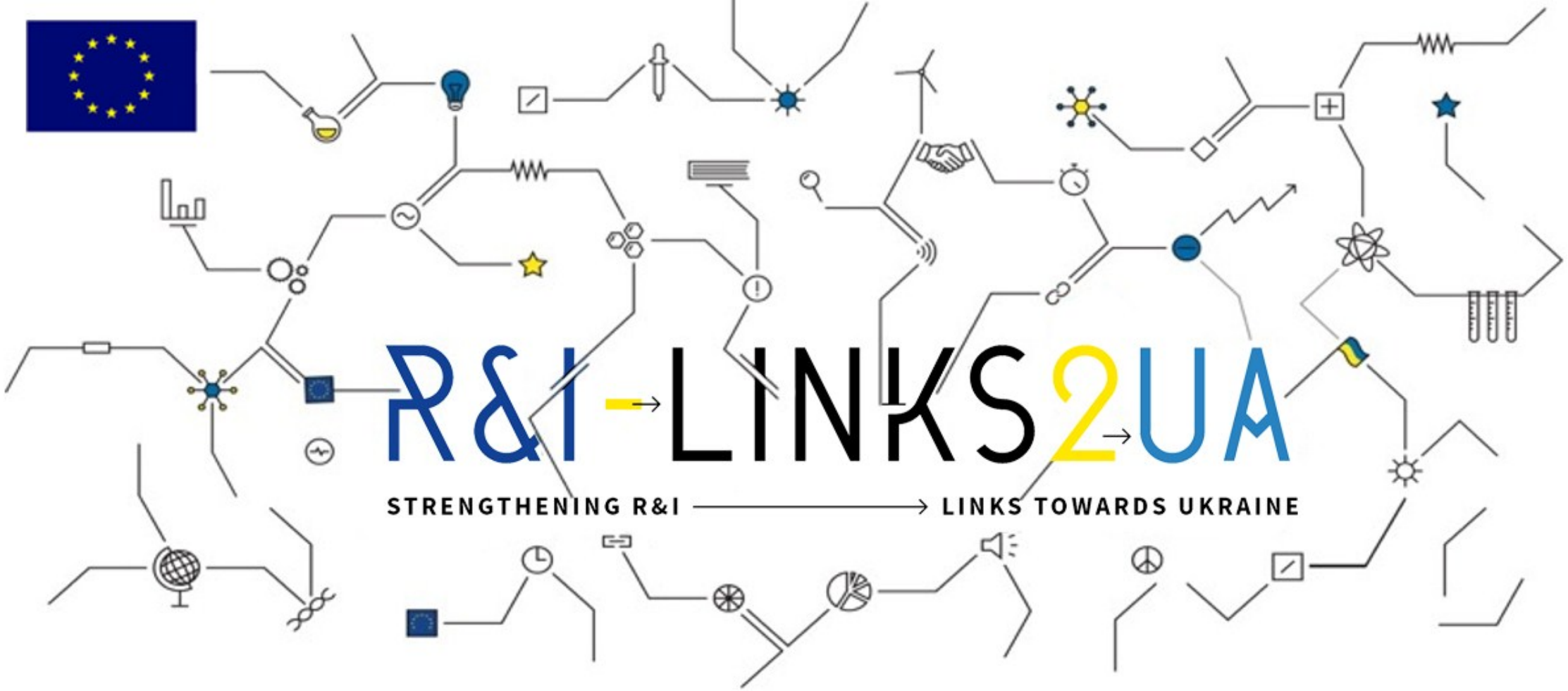


EU Public-Private-Partnership and Joint Technology

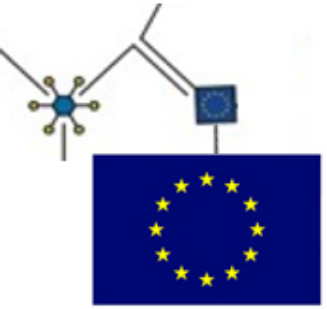
Initiatives landscape

Ülle Must, ETAg

Eesti Teadusagentuur
Estonian Research Council

Content

- Strategical objectives –ERA; Europe 2020; Innovation Union
- EU Partnerships
- Public-Private Partnerships
  - Joint Technology Initiatives
  - Contractual PPPs



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European Research Area

What is ERA?

