# The circulation of knowledge at the regional level – new thinking…

**24th November 2016**
**Welsh Higher Education, Wales House**
**Rond-Point Schuman 11, B-1040 Brussels**

## Meeting report and findings

## Key conclusions

1. Regional innovation ecosystems are now accepted as drivers of innovation but require strong collaboration between stakeholders.
2. Building strong education and research systems supports innovation but there is increasingly more interest on wider knowledge transfer rather than classic technology-transfer.
3. Knowledge transfer and circulation is mainly 'wrapped up' in people and hence the mobility of people (e.g. Marie Skłodowska-Curie actions (MSCA) and Erasmus schemes) must be continued as well as the meeting of triple helix stakeholders at the regional level.
4. Innovation is more a 'muddy pond' than a linear pipeline and thus effective knowledge circulation between triple-helix stakeholders is a key part of the innovation process.
5. Impact should be the key driver of science, research and innovation but there still an issue of how to measure impact.
6. Open science and open innovation are key drivers of new formations of knowledge production and circulation but require more transparency and communication.
7. New incentives and reward systems and institutional support are needed in universities to promote knowledge circulation and co-creation that encourages innovation.

### Introduction

**The ERA Roadmap 2015 Priority 5 'Optimal circulation and transfer of scientific knowledge'** states that 'removing the legal, political and technical barriers to the wider circulation and greater use of knowledge will lead to increased growth and competitiveness for Europe, with benefits for scientists, research institutions, citizens and businesses of all sizes. The practical focus of this priority should be on a) fully implementing knowledge transfer policies at national level in order to maximize the exploitation of scientific results and b) open access to publications and data in an open science context'. Therefore one of the top priorities should be to 'fully implementing knowledge transfer policies at national level in order to maximize the dissemination, uptake and exploitation of scientific results. RPOs and RFOs should make knowledge transfer second nature by integrating it in their everyday work'.[1]

[1] file:///C:/Users/director/Downloads/ERA_Roadmap_st01208_en15.pdf

**Aims of the workshop**

The aim of the workshop was to gain insights from key stakeholder bodies (networks from the ERA Stakeholder Platform[2] and other expert groups e.g. OECD, JRC, etc.) and the European Commission on how knowledge is or should be shared at the regional level. For example, should this be based on triple or quadruple helix thinking and organisational structures or through other formations? Who should take the lead in developing effective knowledge sharing strategies – the universities, the region or industry? Is effective knowledge sharing a key to economic success? Is the linear model of innovation still relevant?

The objectives of the workshop were to set the scene in terms of EU research and innovation policy and how Member States and regions are reacting to this challenge and then gain insights from expert speakers on the current situation, things that are working well while also identifying challenges and barriers.

**Workshop overview**

The workshop started with an overview of the European Commission's Open Science policy which includes five broad policy lines and eight top level ambitions by 2020.[3] The first presentation on the Science Cloud was then complemented by a short overview of the ERA Roadmap 2015 which highlighted the need for open access to data but combined with a set of regulations on how to deal with IPR and contracts so as to facilitate cooperation and shared databases and online tools. The Commission have established a Working Group on rewards and education and another Working Group on an 'Open Labour market for Researchers'.[4]

