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Capitalising on Smart Specialisation and Interreg, the case of energy

An overview of synergies between two instruments of the EU Cohesion Policy

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Abstract

This paper suggests that the promotion of inter-regional collaboration – during the implementation of the research and innovation strategies for smart specialisation (RIS3) – can be complemented by the experience gained by the European Territorial Cooperation (ETC) instrument (also known as Interreg). In a moment where regions are focused on the implementation of their RIS3, this paper aims at illustrating how regions could capitalise on the Interreg experience and overcome barriers when promoting collaboration among regions in the scope of their S3 priorities.

Keywords: Smart Specialisation, European Territorial Cooperation, energy priorities, synergies.

CONTENTS

1. Introduction

The Programming Period of EU Cohesion Policy 2014-2020 establishes smart specialisation strategies as a legal pre-condition for European Regional Development Fund (ERDF) funding associated to Research and Innovation actions.[1] With this requisite, the European Commission stimulates Member States and regions to identify their regional/national unique characteristics and assets to strengthening innovation systems, maximising knowledge flows and spreading the benefits of innovation throughout the entire regional economy. During this period, 2014–2020, Cohesion Policy guides the investment of over EUR 450 billion (including national co-financing) to contribute to the achievement of the EU-wide goals of growth and jobs and reduce economic and social disparities (COM (2014) 473 final).

Smart Specialisation Strategies, the state of play

After a long-standing negotiation procedure between the European Commission and EU countries and regions are already implementing their smart specialisation strategies. Member States and regions are now implementing over 120 national and/or regional smart specialisation strategies to ensure more effective investments. These strategies are being implemented through the involvement of national and/or regional managing authorities and stakeholders such as universities and other higher education institutions, industry and social partners in a collaboration process. Nonetheless, by the time of the adoption of the operational programmes (OP), around 50% of the submitted RIS3 had not fulfilled the requirements established in the Regulation (EU) 1301/2013.

The assessment of the RIS3 submitted by EU countries and regions to the European Commission revealed that among the major weaknesses identified[2], the selection of S3 priorities was in most cases too broad. This phenomenon was also stressed by the European Parliament in its report on smart specialisation by referring to the priorities chosen as "too generic or insufficiently connected to the regional economic and innovation structures" (Halleux, 2016). The lack of precision in selecting S3 priorities during the elaboration of the strategies, places demand on policy makers to keep narrowing down the selected priorities over the implementation phase. It also invites us to reflect on the reasons that prevent regions to be more precise in their investments (e.g. lobbying groups, insufficient strategic capacities of the actors involved).

In this context, there is a challenge in accompanying policy makers during the S3 implementation phase with the appropriate methodological development, including: benchmarking, bottom-up dynamics, mutual learning and territorial cooperation. There is also an emerging need to support innovation roadmaps across European policies and territories, tailored to their S3 regional priorities in general, and to their S3 energy priorities in particular.

In order to accompany policy makers during the implementation phase of their S3 energy-related priorities, the European Commission launched in May 2015, the thematic Smart Specialisation Platform on Energy (S3PEnergy), as we will see later. In this direction, on the 2nd of June 2016, during the Smart Regions conference, the European Commission launched other two thematic Smart Specialisation Platforms: for Industrial Modernisation and Agri-Food, in addition to the existing S3 Platform for Energy[3].

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[1] See ex-ante conditionality for the Thematic Objective (TO) 1 in Article 19 and ANNEX XI of Regulation (EU) No 1303/2013 of the European Parliament and of the Council of 17 December 2013, laying down the common provisions for the European Structural and Investment Funds.

[2] Other weaknesses pointed out governance/structural deficiencies, lack of strategic capacities, insufficient stakeholder´s involvement and weak monitoring and evaluation systems.

3 For more information on the Industrial Modernisation and Agri-Food platforms visit: http://s3platform.jrc.ec.europa.eu/s3-thematic-platforms.

European Territorial Cooperation (ETC), key allied of S3

The European Territorial Cooperation (ETC), also known as Interreg, constitutes a key driver of the EU Cohesion Policy for the reduction of economic, social and territorial disparities in the Union's territory. The ETC instrument was created in 1990 and since then, it has gained relevance in terms of territorial coverage, funding and impact.

Concerning geographical coverage, the ETC operates in three different categories of cooperation: cross-border, transnational and interregional. Co-financed by the European Regional for Development fund (ERDF), these three strands of cooperation support a varied range of stakeholders and respond to specific territorial challenges in different socio-economic contexts.

In the programming period 2014-2020, ETC allocates EUR 10.1 billion to 107 programmes distributed across Europe (See Table 1) and is ruled by the regulation (EU) No 1299/2013. Regarding ETC actions framed within the TO4, the ERDF allocates about EUR 583.7 million to co-finance activities related to, among others, the promotion of energy efficiency in buildings and enterprises; renewable energy; smart grids and R&D in low carbon (EC, 2016).

Table 1. Evolution of European Territorial Cooperation in the period 1990-2020

	INTERREG I 1990-1993	INTERREG II 1994-1990	INTERREG III 2000-2006	INTERREG IV 2007-2013	INTERREG V 2014-2020
Legal status	Community Initiative		Integrated into structural Funds regulation		**Own regulation**
Benefiting Member States (Internal borders)	11	11 -then- 15	15 -then- 25	27 -then- 28	**28**
Commitment budget (in current prices)	ECU 1.1 BN	ECU 3.8 BN	EUR 5.8 BN	EUR 8.7 BN	**EUR 10.1 BN**

Source: DG REGIO

In the light of the article 6 of the Regulation (EU) No 1299/2013, and in line with the objectives of the S3, ETC categories also address thematic concentration. At least 80 % of the ERDF allocation to cross-border and transnational programmes shall be concentrated on a maximum of four thematic objectives, including TO1 and TO4. In contrast, all of the thematic objectives may be selected for interregional programmes.[4]

The impact of European Territorial Cooperation in EU regions has been significant. Interreg programmes enhance the economic, social and territorial potential of regions as well as their competitiveness notably by fostering synergies between RIS3, clusters collaboration, the development of innovation networks and of new industrial value chains across borders (The Council of the EU, 2015).

