO Trumpf Laser  
Marking Systems

Life  
Science &  
Health

Ulrich Simon,  
CEO & President Carl  
Zeiss MicroImaging

Lighting &  
Displays

Klaas Vegter,  
CTO Philips Lighting

Security,  
Metrology  
& Sensors

Jean-Francois Coutris,  
Vice President SAGEM  
DS

Design &  
Manufacturing  
of Components &  
Systems

Mike Wale,  
Director Active Products  
Research Oclaro

Photonics  
Research,  
Education &  
Training

Roberta Ramponi,  
Professor  
Politecnico di Milano

## Our Core – The Photonics21 Work Groups & Workshops

### Our target:

- Discuss & agree about photonics research and innovation topics and priorities as well as on political recommendations
- Provide input to the European Commission's Framework Programme & the different work programmes by updating the Photonics21 Strategic Research & Innovation Agenda and the Vision Papers
- Provide networking opportunities for the European photonics community

### Our set up

The 7 Work Groups focus on photonics application areas (1-4) & on cross-sectoral issues (5-7):

- ▶ Work Group 1: Information & Communication
- ▶ Work Group 2: Industrial Manufacturing & Quality
- ▶ Work Group 3: Life Science & Health
- ▶ Work Group 4: Emerging Lighting, Electronics & Displays
- ▶ Work Group 5: Security, Metrology and Sensors
- ▶ Work Group 6: Design & Manufacturing of Components & Systems
- ▶ Work Group 7: Photonics Research, Education & Training



## Photonics21 Annual Meeting: Join, Meet, Inform, Network



*Pictures: Impressions from Photonics Annual Meeting 2011 in Brussels and the hand-over the Brochure "Photonics – Our Visions for a Key Enabling Technology of Europe" to European Commission Vice President Neelie Kroes*

# Photonics21 – 1800 Members representing a Key Enabling Technology

April 2006



First European Strategic Research Agenda published and handed over to Commissioner Viviane Reding



FP7 funding: 50% growth for photonics research compared to FP6

Establishment of a Photonics Unit within the European Commission



Political Mirror Group agreed on a joint European call on Broadband Access (EUR 30 m)



Economic impact report *Photonics in Europe* published

January 2010



Photonics21 Strategic Research Agenda 2010 *Lighting the way ahead* published

EC identifies photonics as a **Key Enabling Technology** for Europe

Foundation of Photonics21

Photonics21 “research priorities” as input into European Commission FP7

2005

2006

2007

2008

2009

2010

# Photonics21 – Our Way Forward towards “Horizon 2020”

February 2011



*Photonics – Our Vision for a Key Enabling Technology of Europe* was handed over to Commissioner Neelie Kroes at the Annual Meeting 2011. Invitation of Commissioner Kroes to present a proposal for a PPP for Photonics

May 2011



Published the economic study *“The Leverage Effect of Photonics Technologies: The European Perspective*

June 2011



Publication of the *Final report of the High Level Expert Group on Key Enabling Technologies*

September 2011



Parliamentarian luncheon event: Proposal of a Photonics Public Private Partnership & industry commitment to more than 5 billion € investment in Europe

Preparation of a Photonics PPP in the upcoming Framework Programme *Horizon 2020*

## Recommendations towards Horizon 2020: Addressing the full value chain

### Analysis of current weaknesses in the European innovation system:

- make the transition from successful science to industrial deployment, thereby also meeting the goals of the grand societal challenges.
- bridging this gap must be a key element of Horizon2020

### Recommendations:

Value chain based approach linking R&D, market access and deployment are needed:

#### 1. Research

- research on integrated market oriented solutions, rather than of isolated components

#### 2. Demonstration and manufacturing

- set up specific demonstration actions - provide first mover advantage to European industry
- use existing manufacturing excellence in research institutes for supporting innovative SME
- public-private pilot production facilities where industry and science jointly develop innovations

#### 3. Support for SMEs

- create fast track funding vehicle for photonics SME: more market oriented rules

**Pool resources: establish a closer and more effective partnership of the public and private arenas for economic and societal benefits**

## Towards a Photonics PPP – Starting Points and Expectations

### Where we come from:

- PPP initiated from existing ETP photonics21
- PPP builds on long-year's relationship and trust between Photonics Community and European Commission

### Our objectives for a PPP

- Foster photonics manufacturing, job and wealth creation in Europe through a long term investment commitment by both, industry and the European Commission by
- Accelerate European's innovation process and time to market by addressing the full innovation chain
- Provide more effectively successful solutions for major societal challenges facing Europe by pooling public and private resources

### Our commitment

- Investing in Europe's long-term competitiveness and growth
  - 4 fold leverage of investment in Europe - ~ 7 bio. Euros
  - 70,000 – 100,000 additional (direct) jobs in Europe

## Societal Challenges - Triple Win with Green Photonics

### Ecology

#### Less CO<sub>2</sub> emissions:

- LED/OLED can save an additional 30% energy in lighting by 2030
- Limit growth of energy consumption of ICT
- Sensors will enable reduction of power consumption during production and increase environmental safety



### Economy

#### Additional growth:

- Disruptive photonic technologies as key driver for profitable growth
- Save hundreds of billion Euros on global energy bill
- New market segments
- Driving force for more jobs
- Laser enable profitable production



### Society

#### Lower cost & higher quality of life:

- Energy saving saves money
- Sensor networks for safety
- Green technology & emotion
- More comfort
- Faster communication
- Higher safety (automobiles)
- No hazardous materials



## Seeking Innovations – The Photonics21 Student Innovation Award

### Our Targets

- Honor excellent photonics research with a high industrial impact
- Promote photonics training & education within Europe
- Motivate and engage young people for photonics
- Draw attention from industry to young talents

▶ The next Student Innovation Award will be handed over in the Frame of the Photonics21 Annual Meeting 2012



The third Photonics21 Student Innovation Award was handed over during the EOS & Photonics21 Student Reception at the World of Photonics Congress in Munich.

The winners:in 2011:

- Oriol Bertran Pardo from the Alcatel-Lucent Bell Labs for his research work “Study of disruptive solutions for the next generation of high bit-rate optical communications systems”
- Dhriti Sundar Ghosh from ICFO for his research work “Photonic devices incorporating transparent electrodes made of ultra-thin metal films”.



## Your contact

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