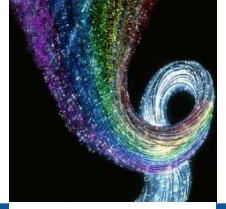


INTERNATIONAL YEAR OF LIGHT 2015

Art Culture Education Nature Science Sustainability Technology

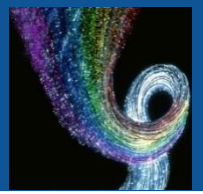
European Commission

Gli strumenti europei a sostegno della ricerca e dell'innovazione per le PMI nel settore della fotonica

Anna Pelagotti
SNE Photonics Unit
DG CONNECT
European Commission

PHOTONICS 21

PHOTONICS PUBLIC PRIVATE PARTNERSHIP



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Sommario

- Strategia UE per la Fotonica
- Aree prioritarie per le azioni e i finanziamenti UE FP7 eH2020, WP2014/15)
- Priorita' in H2020 per i prossimi 2 anni WP16/17
- Opportunita' oltre i finanziamenti alla ricerca
- Altre sorgenti di finanziamento

PHOTONICS 21

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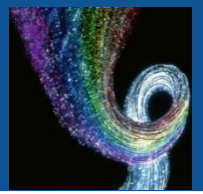

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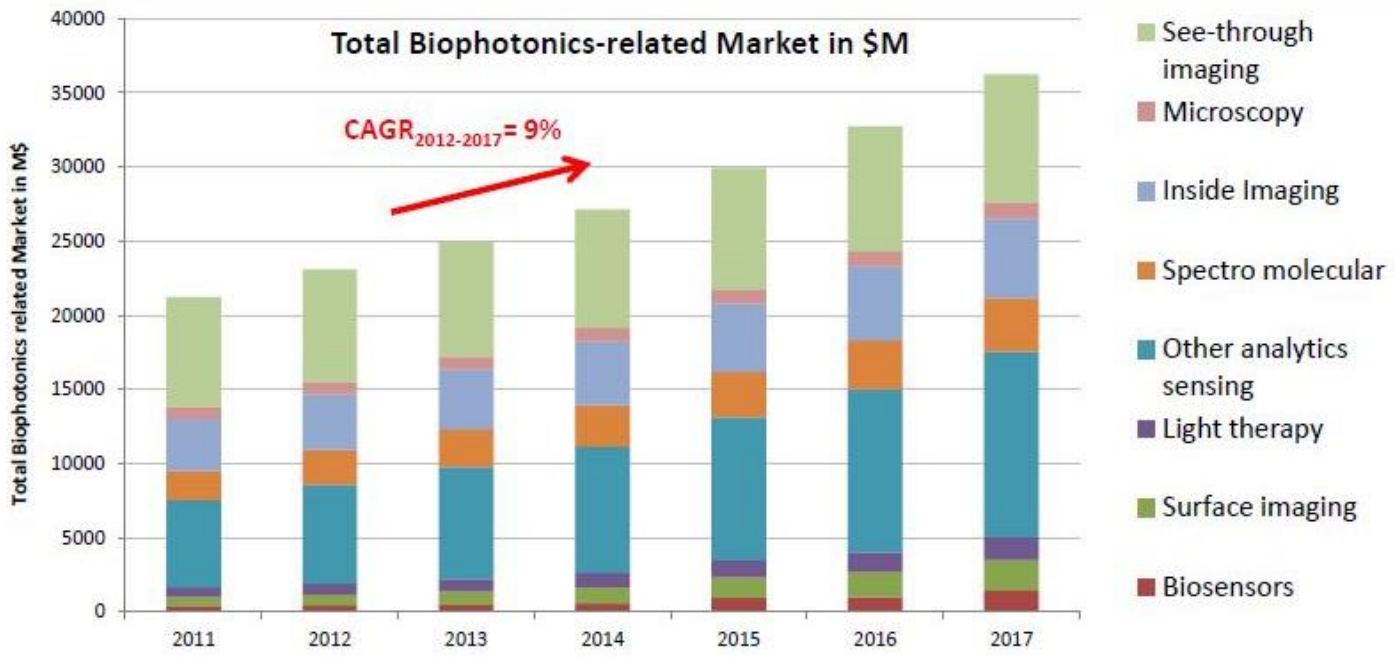
STRATEGIA UE PER LA FOTONICA

Overview – a Key Enabling Technology with Enormous Economic Potential

- Global Photonics market € 350 bn (in 2011)
- Average yearly growth rate of 6,5%
  compared to 2005 > 2x GDP growth
- Estimated market size in 2020 ~ € 615 bn
- **European Photonics market ~ € 64 bn**
- **European market share 18%** (in 2011)
- **Photonics responsible for 760,000 EU jobs (KET observatory newsletter)**
- Many market-leading industrial players
- World market shares of European companies
  - Production technology 55%
  - Optical components & systems 40%
  - Measurement & automated vision 35%
  - Medical technology & life sciences 30%

- **More than 5000 SMEs in Europe ~ 300,000 employees**

e.g. Biophotonics more recent data



- **$36B total Biophotonics-related market** by **2017**

  9% CAGR 2012-2017= (with some sectors like biosensors up to 28% and surface imaging up to 23%) (YOLE data 2013)

- **30% World Market Share** of **European** companies for Medical Technology & Life Sciences (Photonics21 data)

Digitising European Industry:

"Europe's future is digital"
*"Ensure that every business in Europe wherever situated can **fully benefit from digital innovations** to create higher value digitised products, maximise efficiency of its processes and adapt its business models"*

Commissioner Oettinger

http://ec.europa.eu/digital-agenda/en/digitising-european-industry

Photonics is part of this revolution

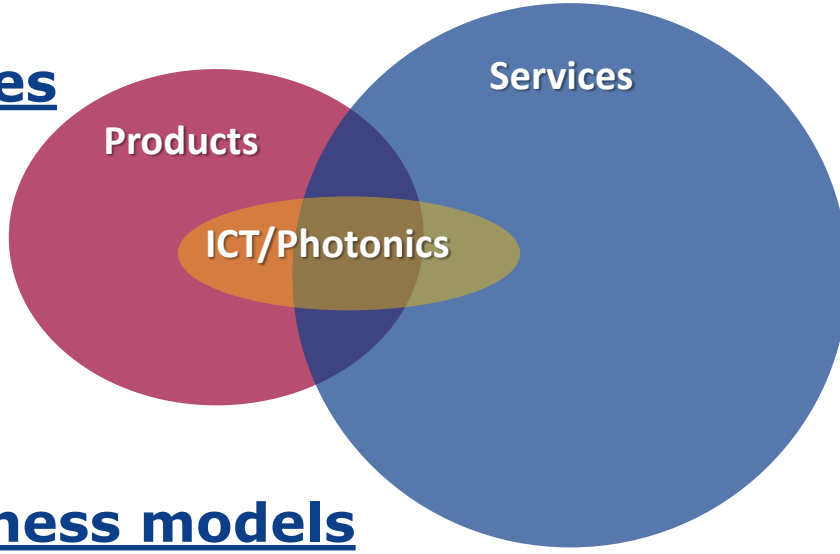
Value creation from digitalisation : Products, Processes and Business models

"Photonics inside": Innovations in all types of products

Large opportunities in all sectors (Non-tech, high-tech, SMEs, etc)

- Smart connected objects (or IoT) powered by e.g.
  - Sensors, wearables, printed electronics …

Blurring of boundaries in value creation



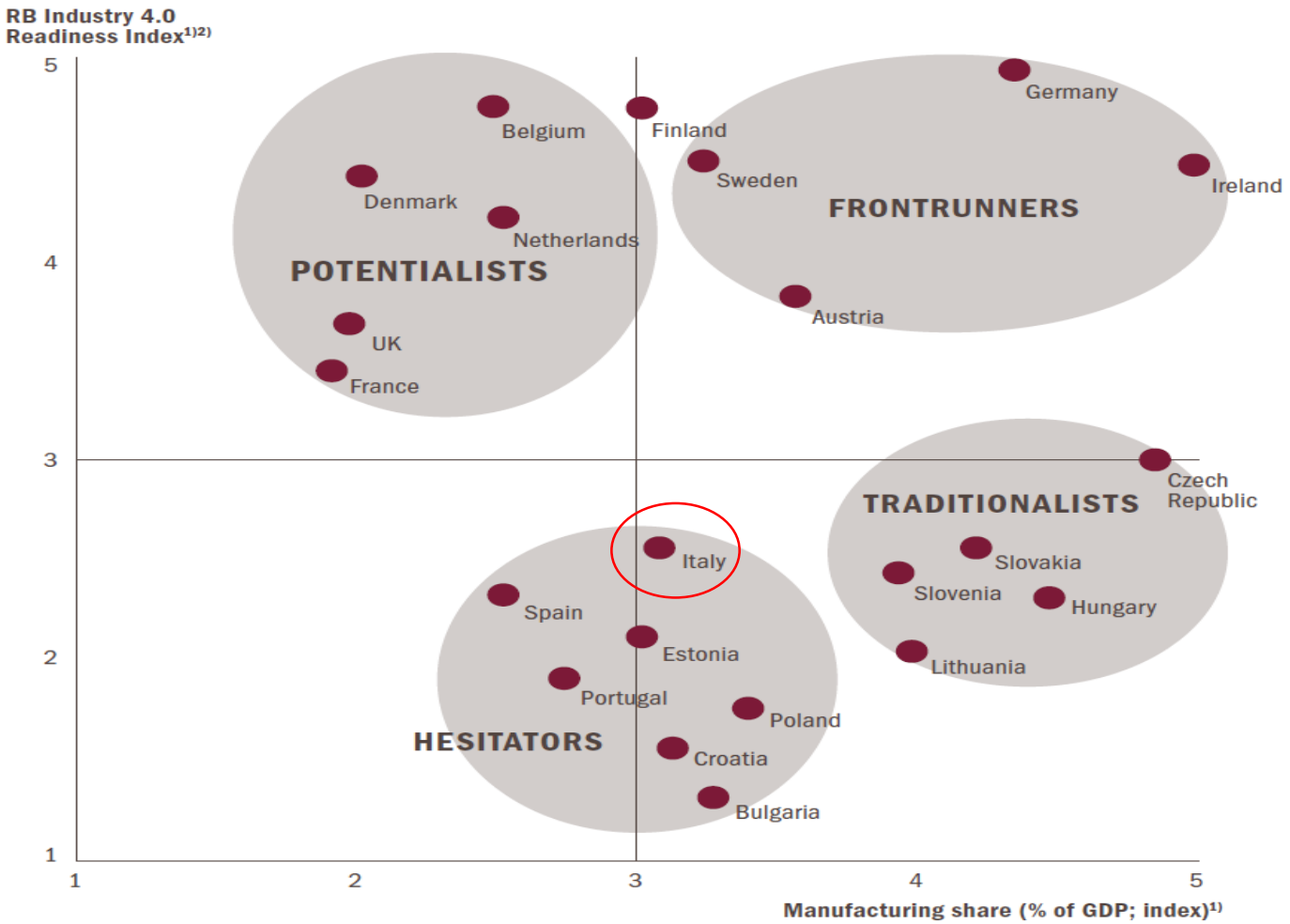
Digital transformations of processes with photonics

- From logistics to shop floor automations
  - Built on IoT, robotics, laser technologies, big data,..
  - Increasing resource efficiency, productivity, ..

Radical/disruptive changes in business models

- Blurring the boundaries (products-services), reshuffling value chains
  - XaaS (lighting as a service), 3D Printing & customisation
  - Communication as a commodity, etc..

Digitisation readiness: disparities in Europe



Photonics (KET) Public Private Partnership

The PPP is based on Photonics21

Signed on 17 December 2013, Brussels

→ Industry-driven, multi-annual strategic research and innovation agenda

EU investment 700 M€ for the Photonics PPP (460 M€ in FP7)

Objectives:

▪**FOSTER MANUFACTURING, JOB AND WEALTH CREATION IN EUROPE** through a long term investment commitment by both industry and the EC;

▪**MOBILISE, POOL AND LEVERAGE PUBLIC AND PRIVATE RESOURCES** to provide successful solutions for some of the **major societal challenges facing Europe**, in particular in healthcare & well-being, and energy efficiency.