[4] Refer to article 6 of the regulation.

In the field of energy, although not always quantitatively measurable, the ETC´s impact allows the coexistence of a multi-level governance around supplementary visions and objectives. This coexistence applies for instance in the interaction of EU policies, Directives and Initiatives (e.g. Regional Policy, Directive 2009/28/EC and Covenant of Mayors) which motivate changes in member states on mandatory or voluntary basis (e.g. National Renewable Action Plans and national policies) and are also supported by sub-national levels with specific actions developed in regions and municipalities (e.g. RIS3 and Sustainable Energy Action Plans) (Gómez Prieto, 2015).

The bridge between ETC projects and related communities (e.g. transnational partnerships, capitalisation platforms, thematic communities), with the S3 inter-regional cooperation perspectives in energy, could contribute to the trust building among energy actors and the understanding of their needs to better align available funding for energy priorities across EU regions (including TOs 1 and 4). This inter-regional cooperation in the field of energy, building on the experience accumulated by the ETC instrument, is the core element of this paper.

In a moment where regions are focused on the implementation of their RIS3, this paper aims at illustrating how regions could capitalise on the Interreg experience and overcome barriers when promoting collaboration among regions in the scope of their S3 priorities. This paper invites us to reflect on the following issue:

- How to capitalise on the linkages and opportunities between smart specialisation and Interreg´s experience to promote territorial cooperation in energy related-priorities?

2. The case of energy in the context of Smart Specialisation

Energy is a topic with high interest amongst Member States and regions. Currently, 175 regions or countries, accounting for over 80% of the members registered in the S3 Platform have identified energy-related priorities as part of their Smart Specialisation Strategies.

The rest of this section is focused on how the thematic Smart Specialisation Platform on Energy (S3PEnergy) is supporting policy makers across EU public administrations to implement their smart specialisation strategies.

The S3PEnergy platform, achieved results and evidences

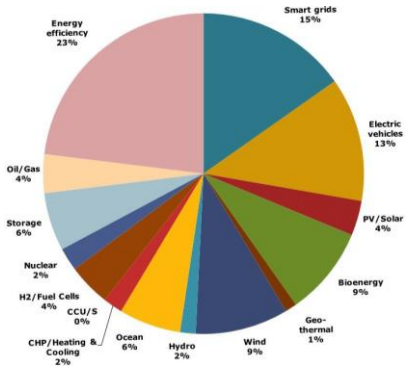
The S3PEnergy platform is a joint initiative between DG Regional and Urban Policy (REGIO), DG Energy (ENER) and the Joint Research Centre (JRC) of the European Commission. This project spilled over the fruitful co-operation between JRC and DG REGIO in the development of the smart specialisation concept back in 2009 and 2010.

The S3PEnergy focuses on energy innovation activities at national, local and regional level through the identification of technologies and innovative solutions that support the EU energy policy priorities in the most cost-effective way. In one and a half year of activities, the S3PEnergy platform has organized, co-organised or participated in targeted events on Smart Specialisation applied to several energy-related fields.[5]

[5] These events addressed, among others, technology innovation in Fuel Cells and Hydrogen (Lyon, May 2015) and Smart Grids (Bari, June 2016); territorial dimensions such as macro regional strategy in the Danube region (Ulm, October 2015) and blue growth and Marine energy (Las Palmas, October 2015). The S3PEnergy has also presented key results at the European Sustainable Energy Week (Brussels, June 2016) and provided contributions to the Energy Union debate (Brussels, March 2016).

The provided support to Member States and regions is also backed-up with research evidence. Trends on energy priorities of Smart Specialisation in EU have been analysed in the report on "Mapping Regional Energy Interests for S3PEnergy" (Jimenez and Uihlein, 2016).

Figure 1. Distribution of S3 energy priorities



This S3PEnergy report establishes that socio-economic similarities across regions with common energy interests entail a potential alignment through inter-regional cooperation. In terms of share of energy technology interest at national and regional level, the distribution of energy priorities correspond to energy efficiency (23% of EU regions); smart grids (15%); electric vehicles (13%); bioenergy and wind (9%) and ocean (6%).

Although there is certain evidence on smart specialisation choices on energy, specificity level in priorities should be better defined. Initial assessments of smart specialisation strategies carried out in early 2015, have so far delivered a mixed picture, notably regarding the choice of priorities, often considered as too generic or insufficiently connected to the regional economic and innovation structures (Halleux, 2016). Thus, in the current S3 implementation momentum, Member States and regions will have to address their energy priorities in a balanced degree of specificity which allows connections, provide potential scale, scope and spill-over effects. Inter-regional cooperation can support a better definition of energy priorities framed in smart specialisation strategies.

Inter-regional cooperation, key support for smart specialisation

In the energy field, as well as in other type of smart specialisation priorities, the collective R&D, engineering and manufacturing capabilities that sustain innovation are not necessarily deployed and contained within strict regional boundaries. Their development and evolution is likely to defy administrative frontiers (Foray and Goenaga, 2013). This evolution might be concretised in connections, synergies and spill-overs that may sprout in the framework of cooperative exercises beyond administrative boundaries.

In the European Parliament report of 27 April 2016, the institution encourages Member States and regions to develop more interregional cooperation on the basis of the smart specialisation theme (EP, 2016). The report points out that The Common Strategic Framework offers the possibility of using up to 15 % of the funds under the Common Provisions Regulation[6] (the European Regional Development Fund, the European Social Fund, the Cohesion Fund, the European Agricultural Fund for Rural Development and the European Maritime and Fisheries Fund) for such cooperation outside one's own region. The European Commission communication on investing in jobs and growth (EC, 2015) shows that these possibilities have been under-used until now.

