Horizon2020 Photonics Public Private Partnership

Open Innovation Model to accelerate “lab to fab” transfer

BOOSTING KNOWLEDGE TRANSFER BETWEEN SCIENCE AND INDUSTRY: NEW MODELS AND BUSINESS PRACTICES

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What is Photonics?

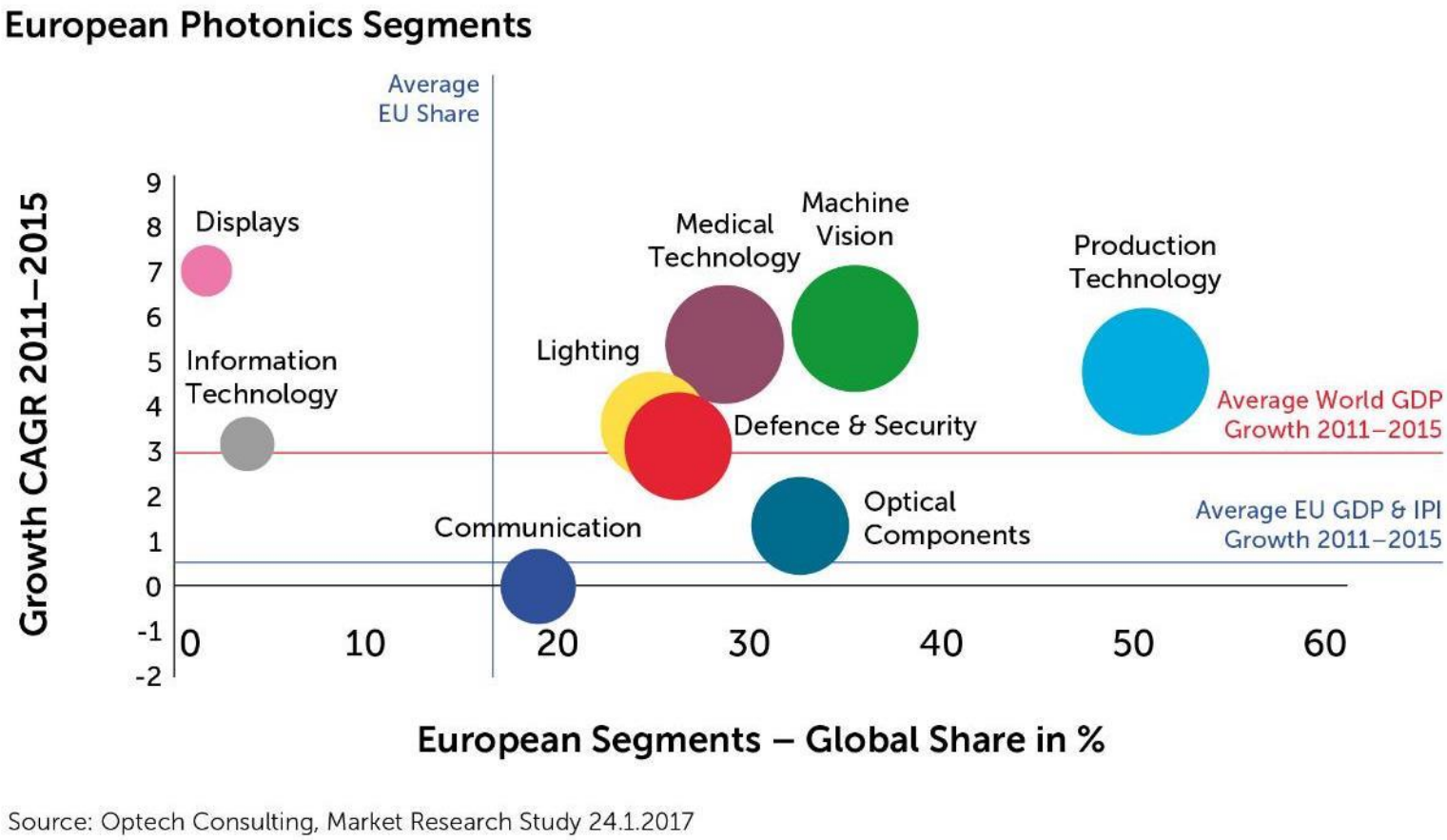
Photonics is the physical science of light (photon) generation, detection, and manipulation through emission, transmission, modulation, signal processing, switching, amplification, and detection/sensing.

