

Photonics 4

Optical Fiber  
Applications

Zaragoza | 3 July 2019

Workshop organised by



# Financiación en fotónica: cPPPs y Horizon Europe

Santiago Royo

Photonics 21 Member of BoS

Fotónica 21, Secretaría Técnica



# Photonics21

# Photonics PPP – in a Nutshell

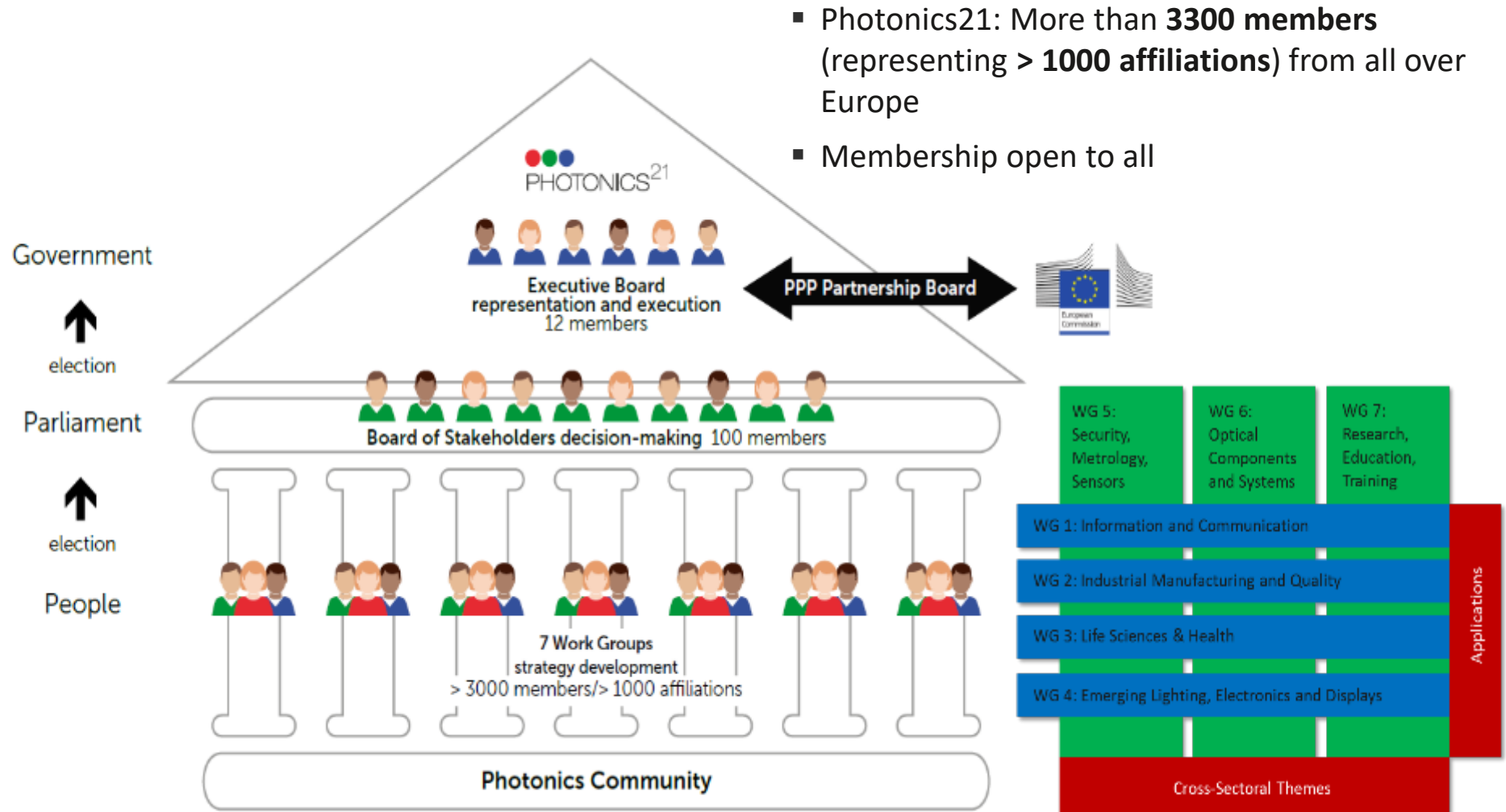
Four years of successful Public Private Partnership – well committed to continue the successes of the past towards the next decade

