



Bridging the innovation gap: Private sector involvement in public-to-public R&D funding co-operation

Karel Haegeman (EC*) and Mathieu Doussineau (EC*)

Karel-herman.haegeman@ec.europa.eu

* The views expressed are purely those of the authors and may not in any circumstances be regarded as stating an official position of the European Commission.



14 November 2013
FTEVAL Conference
Vienna

Joint Research Centre (JRC)

The European Commission's in-house science service. Serving society, stimulating innovation, supporting legislation.

Institute for Prospective Technological Studies (IPTS) – Seville

Developing science-based responses to policy-challenges

<http://ipts.jrc.ec.europa.eu>



In the news...



5/11/2013
Lief Kjærgaard
Former European Research Area Board member

"In order for the JPI to be a sustainable project it must look for private investment."
(Research Professional)

"For rapid uptake of research results early involvement of industry in co-design of research programmes can be needed."
(ERAC-GPC 1301/12)



16 March May 2012
ERAC-GPC
Recommendation on ways to involve industry



30/10/2008
Jacob Edler
MiOIR University of Manchester

"Joint funding or programming initiatives may be able to mobilise additional resources, where industries and nations are motivated to join a more tailored international approach—and provide funds in expectation of an overall net benefit."
(Research Professional)



European context

Europe 2020 assigns two roles to R&D



1. Solving societal challenges

2. Increasing competitiveness

But: high fragmentation in public R&D funding and in setting priorities for societal challenges => Coordination instruments aim to:



create critical mass



avoid duplication



identify gaps



Which challenges?

1. Solving societal challenges

**Joint
Programming
Initiatives**

Europe 2020

Horizon 2020

Where are priorities being set towards societal challenges in European public R&D funding?

**Knowledge and
Innovation
Communities**

**Regional
strategies**

**European
Innovation
Partnerships**

**National
strategies**

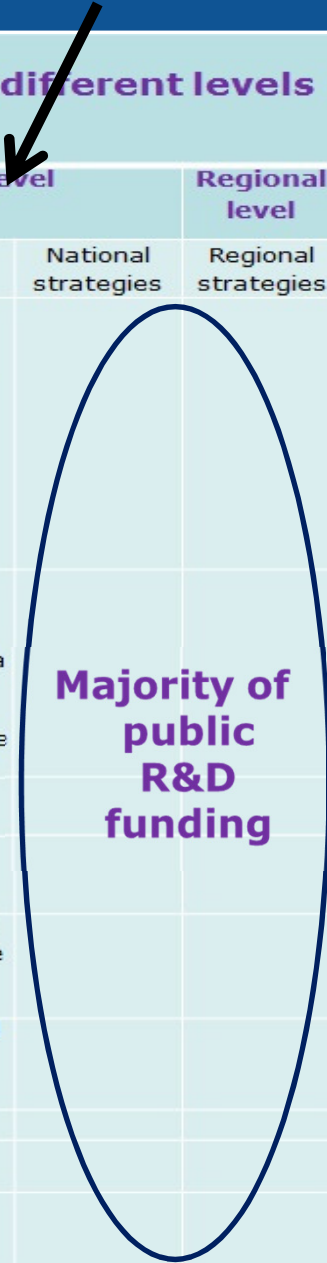
**Universities and
PRO's**

Which challenges?



Out of GBAORD (2010) only 4.27% is coordinated transnationally (or 1.5% without ESA contributions)