The European Research Areas (ERA) is a unified research area open to the world based on the Internal Market, in which researchers, scientific knowledge and technology circulate freely

- **In 2000** the creation of a European Research Area (ERA) was proposed by the European Commission in its communication „Towards a European Research Area“.
- **In 2008** the Member States and the Commission launched a new political partnership, called the "Ljubljana Process", to overcome fragmentation and build a strong ERA.

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The Five Key ERA Priorities

1. More effective national research systems;
2. Optimal transnational cooperation and competition;
3. An open labour market for researchers;
4. Gender equality and gender mainstreaming in research;
5. Optimal circulation, access to and transfer of scientific knowledge (including digital ERA).

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EUROPE 2020: A strategy for smart, sustainable and inclusive growth

The Five targets for the EU in 2020:

1. **Employment**
   - 75% of the 20-64 year-olds to be employed
2. **R&D / innovation**
   - 3% of the EU's GDP (public and private combined) to be invested in R&D/innovation
3. **Climate change / energy**
   - **greenhouse gas emissions 20%** (or even **30%**, if the conditions are right) **lower than 1990**
   - **20% of energy from renewables**
   - **20% increase in energy efficiency**
4. **Education**
   - **Reducing school drop-out rates below 10%**
   - **at least 40% of 30-34–year-olds completing third level education**
5. **Poverty / social exclusion**
   - at least **20 million fewer people in or at risk of poverty and social exclusion**

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http://ec.europa.eu/europe2020/pdf/targets_en.pdf

Innovation Union

State of art:

- we lack an internal market for innovation;
- we must ensure territorial and social cohesion throughout Europe;
- we must pool resources in research and innovation;
- Ideas need an **innovation-friendly environment** to grow and become products or services that will benefit us all and our economies.

Bottlenecks:

- weaknesses in public education and innovation systems;
- poor availability of finance;
- costly patenting;
- outdated regulations and procedures
- slow standard-setting
- failure to use public procurement strategically;
- fragmented efforts among member countries and regions.

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The environment for Horizon 2020

- Responding to the economic crisis **to invest in future jobs and growth;**
- Addressing peoples' concerns **about their livelihoods, safety and environment;**
- Strengthening the EU's global position **in research, innovation and technology.**

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Why Public-Private Partnerships?

- To solve problems together with industry
- To strengthen European industrial leadership
- To facilitate prioritisation of R&I in line with Europe 2020 objectives and industry needs
- To leverage research and innovation elements
- To strongly commit industry to joint objectives

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Positioning of PPPs

- Three pillars: **societal challenges, industrial competitiveness** and **excellence in science**
- More emphasis on **innovation**
- More involvement of industry via the **industrial deployment of key enabling technologies** **(***Nanotechnologies; Advanced Materials; Micro- and nano-electronics; Photonics; Biotechnology; Advanced Manufacturing)*, and through **PPPs** - institutional and contractual

Innovation Investment Package

- The Package is divided into **three types of partnerships**:
  - The first establishes EU-Industry partnerships and represents the predominant form of PPP under Horizon 2020: **Joint Technology Initiatives** (JTIs).
  - The second concerns **Joint-Programmes** between the EU and Member States. It covers 4 areas: clinical trials, metrology research, assisted living R&D, and the Eurostars programme for SMEs.
  - The **SESAR Joint-Undertaking** (JU) for Air Traffic Management Systems is another standalone initiative covered by the Investment Package.
- The overall EU contribution to the IIP will amount to more than €8.5 billion for all three different undertakings. Industry and Member States contribute with investments of another €14 billion, for an overall budget of €22.5. However, most of this budget will benefit JTIs. The latter will amount to €17.5 billion, while public-public partnerships will be granted €3.4 billion and SESAR €1.6 billion.

