



Photonics

France



La photonique française

Photonics France et Photonics 21

Ivan Testart, Photonics France
David Méchin, Photonics Bretagne

Infoday Photonique 16/07/2019

La photonique, définition

Le photon...science et technologie

La **photonique** désigne les **sciences** et les **technologies** qui génèrent, émettent, détectent, collectent, transmettent les flux de photons, c'est-à-dire la **lumière**.

Notre filière photonique française : chiffres clés



1 000
entreprises,
40% -10 ans



80 000 ETP

Chiffres d'Affaires Monde
15 Milliards €

50% Export

N° 2 Européen



80 % PME



30
start-ups /an

300

laboratoires
CNRS, CEA,
INSERM..



**Formation
Supérieure**

Bac + 2, licence,
master,
ingénieurs,
thèses

Nouveaux
Emplois
2030

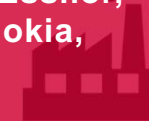
1 million en Europe
150 000 en France



Financements
H2020 : 700M€



Grands groupes :
Safran, Thales, Essilor,
Valéo, Airbus, Nokia,
Saint Gobain



Photonics
France

Export français

50% du CA des 90 % des entreprises françaises exportatrices

Europe

USA

Chine

Japon

Corée du Sud

Inde

Moyen Orient

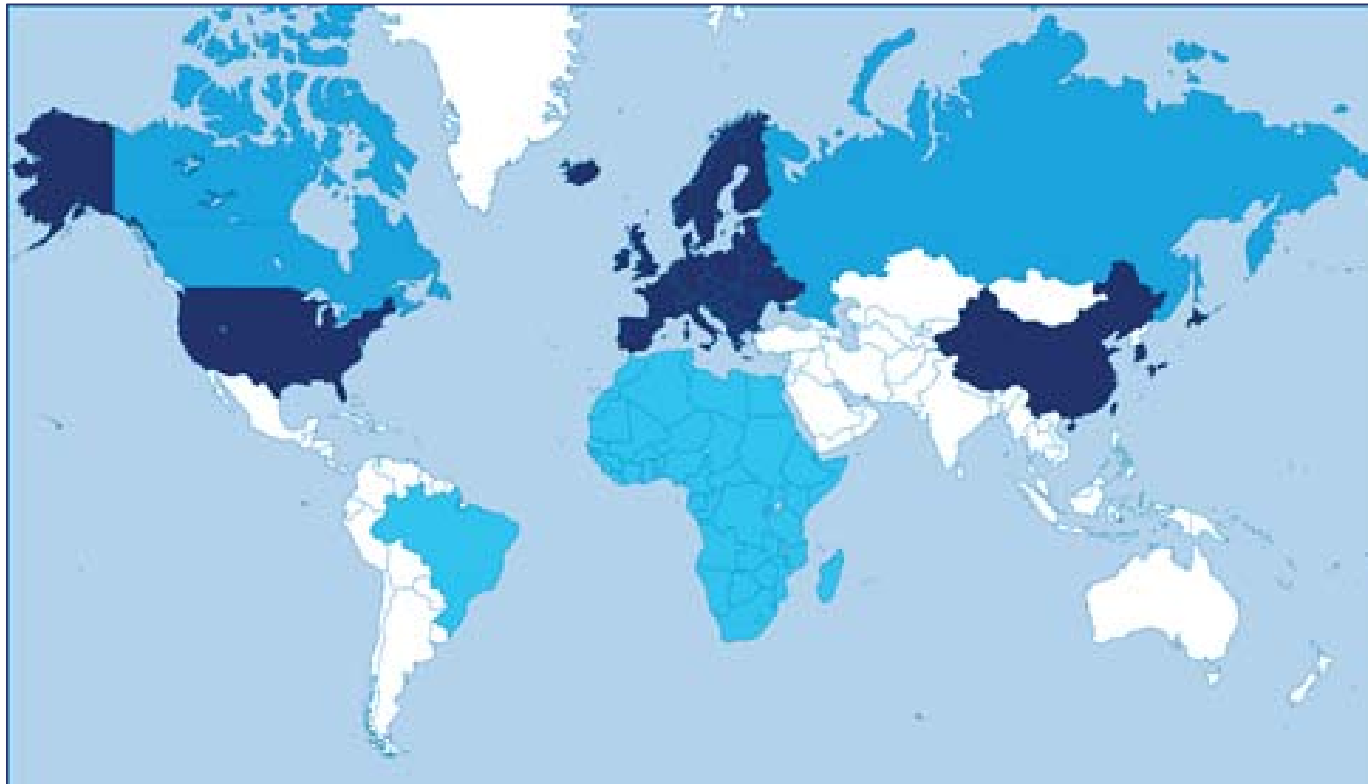
Singapour

Brésil

Russie

Afrique

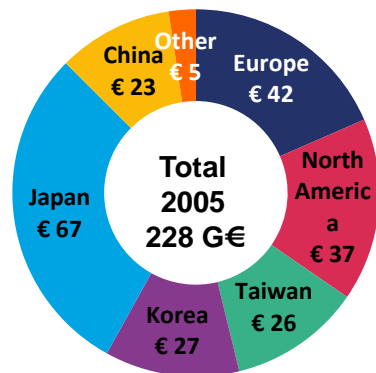
Canada



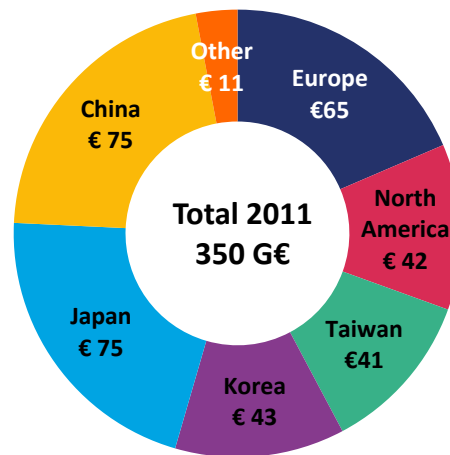
La photonique mondiale

Chiffres clés

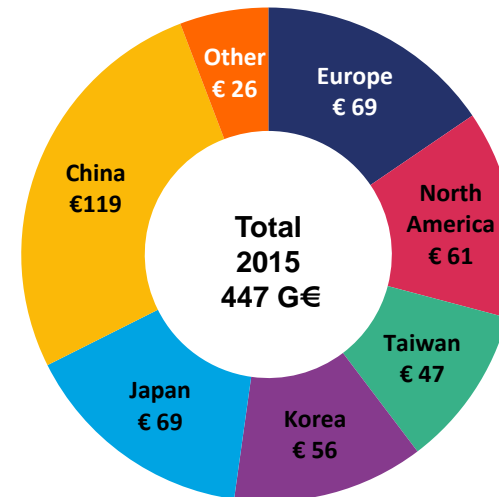
2005



2011



2015



Source: Optech Consulting Market Research Study 24.1.2017

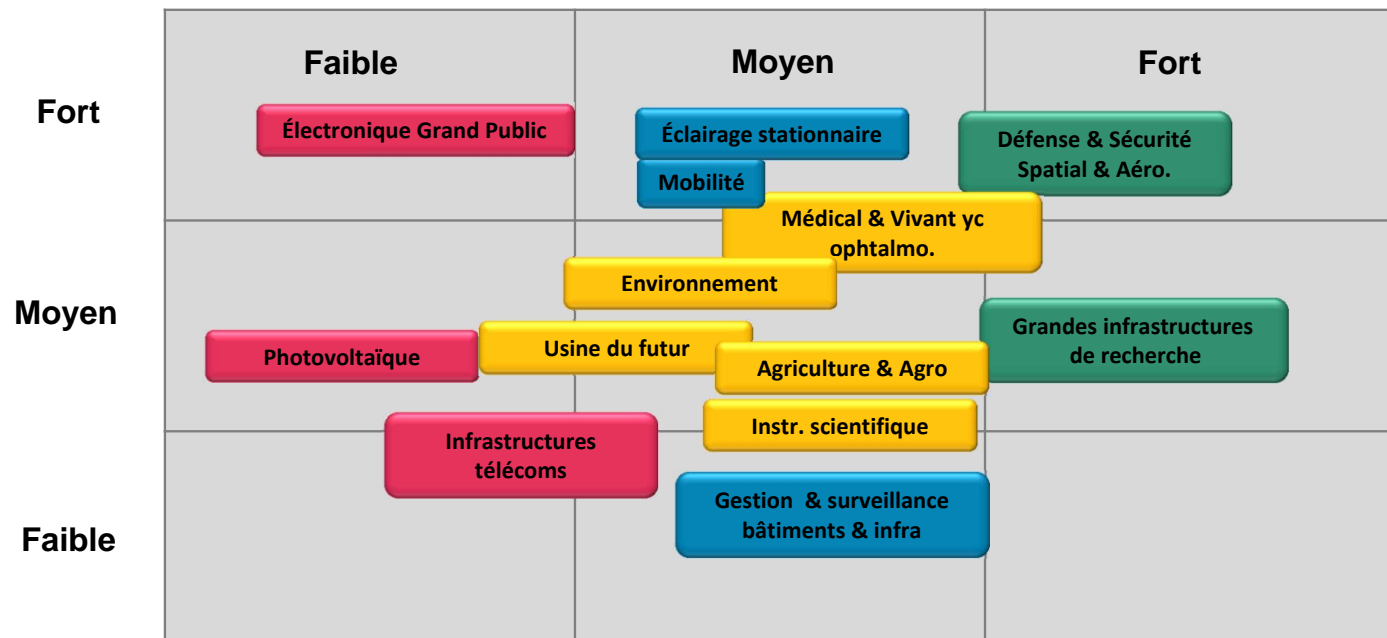
Croissance de l'industrie Photonique en 2020 : 550 G€

