



## S3 CoP Working Group: Innovation Diffusion

### Input Note 1: The challenge of a weak or absent systemic approach to innovation diffusion

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# 1. Key messages from kick-off meeting

The **S3 CoP Innovation Diffusion Working Group** (WG) met on-line for their kick-off meeting on 12 June 2023. During this very focused session, a number of messages emerged concerning the types of challenges that members face at a regional level relating to innovation diffusion.

It should be noted that the discussion focused mainly on support services to the local ecosystem (mainly business). Therefore, from or driven by the public sector to (mainly) business.

A summary of these is outlined below.

A core set of issues were discussed relating to:

- **Supply-side challenges** (i.e. how innovation services / support are identified at the regional level; how innovation intermediaries - such as cluster organisations; academic and techtransfer offices - are mobilised to deliver this support; and the delivery routes / methods of this innovation support.) Topics and themes that resonated for the group included: how innovation ambitions are ‘translated’ from EU to regional levels<sup>1</sup> and how this fits with local needs; how digital skill needs are designed into innovation support; a mismatch between the incentives of providers (such as universities and research institutions) and the core needs of businesses.
- **Demand-side challenges** (i.e. the ways that beneficiaries – especially businesses – articulate and access innovation support and services; and their capacity to benefit from this support). Themes, here, included: weak demand from the local business base due to a lack of ambition to grow their businesses or improve performance through innovation support; lack of capacity to articulate or embed learning / insights from innovation support; lack of awareness about support available

At the cross-section of these supply and demand-side challenges, there is a critical issue concerning **the extent to which supply meets demand** – i.e. whether the innovation services / support provided are actually aligned to the innovation needs of beneficiaries. Key issues raised by WG members included ineffective or weak targeting of support (either not reaching the right beneficiaries or offering services that are not perceived to be sufficiently targeted at innovation needs). This raised **questions about the effectiveness of processes and systems in place to establish demand for innovation support and services**. Furthermore, there was a strong request to ‘scale-up’ the demand-side of innovation support, rather than focusing

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<sup>1</sup> In this respect, during the discussion it was also mentioned that, in some regions, after all the effort done designing regional strategy - that embeds EU, national, regional strategies - did not follow the same effort with the desing/update of instruments to deploy and monitoring the strategy.

efforts of the supply-side. This indicates that members were primarily concerned that **insufficient focus is being placed on what businesses actually need, in terms of innovation support, and how they can access and benefit from support.**

Overall, this last point indicates that the ‘diffusion’ element of innovation – while important – is only part of the process of designing and delivering a suite of innovation support services. If this whole system is not configured to the needs of the local innovation ecosystem, both the process and the results will be sub-optimal. Therefore, **members were keen to highlight the importance of addressing the whole system** of identifying, articulating, designing, delivering, monitoring and upgrading the innovation support services system. **In reality, the ‘diffusion’ element of this system – while important – is difficult to optimise unless the whole innovation system operates effectively.**

The WG decided on two challenges to take forward as the focus for their future efforts. The most dominant of these was **‘lack of a systemic approach’** (to innovation diffusion) followed by **‘weak articulation of demand by SMEs’**.

## 2. Issue under review: ‘lack of a systemic approach’ to innovation diffusion

This input note focuses on the first of these challenges - **‘lack of a systemic approach’** - and seeks to further investigate it, in preparation for the next WG meeting. However, it was acknowledged that the challenge – ‘lack of a systemic approach’ - was too broadly defined and required more information. A follow-up questionnaire was sent to members to help with further reviewing this issue (see Annex I). Out of the 13 regions represented in the WG, ten responses were received<sup>2</sup>, and the following key messages / practices have been drawn from these responses (see Table 1).

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<sup>2</sup> From Centre Val de Loire, Croatia, Czechia, Cyprus, Flanders, Lombardy, Northern Netherlands, North East Romania, Puglia and Western Greece.

