

# Robotics in Horizon 2020: from Regions to Europe

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# Outline

- **EU & Regions – "the place to be for Robotics"**
- **Why Robotics? Why Now? Why Regions?**
- **Robotician, Regions, EC, Each one has a role to play**
- **Combining funding**
  - H2020 opportunities
  - Regional opportunities
  - Paving the way to Smart Specialization

# "Our mind-set"

The path to a sustained EU leadership in Robotics

**World-class industrial and technology  
regional hubs in robotics**

- ↪ The "places to be" for industry & world-wide scientists and engineers
- ↪ The "places to invest", start and expand your business

# Why Robotics? Why Now?

A high growth area by itself

Double digit growth in the next 5 years

Essential for maintaining "production" in Europe

High positive impact on jobs creation (YES!)

Essential for addressing our societal challenges

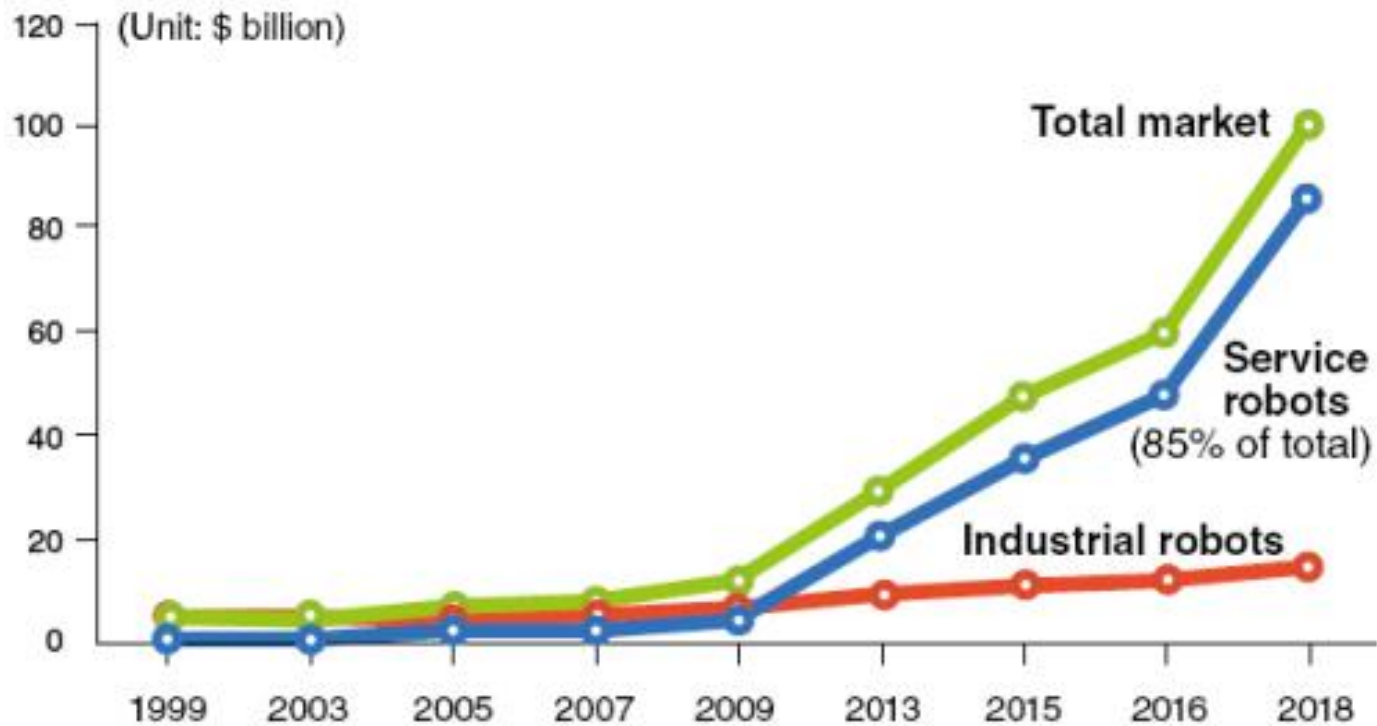
Health, security, environment, elderly, etc..