Les marchés de la photonique

Atouts de la photonique française



Attraits du marché

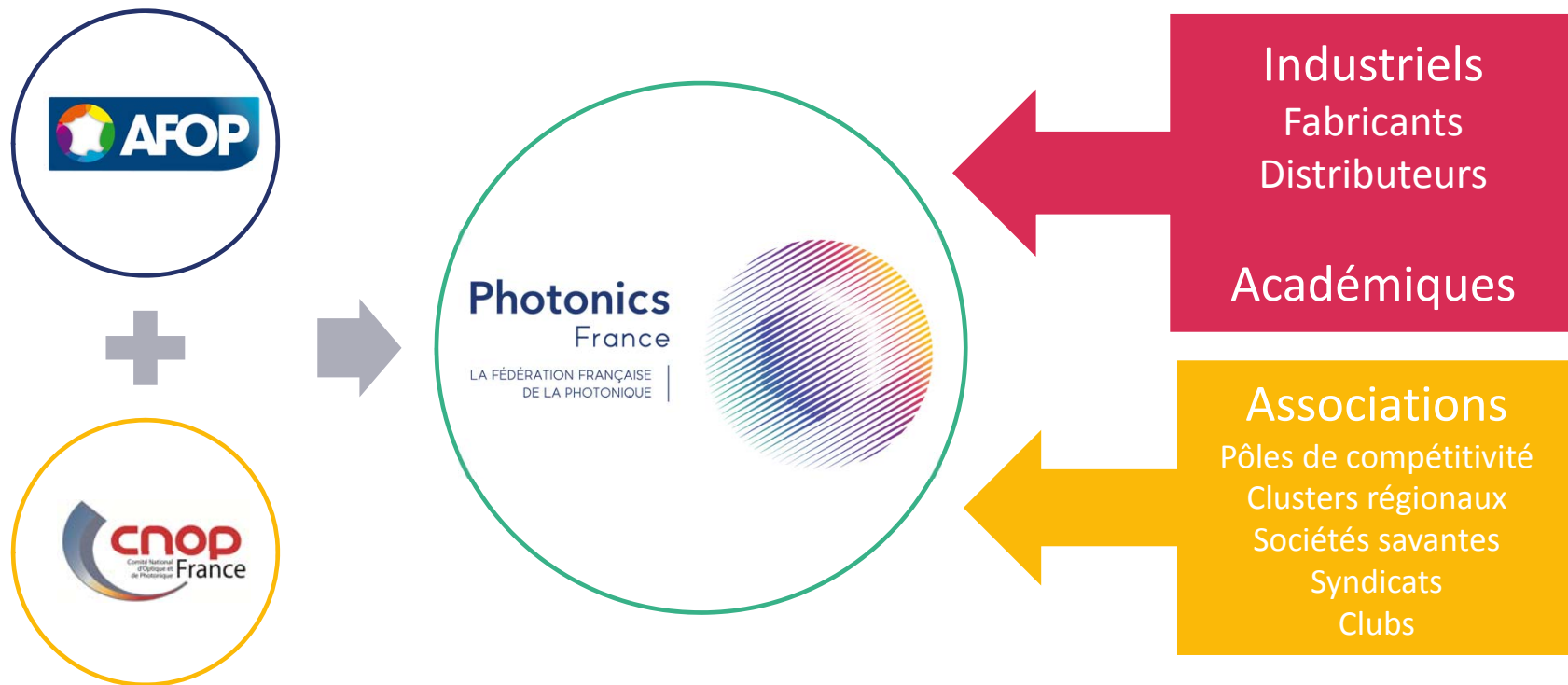


D'après document



Photonics France

Création 24 avril 2018





Nos 3 grandes Missions

Développer et promouvoir

Représenter, coordonner et défendre

Accompagner et servir

**Photonics France,
Ensemble pour créer de la valeur**

Ariane 6 - Crédit: ESA David Ducros

Les ambitions de Photonics France

- ▶ Poursuivre la construction **d'une filière nationale solidaire, reconnue** et capable de peser en Europe
- ▶ Faire reconnaître la photonique comme **filière stratégique, facteur de croissance et créatrice d'emplois**
- ▶ **Contribuer à la revalorisation des filières technologiques**, clé de voute de notre industrie, de notre compétitivité et de notre différenciation
- ▶ Favoriser le développement de **chaînes de valeurs complètes et se rapprocher des filières applicatives**
- ▶ Faire grandir **nos PME vers des ETI** : Amplitude Group, Lumibird, Ixblue, Lynred (ex Sofradir/Ulis)
- ▶ Renforcer et exploiter l'excellence de notre formation et de notre recherche académique en **favorisant le transfert efficace vers l'industrie**

Feuille de Route et Livre Blanc de la Photonique Française

Livre Blanc de la photonique : document partagé avec les pouvoirs publics et reconnu comme une référence stratégique et opérationnelle

- ▶ **Une démarche interne pour fédérer les acteurs**
- ▶ **Une démarche externe pour être connu, reconnu**



Photonics21 & Photonics PPP



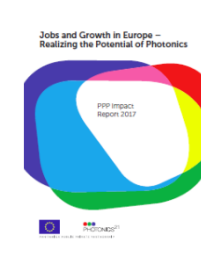
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Photonics PPP – in a Nutshell

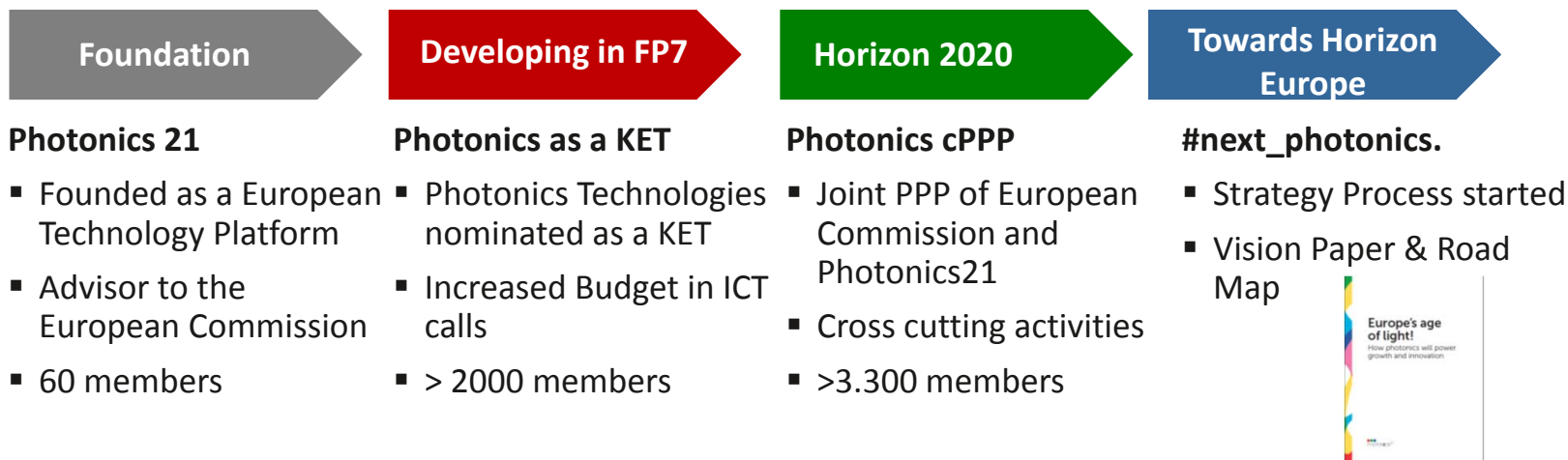
Four years of successful Public Private Partnership – well committed to continue the successes of the past towards the next decade