- **Photonics21**
  - Open Industry Driven Innovation Platform with > 3300 members and a transparent governance structure
- **Horizon2020 Photonics Private Public Partnership**
  - Well on track - “Best in Class cPPP” valuation by independent expert group
  - € 345 mio. invested by European Commission through H2020
  - Prototyping and Pilot Line Services for SMEs established
  - Photonics-related R&I projects cover all application markets of high relevance for tomorrow’s society and economy
- **Photonics a Key Enabling Technology with huge Innovation Potential**
  - Key enabler and driving force for many future megamarkets
  - EU Photonics Industry – growing faster than GDP
  - Globally # 2 Market Position - 42.000 new jobs by end of Horizon 2020
  - Investment in R&I in Europe by industry : € 6.5 billion per annum



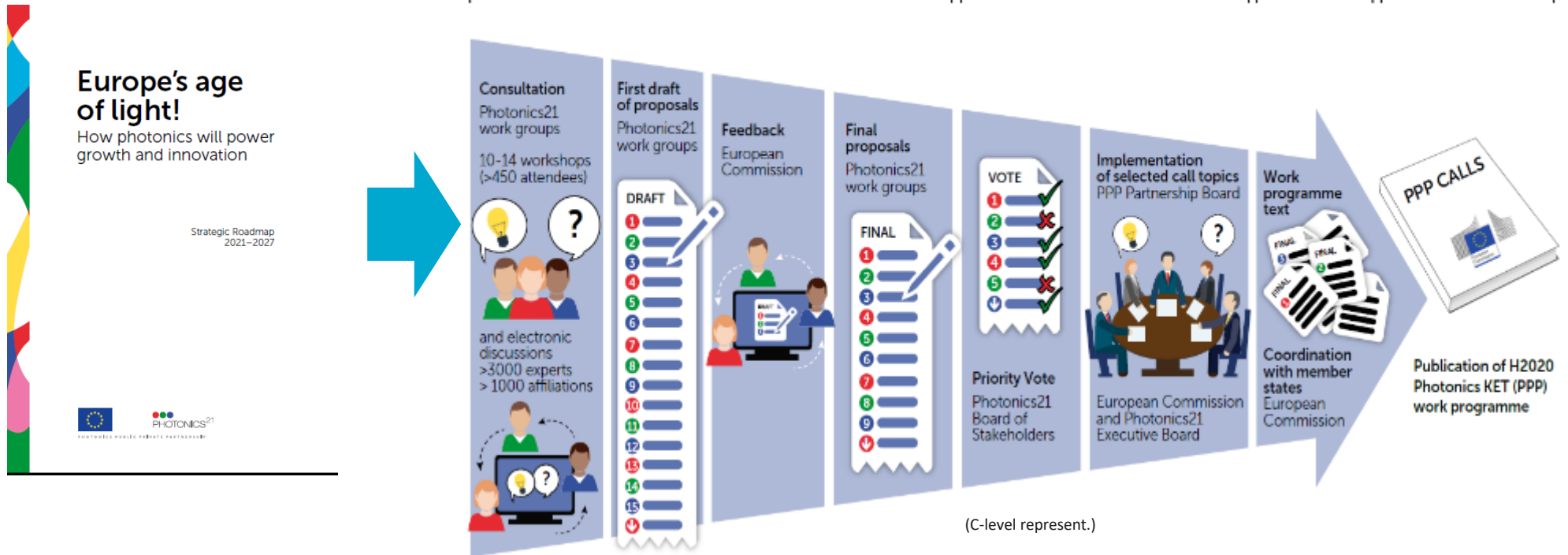
# A broad Photonics21 community drives the Photonics PPP

Fully democratic Structure & Decision Making



# 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



# Final H2020 Photonics KET Calls

## ICT-05-2019 Application driven photonics components and Photonics Manufacturing Pilot Lines

### a) Innovation Actions

- Photonics devices for advanced imaging to support diagnostics driven therapy
- Sensor-Based optimization of Production Processes
- Maturing a technology platform and providing low entry barrier access for industry in particular SMEs, low and medium production volumes
  - Free-form optics
  - Advanced optical medical device technologies for both in-vivo and in-vitro diagnosis

### b) Research and Innovation Actions

- Photonics system on Chip/ System in Package for optical interconnect applications
- Photonics devices for advanced imaging to support diagnostics driven therapy
- Flexible Farm-to-Fork Sensing Photonics

### c) Coordination and Support Actions

- Fostering Careers in Photonics

## ICT-06-2020 Disruptive photonics technologies

### a) Research and Innovation Actions

- 3D light field and holographic displays
- New concepts for assembly and packaging for photonics components
- Light to Fuel
- Next generation biophotonics methods and devices as research tools to understand the cellular origin of diseases



