Smart Specialisation and the Thematic S3 Cooperation in Europe

Smart Specialisation and the S3 Platform:

Research and Innovation Strategies for Smart Specialisation (RIS3 or S3) set R&I priorities at national / regional level to build competitive advantage by developing and matching research and innovation strengths with business needs in order to address emerging opportunities and market developments in a coherent manner, while avoiding duplication and fragmentation of efforts. They are also a backbone of national or regional research and innovation strategic policy frameworks in Europe.

Since 2011, the Smart Specialisation Platform (S3 Platform or S3P) acts as a facilitator for regions and countries in the uptake and incorporation of the smart specialisation concept and methodology in their research and innovation strategies. By early 2017, 18 EU Member States and 170 EU regions, as well as 2 non-EU countries and 9 non-EU regions have registered to the S3 Platform, and the S3 community is continuously growing. The S3 Platform provides advice to the EU countries and regions for the design and implementation of their Smart Specialisation Strategies (S3) by offering guidance material and good practice examples, informing strategy formation and policy-making, facilitating peer-reviews and mutual learning, support access to relevant data through the newly developed tools and by training policy-makers and other stakeholders.

Thematic S3 Platforms supporting the Thematic S3 Partnerships:

Following the logic of the value chain approach firstly implemented by the Vanguard Initiative on new growth through smart specialisation and its pilot projects, and based on the explicit interest of a large number of the EU regions/MS, the S3 Platform, with the support of the respective Commission services (DG REGIO, DG ENER, DG GROW and DG AGRI), has launched three thematic S3 platforms. These thematic platforms are elaborating their respective mapping methodology and preparing guidance materials on the role of regional authorities in co-creating and developing the respective European value chains based on the regional/national smart specialisation priorities linked to each of the specific thematic platforms. They ae also highlighting the role of regional and national authorities in co-creating and developing the value chains based on smart specialisation priority areas that call for interregional knowledge building and mapping the matching potentials around them.

The three thematic S3 Platforms are:

1) Smart Specialisation Platform on Energy (S3P-Energy)

The S3P Energy is currently supporting the creation and take-off of the "S3-Energy Partnerships" by encouraging EU countries and regions that share similar/complementary energy priorities in their S3 strategies to mobilize concrete investment or co-investment projects. Up to date, more than 60 regions across the four existing energy related S3 partnerships are already working together concerning their investments in energy related collaborative R&I activities.

• Bioenergy partnership has identified four concrete lines of work on the issues of biomass, biofuels, biogas and knowledge transfer. Further steps are aiming at connecting the regional capacities on the above mentioned areas targeted at deployment of joint investments and business opportunities for the participating regional economies. Currently, 28 regions/MS are involved in this pilot S3-Energy partnership.

• Sustainable Buildings is creating an alliance between regions to boost new markets and take advantage of regional opportunities for specialisation. The main topics identified for collaboration of concrete pilot projects are in: 1) eco-construction, bio-climatism and insulation, 2) renewable energy integration, and 3) systems of maximum energy efficiency use in buildings and cities.

• Marine Renewable Energy (MRE) partnership aims to pool resources and expertise in order to create business opportunities and increased growth for the offshore wind, wave and tidal sectors. Based on the regional technological and industrial expertise, and guided by the Vanguard Initiative Pilot, the partnership seeks to facilitate EU companies' participation in the pan-EU supply/value chains to solve the key industrial challenges and reduce the costs of the MRE energy generation.

• Smart Grids partnership aims to highlight the most promising smart grid areas for regional development, to identify replicability/scalability investment priorities and to allocate funding resources more effectively. Making the electricity system smarter requires the cooperation and integration of multidisciplinary players with different business interests, but also the adoption of new compatible business models and regulation mechanisms.

Furthermore, expressions of interest have recently been received by the managing authorities in charge of the ESIF Thematic Objective 4 (Low Carbon Economy) across Europe for the development of a few additional S3 Energy partnerships. Among them, the most demanded areas are:

• Heating and cooling (8 countries and 13 regions expressed interest);

• Solar energy, including Photovoltaic and Concentrated Solar Power (7 countries and 12 regions);

• Energy Storage (10 countries and 15 regions); and

• Smart Cities (11 countries and 19 regions).

Creation of the new S3 energy partnerships around these emerging areas is expected during 2017.

