The European Commission’s science and knowledge service
Joint Research Centre

Applied RDI: Making Innovation Happen

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Main Challenges
Challenges for Innovation to Happen

It’s Complicated…

Innovation happens in complex ecosystems. Too often, we imagine innovation in a linear way, as a pipe-line with inputs and outputs.

Everyone Must Own their Share in the Revolution

The world faces pervasive disruption.

Focus on People, Places and Processes

The three key foundation actions for innovation are: upskilling Europe’s people, using local strengths to underpin local innovation, and transforming public processes.

Seize the Opportunity

Several initiatives have been launched

Source: 'Opportunity now: Europe’s mission to innovate" 5 July 2016
Challenges for Science: Multiplicity of Actors

Inter-disciplinary deficit

Technology / Data Revolution

Image Source: IEEE
Reproducibility
Two Worlds in Collision

SCIENCE

POLICY
How?
Innovation as a multi-dimensional and participatory process

- Business: manufacturing and services, primary sectors, financial sector, creative industries, social sector, large firms, SMEs, young entrepreneurs, students with business ideas, cluster and business organisations, etc.
- Research: public and private research bodies, universities, science and technology parks, NCPs, Technology transfer offices, Horizon2020 committee members, regional ESFRI roadmaps etc.
- Public administration: Different departments, if relevant at different government levels, agencies e.g. for regional development, business advice, public procurement offices, incubators, etc.
- Civil society/Users: NGOs and citizens’ initiatives related to societal challenges for which innovative solutions would be helpful, consumers associations, Talents! etc.

Entrepreneurial in **composition** and **spirit:** (risk-taking, broader view beyond boundaries, ...)

**Smart Specialisation**

The entrepreneurial discovery process involves categories of stakeholders beyond the traditional practice, heading towards a "quadruple helix" approach
Innovation is a combination of technologies, products, services, business models and behaviours – it is linked to networks, connections, value chains.
S3 is about developing new specialities / niches / market opportunities based on regional concentration of knowledge, competence and market potential.

**Smart specialisation priorities: crossroads between sectors, technologies, markets**

- Sectoral level
  - ICT
  - Energy
  - Advanced manufacturing
  - Mapping

- Activity level
  - Advanced manufacturing for energy related applications in harsh environment
  - Prioritisation

**Modernisation** **Transition** **Diversification** **Foundation**
Reinforcing collaboration locally: Synergies between ESI Funds and HORIZON 2020

Source: JRC/IPTS

5 Country Groups

FP-based R&D Intensity as a % of GDP

SF-based R&D Intensity as a % of GDP

Source: JRC/IPTS
Need to find synergies locally.
Innovation and GDP growth modelling economic convergence

GDP/capita
Year 2011

Relative to EU Average
Innovation and GDP growth modelling economic convergence

GDP/capita
Year 2060
Trend Scenario

Relative to EU Average
Innovation and GDP growth modelling economic convergence

**GDP/capita**

**Year 2060**

**Convergence Scenario**

Relative to EU Average
JRC COLLABORATIVE DOCTORAL PARTNERSHIPS

What:
Partnerships with higher education institutions from Member States and countries associated to Horizon 2020 to collaborate via co-supervision on PhD theses.

OBJECTIVES:

• Strategic collaboration and strengthened networks in priority areas.
• Direct exchange of knowledge and know-how among co-supervisors.
• Joint training and networking opportunities for supervisors.
• More opportunities for joint publications and citations.
• Increased attractiveness and visibility of both the JRC and participating institutions.