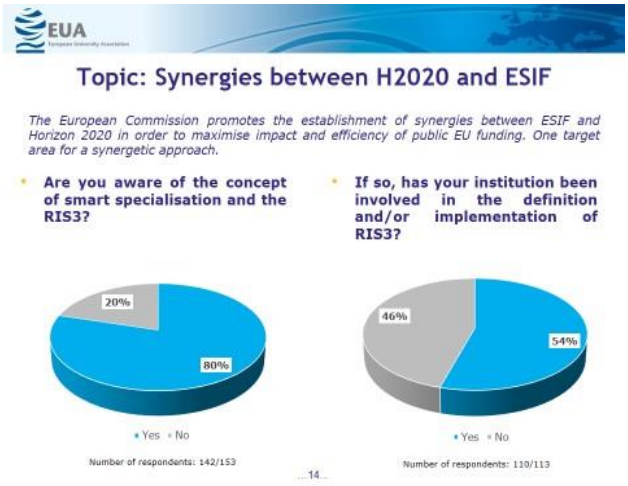
The keynote speaker **Professor Dr Reinhilde Veugelers** argued that while governments wanted universities to engage in the third mission (outreach), the main income and hence interest for universities is contract research and not necessarily tech transfer and spin offs which require a considerable scale of operations. Research contracts are driven by the quality of the research and hence universities rightly concentrate on the quality of their research and their education. Professor Veugelers argued that student mobility was the best way of circulating knowledge which meant that universities should concentrate on their first mission. Universities are important for regional development due to their location and the need to build a long-term research and innovation ecosystem. Furthermore, universities should not necessarily just concentrate on start-ups but also see their role as upgrading and changing local and regional industry and services.

Each region and each university is different and there is no one-size fits all policy. But the question remains what policy? It will certainly include collaborative R&D, tech transfer, cluster support and supporting student mobility (MSCA and Erasmus) but we are still unsure of what are the most effective instruments.

[2] http://ec.europa.eu/research/era/partnership_en.htm - note that ERRIN is an observer on the ERA Stakeholder Platform
[3] http://ec.europa.eu/research/openscience/index.cfm and http://ec.europa.eu/research/openscience/pdf/realising_the_european_open_science_cloud_2016.pdf#view=fit&pagemode=none
[4] http://ec.europa.eu/research/openscience/pdf/realising_the_european_open_science_cloud_2016.pdf#view=fit&pagemode=none

The next session moderated by **Dr Bonnie Wolff-Boenisch, Science Europe** introduced some of the ERA Stakeholder networks for their overview of the topic. For LERU, **Rudi Cuyvers, Innovation Manager at KU Leuven Research and Development** introduced his unit which started in 1972 and now has 60 staff and boasts an income of €135 million from research collaboration and includes 110 spin-offs, of which 89 are still active, and employ 4000 staff. This success story is dependent on a strong local collaboration and also incentives for departments to collaborate on tech-transfer.

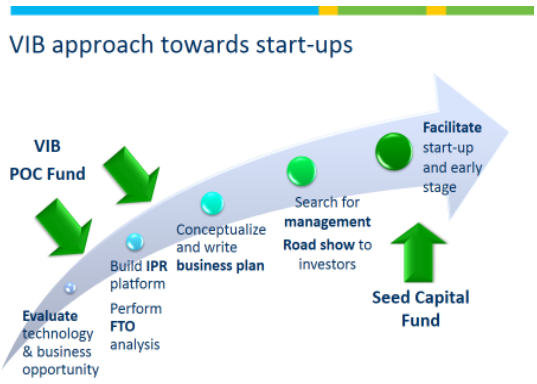
For the EUA – **Professor Koen De Bosschere, Ghent University, Flemish National Rectors' Conference,** VLIR and member of EUA Expert Group on RIS3, introduced the EUA's working group on Smart Specialisation. The group published recommendations in 2015[5] which stressed that universities are central to regional innovation across Europe. Effective Smart Specialisation is an ongoing and evolving process: political support is needed to promote strong co-operation among relevant stakeholders in regional innovation. Decision-making processes in the area of Smart Specialisation and regional innovation should be evidence-based and transparent with universities playing a full role.