In smart specialisation, energy is recognised as one of the most important areas for inter-regional collaboration.[7] Reasons for collaboration are oriented to support linkages between R&I and industry,

[6] Regulation (EU) No 1303/2013 of the European Parliament and of the Council of 17 December laying down the **common provisions** for the European Structural and Investment Funds.

[7] Along with eco-innovation and Key Enabling Technologies (KETs)

share information and meet the new orientation of regional policy. Regions acknowledge that their partner regions of choice are those with similar and/or complementary innovation capabilities, and those that face similar societal challenges (Sörvik et all, 2016).

Since its kick-off in May 2015, the S3PEnergy platform has supported inter-regional cooperation among its members around common smart specialisation priorities on energy. On the occasion of the High Level Conference on Smart Regions,[8] more than 200 stakeholders attended the energy session. Some regions confirmed their already manifested interest, to establish S3 inter-regional groups, whereas in other cases, some regions use this opportunity to express their interest to do so. So far, the emerging S3 inter-regional groups aim at strengthening implementation of smart specialisation in the areas of: Bioenergy, Sustainable Construction, Energy Off-shore and Smart-Grids. Accordingly, the S3PEnergy is currently facilitating the creation of these thematic groups with the objective to foster S3 implementation through inter-regional cooperation.

In order to keep promoting these inter-regional exercises of cooperation, the S3PEnergy platform has recently published its open invitation in the S3 platform website. The S3PEnergy facilitates interaction among regions manifesting similar interests by, for instance, organising kick-off meetings where regions initiate the reflections on operational work, leadership and co-leadership, governance systems, roadmaps and rules, among others. Support on additional inter-regional cooperation groups related to other energy-priorities of interest (e.g. heating and cooling, fuel cells, solar), would be provided by the S3PEnergy platform upon joint request of three or more EU regions.

As for the S3 inter-regional groups on Bioenergy, Sustainable Construction, Energy Off-shore and Smart-Grids, the following aspects help to understand why smart specialisation in these fields is the priority for many EU regions:

Bioenergy

In the EU, the consumption of biomass for heating and electricity has significantly grown since 2005 and according to estimates from the National Renewable Energy Action Plans (NREAPs), it is expected to further increase from 86.5 million tonnes of oil equivalent (Mtoe) in 2012 up to 110.5 Mtoe in 2020 (EC, 2014).

In Smart Specialisation Strategies of EU Regions, at least 9 % of them include energy-related priorities in the field of bioenergy (see figure 1). Also, in nine of the 13-EU countries,[9] regions have identified 26 smart specialisation priorities related to "bio-economy and agriculture" with specific focus on agricultural innovations and technologies (Radosevic, 2015). These choices would entail strong linkages and opportunities for bioenergy sector and inter-regional cooperation.

Sustainable construction

The building sector is the largest energy consumer in Europe, representing 40% of the total EU consumption (in terms of final energy) and 36% of CO_2 emissions, according to statistical information from the European Commission.[10] In the context of Smart Specialisation, 47 regions have identified energy efficiency actions (of which sustainable construction is part) as priority in their strategies. Although there is not geographical distribution evidence to explain the choice of regions (Jiménez and Uhlein, 2016), environmental and local socio-economic benefits derived from actions leading to decarbonise buildings, would motivate and justify this tendency.

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[8] The conference was held in Brussels on 1st and 2nd June 2016 and gathered the attendance of more than 700 stakeholders representing regional public authorities, research and university, private sector and civil society. Related information is available at: http://ec.europa.eu/regional_policy/en/conferences/smart-regions/

[9] EU-13 countries are European Union Member States that acceded to the EU in 2004-2013 (EU-12 and HR)

[10] European Commission, Eurostat. Final energy consumption, EU-28, 2013.

Moreover, many EU regions have already carried out projects related to energy efficiency in buildings by benefiting of European Territorial Cooperation. In the period 2007-2013, ETC co-financed at least 44 projects dealing with Energy Efficiency in existing buildings, 25 projects addressing Energy Efficiency in newly-constructed buildings and 24 projects in both topics (Wergles, 2014). Lessons learnt and achieved results coming from these ETC projects would facilitate complementarities and improvements of S3 priorities definition (and implementation) in concerned regions.

Smart-grids

Smart Grids ensures an efficient, sustainable electricity supply, with lower losses and greater reliability and security (EC, 2014b). As smart grids allow the integration of decentralised renewable energy resources as well as electric vehicle recharging services, they are essential to ensure energy security, economic development and climate change mitigation. The integration of energy production and consumption component through the smart grid concept enables increased demand response and energy efficiency.

In the context of smart specialisation, smart grids appear as one of the most interesting concept to deploy under the concept of smart specialisation in the area of energy (Jiménez and Uihlein, 2016). According to the information provided by the EYE@RIS3 tool, 34 regions in Europe include smart grids in their smart specialisation priorities (figure 5.4). Although the smart grids sector should still face several challenges and obstacles such as lack of regulatory frameworks and low public awareness (Luthra et al. 2014); smart specialisation strategies and interregional cooperation would contribute to reduce these gaps. Future scenarios, initiatives and interventions in the field of smart grids should capitalise on existent evidence and results facilitated for instance in the frameworks of the 459 projects carried out across Europe (Felix et al, 2014).

Energy Off-shore

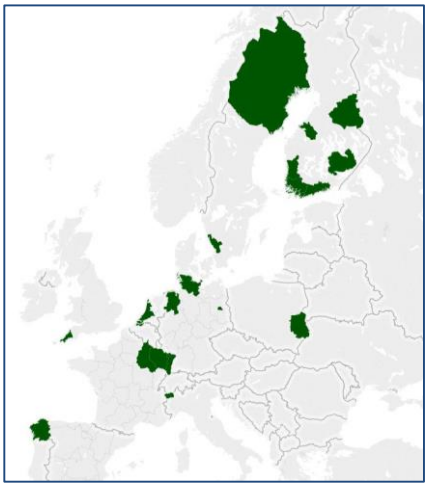
In the European Union, some marine energy technologies such as wide and tidal are still in research and development phase. Recent analyses have estimated an installed capacity for wave and tidal energy combined of 15GW by 2030 and 71 GW by 2050 depending on the success of this technology's development (EC, 2014c). In contrast, wind off-shore is in a more matured technologic level, cumulating a capacity of 12.9 GW (EWEA, 2016).

