Pilot Action on Partnerships to Pilot Interregional Innovation Projects

TSSP-Industrial Modernisation Steering Committee

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Regions/ regional stakeholders currently involved in S3P-Industrial Modernisation

After 2-4 years... still no investments have happened: **WHY?**

*Investments happen when they are economically and social relevant and if they generate value for companies and the society*

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Thematic Smart Specialisation Platforms: Industry Modernisation Partnerships
Which regions participate and in how many different partnerships?

<table>
<thead>
<tr>
<th>Number of participations</th>
<th>1</th>
<th>2 - 5</th>
<th>&gt;= 6</th>
</tr>
</thead>
</table>

Source: JRC, DG REGIO
Going from **research activities** to **commercial exploitation** is a **long, non-linear process**

(The Valley of « dead innovations »)
Thematic Smart Specialisation Platforms

- A five-steps approach is proposed
- Most partnerships experience difficulties in entering the third phase
Demonstration activities are critical for the successful exploitation of research and innovation project’s results.

However, as projects move towards market application, challenges increase:

• **Competition increase** (opportunities and areas for cooperative activities are reduced)

• **Funding needs** increase significantly (tests are expensive; we need assets to launch the commercialisation phase)

• The usage of **public funding** becomes more questionable and **difficult to manage** (public = research / private = close to market)
Pilot action on “Interregional innovation projects”

Defining sub-areas of application, mapping & matching of capabilities

The focus of the pilots will be on the last phases of innovation projects (from TRL 5-6)
Pilot action
Interregional innovation projects

- Launched within the framework of the S3Platforms for Industrial Modernisation, Energy and Agri-food.

- **Test new approaches** to interregional cooperation and providing evidence to feed into reflection for post-2020.

- The pilot action is part of an initiative bringing together several Commission services (DG REGIO, DG GROW, DG RTD, JRC, DG CNECT, etc.)
Specific objectives of the pilot:

✓ Define **joint-projects** brought by academia, research centres and businesses of several EU regions

✓ Help partnerships in **identifying and removing technical/legal/etc. obstacles** preventing them from proposing they project to investors

✓ Prepare business plans to attract **public/private investors**

... in a broader sense:

➤ Create an **interregional innovation ecosystems**

➤ Help regions in **co-investing** in joint S3-priority areas

➤ Create/reshape **EU value chains to face global competitors**

➤ Enhance the position of **EU within international markets**
<table>
<thead>
<tr>
<th>THEMATIC AREA</th>
<th>COORDINATED BY</th>
<th>LEAD REGIONS</th>
<th>PARTICIPATING REGIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>3D</td>
<td>Thematic Smart Specialisation Platform for Industrial modernisation</td>
<td>Flanders (BE), Noord-Brabant (NL), Norte (PT)</td>
<td>Emilia-Romagna (IT), Wallonia (BE), Lombardy (IT), Aragon (ES), Saxony (DE)</td>
</tr>
<tr>
<td>Bio-economy</td>
<td>Thematic Smart Specialisation Platform for Industrial modernisation</td>
<td>Flanders (BE)</td>
<td>Wallonia (BE), Lower-Austria (AT), North Rhine-Westphalia (DE), Emilia-Romagna (IT), Navarra (ES), Noord-Brabant (NL), Helsinki-Uusimaa (FI), Łódzkie (PL)</td>
</tr>
<tr>
<td>Cybersecurity</td>
<td>New thematic area</td>
<td>Brittany (FR)</td>
<td>Estonia, North Rhine Westphalia (DE), Central Finland (FI), Castilla y Leon (ES)</td>
</tr>
<tr>
<td>De- &amp; re-manufacturing for circular economy</td>
<td>Thematic Smart Specialisation Platform for Industrial modernisation</td>
<td>Lombardy (IT)</td>
<td>Tampere (FI), Norte (PT), Scotland (UK), Saxony (DE), Basque Country (ES), Flanders (BE), Emilia Romagna (IT)</td>
</tr>
<tr>
<td>High-tech farming</td>
<td>Thematic Smart Specialisation Platform for Agri-food</td>
<td>Tuscany (IT)</td>
<td>Estonia, Flanders (BE), Weser-Emms (DE), Central Macedonia (GR), West Macedonia (GR), Galicia (ES), Extremadura (ES), South Ostrobothnia (FI), Pays de la Loire (FR), Marche (IT), Veneto (IT), Emilia-Romagna (IT), North East Romania (RO), East Central Sweden (SE), Northern Netherlands (NL), Gelderland (NL), Noord Holland (NL), Zuid Holland (NL), North-Brabant (NL), Limburg (BE), Northern Ireland (UK), Centro (PT)</td>
</tr>
<tr>
<td>Marine renewable energy</td>
<td>Thematic Smart Specialisation Platform for Energy</td>
<td>Basque Country (ES) &amp; Scotland (UK)</td>
<td>Asturias (ES), Andalucia (ES), Navarre (ES), Norte (PT), Flanders (BE), Emilia Romagna (IT), Lombardy (IT), South Denmark (DK), Skåne (SE), Dalarna (SE), Ostrobothnia (FI), Brittany (FR), Cornwall (UK), Sogn og Fjordane (N)</td>
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<tr>
<td>Sustainable buildings</td>
<td>Thematic Smart Specialisation Platform for Energy</td>
<td>Andalucia (ES)</td>
<td>Friuli Venezia Giulia Region (IT), Central Slovenia (SI), South Karelia (FI), Provence-Alpes-Côte-d’Azur (FR), Algarve (PT)</td>
</tr>
<tr>
<td>Traceability and big data in agri-food</td>
<td>Thematic Smart Specialisation Platform for Agri-food</td>
<td>Andalucia (ES), Emilia-Romagna (IT)</td>
<td>Pays de la Loire (FR), Friuli Venezia Giulia (IT), Aragon (ES), Extremadura (ES), Pazardzhik (BG), South Ostrobothnia Region (FI), South Savo (FI)</td>
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</table>