Table 1. Summary of the key messages and practices on the challenge “lack of a systemic approach” from survey responses

Key innovation diffusion themes	Examples at regional level
Regional policies	<ul style="list-style-type: none"> <li>▪ Innovation diffusion policies are <u>not always a regional competence</u>.</li> <li>▪ Mixture of <u>policies and practices</u> mainly related to diffusion channels (e.g. clusters; technology transfer services; upgrading incentives to promote valorisation of research knowledge in industrial / social applications; funding to promote consortia collaboration)</li> <li>▪ Some (but rather limited) indication of the <u>purpose of these channels</u> (e.g. creating more openness across the ecosystem; strengthening the regional incubator network)</li> <li>▪ Some indication of <u>regulatory changes / upgrades</u> to better facilitate diffusion (e.g. how universities engage with businesses; intellectual property - IP)</li> </ul>
How innovation diffusion works in practice	<ul style="list-style-type: none"> <li>▪ Through <u>people (intermediaries)</u> at events and conferences; working with and through international contacts (and sometimes supported by the Enterprise Europe Network - EEN); matchmaking events</li> <li>▪ Through <u>facilities and infrastructures</u>, such as: incubators; brokerage platforms (real or virtual); clusters; ‘proof of concept’ funds and processes</li> <li>▪ Through the spread of <u>new analysis and evidence</u> such as: results of regional value chain mapping and analysis</li> <li>▪ In some region, <u>innovation diffusion is integrated as part of the overall S3 approach</u>, but <u>solutions and actions are fragmented</u>, addressing specific elements</li> </ul>
Barriers / bottlenecks	<ul style="list-style-type: none"> <li>▪ Fragmented supply-side innovation systems</li> <li>▪ Fragmented demand-side innovation systems (limiting collaboration across innovation actors)</li> <li>▪ Lack of supply and demand-side capacity</li> <li>▪ Over-reliance on a core of limited supply-side actors</li> <li>▪ Supply-side incentives to promote ‘selling’ services over facilitating cooperation</li> <li>▪ Too much emphasis on research (i.e. lower TRLs) to be relevant to businesses</li> </ul>

	<ul style="list-style-type: none"> <li>▪ IP challenges (perceived or actual barriers in sharing ideas / practices due to fear of competitiveness loss)</li> <li>▪ Limited use of innovation infrastructure</li> <li>▪ Insufficient / inaccurate analysis of root causes of innovation ecosystem bottlenecks</li> <li>▪ Demand side: Not enough understanding of the importance of working in collaboration and interact with the ecosystem</li> <li>▪ Lack of funding; lack of intermediary or beneficiary knowledge / expertise; lack of regional competence to deliver local services or to tailor to local needs (due to centralised governance)</li> </ul>
How to overcome barriers	<ul style="list-style-type: none"> <li>▪ Improve coordination, capacity building and prioritisation of efforts</li> <li>▪ Improve governance to facilitate diffusion; improve senior level commitment to addressing diffusion challenges</li> <li>▪ Improve governance providing better direction to multi-actors to develop integrated solutions to ecosystem issues/challenges</li> <li>▪ Improve interregional collaboration appetite / capacity</li> <li>▪ Improve ethos and operating environment for know-how transfer; improve appetite for 'open science'</li> <li>▪ Re-orient purpose towards addressing societal challenges and twin transitions</li> <li>▪ Address IP – create standard agreements; improve access to research facilities for business use</li> <li>▪ Generate a 'single system' approach through a digital portal / platform</li> </ul>
Effective regional governance structures	<ul style="list-style-type: none"> <li>▪ Adopting a tech-driven and sectoral focus to funding</li> <li>▪ Improve bottom-up orientation</li> <li>▪ Improve appetite and capacity for quadruple helix approach</li> <li>▪ Drive strategic cluster orientation</li> </ul>
Supportive mechanisms / policy mix	<ul style="list-style-type: none"> <li>▪ Improve public / private cooperation</li> <li>▪ Adopt more holistic policy responses (and less siloed, 'project'-oriented practices)</li> </ul>