- **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



Photonics21 – Our Way forward for Growth & Jobs in Europe

Photonics has achieved a lot over the last years and we are strategically preparing to take up future opportunities and meet upcoming challenges



Source: Photonics21/VDI Technologiezentrum GmbH, Photographer: VDI-TZ



Source: Photonics21/VDI Technologiezentrum GmbH, Photographer: Bea Uhart



Source: Photonics21/VDI Technologiezentrum GmbH, Photographer: Bea Uhart



Source: Photonics21/VDI Technologiezentrum GmbH, Photographer: Vivian Hertz



Source: Photonics21/VDI Technologiezentrum GmbH, Photographer: Natalie Hill



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Our Vision for Photonics in by 2030

Key technology for literally all future Megamarkets

<p>Instant diagnosis of major diseases</p>	<p>Quality food from farm to fork</p>	<p>Accident and congestions- free road transport</p>	<p>A truly circular economy</p>
<p>Photonics as a flagship science for innovation</p>	<p>Smart Cities</p>	<p>Empowering Industry 4.0 for a million new jobs</p>	<p>Zero downtime in a terabit economy</p>

“..the Photonics sector is an essential key enabling technology and represents an important building block of the next digital revolution...” European Investment Bank, 2018

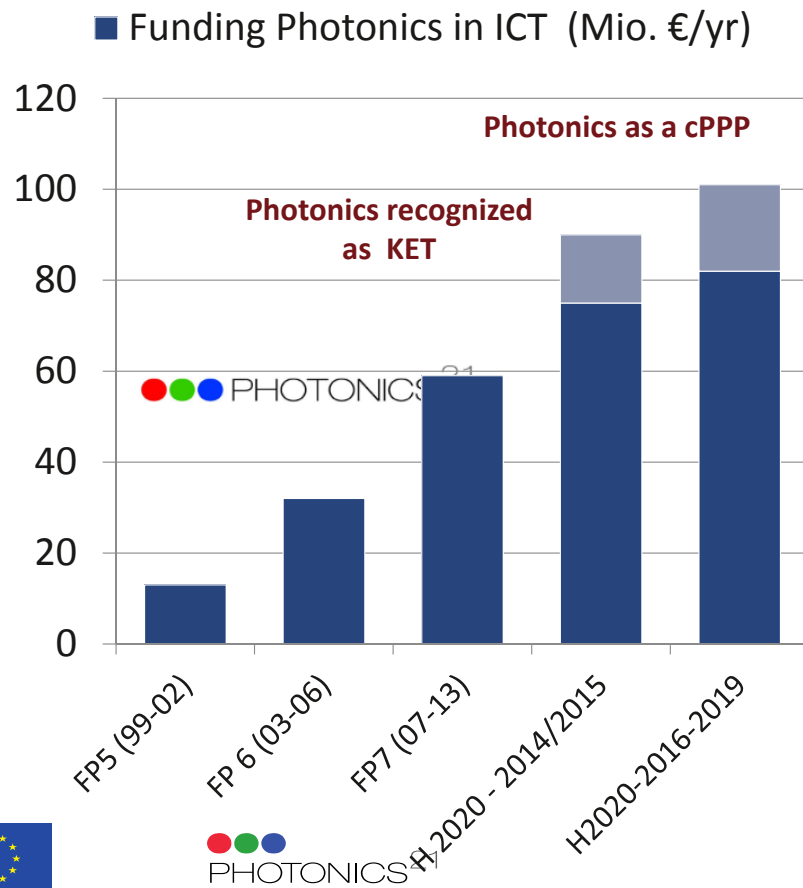


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EU Commission - Public Funding of Photonics

Increasing – however small compared to other financing sources – and versus Asia



- Photonics public funding saw rapid increase in last 15 years
- Current funding level exclusively for photonics is about €100M/year
 - Plus lots of new financing routes being opened for photonics
- Photonics as a KET
 - SME Instrument, structural funds, etc.
 - Juncker plan for SMEs
- Activity allows aligning entire ecosystem
- However financing compares to:
 - €4-5B/yr VC (all segments)
 - Estimated €500M/year countries' internal programs
- And versus growing public funding in Asia