Further info: http://s3platform.jrc.ec.europa.eu/s3-energy-partnerships

2) Smart Specialization Platform for Industrial Modernization (S3P-IM)

In the framework of the Smart Specialization thematic platform for Industrial Modernization, EU regions and member states are engaging in strategic interregional cooperation along shared smart specialization priorities linked to industrial modernization with the objective to develop joint investment projects based on a workflow defined by the thematic platform. It is a four step process followed by setting up a partnership linked to a thematic area defined by the lead regions of the partnership starting with a mapping and matching phase to better understand a region´s position within a value chain and to complement each other's competences, followed by the design of the projects, the development of the business plan and a funding mix. The objective is to scale-up regional efforts through the involvement of industry players, business networks, research institutions, academia and civil society. The S3P-IM is thus providing support for EU regions committed to work together for developing a pipeline of investment projects connected to their smart specialization priority areas related to industrial modernization. It is completed through providing support in creating new European value chains building on smart specialisation activities identified by MS and regions and providing multi-level support mechanisms combining efforts at regional, national, European level, addressing particular markets. Therefore, the development of interregional collaboration is driven by smart specialisation priority areas.

The S3P-IM is monitoring and evaluating the translation of participating regions' and member states' S3 priorities areas selected for thematic platforms into concrete investment projects, which should be seen as a constant process linked to each region's or member state's smart specialisation monitoring activities. The platform is gathering empirical evidence through thematic 'cross-mapping' of value chains, together with smart specialisation priorities and available facilities/infrastructure, through the analysis of the interests and the needs for cooperation in specific areas related to the thematic platforms and through the analysis of strong or missing competences within the identified EU regions on a specific topics in relation to thematic platforms, in terms of R&I capacities, infrastructure, skills and business cooperation notably through clusters, and business networks.

Current status of the S3P-IM platform activities: 22 thematic areas covered, 16 submitted officially expression of interest, 10 provided support letters from their respective governments and the 8 officially accepted S3-IM partnerships are briefly presented below (Note: the first five listed stem from the Vanguard Initiative (VI) pilots):

- [Advanced Manufacturing for Energy Applications - Energy](#) - one of the VI pilot actions - launched in June 2014 with the objective to make the EU a global leader in manufacturing robust high integrity components for marine renewables and offshore energy applications. Currently, 13 regions are involved in this pilot S3-IM partnership.

- [High Performance Production through 3D-Printing](#) - a VI pilot action, initiated in September 2014 with 16 (VI and non-VI) regions committed to develop a European demonstration network for 3D-printing solutions. Currently, 22 regions are involved in this pilot S3-IM partnership.

- [Bio-Economy - Interregional cooperation on innovative use of non-food Biomass](#) – one of the VI Pilots aiming at development of new integral bio-based value chains by identifying synergies across sectors such as chemistry, agro, wood & paper, cosmetics and energy, and across the EU

regions, thus leading to new business opportunities and co-investments through interregional cooperation and partnerships, exchange of information and ideas. Currently, 24 regions are involved in the pilot projects of which 5 focus the production sectors within the S3-IM partnership based on the smart specialisation priorities and 2 focusing Agri-Food issues are covered by the S3 Platform for Agri-Food (see below*).

- New Nano-Enabled Products - another VI pilot action focusing on identification of existing and missing value chains within nanotechnology across Europe. Five different demo cases for interregional S3 based cooperation are being implemented on this field with 13 EU regions collaborating on the activities such as Printed Nano-Electronics; Nano-Wires for ICT & Energy applications; Integrated Nano-Bio Systems; Pilot production Nano-Materials; and Nano-Medicine/MedTech.

- Efficient and Sustainable Manufacturing - the fifth VI pilot action aims at transferring the innovative solutions coming from research to industry and exploiting the potential of smart specialization in order to promote new efficient and high value-added supply chains. Currently, 22 regions/countries are involved in this pilot S3-IM partnership with 5 focus areas where demo cases have been identified such as: De- and Re-Manufacturing; Adaptive and Intelligent Manufacturing; Manufacturing of Advanced Components and Materials; Digital and Virtual Factory; and Efficient Manufacturing Processes.

- Smart Regional Investments in Textile Innovation - is a newly established S3-IM partnership aiming at reinforcing of the EU textile and clothing industry's strategic position as a key sector of the European industrial landscape by responding actively to key social, economic, environmental, technology and policy trends. Currently, 14 EU regions are involved in this pilot S3-IM partnership.