Sets the orientation for the whole ICT sector

Autonomous systems, smart connected objects, Internet of things

# Why Now?

## Global robot market outlook



Source Ministry of Knowledge & Economy–South Korea, Jan.2011

# Why Robotics? Why Now?

- Make the relevant stakeholder aware of the potential offered by Robotics
- We all have a role to play

# Why regions?

## Build & reinforce regional hubs: How?

Focused investments in knowledge and skills

- "Competence centres", University labs and RTOs are at the heart of development
- World class research and facilities in robotics

Specialise on key parts of the value chain

- E.g. Light houses showcasing what technology can do
- Involve all actors including large companies and SMEs

Cooperate with other regions to connect to the rest of the value chain

# Impact on the whole regional ecosystem

Strengthen your innovation capacity

- High tech engineering and multi-disciplinary fields

Support your local manufacturing and services

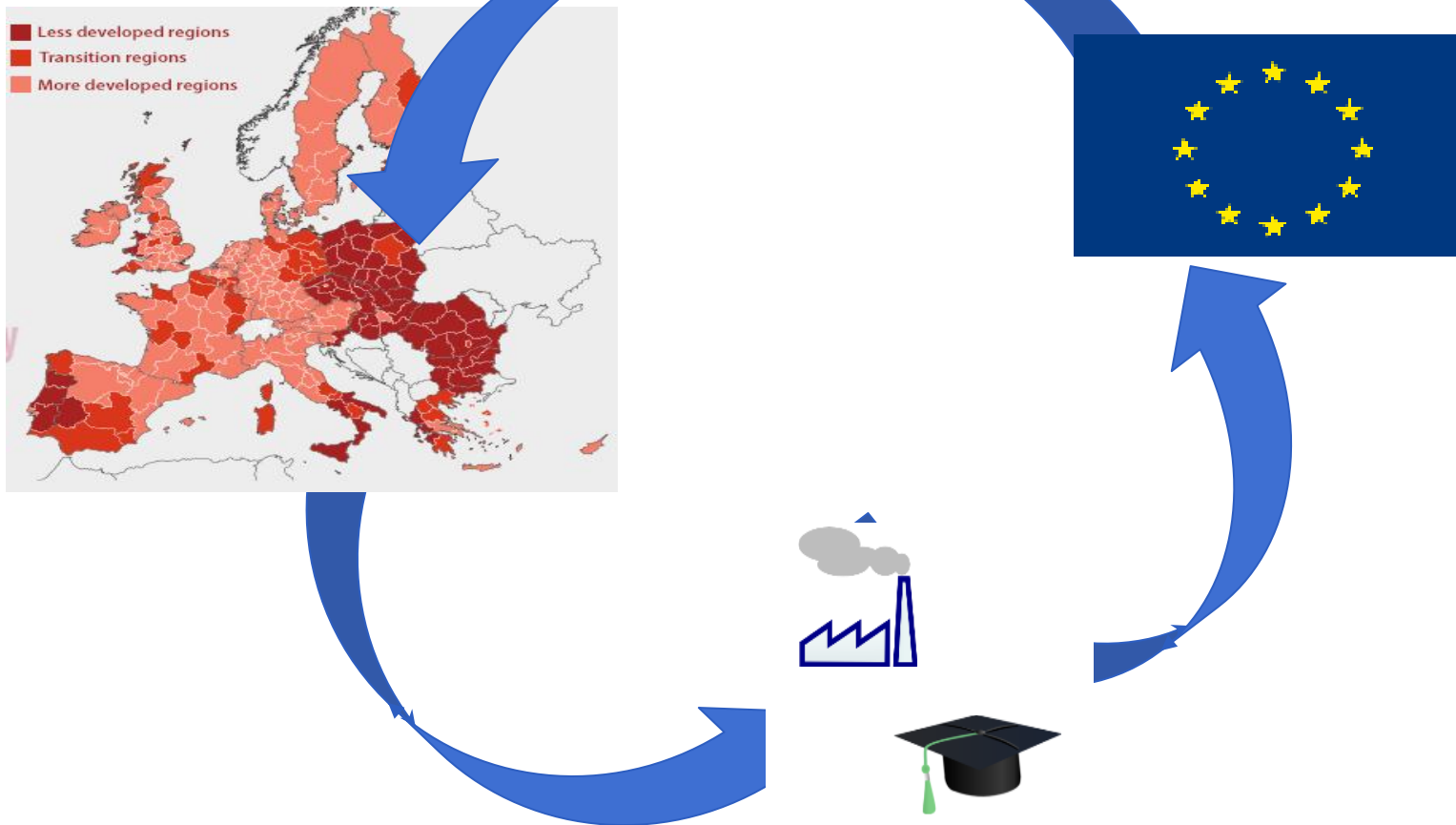
- Production competitive again<sup>1</sup>
- Potential to re-shoring industries
- Greener economy, optimal use of resources