Research priorities targeting societal challenges at different levels							Resulting priority societal challenges for the EU
European level				National level		Regional level	
Europe 2020 (3)	Horizon 2020 (7)	KICs (3+6)	EIPs (3+2)	JPIs (10)	National strategies	Regional strategies	
Inclusive growth	Health, demographic change and wellbeing	Innovation for healthy living and active ageing	Active & healthy ageing	Neurodegenerative Diseases A Healthy Diet for a Healthy Life More Years, Better Lives Antimicrobial Resistance			Health & well-being
Sustainable growth	Food security, sustainable agriculture, marine and maritime research, and the bio-economy	Food4Future	Agricultural sustainability & productivity Water	Agriculture, Food Security & CC Water Challenges for a Changing World Healthy and Productive Seas and Oceans			Food, agriculture, water
Sustainable growth	Secure, clean and efficient energy	Inno-Energy					Energy
Sustainable growth	Smart, green and integrated transport	Urban Mobility	Smart cities & communities	Urban Europe			Transport & cities
Sustainable growth	Climate action, resource efficiency and raw materials	Climate		Connecting Climate Knowledge for Europe			Climate change
Inclusive growth	Inclusive, innovative and reflexive societies			Cultural Heritage and Global Change			Inclusiveness & learning from history
	Secure societies	Secure societies					Security
		Raw materials	Raw Materials				Raw materials
Smart growth		Added Value Manufacturing					Manufacturing





2. Increasing competitiveness

Some alternative options for addressing grand challenges and targeting increase of competitiveness:

- Shift policy attention from public research and innovation policies to imitation policies. **Imitative strategies and imitative improvement** may have a far better return-on-investment in terms of impacts on both objectives (Niosi and Pyka, 2013).
- Learn from **strategies outside Europe** (US model where only the research group that is the first one to come with a solution to a problem receives funding; or the Chinese two stage innovation funding model with concentration of funds on a limited number of research groups)
- Understand the barriers and motivations for **business involvement in public-to-public R&D funding collaboration** and advance the knowledge on how they can be addressed or supported



Research question

- In how far is business currently involved in public-to-public research programming?
- What are barriers to and motivations for business involvement in public-to-public R&D programme collaboration?
- How can business involvement be improved (by addressing barriers and supporting motivations)?

Methodological approach

- What can be learned from existing good practices in business involvement in different programming stages?
- A mix of quantitative and qualitative approaches: Case study analysis and interviews of ERA-NETs and European research alliances; lessons drawn from conceptual discussions at joint programming events; preliminary results from the Knowledge and Innovation Communities; 2013 NETWATCH survey among ERA-NETs; project database analysis for a number of ERA-NETs and comparison with FP7 data

What P2Ps exist?

Type of R&I instrument	R&I Instrument	Number of initiatives
Existing EU-level Public-Public Partnership (P2P) instruments	ERA-NETs	100 since 2002
	ERA-NET Plus	9 since 2007
	Article 185 Initiatives	5 since 2003
	Joint Programming Initiatives	10 launched since 2008
	The Strategic Energy Technology plan (SET Plan)	1
	Europe INNOVA/ PRO INNO Europe	25 pilot projects since 2008
Existing EU-level Public-Private Partnership (PPP) instruments	Joint Technology Initiatives (JTIs)	5 since 2007
	European Industrial Initiatives (EIIs)	7 EIIs since 2010
	European Technology Platforms	Around 40
	Recovery Plan PPPs	3 since 2008
	Upcoming: Innovation Investment Package	5
Other EU-level instruments	Other: SESAR, COLIPA	1
	European Innovation Partnerships	3 + 2
Other instruments	Knowledge and Innovation Communities (KICs)	3 + 6
	Research Alliances	4
Instruments for international cooperation	Self-sustaining networks	11
	INCO-NETs	11



Current business involvement in P2P partnerships

- Joining public and private funding: very limited – One of the few examples EURADIA e.V.: Alliance for European Diabetes Research (with 7 non-profit organisations and 9 healthcare companies with European diabetes R&D activity): roadmap development, advocacy, platform development, etc.
- Participation as consortium member in joint calls: Many examples but with varying degrees of success
 - NETWATCH survey: 70% of ERA-NETs has funding programmes open for private sector, but 72.5% of ERA-NETs had a very low private participation (between 0 and 20%)
 - Further analysis of project databases of ERA-NETs: ongoing
- Voluntary business involvement in different programming stages: wide set of experiences from different initiatives (WoodWisdom I&II ERA-NET, EURONANOMED, BONUS Art. 185, research alliances, JPIs, etc.)