Smart Specialisation priorities related to energy off-shore can also provide added value from regional dynamics. Stimulating trans-boundary cooperation has been identified as one of the strategic areas for policy support in smart specialisation priorities related to blue growth and related areas, including marine energy (Maarten de Vet et al, 2016). These trans-boundary cooperation may be translated in pilot activities leading to share infrastructure, research results and establishing synergies and shortcuts based on the experience of more matured technologies (e.g. wind on-shore with off-shore).

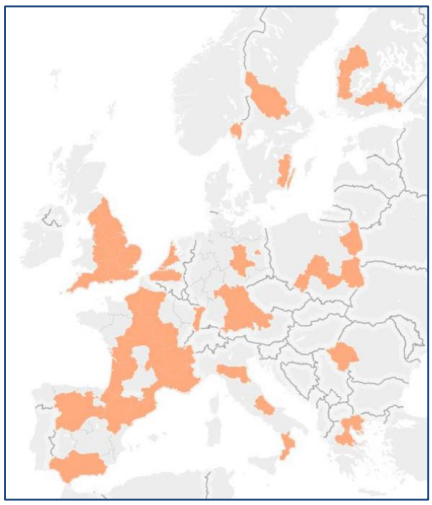
Although the Atlantic arc is - a priory - more favourable for the development of off-shore renewable energy technologies, particularly wind (EC, 2014d), European Territorial Cooperation has already elaborated frameworks to explore these technologies in other geographical areas such as the Mediterranean (Gómez Prieto and Caldés, 2015). These results and evidences emerge from collective transnational vision of quadruple-helix stakeholders and would substantially assist EU regions opting to prioritise on energy off-shore in their smart specialisation strategies.

Figure 2. Regions identifying energy-related priorities in the context of Smart Specialisation

Bioenergy

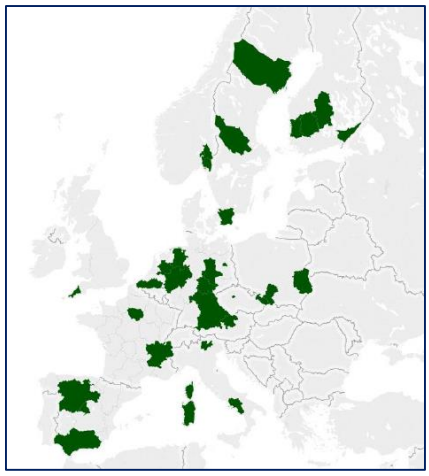


Energy efficiency



Ocean energy

Smart Grids



Source: JRC

Solar Energy

The purpose of the European energy union, as for the European Energy and climate objectives, is to ensure that Europe has secure, affordable and climate-friendly energy. In turn, fighting climate change is both a spur for new jobs and growth and an investment in Europe's future (EC, 2017, Caldés-Gómez, N. and Díaz-Vázquez A. 2017). In this respect, the EU's energy union strategy is made up of five closely related and mutually reinforcing dimensions, namely: energy security, solidarity and trust; a fully integrated European energy market; energy efficiency contributing to moderation of demand; decarbonising the economy; and research, innovation and competitiveness COM (2017) 53 final.

The EU needs to find ways to decarbonise its economy in a cost-effective manner while improving its energy security, social and economic development as well as maintaining its industrial leadership and moving towards an integrated and well-functioning Energy Union (Caldés-Gómez, N. and Díaz-Vázquez A. 2017). In this context, it seems that generating and exporting solar electricity from Southern to Central/Northern European countries can contribute to achieve many of such EU

goals (Caldés-Gómez, N. and Díaz-Vázquez, 2017). These authors argued that solar energy could contribute to achieve many of such EU goals for the following reasons:

- Trading solar electricity across borders could support the EU´s aim of cost-efficiently decarbonizing the power system through cooperation between Member states by generating renewable electricity where the resource is most abundant and generation costs are lower.
- The promotion of renewable energy cooperation within countries and regions in Europe could contribute to make a significant step forward towards a more integrated, well-functioning and cohesive Energy Union and ultimately to the 2020 and 2030 European strategy.
- Third, since the best locations to deploy solar plants in Europe are located in some of the most economically deprived regions in Europe. Thus, deploying solar projects would create remarkable social and economic impacts for such regions, contributing to reduce regional disparities within Europe.
- Given the vast solar resource in Southern European countries, solar technologies could play an important role in the future European power market and system because of various reasons:

The smart specialisation solar partnership is currently facilitating the exploration of an inter-regional solar project in Europe, for which Extremadura is its leading region. This partnership is also helping to create a cooperation network of companies and research centers among the participating regions to push their contributions in this sector with a global market perspective.

Likewise, many EU regions have already carried out projects related to solar energy by benefiting of European Territorial Cooperation. In the period 2007-2013, ETC co-financed at least 7 projects in which 91 partners across the EU were beneficiated. As previous stated, lessons learnt and achieved results coming from these ETC projects would facilitate complementarities and improvements of S3 priorities definition (and implementation) in concerned regions

Cohesion funding for Energy

Energy Union investments receive a significant part of the cohesion policy funding – 20% on average – ranging in the individual Member States from 9% to 26%. EU cohesion policy makes a key contribution for delivering the Energy Union objectives on the ground, including significant financial allocations (See table 2) from the European Regional Development Fund (ERDF) and the Cohesion Fund (CF),:

Table 2. EU Cohesion funding allocation

for investments related to all five dimensions of the Energy Union [11]

[11] * with possible increases in the future in line with evolving smart specialisation strategies.