- *Identified as one out of six Key Enabling Technologies for Europe (European Commission)*

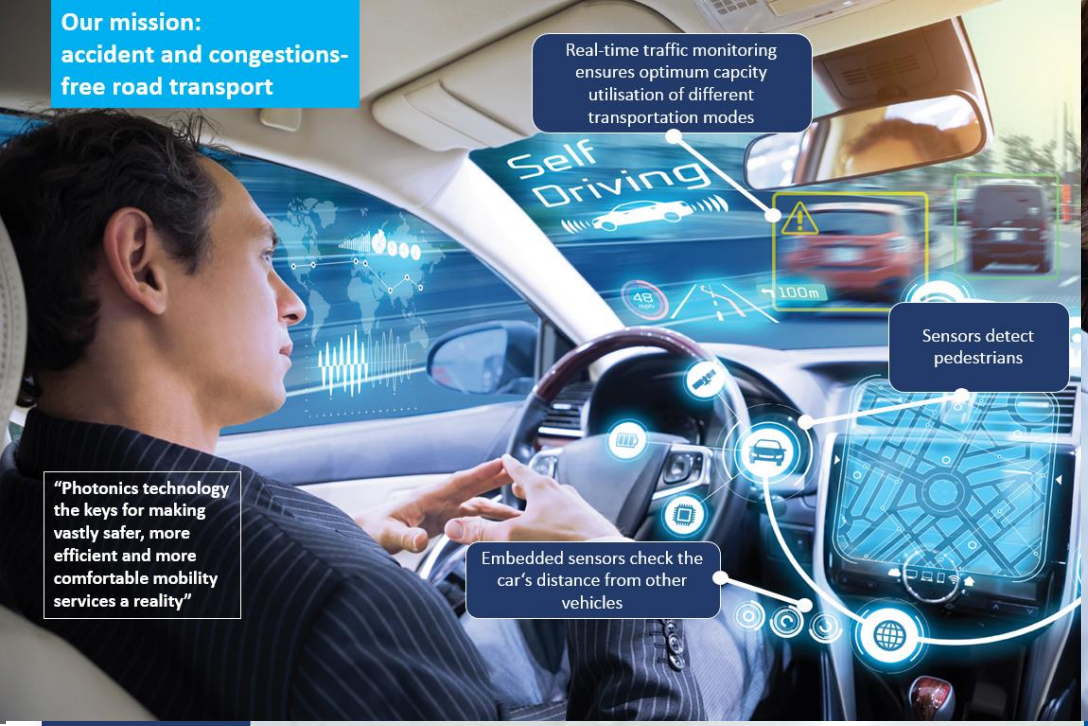
European Photonics – World Market Leader in Core Segments

European Photonics industry was able to outgrow European and also global GDP

Europe#2 in the world; world market: €450 bln (2015)

