Thematic Smart Specialisation Platforms: Partnering for Results

JRC – KAIST Joint Workshop on Emerging Issues of Smart Specialisation and Regional Innovation in the Age of the 4th Industrial Revolution

Dr Ruslan Rakhmatullin, S3 Platform, JRC, European Commission



Smart Specialisation Platform

Inside the European Commission -Support to various policy DGs

Outside the Commission - Support to countries and regions developing and implementing their RIS3 and to their 'triple/quadruple helix' partnerships

In the scientific community -

Contribution to the conceptual and methodological debate around smart specialisation

http://s3platform.jrc.ec.europa.eu/home





As of now...

- Over 120 smart specialisation strategies (RIS3) have been developed and adopted
 - Increasing focus on technologies such as KETs and ICT
- Ambitious strategies come with their own challenges:
 - New technologies transforming traditional industries
 - Adaptability, resource efficiency, new value processes, customer-driven innovation...





Reasons for opening up smart specialisation strategies:

- get access to wider business and knowledge networks
- develop necessary research capacity
- reaching out to other markets
- expanding business opportunities
- combining complementary strengths
- creating/joining GVCs



Handbook: European Commission (2016), Implementing Smart Specialisation Strategies

Create economic growth through transnational collaboration and innovation

- Economic growth can be facilitated through technological innovation leading to new path-creation.
- The next technological revolution will depend on multiple innovations across many industrial areas linked to emerging value chains with several technological components joined in new ways.
- This is where **European diversity** may contribute: some regions have access to leading R&D and upstream innovation facilities; others have industrial skills needed in downstream testing and industrial upscaling.
- In larger territorial frameworks, both attributes may exist. It is time to upgrade transnational networks of knowledge and expertise, and drive the development of transnational and macro-regional value chains.





Horizontal issues & policy delivery instruments

- Green Growth: Eco-innovation & Energy efficiency
- Digital agenda: enabling knowledge flows throughout the territory (connected regions)
- Clusters for regional growth
- Innovation-friendly business environments for SMEs
- Public sector innovation
- Stronger focus on financial engineering
- Public Procurement for market pull: pre-competitive PP to open new innovation friendly market niches
- Lifelong Learning in research and innovation: support knowledge triangle (KICs) and university-enterprise cooperation
- Key Enabling Technologies (KETs): systemic potential to induce structural change
- Research infrastructure/centres of competence
- Creativity and cultural industries: innovation beyond technology and outside manufacturing
- Social Innovation: new organisational forms to tackle societal challenges



KETs: Key Enabling Technologies

Advanced Materials Advanced Manufacturing Industrial Biotechnology Photonics Micro and Nano-electronics Nanotechnology



Preliminary report on KETs priorities declared by regions in the context of their work on Research and Innovation Strategies for Smart Specialisation (RIS3)

Jens Sörvik Ruslan Rakhmatullin Manuel Palazuelos Mar	tinez
2013	
	Ser. 10 2000
Joint Neascorch Cardon	



Why should KETs be part of smart specialisation?

KETs are **knowledge-intensive** and associated with high R&D intensity, rapid innovation cycles, high capital expenditure and highly-skilled employment.

They bear enormous market potential:

The overall global market volume will most likely increase from EUR 610 billion to EUR 945 billion.

They are **multidisciplinary**, cutting across many technology areas with a trend towards convergence and integration.

KETs have been singled out by the European Commission in the proposal for the new Cohesion Policy **as one of the investment priorities** of the European Regional Development Fund (ERDF) as a relevant investment for the smart growth of regions.

KETs are seen as the route to new and better products and processes, capable of generating economic growth and employment and strengthening the competitiveness of the EU economy.

KETs can spur innovation, increase productivity, give rise to new applications and help tackle societal challenges.



Barriers and challenges

The key challenge for regions is to **identify** their respective economic niches and **competitive advantages in KETs development and deployment activities**.

Regions should be aware of key guiding principles, such as:

- What are the industrial needs with regard to technologies?
- Who are the main actors and potential customers of these activities?
- Is there a business case in terms of market exploitation?

This requires access to **solid economic data**. Available tools:

KETs observatory is there to provide EU, national policymakers and business stakeholders with information on the performance of EU MS and competing economies regarding the deployment of KETs. The Observatory will measure, compare and analyse country's performance for each of six KETs.

To complement other sources, the S3 Platform has setup an instrument for monitoring S3 priorities: **Eye@RIS3**



Eye@RIS3 – an online database of RIS3 priorities

- to identify their unique niches
- to enable Regions to position themselves in the EU,
- to seek out potential partners for collaboration
- Data from peer reviews, expert assessment reports, and national reports;
- Additional data can also be uploaded, and any existing entries can be edited;
- Categories are not perfect matches, but allow to understand how different regions focus their priorities.