** including EUR 1.1 billion for smart distribution grids and EUR 2.3 billion for infrastructure for smart electricity and gas distribution, storage and transmission systems, the latter mainly in less developed regions (six Member States currently foresee to use ERDF support for energy infrastructure investments of this kind: BG, CZ, EL, LT, PL, RO).

*** including EUR 16.0 billion for sustainable urban mobility (clean urban transport infrastructure, intelligent transport systems, cycle tracks and footpaths), and EUR 23.7 billion for other low-carbon transport (e.g. rail, seaports and inland waterways).

	(Billion in EU)
Investments related to all five dimensions of the Energy Union	**68.9 (total)**
Energy efficiency in public and residential buildings	*13.3*
Energy efficiency in enterprises, with a focus on SMEs	*3.4*
High-efficiency cogeneration	*1.7*
Renewable energy	*4.9*
*Research and innovation and adoption of low-carbon technologies**	*2.6*
*Smart energy infrastructure***	*3.4*
Supporting the move towards an energy-efficient, decarbonised transport sector	*39.7*

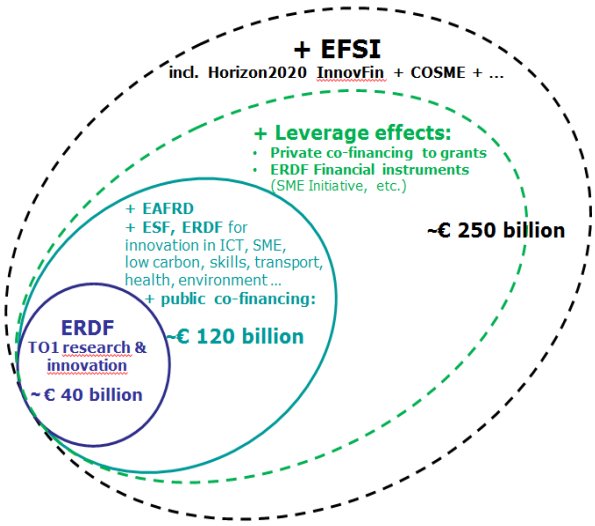
Source: Commissioner Cretu' speech, EU Project Team meeting on Innovation and competitiveness 7 June, BERL

For the programming period 2014-2020, the rules on the European Regional Development Fund require Member States for the first time to allocate a mandatory minimum proportion of the available funding to the low-carbon economy being mandatory 20% of national ERDF resources in more developed regions; 15% in transition regions and 12% in less developed regions.

Other funding sources

In addition to the Cohesion Policy contributions, smart specialisation energy priorities can be complemented by other public and private co-financing, aiming at achieving optimal leverage. The use of financial instruments is encouraged for investments generating revenue or creating savings through reduced energy consumption.

´The funds involved are impressive: Just for the ERDF alone for TO 1 we have over 40 bn. When we take into account the other ESIF, innovative projects in the different TOs and the national public co-financing we get to something like 120 bn. Adding to this the leverage effects for private investment and contributions from other EU instruments, we estimate that about EUR 250 billion will be mobilised via the strategies. This is a massive contribution to the Investment Plan for Europe´ (Deffaa, 2016).



Source: DG REGIO

Member States have planned allocations to financial instruments under the thematic objective 4: 'low carbon economy' of EUR 3.8 billion from the European Regional Development Fund (ERDF) and the Cohesion Fund (CF). This means that about 10% under TO 4 will be delivered through financial instruments. This is an almost 10-fold increase compared to the previous period, but still below the 20% objective set in the Investment Plan Communication of November 2014.

In synthesis, at the present energy choices in smart specialisation can be easily identified according to energy technology groups. However, specificity level in S3 priorities should be better defined so as to assure expected policy impacts. Inter-regional cooperation can offer suitable frameworks to continuing narrowing down these energy-related priorities in concerned regions. Accordingly, the S3PEnergy is facilitating inter-regional dynamics in 4 thematic areas aiming at reducing gaps and approaching regions with common S3 priorities. This inter-regional cooperation has the potential to capitalise on other well-established and experienced cooperation instruments offered by the EU Cohesion Policy, as is the case of Interreg.

3. Capitalising on smart specialisation and Interreg in the case of innovation and energy

Based on the capitalisation concept, smart specialisation and Interreg may find complementarities - in areas such as territorial development - allowing improvements in the effectiveness of the implementation of S3 energy-related priorities. Capitalisation is a concept frequently used and applied in European Territorial Cooperation oriented to improve what exists, avoid duplications and create new and innovative impact, based on previous lessons, results and/or achievements. More concretely, capitalisation enables targeted synergies around specific "capital" which should be understood as knowledge to support the development of further interventions and policies. The capitalisation process supports the re-use, adaptation and transfer of this capital among stakeholders, ultimately promoting improved performance and delivery (Interact, 2016).

In practice, Interreg programmes and projects give high relevance to capitalisation process as a way to bridge already delivered results with expected ones. Capitalisation leads to underpin for instance results of projects operating in different chronologies (e.g. periods 2007-2013 and 2014-2020); interventions in different but complementary fields (e.g. innovation (TO1) support to SMEs (TO3) in energy efficiency aspects (TO4)) and complementarities among local actions with national and European initiatives (links between SEAPs, NREAPs and Energy Union). Capitalisation is also complementary to the information, communication, monitoring and evaluation processes.

Box 1. Mediterranean regions and joint achievements in renewable energy and energy efficiency.