The 8 selected partnerships

- 18 applications
- 8 pilots selected
- 4 pilots under industrial modernisation
Timeline
Pilot actions will run throughout 2018

- Dec. 2017: Selection of the 8 partnerships
- January 2018: Kick-off meeting in Brussels
- Feb./ March 2018: Technical meetings / identification of coordination experts
- 1st half 2018: Definition of the action plan and removal of technical bottlenecks
- 2nd half 2018: Finalisation of the business plan for private and public investments
- Early 2019: Capitalisation exercise
Bring your research results to the market!
Focus on TRL 5-9
Support mechanisms

- **Thematic expertise from a dedicated team of Commission services** (REGIO, GROW, JRC, RTD, CNECT + AGRI, ENER + EMPL, EAC, ...)

- **External experts for the overall coordination of the implementation of the 8 pilots**

- **Customised support services on specific needs (internal/external to Commission services)**
  - business plan design
  - financial modelling
  - intellectual property rights
  - standardisation
  - market research
  - etc.

*Call for expression of interest for external experts* (launched on 05/04/2018)

Action plan: innovation wanted! (1/2)

- Identification of the area of investment (LEARN phase)
- Mapping of regional capabilities and matching them among regions (CONNECT phase)

**WHICH NEW PRODUCT OR APPLICATION CAN WE BRING TO THE MARKET JOINING OUR CAPABILITIES IN A COMMON S3-DOMAIN?**

- **Market analysis and assessment**
  - *Relative advantage* of our product/service compared to others already on the market
  - Which niche will it fill?
  - What is the size of the market for our product/service?
  - Who may buy our product/service? (therefore invest?)

- **Technical design of the product/service**
  - Technical and/or technological components
  - Which of our partners may provide them? *(interregional dimension)*
Action plan: innovation wanted! (2/2)

- **Technical conditions / test facilities**
  - How/where could we perform a technology demonstration test (TRL 5-6)?
  - How/where could/should we test our prototype in operational environment (TRL 7)?
  - Pre-commercial validation, initial market introduction (TRL 8)
    - *Is our business plan stable?*
    - *Have we solved all the legal issues?*
    - *Is there any IPR issue to be solved?*
  - Market expansion (TRL 9)
    - *Perform analysis on the possible access to larger/non-EU markets*