Non de-localizable industries/services:

- Health, elderly, security, environmental monitoring

1. Industrial Robots save production locations and millions of jobs <http://www.ifr.org/news/ifr-pressrelease/robots-to-create-more-than-a-million-jobs-by-2016-295/>

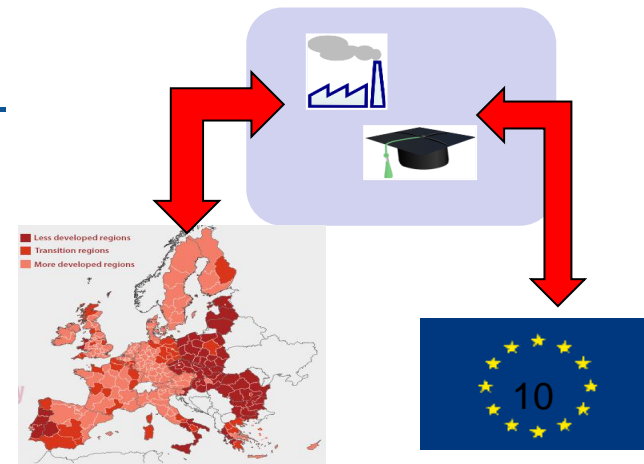
# We all have a role to play



# We all have a role to play

## As roboticist

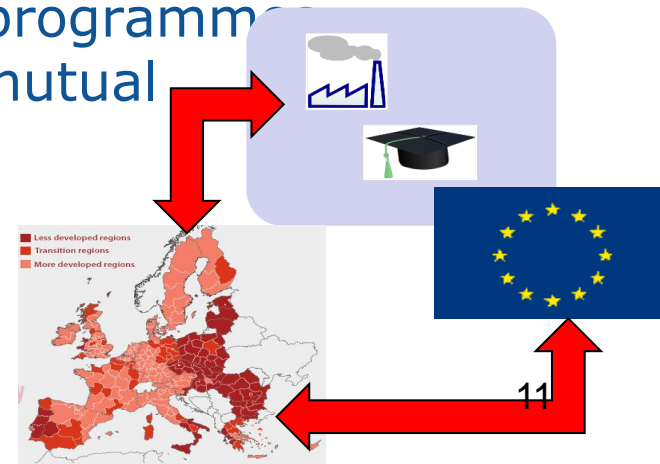
- Inform your region: its strength, potential -> arguments for regional investment
- Inform EC -> links to regions for EU regarding regional funding
- Optimal use of funding: combination (H2020, ERDF, National, local funding)
- Shared resources: offer and use/benefit -> re-use knowledge; optimise resources
- Initiate networking with other regions – (cooperative projects,.....)



# We all have a role to play

## As Region

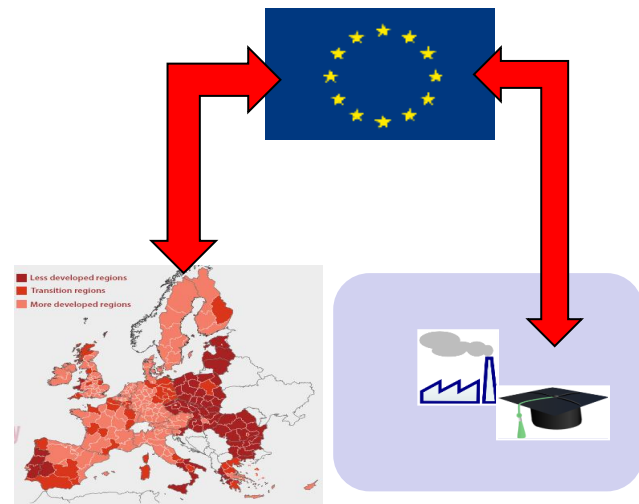
- Build on existing resources: exploit its strength – "place to be" (e.g.: offering shared infrastructure –> attract & benefit from best expertise)
- Invest EU regional funds in Robotics where appropriate (e.g. Smart specialisation)
- Exploit robotics for growth
- Cooperate: with other regions, other programmes (national,...) -> complementarity for mutual benefit