Ljubljana declaration is a capitalisation output derived from synergies established by partners of three strategic projects co-financed by the Interreg MED Programme in the fields of energy efficiency and renewable energy (Marie, ElihMed and Proforbiomed Projects, 2014). This declaration aims at providing a collective vision of challenges and opportunities of sustainable energy interventions in buildings located in the north shore of the Mediterranean. Ljubljana declaration has been endorsed by more than 60 stakeholders, including among others, public authorities of 11 EU regions (NUTS 2)[12], 10 energy agencies, energy clusters, regional development agencies, municipalities, cities and civil society organisations. The capitalisation process of Ljubljana declaration evolved through the following milestones:

1. Joint transnational action engaging three partnerships of projects MARIE, ELIHMED and PROFORBIMED leading to develop a common framework, capitalise on results and establishing synergies among them.

2. Policy paper reflecting this joint transnational action and common vision of 60 multidisciplinary stakeholders. The paper is supported by observations, analysis and conclusions of activities developed in the

[12] The regional public authorities who signed this declaration were: Catalonia, Valencia, Murcia, Provence-Alpes-Côte d'Azur, Languedoc-Roussillon, Piedmont, Basilicata, Umbria, Sicily, East Macedonia and Thrace and Western Macedonia.

stakeholders' territories (e.g. common methodologies, study cases, pilot plans, monitoring and evaluation) (Marie, ElihMed and Proforbiomed Projects, 2013)

3. Linking two programming periods. Although the policy paper was delivered over the programming period 2007-2013, it provided key contributions to the elaboration of objectives included in the Operational MED Programme for the period 2014-2020. Concretely, the MED programme specific objective for energy efficiency interventions is defined as: *"To raise capacity for better management of energy in public buildings at transnational level"* (Interreg MED Programme, 2015).

4. Contributing to EU Policies. The European Parliament acknowledges the contribution of Ljubljana declaration in the report: Implementation and impact of the energy efficiency measures under Cohesion Policy (EP, 2013).

Source: MED Programme

Capitalisation would facilitate complementarities between two instruments of the European cohesion policy which seek for an optimal uptake of Cohesion funding. Both practitioners of smart specialisation and beneficiaries of Interreg projects may strengthen operative synergies by speaking the same capitalisation language.

The reform of the EU Cohesion Policy for the period 2014-2020 represents a key aspect to understand and identify potential win-win synergies between smart specialisation and Interreg.

Concerning energy, as indicated in previous chapter, the EU Cohesion policy has almost doubled the investments for low-carbon action in the period 2014-2020. This increase of financial possibilities combined with results of ETC projects co-financed in the period 2007-2013 as well as the number of regions including energy-related priorities in smart specialisation strategies, should motivate integrated actions based on capitalisation.

Building-up on existing and future results, Interreg contributions to energy sector.

In this section, we showcase three examples of how European Territorial Cooperation can provide added value to the smart specialisation strategies across Europe. The examples describe the experiences of Interreg-Europe, Interreg Med and Interreg 2-Seas programmes, representing the three ETC categories: Interregional, Transnational and Cross-border cooperation, respectively. Apart from identifying synergies related to the Thematic Objective 1: research and innovation, the examples provide concrete cases where complementarities between Interreg programmes and smart specialisation take place in the TO 4: low carbon, including energy.

Interreg-Europe programme, reinforcing the effectiveness of Cohesion Policy across Europe

The programme Interreg-Europe facilitates territorial cooperation by enabling the transfer of good practices among stakeholders of 286 regions across Europe.[13] In the period 2014-2020 Interreg-Europe targets territorial cooperation in the areas of Research and Innovation (TO1); SMEs competitiveness (TO3); Low Carbon Economy (TO4) and Environment and resource efficiency (TO6).

This programme addresses smart specialisation in TO1 and TO4 as a way to identify innovation opportunities and support actors in regional innovation chains. More specifically, Interreg-Europe seeks to support smart specialisation strategies throughout:

[13] Regions categorised according to NUTS 2 level in the EU28 Member states + Norway and Switzerland

Interventions under TO1 Research and Innovation

Respond to the specific objective of improving the implementation of regional development policies and programmes in the field of research and innovation infrastructure and capacities, notably in the framework of Smart Specialisation Strategies.

In this programming period, Interreg-Europe allocates EUR 84.441.686 (ERDF) to co-finance research and innovation projects. Interventions would address, among others: the share of experiences on public funding schemes for innovation support; design and implementation of action plans for the creation of revolving funds and technology innovation; exchanges on policies and programmes aiming at creating research facilities; matching between higher education curricula offer and human capital needs of businesses in their regional smart specialisation sectors; exchange of experiences on innovation policies and exploring opportunities for joint research or innovation infrastructure operating in common domains of smart specialisation (Interreg-Europe, 2015).

Interventions under TO4 low-carbon economy

Respond to the objective of improving the implementation of regional development policies and programmes addressing the transition to a low-carbon economy, notably in the framework of Smart Specialisation Strategies.

Similar to the TO1, the programme allocates EUR 84.441.686 (ERDF) to co-finance several typologies of projects in the field of low-carbon economy. These projects may address for instance: the exchange of experiences and good practices leading to set up regional structures and promote local sustainable energy generation and distribution systems in rural areas; sustainable mobility measures aiming at increasing the use low-carbon transport options and cooperation on practices to invest in energy-efficiency measures, resulting in the preparation of regional support programmes for energy efficiency in companies.

In both type of interventions ("research and innovation" and "low-carbon") Interreg-Europe creates policy learning platforms in order to facilitate exchanges between several projects, partners and stakeholders around common topics of interest. These forums allow, among others, the follow-up of policy and regulation developments, benchmarking the contents and results of related projects, organise and facilitate peer-reviews between 2 or more European regions and promote synergies among stakeholders.

Interreg-Europe programme also supports smart specialisation strategies by establishing the "coherence with policy context" as selection criteria for project proposals. This coherence is linked to the Operational Programme of regions and in the alignment with their Smart Specialisation. Linkages should be demonstrated in the project proposal and at least half of the participating EU regions in a project have to address the implementation of their Operational Programme.