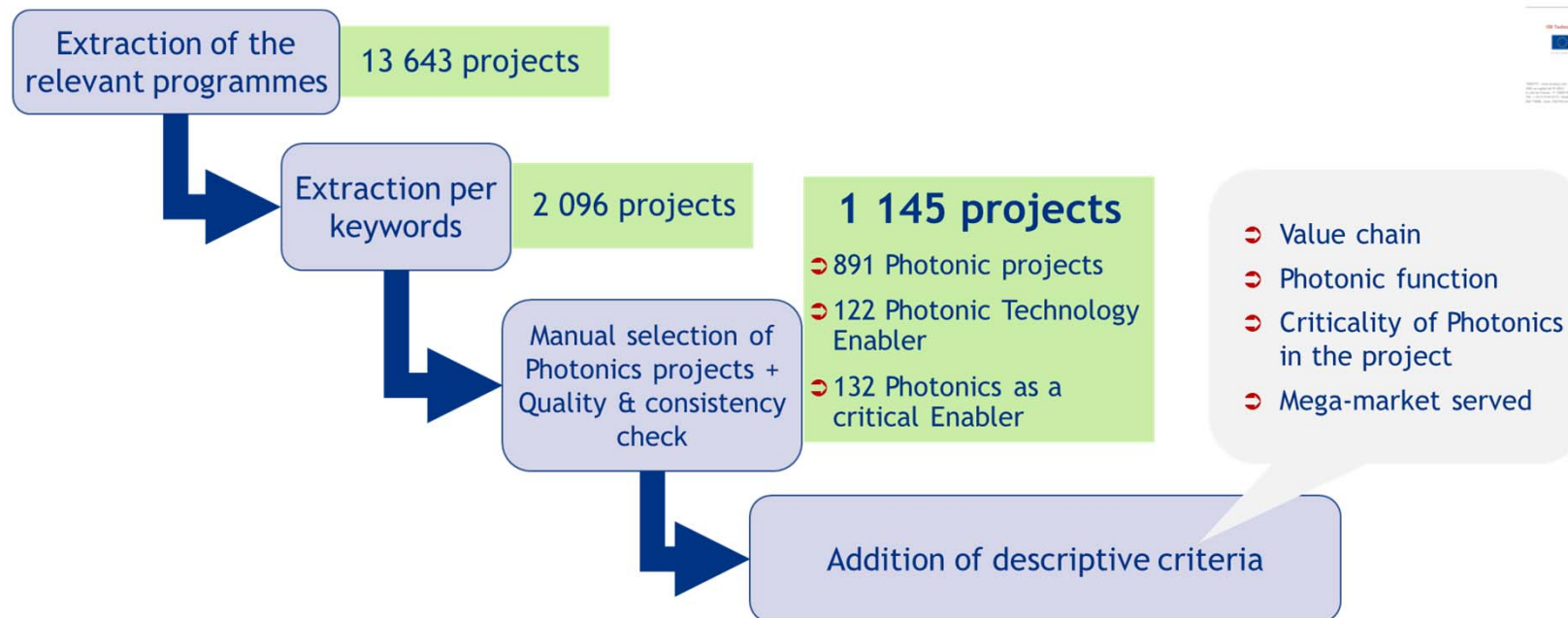
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Source: Photoncis21

Photonics Technologies play a major role in many Horizon 2020 projects

Project Study: Analysis of the past and current situation shows that photonics technologies play a role in most pillars of the program

Cordis Datasource comprised 13.643 Projects in EU 28 with a funding of € 23,15 bn€



Source: Tematys Study - Photonics in Horizon 2020 commissioned by Photonics21

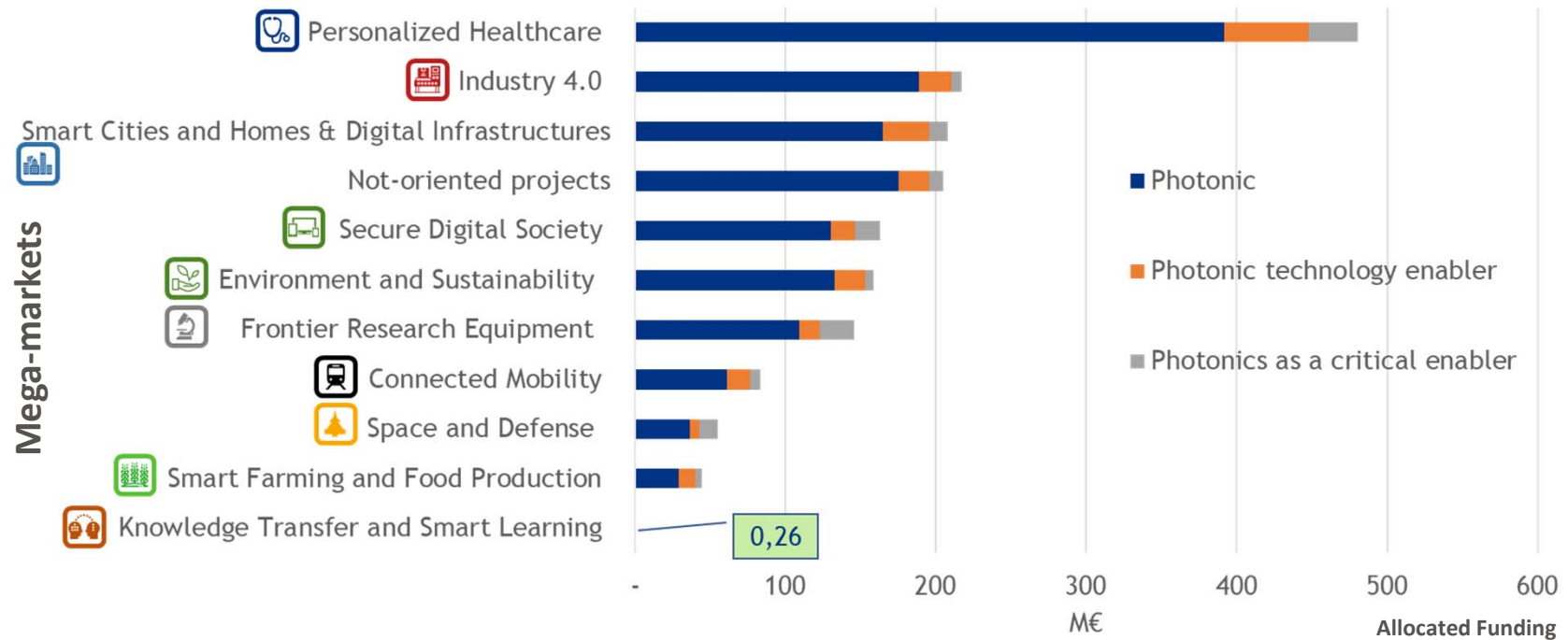


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Photonics Technology Role for Megamarkets – a Key Enabler

Horizon 2020 Project Analysis shows the relevance of Photonics for all major markets



