



Investigating the Impact  
of the **Innovation Union**

# State of the European Innovation Union and the working of the European Innovation Systems

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# Actors in the Innovation System

- higher education – universities, technical inst.
- research institutes – public, semi-public
- private enterprises - firms
- governments – policy makers
- finance sector - banks
- consumers

# Roles of actors

- Higher education
  - Research-driven: generating knowledge
  - Education-driven: forming graduates
- Research institutes
  - Research-driven: generating knowledge
  - Market-driven: research on contractual basis
- Firms
  - Science-based
  - Externally-sourced
  - Supply-chain driven
  - Low profile

# Roles of actors (2)

- Finance sector
  - Risk-taking – venture capital
  - Risk-averse – traditional banking
- Consumers
  - Early adopters
  - Conservative buyers
- Government
  - Organizing – specific instruments
  - Facilitating – generic instruments

# Four types of regimes in European Innovation System

- **Strongly developed** (strongly developed in a general sense; all parts of the innovation system well developed and competitive): *Austria, Belgium, Denmark, Finland, Germany, the Netherlands, Slovenia, Sweden, and the United Kingdom;*
- **Public-policy led** (active science & technology & innovation policies but not so well-developed private sector; overall good performance): *France, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta and Portugal;*
- **Developing** (depend strongly on external knowledge; weak performance, but public policy important for advancing the system): *Bulgaria, Croatia, Cyprus, Czech Republic, Hungary, Romania, Slovakia and Spain;*
- **Lagging behind** (depend strongly on external knowledge; weak performance, weak public policy initiatives): *Estonia, Greece and Poland.*

# Capabilities-interactions-obstacles-conditions

- Capabilities: what actors can do
- Interactions: how actors interact
- Obstacles: factors that hinder the free working of the system
- Conditions: what conditions the way actors behave, institutions that govern the system

**Table 1. Capabilities of actors in the innovation system that are addressed by the 34 Innovation Union commitments**

	HEI	RI	Firms	Government	Finance & banks	Consumers
1.1. Training of researchers	Research	Research	Research			
2.2. Knowledge alliances for skill gaps	Innovation skills		Innovation skills			
3. Promotion of e-skills	ICT skills	ICT skills	ICT skills	ICT skills	ICT skills	ICT skills
4.1. ERA, International collaboration	Research	Research				
6. EU R&I programmes	Research	Research	Research			
7. SMEs in R&I programmes			Research			
8. European forum on forward looking activities				Foresight		
9. Set out EIT strategic agenda	Innovation	Innovation	Innovation			
24. Improve/increase the use of Structural Funds for R&I and Smart specialization	Research, Innovation	Research, Innovation	Research, Innovation			
25. post-2013 Structural Funds for innovation and smart specialization	Research, Innovation	Research, Innovation	Research, Innovation			
26. European social innovation pilot			Social Innovation	Social Innovation		Social Innovation
27. Public sector innovation scoreboard				Innovation		
29. European innovation partnership	Innovation	Innovation	Innovation	Innovation		
30. Attracting and retaining foreign talent	Research, Innovation	Research, Innovation	Research, Innovation			
33. Member States self-assessments R&I systems				self-assessments		

**Table 1. Interactions between actors in the innovation system that are addressed by the 34 Innovation Union commitments**

	HEI	RI	Firms	Government	Finance & banks	Consumers
2.2. Knowledge alliances for skill gaps	Skills		Skills			
3. Promotion of e-skills	ICT skills	ICT skills	ICT skills	ICT skills	ICT skills	ICT skills
4.1. ERA, International collaboration	Research	Research				
5. Research Infrastructures	Research	Research	Research			
6. EU R&I programmes	Research	Research	Research			
7. SMEs in R&I programmes	Research	Research	Research			
8. European forum on forward looking activities		Policy		Policy		
9. Set out EIT strategic agenda	Knowledge triangle	Knowledge triangle	Knowledge triangle			
12. Access to finance - Matching			Matching		Matching	
17. Innovative Public Procurement			Procurement	Procurement		
18. Eco-innovation action plan	Multi-actor	Multi-actor	Multi-actor	Multi-actor	Multi-actor	
19.1 Creative industries (CI)			Buyer-supplier			
21. Collaborative research and knowledge transfer	Research, transfer	Research, transfer	Research, transfer			
22. European market for IPR			IPR market			
26. European social	Virtual hub	Virtual hub	Virtual hub	Virtual hub		Virtual hub



**Table 1. Obstacles in the innovation system that are addressed by the 34 Innovation Union commitments**

	HEI	RI	Firms	Government	Finance & banks	Consumers
2.1. University ranking	Identification					
4.1. ERA, International collaboration	Legal, funding	Legal, funding				
4.2. ERA remove obstacles for research mobility	Mobility	Mobility				
5. Research Infrastructures	Costs	Costs	Access			
7. SMEs in R&I programmes			Access			
10. Put in place EU financial instruments to attract private finance			Access to finance	Legal and state aid rules	Risk	
11. Access to finance-Venture capital			Access to foreign VC		Legal, fiscal	
14. Unitary patent			Costs			
20. Open access to research results	Access	Access	Access			Access