- **Look for the *right* investments**
  - Private investors
  - Public investors
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<th>Problem identified (technical bottleneck)</th>
<th>Possible solutions to be proposed</th>
<th>Results that could be achieved with the removal of technical bottlenecks (ideal situation for the investment project)</th>
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<th>Responsibility within the partnership</th>
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| **Technological audit and foresight** | • Assessment of technology needed and maturity  
• Technology risk identification | • Technology not yet defined  
• Insufficient understanding of the requirements, identified capabilities, system and software architectures  
• Critical technology elements | • Identification of the right technologies and the provider/stakeholder in charge of it/them | • The right technology is identified  
• Assessing the Technology Readiness Level of technologies (in a relevant environment) | • Development of a technology maturation plan  
• Analysis of data, tables and facts that support the assessments of technologies needed | | |
| **Market analysis** | • Assessment of the potential market (size of the market, niches/sector of application, competitors, final clients, etc.) | • Size of the market, niches, competitors, final clients, etc. are not clearly defined | • Reliable demand forecasting models that take into consideration the elasticity of the demand, the niche, the specific innovation to the market, etc. | • Definition of the positioning of the product on the EU/international market, final customers, specific niches/sector of application, etc. | | | |
| **Demonstration facilities** | • Description of the demonstration infrastructure needed and of its functioning | • Technical difficulties in the realisation of the demonstrator  
• Funding opportunities not explored  
• Private sector not involved | • Definition of the technical design of the demonstration facilities  
• Identification of the costs for the demonstrator and related investors | • The right demonstration facilities are in place | • Analysis of the demonstration infrastructure for testing (TRL5-9) | | |
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<td>Validating the prototype in a relevant environment (TRL 5-6)</td>
<td>• Description of the test needed in TRL 5-6 for technological demonstration tests</td>
<td>• Technologies are not yet tested</td>
<td>• Testing the prototype in a high-fidelity laboratory environment or in a simulated operational environment</td>
<td>• Technology has been proven to work in its final form and under expected conditions. • Results from laboratory testing of a prototype system that is near the desired configuration in terms of performance, weight, etc.</td>
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<td>Validating the prototype in an operational environment (TRL 7)</td>
<td>• Description of the test needed in TRL 7 for the testing of the ‘product’ in an operational environment</td>
<td>• The prototypes is not clearly defined • The operational environment is not clearly identified</td>
<td>• Demonstration of the ‘prototype’ in an actual system</td>
<td>• Results from testing a prototype system in an operational environment</td>
<td></td>
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</tr>
<tr>
<td>Pre-commercial validation, initial market introduction (TRL 8)</td>
<td>• Technology has been proven to work in its final form and under expected conditions. The ‘prototype/product’ has been tested and it now need to be finalised. This will include a final evaluation of the ‘product’</td>
<td>• No ‘commercial validation of the ‘product’</td>
<td>• Developmental test and evaluation of the ‘product’</td>
<td>• Results of testing the system in its final configuration under the expected range of environmental conditions in which it will be expected to operate</td>
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<tr>
<td>Compliance with (EU/international) certifications</td>
<td>• The compliance of the ‘product’ to EU/national requirements has to be clarified</td>
<td>• No compliance with EU/national requirement</td>
<td>• Exploration of EU/national norms</td>
<td>• The ‘product’ complies with EU/national requirements</td>
<td></td>
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<td>Intellectual property rights</td>
<td>● The realisation of the product may raise issues of intellectual property</td>
<td>● The management of IPR is not clear within the partnership</td>
<td>● Industrial design protection, patent, utility model protection, etc.</td>
<td>● The management of the IPR risen from the realisation of the ‘product’ has been clarified. ● The ownership of the IP is clarified</td>
<td>● Intellectual property exploration</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Business plan</td>
<td>● No business plan exist</td>
<td>● No opportunity to approach investors</td>
<td>● Business plan elaboration</td>
<td>● Preparation of a business plan. This may include: competitor analysis, market analysis, marketing plan, operations plan (costs to develop the product, revenues, profitability, fix costs), legal and liability issues, intellectual property management, human resource management, financial plan, supply chain management</td>
<td>● Expertise on business plans design</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Financial modelling (and risks)</td>
<td>● Costs for the design, testing and production of the product are not calculated</td>
<td>● The financial turnover (cost-incomes-profits) of the design, testing and production of the ‘product’ is not calculates. ● Impossible to finalise a business plan for investors</td>
<td>● Financial modelling elaboration</td>
<td>● Definition cost-incomes-profits</td>
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Pilot action
De&Re-Manufacturing for Circular Economy

*De&Re-Manufacturing* includes the set of technologies, tools and knowledge-based methods to recover, re-use and upgrade functions and materials from industrial waste and post-consumer high-tech products, under a new producer-centric Circular Economy perspective.