PHOTONICS PUBLIC PRIVATE PARTNERSHIP



## ICT-07-2020 Advancing photonics technologies and application driven photonics components

### a) Innovation Actions

- Hyperspectral VIS-NMIR Sensing and Deep Learning

### b) Research and Innovation Actions

- New Photonics Integrated Circuit Technology

### c) Coordination and Support Action

- Photonics21 strategy support

## DT-01-[2020]: I4MS (phase 4) – uptake of digital game changers and digital manufacturing platforms

### a) Innovation Actions

- IoT and cyber-physical systems contributing to the circular economy
- Human-robot cooperation
- Analytics, simulation and artificial intelligence
- Additive manufacturing
- Laser based equipment in advanced manufacturing
- Uptake of emerging platforms by SMEs and mid-caps

## DT-03-[2020]: Photonics Innovation Hubs

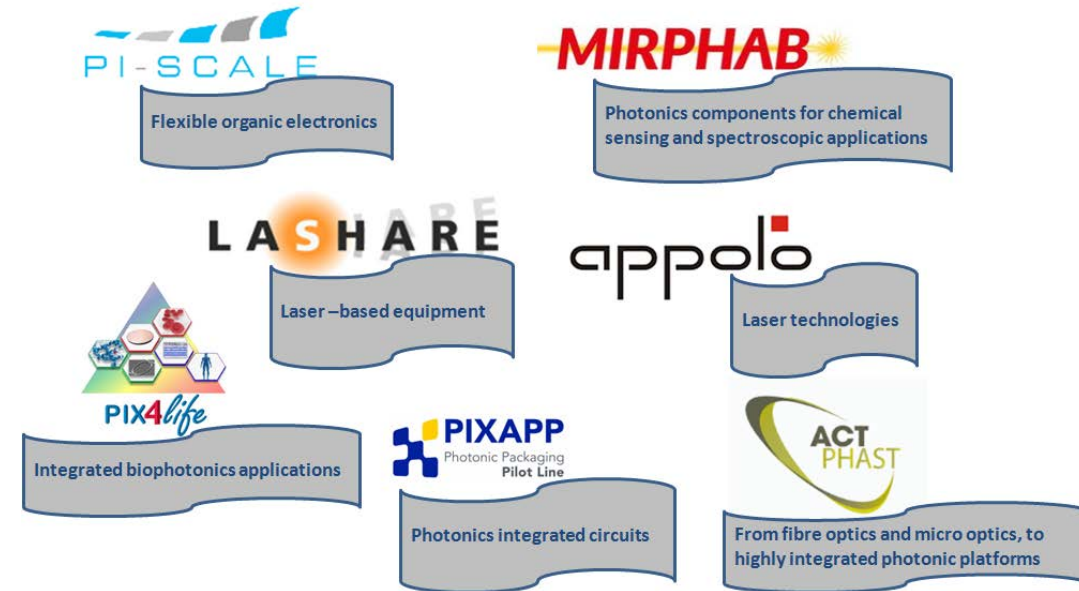
### b) Innovation Actions

- Open Access to Photonics Innovation Hubs

# Build a truly European lab-to-fab infrastructure for accelerating innovation and competitiveness

## Build a truly European lab-to-fab infrastructure for accelerating innovation and competitiveness

- Europe needs to speed up the uptake of technology and its translation into new products and services
- Europe is strong on mastering photonics technologies, so we need to continue building on this strength in order to create disruptive new products and market opportunities.
- The further buildout of prototyping services and manufacturing pilot lines will help SMEs across Europe to speed up their innovation processes, as would shared assets in research and manufacturing
- EU and national R&D programs should have a sharper focus on prototyping and market entry



*Bridging the gap between lab and fab: 4 PPP Pilot Lines and 3 PPP Prototyping Services help end user industry to speed up product development.*

*Source: VDI TZ*

# Pilot lines: prototyping

TRL1: Basic principles observed	TRL2: Technology concept formulated	TRL3: Experimental proof of concept	TRL4: Technology validation in lab	TRL5: Tech. validation in relevant environment	TRL6: Demonstration in relevant environment	TRL7: Demonstration in operational environment	TRL8: System complete and qualified	TRL9: Successful missions operation
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## ACTPHAST