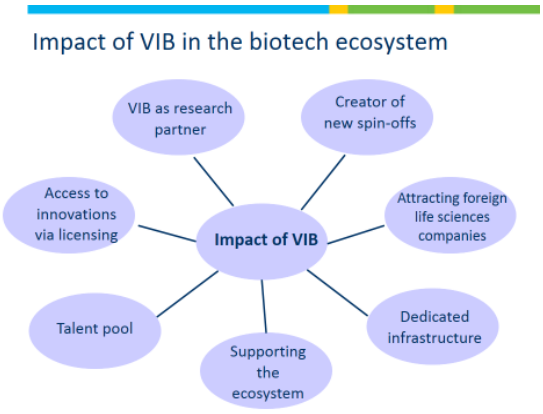

The synergetic use of funds can only be achieved with higher levels of strategic and practical alignment of different funding instruments. Further harmonisation and simplification of regulations would be highly beneficial.

Reward systems in universities should change and the co-creation of knowledge through active engagement with external stakeholders should be valued on a par with traditional research activities. Investing in even stronger links between education and research will support the development of human talent which is the fundamental driver of innovation.

**Jo Bury, Chair of EU-LIFE** and Managing Director of VIB described a different model of research. VIB is a life sciences research institute, based in Flanders, Belgium and performs basic research with a strong focus on translating scientific results into pharmaceutical, agricultural and industrial applications and works with five Flemish universities. Within its 1500 staff, 15 staff are engaged in seeking industrial collaboration. This has resulted in 16 start-ups employing 683 people. VIB also collaborates with science parks and Biotech clusters.




[5] http://eua.be/Libraries/publication/EUA_Seville_Report_web.pdf?sfvrsn=2

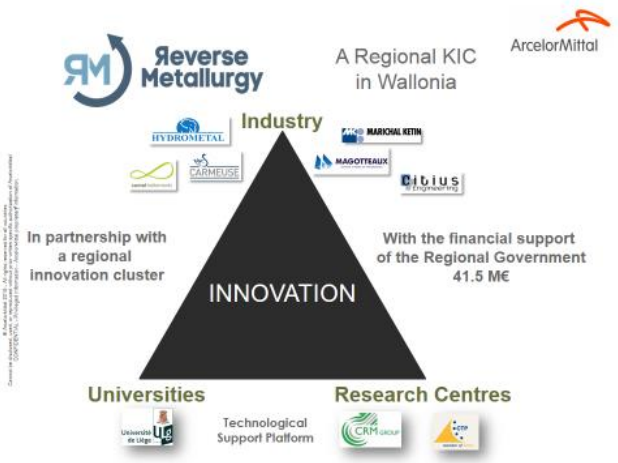



Jo Bury insisted on a strong focus on excellence and impact, the quality of the knowledge and being able to capture knowledge and tech transfer opportunities. Thus the VIB plays a strong role in developing the Flemish biotech ecosystem.

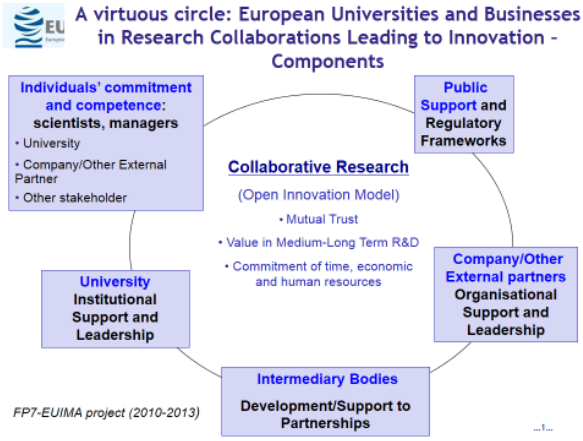
For EARTO, **Charlotte Andersdotter** introduced RISE based in Sweden. RISE - Research Institutes of Sweden - is a group of research and technology organisations (RTO). In global co-operation with academia, enterprise and society, RISE creates value, growth and competitiveness through research excellence and innovation. 2015 RISE had a turnover of just over 3 billion SEK, of which 55 % came from industry, and 27 % from public funding in competition (including national and EU funding) and employs 2,200 researchers 30 % of whom have a PhD. Charlotte Andersdotter gave an example of how RISE had helped the Gothenburg textile industry to renew its products lines towards smart textiles, new markets and new business models.