From industrial waste → recover/re-use/re-adapt
8 regions, more than 100 stakeholders (companies, universities, RTOs) are involved. The stakeholders have signed letters of intent to co-fund this initiative.

Each region is specialised in the one/few use cases and is able to test the related technology.
**Overall structure**

- **Horizontal services**, aiming at overcoming the current barriers to the implementation of this network of innovation infrastructures, with the final goal to reach the conditions for an effective operation and governance of the network.

- **Vertical services**, focusing on a sub-set of specific use-cases already identified by the partnership.
### Already performed activities

<table>
<thead>
<tr>
<th>Market analysis</th>
<th>Shifting to a circular economy model, the European economy could achieve annual benefits of up to €0.9 trillion by 2030, in addition to the €0.9 trillion which could potentially be brought by the on-going European digital transformation of businesses. A major barrier is the lack of infrastructure to incorporate innovative solutions in integrated pilot plants; thereby de-risking private Circular Economy investments at industrial scale. Such infrastructure should act as “technology gateways” for multiple sectors. A pilot network integrating circular economy solutions for disassembly, remanufacturing, re-use, recycling, and certification of products – operating as a multi-sector “one-stop-shop” service for industry – does not currently exist in the world.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Planned overall investment and timeframe</td>
<td><strong>Total investment needed is 40M€</strong> (with 12M€ foreseen through private co-funding) split in four investment phases: (i) Concept and Business Plan (achieved in 2015 – 100% self-funded at a cost of 0.5M€); (ii) Detailed Design (in progress – financial support of 4M€ required); (iii) Installation and Commissioning (financial support of 35M€ required); and (iv) Marketing and Launch (financial support of 0.5M€ required). Such figures refer to “layer 1” of the Vanguard financial model (establishment of pilot infrastructure).</td>
</tr>
<tr>
<td>Forecasted economic impact</td>
<td>Additional added value for Europe will be generated through: (i) the ability to offer new sustainability-oriented products/services; (ii) the reduction of primary material costs; and (iii) the increased offer of remanufactured products. It is estimated that the demo-case will generate added value of 0.55B€ for manufacturers and technology providers within five years. This would generate 15,000 new jobs in Europe.</td>
</tr>
<tr>
<td>Forecasted social impact</td>
<td>The demo-case will improve the operational, health and safety of workers’ conditions through the uptake of sustainable de- and re-manufacturing practices. The case will support the creation of new knowledge-intensive jobs in Europe; attracting graduates, doctorate-holders and young talent. It will generate strategic impact for European manufacturing by reducing the dependency on imports from materials-extracting countries. The demo-case will also support the EU in the development of new standards and legislation for individual member states. This will enable the manufacturing of eco-products and the export of eco-technologies worldwide; boosting sustainable development both in Europe and emerging countries.</td>
</tr>
<tr>
<td>Forecasted environmental impact</td>
<td>The demo-case will: (i) bring about a reduction of CO2 emissions of about 60000 Ktons/year; (ii) reduce energy usage in manufacturing energy by 10TWh/year; and (iii) reduce the usage of raw materials by 200 Ktons/year, including both critical and non-critical raw materials such as key metals, technology plastics, rare earths, fiber composites and bio-materials.</td>
</tr>
</tbody>
</table>
First draft of the action plan