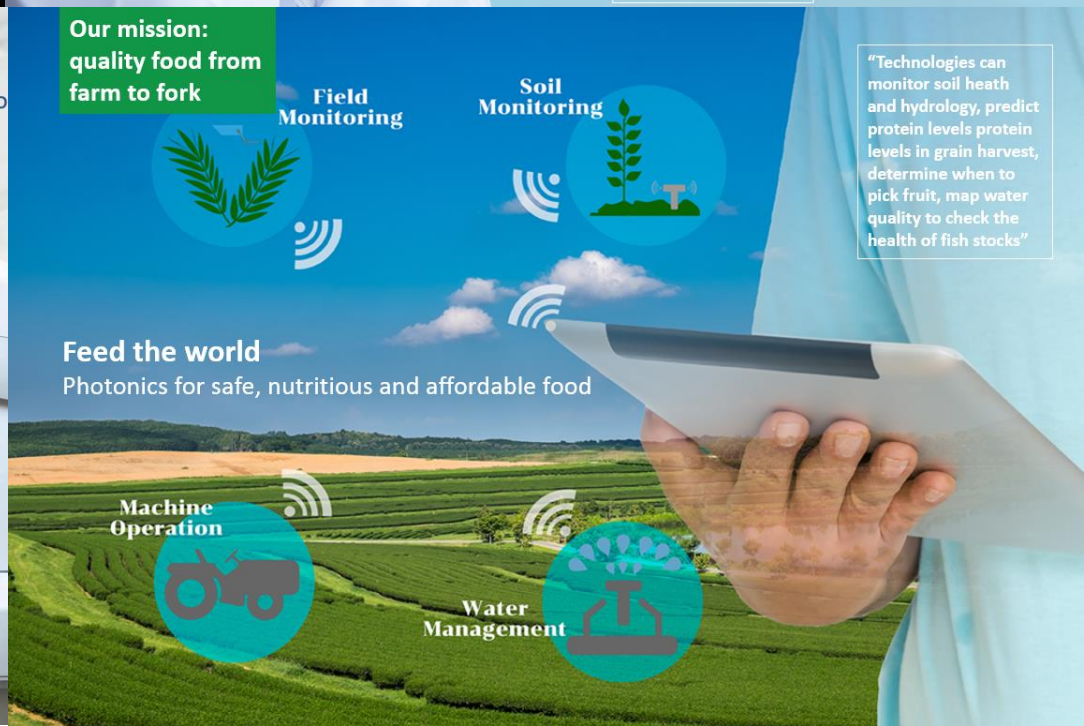


Source: Optech Consulting, Market Research Study 24.1.2017


Our mission:
accident and congestions-free road transport
Real-time traffic monitoring ensures optimum capcity utilisation of different transportation modes
Self Driving
Sensors detect pedestrians
"Photonics technology the keys for making vastly safer, more efficient and more comfortable mobility services a reality"
Embedded sensors check the car's distance from other vehicles


Our mission:
instant diagnosis of major diseases
Live Longer – Feel better
Photonics in life science and healthcare
Point of care optical diagnostics allows medical diagnostics on the spot
Non-invasive by nature
Already, 80% of medical diagnostics is based on photonics
Already, photonics plays a crucial role in the diagnosis or treatment of virtually every major disease"


Our mission:
a million new jobs
Empowering Industry 4.0
Photonics for in manufacturing and productio
Advanced optical sensors, 3D machine visions and 3D imaging enable high-precision and interruption free production
Laser-based additive manufacturing pave the way to on-demand manufacturing
ABB
"Manufacturing is undergoing a photonics revolution, with earlier generations of factory machinery increasingly giving way to lasers and sensors, usually in conjunction with robots"
EUV lithography systems allow generating nano-sized structures for smaller and faster microprocessors


Our mission:
quality food from farm to fork
Field Monitoring
Soil Monitoring
"Technologies can monitor soil heath and hydrology, predict protein levels protein levels in grain harvest, determine when to pick fruit, map water quality to check the health of fish stocks"
Feed the world
Photonics for safe, nutritious and affordable food
Machine Operation
Water Management

Why Public Private Partnerships in Horizon2020?

Observation of the EU: 3.8 million jobs lost in manufacturing in Europe

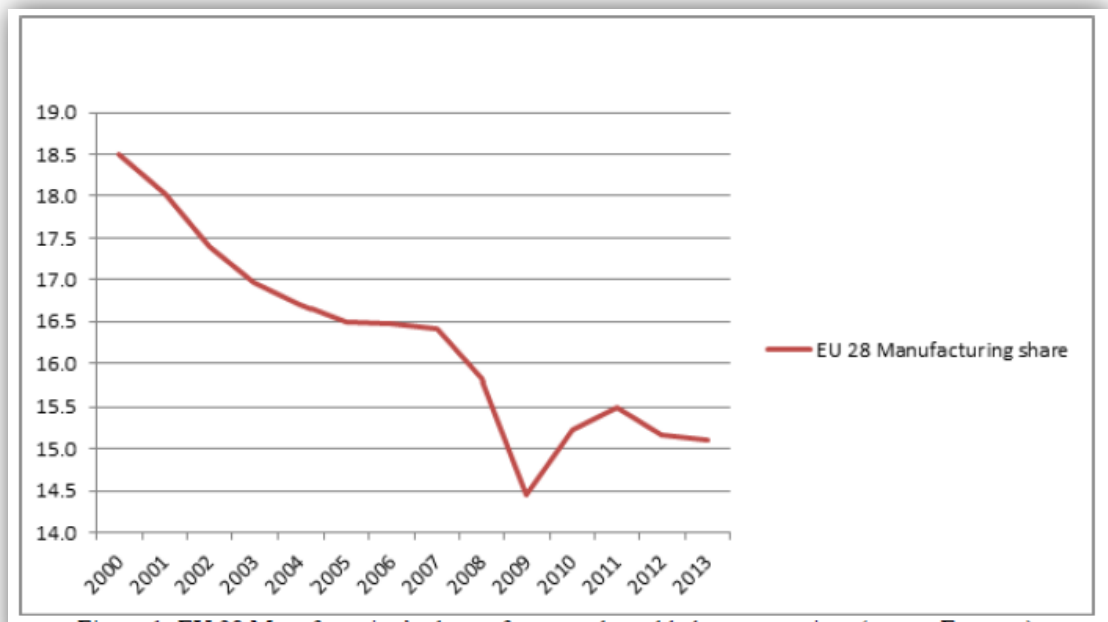
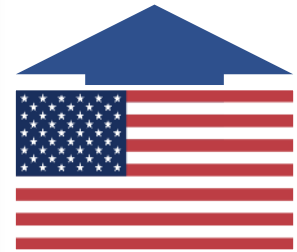