Source: Tematys Study - Photonics in Horizon 2020 commissioned by Photonics21



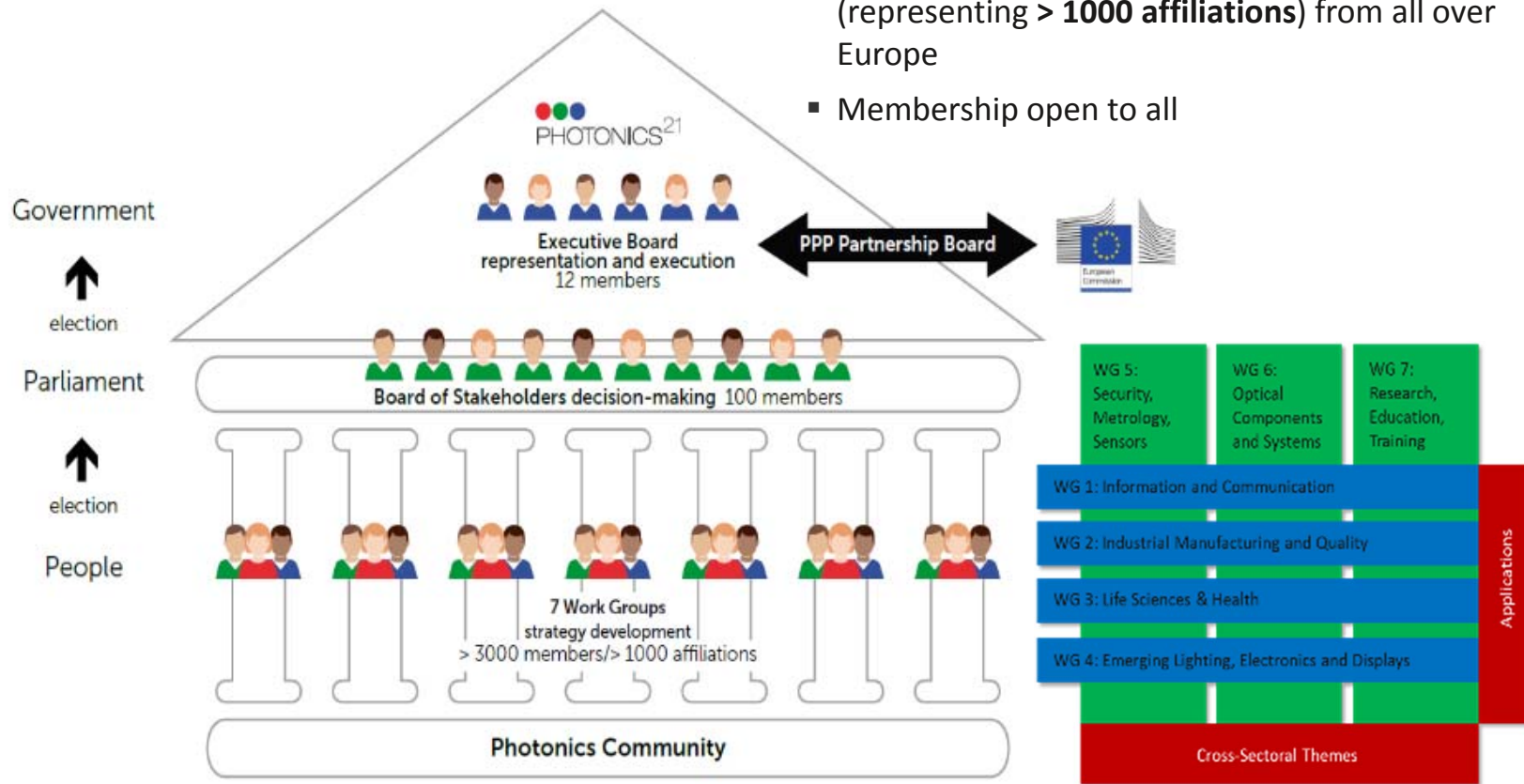
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A broad Photonics21 community drives the Photonics PPP

Fully democratic Structure & Decision Making

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



Photonics21 Executive Board

President:

N.N.

Vice Presidents:

Giorgio Anania, Chairman & CEO Aledia

Jaap Lombaers, Innovation Director at TNO

Hugo Thienpont, Director of the Brussels Photonics Research Team B-PHOT & Professor VUB

Bernd Schulte, Executive Board Member & President Aixtron

Work Group Chairs:

Information & Communication

Jean-Luc Beylat,
President Nokia Bell Labs

Industrial Production/ Manufacturing & Quality

Thomas Rettich,
Head of Research
Coordination TRUMPF

Life Science & Health

Jürgen Popp,
Scientific Director Leibniz-Institut
für Photonische Technologien e.V.

Emerging Lighting, Electronics & Displays

Heinz Seyringer,
CEO V-Research GmbH

Security, Metrology & Sensors

Peter Seitz,
CSO Kenzen AG & Senior
Technologist Europe
Hamamatsu Photonics

Design & Manufacturing of Components & Systems

Mike Wale,
Full Professor of Photonic
Integration/Industrial Aspects at
Eindhoven University of
Technology