▪**ACCELERATE EUROPE'S INNOVATION PROCESS AND TIME TO MARKET** by addressing the full innovation and value chain in a number of market sectors where European photonics industry is particularly strong (e.g. lighting, medical photonics, and optical components & systems);

Building a coherent strategy for Photonics in Europe

Strategic roadmap for the next 7 years

Photonics21 - National Technology Platforms – Regional Innovation Clusters – link to national/regional funds

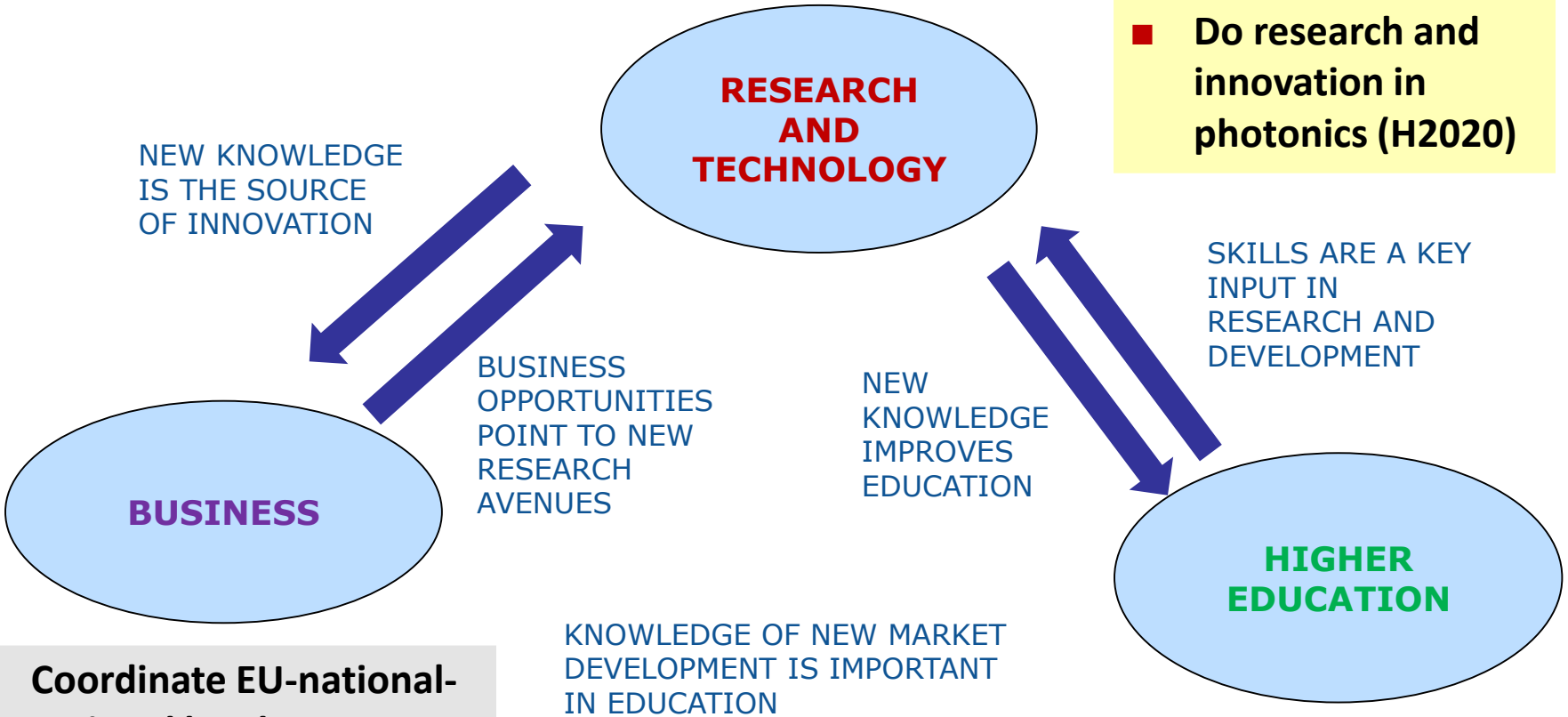
Attracting young talents and building up a skilled workforce

Reindustrialisation & digitalisation of Europe Including pilot manufacturing and support to innovative SMEs

IMPACT

- Knowledge creation
- Products and solutions for more welfare and well-being
- Growth & Jobs

Photonics: building a strong Knowledge triangle



- **Do research and innovation in photonics (H2020)**

- **Coordinate EU-national-regional levels**
- **Support innovative SMEs**
- **Opening new routes for financing innovation inPhotonics : Juncker Plan, innovFin, ESIF, etc..**

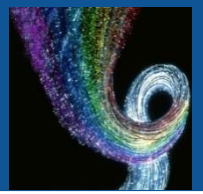
- **Increase awareness of 'the power of photonics'**
- **Attract young talents and build up a skilled workforce**

European Commission

Have your say!

Photonics Public Private Partnership Annual Meeting 2016

1st and 2nd March 2016, Le Plaza Hotel Brussels



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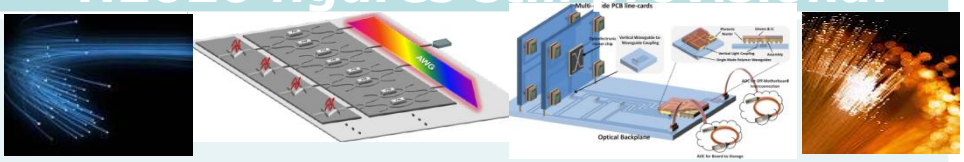
EU MAIN RESEARCH PRIORITY AREAS (FP7, H2020-WP14/15)

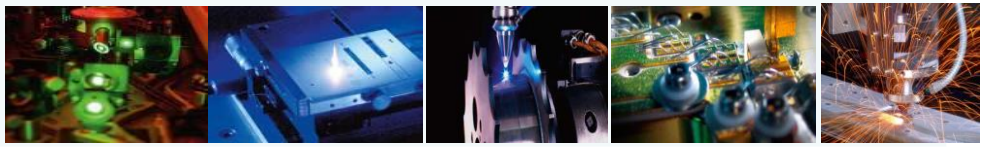
EU main research priority areas
Photonics in FP7 (2007-2013) & H2020 (2014-2015)
170 R&I projects for ~620 M€

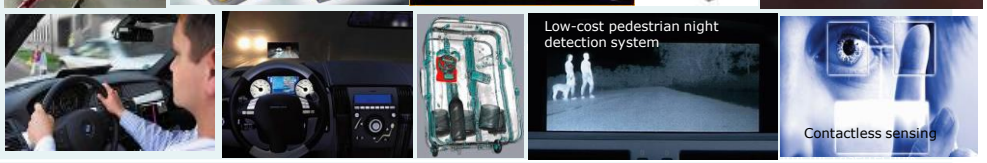
European Commission

Areas	fp7	h2020
Optical data Communications	31 103 M€	5* 18 M€
Lasers and Manufacturing	10 47 M€	6* 21 M€
Biophotonics Health&Food	26 98 M€	11* 38 M€
SSL Lighting, Displays & OPVs	19 92 M€	6* 38 M€
Sensors for safety & security	16 44 M€	7* 25 M€
Integration Platforms & Nanophotonics	15 58 M€	4* 13 M€
Cross-cutting Support Actions	12 19 M€	5* 7 M€

*H2020 figures still provisional







Education and training, Roadmapping, Coordination between regional/national clusters, Coordination of the Photonics research constituency, Access to advanced technologies, Support to SMEs

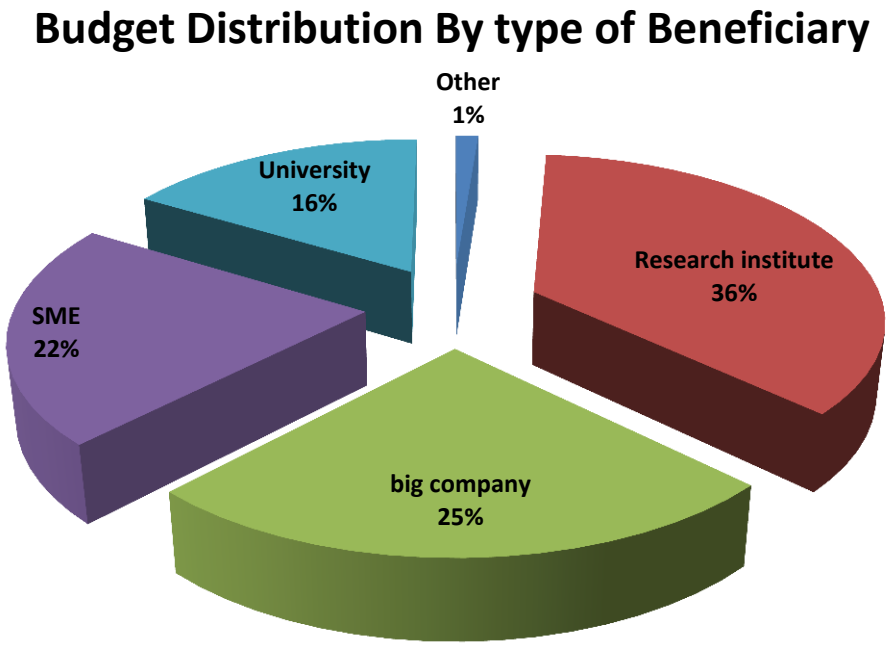
#Projects - EU funding

H2020

European Commission

2014+2015

- 54 projects (45 photonics, 9 organic electronics)
- 180 M€ funding for photonics (including 14 M€ in FoF) and 37 M€ organic electronics.
- Strong industrial participation – 47%
- Good topic coverage
- Good value chain coverage (end-users, suppliers etc)



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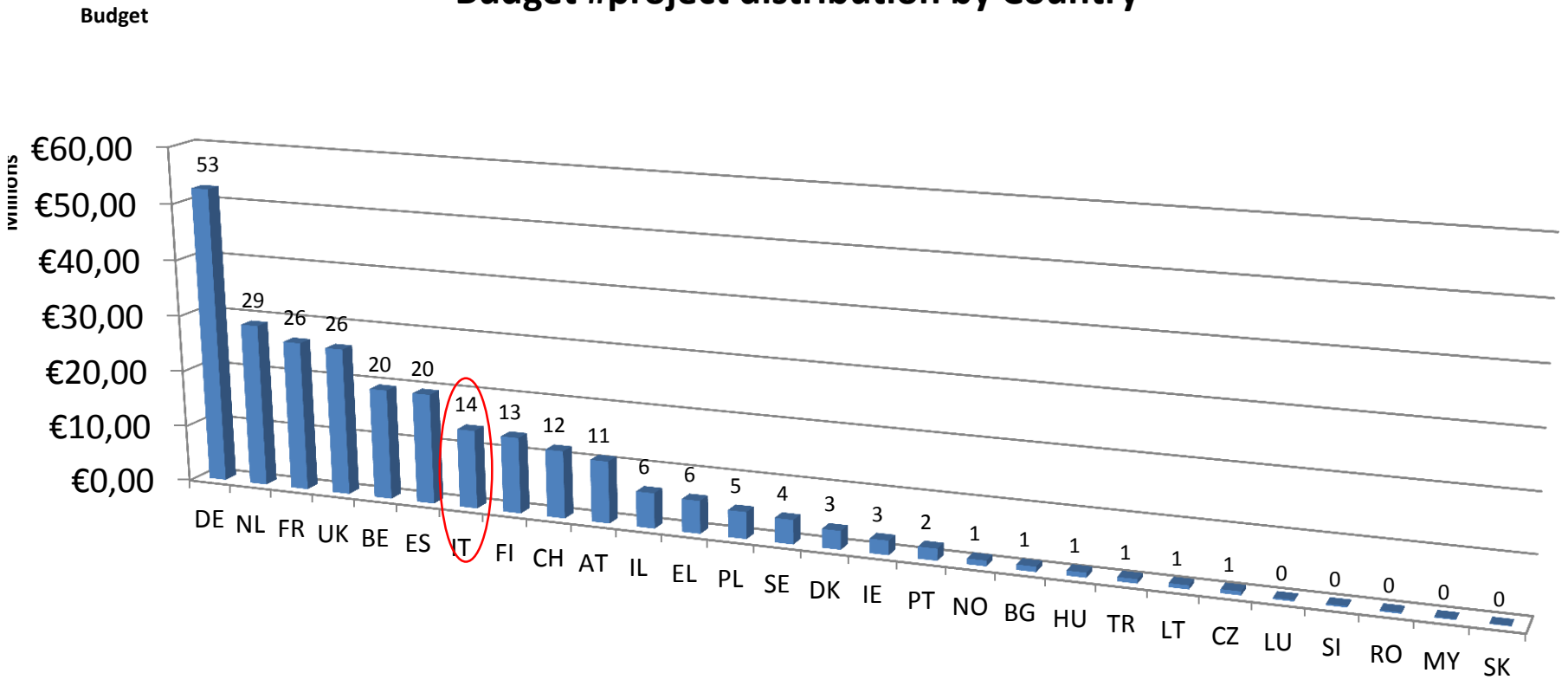
PHOTONICS PUBLIC PRIVATE PARTNERSHIP