Figure 1: EU 28 Manufacturing's share of gross value added, current prices (source Eurostat)

COMMISSION STAFF WORKING DOCUMENT 'Advancing Manufacturing - Advancing Europe' – Report of the Task Force on Advanced Manufacturing for Clean Production; 2014

Competing economies leap-frogging up global manufacturer's ranking supported by political leadership



About 600,000 jobs
added to US manufacturing over the past five years

22% of market share
China is now the world's largest factory for advanced products, ahead of US and EU

Source: Report High Level Group on Key Enabling Technologies (KET)

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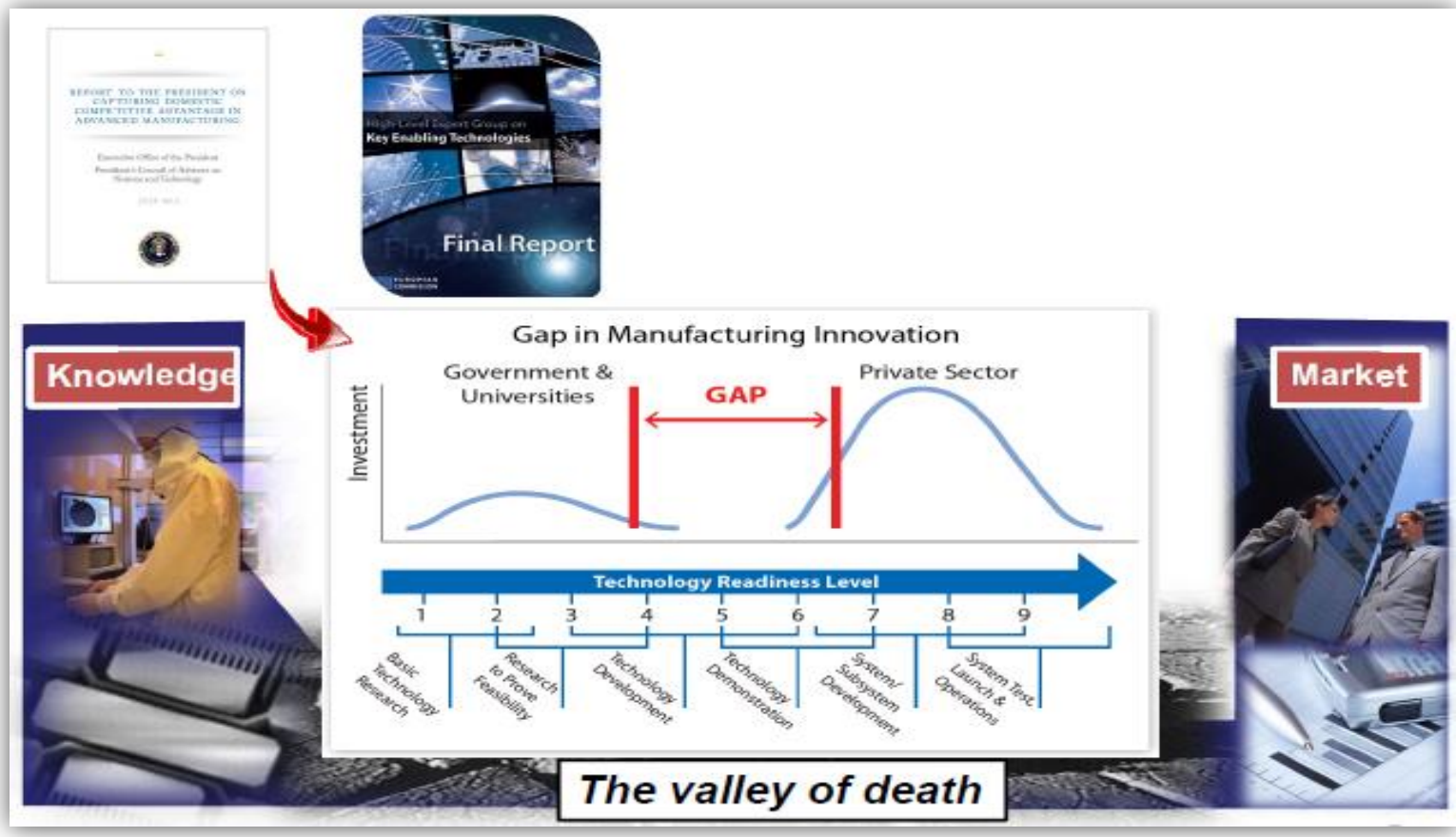
Why Public Private Partnerships in Horizon2020?