	<ul style="list-style-type: none"> <li>▪ Focus on SME management skills to improve capacity to work with, embed and benefit from support</li> <li>▪ Address capacity and incentives at the business / academia interface</li> </ul>
Improving the RDA role	<ul style="list-style-type: none"> <li>▪ Build capacity (seminars; Info Days)</li> <li>▪ Set-up Working Groups to direct and focus efforts</li> <li>▪ Work with Innovation Agencies (IAs)? Not common for IAs to be in place</li> <li>▪ Improve governance to address fragmentation of efforts and improve coordination</li> </ul>
How do intermediaries work together?	<ul style="list-style-type: none"> <li>▪ On general level, they don't work together</li> <li>▪ Overcome communication and coordination challenges</li> </ul>
How are intermediaries supported to diffuse innovation knowledge / information / opportunities	<ul style="list-style-type: none"> <li>▪ Universities are not really involved in innovation diffusion efforts beyond specific, transactional 'projects' with businesses</li> <li>▪ World Bank support for a 'research valorisation programme' focused efforts on generating an integrated approach to innovation support, guided by a value chain orientation</li> <li>▪ Tech transfer offices (TTO) 'consortium' promoting joint working across TTOs</li> <li>▪ Aligning and coordinating the efforts of academic players across the region to support business / research innovation collaboration</li> <li>▪ Policies that promote close working / cooperation between TTOs and clusters</li> </ul>
Communicate benefits of innovation diffusion?	<ul style="list-style-type: none"> <li>▪ Needs to start with improved governance of the supply-side innovation system to better facilitate collaboration</li> <li>▪ Within the intermediary community - needs to start with improved coordination and coordinated communications across intermediaries; facilitate peer exchange</li> <li>▪ To innovation beneficiaries – improve targeting of communications</li> </ul>

<p>Good practices</p>	<ul style="list-style-type: none"> <li>▪ Improve methods of gaining SME evidence of what they need / what works in order to improve articulation of demand</li> <li>▪ <b>North East Romania RDA: TeRRitoria Project</b><sup>3</sup> (Horizon 2020) –brokerage platform launched in May 2022. Connecting supply and demand. (e.g. studies, testing, certification, IPR, marketing). <b>Rubik Hub</b><sup>4</sup> (developed by RDA) - business incubator and co-working space for entrepreneurship. Programmes: RubikEDU (incubation program for idea-stage startups), RubikGarage (equity-free accelerator for early-stage startups), Investment Readiness Program (an exclusive 5-month programme tailored to startups in in readiness of international accelerator. Startup Support Package (free coworking space, jobs in Startups, continuous support).</li> <li>▪ <b>Centre-Val de Loire</b> - aim of the <b>PUI Loire Valley Innov'</b> is to align and coordinate the actions of academic players across the region and to coordinate them with the actions of socio-economic players. Connect-up portal with the objective<sup>5</sup> to find relevant contact in 3-4 clicks, and an extranet reserved for network members.</li> <li>▪ <b>Flanders</b> – <b>TTOs</b> working together with (strategic approach to) regional '<b>Spearhead' Clusters</b></li> <li>▪ <b>Croatia</b> - <b>SPINs</b> – (in development) financing for consortia (mainly business) for R&amp;D projects (industrial research, experimental development, feasibility studies - TRL 3-9) and for the development of research and technological infrastructure, with possibility to adopt a missions orientation.</li> <li>▪ <b>Netherlands</b> - <b>NNLs Innovation Monitor</b> is being used as an instrument to improve connections between SME's (Monitor is fueled by survey among SME's.</li> <li>▪ <b>Region of Western Greece</b> - <b>Innovation HUBs</b> ecosystem. Initiative to assist to the reintegration of the Region through the penetration of the existing research / innovation ecosystem (which is highly developed in Western Greece) to industry's production, with the aim to increase competitiveness, create new jobs while limiting the phenomenon of brain-drain.</li> </ul>
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<sup>3</sup> <https://territoria.adrnordest.ro/>

<sup>4</sup> <https://rubikhub.ro/ourstory/>

<sup>5</sup> <https://www.connectup-centrevalde Loire.fr/>



Does S3 governance promote an integrated approach to innovation diffusion?	<ul style="list-style-type: none"> <li>▪ Yes, at micro-level but not at macro-level (senior, decision making level)</li> <li>▪ More tailored solutions are needed.</li> </ul>
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Source: The author

In addition to the key messages extracted from the survey questions, the survey yields other **interesting results:**