Barriers and motivations for business involvement in P2P partnerships

	Motivations	Barriers
...for public-to-public partnerships to involve business	<ul style="list-style-type: none"> • Research addressing societal challenges and competitiveness • Depends on P2P objectives • Increase efficiency and effectiveness • Rapid dissemination and use of research results • Facilitate public-private strategic research agenda's • Identify areas for coordination or pooling of resources • Early & sustained industry engagement supports pull side of research • Early consideration of user requirements & applications at strategic & project level to maximise exploitation opportunities • Business involvement in foresight activities & vision building could result in greater impact in the long run • Foster open innovation 	<ul style="list-style-type: none"> • Fragmentation of industry • Issues of competition • Issues of fear and trust • IPR issues • Conflicts of interest • Lack of resources • Lack of experiences in how to involve business
...for business to be involved in public-to-public partnerships	<ul style="list-style-type: none"> • Networking • Access to collaborative cutting edge research results and innovation ideas • Better understand each other's challenges • Identify opportunities and limitations • Access to funding • Marketing 	<ul style="list-style-type: none"> • Lack of resources • Slow speed of public processes – too long-term • IPR issues • Barriers related to participation in transnational calls

Generic programming functions

Function	Description
1. Scoping and initial commitments	Scoping is initiated by the systematic analysis and sense-making of the context, and followed by the identification of research/innovation topics and societal challenges. The programme design and initial funding commitments are made, appropriate processes for transnational programming are initiated.
2. Calls, proposals and peer-review	Calls for proposals are prepared and disseminated in order to receive project proposals, which becomes a subject of peer-review and finally selection of projects to be funded with a transnational programme.
3. Running and monitoring	Running a transnational programme is a subject of effective administration and execution of projects. Monitoring refers to on-going control and evaluation of the project performance.
4. IP and use of results	Intellectual property (IP) issues are addressed within the transnational framework in order to have mutual agreement on the use of results.
5. Evaluation	Evaluation of the transnational programme refers to appropriateness, effectiveness and efficiency in the execution of the whole programme and its parts.

1. Scoping and initial commitments

Barriers and motivations	Ways to support or address them: examples
<ul style="list-style-type: none"> ● Early & sustained industry engagement supports pull side of research ● Early consideration of user requirements & applications 	<ul style="list-style-type: none"> ● Shift research cooperation objective to transformation of the whole industry, by focusing on the whole innovation chain (WW) ● ETP as member of the advisory board (ENM)
<ul style="list-style-type: none"> ● Slow speed of public processes – too long-term 	<ul style="list-style-type: none"> ● Seek complementarities between shorter term applied research/longer term basic research



2. Calls, proposals and peer review

Barriers and motivations	Ways to support or address them: examples
<p><u>Call formulation, evaluation criteria and peer review:</u></p> <ul style="list-style-type: none"> • Early consideration of user requirements & applications • Increase competitiveness • Conflicts of interest 	<p><u>Involvement in call formulation:</u></p> <ul style="list-style-type: none"> • Industry participation in workshops for defining call topics (WW) • Calls promoting industry – academia collaboration throughout the whole innovation chain • Use National Technology Platforms or Support Groups of the ETPs to collect ideas for next call topics <p><u>Involvement in identifying evaluation criteria:</u></p> <ul style="list-style-type: none"> • Include commercial aspects in the peer review process, e.g. 'Plans for implementation, exploitation and dissemination' • Include criteria related to the European innovation environment <p><u>Involvement in peer review:</u></p> <ul style="list-style-type: none"> • Include experts with an industrial background. • Ways to guarantee independence of experts and avoid conflicts of interest: <ul style="list-style-type: none"> ○ Recently retired experts (WW) ○ Peer review experts sign a declaration regarding confidentiality and avoiding conflicts of interest (ENM) ○ Applicants to joint calls can name their main industrial competitors (ENM) ○ Colleagues can detect conflicts of interest from other colleagues (ENM) ○ If there is a (potential) conflict of interest, the colleague concerned leaves the peer review meeting for the cases concerned (ENM)