Speed up Process from Lab to Fab



Source: High Level Group on KETs – final meeting (24/06/2014)

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New Partnership Model needed

How we Operate

Align public and private investments in commonly agreed Research and Innovation priorities

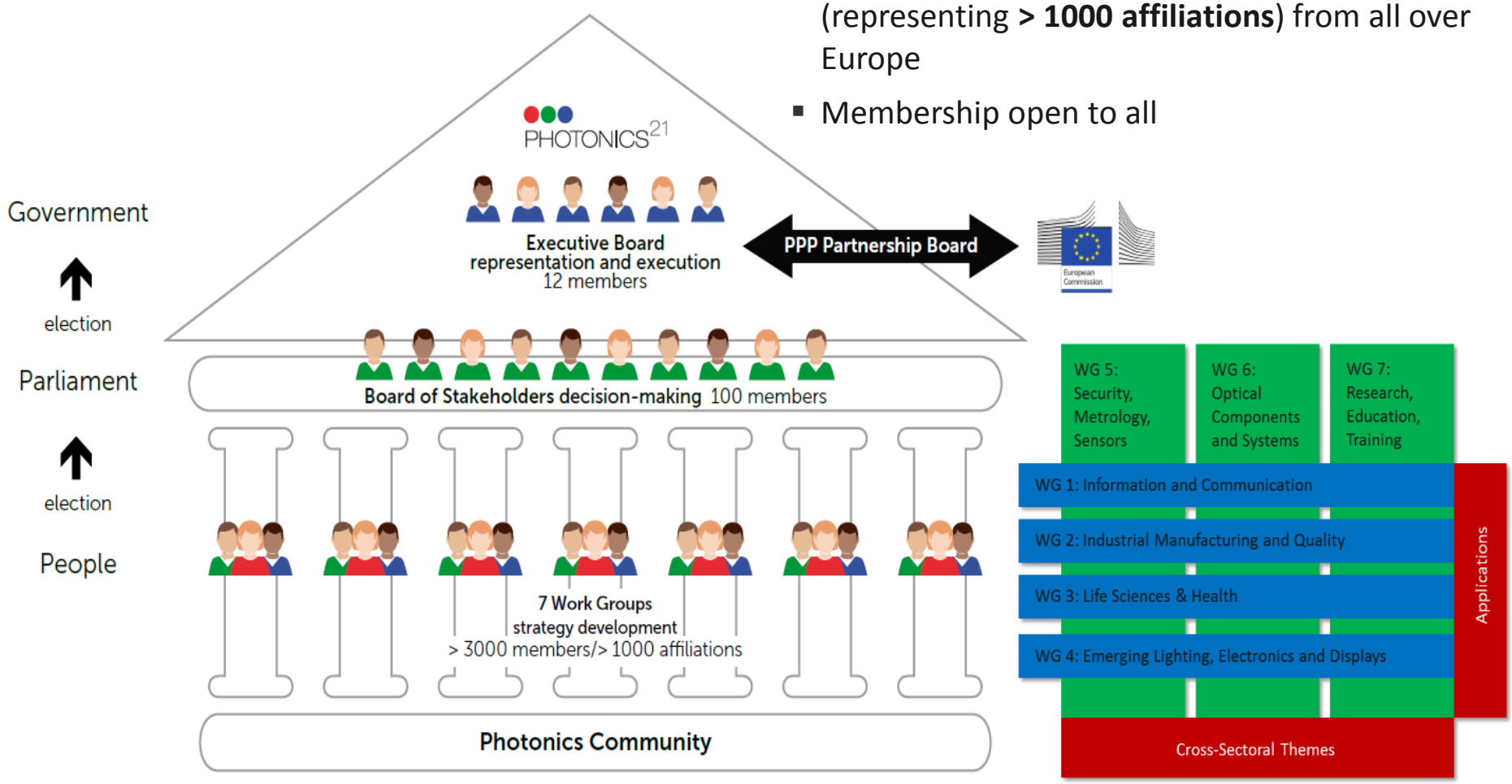
Open Innovation Platform: Transparent governance - democratic decision making structures