Box. 2 Partnership of european regions on energy efficiency in buildings and the Interreg project BUILD2LC

On 28th July 2016 the Andalusian Energy Agency submitted a document with the basic proposal for the creation of a Partnership of European region on energy efficiency in buildings to DG REGIO. This proposal included the objectives and added value of interregional collaboration in this area, as well as the proposed working methodology and the actions to be developed. The Partnership of European regions on energy efficiency in buildings is conceived as a strategic alliance between European regions to boost new markets and take advantage of regional opportunities for smart specialisation in sustainable construction.

The proposal was presented and discussed together with other regions in different working sessions within the framework of the European Week of Regions and Cities last October 2016 and among the members of the Interreg project BUILD2LC. The key innovative aspect of the The BUILD2LC project is its multidisciplinary approach in the frame of the sustainable construction sector, including financial schemes, capacity building, and innovation, awareness raising and combating against energy poverty, amongst others. It is necessary to

progress simultaneously in all these fields to promote improved energy efficiency of buildings and consolidate a solid development of a business sector linked to energy rehabilitation.

This interregional collaboration between public and/or private entities within the Partnership and across EU projects could improve the energy efficiency of buildings in Europe, through promoting the development of efficient and innovative solutions throughout the value chain, associated to energy saving and the use of renewable energy in buildings.

Source: Adapted from the summary report (March 2016) of the partnership of European regions on energy efficiency in buildings *"Opportunities for economic, social, environmental and territorial development linked to energy efficiency in buildings".*

Interreg Mediterranean Programme, strengthening territorial development in Mediterranean

The Interreg Mediterranean programme pursues territorial cooperation in 57 regions of 10 EU Member States and 3 IPA countries (Albania, Bosnia & Herzegovina and Montenegro). In the period 2014-2020, Interreg-MED supports actions in the fields of Research and Innovation (TO1); low-carbon economy (TO4); environment protection (TO6) and institutional capacity enhancement (TO11).

Smart Specialisation strategies of Mediterranean regions would explore strong synergies with Interreg-MED interventions mostly in projects related to the Thematic Objective 1 Research and Innovation. To this regard, the TO1 of Interreg-MED allocates EUR 71.72 million for the period 2014-2020 and pursues the specific objective of increasing transnational activity of innovative clusters and networks of key sectors of the MED area.

Interventions under TO1 Research and Innovation

Related actions would entail the promotion of business investment in Research and Innovation; developing links and synergies between enterprises, research centres and higher education sector; promoting investment in products and services development; technology transfer; clusters promotion and open innovation through smart specialisation; supporting technological and applied research, pilot lines, early product validation actions, advanced manufacturing capabilities and first production, in particular, in key enabling technologies, among others.

The MED programme launched its first call for project proposals in September of 2015 and expects to approve 17 transnational projects addressing research and innovation[14]. Smart Specialisation Strategies of eligible MED territories would be supported by forthcoming approved projects which will focus on increasing transnational activity of innovative clusters and networks in the fields of blue and green growth, cultural and creative industries and social innovation. Related actions would address, among others, the achievement of positive impacts in fishing and aquaculture sectors; maritime surveillance; biotechnologies; coastal maritime tourism; culture, arts and entertainment; media and cultural industries; creative services; open data; social entrepreneurship and public sector innovation (Interreg MED Programme, 2015b).

Contributions to energy related priorities of smart specialisation

The fields of blue and green growth associated to the TO1 of the MED Programme, would provide additional support to energy-related priorities of smart specialisation in regions of the programme eligible area. Specifically, some of the areas where MED projects would contribute to foster regional research and innovation developments in the energy field are: blue energy and related

[14] These MED Projects are expected to be operative over the second half of 2016

technologies (offshore wind, tidal and wave); renewable energy (solar photovoltaics and concentration, wind, geothermal, hydropower and bio-energy); energy efficiency; waste management and recycling; smart cities and eco-innovation.

Concerning the TO4, although project proposals should not fulfil specific requirements related to smart specialisation, future projects' interventions co-financed by Interreg-MED programme would strengthen the implementation of energy related priorities of smart specialisation particularly those related to increase energy efficiency in public buildings, introduce more renewable energy in rural areas and/or islands and facilitate the sustainable ways of transportation.

Box 3. Blue growth, energy and innovation

module-based projects to optimise results;

horizontal projects to reach policy making level.

Smart Specialisation Strategies of Mediterranean regions can reinforce priorities dealing with innovation and sustainable energy (blue and green growth) with the support of new Interreg MED projects. Interventions would address the following (non-exhaustive) actions in the new modular (studying, testing and capitalising) and horizontal project categories.

1) Studying projects, oriented to production of knowledge and evidence-based on state of the art of several subjects of intervention (e.g. ocean energy, waste management, eco-innovation): Related actions can elaborate on mechanisms favouring cooperation between research, SMEs and public sector (quadruple helix) in order to stimulate innovation and entrepreneurship, or elaborating common methodologies for monitoring innovation policies (e.g.: follow up of RIS3 implementation/evaluation)

2) Testing projects, to test instruments, policies, strategies and joint plans through pilot activities in the perspective of setting up solutions applicable to a wider set of users and territories. Projects' actions could be strengthening transnational networks and clusters to achieve a sustainable model of transnational cooperation of innovation actors.

3) Capitalisation projects, to establish bridges on continuity or amplification of achieved results in wider zones. Actions would address Implementation of public policies for innovation or adopting action plans by public authorities; Transferring improved transnational systems or processes to other territories or relevant sectors and Engaging Regions to strengthen connections and cooperation of existing smart specialisation strategies (RIS3) at transnational level (e.g. cooperation platforms)

4. Complementary, Horizontal projects are the unifying element of a thematic modular community of projects. They shall allow real synergies and are in charge of community building activities, joint communication and joint capitalisation of the relevant singular projects and results (Interreg MED Programme, 2015c).

