



Horizon 2020 calls

Supporting "Digitising European Industry" initiative

Delegazione Confindustria Bruxelles, 24 novembre 2016

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DG CONNECT*



Digitising European Industry	Implementation in H2020
Coordination of European, national & regional initiatives	<i>Round Tables, Working groups on DIH and platforms, Stakeholder Forum</i>
Pan-European network of Digital Innovation Hubs (DIHs)	(I4MS, SAE)
Industrial platforms and large scale pilots	(Advanced Low-Power Computing, Big Data, Photonics, Robotics)
Digital Skills & Jobs	<i>Digital Skills and Jobs Coalition, Europe's Digital Progress Report (EDPR).</i>
Regulatory Framework	<i>Free Flow of Data Initiative (+others)</i>



Digitising European Industry	Implementation in H2020 (CALLS)
Coordination of European, national & regional initiatives	
Pan-European network of Digital Innovation Hubs (DIHs)	FOF-12-2017: ICT Innovation for Manufacturing SMEs (I4MS) ICT-04-2017: Smart Anything Everywhere Initiative
Industrial platforms and large scale pilots	ICT-05-2017: Customised and low energy computing ICT-14 => ICT-17-2017: Big Data ICT-25 => ICT-28-2017: Robotics ICT-30-2017: Photonics
Digital Skills & Jobs	
Regulatory Framework	

H2020 call	Deadline, budget
FOF-12-2017: ICT Innovation for Manufacturing SMEs (I4MS)	19/1/2017 32M€ (IA), 1M€ (CSA)
ICT-04-2017: Smart Anything Everywhere Initiative	08/11/2016 25.5M€ (IA), 1M€ (CSA)
ICT-05-2017: Customised and low energy computing	25/04/2017 20+10M€ (RIA), 2M€ (CSA)
ICT-14 => ICT-17-2017: Big Data	25/04/2017 27+25M€ (IA), 33+2M€(RIA)
ICT-27 => ICT-28-2017: Robotics	25/04/2017 30M€ (RIA), 11M€ (IA), 7M€ (PCP), 5M€ (CSA)
ICT-30-2017: Photonics	25/04/2017 43M€ (RIA), 43M€ (IA), 3M€ (CSA)

H2020 call

FOF-12-2017: ICT Innovation for Manufacturing SMEs (I4MS)

Deadli

11/08/16, 11€ (CSA)

ICT-04-2017: Smart
Everywhere Initia

08/11/2016

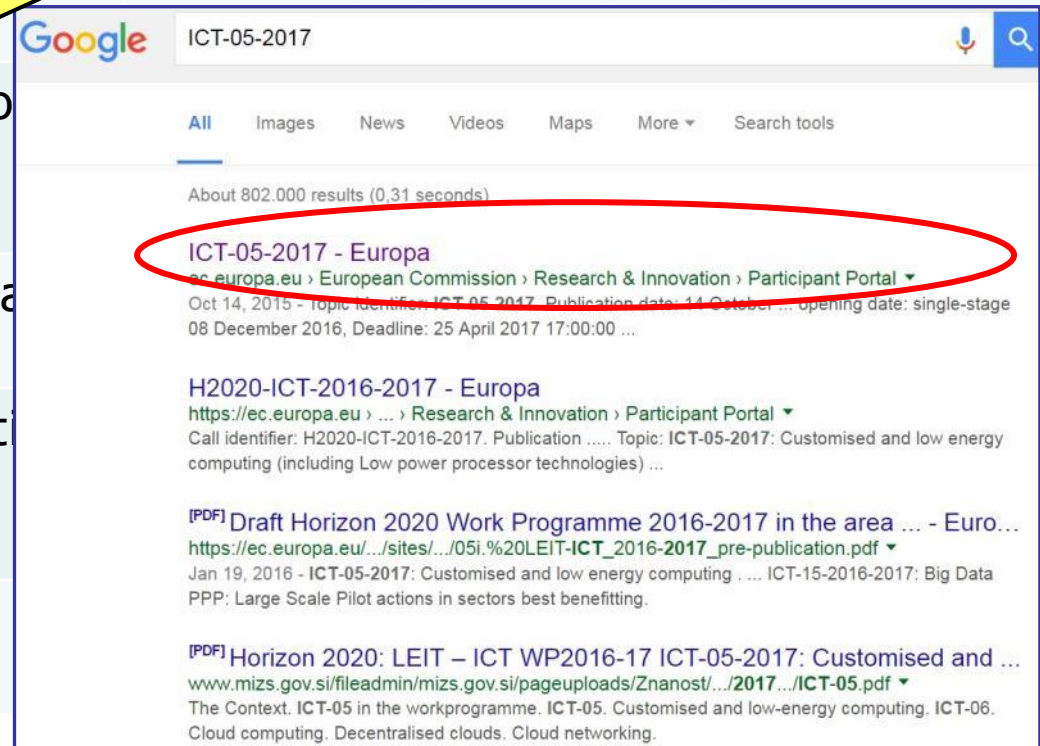
ICT-05-2017: Customised and low energy computing (including Low power processor technologies)

ICT-17-2017: Big Data

ICT-27 => ICT-28-2017: Roboti

ICT-30-2017: Photonics

Check the official call data on the Participant Portal!



Google ICT-05-2017

All Images News Videos Maps More Search tools

About 802.000 results (0.31 seconds)

ICT-05-2017 - Europa
ec.europa.eu > European Commission > Research & Innovation > Participant Portal ▾
Oct 14, 2015 - Topic identifier: ICT-05-2017. Publication date: 14 October ... opening date: single-stage
08 December 2016, Deadline: 25 April 2017 17:00:00 ...

H2020-ICT-2016-2017 - Europa
<https://ec.europa.eu> > ... > Research & Innovation > Participant Portal ▾
Call identifier: H2020-ICT-2016-2017. Publication Topic: ICT-05-2017: Customised and low energy computing (including Low power processor technologies) ...

[PDF] Draft Horizon 2020 Work Programme 2016-2017 in the area ... - Euro...
https://ec.europa.eu/sites/default/files/2016-10/05i.%20LEIT-ICT_2016-2017_pre-publication.pdf ▾
Jan 19, 2016 - ICT-05-2017: Customised and low energy computing ... ICT-15-2016-2017: Big Data
PPP: Large Scale Pilot actions in sectors best benefitting.

[PDF] Horizon 2020: LEIT – ICT WP2016-17 ICT-05-2017: Customised and ...
www.mizs.gov.si/fileadmin/mizs.gov.si/pageuploads/Znanost/2017/ICT-05.pdf ▾
The Context. ICT-05 in the workprogramme. ICT-05. Customised and low-energy computing. ICT-06.
Cloud computing. Decentralised clouds. Cloud networking.

... and don't forget ECSEL JU

THE PUBLIC-PRIVATE PARTNERSHIP KEEPING EUROPE AT THE FOREFRONT OF TECHNOLOGY DEVELOPMENT

Electronic Components and Systems are a pervasive Key Enabling Technology, impacting all industrial branches and almost all aspects of life.

ECSEL JU offers funding for Research, Development and Innovation projects with unparalleled systemic and strategic impact for smart, sustainable and inclusive economic growth.





The ECSEL JU Objectives

Contribute to the development of a strong and globally competitive electronics components and systems industry in the European Union;

Ensure the availability of electronic components and systems for key markets and for addressing societal challenges, keeping Europe at the forefront of technology development, bridging the gap between research and exploitation, strengthening innovation capabilities and creating economic and employment growth in the Union;

Align strategies with Member States to attract private investment;

Maintain and grow semiconductor and smart system manufacturing capability in Europe;

Secure and strengthen a commanding position in design and systems engineering;

Provide access for all stakeholders to a world-class infrastructure for design and manufacturing;

Build a dynamic ecosystem involving Small and Medium-Sized Enterprises (SMEs), strengthening existing clusters and creating new clusters.

Members

the European Union (through the Commission);

Member States and Associated Countries to the [Framework Programme Horizon 2020](#) on a voluntary basis;

Three associations ([EPoSS](#), [AENEAS](#) and [ARTEMIS Industry Association](#)) representing the actors from the areas of micro- and nano-electronics, smart integrated systems and embedded/cyber-physical systems.

(ECSEL 2017 workprogramme to be published)



FOF-12-2017

ICT Innovation for Manufacturing SMEs (I4MS)

FOF 12 - ICT Innovation for Manufacturing SMEs (I4MS) – Phase 3

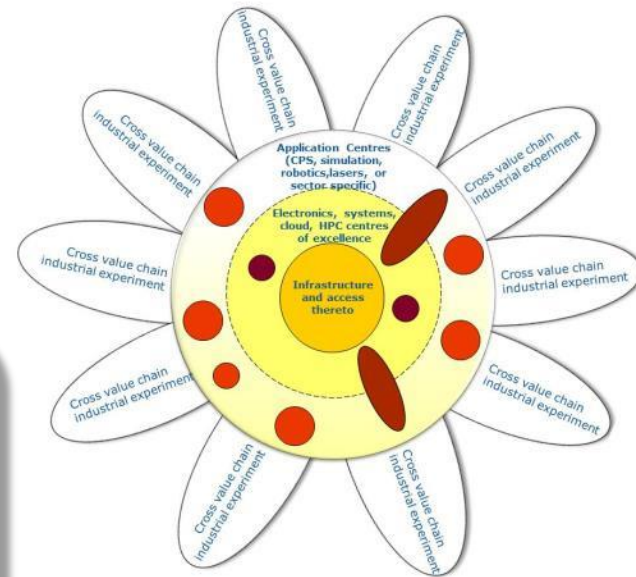


Scope:

- To take-up advances in ICT in manufacturing
- Strengthen SMEs by adopting new business models and/or service models
- Call deadline: **19 January 2017**

www.i4ms.eu

Key concepts:
Digital Innovation Hub
Competence Center



INNOVATION HUBS

industry 4.0

GOVERNMENTS SHOULD
BRING PLAYERS TOGETHER

many small companies still struggle with 1st steps

COMPETENCE
CENTER

Today, systems
build themselves.
You just have to
help creating trust.

UNIVERSITIES
COMPANIES
INVESTORS
SKILLS
TRAINERS
COMPETENCE

INVOLVE
VISIONARY
& PASSIONATE
PEOPLE

LESS
BARRIERS
TO
DIGITAL
TECHNOLOGY



MAKE
THINGS
WORK

#D416EU
@GRAPHICRECORDER

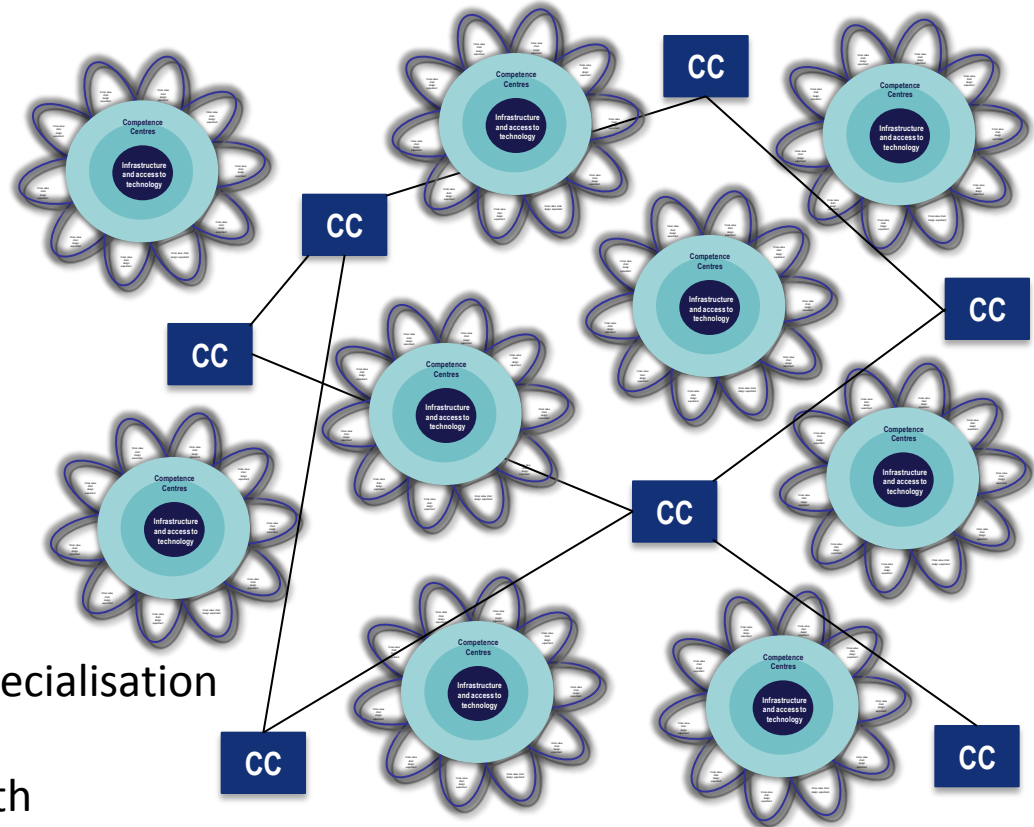
FOF 12 - ICT Innovation for Manufacturing SMEs (I4MS) – Phase 3



EU-wide network of Competence Centres Acting as the heart of Digital Innovation Hubs