<table>
<thead>
<tr>
<th>MAIN TOPIC</th>
<th>Current situation</th>
<th>Ideal situation to make the pilot work</th>
<th>Results that could be achieved with the removal of technical bottlenecks</th>
<th>Possible solutions</th>
<th>Service to be provided</th>
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<tbody>
<tr>
<td>NETWORK OPERATIONAL ISSUES</td>
<td>The network currently defined a portfolio of services to be delivered to external customers, grounding on the interaction with “internal” stakeholders</td>
<td>The network should provide services also to <strong>external enterprises</strong> not belonging to regions already part of the pilot. Therefore, the service portfolio should be revised in view of this goal.</td>
<td>Higher sustainability of the network (in terms of costs-revenues).</td>
<td>Higher outward approach attracting new clients that would pay for the services offered by the network.</td>
<td>- Service portfolio identification.</td>
</tr>
<tr>
<td>OPENNESS TO EXTERNAL CLIENTS</td>
<td></td>
<td></td>
<td>Less dependence from the already existing network’s partners.</td>
<td></td>
<td>- Links with CE standardization services.</td>
</tr>
<tr>
<td>NETWORK OPERATIONAL ISSUES</td>
<td>A governance structure has been sketched that has been agreed by the partners. A memorandum of understanding has been prepared and under signature (at regional level). Letters of Intent have been collected (at partner level).</td>
<td>A validated governance structure and constitution of a European legal entity. An internal agreement between members of the network to provide services. This should include: - Legal obligations - IPR management - HR management - Cost management - Revenues repartition - Etc.</td>
<td>Legal definition of the internal governance. Clear definition of responsibilities, contributions, revenues, of each regional node, strategy for integration of new nodes.</td>
<td>Signature of an internal agreement between all members.</td>
<td>- Expertise in: - Legal issues - IPR management - Financial plans</td>
</tr>
<tr>
<td>GOVERNANCE AND AGREEMENTS AMONG PARTNERS</td>
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</tbody>
</table>
# First draft of the action plan

## Main Topic | Current Situation | Ideal Situation to Make the Pilot Work | Results That Could Be Achieved with the Removal of Technical Bottlenecks | Possible Solutions | Service to Be Provided
---|---|---|---|---|---
**Network Operational Issues**
**Contracts and Agreements with Users**
The mechanisms for service delivery by the network have been defined but contracts have not been prepared. | Availability of contracts with users for start delivering services | - Finalize the formats for IPR agreements for regulating users accesses to the infrastructure.  
- Prepare “service delivery contracts” and description of legal obligations towards users. | Preparation of these documents and testing of their acceptability through the “vertical services” | Expertise in:  
- Legal issues  
- IPR management  
- Financial plans

**Market Analysis for Refining the Business Plan**
10 Use-cases have been identified and formalized within the pilot network. They constitute a first estimate of the network market. | Assessment of the potential market (size of the market, niches/sector of application, competitors, final clients, etc.) | Reliable demand forecasting models that take into consideration the elasticity of the demand, the niche, the specific innovation to the market, etc. | Definition of the positioning of the product on the EU/international market, final customers, specific niches/sector of application, etc. | Expertise in:  
- Market analysis

**Business Plan**
An aggregated business plan exists that has been validated and refined through several iterations. | A validated and detailed business plan that shows the resilience of the network under several market scenarios and includes all possible revenue sources and cost items. | Business plan elaboration | Starting from the existing business plan, revise all the assumptions and create different scenarios leading to different access profiles. | Expertise on business plans design

**Financial Plan**
Preliminary investigation of existing financial instruments and future financial schema for this innovative | Specific financial sources at regional-EU level are identified to support:  
- infrastructure building/upscale (layer 1).  
- cross-regional delivery | Leading to a clear path for implementation of this innovative partnership | Analyse existing funding opportunities and formalize the synergies. Identify the gap among funding needs and opportunities. | Expertise in:  
- Financial plans  
- Fund creation, management and matching.
## First draft of the action plan

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</tr>
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</table>
| COMMUNICATION STRATEGY   | No real/efficient communication strategy exists                                  | Develop a communication strategy for involving:  
- more potential users (clients)  
- new enterprises that could provide a new complementary technology to the existing network | Extent the potential network (users/clients and technology providers). Create stable links and liaise with thematic initiatives and associations with the objective to promote the network at wide EU scale. | Define a communication strategy plan. Prepare professional materials for dissemination/communication. Design a specific digital platform to connect the existing facilities and be ready for the pilot network service delivery. Clustering with existing CE projects for attracting more emerging enabling technologies from SMEs to the pilot network nodes. | Expertise in:  
- Dissemination, communication and awareness creation strategy |
"Science and innovation are related but distinctly different things. An investment in science may produce an innovation. But if it doesn't solve a problem, it won't become an innovation that changes the world."

*Find the added-value of your product/service!*

"Inventions created with direct user insights have a better chance of becoming marketable innovations. If you have an invention that isn't scalable, it sits on a shelf."

*Find your customer!*
Any question?