Key success factors are based on the fact that knowledge sharing is the hallmark of an RTO. RTOs need to be embedded in regional context and linked with global networks. Test and demonstration facilities are needed but a fundamental need is regional (and national) commitment, both strategic and financial. The regional level should also give a concrete direction of travel. RTO's business models are based on Open Innovation and Open Science and play a central role in efficient knowledge circulation. However, there is a need to balance benefits of "openness" for society and proven market opportunities.

For EIRMA, **Luc Chefneux from ArcelorMittal** gave an interesting example of open innovation in Liège, Belgium. However, he started off by stating that 'the link between research and innovation is neither automatic, nor direct!' He referred to the EU paradox: the EU is very good in basic research which has a very low impact on the economy. Innovation can be performed without any researcher (using technology scouting companies) but not without internal competences. Innovation requires a strong team culture, good skills and relevant tools. It involves a series of scientific, technological, organisational, financial and commercial activities and resources. However, the most important success factor is the business model.



In a wide discussion, the speakers stressed the need to de-risk research and innovation and give incentives for universities to develop their third mission. This third mission involved strengthening the triple-helix and as one of the speakers noted that 'the chain was a strong as its weakest link'. Regions should offer strong support and collaboration and give a strong direction of travel.




The second session of regional case studies, **moderated by Lidia Borrell-Damian from the EUA**, illustrated activities which involved a joined up approach at the local and regional level. Lidia Borrell-Damian opened the session by illustrating a model of collaborative research which stresses the need for mutual trust between partners backed up by a commitment of time and resources over the medium to long term.

From Wales, **Sally O'Connor, Programme Manager for SPARK** and **Professor Adam Fletcher, Director of Y Lab** at Cardiff University introduced the new innovation park at Cardiff University. SPARK will co-locate researchers with key stakeholders, supporting and developing innovative knowledge-based clusters (for example, in computational social science, crime and security, civil society, public health and public services innovation). The concept was developed with strategic partners including Nesta[6], Cardiff Council, Welsh Government, Office of National Statistics, IBM and the ESRC[7]. Its aim to generate economic, environmental and social value through co-developing innovative and effective solutions to societal challenges through innovative knowledge-based clusters. This should make Cardiff University a global leader of translational social science research.

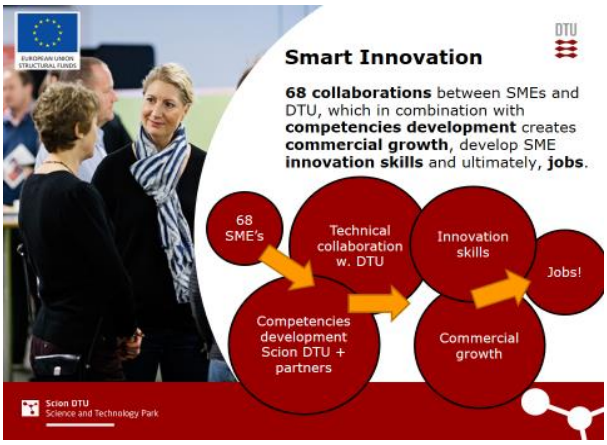

The co-location of researchers, research stakeholders and others to co-produce knowledge and respond to societal challenges will enable new solutions to societal problems founded on collaboration and co-development across sectors, disciplines, regions and nations and engage wider society and publics with social science. Thus the design of the building will provide a front door of the university to society.