Competence Centres

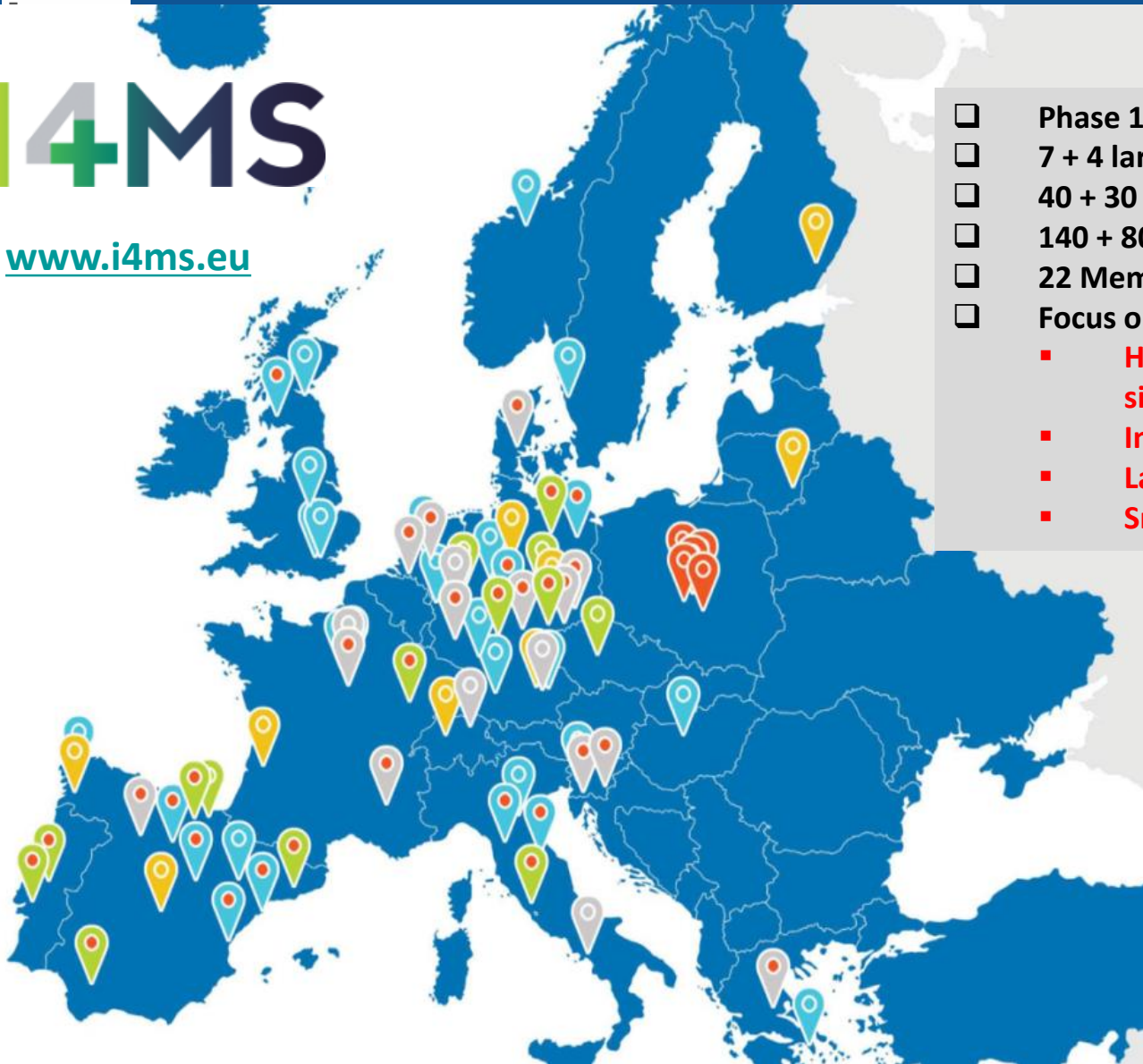
- Access to technology through marketplaces
 - Service for developing products
 - Brokers between suppliers and users
-
- Builds on regional strengths/smart specialisation
 - Flexible and scalable
 - H2020 funding can be augmented with
 - regional/structural funds, e.g. ESIF



in a nutshell

The logo for I4MS, featuring the letters 'I4MS' in a stylized font. The 'I' is green, the '4' is grey with a green cross inside, and the 'MS' is dark blue.

www.i4ms.eu



- ❑ Phase 1 + 2: 75 + 35 M€ of EU funding
- ❑ 7 + 4 large projects
- ❑ 40 + 30 competence centres
- ❑ 140 + 80 experiments
- ❑ 22 Members States and Ass. Countries
- ❑ Focus on 4 areas of ICT adoption in the FoF:
 - **HPC cloud-based modelling, simulation and analytics services**
 - **Industrial robotics systems**
 - **Laser-based manufacturing**
 - **Smart sensors systems, CPS and IoT**

Objective:
Enhancing digital transformation in manufacturing SMEs and mid-caps

FOF 12 – I4MS - Scope Innovation Actions



Innovation Action Proposals should address 3 aspects

1. Establish a **network of competence centres** offering **marketplaces for companies** that want to experiment with digital technologies in manufacturing of discrete or continuous goods. Link with regional innovation hubs.

2. Carrying out a critical mass of **cross-border experiments** bringing together key actors across the full value chain to customise the technologies according to the requirements of new users.

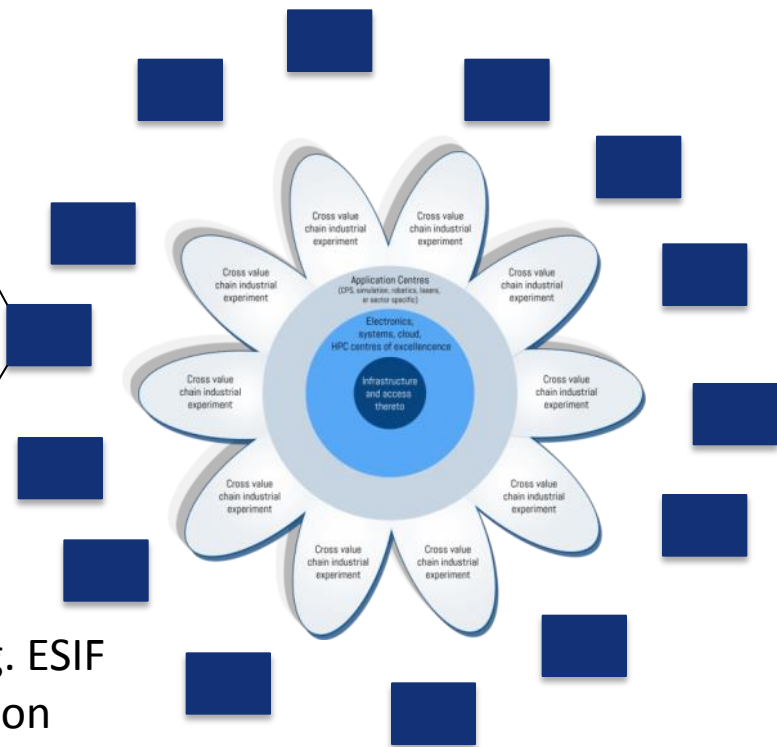
3. Activities to achieve **long-term sustainability** of one-stop shop/market place services by competence centres and the ecosystem. Investors should be attracted to support business development of SMEs and mid-caps.

- ✓ collaborate on reinforcing I4MS ecosystem,
- ✓ establish links to related activities, e.g. in the IoT Focus Area, ECSEL, SPARC, Big Data PPPs.

Existing and emerging EU networks of competence centres **can be complemented by** Satellite Nodes / Digital Innovation Hubs

Regional Satellite Nodes/Projects

- Feasibility studies
- Best practice experiments
- Local dissemination
- Skills development
- Infrastructure provisioning



- Funded through regional/structural funds, e.g. ESIF
- Focus on regional strengths/smart specialisation
- Support actions complementary to H2020 actions
- Flexibility/little synchronisation needs

Mechanism used in I4MS to link to new regions



European
Commission

❑ Bootstrap innovation hubs in "non-I4MS regions"

- RTOs, academia

❑ Mechanisms:

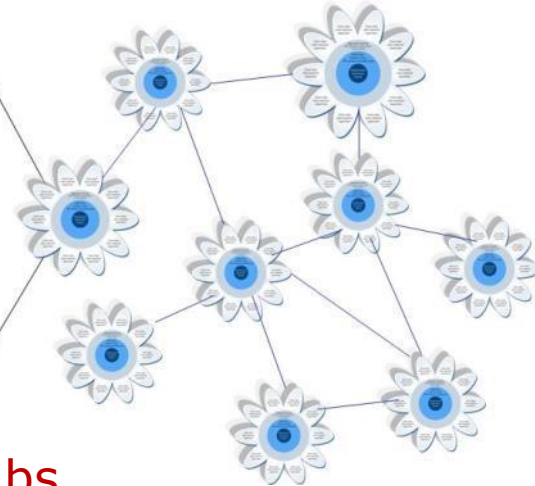
1. Call for expression of interest (EoI) for new hubs
2. I4MS competence centres as **mentors** each launch 5 **sponsoring** contracts (30-50k€)

❑ Role of Mentoring & Sponsorship actions

- Investigate digital needs of regional smart specialisation
- Link needs to I4MS projects and competences
- 3 feasibility studies for Best Practice experiments
- Establish links with local funding bodies

Regional Nodes/Projects

- Feasibility studies
- Best practice experiments
- Local dissemination
- Skills development
- Infrastructure provisioning



FOF 12 - ICT Innovation for Manufacturing SMEs (I4MS) – Phase 3

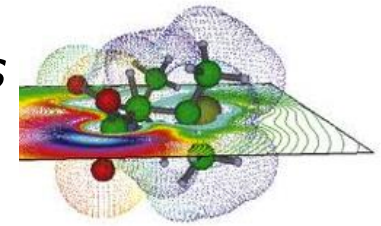


What we ask for : Innovation Actions in one or more of the following areas of technologies

IA
70%

Large projects (5-8 M€)

1. Integration of **CPS and IoT concepts** in smart production environments
2. **Robotics systems** cost effective at lower lot sizes
3. **HPC Cloud**-based modelling, simulation and analytics services focusing on sustained service models and real-time support
4. **Digital design for additive Manufacturing** focusing on link between design tools and production



Budget
32 M€

FOF 12 - ICT Innovation for Manufacturing SMEs (I4MS) – Phase 3

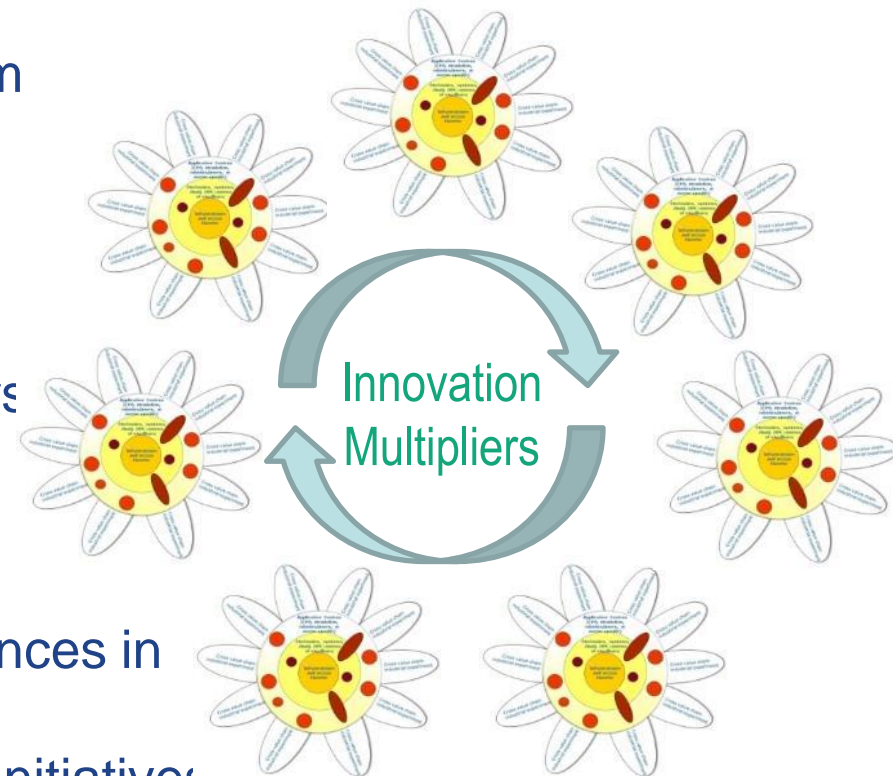


Budget
1 M€

Coordination and Support Actions

Scope: To advance the I4MS Ecosystem

- Single portal for newcomers
- Sharing of best practices
- Dissemination
- Brokering between users and suppliers
- Identifying new ICT technologies that can benefit from I4MS scheme
- Levering further investment
 - mapping and matching competences in and between regions
 - linking up with regional/national initiatives



Close cooperation with European Factories of the Future Association (EFFRA)

FOF 12 - ICT Innovation for Manufacturing SMEs (I4MS) – Phase 3



- Address *all* of the following impact criteria *providing metrics to measure success* when appropriate.
- Exploration of new application areas for advanced ICT in manufacturing at large, a significant number of new users, in particular SMEs and Mid-caps
- More innovative and competitive technology suppliers, in particular SMEs
- More competitive European service providers through provisioning of new types of services and strengthening the presence on local markets
- Creation of a self-sustainable ecosystem of competence centers, users and suppliers covering a large number of regions and their smart specialisation
- A critical mass of pan European experiments covering the whole value chain to demonstrate innovative and sustainable business models

Strict rules for Financial Support to Third Parties

- Proposals shall clearly detail the objectives and results to be obtained from the financial support to third parties, and include at least:
 - A closed list of the different types of activities supported
 - Persons or categories of persons supported
 - Criteria for award of support
 - How to calculate the exact amount of support (for instance 70% of total costs)
 - Maximum amount of support for each party (typically 20-100K€ per party. If more than 60K€ is necessary, this needs to be explained in the proposal).
- Winners of the open call will become third parties, and not beneficiaries of the project!