### Pre-competitive innovation support

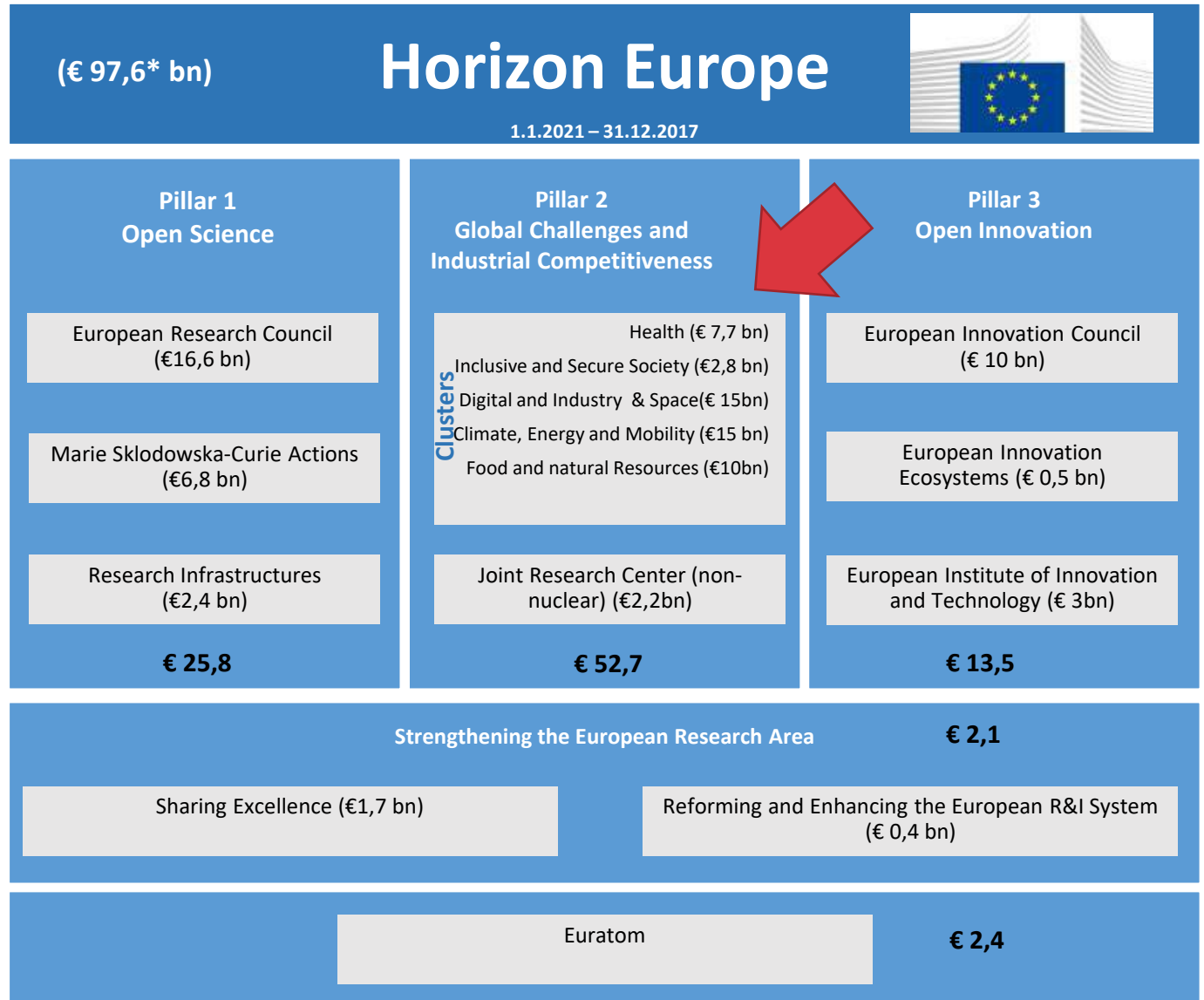


100% funding up to 25K€  
Up to 75% beyond 25K€  
(Almost) no paperwork



# La Fotónica en Horizon Europe

# Horizon Europe: Photonics was mentioned as a “Essential Digital Technology”



\*€ 94,1 bn Horizon Europe + € 3,5 bn InvestEU Funds)



# Horizon Europe – Photonics in CLUSTER 'DIGITAL, INDUSTRY AND SPACE'

## CLUSTER 'DIGITAL, INDUSTRY AND SPACE'

### 3.2.1. Manufacturing Technologies

### 3.2.2. Key Digital Technologies,

... digital technologies such as micro- and nano-electronics, **photonics**, software and systems, and their integration as well as advanced materials ...