Current distribution of KETs-related priorities

- The database includes data on over 142 EU regions, 20 MS, 2 non-EU countries and 17 non-EU regions
- Over a half (55%) of all EU regions in the database (and 11 out of 20 MS) have indicated KETs-related priorities.
- Over **21%** of all R&I priorities registered in the database are KETs-related.



Map 1: All Regions with registered priorities (October 2014)



Map 2: **Regions with KETs-related priorities** (October 2014)

When these results are cross-checked with the Regional Innovation Scoreboard, one would notice that **all types of regions aim for KETs** (from leaders to modest performers).



Regional KETs-related Priorities

Over **20% of all priorities** *encoded in the EYE@RIS3 database* **are KETs-related**.

These priorities fall in the following categories (a year-to-year change in the share of all encoded RIS3 priorities, 2013-2014):

- Advanced materials
- Advanced manufacturing systems **71** priorities (+65%)
- Industrial biotechnology
- Photonics
- Micro/Nano-electronics
- Nanotechnology

74 priorities (+15%)

- **47** *priorities* (-3%)
- **13** priorities (+21%)
- **11** priorities (+2%)
 - 6 priorities (-72%)



KETs and S3: a snapshot

- The number of regions (regions plus MS) with KETs related priorities has increased by 17%
- The number of EU MS with KETs related priorities in the Eye@RIS3 database has increased by 38%
- KETs priorities account now for 20.8% of all registered/encoded RIS3 priorities (Eye@RIS3)

Individual KETs priorities (as a percentage of all Eye@RIS3 priorities):

Advanced Materials: Advanced Manufacturing: Industrial Biotechnology: Photonics: Micro and Nano-electronics:

Nanotechnology:

31.9% of all KETs related priorities (74 priorities)
30.6% of all KETs related priorities (71 priorities)
22.4% of all KETs related priorities (52 priorities)
5.6% of all KETs related priorities (13 priorities)
4.7% of all KETs related priorities (11 priorities)
2.6% of all KETs related priorities (6 priorities)



Technical Report Full-text available

Global Value Chains and Smart Specialisation Strategy. Thematic Work on the Understanding of Global Value Chains and their Analysis within the Context of Smart Specialisation.

December 2015

DOI: 10.2791/44840

Report number: JRC98014 · Affiliation: European Commission, Joint Research Centre, IPTS

Project: <u>Methodological Support to Thematic Platforms in the context of Smart Specialisation</u> (Industrial Modernisation Platform and Agri-Food Platform)

🎐 Louis Brennan · 🥵 Ruslan Rakhmatullin



JRC SCIENCE FOR POLICY REPORT

Global Value Chains and Smart Specialisation Strategy

Thematic Work on the Understanding of Global Value Chains and their Analysis within the Context of Smart Specialisation

Louis Brennan Rusian Rakhmatal ir

regional succession of the su

2015

CUR 27549 Ch



The M3DA Process

Gaining insight into GVCs requires the following five steps of analysis which we refer to as the M3DA process:

<u>Mapping</u> as in plotting out their various stages across geographies and firms.

<u>Digging</u> into the each stage in terms of terms of activities, resources, assets, capabilities, relationships and financial and operating data. <u>Determining</u> the chain orchestration in terms of actors, linkages and flows.

<u>Decomposing</u> the activities at each stage into occupations and associated tasks.

<u>Ascertaining</u> the participation possibilities by considering not only the status quo from i) to iv) above, but by also anticipating likely future chain trajectories.



What is required from a S3 perspective?

Some general principles that can be followed:

<u>Engaging</u> with the Industry and its stakeholders on a continuous basis,

<u>Anticipating</u> the likely evolution of the Industry globally,

<u>Assessing</u> the challenges and opportunities that are likely to ensue from future industry trajectories, and <u>Responding</u> to those challenges and opportunities in a proactive manner



Smart Specialisation Thematic Platforms

Thematic focus on:

- Agri-Food
- Energy
- Industrial Modernisation

Aim:

- To support interregional cooperation
- To provide tailored advice
- To help regions develop shared infrastructure









Areas of	Co-funded	Demonstration Projects (TRL6/7)	Access to new funding and	New Products and Services
				0
Shared Interest	Joint Calls	Joint Pilots	New Markets	New Value Chains

S3 Thematic Platforms







S3P Industrial Modernisation

Steering Committee governing the S3P Industrial Modernisation

DG GROW, DG REGIO, DG RTD, and JRC



S3P Industrial modernisation – support services







Fast-forward to 2019



Three Thematic Platforms currently support 31 thematic S3 partnerships

A total of 31 existing thematic S3 partnerships currently supported by the thematic S3 platforms include innovation actors from 179 regions in 28 countries (25 EU member states + Bosnia and Herzegovina, Norway and Turkey).