**Table 1. Conditions in the innovation system that are addressed by the 34 Innovation Union commitments**

	HEI	RI	Firms	Govern- ment	Finance & banks	Con- sumers
1.2. Employment conditions for researchers	Employment	Employment				
2.1. University ranking	Multi-dimension ranking					
5. Research Infrastructures	Excellence (ESFRI)	Excellence (ESFRI)	Excellence (ESFRI)			
11. Access to finance-Venture capital					Fiscal, cross-border	
13. Review State aid framework for R&D and innovation	State aid	State aid	State aid	State aid		
14. Unitary patent			IPR protection			
15. Screening of regulatory framework			Regulation	Regulation		
16. Standardisation		Standards	Standards			
19.2 EU design leadership board			Design excellence			
23. Safeguard rules for IP	IPR agreements	IPR agreements	IPR agreements			
24. Improve/increase the use of Structural Funds for R&I and Smart specialization				S3 as pre-condition		
34. New indicators and monitoring				Indicator		

# Innovation Union commitments: successfully implemented

- For
  - C1 training of young researchers and improvements in the employment conditions
  - C2 rankings of universities
  - C3 e-skills
  - C4 international mobility of researchers
  - C5 European research infrastructures
  - C7 SMEs
- Empirical confirmation that effects go in the expected direction

## Innovation Union commitments: successfully implemented (2)

- We observe an increase in activities for European Institute of Technology and Knowledge and Innovation Communities (C9)
- For financing, C10 to C13, InnovFin, European Venture Capital Funds, the Startup Europe initiative and the Enterprise Europe Network, and a revision of the General Block Exemption Regulation have been introduced with effects going in the expected direction
- Regulation has been screened in the European Innovation Partnerships EIP-Water and EIP-Raw Materials (C15)
- On eco-innovation regulation (C18), standardization (C16), public procurement (C17), research collaborations (C21) empirical evidence shows it goes in the expected direction

# IU commitments only partly, unevenly, or not at all implemented

- University-business partnerships
- Retaining and attracting international talents
- European Venture Capital funds
- Pre-procurement and public procurement
- Technology Transfer Offices
- Market for technologies
- Structural funds devoted to innovation
- Inclusive innovation
- Scientific collaborations with third countries
- Unitary patent

# IU commitments widening the innovation gap

- Increase in the number of PhD students (C1.1)
- University rankings (C2.1)
- European research Area (C4.1)
- Researchers' mobility and research infrastructure (C5)
- EU research programmes (C6)
- SMEs funding (C7)
- InnovFin and European Venture Capital (C10 and C11)
- Funding from abroad (C12)
- International collaborations (C31)
- Screening of regulatory framework (C15)
  
- Why?
  - Need for absorptive capacity
  - Commitment affects only some actors which may be less present in some systems
  - Threshold effect

# IU commitments closing the innovation gap

- EIT strategic agenda (C9)
- Standards (16)
- Eco-innovation action plan (C18)
- Creative industries (C19)
- Market for patents and licenses (C22)
- Safeguarding rules for IPR (C23)
- Smart specialization (C25)
  
- Why?
  - Opportunities for catching up

# Policy implications

- Possible trade-off between fostering innovation at the EU level and increasing the innovation divide
- Commitments increasing the innovation gap between Member States are mainly based on actors
- Commitments reducing the innovation gap are mainly based on interactions



# Weaknesses in the Innovation Union

- High fragmentation of research along country boundaries and hence lack of transparency and duplication of research efforts
  - university-industry alliances (commitment 2.2)
  - research infrastructures (commitment 5)
  - inclusive innovation (commitment 28)
  - KICs (commitment 9).
- Heterogeneity exists because of different national priorities, regulations and overlapping societal challenges.

# Weaknesses in the Innovation Union

- For an accurate evaluation of some of the commitments of the IU, the micro data needed are simply lacking
- Concepts are not clearly defined
  - social innovation (C26)
- Goals are set clearly but the appropriate data have not yet been collected
  - e-skills (C3)
  - public procurement by Member States (C17)
  - European Creative Industries Alliance (C19)
  - open access (C20)
  - trade in technologies (C23)
  - scientific cooperation with third countries (C31)

# Weaknesses in the Innovation Union

- Conflicts between the European Community and local or sectoral interests.
  - In European Innovation Partnerships (EIP) implementation was somewhat problematic because the communities had not put money aside to finance these activities and because the EIP gradually shifted to satisfy the sectoral interest. In the end, innovation was no longer the primary drive.

Thank you

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