H2020-2014+2015

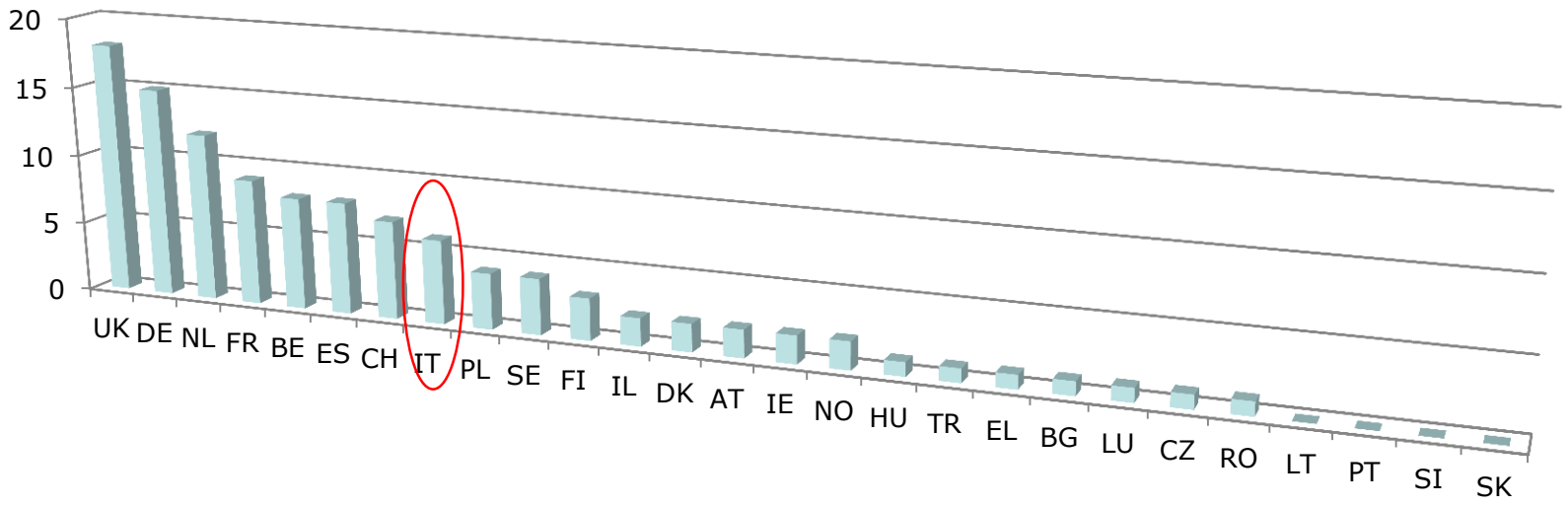
Budget #project distribution by Country



PHOTONICS PUBLIC PRIVATE PARTNERSHIP

H2020-2014+2015

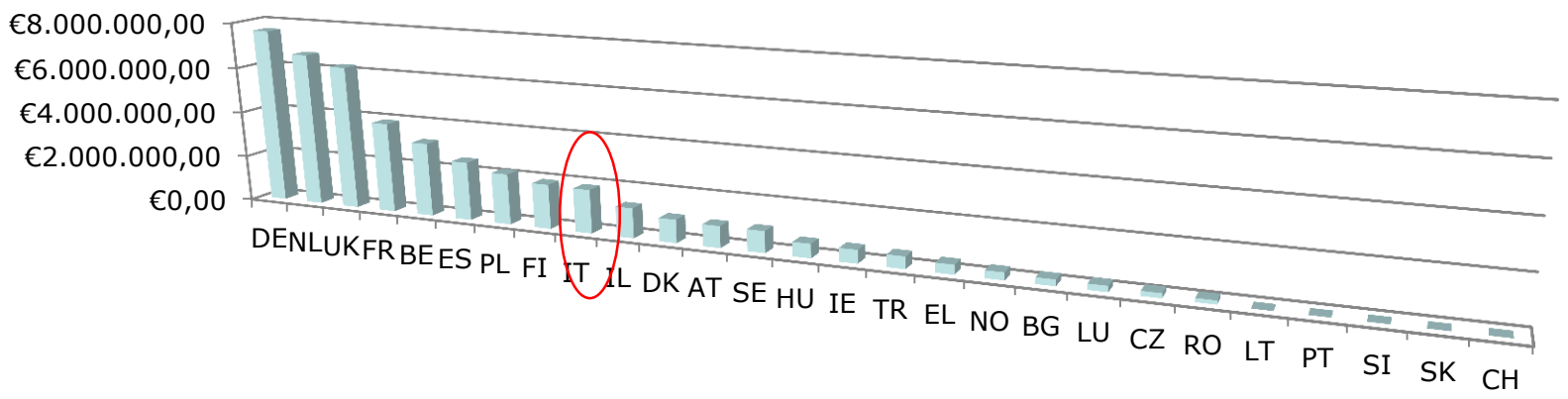
SMEs Distribution by Country



PHOTONICS PUBLIC PRIVATE PARTNERSHIP

H2020-2014+2015

SMEs Budget by Country

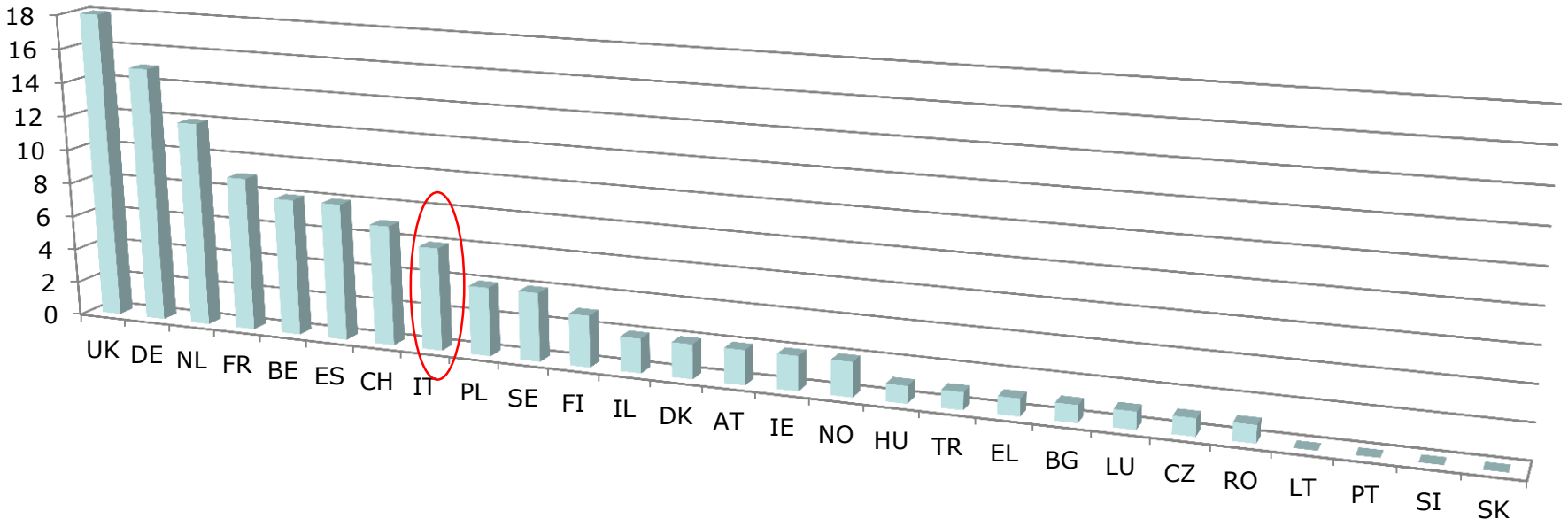


PHOTONICS 21

PHOTONICS PUBLIC PRIVATE PARTNERSHIP

H2020-2014+2015

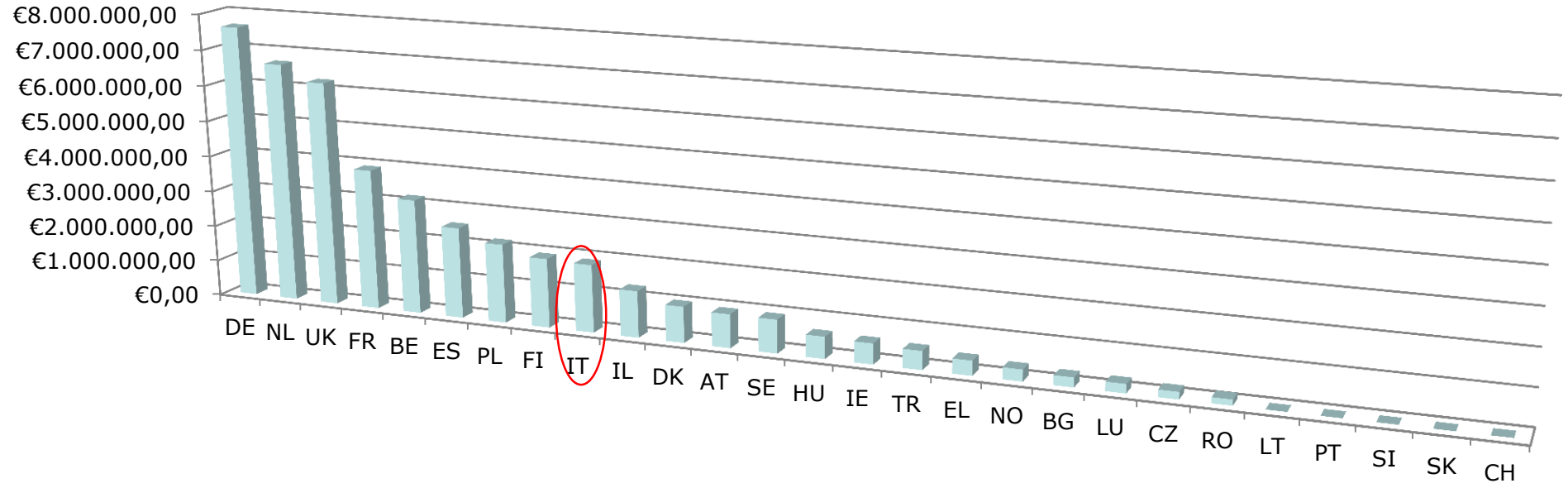
Number of funded SMEs Distribution by Country