[6] Nesta based in the UK claims to be the world's leading innovation foundation http://www.nesta.org.uk/
[7] Economic and social Research Council http://www.esrc.ac.uk/

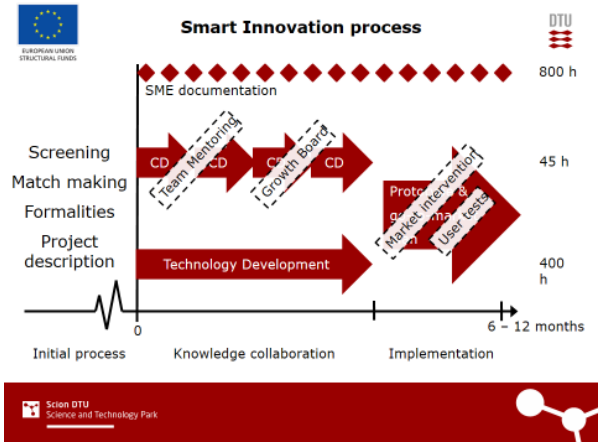
From Andalucia, **Sonia Palomo das Neves, from the University of Malaga** and Andalucía Technology Park and **Clara Plata Ríos from the University of Malaga** introduced the collaboration between the Technology Park and the University of Malaga. The Technology Park opened in 1992 and now has 630 companies employing 17,000 employees. The University, founded in 1972, now has over 30,000 students.


Increasingly, the university and the technology park are collaborating which includes joint shared space on the campus and in the technology park. A recent development is that of the Green Ray building to mix staff, students and companies. The Green Ray includes an International Innovation School which carries out training; a Global Entrepreneurs Centre to generate business ideas based on real challenges and Innovation communities which pick up local and provincial challenges collected by a 'Science Shop'.


From the COPENHAGEN CAPITAL REGION, **Jan Eiersted Molzen, Head of Sector at Consultancy and Networks** at the Technical University of Denmark showed how the university was engaged in supporting SMEs in Copenhagen area. The university actively seeks SMEs which can benefit from the scheme. The selection process examines the SME's status and makes sure it possesses necessary resources and is innovation ready. The SME must be in the Capital Region of Denmark and is active in the smart/ green/ medical sectors which corresponds to the strengths of the local economy.




The scheme involves technology support and mentoring and support for market implementation. The success of the scheme involves aligning the SME actions with the regional strategies and strongholds (smart specialisation) and combines business development and technology development. The university can provide in depth scientific knowledge and gains knowledge of the challenges facing high tech SMEs. The concept is easy to communicate based on a standard set of hourly support (400 + 800 hours). Finally, one of the advantages is that researchers gets SMEs 'delivered on a silver platter'.




The final panel were able to comment on the presentations they had heard. **Dr Katarzyna Szkuta,** Directorate B Growth & Innovation represented the JRC, **Professor Dr Jörgen Sjöberg, Chalmers University of Technology** represented CESAER, **Dr Giula Ajmone Marsan** represented the OECD and **Jo Bury** returned for EU-LIFE and **Dr Claire Nauwelaers**, an independent expert on regional development also joined the panel.

The key points raised were:

1. Impact needs to include inclusiveness and well-being.
2. Open Science is broader than Open Access. Open Science contributes to an open research and innovation ecosystem which will engage citizens in co-creation activities. There is a strong need to develop the quadruple helix and engage civic society more fully.
3. Innovation is more a 'muddy pond' than a linear process but we need scientists and researchers to create knowledge which has quality and impact and 'facilitators' or 'curators' who can circulate this knowledge to a variety of publics and encourage shared agendas and understanding. It is important to move knowledge in people.[8]

[8] Robert Oppenheimer once noted that 'The best way to send information is to wrap it up in a person.'

4. Any research and innovation ecosystem needs a critical mass which includes social and entrepreneurial culture, 'facilitators' and 'bridgers' and talent mobility. The ecosystem is made up of collaborating pillars including universities and RTOs, companies, governments at local and regional levels and citizens. Universities of Applied Science have traditionally been close to their industrial markets and may provide interesting case studies.
5. Selling knowledge assets can be costly and now universities have to acknowledge that if they are in a research and innovation ecosystem then they are not the only player. This means working with a range of stakeholders as mentioned above.
6. Universities need to develop incentives to support a wider engagement role. These incentives must be accepted by peers.
7. Regional policy is important and Smart Specialisation Strategies have helped regions define their competences and comparative advantages and work with a range of actors at the regional level to identify and implement a strategic vision.
8. Innovative public procurement can provide a demand-led stimulus to innovation. The role of health providers in stimulating innovative procurement should be investigated.