### 3.2.3. Emerging Technologies

### 3.2.4. Advanced Materials

### 3.2.5. Artificial Intelligence and Robotics

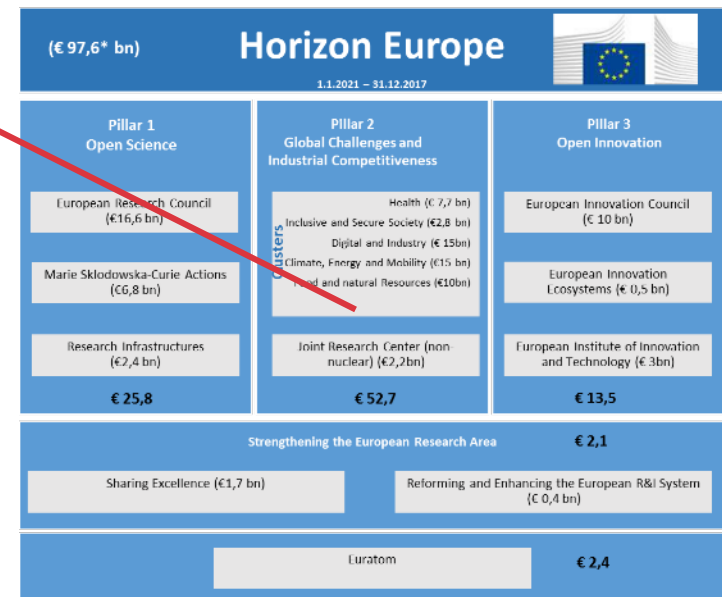
### 3.2.6. Next Generation Internet

### 3.2.7. Advanced Computing and Big Data

### 3.2.8. Circular Industries

### 3.2.9. Low-Carbon and Clean Industries

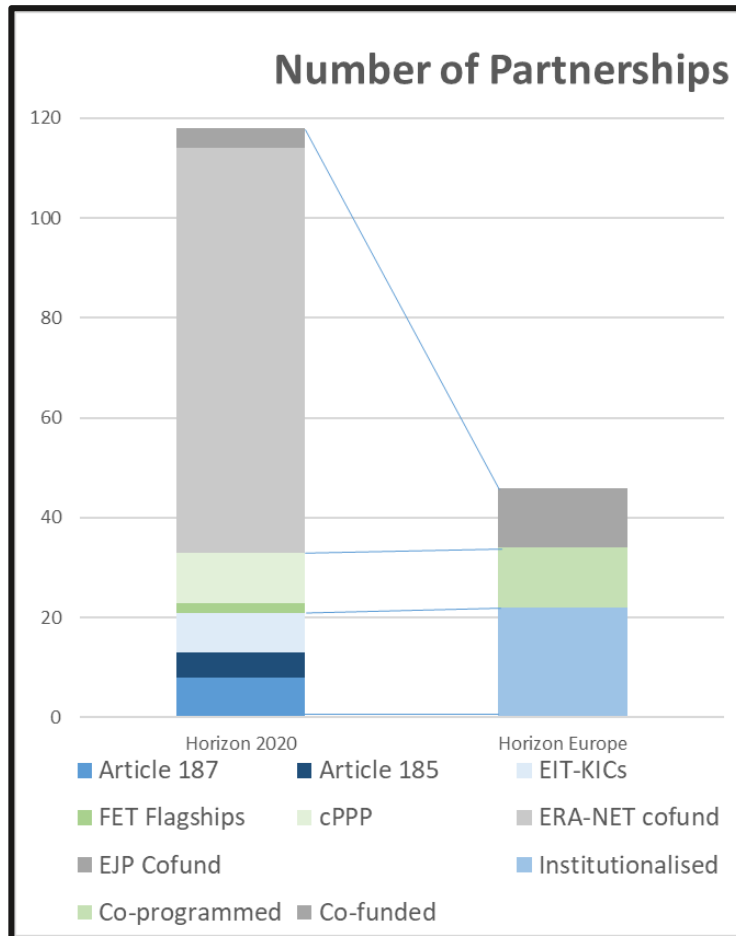
### 3.2.10. Space



\*€ 94,1 bn Horizon Europe + € 3,5 bn InvestEU Funds



# Being a KET and being a cPPP



**Goal for Horizon Europe:**  
*No more than 50% budget in cPPPs*

- Process of merge and suppression
- ERA-NET cofund essentially disappear
- Photonics to be fused with microelectronics in “next ECSEL” (October 2018)



# Advocacy towards the National Governments and the European Decision Makers: A Truly European Exercise of Photonics



**Baltic Photonics Cluster**

**Innovate UK**  
Knowledge Transfer Network



**...and many more**

# Horizon Europe Advocacy Activities – EPIC Positioning Paper representing about 600 Photonics Affiliations

EPIC Position Paper “Strengthening Photonics Industry Support Within the Future European Commission Multiannual Financial Framework (MFF) 2021-2027”