- While there were some common issues expressed in the survey responses, **the governance and operating context of the regions are clearly very different** (e.g. size, sectors, degree of decentralisation from the national level to tailor / adapt innovation policies and practices, the nature and characteristics of the supply-side innovation ecosystem). As such, **more generalised descriptions or solutions relating to innovation diffusion practices might not be wholly relevant or practicable across the regions of the Working Group (or more generally).**
- There was very little information about if / how innovation diffusion support is (or should be) different for stakeholders operating in different contexts (e.g. product or service innovation). Therefore it is **not clear if any region offers (or has considered) differentiated support in innovation diffusion, to take account of the specific operating context of beneficiaries.**
- While responses described the characteristics of innovation diffusion systems that lack a systemic approach, there was a **lack of depth of detail related to specific root causes of a non-systemic approach.** The absence of analysis surrounding this issue might suggest that it has not been sufficiently reviewed at the regional level. This **could mean that this particular challenge, relating to innovation diffusion, is not sufficiently 'in-focus' at the regional level.**
- **What are the barriers and obstacles that prevent a more systemic approach to collaboration across innovation intermediaries?** There was some evidence that roles / incentives of some intermediary bodies and organisations are not sufficiently aligned to adopting a coordinated approach, and – instead – might prioritise income generation through working with innovation actors / beneficiaries. In addition, there are often few governance mechanisms to overcome fragmentation challenges across the intermediary landscape. In some instances, regulations prevent a more collaborative ethos. These issues are strongly related to supply-side functioning of the Entrepreneurial Discovery Process (EDP). **There is perhaps scope for post-2027 S3 enabling conditions related to the effective functioning of the EDP to focus more on supply-side collaboration.**
- **The presence of a somewhat underdeveloped regional innovation ecosystem orientation, and its impact on the effectiveness of innovation diffusion** - the effectiveness and quality consistency of innovation diffusion methods across regions is hampered by a wider challenge relating to the **status of regional innovation**

**ecosystems**, which are often still rather under-developed (e.g. in how the EDP functions and the extent to which quadruple helix actors are truly anchored to the innovation ecosystem).

- There is a wide range of **obstacles and complexities concerning the role of supply-side intermediaries who support the diffusion process**. In general, there appear to be **few policies or practices for intermediary cooperation and coordination** – i.e. they do not appear to work together on a planned or consistent basis. Under these conditions, **it is practically impossible to generate a systemic approach to regional innovation diffusion**. Furthermore, there appears to be a **rather operational approach to the use of facilities / infrastructure in the innovation diffusion process, characterised by a ‘transactional’ dynamic between supply and demand efforts**, rather than one that adopts a strategic approach (e.g. connecting / networking facilities for sequenced and collaborative support; dialogue and connections across intermediaries). **This more operationally-oriented stance is not conducive to the emergence of a systemic approach to innovation diffusion**.
- In addition, there appeared to be **rather limited focus on sequencing intermediary support** in a way that follows an innovation pipeline or pathway, from a demand-side perspective. There could be scope, here, to **consider a TRL-orientation to supply-side innovation support through intermediaries, to create a clear, sequenced pathway**. In turn, this would allow innovation beneficiaries to identify and ‘track’ a trajectory of relevant innovation support, according to their needs.
- There appeared to be an absence of a well-articulated policy rationale (and related policy drivers) at the regional level to make a shift towards improved innovation intermediary collaboration. As EU regional awareness and appetite grows for **more holistic / whole-of-government policy responses to address societal challenges and twin transitions**, the **intermediary collaboration agenda could be harnessed to these objectives**.
- There is clearly **much ground to cover at the regional level to design and deliver an S3 policy orientation that identifies innovation intermediary collaboration as a key driver in generating a systemic approach to innovation diffusion**. In some cases, (at least part of) the solution lies at the national level, where specific competences exist (e.g. related to regulations and governance). Furthermore, resource constraints make it difficult to ensure that this issue commands sufficient effort and investment.
- **Some good practice examples emerged** (see Table 1) from survey responses that offer some ideas and inspiration, related to this challenge. However, these tended to be **rather ‘isolated’ actions, rather than being part of a wider policy design effort to adopt a systemic approach to innovation diffusion**

Survey responses were quite **narrowly focused on support services to the local ecosystem** (mainly business indicating that innovation diffusion tends to be defined as support from or driven by the public sector to (mainly) business. There was an

absence of other dimensions of diffusion (such as business to business or how innovation is diffused across the whole ecosystem).