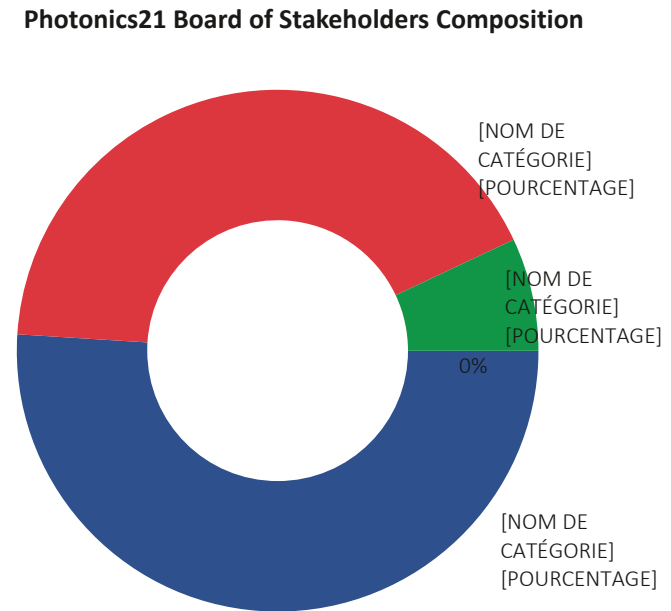
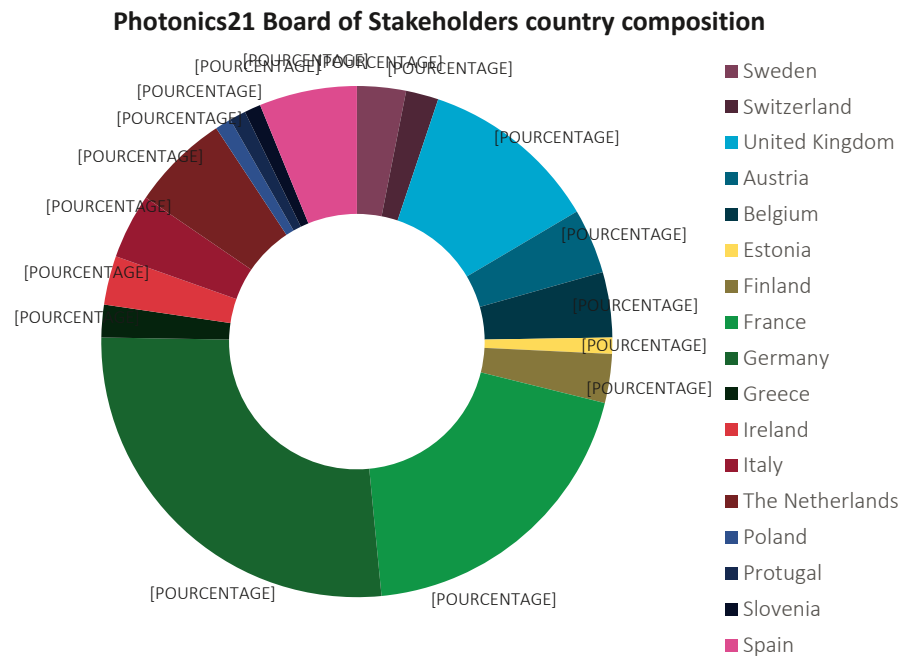
Photonics Research , Education & Training

Roberta Ramponi,
Director at the IFN-CNR
(Institute of Photonics and
Nanotechnologies)



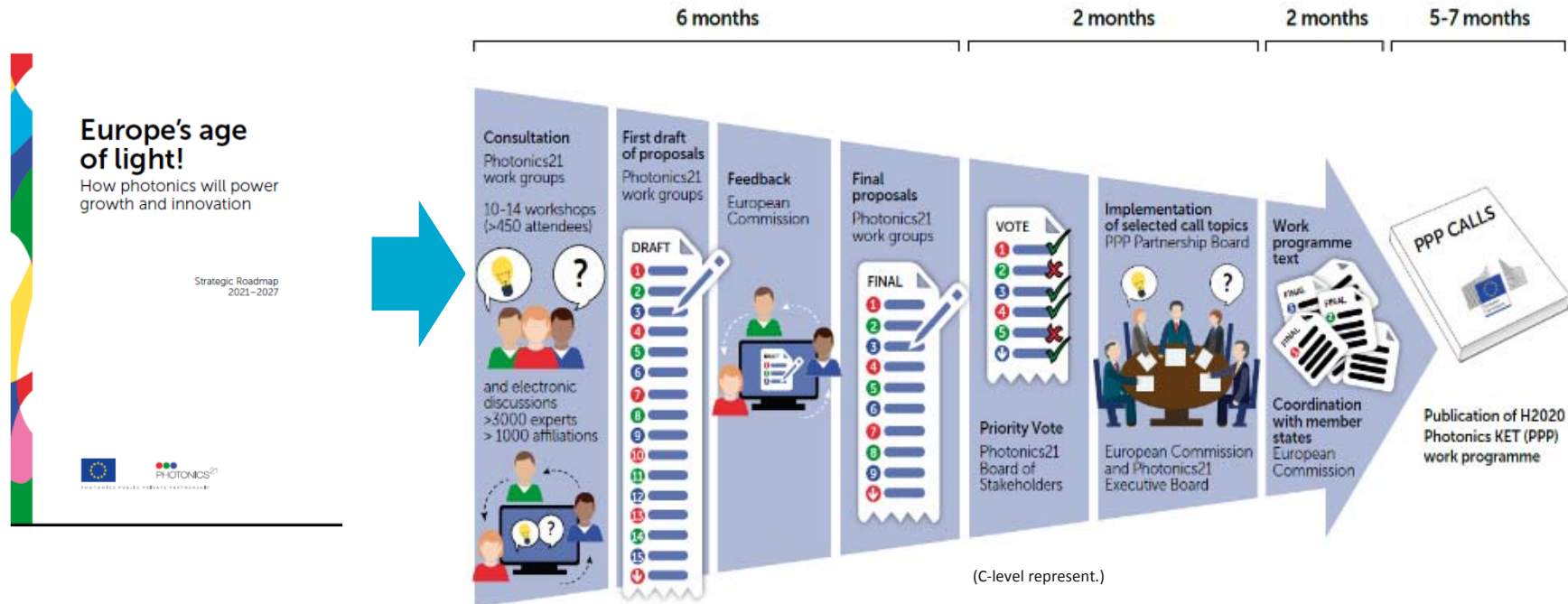
Photonics21 – Board of Stakeholders

Broad country representation from all over Europe and fair share of Industry, Research and Politics and Associations