Membership free to all

A broad Photonics21 community drives the Photonics PPP

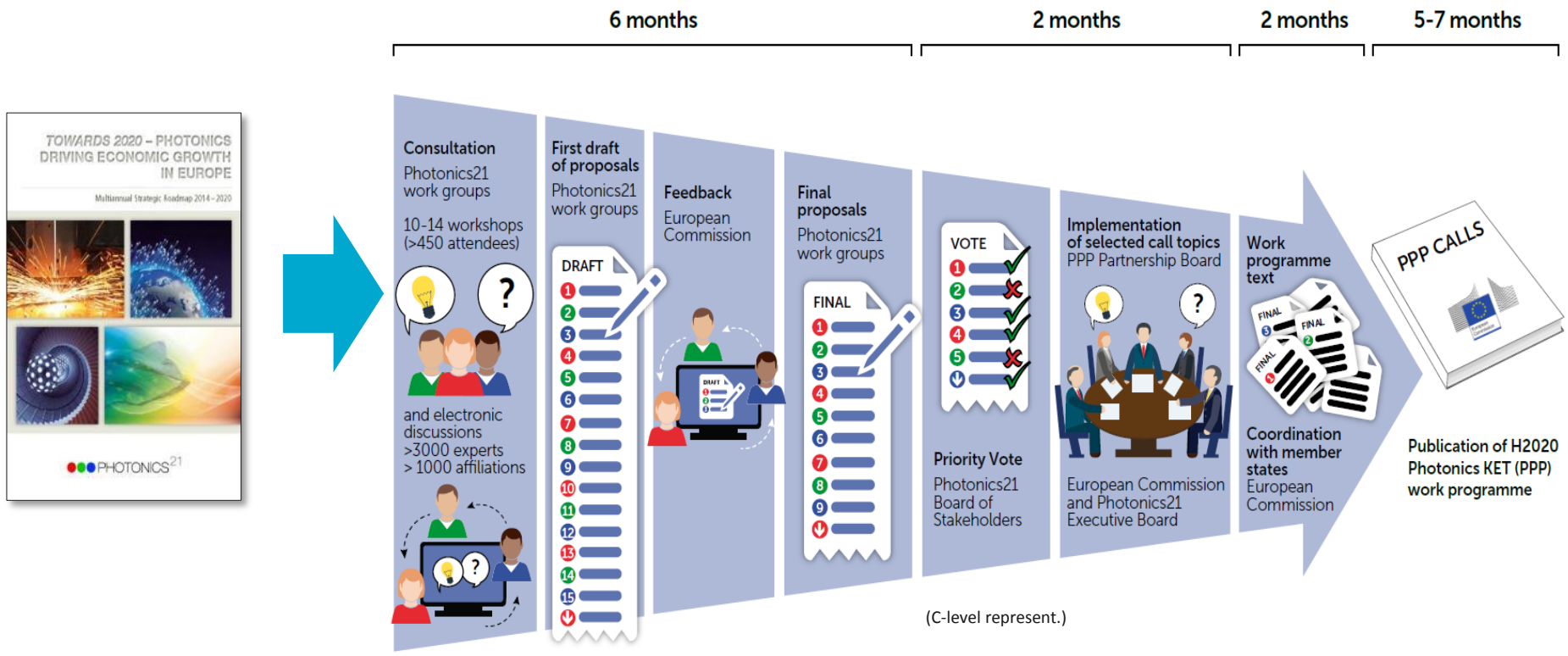
Fully democratic Structure & Decision Making

- Photonics21: More than **3300 members** (representing **> 1000 affiliations**) from all over Europe
- Membership open to all



Photonics PPP: Open and Transparent Decision Process

Horizon2020 Work Programme Priorities derived from the commonly agreed Photonics21 Multiannual Roadmap and the Workgroup Input on KET Calls



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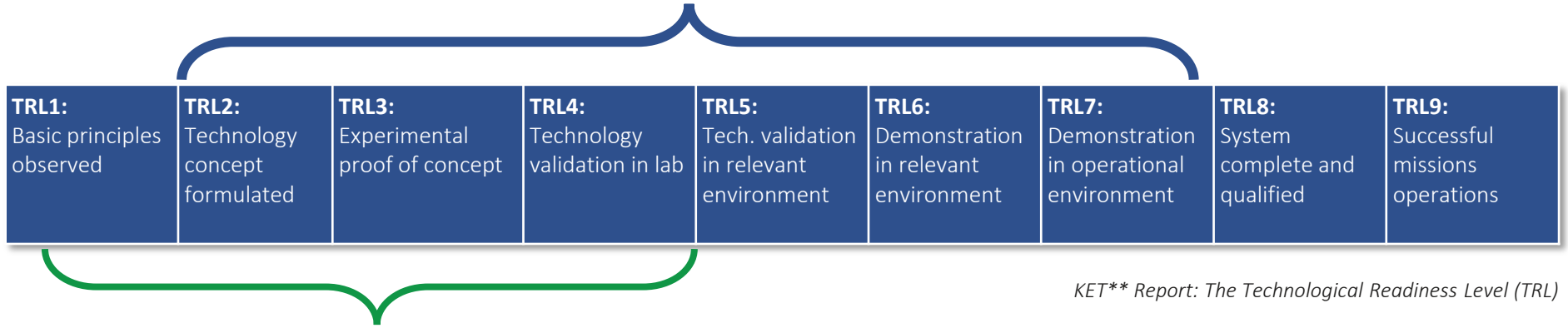
Why a PPP in Photonics?
Speed up Process from Lab to Fab