PHOTONICS PUBLIC PRIVATE PARTNERSHIP

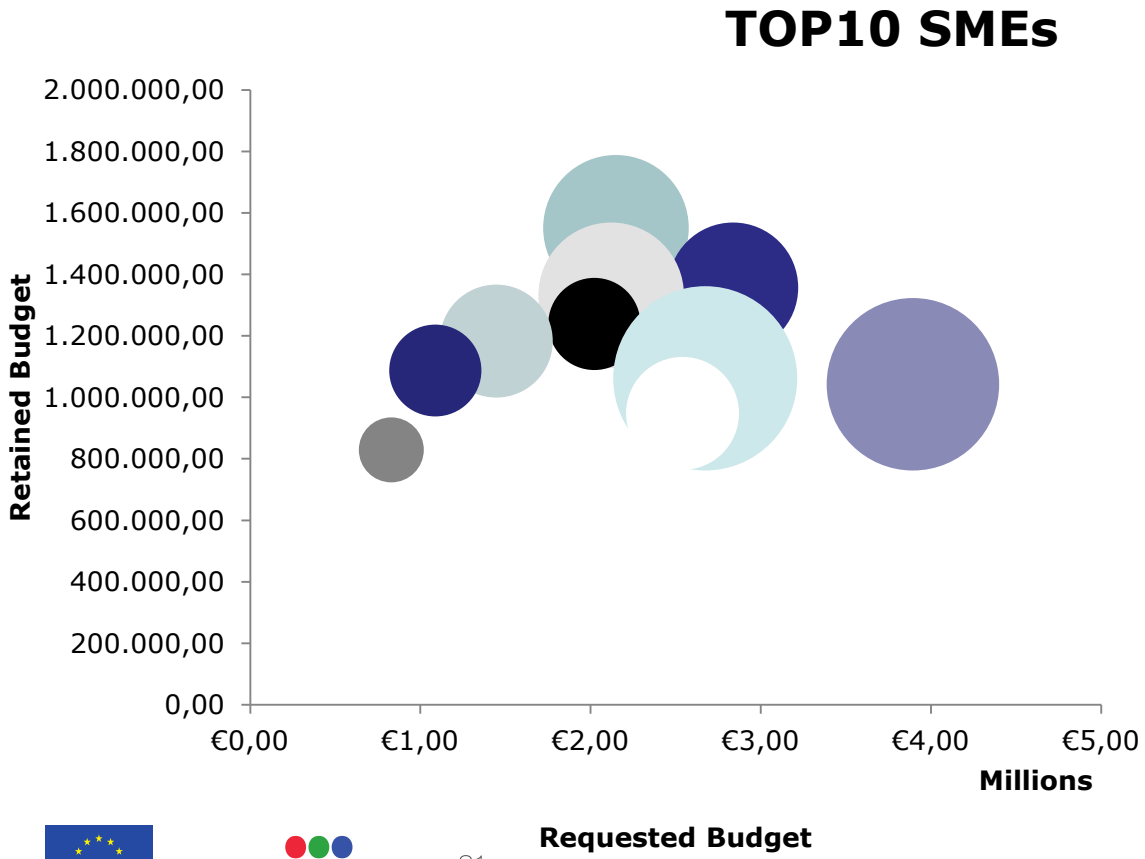
H2020-2014+2015

SMEs allocated Budget by Country



PHOTONICS PUBLIC PRIVATE PARTNERSHIP

H2020-2014+2015

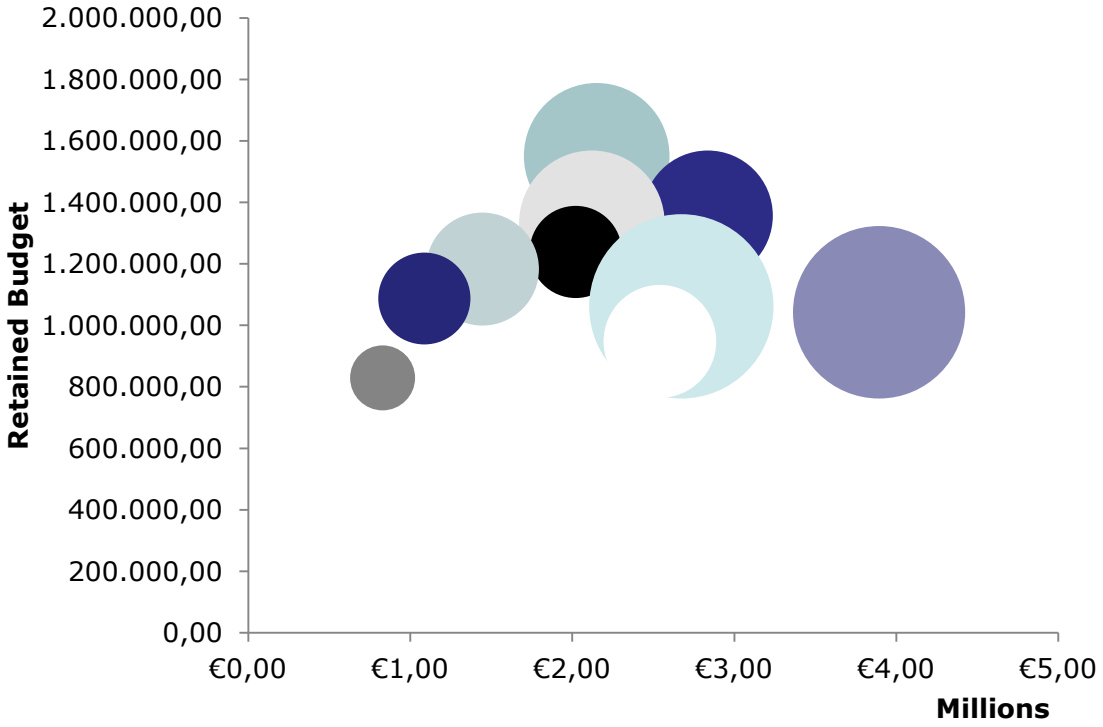


- PICOSUN OY, FI
- Centre for Process Innovation Limited, UK
- VIGO SYSTEM S.A., PL
- TIE NEDERLAND BV, NL
- XIO PHOTONICS BV, NL
- SOLMATES BV, NL
- PHOENIX BV, NL
- LIONIX BV, NL
- NANOPLUS NANOSYSTEMS AND TECHNOLOGIES GMBH, DE
- HELIATEK GMBH,DE

PHOTONICS PUBLIC PRIVATE PARTNERSHIP

H2020-2014+2015

TOP10 SMEs



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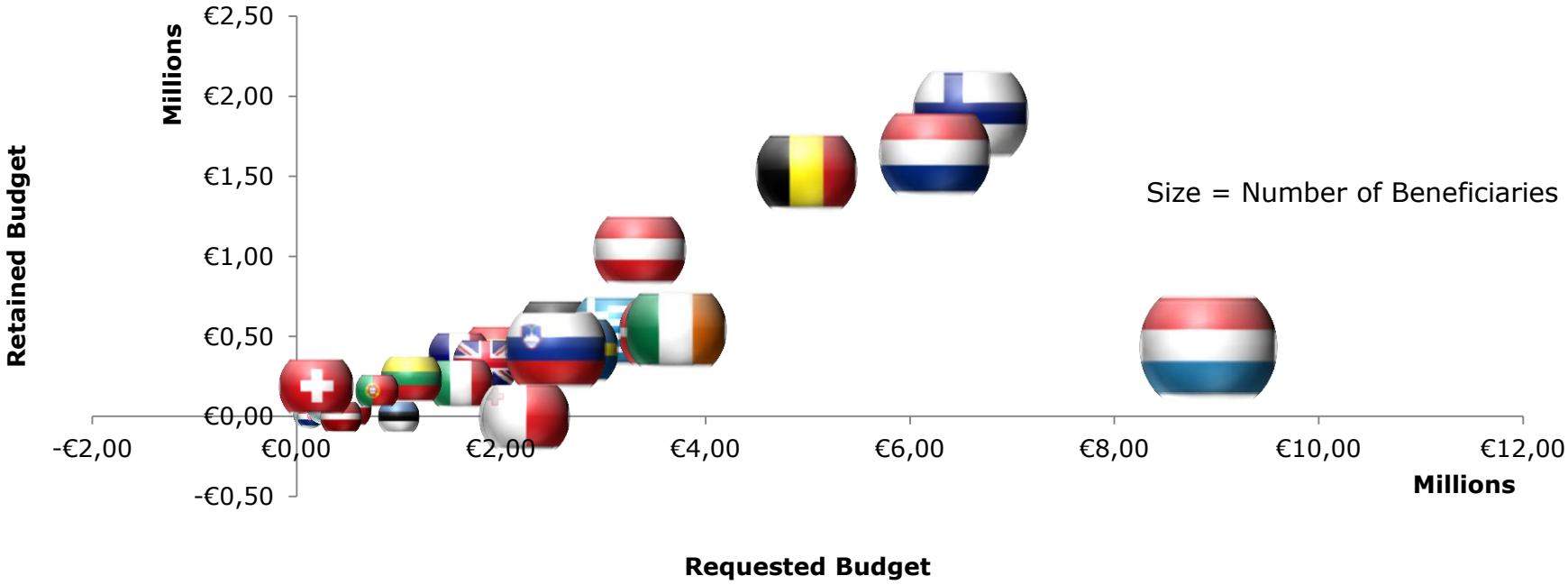
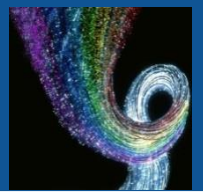
PHOTONICS PUBLIC PRIVATE PARTNERSHIP

Budget retained by country PER CAPITA



PHOTONICS PUBLIC PRIVATE PARTNERSHIP



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OUTLOOK:

EU RESEARCH PRIORITIES 2016/17

Horizon 2020, Industrial Leadership (LEIT) Priority
An Overview of Calls related to the Photonics PPP

LEIT FoF 13
2016
Laser-based manufacturing
30M€

↓

Call Deadline
21 Jan 16

LEIT ICT 29
2016
Photonics KET
66 M€

↓

Call Deadline
12 Apr 16

LEIT ICT 8
2016
5G PPP
40 M€

↓

Call Deadline
8 Nov 16

LEIT ICT 30
2017
Photonics KET
87 M€

↓

Call Deadline
25 Apr 2017

H2020 Horizontal Action for 2016
FTIPilot-01-16: Fast Track to Innovation Pilot
Action targeting Industry; 100M€
Deadlines – 15/3, 1/6, 25/10 2016

SMEinst-01 2016 – 17
Open Disruption Innovation Scheme (SME instrument)
Action targeting Innovative SMEs
Always open calls – 60M€ for '16 & 66M€ for '17

FTI Main Features

European Commission

Fast Track to Innovation Pilot

THE ULTIMATE BOOST FOR OUTSTANDING BUSINESS INNOVATORS WITH A NEED FOR SPEED...

PREPARE YOUR PROPOSAL

Build your industry-intensive consortium*
minimum 3 partners - maximum 5 partners
(all based in the EU and / or in Horizon 2020 associated countries)

Proposal

Outstanding Business Innovation Concept
(high-readiness level / TRL 6, meaning demonstrated in a relevant environment)

Continuous open call until end 2016

6 months time-to-grant

DEVELOP YOUR INNOVATION

Receive an **EU grant of EUR 1 million to 3 million**
(70% of funding, 100% of funding for non-profit entities)

From Mature R&D
Demonstration
Market-Oriented
R&D
to Market-Mature Innovation

12-24 months for implementation

HIT THE MARKET!

Start your commercial activities

The Market
Market-Maturity to Market Launch

Market-ready result
(finished product, service, process/ TRL 9)

At most 36 months from grant to market

*In a consortium with 3 or 4 partners, at least 2 should be industry, and in a consortium with 5 partners, at least 3; alternatively at least 60% of the project budget should be allocated to industry (i.e. private for profit entities)

... AND EAGER TO COMPETE ON GLOBAL MARKETS...!

ACTIVITIES SUPPORTED

Systems validation in real working conditions – Testing – Piloting – Business model validation – Standard setting – Pre-normative research – EU quality label

PHOTONICS 21
PHOTONICS PUBLIC PRIVATE PARTNERSHIP

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FTI Pilot – Industry Involvement

Industry-intensive consortia from EU or Associated Countries meaning:

- Either 2 out of 3-4 partners are “industry” (= private for profit)
- Or 3 out of 5 partners are private for profit
- Or 60% of the budget (= total estimated eligible costs) is to be allocated to consortium partner(s) from industry

Subcontractors allowed but the core must be in the partners

SMEs and first-time industry applicants particularly welcome

FTI

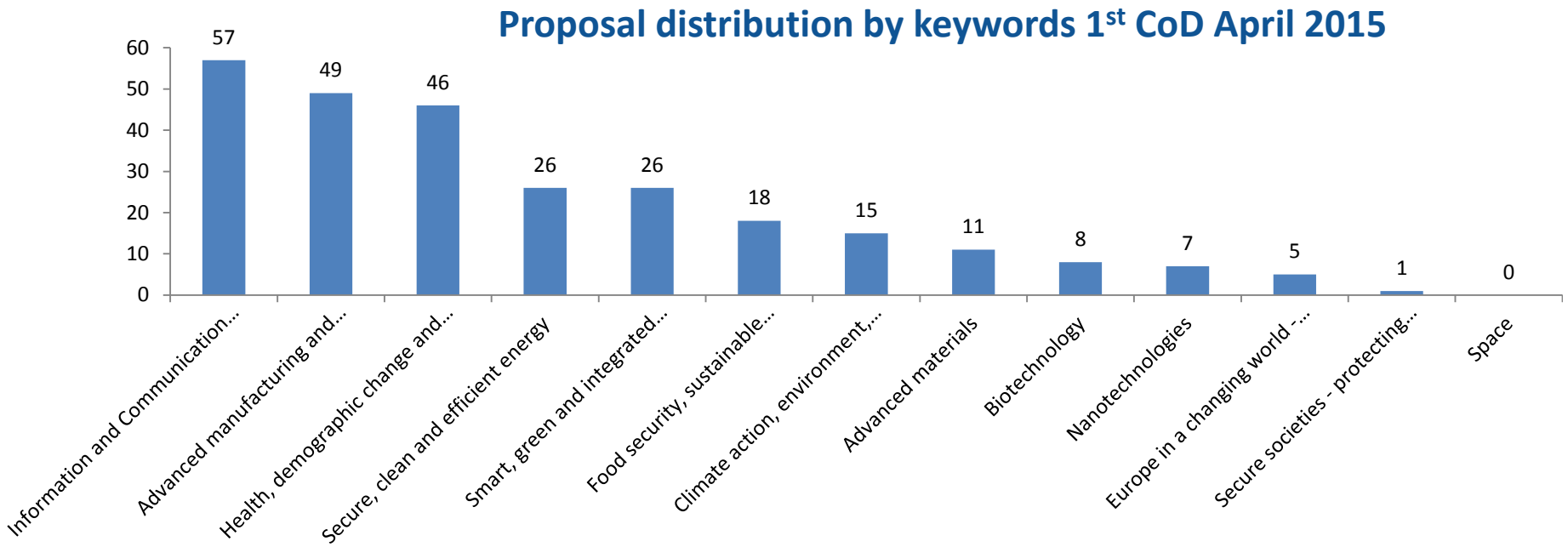
Main Figures

SUBMISSIONS for the 2 first FTI CoD 2015

- 500 proposals received (269 @ 1st and 231 @ 2nd)
- For the first CoD 48 (18%) were above threshold
- 16 proposals from the 1st CoD were retained for funding (33% of above thresholds)
- 5.95% funding success rate for the 1st CoD
- ES IT NL = highest submission rate
- NL DE FR UK = highest funding rate