# We all have a role to play

## EC

- Inform (regions, robotics community, relevant stakeholders)
- Funding programmes: H2020, ERDF,... -> Check the regional "Operational Programmes"
- Within the PPP: partnership for Robotics in Europe



# Instruments at EU level: FP7 & H2020 opportunities

## FP7:

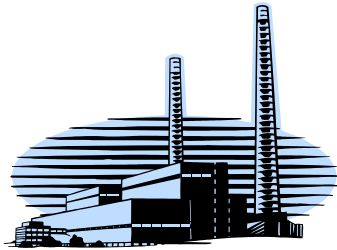
- Echord++ (RIFs – shared infrastructure, and PcP Pilots)
- Euroc (shared facilities for running common challenges)

## H2020:

- ICT23: shared facilities, PcP
- ICT24: PcP, Technology transfer: Industry-academia cross-fertilisation
- FoF9

# ECHORD++: Research and Innovation Facilities

To address needs of different stakeholder groups



Large Manufacturers



Small businesses



Academia



New user groups

Quick and easy access to infrastructure and expertise needed

➡ RIFs as physical infrastructures with very low entrance barriers

# ECHORD++ Three RIFs in three countries

Bristol Robotics Lab, UK  
SSSA, Pisa, Italy  
CEA, Paris/Grenoble, France

































# EuRoc: European Robotic Challenges

## Launch and run three industrially-relevant challenges

- Three stages of increasing complexity
  - I – Simulation / II – **Realistic benchmark environment** / III – End-user site
- Challenges address
  - application scenarios of the Strategic Research Agenda (SRA) of European robotics
  - robotics for ICT-enabled intelligent manufacturing of EFFRA multi-annual roadmap for Factory of the Future (FoF)



- Challenge 1. Reconfigurable Interactive Manufacturing Cell**
- Challenge 2. Shop Floor Logistics and Manipulation**
- Challenge 3. Plant Inspection and Servicing**

APPLICATION SCENARIOS	* ROBOTIC WORKERS	* ROBOTIC CO-WORKERS	* LOGISTICS ROBOTS	* ROBOTS FOR SURVEILLANCE & INTERVENTION	* ROBOTS FOR EXPLORATION & INSPECTION	* EDUTAINMENT ROBOTS
SECTORS						
* INDUSTRIAL	1. 	2. 		3. 		
* PROFESSIONAL SERVICE						
* DOMESTIC SERVICE						
* SECURITY						
* SPACE						

# H2020 Goals

## What's new:

- More innovation, from research to market  
e.g. Pre-Commercial Procurement, SME Instrument
- BETTER SYNERGIES BETWEEN VARIOUS FUNDING PROGRAMMES

# Instruments at EU level

## H2020:

Robotics in the ICT theme in LEIT: Dedicated measures

- Support the development of regional clusters of excellence

ICT23.a: Shared resources and assessment

ICT23.c/ICT24.d: Pre-commercial Procurement

ICT24.b: Tech transfer – (Echord++ - like)

- Networking between clusters – connecting innovators across value chains

Robotics in societal challenges: Collaborative projects

Support to RI ?

## Regional funds

Smart specialisation, Inter and intra-regional networks

**But also:** awareness raising, promotion etc..

<b>CHALLENGE 5: ROBOTICS - 1<sup>st</sup> Call</b> <b>Roadmap-based R&amp;D&amp;I in Robotics -</b> <b>Deadline: 23 April 2014</b>	<ul style="list-style-type: none"> <li>• TYPE of ACTIVITY</li> <li>• % fund.</li> <li>• Size</li> </ul>	<b>74M€</b>
<b>ICT23.a - Research &amp; Innovation Actions</b> <b>PRIORITY Market domains:</b> <b>manufacturing, commercial, civil, agriculture</b> <b>RTD: advance key technologies for the priority domains</b> <b>+ system development</b> <b>+ shared resources and assessment</b>	<b>R&amp;I</b> <b>100%</b> <b>Small/Large</b>	<b>57M€</b>
<b>ICT23.b</b> <b>Technology transfer - Robotics use cases</b>	<b>INNO. - 70%</b> <b>Small/Large</b>	<b>12M€</b>
<b>ICT23.c</b> <b>Pre-commercial procurement in robotics</b>	<b>INNO. - 70%</b> <b>Large</b>	<b>5M€</b>