- To gain sufficient regional support and traction in addressing this issue, there is perhaps a need to consider what **value it can bring to the regional innovation ecosystem and its performance**. This would require a **stronger evidence base of the opportunity costs involved in not having a systemic approach to innovation diffusion**, with clear indications of the benefits to regions, as a consequence of addressing this challenge. In particular, this could focus on improved articulation of **what success looks like**, for example:
  - Provision of targeted, streamlined, demand-driven innovation support to match the needs of innovation stakeholders and ecosystems
  - Translation of the above support into improved innovation competitiveness (e.g. increased appetite for innovation investment and the uptake of technologies to drive innovation performance; the development of new products and services; access to new markets)

## 3. Additional considerations

### **Innovation diffusion as a trigger for making the shift from dirty to clean innovation and technology**

At the outset of this concept note, it is mentioned that – so far – the WG on Innovation Diffusion has focused interest on the issue of ‘lack of a systemic approach to innovation diffusion’, which mainly concerns the effectiveness of the supply-side intermediary role for regional innovation support and services. While the **business-to-business innovation diffusion channel** has not been reviewed or explored, it is important to reflect on the value of this type of collaboration (whether through direct business-to-business engagement or supported through intermediaries such as clusters, RTOs, TTOs or chambers of commerce).

A recent blog<sup>6</sup> on ‘clean innovation’ points to the importance of business-to-business innovation collaboration in making the transition to clean tech manufacturing. This highlights the relationship between innovation diffusion and the achieving of Green Deal (specifically, energy transition) objectives. The blog demonstrates that **policy plays an important role in steering the direction of innovation**. More specifically, it shows that – while innovation systems are highly path-dependent – there is scope for a greater level of collaboration across ‘clean’ and ‘dirty’ R&D than has been traditionally acknowledged, and that this collaboration could unlock learning opportunities across clean and dirty technologies. New evidence has shown that there is: “more scope for transferring existing knowledge, skills, competencies, and even machinery from dirty to clean applications”, provided that a more traditional

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<sup>6</sup> <https://blogs.lse.ac.uk/businessreview/2023/08/02/how-easy-is-it-to-pivot-to-clean-innovation/>

framing of expectations (based on the assumption that clean and dirty technologies have little in common) can be removed and improved coordination can be generated. The research found that patent citations shared an indirect connection in a majority of cases (of related papers reviewed) concerning clean and dirty technology / innovation. While different degrees of connectivity differ (e.g. in off shore wind and tidal energy and its connection to offshore oil; geothermal energy and carbon capture and storage technologies and their connection to knowledge in fossil fuel businesses), there is a core of exchange between technologies.

The article goes on to state that: “Areas of high intellectual proximity may offer potentially promising diversification options for hydrocarbon incumbents, at least on an research and development (R&D) basis”. In reality, this relationship between diversification potential and knowledge-relatedness across clean and dirty technologies and innovation requires a much greater level of analysis and action at public policy level, in order to better facilitate business collaboration. Clusters could play a key role in unlocking opportunities, here. **By reviewing and defining this through an innovation diffusion ‘lens’, this could unleash new opportunities to make the seismic shifts needed to move from dirty to clean tech across the EU’s manufacturing sector.**

### **Addressing the ‘black box’ of as a bottleneck to innovation diffusion**

The issue of Intellectual Property (IP) was raised on several occasions by regions as an impediment to facilitating a more ‘free flowing’ approach to the sharing of innovation ideas and practices across businesses. On some occasions, this was based on more of a business perception than an evidenced reality. Nonetheless, whether based on perception or reality, concerning fears of loss of competitiveness (as a consequence of an increase in the speed and quantity of information sharing), this is certainly an issue that can hold back valuable opportunities for businesses to learn from each other and improve both individual and collective competitiveness. A few regions mentioned that legal frameworks to support the management of how and what information is shared can be applied. However, these were often deemed to be complex and beyond the capacity of many intermediaries. Together, these issues act as barriers to effective innovation diffusion.

A recent study<sup>7</sup> showed that – at higher TRLs – an environment characterised by a more ‘open’ stance to innovation can be very conducive to mutual ‘wins’ for the actors involved. While this evidence is important to help with dispelling assumptions about the limitations of this type of innovation diffusion, it is much more relevant in circumstances where the potential for business collaboration at high TRLs goes unexplored due to perceptions of the complexity and risk involved.