ICT-05-2017

Customised and low-energy computing

ICT-05 in the workprogramme

FETHPC High Performance Computing

Transition to Exascale
Exascale HPC ecosystem development

ICT-06 Cloud computing

Decentralised clouds
Cloud networking
Trust and security
Evolution of architectures

ICT-05 Customised and low-energy computing

ICT-01 Smart cyber-physical systems

Science of system integration

The big picture

- ICT is becoming a **core component** of any product and service
- Key issues: **cost and complexity** of software development + **energy footprint**
- **Software development** and **processor technologies** are the challenge for digital platforms
- We need to develop better **tools for software development** and a new generation of **innovative, secure and reliable processors**, aiming specifically at the professional markets (cyber-physical systems, industrial and professional applications, Internet of Things, connected smart objects , etc...)

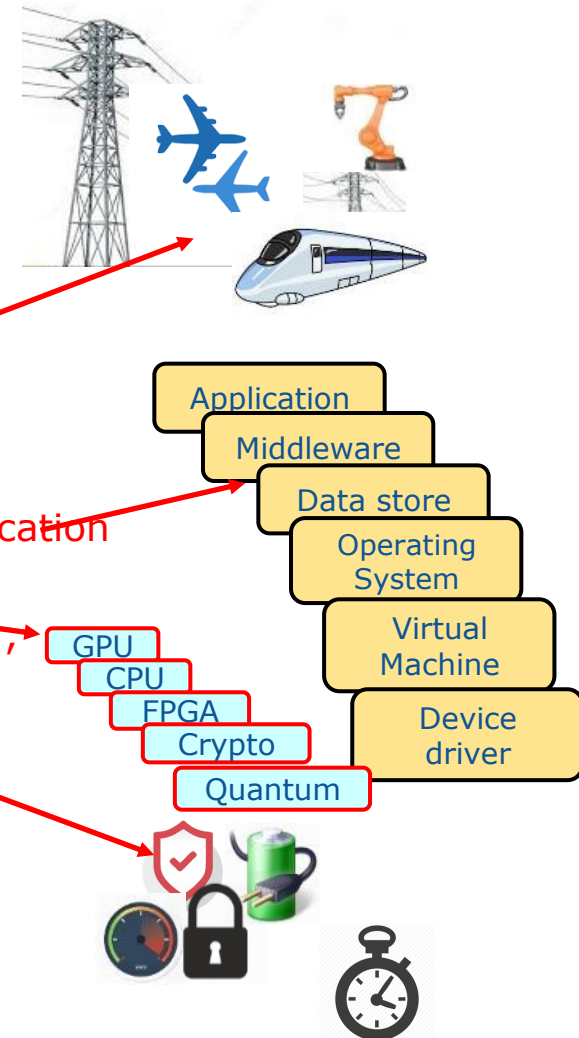
ICT 5 - Customised and low energy computing

What we ask for (RIA)

Programming environments and toolboxes for low energy and highly parallel computing

- optimised for specific application domains
- ideally covering complete software stack from runtime to application
- supporting multicore and heterogeneous architectures
- supporting non-functional requirements: time criticality, power, reliability, security, etc...
- reuse and extension of existing solutions is OK

Suggested EU contribution: 4 to 6 million (not binding!)



Programming environments and toolboxes for low energy and highly parallel computing:

Proposals will provide programming environments and tools optimised for specific application domains of significant economic value, ideally covering the complete software stack from runtime systems to application programming. The solutions proposed will support modern system architectures possibly including those based on heterogeneous processors while allowing for optimization of energy, performance, reliability, time predictability and system cost. All the activities needed in software development should be addressed when relevant; e.g.: remote collaboration, debugging and bug tracking, runtime software analysis. Model-based approaches and reuse and extension of existing platforms, libraries, frameworks and tools are encouraged, resulting ideally in solutions which are practically usable for application development for real-world use cases and provide mechanisms for further future extensions and introduction of new functionalities.

Security by design features allowing applications to be resilient to cyber-attacks are encouraged to be part of the proposed technology, as well as features for energy-aware solutions and for tolerating hardware and software errors while guaranteeing the required service level.

Solutions will be demonstrated in real-life applications through at least two different use cases complementing each other, and will provide significant and measurable improvements over state-of-the-art methods and technologies in productivity, software quality and energy consumption. This should be complemented by appropriate activities to build a community of users to ensure the uptake of the work after the end of the project.

The Commission considers that proposals requesting a contribution from the EU of between EUR 4 and 6 million would allow this area to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

ICT 5 - Customised and low energy computing

What we ask for (RIA)

Low power processor technologies

- innovative processor designs
- substantial improvement in energy/performance ratio
- for typical high performance computing and server workloads
- addressing (e.g.) power density, thermal management, memory access speed and latency, efficient on-chip and off-chip communication
- ideally include hardware-based security features
- may optionally include support for real-time applications
- A working prototype will be demonstrated before the end of the projects.

**Suggested EU contribution: 6 to 10 million
(one project only!)**



Low power processor technologies:

Proposals will provide innovative processor designs delivering a substantial and measurable improvement over the current state of the art in energy/performance ratio for typical high performance computing and server workloads. The limitations of today's technologies will be addressed, e.g. power density, thermal management, memory access speed and latency, efficient on-chip and off-chip communication. The proposed solutions will ideally include hardware-based security features and may optionally include support for real-time applications e.g. guaranteed execution time.

Proposals are expected to go beyond current semiconductor technologies, but also to take into account the reality of semiconductor market both in the technology and in the business model, providing solutions that can be actually manufactured in volume at reasonable cost, and appropriately addressing intellectual property issues. Consortia will include the required expertise to successfully bring hardware design to the market and to provide real-life application requirements from the targeted markets.

A working prototype, based on real-life applications representative of the targeted markets, will be demonstrated before the end of the project.

The Commission considers that proposals requesting a contribution from the EU of between EUR 6 and 10 million would allow this area to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts. No more than one action will be funded.

CSA

Deadline
25 April 2017



Budget
2 M€

ICT 5 - Customised and low energy computing

What we ask for (CSA)

Structuring and connecting the European academic and industrial research and innovation communities

- platform building, constituency building, consultations
- clustering of projects
- road-mapping for future research and innovation

Coordination and Support Actions
for structuring and connecting the European
academic and industrial research and innovation
communities. Activities will include (e.g.) cross-
sectorial industrial platform-building,
constituency building and consultations,
clustering of related projects, and road-mapping
for future research and innovation in the area of
computing for Cyber-Physical Systems, high
performance computing and industrial
applications.

No more than one action will be funded.

Coordination and Support Actions

for structuring and connecting the European academic and industrial communities. Activities include cross-

Platforms in the context of “Digitising European Industry” initiative

sectorial **industrial platform-building**, constituency building and consultations, clustering of related projects, and road-mapping for future research in the area of

Merging of different areas

computing for Cyber-Physical Systems, high performance computing and industrial applications.

No more than one action will be funded.

ICT4 - Customised and low energy computing

What we expect (impact)

a. Programming environments and toolboxes

- Reinforce Europe's position in low-energy computing by **reducing the effort needed** to include digital technology inside any product or service
- Availability of **software development environments** and tools usable in **realistic use cases** and **increasing productivity**
- **Higher share** of European SMEs and mid-caps in the **reference markets** (e.g. avionics, automotive, robotics, Internet of Things)

b. Low power processor technologies

- Availability of a **new family of processors** with a significantly better **energy/performance ratio** compared to current offerings, specifically tailored for high-performance and low-power **server-side applications**.

(You do not need to address all the impact criteria – focused impact is OK)

Please don't:

Submit weak proposals: it is a waste of time

Cheat with the maximum length: 70 pages is enough

No idea about IP: will see in the consortium agreement...

Try to impress reviewers with the big name who will never work on the project



Still questions?

**Information day:
December 2nd, Brussels**

All relevant information will be published on our website

<https://ec.europa.eu/digital-single-market/en/components-systems>

We are looking for experts!

In particular:

- With an industry background**
- More women**
- Register in the expert portal**
- Send us an email to express your interest**

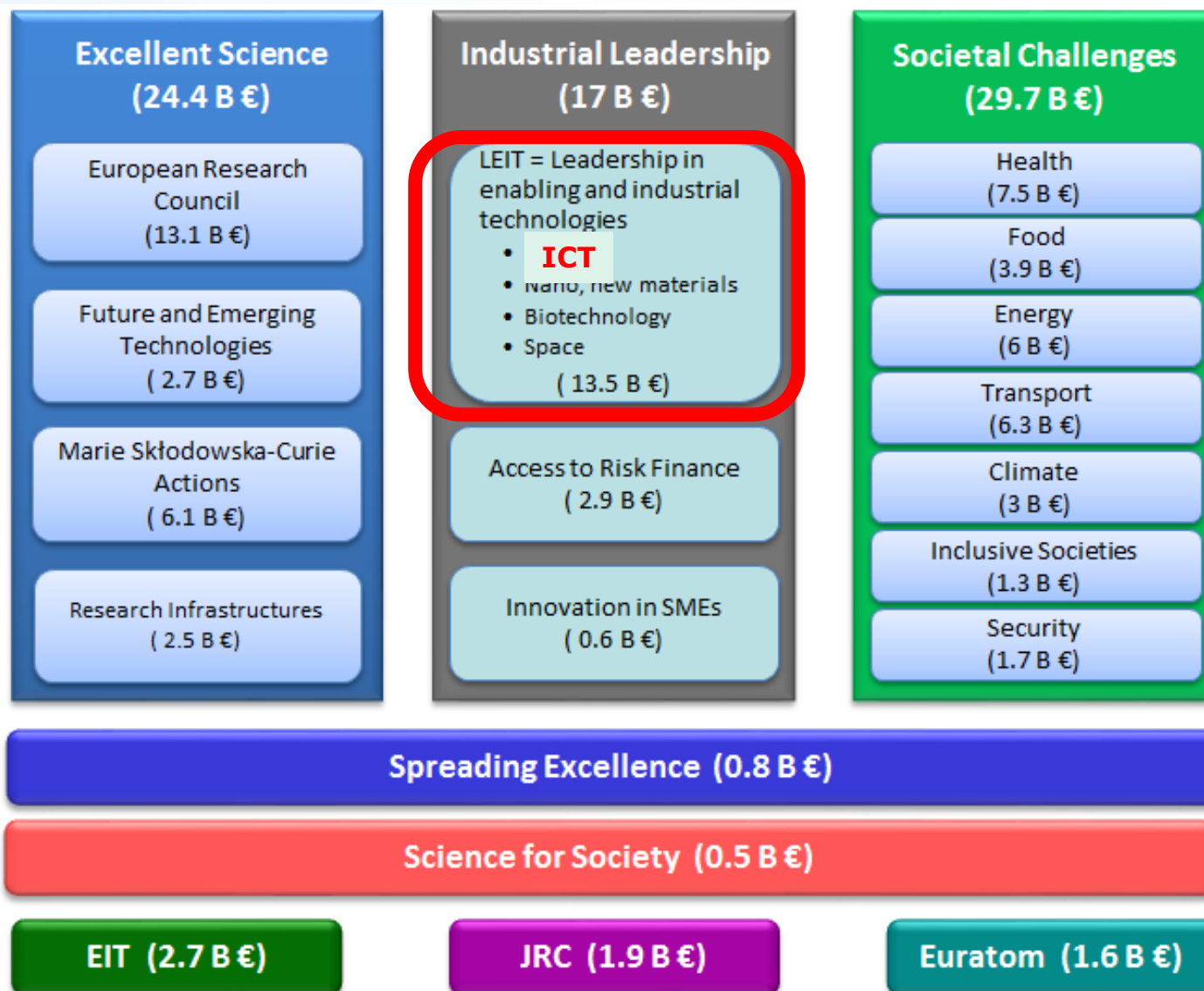
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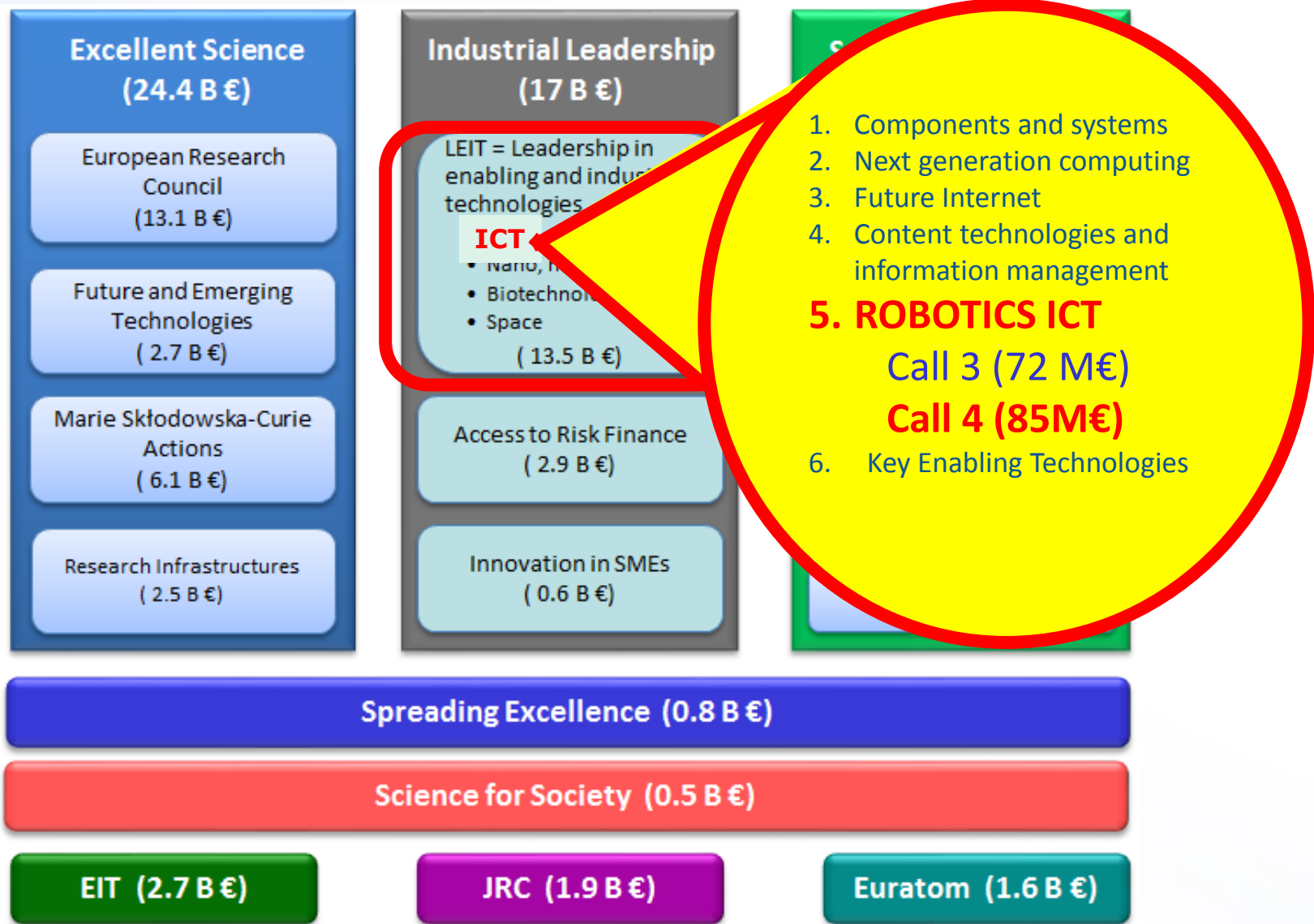
ICT-25-2017