**CHALLENGE 5: ROBOTICS - 2<sup>nd</sup> Call**  
**Roadmap-based R&D&I in Robotics**  
**Deadline: 21 April 2015 (TBC)**

- **TYPE of ACTIVITY**
- **% fund.**
- **Size**

**83M€**

**ICT24.a – Research & Innovation Actions**  
**PRIORITY Market domains:**  
**healthcare, consumer, transport**  
**RTD to advance key technologies for priority domains**

**R&D**  
**100%**  
**Small/Large**

**50M€**

**ICT24.b - Technology transfer**  
**Industry-academia cross-fertilisation**

**INNO. 70%**  
**Large**

**12M€**

**ICT24.c - Technology transfer**  
**Robotics use cases**

**INNO. 70%**  
**Small/Large**

**12M€**

**ICT24.d - Pre-commercial procurement in robotics: healthcare**

**INNO. 70%**  
**Large**

**5M€**

**ICT24.e - Community building and competitions**

**Coord.**  
**Action**

**4M€**

## **ICT 23.a Research and Innovation Actions:** **HORIZONTAL SUPPORT ACTIVITIES**

- Shared resources and assessment
  - Mechanisms for sharing (incl. sharing of HW and engineering support for developing demonstrators)
  - High quality validation, maintenance and documentation (Optimise re-use)
  - Performance evaluation and benchmarking
- 
- ↪ Optimise quality, efficiency, sharing and re-use of results
  - ↪ Demonstrate and support continuous progress

## ICT 23.c/24.d INNOVATION ACTIONS: **Pre-Commercial procurement in robotics**

- Application areas: **23.c: Public safety, environment and infrastructure monitoring/24.d Healthcare**
- Gathering public procurers with common needs
- One large project (up to 5m€) including 2 major components
  - Refining requirements; organizing the selection of suppliers and evaluation of progress
  - RTD work to be procured
- Frequently Asked Questions on PCP:  
[http://cordis.europa.eu/fp7/ict/pcp/faq\\_en.html](http://cordis.europa.eu/fp7/ict/pcp/faq_en.html)

# FoF 9 – 2015: ICT Innovation for Manufacturing SMEs (I4MS)

- **Innovation Action:**

Highly flexible and near-autonomous robotics systems  
(application experiments) -> **Euroc-Like**

- **Support Action:**

To advance the European I4MS innovation ecosystem: [...] single innovation portal for newcomers; [...], and by exploiting regional funds in the context of the European strategy on "Smart Specialisation".

# **EU REGIONAL POLICY: ESIF: European Structural and Investment Funds**

- **Research and Innovation Smart Specialisation Strategies  
RIS3**

Narrowly focused investment strategies based on strengths

## SUPPORT From EC

- **RIS3 Platform:** Advice to MS/regions for their innovation strategies for smart specialisation <http://s3platform.jrc.ec.europa.eu>

### **Paper: Why should regions invest structural funds in Robotics\*?**

- **Digital Agenda Toolbox:** Support to regional and national authorities - digital growth potential stemming from the Digital Agenda for Europe <http://s3platform.jrc.ec.europa.eu/digital-agenda>

[\\*http://s3platform.jrc.ec.europa.eu/documents/10157/130815/Robotics%20and%20KETS%20special.pdf](http://s3platform.jrc.ec.europa.eu/documents/10157/130815/Robotics%20and%20KETS%20special.pdf)

## Planned investments of total ERDF and Cohesion Fund (€ 271 billion)

Unlocking growth potential by promoting research and innovation in all regions:

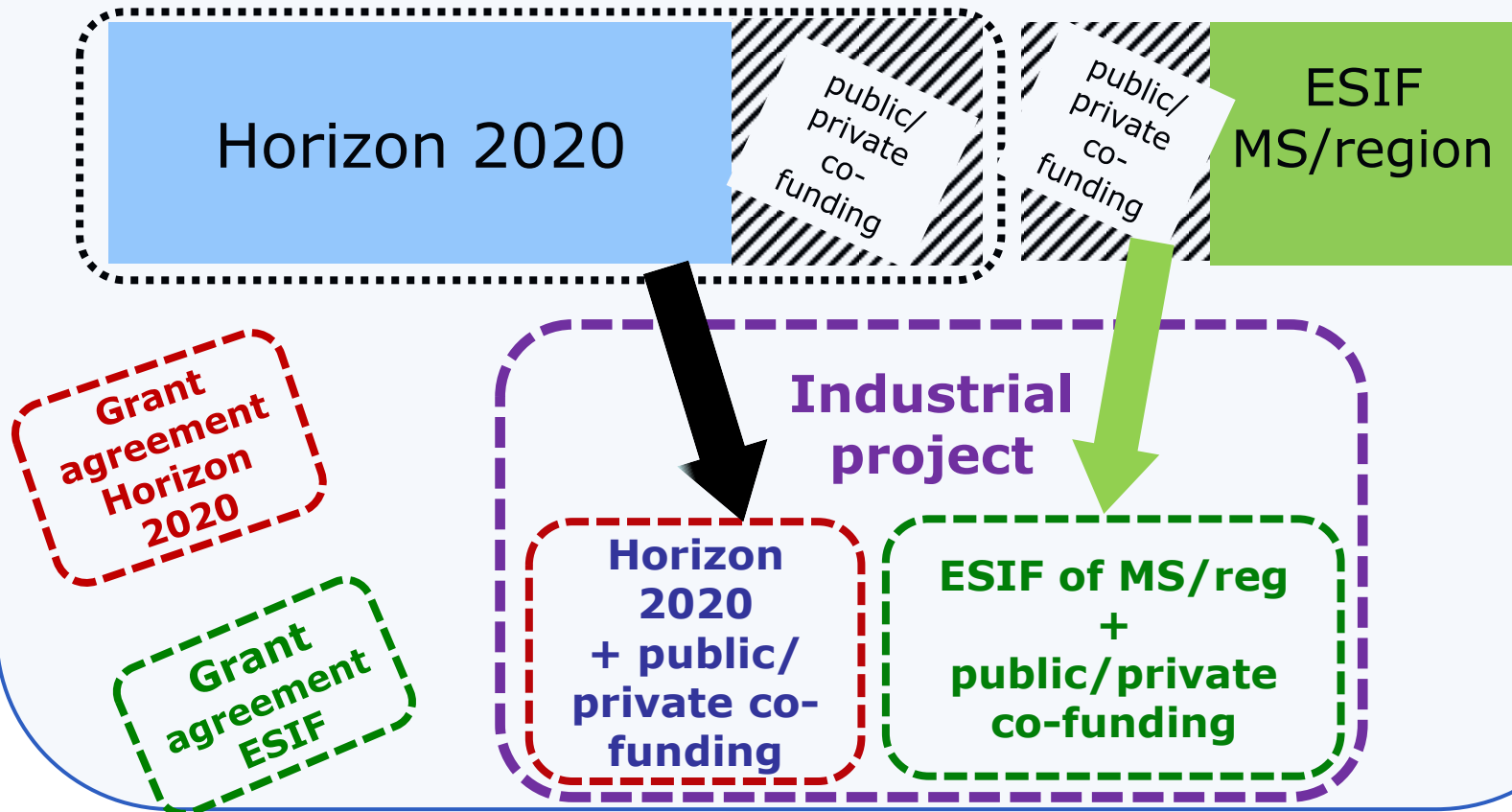
€ 86 billion for research and innovation:

- Focus on **R&I capacity-building** and infrastructure: over **€50 billion**
- **Entrepreneurship**: over **€8.3 billion**
- **ICT capacities, research and take-up**: over **€13 billion**
- **Human capital** for innovation: over **€14.5 billion**

# SMART SPECIALISATION EX-ANTE CONDITIONALITY

- Find the good **match** between the **science and technology system place-based** with your **economic activities**
- SWOT analysis identifying the producers of **knowledge** (universities, labs, RI...) the **disseminators** (science parks, clusters...) and the **users of knowledge** (businesses)
- Develop an **economic agenda** to **transform** your region/country
- Identify your **key areas** for public investment through the ESIF

# Funding Combination: Horizon2020 & ESIF



# Initiatives from the regions

- **October 2013 - Workshop organised by the Tuscany region**
- **[www.errin.eu](http://www.errin.eu) – networks of regions:  
consider working group on Robotics**

**Thank You**