FTI

Main Figures



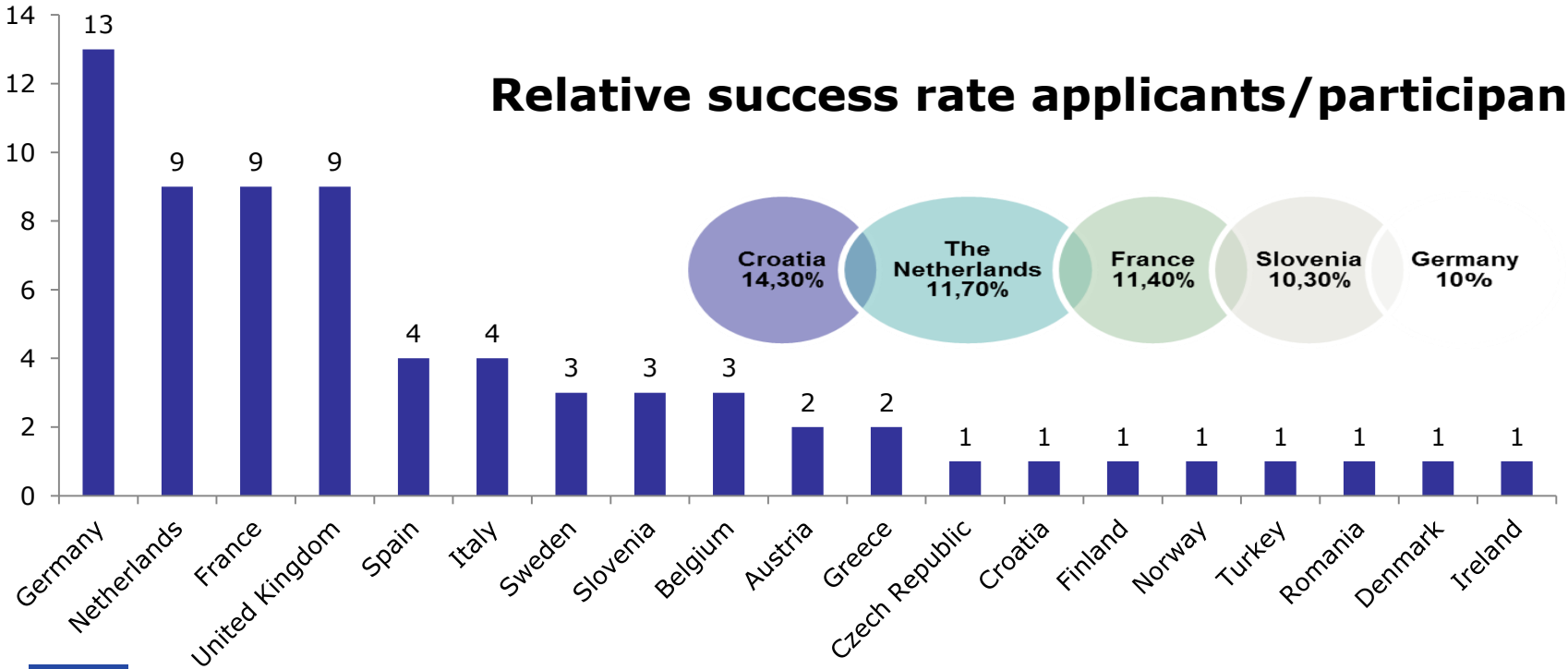
57 proposals (21%) were received for ICT topics

2 proposals (12%) were retained for funding.

For the 2nd CoD results are not yet available

PHOTONICS PUBLIC PRIVATE PARTNERSHIP

FTI pilot project participants per country
(proposals submitted by first cut-off date April 2015)



Relative success rate applicants/participants

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PHOTONICS PUBLIC PRIVATE PARTNERSHIP

WP 2016-17: Photonics in LEIT/ICT priorities for 2016

Photonics KET 2016: 66 M€		2016
Research & Innovation (40 M€)	*Biophotonics:* advancing imaging for in-depth disease diagnosis	
	Breakthrough in miniaturisation of *SSL light* engines and systems	
	Pervasive high-specificity and high sensitivity *sensing* for a safer environment	
Innovation (23 M€)	Microdisplay-based immersive, augmented and virtual reality *visualisation systems*	
	Pilot Line for Assembly and Packaging	
Coordination & Supp (3 M€)	Coordination of regional photonics strategies	
	Photonics enhanced MakerLabs	

PPP Factories of the Future 2016: 30 M€		2016
RIA (15 M€)	"From design to piece" – Excellence in laser-based additive industrial manufacturing	
Innovation (15 M€)	Rapid individualised laser-based production	

PPP 5G in 2016: part of 40 M€		2016
Innovation (part of 40 M€)	Ubiquitous 5G access leveraging optical technologies	

WP 2016-17: Photonics in LEIT/ICT priorities for 2017

Photonics KET 2017: 87 M€		2017
Research & Innovation (41 M€)	Agile Petabit/s Optical Core and Metro Networks	
	Photonic integrated circuit (PIC) technology	
	Disruptive approaches to optical manufacturing by 2 and 3 D opto-structuring	
Innovation (43 M€)	An Innovation Incubator for SMEs	
	Biophotonics: imaging systems for in-depth disease diagnosis	
	Sensing for process and product monitoring and analysis	
Coordination & Supp (3 M€)	Supporting the industrial strategy for photonics in Europe	

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Photonics PPP
ICT 29 – 2016: Photonics KET

European Commission

The Specific Challenge

Photonics: Major S&T progress and R&I investment for competitiveness & leadership in market sectors where Europe has the lead (laser-based manufacturing, medical photonics, sensing, lighting).

- Address fragmented and uncoordinated developments between national, and regional players → EU value chain(s) and business ecosystem(s)
- Exploit the enormous enabling potential of photonics in many industrial sectors & in major societal challenges (such as health and well-being, energy efficiency or safety)
- Exploit the innovation leverage potential of innovation clusters and national platforms
- Increase awareness and improve skills in photonics

ICT 29 – 2016: Photonics KET (1)

ICT 29.a RIA (1/4)

proposals 2-4 M€, 100% funding

40 M€

Application driven core photonic technology developments for a new generation of photonic devices (= components, modules and sub-systems)

– ***Biophotonics: advancing imaging for in-depth disease diagnosis***

- ✓ Innovative, compact, easy to operate non- or minimally invasive **functional imaging** systems that are multi-band and multimodal (photonics and non-photonics technique)
- ✓ **In vivo diagnosis** of age and life-style related diseases **after a positive screening**
- ✓ Label-free or based on already/rapidly safety-approved labels
- ✓ Address unmet medical needs or support a significantly superior diagnostic approach
- ✓ **Physicians/clinicians closely involved** from requirement specifications to validation
- ✓ Include **validation** in clinical settings, but no clinical trials

Expected Impacts: provide metrics, baseline & targets to measure impact

– Substantially improved in-depth diagnosis and more effective treatment of age and life-style related diseases

– Secured and reinforced industrial leadership in the biophotonics related market for Analysis and Diagnostic Imaging Systems

ICT 29 – 2016: Photonics KET (2)

ICT 29.a RIA (2/4)

proposals 2-4 M€, 100% funding

40 M€

Application driven core photonic technology developments for a new generation of photonic devices (= components, modules and sub-systems)

– ***Miniaturization of SSL light engines and systems***

- ✓ Breakthrough miniaturization of SSL (LED and OLED) light engines and systems
- ✓ Allowing for new/revolutionary designs of luminaires and lamps with new form factors
- ✓ Expanding application fields, such as in automotive, signalling, wearables and through integration into building materials
- ✓ Research on the integration of driver electronics and system and functionality aspects may be included.

Expected Impacts: provide metrics, baseline & targets to measure impact

– Improved cost/performance ratio and higher energy efficiency of miniaturized SSL light engines and systems

– Innovative lighting, expanding application fields and markets for lighting solutions and maintained European industrial leadership in the global lighting market

ICT 29 – 2016: Photonics KET (3)

ICT 29.a RIA (3/4)

proposals 2-4 M€, 100% funding

40 M€

Application driven core photonic technology developments for a new generation of photonic devices (= components, modules and sub-systems)

– ***Pervasive high-specificity and high-sensitivity sensing for a safer environment***

- ✓ Breakthrough advances in cost-effective, compact, high-performance (both in specificity and sensitivity) photonic devices (incl. sources)
- ✓ For pervasive (i.e. large area coverage) near & mid-infrared sensing applicat. (2 - 12 µm) for a safer environment, such as monitoring of water and air quality at large scale
- ✓ Include **validation** of the device and proof of its suitability for the targeted application
- ✓ Hybrid solutions (core photonic technology + other technologies) are allowed

Expected Impacts: provide metrics, baseline & targets to measure impact

– Better and pervasive environmental sensing and a safer environment

– Secured and reinforced industrial leadership in sensing applications for the environment

ICT 29 – 2016: Photonics KET (4)

proposals 2-4 M€, 100% funding

40 M€

ICT 29.a RIA (4/4)

Application driven core photonic technology developments for a new generation of photonic devices (= components, modules and sub-systems)

Additional Issues:

- Address manufacturability and validation of results
- Address standardisation as appropriate
- Strong **industrial commitment**, driven by **user needs** and **concrete business cases** supported by strong exploitation strategies
- Cover the **value/supply chain** as appropriate
- Action may include related materials

ICT 29 – 2016: Photonics KET (5)

European Commission

ICT 29.b IA (1/2)

proposals 2-4 M€, 70 % funding

23 M€

- **Core photonic devices integrated in microdisplay-based immersive, augmented and virtual reality visualisation systems**
  - Validation and demonstration of new systems for key applications in e.g. healthcare, maintenance & training, entertainment, tourism or sports
  - May include wearable systems, as well as large projection systems
  - Include **standardisation** activities
  - Demonstrate strong **industrial commitment**, be driven by **user needs** and **concrete business cases** supported by strong exploitation strategies
  - Cover the whole value/supply chain and the end-user

Expected Impacts: provide metrics, baseline & targets to measure impact

- Major benefits for the users and end-markets from immersive, augmented and virtual reality visualisation systems
- Increased market presence in augmented and virtual reality visualisation systems

ICT 29 – 2016: Photonics KET (6)

European Commission

ICT 29.b IA (2/2)

proposals 6-14 M€, 70% funding

23 M€

- **Pilot line for Assembly and Packaging** (synergies and co-financing possible!)
  - Focus: set-up a pilot line for assembly and packaging of integrated photonic components
  - Generic solutions for a wide class of PICs (Photonic Integrated Circuits) as well as for the more demanding requirements of some selected PIC-based product groups
  - **Cover all stages** of manufacturing through to testing
  - Low entry barrier access to low & medium production volumes (scalable to high volume)
  - Should be **validated** through pre-commercial pilot runs for external users
  - A credible **strategy to future full-scale manufacturing in Europe** is expected
  - Should be driven by the key stakeholders able to set-up and run such pilot lines, and cover the value chain as appropriate

Expected Impacts: provide metrics, baseline & targets to measure impact

- Industrial assembly and packaging of integrated photonic components in Europe and providing cost effective assembly and packaging solutions for SMEs
- Strengthening Europe's position in the manufacture of integrated photonic components and covering the full value chain in Europe

ICT 29 – 2016: Photonics KET (7)

European Commission

proposals up to 1,5 M€, minimum 1 per theme, 100% funding

3 M€

ICT 29.c Coordination and Support Actions (1/2)

– **Coordination of regional photonics strategies**

Objective is to stimulate collaboration of photonics clusters with the aim to

- Extend the range of Go-To-Market services for SMEs (including access to finance) through exchanging and adopting best practises,
- Network the SMEs with potential collaborators, business partners and customers,
- Coordinate regional, national and European strategies and financial resources to the benefit of the local ecosystem and regional smart specialisation strategies
- Actions should build on on-going support actions in this field

Expected Impacts: provide metrics, baseline & targets to measure impact

– Improved coordination of strategies and resources within Europe and effective reinforcement of the European photonics sector

ICT 29 – 2016: Photonics KET (8)

proposals up to 1,5 M€, minimum 1 per theme, 100% funding

3 M€

ICT 29.c Coordination and Support Actions (2/2)

– **Photonics enhanced MakerLabs** (synergies and co-financing possible!)