Why a Thematic Platform on Agri-Food?



European Commission

S3P Agri-Food partnerships

- 5 qualified partnerships
- 50 regional and national authorities participating
- 7 leading/co-leading regions
- Many participating regions come from: Italy (8), Spain (8), France (5), Hungary (4) and The Netherlands (4)
- 2 partnerships were selected for DG REGIO Interregional Pilot Actions
- EC DGs involved: AGRI, REGIO, RTD, JRC



High Tech Farming



Traceability & Big Data





Nutritional Ingredients

Smart Sensors 4 Agri-Food



Consumer Involvement in Agri-Food



S3P – Energy

Joint initiative: DG REGIO, DG ENER and JRC

• Main objectives

- Support the implementation of the S3 of the regions/countries that have chosen energy-related priorities in their S3 (TO1)
- Assist countries in the optimal uptake of the Cohesion Policy funding opportunities for energy (TO4 & TO7e)







Sustainable Buildings



Solar Energy

S3P Industrial modernisation partnerships

Main objectives

It aims to support EU regions committed to generate a pipeline of industrial investment projects following a bottom-up approach implemented through interregional cooperation, cluster participation and industry involvement.

- Steering Committee:
 - Over 20 leading regions
 - DG GROW, DG REGIO, DG RTD and JRC

Representing

- 21 partnerships
- 95 regions

Non-food Biomass

EC DGs involved: DG REGIO, DG GROW, DG RTD and JRC





Advanced manufacturing



New Nano-Enabled Products Textile Innovation M

Medical

Efficient and

Sustainable

Manufacturing

Industrial Modernisation Platform Partnership: **3D Printing**

Leading regions:

South-Netherlands (NL)

The key objective of the Vanguard 3DP Pilot is to accelerate market uptake of 3DP applications in the EU through development of industry-led, transregional demonstration platforms.

Partnership Focus is on 4 Value Chains:

Medical, machine vision, optical component, production technology



Participating regions Baden Wurttenberg (DE) Berlin (DE) Bretagne (FR) Catalonia (ES) Dublin (IE) East Netherlands (NL) Flanders (BE) Lubelskie (PL) Mazowieckie (PL) North Karelia (FI) North North Rhein Westfalia (DE) Östergötlands (SE) Provence-Alpes-Côte d'Azur (FR) Stockholm (SE) Styria (AT) Thüringen (DE)

About the partnership:

List of projects under development:

- Photonics Integrated Circuits (PICs),
- Sensing, Measuring and Imaging,
- Optical Fibres for Industry,
- Pilot Facility for Photonics-based Manufacturing
- Netherlands have signed an 8 year plan to accelerate the development of the Dutch photonics industry, to support the development and manufacture of integrated photonics chips investing an initial €242 million of public and private funds.



Adobe Acrobat Document

The latest Public Partnership Report:

Status as of 16/08/2018

Industrial Modernisation Platform Partnership: Photonics

Status as of 16/08/2018

This partnership aims to accelerate the time-to-market, uptake and deployment of photonics related technologies by SMEs and corporates in view of addressing societal challenges.

<u>Partnership Focus is on the following Value Chains</u>: Automotive, high-end metals, machinery and tooling, healthcare



Leading regions:
Flanders (BE)
Norte (PT)
South Netherlands (NL)
Participating regions
Aragon (ES)
Asturias (ES)
Auvergne Rhône-Alpes (FR)
Baden-Wurttemberg (DE)
Catalonia (ES)
Dalarna (SE)
East Netherlands (NL)
Emilia-Romagna (IT)
Lombardy (IT)
Lower Austria (AT)
North Rhine-Westphalia (DE)
Orebrö Lan (SE)
Saxony (DE)
Skåne (SE)
Slovenia (SI)
Tampere (FI)
Trentino (IT)
Upper Austria (AT)
Wales (UK)
Wallonia (BE)

About the partnership:

- List of projects under development:
- Automotive 1 Multi-materials components by hybrid 3D Printing manufacturing
- Additive subtractive high precision & high finish production (high-end metals)
- Machinery and Tooling Structural Parts with Complex Shapes
- Automotive 2 3D-Printed automotive components (mono-material) for large (>2500 mm), medium and small complex part
- Healthcare 3D-Printed customised components for orthosis, exoskeleton and exoprosthesis
- Ongoing development of a first industrial project involving cross regional funding (in the context of the demo case: Automotive 1



The latest Public Partnership Report: Adobe Acrobat Document



Industrial Modernisation Platform Partnership: Textile innovation

The goal of the partnership is to facilitate investment in open innovation infrastructures or new technologies by SMEs to accelerate the emerging industrial renewal in traditional textile manufacturing regions across Europe.