> 500 CEOs

> 100 RTO Directors



# May 2019: Photonics Europe included as independent cPPP in draft list

Only 44 cPPPs selected

Silicon Photonics still goes to ECSEL

<p><b>11. AI, data and robotics</b></p> <p>The partnership on AI will help structuring the European AI community, develop a strategic research agenda and federate efforts around a topic that holds great potential to benefit our society and economy</p>	Co-programmed	cPPPs on Big Data and robotics	Industry, academia, end-users, and civil society	Cl.3
<p><b>12. Photonics Europe</b></p> <p>Photonics is one of the key drivers for tomorrow's digital markets and the development of the digital European society as a whole. Photons will replace electrons in many of our most important technologies and digital products.</p>	Co-programmed	cPPP Photonics21	Industry	Cl.1,2,4,5,6
<p><b>13. Clean Steel - Low Carbon Steelmaking</b></p> <p>The partnership on clean steel will provide a EU critical mass to ensure and in particular to upscale breakthrough technology, facilitate joint vision development, agenda setting and synergies of EU different funds. It will also contribute to the evolution to a programming approach in R&amp;I in the energy intensive industry.</p>	Co-programmed	Fuel cell and Hydrogen (Article 187) cPPP Spire	Industry	Cl.4, 5
<p><b>14. European Metrology</b></p> <p>Accelerating the global lead in metrology research that Europe currently holds, and creating sustainable metrology networks for highly competitive and emerging metrology areas, while incorporating a wide range of stakeholders.</p>	Article 185 or co-funded	EMPIR (Article 185)	MS/AC (National Metrology Institutes)	Cl.1,2,4,5,6
<p><b>15. Made in Europe</b></p> <p>Towards a competitive discrete manufacturing industry with a world-leading reduction of the environmental footprint whilst guaranteeing the highest level of well-being for workers, consumers and society.</p>	Co-programmed	cPPPs Factories of the Future, part of Robotics and Photonics	Industry	Cl.1,5,6



# Junio 2019:

## Carta conjunta de posicionamiento ante el Gobierno de España

- Reafirmación de la posición española
- Carta conjunta entre las principales asociaciones vinculadas a fotónica en España
- Enviada a MINCOTUR, representación Permanente del MAE en la UE, y CDTI



Estimados Sres.

Los abajo firmantes, representantes de 25 empresas y 54 representantes de Universidades y Centros de Investigación españoles, desean hacer llegar a ustedes a través de esta carta su percepción de la Fotónica como agente clave de crecimiento económico para el futuro de nuestro país. La Fotónica en España es un tejido fuertemente interrelacionado, con un gran número de actores y puestos de trabajo realizando investigación, innovación y productos en Fotónica de primer nivel mundial.

Por todo ello, dentro de las consultas realizadas en los próximos días a los estados miembros deseamos expresar nuestro apoyo a la inclusión de la Fotónica como "contractual Public Private Partnership" dentro del próximo programa Horizon Europe, y nuestro deseo que España dé apoyo a esta iniciativa.

Muchas gracias por su colaboración.

Atentamente,

Robert López  
Presidente  
Fotónica21

Sara Otero  
Presidenta  
SECPhO

Ignacio Moreno  
Presidente  
SEDOPTICA





# Final steps

## We are in key moments

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### 2019

May-**July** 2019

Member states discussing support to the 44 partnerships

- Main countries supporting Photonics cPPP

June 27th 2019

Meeting of the Shadow Strategic Consultation board

**Final confirmation of partnerships** included in HE... **extended time**

July 2019

Meeting Executive Board for scope and goals of PPP (done!)

Public consultancy for cPPP content

September 24-26th

EU R&I days (policy discussion with stakeholders on partnerships)

**Autumn:**

Budget discussions (50% cap for cPPPs)

### 2021

**Launch of first European Partnerships within Horizon Europe**

- First calls of Photonics cPPP to be voted in BoS November 2019



# La Plataforma

## Historia



Fundada en **2007** por la industria Fotónica

**227** miembros



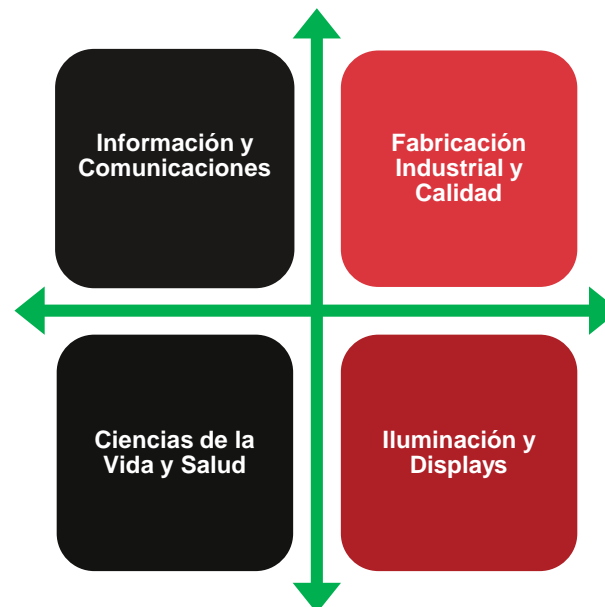
**Photonics**  
A Key Enabling Technology for Europe

Espejo de la plataforma Europea  
**Photonics21: 8 miembros españoles en BoS (Board of Stakeholders)**