## Annex 1: Agenda

### The circulation of knowledge at the regional level – new thinking

24th November 2016

Welsh Higher Education, Wales House Rond-Point Schuman 11, B-1040 Brussels

| | |
|---|---|
| 08h30-09h00 | **Registration and coffee** |
| 09h00-10h00 | **Welcome**<br>• Sally O'Connor, Programme Manager, Innovation Central, Cardiff Innovation System, Cardiff University<br>• Short introduction to Open Science – Patrick Brenier, DG RTD<br>• Introduction to ERA and ERA National Road maps and ERA Progress Report the regional dimension and overview of Priority 5 – Anette Bjornsson, DG RTD<br>• The benefits and challenges of knowledge transfer/ innovation Professor Dr Reinhilde Veugelers Department of Management, Strategy and Innovation, KU Leuven |
| 10h00-11h15 | **Triple Helix and Open Innovation – rhetoric or reality? Universities, industry and RTO.**<br>*Short case studies of best practice followed by interactive audience discussion leading to key action points*<br>Moderator: Dr Bonnie Wolff-Boenisch, Science Europe<br>• LERU – Rudi Cuyvers, Innovation Manager at KU Leuven Research and Development<br>• EUA – Professor Koen De Bosschere, Ghent University, Flemish National Rectors' Conference, VLIR and member of EUA Expert Group on RIS3<br>• EU-LIFE – Jo Bury, Chair of EU-LIFE and Managing Director of VIB (Belgium)<br>• EARTO – Charlotte Andersdotter – RISE, Sweden<br>• EIRMA – Luc Chefneux – ArcelorMittal |
| 11h15-11h45 | **Coffee** |
| 11h45-12h45 | **Regional case studies of effective knowledge transfer.**<br>*Short case studies of best practice followed by interactive audience discussion leading to key action points*<br>Moderator: Lidia Borrell-Damian, EUA<br>• WALES, Cardiff University – SPARK Sally O'Connor, programme manager for SPARK and Professor Adam Fletcher, Director, Y Lab, Cardiff University – Innovation and Public Services |

| | |
|---|---|
| | • ANDALUCIA, University of Malaga and Andalucía Technology Park – Sonia Palomo das Neves, Deputy Director of Technology Transfer & International Relations, from Andalucia Technology Park<br>Clara Plata Ríos, Deputy for International Affairs and Innovation, Vice-Chancellorship for Strategic Projects, University of Malaga<br>• COPENHAGEN CAPITAL REGION – Jan Eiersted Molzen, Head of Sector at Consultancy and Networks at the Technical University of Denmark |
| 12h45-13h25 | **Panel Discussion**<br>Moderator: ERRIN<br>• JRC – Dr Katarzyna Szkuta, Directorate B Growth & Innovation<br>• CESAER – Task Force Knowledge Management, Prof.dr. Jörgen Sjöberg, Chalmers University of Technology<br>• Expert on regions, clusters and innovation hubs – Dr Claire Nauwelaers<br>• OECD – Directorate for Science, Technology and Innovation, Dr Giulia Ajmone Marsan<br>• EU-LIFE – Jo Bury, Chair of EU-LIFE and Managing Director of VIB (Belgium)<br>Discussion and audience participation in agreeing key action points (possible Input to Interim Evaluation H2020 and future FP9) |
| 13h25-13h30 | **Conclusions**<br>• ERRIN, European Commission and ERA stakeholder platform partner |
| 13h30- onwards | **Lunch** |

## Annex 2

**Note from Dr Claire Nauwelaers based on her contribution to the panel**

This note provides more information on her comments expressed during the last panel of the ERRIN Workshop "The circulation of knowledge at regional level – New thinking" (Brussels, 24 November 2016). These comments are based on the key points made by the various speakers, as well as on personal reflections.