ICT-27-2017

ICT-28-2017

Robotics





4th Robotics and Autonomous Systems H2020 Call Closing: 25-4-2017

ICT 25-2017: Advanced robot capabilities research and take-up

ICT 27-2017: System abilities, SME & benchmarking actions, safety certification

ICT 28-2017: Robotics competition, coordination and support

4rth Robotics Call in H2020 (closing: 25-4-2017)

ICT 25-2017: Advanced robot capabilities research and take-up

RIA	15M€	a) Open, generic research
		b) Technical capabilities: Systems development, HRI, mechatronics, perception, navigation and cognition
IA	19M€	c) End User driven application development
		d) Filling technology / regulatory gaps

ICT 27-2017: System abilities, SME & benchmarking actions, safety certification

ICT 28-2017: Robotics competition, coordination and support

H2020 – ICT-25-2017

Advanced robot capabilities research and take-up

RIA

25.a

Open, Generic, All
topics and disciplines
2 – 4 M€

25.b Step Change
Systems development
HRI, Mechatronics
Perception, Navigation
and Cognition
2 – 4 M€

15M€

IA

25.c

Open, End user-driven
applications,
development >TRL5
2 – 4 M€

25.d

End-user driven: Filling
techno./regulatory gaps
2 – 4 M€

19 M€

2017

14/12/2016

25/04/2017

4rth Robotics Call in H2020 (closing: 25-4-2017)

ICT 25-2017: Advanced robot capabilities research and take-up

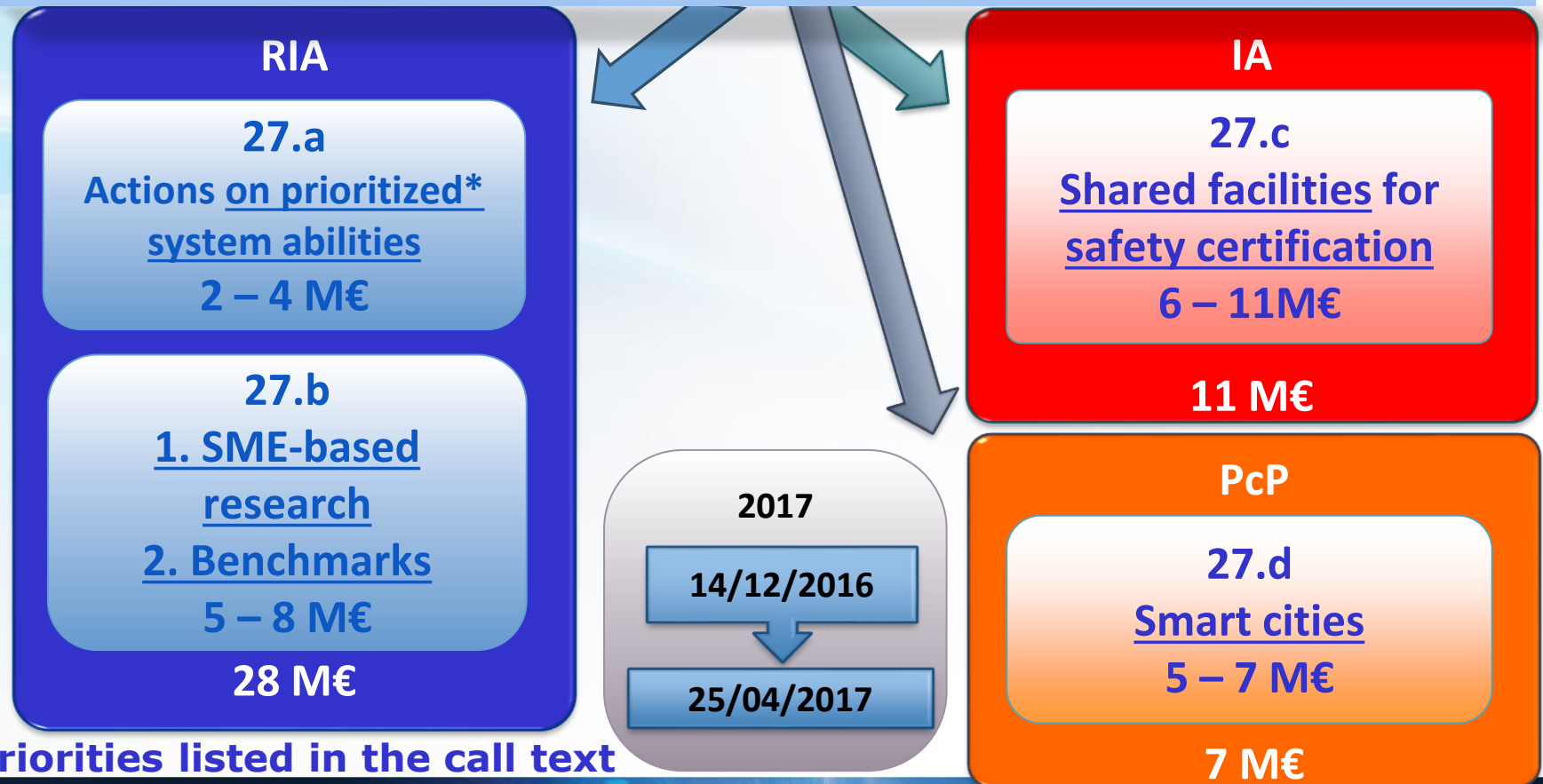
ICT 27-2017: System abilities, SME & benchmarking actions, safety certification

RIA	28M€	a) System Abilities: Perception ability, decisional autonomy, increasing dependability levels, self-verifying behaviour
		b) SME-based research and benchmarks
IA	11M€	c) Shared facilities for safety certification
PcP	7M€	d) Pre-commercial procurement: smart cities

ICT 28-2017: Robotics competition, coordination and support

H2020 – ICT-27-2017

System abilities, SME & benchmarking actions, safety certification

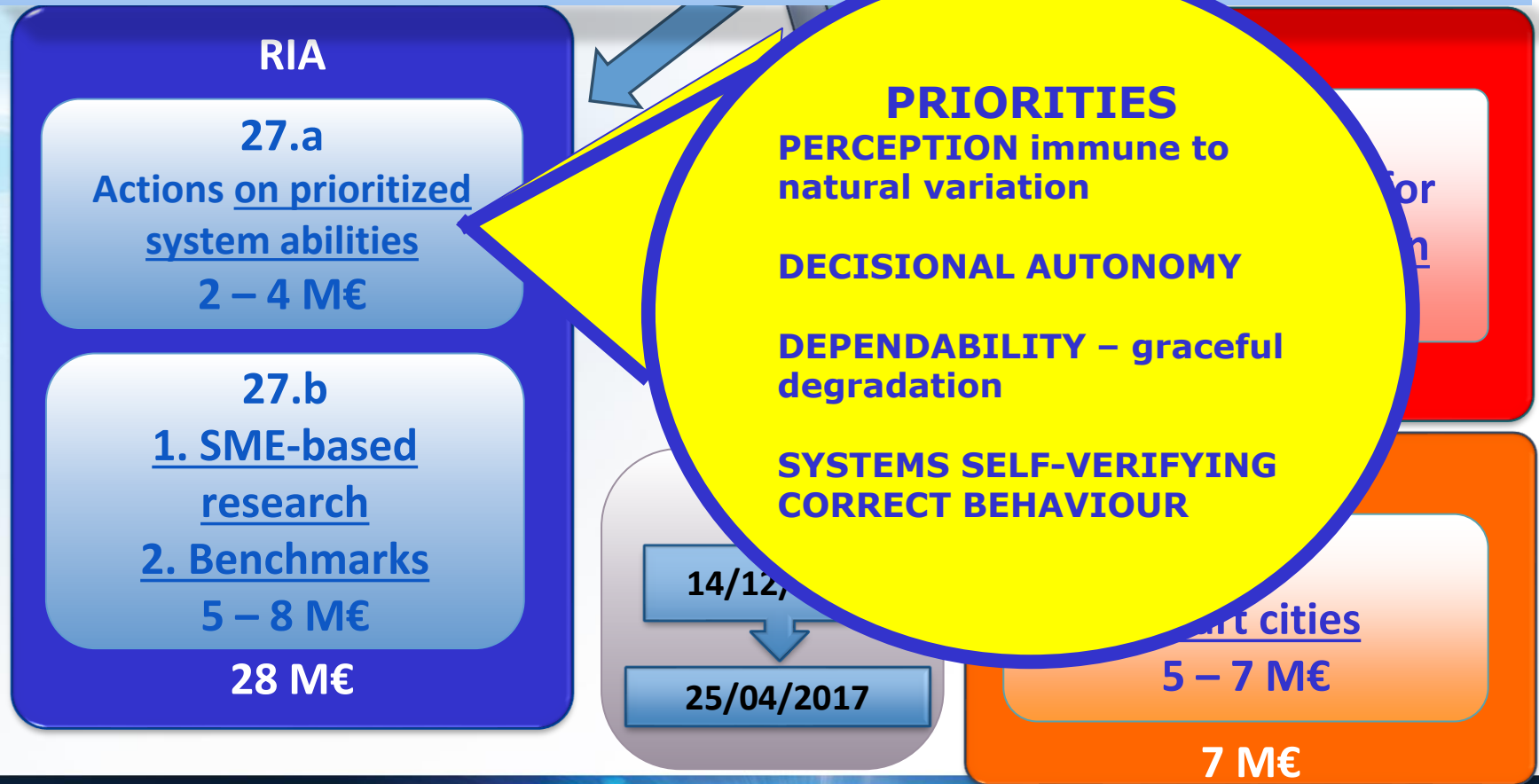


* Priorities listed in the call text

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H2020 – ICT-27-2017

System abilities, SME & benchmarking actions, safety certification



"Digitising European Industry" - Delegazione Confindustria Bruxelles, 24 novembre 2016

4rth Robotics Call in H2020 (closing: 25-4-2017)

ICT 25-2017: Advanced robot capabilities research and take-up

ICT 27-2017: System abilities, SME & benchmarking actions, safety certification

ICT 28-2017: Robotics competition, coordination and support

CSA	5M€	a) Non-technical barriers
		b) Standards & regulation
		c) Community support and outreach
		d) Competitions

"Digitising European Industry" - Delegazione Confindustria Bruxelles, 24 novembre 2016

H2020 – ICT-28-2017

Robotics Competition, coordination and support

CSA

28.a
Non-technical
barriers to robotic
take-up

28.b
Standards and
Regulation

28.c
Community support
and outreach

28.d
Competitions
2 M€

3 M€

5 M€

2017

14/12/2016

25/04/2017

"Digitising European Industry" - Delegazione Confindustria Bruxelles, 24 novembre 2016

4rth Robotics Call in H2020 (closing: 25-4-2017)

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		d) Filling technology / regulatory gaps

ICT 27-2017: System abilities, SME & benchmarking actions, safety certification

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		b) SME-based research and benchmarks
IA	11M€	c) Shared facilities for safety certification
PcP	7M€	d) Pre-commercial procurement: smart cities

ICT 28-2017: Robotics competition, coordination and support

CSA	5M€	a) Non-technical barriers
		b) Standards & regulation
		c) Community support and outreach
		d) Competitions

SFS-05-2017 - Robotics Advances for Precision Farming

"Digitising European Industry" - Delegazione Confindustria Bruxelles, 24 novembre 2016



HORIZON 2020



Excellent Science
(24.4 B €)

Industrial Leadership
(17 B €)

Societal Challenges
(29.7 B €)

Health
(7.5 B €)

Food
(3.9 B €)

Energy
(6 B €)

Transport
(6.3 B €)

Climate
(3 B €)

Inclusive Societies
(1.3 B €)

Security
(1.7 B €)

SC2: Sustainable Agriculture

SFS-05-2017: Robotics
Advances for Precision
Farming

Types: RIAs

Funding: 2 - 4M€/prop.