- Incorporation of SMEs to the Industry 4.0 Paradigm and their Assimilation of Specialised Digital Services - represents another newly established S3-IM partnership. Its pilot activities range from ICT/Photonics to smart Factory activities in various sectors and currently involve 10 EU regions.

- Smart and Adaptive Production Systems - represents the latest formally established and accepted S3-IM partnership which is focusing on the production performance monitoring mechanisms and integration of the ICT into the production line equipment as an integral part of the smart industrial production data monitoring systems. The partnership aims to lift the level of productiveness in different fields and sectors across the EU regions and raise excellence in engineering field, with the usage of the most advanced tools and machines to optimize the production thus reducing the costs for setting-up serial production of new products while at the same time reducing time to their marketing. While 3 EU regions are currently involved in the pilot activity on the first pilot on High-Speed Production Monitoring Technologies, the second pilot activity on overall Equipment Efficiency Measurement and Management is still being shaped by the leading partners and its strategic cluster partnership will be opened for additional partnering regions shortly.

Further info: http://s3platform.jrc.ec.europa.eu/industrial-modernisation

3) Smart Specialisation Platform for Agri-Food (S3P-AF)

In late 2016, the European Commission established the Smart Specialisation Platform for Agri-Food (S3P-AF) with the goal of accelerating the development of joint investment projects at the EU level in the smart specialisation areas linked to the agriculture and food. The main aim of this initiative was to enable the regions and member states to implement their RIS3 priorities in the field of Agri-Food more efficiently and to facilitate new cooperation opportunities with partners from other regions. Similarly as in the case of the other two thematic S3 platforms the objective of the S3P-AF is to identify and support the mature regional partnerships for trans-regional cooperation and to trigger investments in the sectoral value chains using existing funding instruments. In fact, the S3P-AF proposes better exploitation of synergies between existing funding such as ERDF, national and regional public funds and private resources, and thus shared investment risks and increased gains. The S3P-AF is based on a bottom-up approach and is driven by the regions that wish to foster inter-regional cooperation based on matching their smart specialisation priorities related to Agri-Food. The thematic S3P-AF partnerships are thus proposed, co-developed and coordinated by proactive self-organised regions while an active participation and commitment of business organisations as well as research institutions, academia and civil society is also ensured. Up to date, in particular three Agri-Food related S3 partnerships are being developed vigorously:

• High Tech Farming, based on a broad concept which refers to the use of a wide range of new tools (Robotics, ICT, Big Data, Earth Observation, etc.) in the modern farming. Several EU Regions have expressed concrete interest in this partnership and, after the S3P-AF kick-off event in Florence (6-7 December 2016) and to date 15 EU regions have agreed to focus their joint work onto the following five value chains: Tree nursery, Viticulture and Fruits; Livestock outdoor; Livestock indoor; Arable, Cereals, Vegetables (outdoor); and Protected Cultivation (different types of greenhouses, highly intensive).

• Traceability & Big Data aiming at encouraging, motivating and facilitating the incorporation of necessary digital technologies and data application in Agri-Food sector value chains. Within this partnership three specific and one cross-cutting topics are proposed: a) Traceability and Big Data in the "Lifecycles of the value chain"; b) Traceability and Big Data in the "Smart monitoring of the value chain (agricultural production, Agri-Food industry, logistics, distribution and consumers) to improve the overall competitiveness of the Agri-Food sector"; and c) Traceability and Big Data to "incorporate consumer experience and the different operators in the food chain in decision-making processes". The cross-cutting topic is on the Open data, interoperability, data governance and information security and cyber security.

• Bio-Economy*represents an integral part of the equally named Vanguard Initiative pilot project (see above S3P-IM) that cross-sects the bio-economy activities in different production sectors. Two out of 7 joint demonstration bio-economy related pilots are dealing with Agri-Food issues: "Food & Feed from Agro-Food Waste" aiming at extracting functional foods and feed from different waste streams, such as fish, domesticated animals, cereals, fruit, and vegetables; and the second one on "Food and Feed Ingredients from Algae" aiming at extraction of high value products from microalgae for the food & feed sector.

Further info: http://s3platform.jrc.ec.europa.eu/agri-food