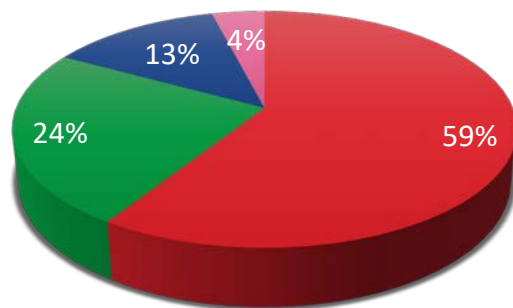
## Plataforma Tecnológica Española de Fotónica21

- Foro abierto promovido por la industria del sector en España.
- Con el fin de vertebrar de forma eficiente el proceso de innovación industrial de la tecnología fotónica.
- Aplicaciones de innovación industrial de la tecnología fotónica y sus aplicaciones divididas en cuatro sectores clave:



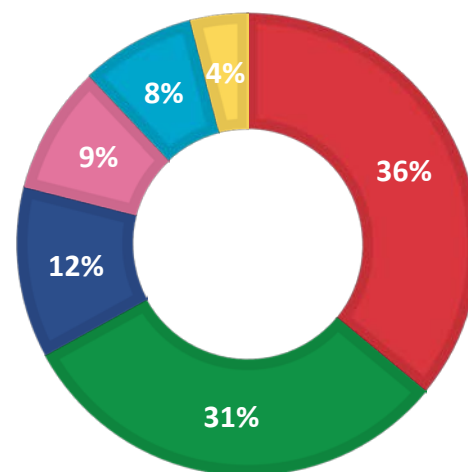
## Sector de la Fotónica en España

### ACTORES



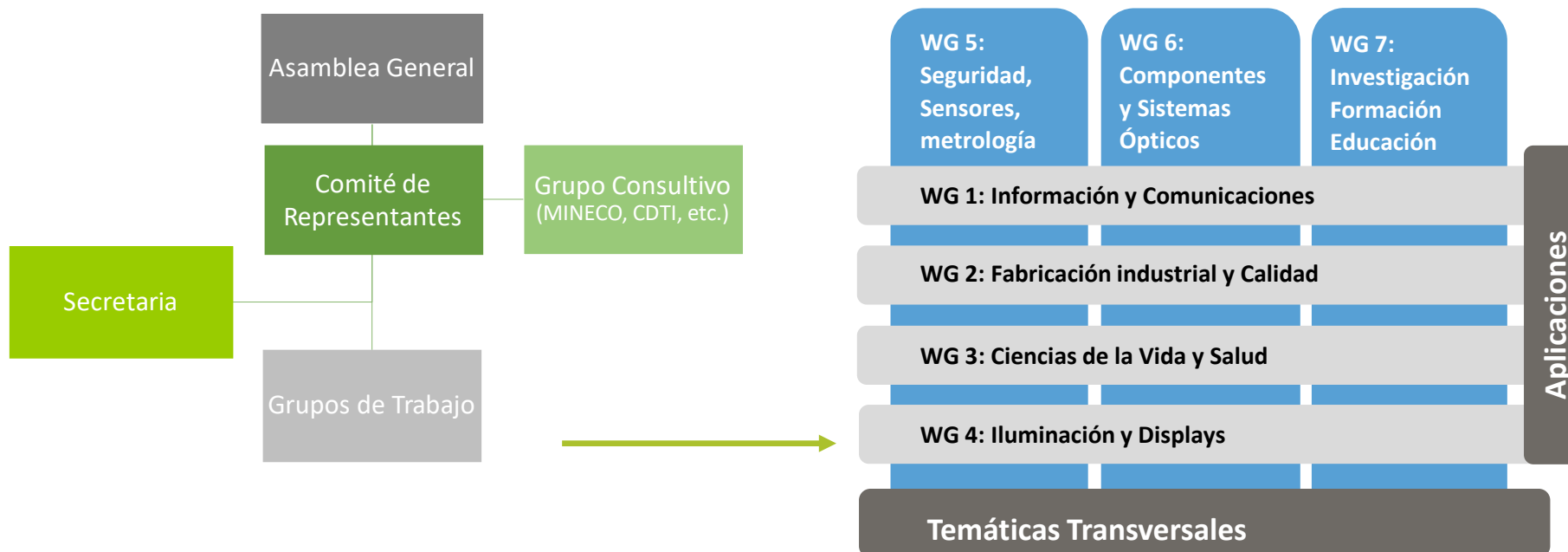
- SME's
- Tech. Transfer Centers
- R&D Centers
- Big Companies

### TECNOLOGÍAS Y CAPACIDADES



- Scanning, Sensing & Imaging Techniques
- Laser Systems
- Photonics Energy Systems
- Data Transmission Storage & Networks
- Solid State Lighting
- Screens & Displays

## Organigrama de la Plataforma



En nuestra web [www.fotonica21.org](http://www.fotonica21.org) podrás:

- **Informarte** sobre las últimas noticias, eventos y oportunidades de financiación.
- **Integrarte** como miembro de la plataforma de manera gratuita.
- **Conocer** a otras entidades y expertos activos en el campo de la fotónica.
- **Colaborar** en el desarrollo de fotónica en España y Europa, participando en los grupos de trabajo o en actividades networking en los eventos promovidos desde la plataforma.