Partnerships in Horizon 2020

Public-Public Partnerships

- Article 185 TFEU (=Treaty on the Functioning of the European Union)
- ERA-NET Cofund
- Joint Programming Initiative (JPI)
- …

Public-Private Partnerships

- Joint Technology Initiative (JTI)or Article 187 TFEU,
- Contractual Public-Private Partnerships (cPPPs) …

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Joint Technology Initiatives

- JTIs were first established under FP7. JTIs' principal goal is to link research knowledge to commercialisation by *"bringing research closer to market"*. Each Initiative is based on a **Strategic Research Agenda** (SRA) whose scope is said to be too ambitious and complex to be covered by regular EU funding mechanisms.
- So-called **European Technology Platforms** (ETPs) were instrumental in drafting these Strategic Research Agendas. These Platforms are industry-driven groupings that cover technological domains relevant to the European economy. The European Commission acknowledges and openly supports their advisory role.
- Under Horizon 2020, JTIs cover 5 Strategic Research Agendas that have been defined as crucial for European growth and global competitiveness. The large-scale ambition of these partnerships is to ensure an impact on the European economy. They therefore correspond to those domains that are most likely to make the EU more competitive on the global scene. These priorities also fall under the EU's agenda for a smart and inclusive society.

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Joint Technology Initiatives (2)

- Most SRAs under Horizon 2020 are a continuation of those developed and implemented during the 7th Framework Programme.
- The FP7 JTIs *Innovative Medicine*, *Fuel Cells and Hydrogen* and *Clean Sky* are considered successful initiatives, therefore their activities have been extended to Horizon 2020. FP7 also counted two other JTIs, *ARTEMIS* (embedded systems) and *ENIAC* (nanoelectronics). Under Horizon 2020, these two electronics JTIs were merged into the *ECSEL* initiative (Electronics Components and Systems for European Leadership). Horizon 2020 also dedicated an initiative to the *Bio-based Industry*.

Joint Technology Initiatives under Horizon 2020

- **Innovative Medicines** (IMI2): to improve European citizens' health and wellbeing by providing new and more effective diagnostics and treatments such as new antimicrobial treatments.
- **Fuel Cells and Hydrogen** (FCH2): to develop commercially viable and clean solutions that use hydrogen as an energy carrier and of fuel cells as energy converters.
- **Clean Sky** (CS2): to considerably reduce the environmental impact of the next generation of aircraft (this initiative will work together with SESAR).
- **Bio-based Industries** (BBI): to develop new and competitive bio-based value chains that replace the need for fossil fuels benefit rural development.
- **Electronic Components and Systems** (ECSEL): to keep Europe at the forefront of electronic components and systems and bridge the gap to exploitation.
- **Shift2Rail:** to develop better trains and railway infrastructure that will drastically reduce costs and improve capacity, reliability and punctuality.

New JTIs

- https://www.euractiv.com/section/transport/news/europe-to-enter-new-space-race-after-2020/
- The world is embarking on a new space race. Except this time around, the top contenders are not the two global superpowers of the past century – the US and the USSR – but entrepreneurs.
- Brunet explained that the upcoming JTI will support “disruptive technologies” such as reusable rockets. JTIs are public/private partnerships in which public money is matched by private contributions. They are seen as a solution to address risk aversion in Europe when it comes to space projects, which are often capital-intensive.
- Brexit negotiations with the UK are forcing the European Commission to postpone funding for reusable rockets until after 2020, despite the importance of the technology for the future of European space policy.

Management: Joint Undertakings

- Each JTI is supervised by a **Joint Undertaking**. JUs are legal entities with an allotted budget, dedicated staff and a separate governing board. Their mission is to manage JTI projects. They help the European Commission and important players in the Industry to coordinate the implementation of JTI activities. JUs can adopt their own co-funding rules, the eligibility and participation of potential candidates, as well as the dissemination of and access to data.
- Each JTI has measurable specific objectives and **key performance indicators**, which will allow closer monitoring and evaluation.
- JTI calls are opened in **Participants Portal** (at a moment 45 topics - FCH2, IMI2; CS2)

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Example: IMI (as July 2016)

- **IMI1 (2008 – 2013) 11 Calls €2 bn ; IMI2 (2014 – 2024) 9 Calls**
- **72 projects (total 99 planned)**
- **A cross-sector community:** 970 academic teams ; 202 SME teams ; 552 EFPIA teams ; 31 patient orgs ; 108 other teams
- Topics: antimicrobial resistance, rheumatic diseases, data quality, medicines safety, liver disease, vaccines
- **What is IMI delivering? 2 272 FTE jobs** directly associated with IMI projects ; **460+ biological marker candidates** for better diagnosis & treatment ; **200 SMEs ; 13 spin-offs ; 1 700+ scientific publications ; 20 patent applications ; 25+ new tools** to facilitate drug development ; **65 clinical studies**