Focus of Photonics PPP Projects



*KET** Report: The Technological Readiness Level (TRL)*

FP7 funding – far from market

Challenge: Activities closer to the market are often 10 times more expensive

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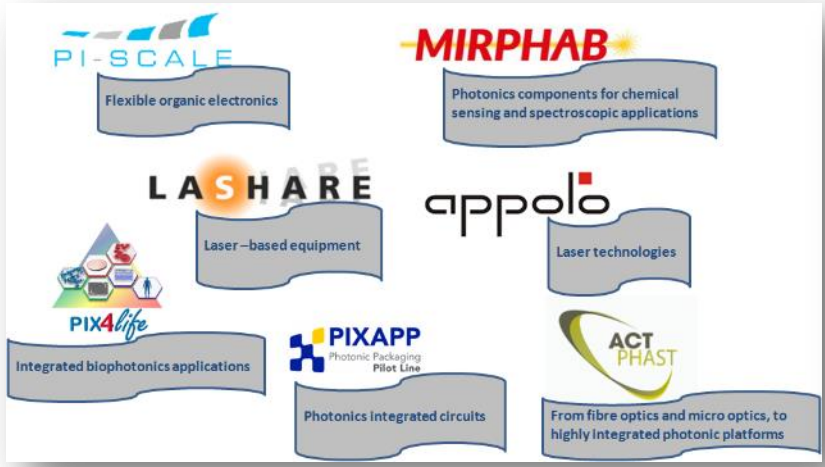
Photonics PPP - Bridging the Valley of Death with Innovation Actions

Close Cooperation with Pilot Lines and other CSA Projects supporting Jobs and Growth



Bridging the gap between Lab and Fab:

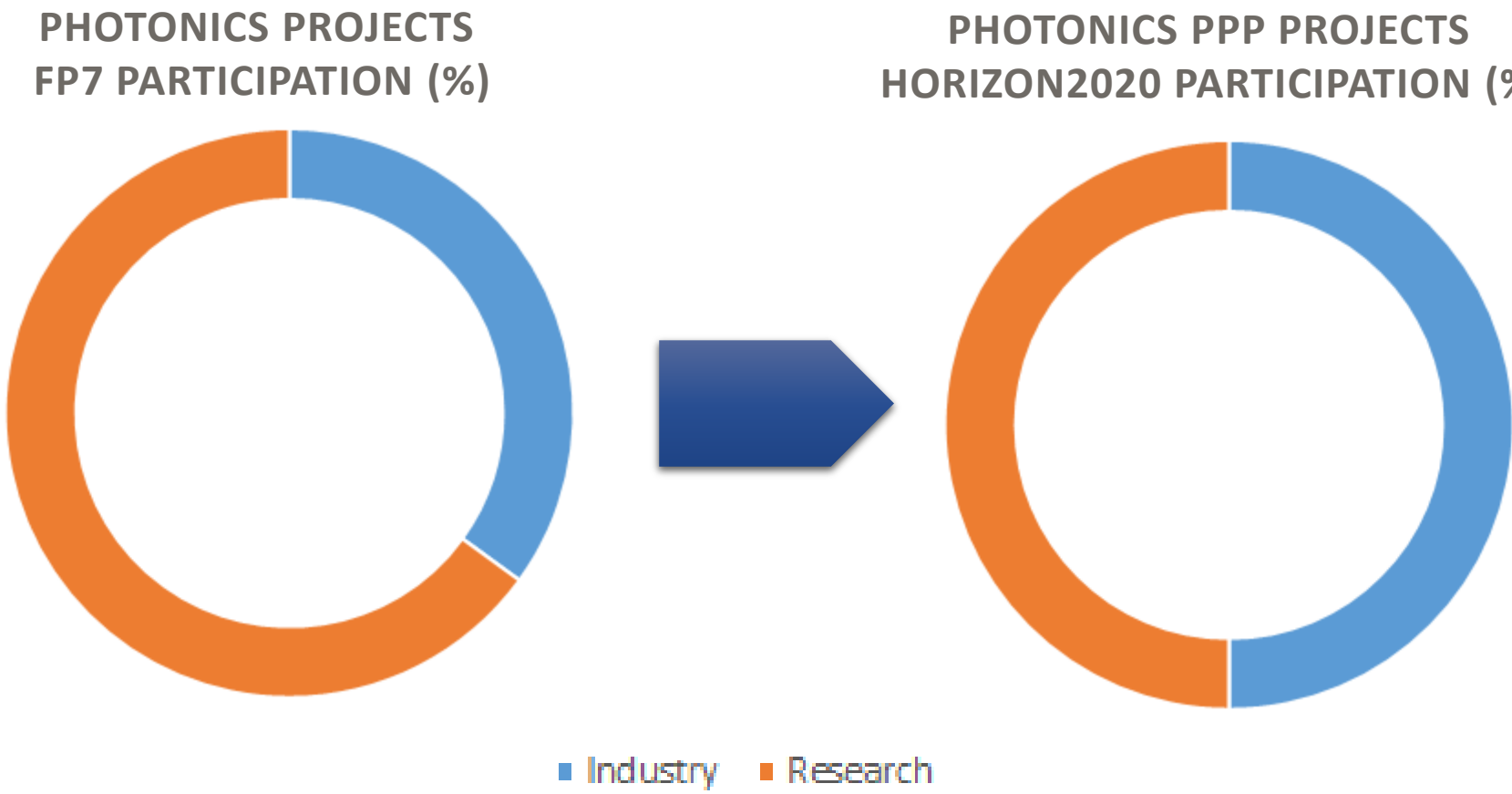
4 PPP Pilot Lines and 3 PPP Prototyping Services help SMEs to speed up