Podrás realizar tu inscripción a través de un formulario disponible en Fotónica21:



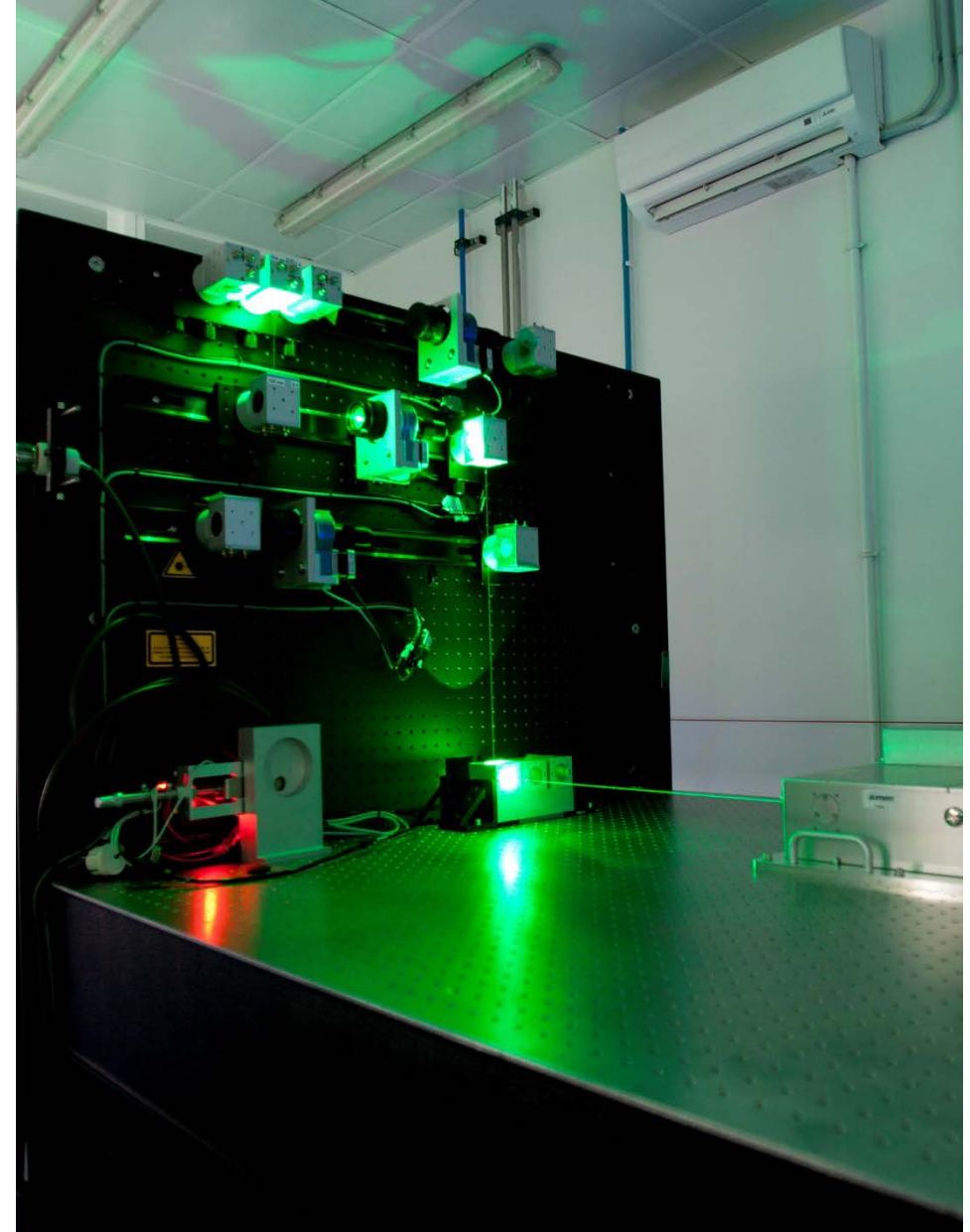


### Secretaría Técnica Fotónica21

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PHOTONICS PUBLIC PRIVATE PARTNERSHIP