**1. Key success factors for circulation of knowledge at regional level apply:**

A. **To the innovation ecosystem itself**

- Critical mass of research providers and of companies, and a good matching between the specialization on both sides
- Social capital, which provides the "glue" and the trust within the ecosystem
- Entrepreneurial climate
- Presence of bridging structures (technology parks, clusters, poles, networks)
- Mobility of people within the ecosystem

B. **To each "pillar" of the innovation ecosystem**

**Pillar 1: Universities and PROs:**

- Institutionalization of third mission (beyond technology transfer): strategies, incentives, organizational changes
- Excellence AND relevance in first AND second mission
- Capacity for technology transfer and knowledge exchange
- Initiatives for people mobility
- Initiatives for entrepreneurship promotion

**Pillar 2: Companies:**

- Capacity for co-creation (availability of appropriate skills and competences)

**Pillar 3: Financial actors:**

- Provision of innovation-friendly money
- Pillar 4: Public authorities:
- Capacity to "provide direction" – strategic capacity
- Acting as network builder, facilitator, supporting coordination
- Funder (for research, networks and bridges)
- Innovation actor (public sector innovation)

**Pillar 5: Citizens, NGOs:**

- Mobilization in view of defining societally-relevant research questions

**2. Challenges for a better circulation of knowledge at regional level – future pathways**

The "new thinking" fostered by the presentations and debates during the 24 November workshop can be articulated around the following points (not ranked by order of importance).

A. The territorial dimension of knowledge circulation

The quality of knowledge circulation is heavily dependent on context conditions and the combination of place-based assets and institutions. Hence there is a need to pay attention to the territorial dimension also at EU level when designing the new framework research programme aiming at both research excellence and at wider knowledge uptake.

B. Upgrading the functioning of the ecosystem

There is a need to pay equal importance to the 5 "pillars" of the innovation ecosystem listed above, and to avoid over-emphasizing the "universities/PROs" pillar. The 2016 Fraunhofer enquiry carried out to assess the state of implementation of RIS3 in European regions indicates that the latter pillar is very dominant in the entrepreneurial discovery process, and perceived as defending its own interest more than the collective interest. This suggests a need to bring in the other pillars, and especially companies and citizens, much more to the front, to ensure wider knowledge circulation.

C. Monitoring and evaluation of policy mixes

There is a tendency to focus on the "tip of the iceberg" of policies, ignoring the vast set of policies which are at play to influence knowledge circulation. What is needed is monitoring/evaluation of instruments themselves (such as technology parks, clusters, cooperative R&D schemes, etc.) but also of the set of interacting policies that together influence the properties and the quality of the innovation system.

D. Internationalization of strategies

Regional strategies for knowledge circulation should consider actors and resources beyond the regional borders: this calls for an adaptation of the funding sources to accommodate the inter-regional funding of initiatives and instruments. Interreg as well as ESIF should be reformed to place more priority on funding such type of actions.

E. Universities and PROs

Strategies for enhancing third mission at universities and PROs should take into account the diversity in profile of those organisations, as well as their diversity in terms of context (less- versus more-favoured regions): different models should apply to different situations.

Multidisciplinarity, or rather, transdisciplinarity should be much more widespread for research carried out in universities and PROS. This is needed to address societally-relevant, outcome-driven, solution-oriented research.

F. Authorities as part of the innovation system

One key challenge for authorities to play their role in the innovation system, beyond that of regulator, funder and facilitator, is to equip them with innovation capacities and innovation culture. In other words, to promote and reward public sector innovation.

G. New democracy in regional knowledge circulation policies

Public engagement in research is necessary to evolve towards more sustainable and societally-relevant research. New emphasis should be placed on engaging citizens and the wider public in the definition of priorities for research and innovation strategies.