Budget: 7M€

Deadline: 14 February 2017

LEIT = Leadership in
Industrial Technologies

SMEs

Excellence (0.8 B €)

for Society (0.5 B €)

EIT (2.7 B €)

JRC (1.9 B €)

Euratom (1.6 B €)

SCOPE

- Autonomous farm vehicles /sensors/ intervention mechanisms
- Selective harvesting, more targeted weed reduction or environment friendly fertilization, livestock management
- Tagging for traceability to optimise process

IMPACT

- Increased productivity
- More environment-friendly
- increased safety, reliability, manageability, improving human working conditions

EVENTS

Brokerage event 5 December Brussels

<https://eu-robotics.net/sparc/newsroom/press/brokerage-event-2016.html?changelang=2>

ICT-14-2017

ICT-15-2017

ICT-16-2017

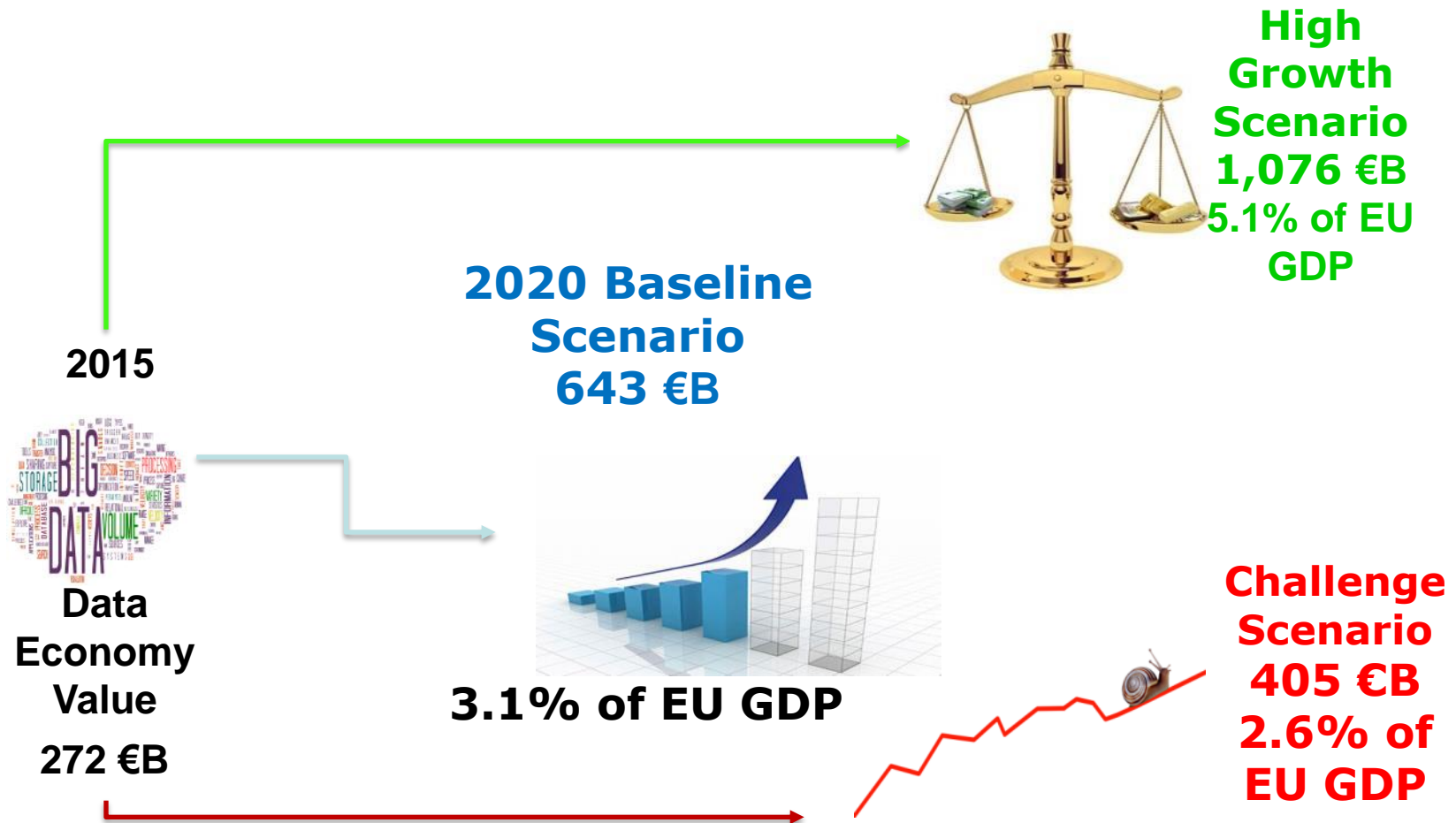
ICT-17-2017

Big data PPP

Strategic objectives

- I. EU leadership in Big Data technologies through increased investments**
- II. Create a data market**
- III. Create a thriving data economy – engine for growth and jobs**

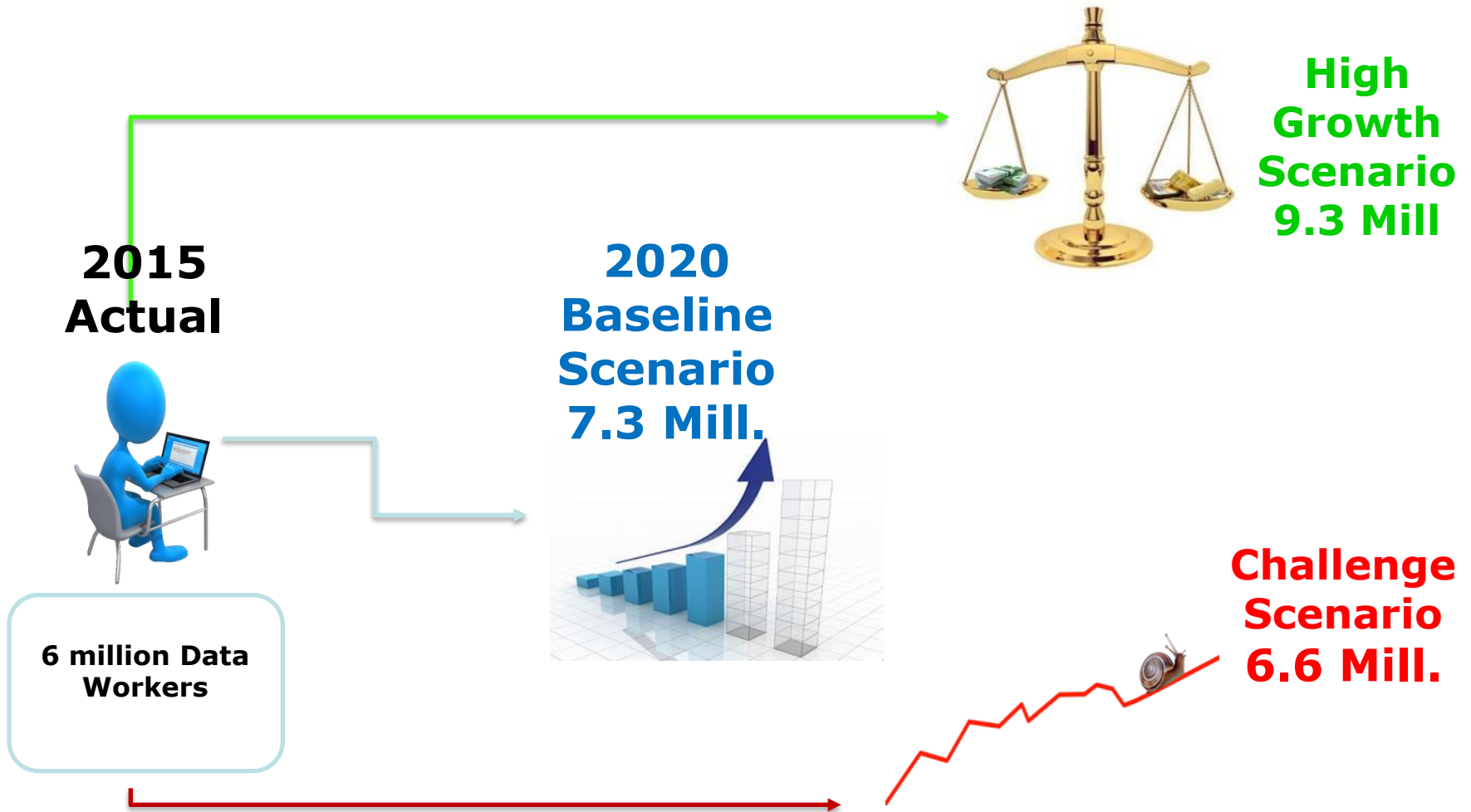
The EU Data Economy could reach 5.1 % of EU GDP in the High Growth scenario



Source: European Data Market Monitoring Tool, IDC 2015

<http://datalandscape.eu/>

Need for Data Workers expected to grow in all scenarios



Source: European Data Market Monitoring Tool, IDC
2016 <http://datalandscape.eu/>

Big Data Value PPP - characteristics

- **Industry-driven** – because it needs to mobilise and transform (both IT and user) industries in order to break a new path to **growth and jobs**
- **Broad and horizontal** – because data challenges appear in most industrial and societal domains – need to achieve synergies and create links with user industries, other PPPs, Societal Challenges, national and regional initiatives

<http://www.bdva.eu/>

The Big Data Value Association (BDVA) is the private counterpart to the EU Commission to implement the BDV PPP programme (Big Data Value PPP)

<https://ec.europa.eu/digital-single-market/en/big-data-value-public-private-partnership>

Who does what in the Partnership?

- **Framework conditions**

- EC: regulatory framework, policy development, synergies with other policy areas
- private side: data skills, policy support, technology support (e.g. privacy-preserving technologies), experimentation facilities

- **Community building**

- EC: reaching out to new (user) communities: e.g. Societal Challenges, Public sector; clustering projects; info and networking events
- private side: industrial & academic community building, mobilisation, events, collective road-mapping & strategic planning (SRIA)

- **Technology basis, infrastructures**

- EC: seed investment as basis for leverage, infrastructural support (via Cloud, HPC, IoT etc. actions)
- private side: leveraged investment, research & innovation through Lighthouses, iSpaces, technical projects;

Big Data PPP: The Challenge

- The main objective is to roll out an **industrial strategy** to develop Europe's data driven economy as outlined in the **EC Communication 'Towards a thriving data-driven economy'** COM(2014)442
- The Work Programme 2016-17 implements the Big Data PPP's **Strategic Research and Innovation Agenda** (<http://www.bdva.eu>)

H2020-LEIT-ICT-2017

- ICT 14 Big Data PPP: cross-sectorial and cross-lingual data integration and experimentation (IA) - Budget 27 M€
- ICT 15 Big Data PPP: large scale pilot actions in sectors best benefitting from data-driven innovation (IA) - Budget 25 M€
- ICT 16 Big Data PPP: research addressing main technology challenges of the data economy- Budget 33 M€
- ICT 17 Big Data PPP: support, industrial skills, benchmarking and evaluation (1 RIA) - Budget 2 M€
- Inducement Prize: Big Data technologies (Other Actions 7) - Budget 2 M€

ICT 14 (aka Innovation Spaces) – IA

Big Data PPP: cross-sectorial and cross-lingual data integration and experimentation

To foster the exchange, linking and reuse of data assets.
To integrate data assets from multiple sectors across languages and formats in a safe environment for experimentations of innovative services and product ideas.

a) Innovation Actions addressing cross domain data integration challenges of EU industries arranged along data value chains. Wide range of technical issue to be tackled (i.e. data models, entity identifiers, standards, multi-lingual support, brokerage schemes, data quality, privacy, etc...)

ICT 14 a) - Impact

Expected Impact: a. Data integration activities

- Data integration activities will simplify data analytics carried out over datasets independently produced by different companies and shorten time to market for new products and services;
- Substantial increase in the number and size of data sets processed and integrated by the data integration activities;
- Substantial increase in the number of competitive services provided for integrating data across sectors;
- Increase in revenue by 20% (by 2020) generated by European data companies through selling integrated data and data integration services offered.

ICT 14 (continued)

b) Data experimentation incubators addressing big data industrial challenges in a cross-sectorial, cross-lingual and/or cross-border set-up.

Experimenters: SMEs and start-ups. At least 50% of experiments to be defined by data providers.

The incubator will offer access to cross-sectorial, cross language data pools, computing infrastructure and open software tools in addition to an organizational, legal, IPR support environment.

Cascading Grants scheme to be implemented.

ICT 14 b) - Impact

b. Data experimentation incubators

At least 100 SMEs and web entrepreneurs, including start-ups, participate in data experimentation incubators;

30% annual increase in the number of Big Data Value use cases supported by the data experimentation incubators;

Substantial increase in the total amount of data made available in the data experimentation incubators including closed data;

Emergence of innovative incubator concepts and business models that allow the incubator to continue operations past the end of the funded duration.