- Raise awareness, support hands-on learning and enhance skills of students, technicians and young professionals interested in photonics
- Extend existing facilities in order to provide access to photonic components, photonics-based equipment and related support services

Expected Impacts: provide metrics, baseline & targets to measure impact

– A larger and better skilled photonics workforce and improved innovation capacity in photonics

WP 2016-17: Photonics in LEIT/ICT priorities for 2016

Photonics KET 2016: 66 M€		2016
Research & Innovation (40 M€)	*Biophotonics:* advancing imaging for in-depth disease diagnosis	
	Breakthrough in miniaturisation of *SSL light* engines and systems	
	Pervasive high-specificity and high sensitivity *sensing* for a safer environment	
Innovation (23 M€)	Microdisplay-based immersive, augmented and virtual reality *visualisation systems*	
	Pilot Line for Assembly and Packaging	
Coordination & Supp (3 M€)	Coordination of regional photonics strategies	
	Photonics enhanced MakerLabs	

PPP Factories of the Future 2016: 30 M€		2016
RIA (15 M€)	"From design to piece" – Excellence in laser-based additive industrial manufacturing	
Innovation (15 M€)	Rapid individualised laser-based production	

PPP 5G in 2016: part of 40 M€		2016
Innovation (part of 40 M€)	Ubiquitous 5G access leveraging optical technologies	

FOF-13-2016: Photonics Laser-based production

The Specific Challenge

Laser-based manufacturing has become very competitive and is one of the back-bones of modern production technologies.

- The trend to individualisation requires a high degree of digitization as well as tools and systems which are highly autonomous and automated to reduce production time and costs
- Laser-based Additive Manufacturing (AM) is used for prototyping and has begun to penetrate some smaller markets (such as repair, dental), however it is **not yet competitive on a larger scale** especially with respect to production speed and costs. (Roland Berger estimates AM market totals 1.7B€ in 2012 growing to 7.7B€ in 2023, higher growth is expected for metal AM)
- A better mastering of all stages of the process chain and their interaction is necessary

FOF-13-2016: Photonics Laser-based production

An Overview of the Actions called: 30 M€

ICT13.a Research and Innovation Actions — 15 M€

- From "design to piece" – Excellence in laser-based additive industrial manufacturing

FOF Call
DDL: 21 JAN 2016

ICT13.b Innovation Actions — 15 M€

- Rapid individualised laser-based production

FOF-13-2016: Photonics Laser-based production

proposals 2-4 M€, 100% funding

15 M€

FOF 13.a Research and Innovation Actions

From "design to piece" – Excellence in laser-based additive industrial manufacturing

- ✓ Laser-based additive industrial manufacturing of **metallic materials**
- ✓ All process chain steps may be addressed, for example:
  - ✓ CAD,
  - ✓ modelling of the additive process,
  - ✓ additive process including the use of several materials in a single work piece,
  - ✓ process control and quality assurance,
  - ✓ combination of additive and subtractive processes,
  - ✓ surface finish and precision, etc.
- ✓ Proposals must cover **at least two important steps** in the process chain and the relevant **links between them**
- ✓ **Goal:** improve the performance (speed & costs) for high quality work pieces

Complements topic FOF-1-2016 Novel hybrid approaches for additive and subtractive manufacturing machines

FOF-13-2016: Photonics Laser-based production

FOF 13.a Research and Innovation Actions

Additional Issues:

- Address standardisation as appropriate
- Driven by **concrete business cases**,
- Proposals should contain an outline business case and industrial exploitation strategy
- Include the relevant partners of the value chain

Expected Impacts: provide metrics, baseline & targets to measure impact

- Reinforced industrial leadership in laser-based Additive Manufacturing
- Substantially improved production speed, improved productivity and substantially reduced costs of laser-based Additive Manufacturing

FOF-13-2016: Photonics Laser-based production

European Commission

proposals 2-4 M€, 70 % funding

15 M€

FOF 13.b Innovation Actions

Rapid individualised laser-based production

- Development and set-up of efficient, **highly flexible high throughput pilot facilities** on the basis of **existing** laser-based production processes
- **Validation in real settings**
- Advances in several aspects such as intelligent networking and machine cooperation, data handling, modelling, work piece handling, beam delivery, integration of different processes, monitoring, process control etc.
- **Industry driven** and include the key stakeholders running the pilot facility
- Proposals should contain an outline business case and industrial exploitation strategy

Expected Impacts: provide metrics, baseline & targets to measure impact

- More efficient, more flexible and higher throughput of individualised laser-based production
- Improved competiveness and strengthened Europe's market position of laser-based manufacturing industry (equipment and suppliers) and the end-user industry

FOF-13-2016: Photonics Laser-based production

European Commission

Other topics related to advanced and additive manufacturing

- FOF-01-2016: Novel hybrid approaches for additive and subtractive manufacturing machines
- FOF-05-2016: Support for the further development of Additive Manufacturing technologies in Europe
- PILOTS-04-2017: Pilot Lines for 3D printed and/or injection moulded polymeric or ceramic microfluidic MEMS
- SMEInst-02-2016-2017: Accelerating the uptake of nanotechnologies advanced materials or advanced manufacturing and processing technologies by SMEs
- INNOSUP-03-2017: Technology services to accelerate the uptake of advanced manufacturing technologies for clean production by manufacturing SMEs

WP 2016-17: Photonics in LEIT/ICT priorities for 2017

Photonics KET 2017: 87 M€		2017
Research & Innovation (41 M€)	Agile Petabit/s Optical Core and Metro Networks	
	Photonic integrated circuit (PIC) technology	
	Disruptive approaches to optical manufacturing by 2 and 3 D opto-structuring	
Innovation (43 M€)	An Innovation Incubator for SMEs	
	Biophotonics: imaging systems for in-depth disease diagnosis	
	Sensing for process and product monitoring and analysis	
Coordination & Supp (3 M€)	Supporting the industrial strategy for photonics in Europe	

For more information

Infoday *on call ITC-29-2016,*

12 January 2016, Brussels, MADOU center, Place Madou, 1

https://ec.europa.eu/digital-agenda/en/news/infoday-h2020-photonics-calls-save-date

H2020 briefing event in London on photonics related calls

https://ec.europa.eu/digital-agenda/en/news/h2020-briefing-event-london-photonics-related-calls

ICT29; FoF13; ICT2; IOT1; ICT4.

PHOTONICS PUBLIC PRIVATE PARTNERSHIP

European Commission

INTERNATIONAL YEAR OF LIGHT 2015

Art Culture Education Nature Science Sustainability Technology

EXTENDING THE IMPACT OF PHOTONICS ACTIVITIES BEYOND R&I

We must use the resources efficiently and effectively!

-Coordinate at European level with national and regional stakeholders

-Joint funding with Member States and Regions

- ⇒ ***aligning strategy by working together through H2020 (CSA, ERANET+) and ESIF (smart specialisation)***
- ⇒ *Trigger regions to invest in Photonics, to start new Photonics initiatives with other regions & to jointly launch calls with the Photonics PPP*

-Innovation clusters and value chain support (to benefit SMEs)

- ➢ ***Provide access to Photonics infrastructure to industry, esp SME.***

Regional activities in photonics

The regions with active companies/institution active in Photonics, in red, as from a survey of beneficiaries of our calls are many more than those who declared Photonics as Smart Specialization, in green. In blue the outcome of survey conducted in 2012

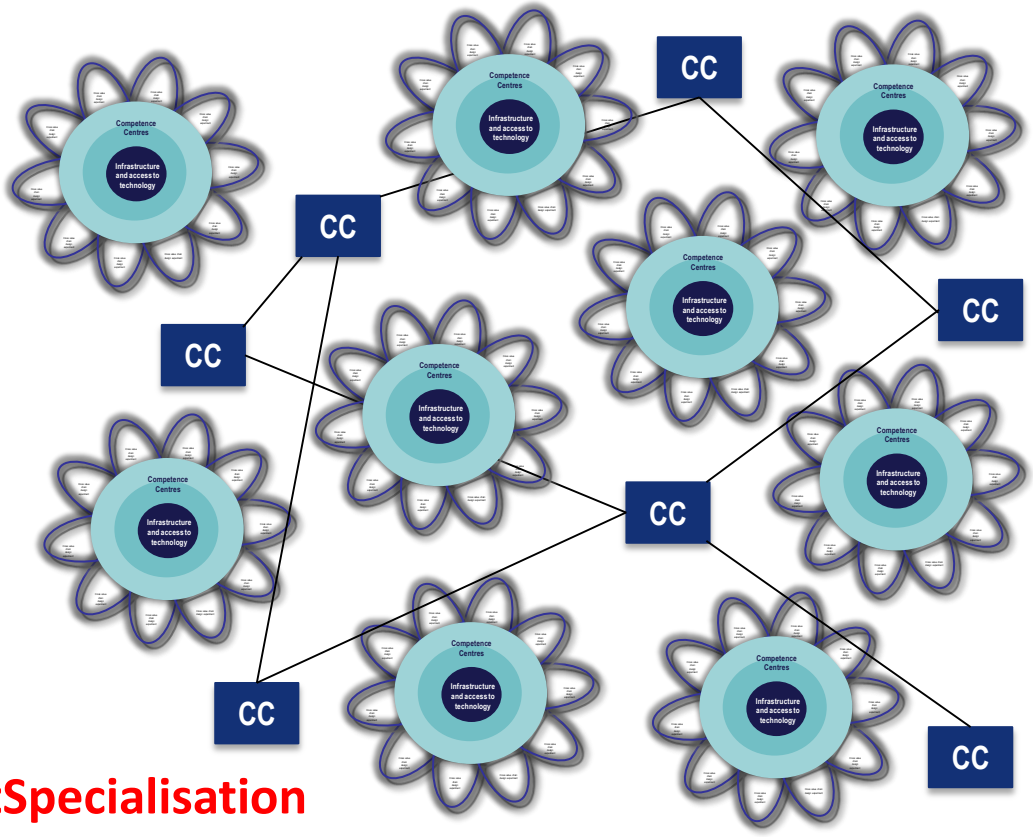
40+ National Platform and Regional Innovation Clusters

Enabling "access" to latest digital technologies and expertise

Smart Anything Everywhere Initiative EU-wide network of Competence Centres Acting as the heart of Digital Innovation Hubs

Competence Centres

- Access to technology
- Service for developing products
- Skills development
- Infrastructure provisioning
- Broker between suppliers and users

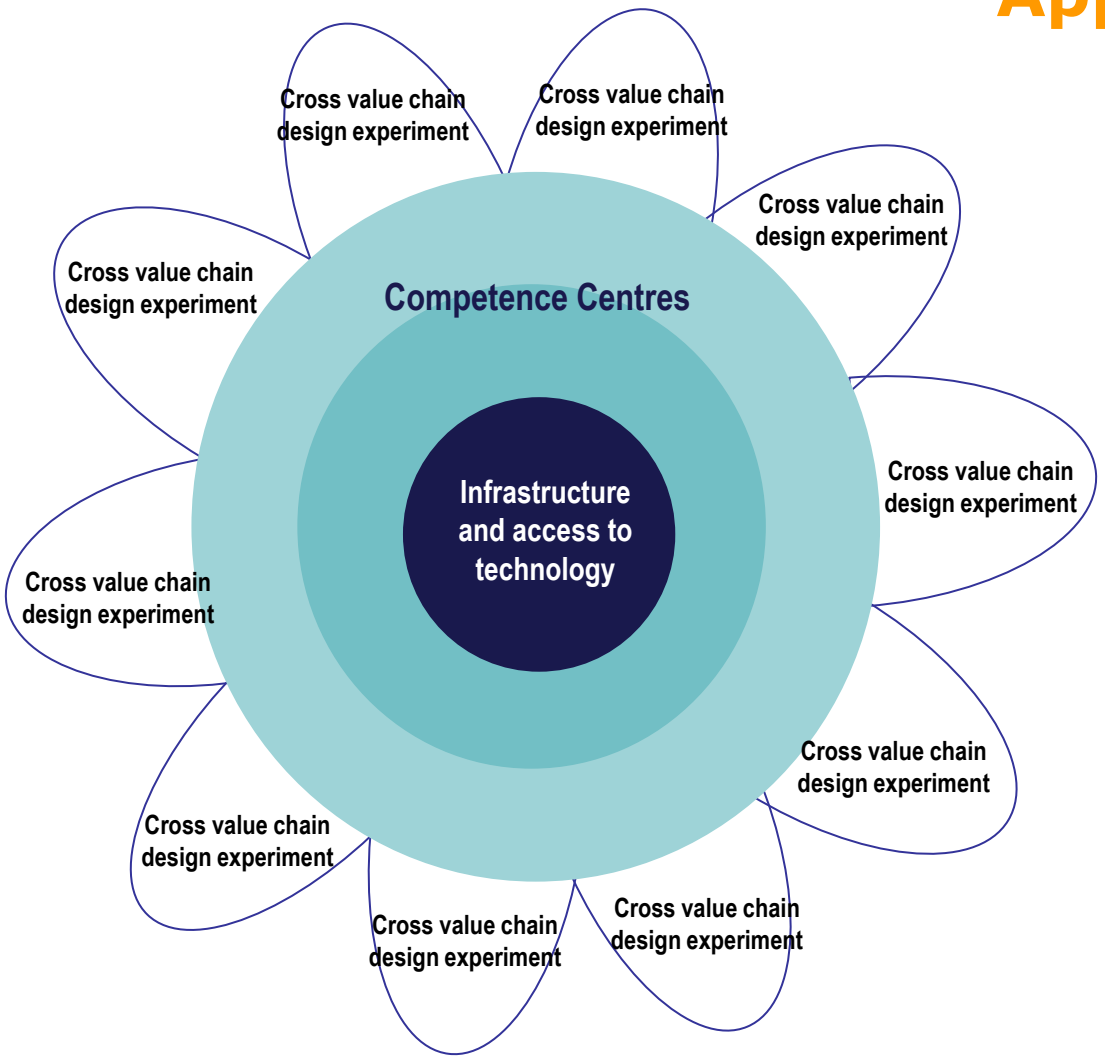


- Builds on **Regional strengths/SmartSpecialisation**
- Flexible and scalable
- H2020 funding can be augmented with
  - regional/structural funds, e.g. ESIF

https://smartanythingeverywhere.eu/

Enabling "access" to latest digital technologies and expertise

Smart Anything Everywhere Initiative Application Experiments



Aim is to develop novel products or services with digital technologies

Application experiments should be driven by **user requirements**.