Source: MED Programme

Interreg 2-Seas Programme, tackling common challenges in border regions

Interreg 2-Seas is a maritime cross-border programme which promotes territorial cooperation among stakeholders of England, France, the Netherlands and Belgium (Flanders). The investment strategy of the Interreg 2-Seas programme for the period 2014-2020 addresses the fields of Research and Innovation (TO1); low-carbon economy (TO4); Climate change (TO5) and environment protection (TO6).

Interventions under TO1 Research and Innovation

Regions participating in projects co-financed by Interreg 2-Seas programme can benefit of territorial cooperation as an additional support of their smart specialisation strategies. Project

interventions aligned with the Thematic Objective 1 may respond to three specific programme objectives related to smart specialisation:

1. Improve the framework conditions for the delivery of innovation, in relation to smart specialisation. Through this specific objective, Interreg 2-Seas expects to contribute in three ways to smart specialisation strategies: (1) by stimulating quadruple helix cooperation among public and private stakeholders, civil society and research entities; (2) introducing and adopting common approaches, collaboration arrangements, joint structures and policy tools supporting capacity for delivering innovation and (3) improving framework conditions envisaged to benefit the key stakeholders of the innovation chain in charge of developing and delivering innovation, in relation to smart specialisation.

2. Increase the delivery of innovation in smart specialisation sectors. Based on the innovation eco-systems operating in the eligible area of the programme, this specific objective seeks to provide additional support to existing clusters, research networks and technology transfer initiatives. The focus is given to SMEs as key players of innovation with capacity to uptake and transfer technology. Promoting a closer, more effective and operational cooperation among the key stakeholders of innovation is also pursued in the framework of this objective. Project beneficiaries would be competitiveness clusters, incubators, business sector stakeholders, regional authorities, chambers of commerce, research centres, technology parks and civil society.

3. Increase the development of social innovation applications. This third specific objective establishes the need to support non-technological innovation. Social innovative applications are useful to tackle the challenges related to inclusion themes, and to promote more effective and efficient social support against unemployment, in particular for youth people, poverty and social exclusion. Stakeholders in charge of developing and delivering social innovation and welfare policies, business sector organisations, chambers of commerce, research centres, and more generally the civil society will be among the beneficiaries.

Contributions to energy related priorities of smart specialisation

"Water and energy as well as environmental technologies are smart specialisation sectors for numerous local areas" This was one of the strengths identified in the SWOT analysis of TO4 conducted by Interreg 2-Seas to prepare the period 2014-2020. The analysis also found that opportunities for smart specialisation in energy would be linked to biotech and low-carbon technologies. Accordingly, the programme acknowledges the need to reinforce public acceptance of renewable energy to support the desired smart specialisation in this area (Interreg 2 Seas, 2015).

In the framework of the TO4, Interreg 2-Seas programme seeks to achieve an increased adoption of low-carbon technologies. The programme expects to co-finance projects aiming at: enhancing the uptake of state-of-the art solutions; testing and demonstrating low-carbon technologies as well as to pave the way for wider uptake and promoting a closer, more effective and operational cooperation of businesses, knowledge institutes and public sector.

In the contexts of smart specialisation strategies, these projects may support the priority choices based on evidence and results related derived from: state of the art analysis as for example diagnosis, technology availability analysis, mapping of competences and key actors in the energy domain; demonstrative actions such as pilot activities or small scale infrastructure leading to test new or adapted technologies (e.g. bio-energy) and entrepreneurial discovery process applied to the implicit operational cooperation of engaged territorial players and stakeholders.

Box 4. INCASE Project

towards Industry 4.0 via Networked Control Applications and Sustainable Engineering

Ideas on capitalisation with previous projects.

This cross-border project was recently approved by the Interreg 2 Seas programme under the actions framed in technological innovation. The project main focus is on strengthening the manufacturing industries by developing and demonstrating key enabling automation technologies, preparing practicing engineers for the future smart interconnected factories, smart buildings and sustainable engineering.

The expected outputs of the project are:

- To develop knowledge, innovative applications and pilots on key enabling automation technologies for the future I4.0.

- To deliver 10 thematic demonstration trajectories on those key enabling automation technologies for smart factories and green technologies for smart homes and factories.

The project is expected to contribute to the specific programme objective of increasing the delivery of innovation in smart specialisation sectors.

Source: Interreg 2 Seas programme

4. Conclusions and Policy implications

In the European Union, regions implementing their smart specialisation strategies could capitalise on the Interreg experience and overcome barriers when developing synergies in the scope of their S3 priorities. We illustrate how inter-regional cooperation means, in one hand, additional support in a moment where implementation of S3 priorities are in the spotlight; but also, on the other hand, the opportunity to establish strategic bridges between two instruments of the Cohesion Policy: smart specialisation and Interreg.

To support our argument, we argue that some key elements of the current programming period encourage the inter-regional collaboration across the EU. To illustrate this statement, we have selected the field of energy and have mentioned new institutional agreements at EU level, – the Smart Specialisation Platform on Energy (S3PEnergy)–, the common objectives of smart specialisation and Interreg – in terms of territorial cooperation – and the importance of funding available for energy related activities. In this context, we discuss that regions could capitalise on the Interreg´ experience during the implementation of their RIS3. We have build-up on the potential contributions of Interreg to smart specialisation in the energy field, and have integrated the analysis of calls for Interreg project proposals and selected projects over the period 2014-2020 (e.g. Interreg-Europe programme, MED Programme).

We have also addressed examples of how Regional Public Authorities are combining benefits of participating in Interreg projects with the implementation of smart specialisation priorities, with a specific focus on the implementation of investments priorities assigned to the thematic objectives (TO) 1 (research and innovation) and 4 (low carbon economy). Our main conclusion is that regions could capitalise on the existing complementarities and synergies already identified as the result of the participations of EU Members and regions in different European networks and platforms, in general, and on the Interreg´ experience in particular. This information could help EU Members and regions to overcome barriers when promoting interregional collaboration in the scope of their S3 priorities.

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