ICT 14 DOs and DON'Ts

- DO NOT mix ICT-14 a) and b) in one single proposal: they are standalone
- DO NOT mix ICT-14 a) or b) with other ICT Topics in one single proposal, they are all standalone
- DO clearly explain at the BEGINNING of the proposal what is the industrial requirement motivating the whole proposal and who is the industrial partner in the proposal giving and responsible for that requirement
- DON'T: loosely coupled or vague 'use cases' will put your proposal at a competitive disadvantage
- DO make sure to have datasets ready for day 1 of the project

ICT 14 DOs and DON'Ts (continued)

- Unless really important and relevant, do not build artificially new 'use cases'. One, robust, meaningful, substantiated – real* – well developed industrial requirement

**real means that a company has a business need to be solved by Big Data technologies to improve its products and services, create new ones, or to improve its operations. Such company is interested in teaming up with partners in a EU project to solve such a problem and to transfer the project results into its commercial offer.*

ICT 15 (aka Lighthouse Projects) – IA

Big Data PPP: Large Scale Pilot actions in sectors best benefitting from data-driven innovation

Large Scale Pilot Actions in data intensive sectors involving key European industrial actors.

Their objective is to demonstrate how industrial sectors will be transformed by putting big data technologies at their core.

The Large Scale Pilot actions are meant to serve as best practice examples to be transferred to other sectors.

ICT 15 (continued)

Possible industrial sectors for Large Scale Pilot actions include (but are not limited to) health, energy, environment, earth observation, geospatial, transport, manufacturing, finance and media.

Large Scale Pilot actions are expected to exhibit substantial visibility, mobilisation, and commercial and technological impact. Proposals must demonstrate that they have access to appropriately large, complex and realistic data sets.

ICT 15 a) **DOs and DON'Ts**

- DO NOT mix ICT-15 with other ICT Topics in one single proposal, they are all standalone
- DO provide detailed information on the IT/Big Data platform on which the project will run on
- DO explain how the project will credibly reach the impact goals set in the Work Programme (i.e. it is not sufficient to state 'we will reach the impact goals set in the Work Programme')
- DO explain how the private investment of the Consortium partners (additional to the EU funding) is connected to the participation of company X in the project (i.e. generally providing information on company X's investment in R&D does not really address the Work Programme requirement of leveraging the EC investment)

ICT 15 - Impact

- Demonstrated increase of productivity in main target sector of the Large Scale Pilot Action by at least 20%;
- Increase of market share of Big Data technology providers of at least 25% if implemented commercially within the main target sector of the Large Scale Pilot Action;
- Doubling the use of Big Data technology in the main target sector of the Large Scale Pilot Action;
- Leveraging additional target sector investments, equal to at least the EC investment;
- At least 100 organizations participating actively in Big Data demonstrations (not necessarily as partners of the projects).

ICT 16 – RIA

Big data PPP: research addressing main technology challenges of the data economy

The challenge is to fundamentally improve the technology, methods, standards and processes, building on a solid scientific basis, and responding to real industrial needs, to increase the efficiency and competitiveness of EU companies.

Cross-sector and cross-border challenges.

Examples (non-exhaustive): distributed data and process mining, predictive analytics, visualization, real time complex event processing, software stacks to take advantage of new architectures to optimize Big Data tasks...etc...etc..

ICT 16 (continued)

Testing in real world scenarios (i.e. usability, robustness, performance, privacy aware) on real datasets, by professional/domain experts as opposed to researchers or software developers.

Proposals must demonstrate that they have access to appropriately large, complex and realistic data sets. From day 1 of the project!

ICT 16 - Impact

- Powerful (Big) Data processing tools and methods that demonstrate their applicability in real-world settings, including the data experimentation/integration (ICT-14) and Large Scale Pilot (ICT-15) projects;
- Demonstrated, significant increase of speed of data throughput and access, , as measured against relevant, industry-validated benchmarks;
- Substantial increase in the definition and uptake of standards fostering data sharing, exchange and interoperability.

ICT 17 b) Benchmarking – RIA

Big data PPP: Support, industrial skills, benchmarking and evaluation

The benchmarking action will identify specific data management and analytics technologies of European significance, define benchmarks and organise evaluations that allow following their certifiable progress on performance parameters (including energy efficiency) of industrial significance.

ICT 17 b) (continued)

To give European developers the means to continuously improve their performance (and thus their competitiveness)

With industrial actors that have expressed interest in the technology for very specific business reasons.

Make sustainability plans to continue to exist throughout the entire life-cycle of the relevant technology (i.e. after the project end).

ICT 17 b) - Impact

- Availability of solid, relevant, consistent and comparable metrics for measuring progress in Big Data processing and analytics performance;
- Availability of metrics for measuring the quality, diversity and value of data assets;
- Sustainable and globally supported and recognized Big Data benchmarks of industrial significance



Inducement Prize: Big Data Technologies

improve the performance of software for the forecasting of geospatio-temporal data

The problem: becoming very accurate and efficient in predicting the future based on past data.

- Extremely large amounts of past data about EU weather, energy production/consumption will be made available to train your algorithm(s)
- You submit your fully implemented prediction algorithm to a platform prepared by H2020 SEE.4C project (as many submissions as you want)
- The platforms automatically scores the performance of your submission on unseen data based on a public and verifiable success metric
- Several prizes available: best score in category (accuracy, energy consumption, others to be announced...) wins the prize
- **Eligibility criteria: The contest will be open to any legal entities (including single persons) or groups of legal entities, according to H2020 rules.**

The Calls for proposals

- **H2020-LEIT-ICT-2017**

ICT-14, ICT-15, ICT-16, ICT-17

The Call opens on 8/12/2016

The Call closes on 25/04/2017 at 17:00 CET

- **Inducement Prize: Big Data Technologies**

Opening of the contest: Q2 2017

Deadline for application: Q4 2017

Award of the Prize: Q2 2018

Additional information

- PPP BDVA Summit in Valencia, 29/11 to 02/12
<http://www.bdva.eu>
- DG CONNECT-G1 will organize an Info Day on Big Data PPP's WP2017 in Luxembourg, 17-18/01/2017
- Technical Background Notes will be available at:
<https://ec.europa.eu/digital-single-market/events/cf/ict-proposers-day-2016/item-display.cfm?id=18467>
- Kimmo Rossi, Head of R&I sector, CNECT.G1 Kimmo.Rossi@ec.europa.eu

ICT-30-2017

Photonics KET

"Digitising European Industry" - Delegazione Confindustria Bruxelles, 24 novembre 2016



HORIZON 2020

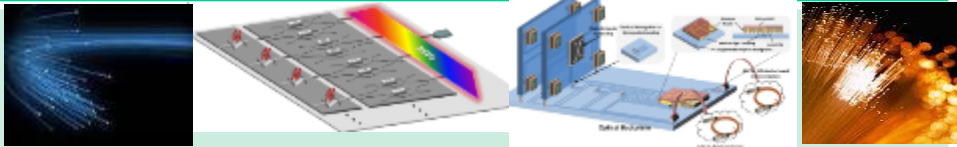

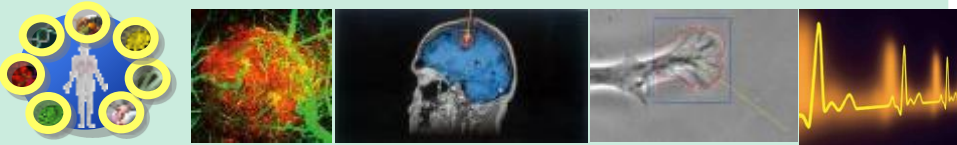

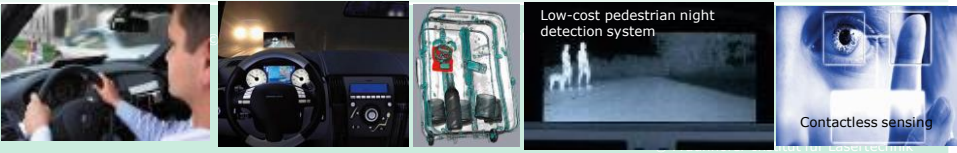
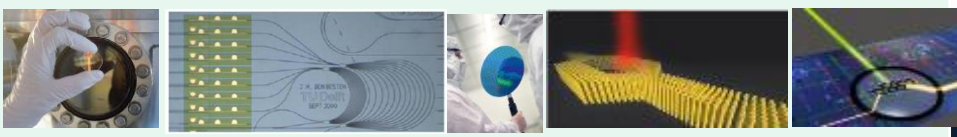




EU main research priority areas Photonics

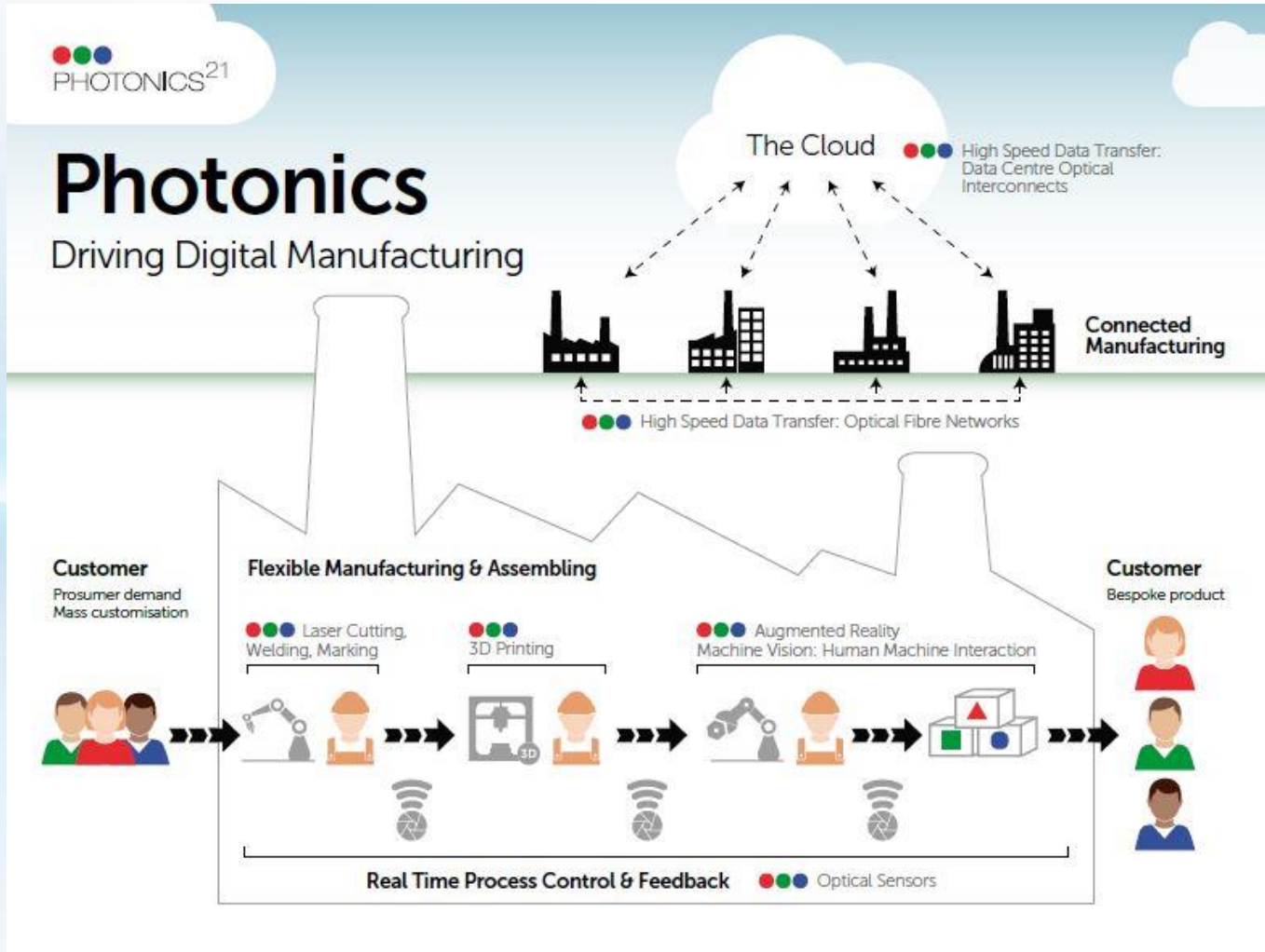
in FP7 (2007-2013) & H2020 (2014-2015)

175 projects for **~640 M€**

Areas	FP7	H2020	
Optical data Communications	31 103M€	4 13 M€	
Lasers and Manufacturing	10 47 M€	15 53 M€	
Biophotonics Health&Food	26 98 M€	16 61 M€	
SSL Lighting, Displays & OPVs	19 92 M€	8 45 M€	
Sensors for safety & security	16 44 M€	9 38 M€	
Integration Platforms & Nanophotonics	15 58 M€	8 42 M€	
Research/ Cross-cutting Support Actions	12 19 M€	8 13 M€	Education and training, Roadmapping, Coordination between regional/national clusters, Coordination of the Photonics research constituency. Access to advanced technologies. Support to SMEs

Photonics

Driving Digital Manufacturing



Exploit the large **enabling potential** of photonics in many industrial sectors & in major societal challenges (such as health and well-being, energy efficiency or safety)

Photonics PPP

ICT 30 – 2017: Photonics KET

The Specific Challenge

Photonics: R&D&I investments to sustain competitiveness & leadership in market sectors where Europe is strong (**optical communications, medical photonics, sensing**) and seize new opportunities

- Strengthen the **manufacturing base**, exploit the potential of innovation and value creation, and job creation
- Exploit the innovation capacity of SMEs
- Exploit the innovation leverage of clusters & national platforms

An Overview of the Actions called: 89 M€

ICT30.a Research and Innovation Actions 43 M€

- Application driven core photonic technology developments for 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