Contractual Public-Private Partnerships

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- cPPPs are meant for research and innovation in the **manufacturing**, **construction, process industry** and **automotive sectors**:

1. **Factories of the Future (FoF)**
2. **Energy-efficient Buildings (EeB)**
3. **European Green Vehicles Initiative (EGVI),**
4. **Sustainable Process Industry (SPIRE),**
5. **Advanced 5G Network Infrastructure (5G)**
6. **Robotics**
7. **Photonics**
8. **High Performance Computing**
9. **Big Data Value**

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The contractual Public-Private Partnerships

- cPPPs are based on **multi-annual roadmaps** for R&I activities, which were produced by the private partners through a widely open consultation process.
- **Industry has a leading role** in defining research priorities.
- **They are implemented through normal calls for proposals under H2020 with the standard rules and procedures. At a moment 13 topics opened.**

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Core Key Performance Indicators

- **At PPP implementation level**
  - New systems and technologies developed in the relevant sectors
  - Participation and benefits for SMEs
  - Contribution to the reduction of energy use
  - Contribution to the reduction in the use of material resources
  - New high-skilled profiles and new curricula developed
  - Private investment mobilised in relation to the PPP activities
  - Contributions to new standards

- **At project impact level**
  - Scale of reduction in energy, material resources and waste
  - Project results taken-up for further investments
  - Trainings for a higher quality workforce
  - Patents and activities leading to standardisation

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Industry-share and outreach in 2014-15

cPPPs	FoF	EeB	EGVI	SPIRE
% of Industry in the participants	60	56	54	59
% of SMEs in the participants	36	30	20	26
Total countries in the selected projects	28	29	21	31
% of Non-members in the participants (2014)	77	75	67	73
% of Non-members in the EC funding (2014)	77	70	53	71

Example: Energy-efficient Buildings (EeB) **Progress monitoring (2014 report)**

Based on replies by 68 projects:

- On average 5 new technologies per project
- Increase of 10.8% of turnover and 9.2% in employees in 1/3 of the SMEs
- 300 demonstration sites
- 781,000 m2 retrofitted
- 50 new type of skills generated
- 35% reduction of energy use
- 39% reduction of CO2 emissions
- 10 training events and 390 people trained, per project
- Private investments leading to leverage factor of 2.5