Bring together actors along value chain.

Experts to **assist new users in customising and applying digital technologies** in their environment.

ACTPHAST: support to innovative SMEs (1/11/2013-30/10/2017)

ACTPHAST (8 M€ funding) aims at lowering and even removing roadblocks for companies that want to innovate their products with photonics technologies





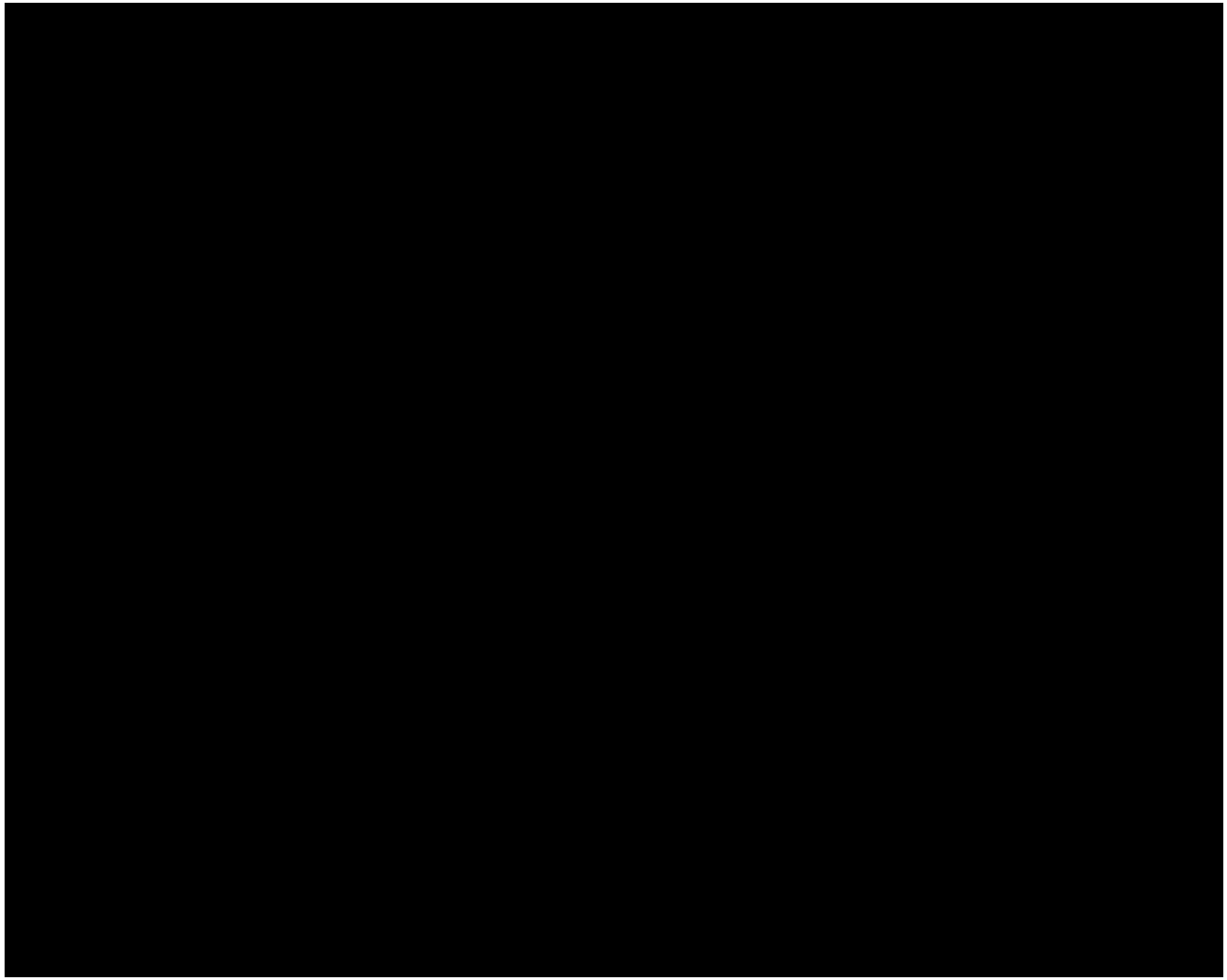



115 innovation projects expected in 4 years

40K€ average cost per innovation project

Leverage effect on R&D 2.5, 832 new jobs, increase of 100€ revenues per each 1€ funded

ACTPHAST: one-stop-shop



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PHOTONICS PILOT LINES (for pre-manufacturing)

Pix4life

PICs
for health & food
8.5 M€ funding
15 partners
47% industry

- Imec, Lionex, Tyndall
- Phoenix Software, Luceda Photonics
- CMOSIS, Xio Photonics
- Medlumics, Robert Bosch

PiScale

OLEDs on flexible substrates
14 M€ funding
14 partners
24% industry

- Holst-TNO, Fraunhofer FEP, VTT, CPI, Teknologian
- EmdeDesign, REHAU, Audi

MirPhab

Analytical MIR sensing

13 M€ funding
18 partners
35% industry

- CEA Leti,Fraunhofer iaf, ipms ipt
- Nanoplus II-V Lab
- Phoenix Software
- Alpes Lasers, mirSense, IQE
- Cascade Technologies, Robert Bosch

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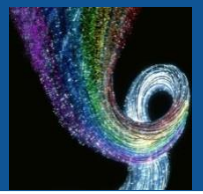

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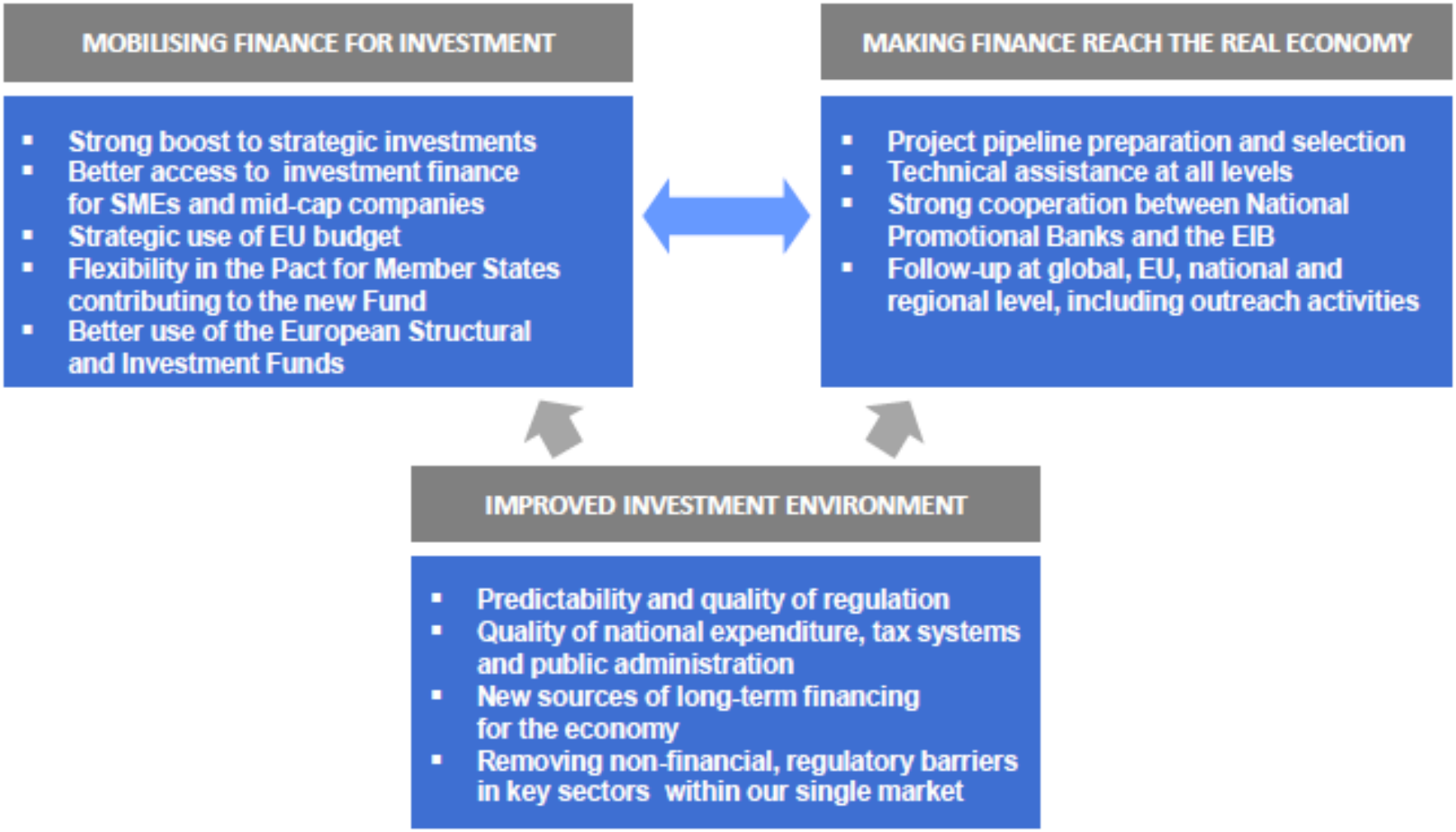
INTERNATIONAL YEAR OF LIGHT 2015