ICT30.b Innovation Actions 43 M€

- Innovation Incubator for SMEs
- Application driven core photonic devices integrated in systems
 - **Biophotonics**: imaging systems for in-depth disease diagnosis
 - **Sensing** for process and product monitoring and analysis

LEIT ICT Call
DDL: 25 APR 2017

ICT30.c Coordination and Support actions 3 M€

- Supporting the industrial strategy for photonics in Europe

ICT 30 – 2017: Photonics KET

ICT 30.a Research and Innovation Actions (4/4)

43 M€

Additional Issues:

- Address manufacturability;
- 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
- **Expected Impact:** Proposals should describe how the proposed work will contribute to the listed corresponding expected impacts and should provide metrics, the baseline and concrete targets

ICT 30 – 2017: Photonics KET

ICT 30.b Innovation Actions (4/4)

Core photonic devices integrated in systems

Additional Issues:

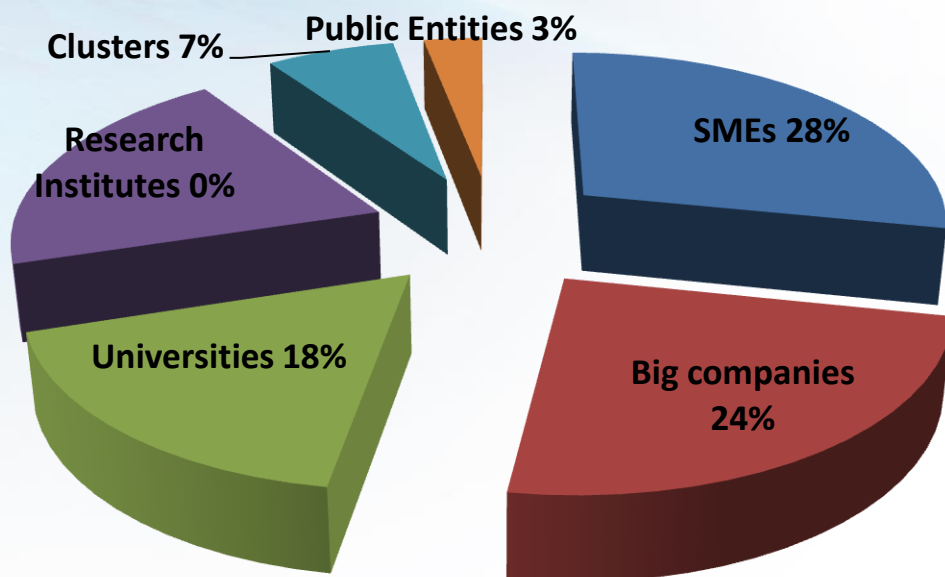
- validation and demonstration of photonic based systems for the **target applications**
- Include **standardisation**
- **Strong industrial commitment**, driven by user needs and concrete business cases supported by strong exploitation strategies
- cover the whole value/supply chain and the **end-user**
- **Expected Impact:** Proposals should describe how the proposed work will contribute to the listed corresponding expected impacts and should provide metrics, the baseline and concrete targets

Some other Photonics opportunities

- **Photonics Based Sensing Eranet Co-fund (pre-proposal ddl: 5 Dec 2016; full proposal 29 March 2017)**
 - Transnational call for partners from 9 participating regions/countries
 - For more info: <https://photonicsensing.eu/>

Feedback Calls 2014 & 2015

- 46 photonics projects
- 180 M€ funding for photonics (including 14 M€ in FoF)
- **Strong industrial participation : 52%**
- **Good value chain coverage (end-users, suppliers, etc)**
- Budget **RIA** vs Budget **IA**: 62% vs 38%



Participation

H2020 WP14-15 oversubscription

Budget (M€) by Subarea



WHAT IS NEEDED TO HAVE A HIGH SCORE:

EXCELLENT IDEAS BUT ALSO:

- Strong industrial commitment
- Be driven by user needs and concrete business cases
- Supported by strong exploitation strategies
- Cover the value/supply chain
- ...

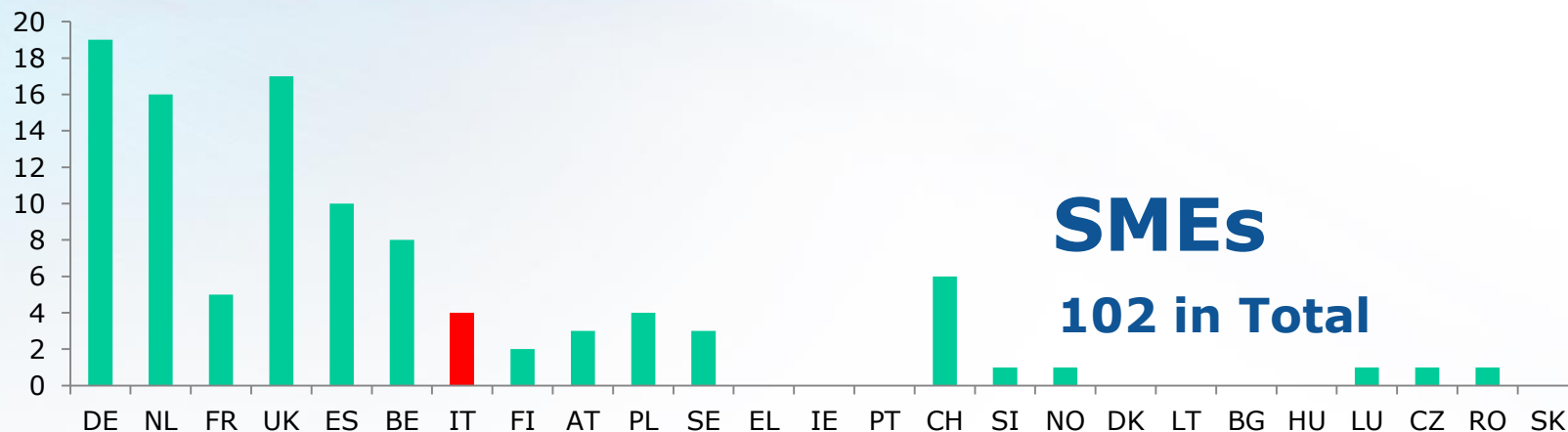
INDUSTRIAL PARTNER(S) ARE ESSENTIAL

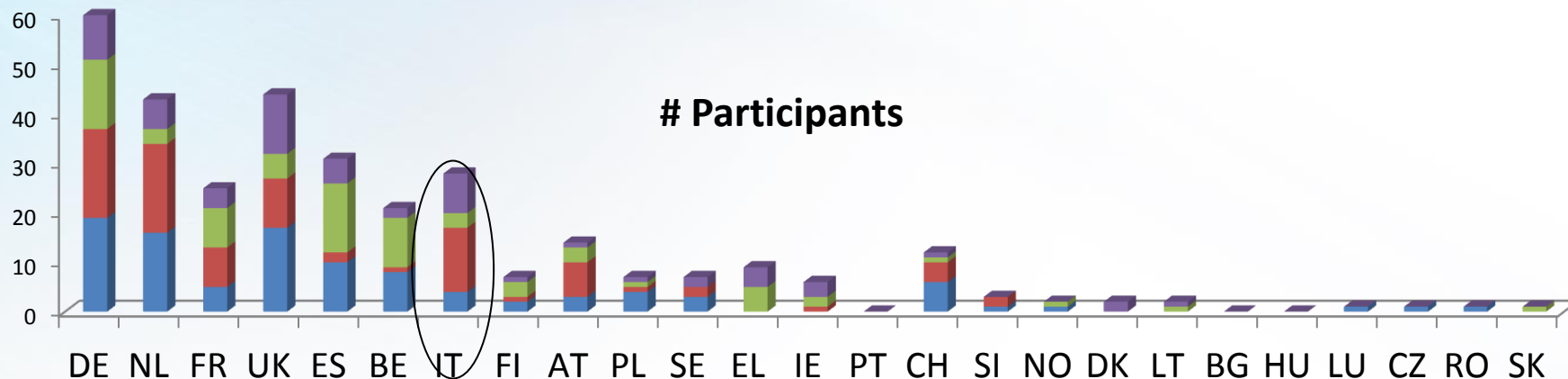
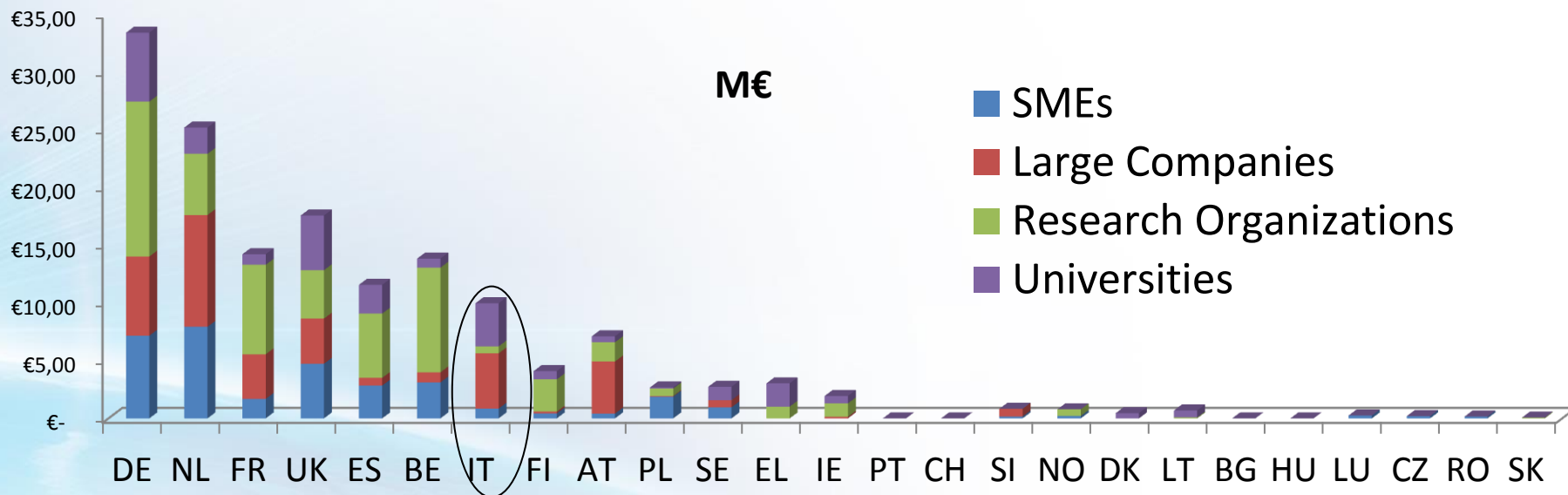
- To demonstrate that there is a focus on innovation, on the exploitation of the results but also that the research is geared towards reaching the right targets.
- To provide a credible business case

Most proposal fail because of

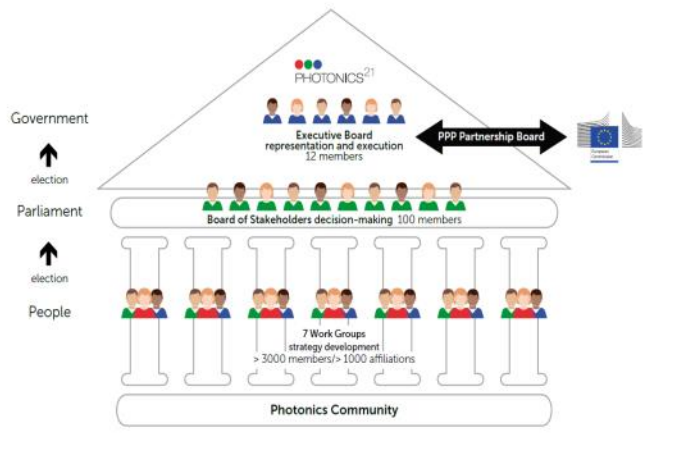
- The idea is not new or is only incremental or the proposal fails to demonstrate its novelty
- There are no KPIs, baseline, measurable objectives
- Does not demonstrate innovation potential
- There is no credible business case
- There is no Freedom to operate discussed
- There is not an industrial partner or a path that leads to possible concrete market introduction
- There is no detailed risk assessment with concrete mitigation measures
- There is missing expertise or unjustified overlapping competences
- Tasks are not described in sufficient details

H2020 2014-15





Photonics21 community drives the Photonics PPP – fully democratic structure & decision making



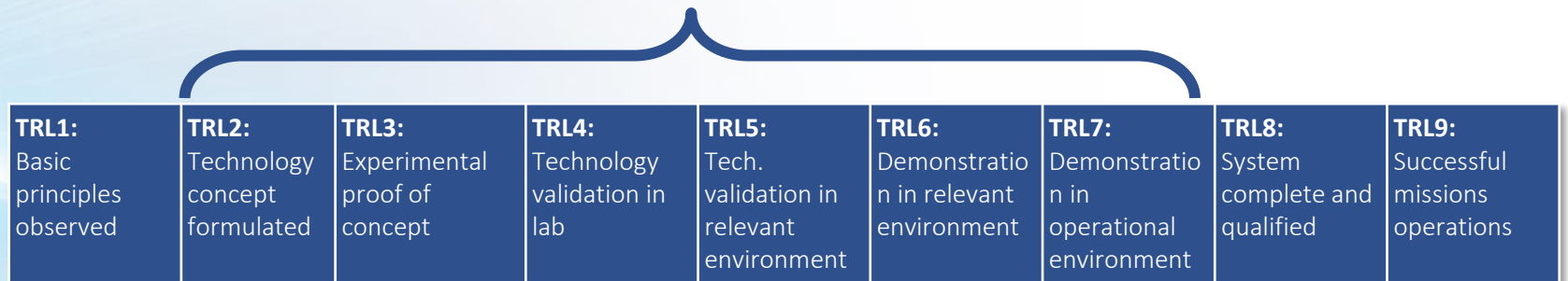
- European photonics strategy implemented by Photonics21 and European Commission
- Photonics21: More than **3000 members** (representing **>1600 affiliations**) from all over Europe:
 - Balanced share of industry and Research & Technology Organisations, Associations, Clusters, National Technology Platforms
 - Value-chain covered
- Photonics21 stakeholders (business representatives, researchers, scientists) engage on a voluntary basis
- Membership is **open to all and free of charge**

Key Commitments of PPP partners monitored by Key Performance Indicators:

European Commission	Photonics21
Up to 700 Mio Eur Investment in Photonics R&I	4x industry investment in R&I in Europe
	At least keep a global market share of 18%
	Increase number of people directly employed by the photonics industry by at least 10% (Baseline 300.000)
New photonics R&I capabilities for addressing the valley of death	
§ New pilot lines and manufacturing capabilities and involvement of stakeholders	
§ new open access infrastructures and services to design, prototyping, manufacturing or testing, etc., and involvement of SME stakeholders	
The PPP Project Performance	
§ Target: Increase industry participation to 50 % in terms of both participants and funding over the 2012 baseline of approximately 36 % (in terms of participants) and 35 % (in terms of funding). SMEs should account for 50 % of industry participation.	
....	
....	