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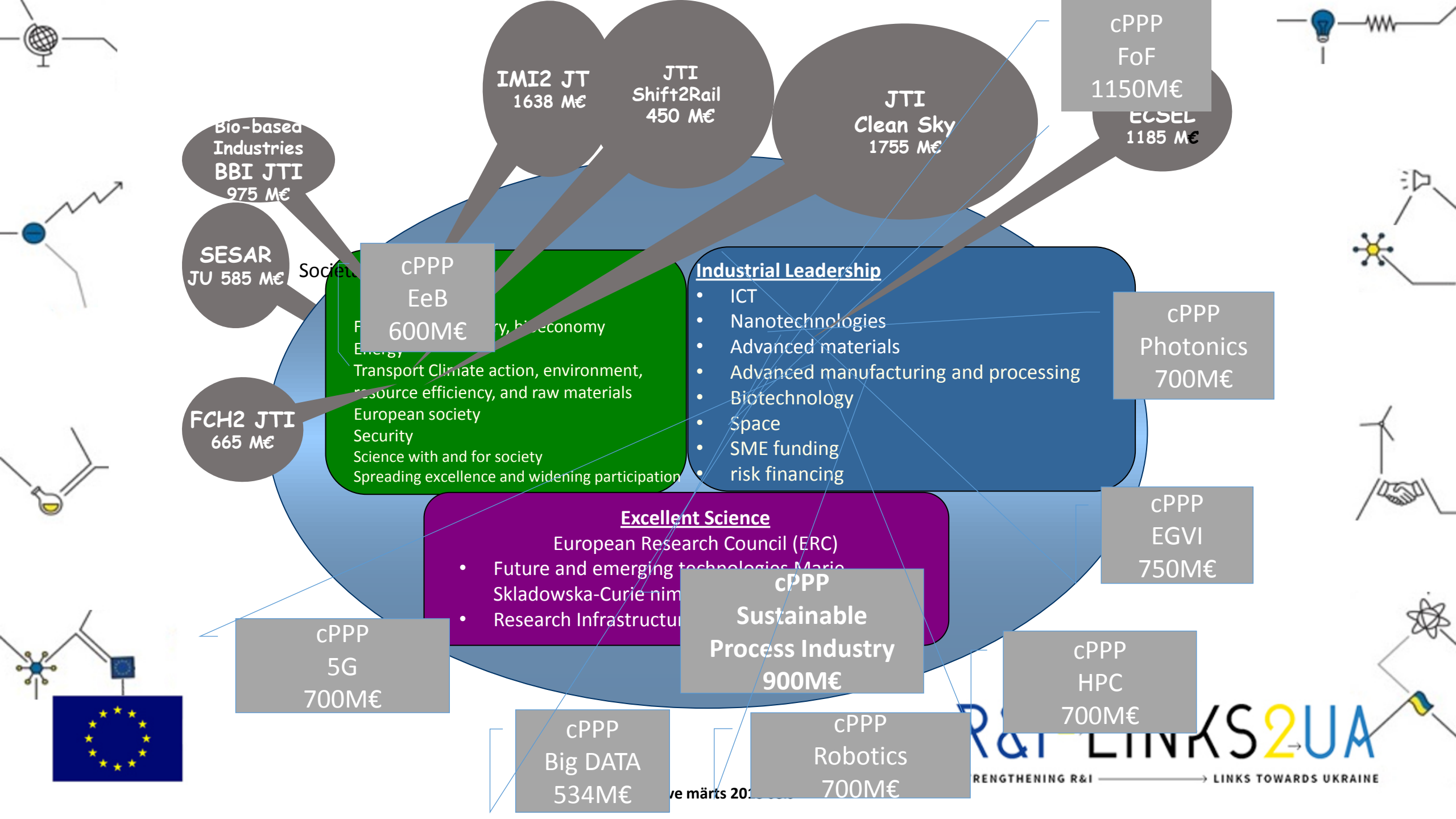
New cPPP on Cybersecurity

- Brussels, 5 July 2016 The Commission today launches a new public-private partnership on cybersecurity that is expected to trigger €1.8 billion of investment by 2020. This is part of a series of new initiatives to better equip Europe against cyber-attacks and to strengthen the competitiveness of its cybersecurity sector. The EU will invest €450 millionin this partnership, under its research and innovation programme Horizon 2020. Cybersecurity market players, represented by the European Cyber Security Organisation (ECSO), are expected to invest three times more. This partnership will also include members from national, regional and local public administrations, research centres and academia. The aim of the partnership is to foster cooperation at early stages of the research and innovation process and to build cybersecurity solutions for various sectors, such as energy, health, transport and finance.
- Based on the Digital Single Market strategy
- Proposal from industry received on 17 April 2016
  - Revised Stategic Research Agenda
  - Specific governance issues, such as role of Member States, have been taken into account: MS can be a Member of the Association
- Belgian-law Association to be registered by End April


IMI2 JT
1638 M€
JTI
Shift2Rail
450 M€
JTI
Clean Sky
1755 M€
cPPP
FoF
1150M€
ECSEL
1185 M€
Bio-based
Industries
BBI JTI
975 M€
SESAR
JU 585 M€
FCH2 JTI
665 M€
cPPP
EeB
600M€
Transport Climate action, environment,
European society
Security
Science with and for society
Spreading excellence and widening participation
Industrial Leadership
ICT
Nanotechnologies
Advanced materials
Advanced manufacturing and processing
Biotechnology
Space
SME funding
risk financing
cPPP
Photonics
700M€
Excellent Science
European Research Council (ERC)
cPPP
EGVI
750M€
cPPP
5G
700M€
cPPP
Sustainable
Process Industry
900M€
cPPP
HPC
700M€
cPPP
Big DATA
534M€
cPPP
Robotics
700M€
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http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/index.html