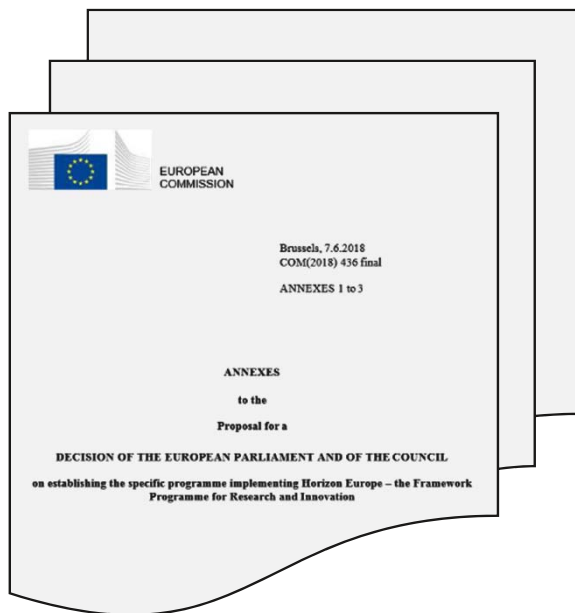


Photonics PPP: Open and Transparent Decision Process

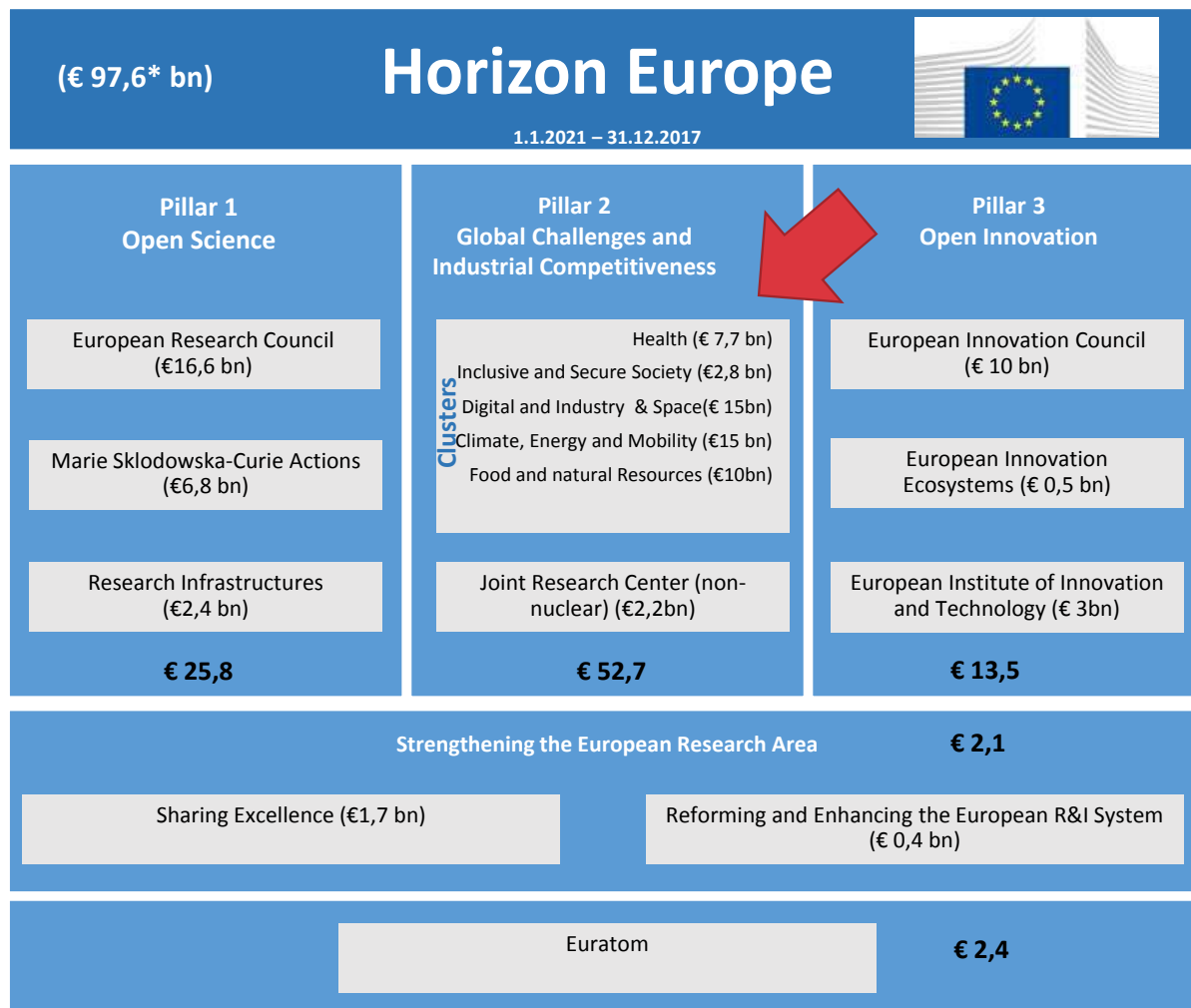
Horizon2020 Work Programme Priorities derived from the commonly agreed Photonics21 Multiannual Roadmap and the Workgroup Input on KET Calls



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



Photonics included (so far) in the 44 Partnership Candidates!



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



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Ivan Testart, directeur Photonics France
itestart@photonics-France.org

David Méchin, directeur Photonics Bretagne
dmechin@photonics-bretagne.com

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