2. Calls, proposals and peer review

Barriers and motivations	Ways to support or address them: examples
<p><u>Proposal formulation:</u></p> <ul style="list-style-type: none"> • Difficulties in forming transnational consortia • SMEs lacking resources to participate in transnational projects • Bureaucracy • English language • Networking 	<ul style="list-style-type: none"> • Brokerage events when a call is launched, with flash presentations on project ideas between interested research groups (WW) • Encourage SME participation through simplification of rules, a 1-step selection procedure, active help in project proposal development and project administration (e.g. by offering training, guidance notes, templates, etc.) • Joint calls that support the ability for SMEs and other industries to network in small, multidisciplinary teams • Obligation in joint calls to include industry • An 'expression of interest' tool helps applicants find partners

3. Running and monitoring

Barriers and motivations	Ways to support or address them: examples
<ul style="list-style-type: none">•Issues of fear and trust•Differences in speed and delivery between companies and academics•Differences in laboratory management, document control and good laboratory practice•Lack of communication and collaboration between industrial and academic partners and basic and applied research•Lack of necessary communication and collaboration with end-users	<ul style="list-style-type: none">•Mutual learning meetings among project coordinators, researchers, EC, peer review panel & funders•Site visits



4. IPR and use of results

Barriers and motivations	Ways to support or address them: examples
<ul style="list-style-type: none"> • IPR issues • Issues of fear and trust 	<ul style="list-style-type: none"> • Develop examples/templates of IPR issues resolution in project consortia • Use of option agreement for industry partners to have first rights for a period of time • Including IPR and proprietary knowledge as part of the dissemination by the network
<ul style="list-style-type: none"> • National rules limiting funding of private research and exploitation of publicly funded research 	<ul style="list-style-type: none"> • Co-ordinated lobbying (bottom-up and top-down) for implementing legal solutions to address national obligations to exploit results of research at national level

5. Evaluation

Barriers and motivations	Ways to support or address them: examples
<ul style="list-style-type: none"> • Rapid dissemination and use of research results • Research addressing societal challenges and competitiveness 	<ul style="list-style-type: none"> • Early inclusion of SMEs in the translation of research to products, e.g. through the creation of a 'translation and SME inclusion infrastructure' (ETP nanomedicine) • Use National Technology Platforms or Support Groups of the ETPs to collect ideas for next call topics • Including IPR and proprietary knowledge as part of the dissemination by the network • Collect datasets from projects into a common metadata base of the programme – to direct users to the project databases

Specific tools used to increase business participation in priority setting:

- Involvement of business in foresight exercises at different programming stages
- Application of web 2.0 tools (secondary or primary platforms) for engaging wide sets of private stakeholders and for minimising conflicts of interest (see example from KIC priority areas)
(<http://pubs.e-contentmanagement.com/doi/abs/10.5172/impp.2012.14.3.446>)
- Networking events and tools: e.g. partnering tool from the Joint Programming Initiative on Neurodegenerative Diseases Research
(<http://neurodegenerationresearch.eu/initiatives/annual-calls-for-proposals/partnering-tool/>)



Discussion questions:

- **Impact of European state aid rules?**
- **Fading borders: research funding or public procurement (P. F. Moretti – JPI Oceans)?**
- **SRA or SRIA? Should JPI evaluation indicators include innovation (Spanish discussion note to the GPC)?**
- **Should SRA of JPIs be fully financed with public funds (same question goes for research alliances)?**
- **Why are JPIs and KICs weakly connected when they both have the objective to address societal challenges?**
- **How big is the influence of (lack of) trust?**

Policy implications:

- **The findings may play an important role in supporting the translation of research findings into innovative solutions by involving business from an early stage, in order to optimise the potential to reconcile solutions addressing societal challenges with increased competitiveness.**
- **As public to public research funding cooperation may well present the bulk of public research budgets in Europe in the near future, this approach may be key in avoiding the continuation of a European innovation paradox.**
- **It may also contribute to establishing more links between different research and innovation coordination instruments, such as KICs and JPIs, as well as to the reform and simplification of those instruments as foreseen in the Partnering Communication (EC, 2011).**



End

Thank you

**Karel Haegeman
Mathieu Doussineau**

karel-herman.haegeman@ec.europa.eu