Promoting Education, Training & Skills

9 PPP Projects contribute to promote Education, Training & Skills in Photonics & raise awareness about the potential of Photonics

Photonics PPP Projects in Horizon 2020 – Project partners

Significant higher industry involvement than in former funding frameworks



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Photonics PPP projects and activities in the Press

731 Articles published - 86 millions readers

THE TIMES

Mamma mia! Italian pan that cleans itself

Italian scientists have invented a self-cleaning, antibacterial metal surface that repels water with an intricate criss-cross of laser-engraved valleys
GETTY IMAGES

Few tasks in life hold less joy than scrubbing the ghost of somebody else's porridge from a saucepan.

The drudgery may not be around much longer, however, if a team of European scientists has anything to do with it. Engineers on the EU-wide TresClean project have invented a self-cleaning, antibacterial metal surface that repels water with an intricate criss-cross of laser-engraved valleys.

YAHOO! NEWS

Fire the 'laser!' High-tech sorting machine helps weed out toxic potatoes

Dyllan Furness
Digital Trends 3 May 2017

laser french fries toxin detection

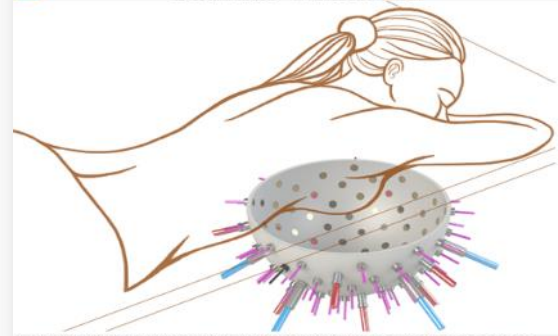
There's nothing quite like a side of fries with a burger. They go together like peanut butter and jelly. Or like Bonnie and Clyde. In fact, recent research has shown that, much like the infamous outlaws, some french fries can be deadly — because they can contain carcinogens.

FOX NEWS Tech

TECH

Lasers and ultrasound may allow 'while-you-wait' breast cancer diagnosis

DIGITAL TRENDS By Dyllan Furness • Published June 21, 2017



A device being developed by European scientists may help make breast cancer tests easier and less painful. Its called the PAMMOTH (or, photoacoustic ultrasound mammoscopy for evaluating screening-detected abnormalities in the breast, if you have time to say it) and combines light and sound sensors to offer a 3D image of the suspected tumor. The goal is to create a while-you-wait test that minimizes discomfort and uncertainty of cancer diagnosis.

Further information

Thank you for your attention!

- For any further information you can contact Photonics21: secretariat@photonics21.org
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