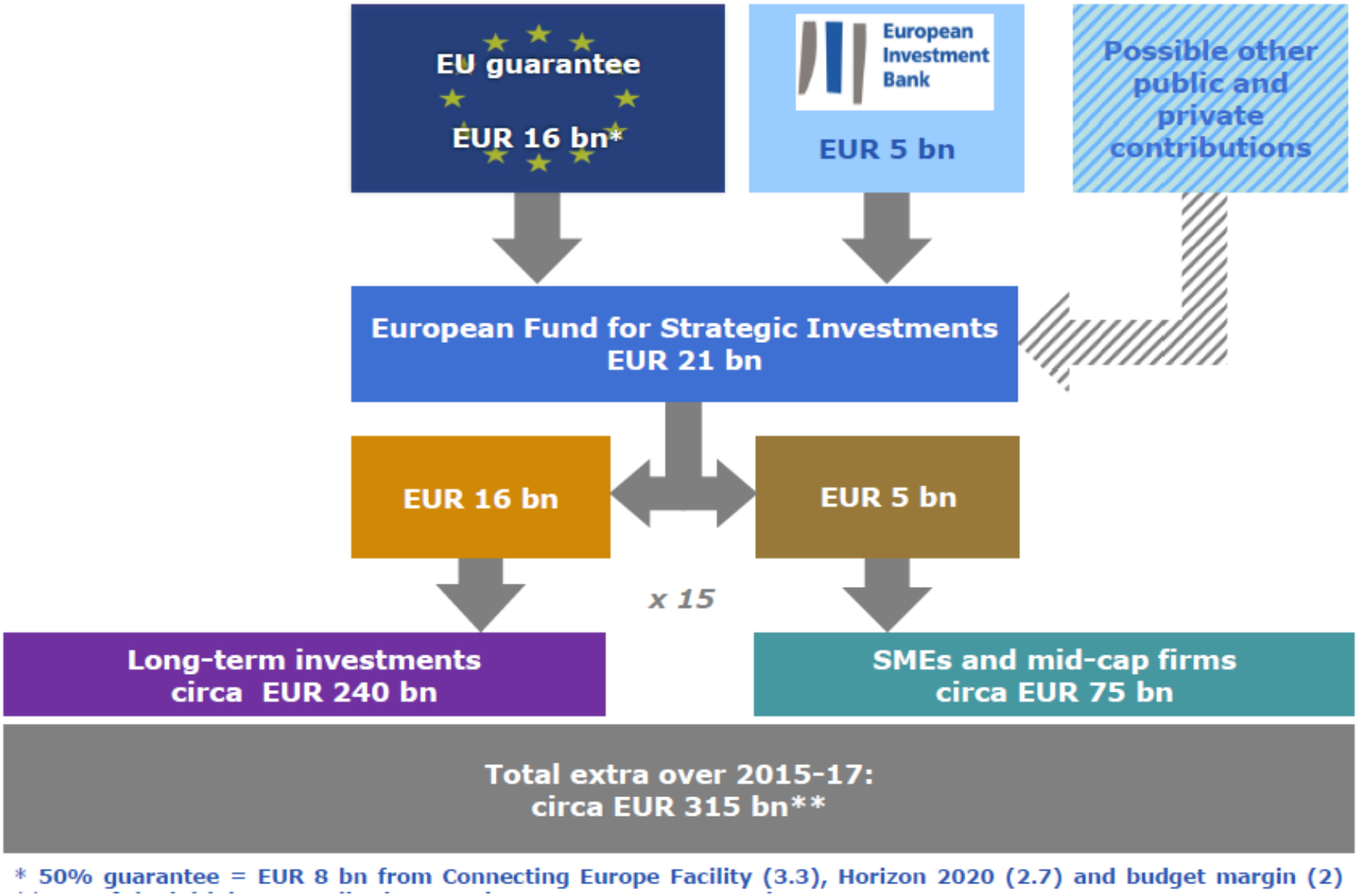
Art Culture Education Nature Science Sustainability Technology

IMPROVE ACCESS TO FINANCE

European Fund for Strategic Investments

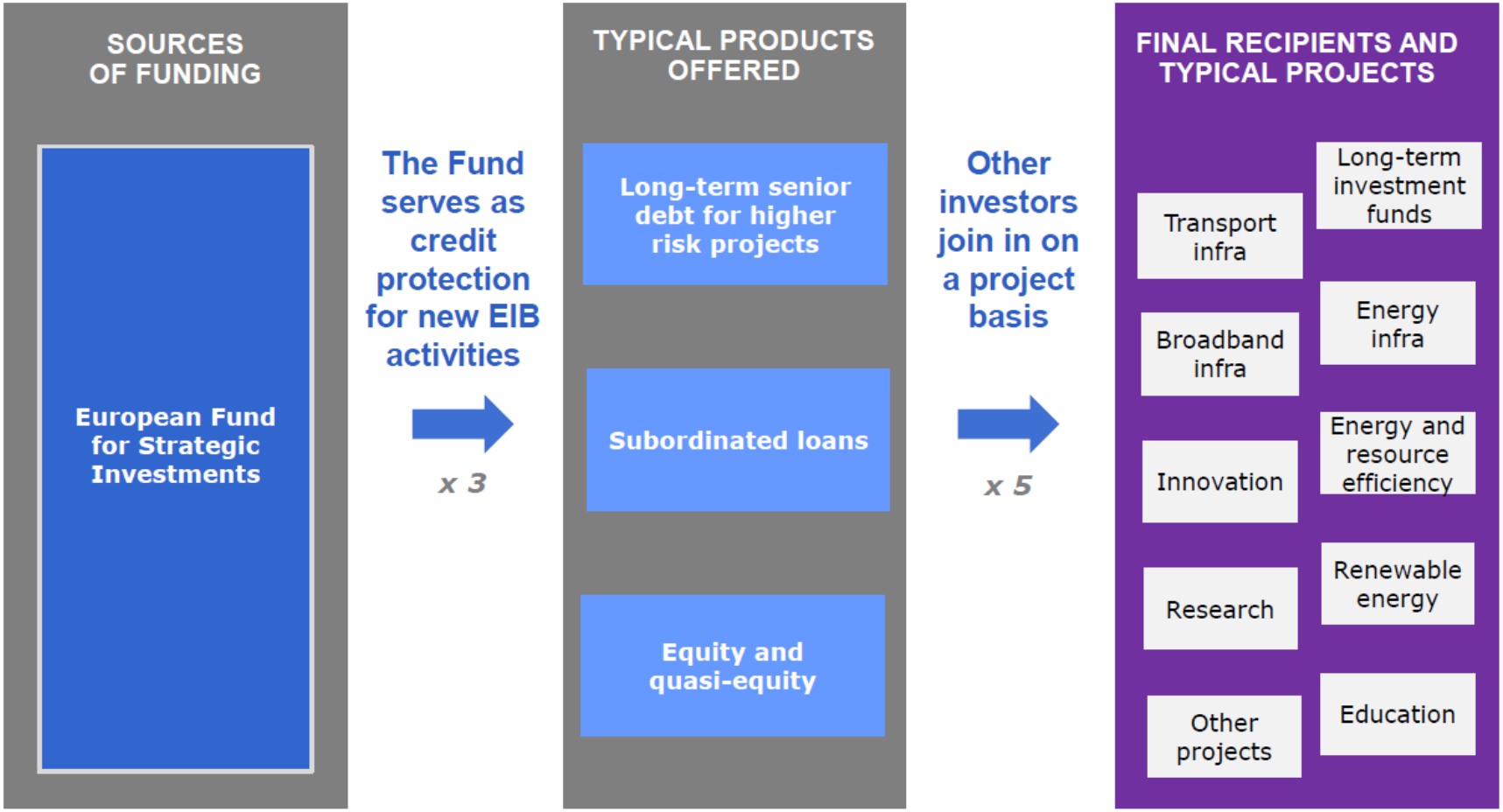


Access to Finance: European Fund for Strategic Investments



* 50% guarantee = EUR 8 bn from Connecting Europe Facility (3.3), Horizon 2020 (2.7) and budget margin (2)

Long Term Investments



EUR 1 of public contribution => circa EUR 3 of financing => circa EUR 15 of total investment

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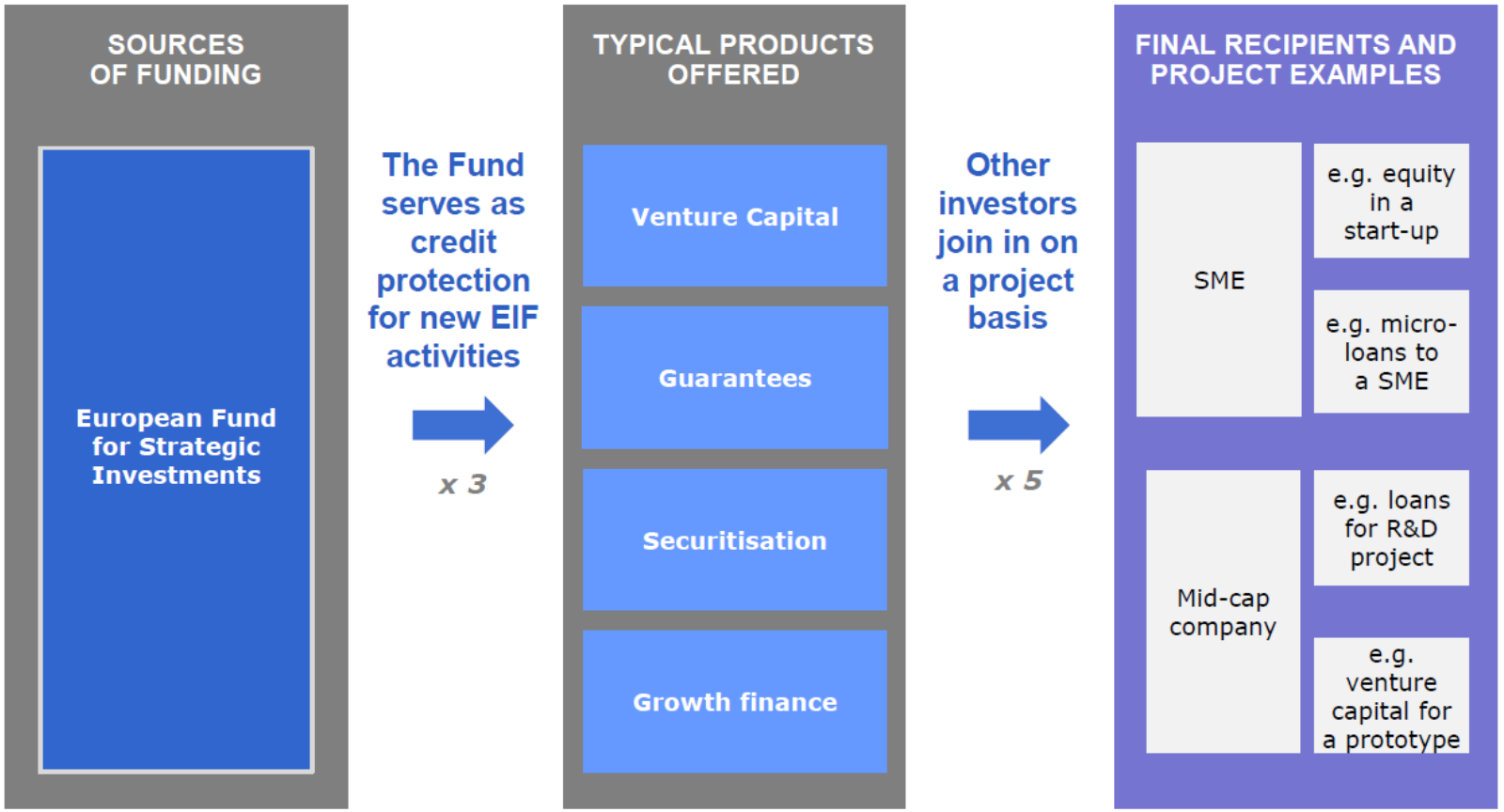
SME and mid caps



EUR 1 of public contribution => circa EUR 3 of financing => EUR 15 of total investment

Concluding remarks (1)

- ***Photonics has achieved broad recognition***
  - *One of the **Key Enabling Technologies** in EU*
  - *Very visible in **FP7** and **H2020***

INTERNATIONAL YEAR OF LIGHT

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- ***Very well organised community***
  - *Photonics PPP a partnership with huge potential*
  - *Strategic Research Agenda played a key role in FP7*

Concluding remarks (2)

- The Photonics PPP and H2020 bring a strong emphasis on industrial involvment and closer-to-the-market actions, e.g. innovation actions and first pilot lines in 2015
- The EU is well aware of the contribution of SME, and has put actions in place to specifically support them in several ways:
  - Direct funding of R&I activities, access to services, coordination at EU, national and regional level, access to finance
    - To exploit Europe's full potential in photonics alignment of policies and strategies across the value-chain and between EU, national and regional players is required.
    - Use of additional funding from innovFin, Juncker Plan enable access-to-finance to help photonics SMEs and mid-caps to grow
    - Regional Smart Specialisation Strategies supported by ESIF play also a key role for leveraging innovation potential of photonics cluster.

For more information

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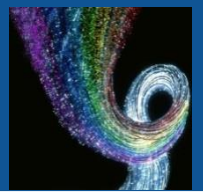

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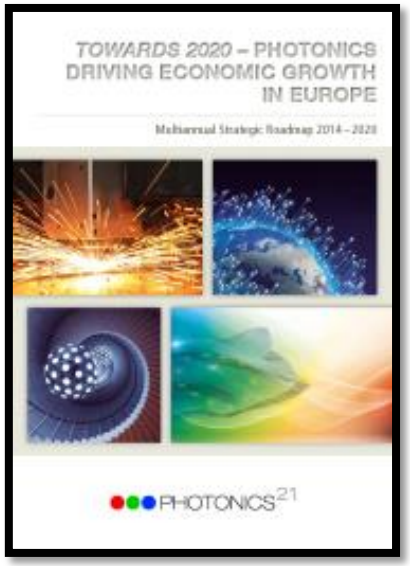
- **Horizon 2020** http://ec.europa.eu/programmes/horizon2020/en/
- **Participant Portal** http://ec.europa.eu/research/participants/portal/desktop/en/home.html

- **Photonics21 and Photonics Public Private Partnership:**

PHOTONICS 21

http://www.photonics21.org



Have your say!

Photonics Public Private Partnership
Annual Meeting 2016

1st and 2nd March 2016, Le Plaza Hotel Brussels

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