Industry Research collaboration: PPP projects move up to TRL 7

Focus of Photonics PPP Projects



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

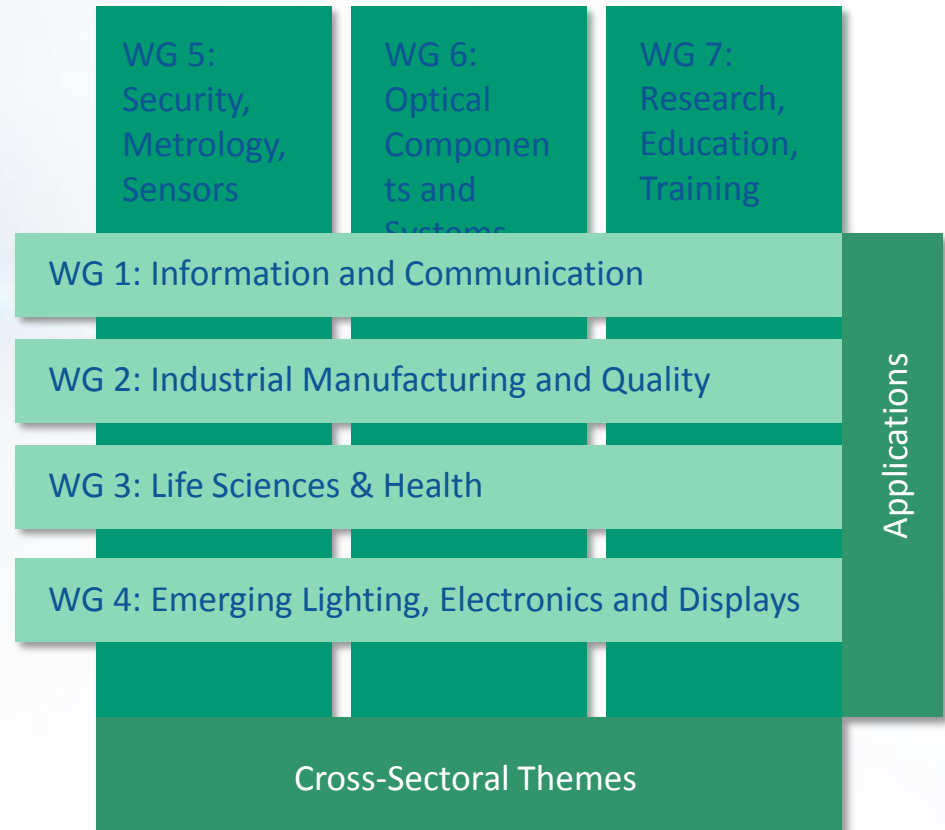
FP7 funding



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

Photonics21 Work Groups – Core Input Forum

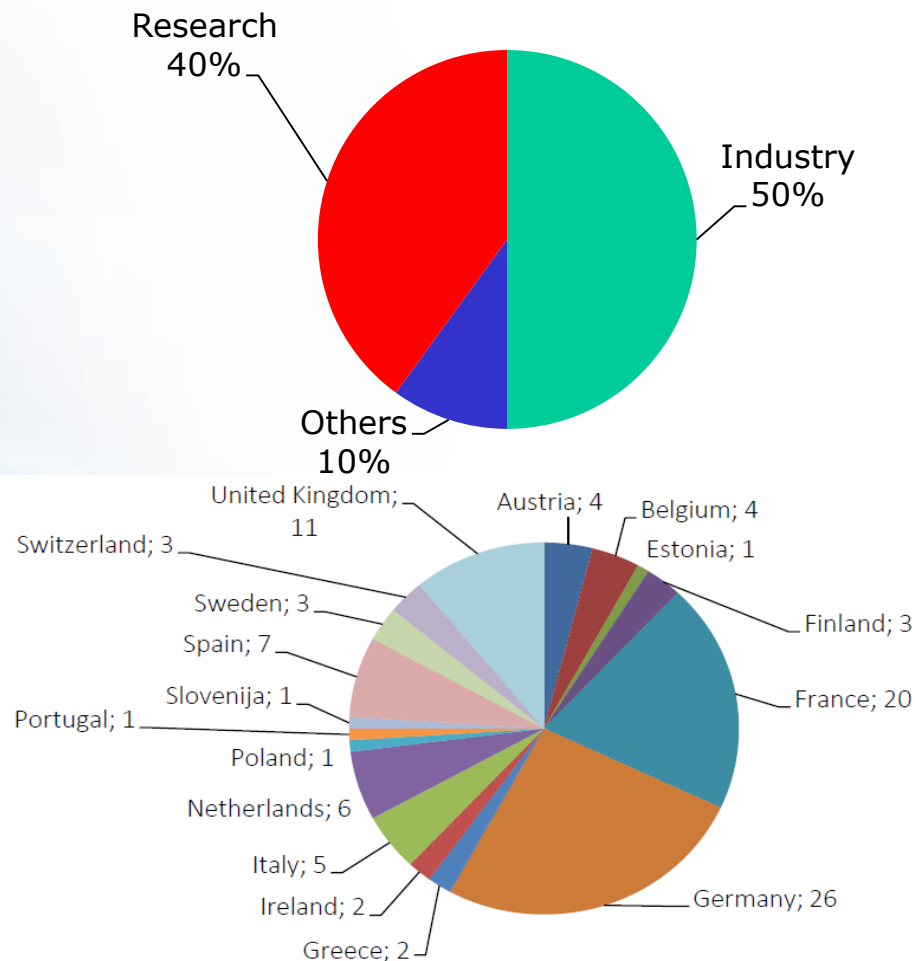
- Core of Photonics21 strategy development
- Discuss and align input for the Multiannual Roadmap and call topics for the Horizon2020 Photonics PPP Work Programme
- Provide networking opportunities for the European photonics and end user industry communities



Photonics21 Board of Stakeholders

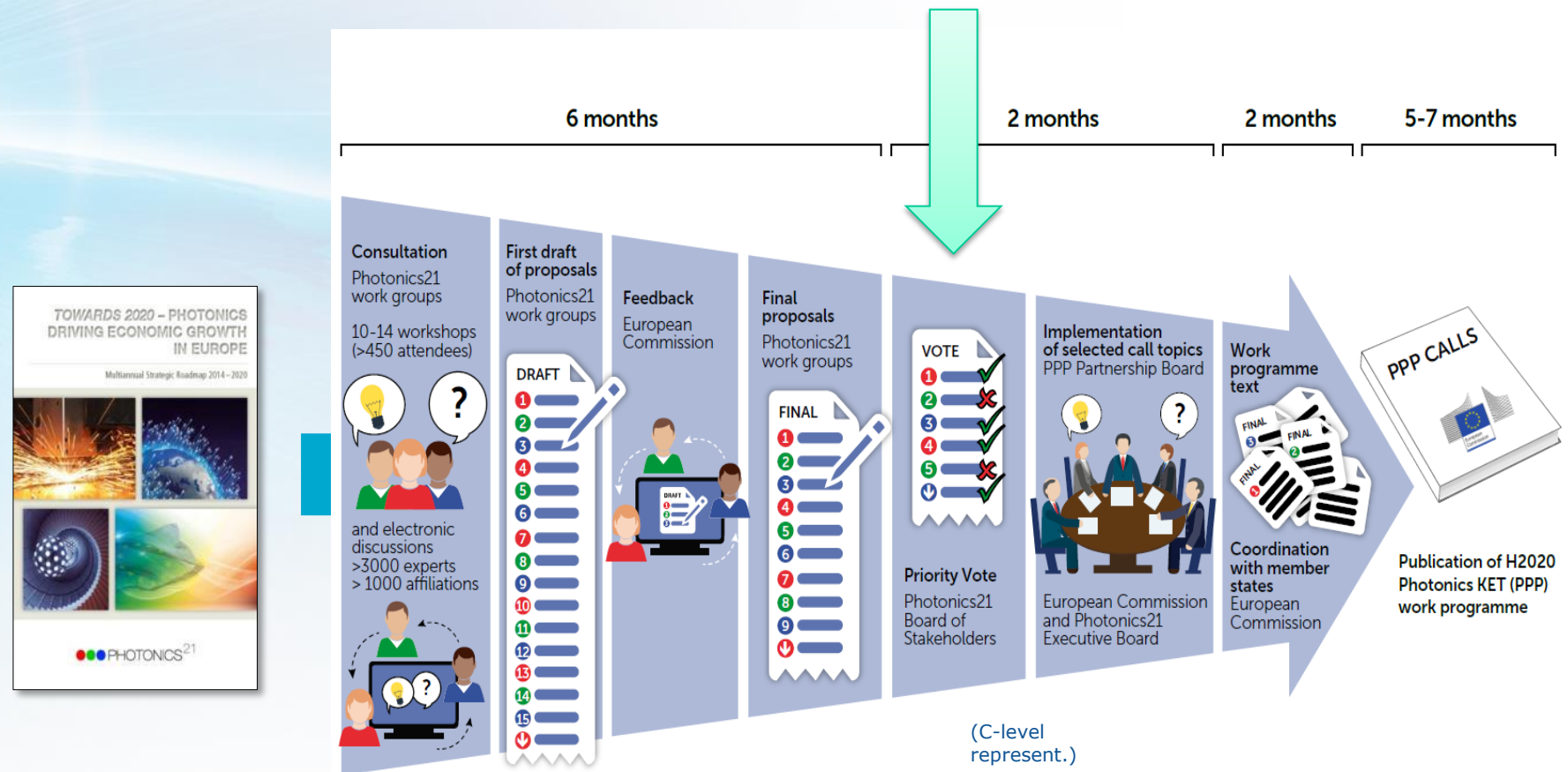
- Main decision making body of Photonics21 (C-Level)
- Elected by Photonics21 members in democratic election
- Balanced representation of Industry and Research Organisations
- Wide geographical coverage
- Driver on strategic issues: Task Forces
 - Establish Photonics Innovation Hubs in Regions
 - Financing Innovation beyond H2020
 -

Balanced Representation



Horizon2020 Photonics PPP (KET) calls

Priority Setting for Work Programme 2018-20



"Digitising European Industry" - Delegazione Confindustria Bruxelles, 24 novembre 2016

110

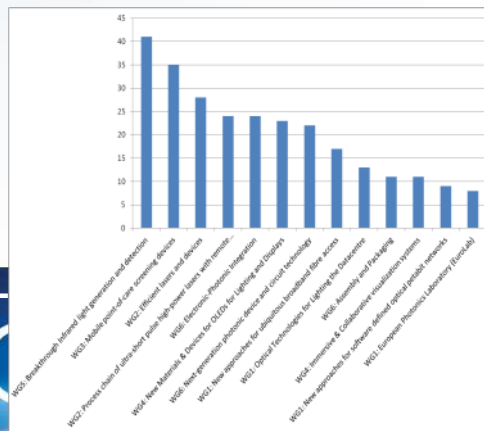
Voting: P21 Board of Stakeholders

Selection Criteria - Economic relevance and societal impact

- Economic relevance of the application domain
- Relevance of the topic: research and/or innovation present or can be built up in the EU
- Impact of the topic on EU economy, employment and societal challenges
- EU added value.



Vote on R&I Proposals at Board of Stakeholder meeting 2014



Bruxelles, 24 novembre 2016

N 2020



For more information



PHOTONICS PUBLIC PRIVATE PARTNERSHIP

www.photonics21.org

<https://ec.europa.eu/digital-single-market/en/photonics>

The Photonics PPP on twitter:

@Photonics21 and @PhotonicsEU

Photonics PPP Annual Meeting 2017

Brussels, 28-29 March 2017 (save the date)

Infoday: probably 25 January 2017

"Digitising European Industry" - Delegazione Confindustria Bruxelles, 24 novembre 2016



HORIZON 2020





THANK YOU

[Digitising European Industry](http://ec.europa.eu/digital-agenda/en/digitising-european-industry)

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

Horizon 2020 on the web:

http://ec.europa.eu/research/horizon2020/index_en.cfm

Contacting the Unit "Photonics": CNECT-PHOTONICS@ec.europa.eu

Contacting the Unit "Technologies and systems for digitising industry": CNECT-A2@ec.europa.eu