Partnership Focus is on 4 Value Chains:

Circular economy, smart textiles, industry 4.0, creative industries



Leading regions:

Valencia (ES)

North-East Romania (RO)

Participating regions

Campania (IT)

Lombardy (IT)

Piedmont (IT)

Emilia Romagna (IT)

Catalonia (ES)

Norte (PT)

Hradec Kralove Region (CZ)

West Flanders (BE)

Auvergne-Rhône-Alpes (FR)

Västra Götalands län (SE)

Lodzkie (PL)



About the partnership:

List of projects under development:

- Sustainability (resource-efficiency and circular economy),
- Industry 4.0 and new digital business models,
- Sector diversification (Technical & smart textiles),
- Design- and creativity-based innovation (incl. ecodesign)
- Since 2013 the industry's turnover has grown by 14% to €181 billion and extra-EU exports by 15% to €48 billion while employment and company numbers have been maintained.
- Over the last 10 years, the industry has invested almost € 50 billion in the EU and is expected to maintain a strong investment rhythm in the near future.



The latest Public Partnership Report: Adobe Acrobat

Document

Status as of 16/08/2018

Industrial Modernisation Platform Partnership European Cyber Valleys



Status as of 16/08/2018

The aim of the partnership "European cyber Valleys" is commission interregional cooperation in order to:

- create synergies among the existing specialized regions in cybersecurity
- address the challenges that hamper commercialisation of existing and new products and services in Europe
- foster business investment on cybersecurity.

<u>Partnership Focus is on the following Value Chains</u>: Facilitate the development of a European Cybersecurity value chain





Leading regions:

Bretagne (FR)

Participating regions

Castilla y Leon (ES)

Central Finland (FI)

Estonia (EE)

North Rhine Westphalia (DE)

About the partnership:

Focus on 4 Thematic Working Areas:

- Mapping of European cybersecurity capabilities (to support business development)
- Smart commercialisation (start-ups and SMEs)
- Business model for training platform / cyber range / cyber training platform
- Facilitating the visibility of "European cyber valleys"

Pilot actions:

Inter-regional acceleration programme for local cyber security scale-ups, focusing on the Commercialization and Scale-up phase of local companies



The latest Public Partnership Report:

Adobe Acrobat Document



Methodological Guidance Manual (Learn and Connect)



METHODOLOGICAL MANUAL

(PHASES: LEARN AND CONNECT)

This memula has been prepared with the sim of sanisting public authorities exponsible for dasigning and dalivering interegional investment projects in the S3 context and for ensuring that there join pojects strats afficient private sector interect to ensure their santability. It provides useful general principles to inform the development of more detailed practices suited to the period activate remains of each interegional S3 partnership.

Table of Contents

EUROPEAN REGIONS AND SMART SPECIALISATION.	
Thematic S3 Partnerships and Policy Challences	11
Post 2020 Cohesion Policy	13
Current Status of Thematic S3 Platforms	1
Thematic Smart Specialisation Platform on Agri-Food	
Thematic Smart Specialisation Platform on Energy	
Thematic Smart Specialization Platform for Industrial Modernisation	16
THEMATIC S3 APPROACH TO INTERREGIONAL S3 PARTNERSHIPS	
The 'Why' Question	
The "Why' Question	21
The "Why Question. Where it all started: About the Vanguard Initiative	21
The Why Question About the Vanguard Initiative	21
The Why Gustion Started: About the Vanguard Initiative (Global) Value chain approach	21

LUNCH AND FREST STEPS Joing During Partnerships Control Building Partnerships Control Building Partnerships Science of the Cospite Information Science of the Cospite Inf

OVERNANCE 48
Onourist the fight Organisational Model 49
Onourist Structure and Scope 50
Summary, Learn Phase 51
Onedia's 1: Results and Outcomes associated with the Learn Phase 51
Onedia's 1: Results and Outcomes associated with the Learn Phase 51

INTRODUCTION & RATIONALE

CHAPTER 1: LEARN PHASE

CHAPTER 2: CONNECT PHASE

2.1 MAPPING REGIONAL CAPABILITIES AND PARTNER COMPETENCIES

2.2 MATCHING OF BUSINESS OPPORTUNITIES, PROJECTS AND STAKEHOLDERS



Thanks

Any questions?

Ruslan.Rakhmatullin@ec.europa.eu