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<sup>7</sup> European Commission, Executive Agency for Small and Medium-sized Enterprises, Building stronger intellectual property strategy capabilities – Supporting SMEs to succeed with open innovation, Publications Office of the European Union, 2021. Available at: <https://op.europa.eu/en/publication-detail/-/publication/3e42e795-353a-11ec-bd8e-01aa75ed71a1>

## 4. Key questions for follow-up discussion and ways forward

Following the analysis above, the following essential questions and potential paths for action are proposed for discussion during the WG meeting in September.

### Essential questions:

- Generally, are the issues (and their analysis) in this note sufficiently relevant to the context and challenges of innovation diffusion within your region?
- Is the issue of lack of a systemic approach to innovation diffusion a recognised challenge / bottleneck at the regional level, with key policy decision makers?
- What are the root causes of this challenge ?
- Are the good practices outlined in the note : 1) relevant to your region ; 2) feasible to create / deliver ; 3) likely to lead to a step-change in regions to the challenge of addressing the lack of a systemic approach to innovation ?
- What actions need to be considered at : local, national and EU levels ?
- What are the steps to better integrate innovation diffusion support at the centre of innovation policy design in your region, and which actors need to be involved?
- What feedback mechanisms should be established to gather input from SMEs and ecosystem agents, and how can this feedback inform policy adjustments ?

**Potential actions** for regional authorities to improve the system approach of innovation diffusion policies and practices:

- Position innovation diffusion at the core of innovation policy challenges and objectives, and subsequently formulate policy responses and instruments aimed at fostering collaboration among ecosystem stakeholders.
- Dive deeper into the detailed breakdown of innovation services and support, taking into account the varying needs of SMEs, specific industry requirements, company size, product and service characteristics or regional considerations.
- Facilitate the systematic gathering of ecosystem actors and monitor the agreements reached in these meetings, aiming to provide support tools or other facilities.
- Support the capacity building of SMEs and ecosystem agents through training programs, workshops, and knowledge-sharing platforms. Strengthening their capabilities can enhance their ability to participate effectively in innovation diffusion

- Introduce data collection and evaluation mechanisms to assess the impact of innovation diffusion policies. Data-driven insights can guide ongoing policy adjustments and improvements.

## Annex I – Survey

Implementation challenge for innovation diffusion: “lack of a systemic approach” (Please, fill in the questions below)
1. Which are the main policies addressing the diffusion of innovations in your region? Which elements are included in those policies (e.g, patents, technology, knowledge, (spinoff support, capacity building, etc.)?)
2. How is innovation diffusion working in practice in your region?
3. What are the barriers/bottlenecks to generating a more systemic approach in your region? Please, add barriers/bottlenecks from the supply (knowledge generators) and demand (market) sides.
4. How could the barriers mentioned be overcome in your region?
5. What regional governance structures are most effective for supporting innovation diffusion? Are they being applied in your region?
6. What types of mechanisms/policy mix would be most effective to strengthen coordination of regional/national stakeholders to enhance innovation diffusion?
7. What is the role of the regional innovation agency in your region? What should it be? How do we better involve regional agencies or intermediaries in innovation diffusion?
8. Where applicable, how do intermediaries work together? How is the coordination between the regional development agencies and new regional innovation agencies? Where this co-existence of the two agencies is in place, what impact is this having (positive or negative) on how businesses access support (financial and non-financial)?
9. How is the current support in your region/country to knowledge generators in the public sector (e.g., universities, research institutes.) in the management and exploitation of all the knowledge they generate? What methods - if any - are applied (e.g. comms / connections / promoting visibility) in bringing research results to the market? If so, to what extent is this systematic / embedded and how is this achieved?
10. How to better communicate the benefits of innovation diffusion among key actors in the ecosystem?
11. Do you know good practices or some practice examples that are being implemented in your region (or in other regions)? Particularly, do you know good practices of soft instruments (small budget) with relevant results in your region (or somewhere else?)
12. Has the governance set up for the S3 in your region contributed positively to a more integrated approach to innovation diffusion?
13. Anything else to add?