

## **How outward looking is smart specialisation? Rationales, drivers and barriers**

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### **Introduction**

Conventional approaches to regional innovation policy, inspired by theories of regional innovation systems and clusters, have in recent years been challenged due to a perceived lack of attention to extra-regional connectivity (Bathelt et al. 2004; Isaksen and Trippel 2017; Pike et al. 2010). As regional economies have become increasingly interconnected in global value chains, there has been growing interest in more outward looking policies which may better support innovation and industrial diversification in this global networked context (Trippel, 2010; OECD, 2013). Multi-level, multi-actor governance of research and innovation policy also means that regions are not ‘closed’ policy spaces (Uyarra and Flanagan 2010), but increasingly dependent on policies ‘initiated, controlled and implemented elsewhere’ (Moodysson et al. 2015, p.8).

Pursuing an outward looking approach to regional innovation policy is one of the key dimensions of the European Union smart specialisation strategy (S3), which is the subject of this paper. Smart Specialisation is a place-based policy prioritisation framework aiming to engage stakeholders in valorising existing assets and local specificities and selecting priority areas of economic activities with high transformative potential for the economy.

An ex-ante conditionality for EU structural funding, the key novelties of this new approach to regional innovation policy are greater selectivity and bottom up prioritisation of activities through a process of ‘entrepreneurial discovery’, and an ‘outward looking’ orientation, in terms of assessing priorities vis-à-vis other regions, as well as the consideration of inter-regional collaboration as strategic element.

However, despite a general recognition of the advantages of a more outward looking innovation policy, *inter alia* to build a critical mass of actors and innovation activities, reduce resource overlap and improve policy coordination (Miörner et al. 2017; OECD 2013), its implementation has so far been limited (Radosevic and Stancova 2015; 2018; van den Broek, 2018). Supporting interregional connectivity is therefore far from being ‘mainstreamed’ in regional innovation policies in a way that

“permeates the various instruments, methodologies and strategies chosen” (Benneworth and Dassen, 2011, p.54).

There remains a gap therefore between the state of research about the importance of interregional connectivity and the still limited outward orientation of innovation policy. This paper aims to address this gap. It responds to a call in the literature (Capello and Kroll 2016; Lundquist and Trippl 2013; Miörner et al. 2017; OECD 2013) for more empirical evidence to understand the capacity of cooperation to enable the growth of territorial capital (Camagni 2017; Camagni and Capello 2013) and to correct policy fragmentation and insufficient critical mass (Foray. 2014).

We seek in this paper to unpack whether and to what extent the aspirations of S3 to support the external connectedness of regional economies are being realised. To understand this, we first articulate a more nuanced and theoretically informed understanding of the rationales, means, drivers and barriers of interregional collaboration. We then use a dedicated survey and in-depth interviews to address the following questions: How is outward orientation interpreted and used? What are the factors enabling or hindering interregional cooperation in research and innovation policy? The paper is structured as follows. It first introduces the smart specialisation prioritisation framework, before examining the outward orientation dimension of S3 and a discussion of the rationales, drivers and barriers associated with its use. We then move on to report the findings of our empirical investigation before providing recommendations for the design of future strategies.

### **The rise and challenges of S3**

The emergence of smart specialisation has been extensively documented. First introduced in a policy brief ‘knowledge for growth’ prepared by an independent advisory group to the European Commissioner for Research and Innovation (Foray and Van Ark, 2007), further developments (Barca, 2009; Foray, 2014; 2016) transformed the concept of smart specialisation from a sectoral concept to a place based one (McCann and Ortega-Argilés, 2015) and contributed to its development through recommendations for cohesion policies, such as the need to focus on fewer priorities and better coordination of policies.

As a new form of industrial policy, the logic of smart specialisation has amalgamated different elements and conceptual approaches into a single framework, including new Schumpeterian approaches to the role of the state and new industrial

policy and evolutionary approaches emphasising processes of economic upgrading via diversification into related activities and associated constraints (Neffke et al., 2011; Radosevic, 2017). Drawing from these scholarly insights, the main conceptual novelties in the smart specialisation agenda lie in the idea of ‘entrepreneurial discovery process’, the focus on prioritising particular domains rather than adopting an horizontal (generic) type of innovation policy, and the outward policy orientation.

In a nutshell, S3 aims to assist regions to better prioritize their research and innovation resources in order to build critical mass in areas of existing comparative advantage. A key novelty is that such prioritisation should not be done in a top-down way but emerge as a result of an entrepreneurial process of discovery (Hausmann and Rodrik 2003), involving a range of actors with both technical and market knowledge (Foray, 2016). Acknowledging the limits of horizontal innovation policies, a second novelty of S3 is a focus on areas of innovation application (domains) instead of sectors. The third novelty is that strategies need to be outward oriented, namely that regions need to look beyond their administrative borders and adopt strategic decisions taking into account their position in relation to the national and international context. This contrasts with previous strategies, which were seen as lacking an international and transnational perspective, often leading to ‘blind duplication’ of investments, lack of synergies and insufficient critical mass (European Commission 2012).

Despite its sheer scale of implementation and transformative potential, the evidence available so far suggests that S3 is a somewhat ‘incomplete’ industrial policy (Morgan, 2017b), with a number of administrative, political, institutional obstacles limiting its effective implementation. S3 has been implemented in regions with different structural challenges to technology upgrading, as well as different institutional contexts and capacity (Capello and Kroll, 2016; Capello and Lenzi, 2016a; Iacobucci, 2014; Pugh, 2014; Radosevic and Stancova, 2015). Whilst the logic of S3 seems to work well in the context of developed countries and regions, its application in peripheral regions has proven more challenging, suggesting a persistence of the so-called European regional innovation paradox (Oughton et al., 2002). As Capello and Kroll (2016, p. 1396) note, smart specialisation has so far “failed to explain concretely how the concept could provide a common political rationale for a socio-economically and territorially diverse set of regions and nations”

Many regions lack the institutional capacity needed to enable the identification and support of specific sources of technological opportunities. As a result, specialisation

is often defined very widely, with too many priorities that are too broad to support productive transformations through industrial diversification (Iacobucci 2014; Kroll 2015; Sörvik and Kleibrink, 2015; Radosevic 2017). Lack of institutional capacity may also inhibit participatory practices supporting the entrepreneurial discovery process, leading to a continuation along previous paths rather than an entrepreneurially-grounded exploration of future domains of specialization (Capello and Lenzi 2016; Kroll 2015; Pugh 2014). Further, administrative requirements and funding rules severely limit the novel and experimental nature of S3. As Morgan (2017a) notes, there is a disconnect between the rhetoric of S3, in terms of advocating a smarter, more agile and more experimental state, and the reality of a public sector that is ill-equipped to deal with novelty and experimentation.

Finally, evidence shows that strategies are mostly inward oriented, lacking a “strategic approach to trans-regional collaboration” (Radosevic and Stancova 2018, p. 266). The outward looking dimension has been identified as the least developed part of the overall smart specialization policy apparatus, particularly in less developed regions. Looking at Italian regions, Iacobucci and Guzzini (2016) found that inter-regional connections between the chosen domains was a neglected area of analysis in S3 documents, with a lack of analysis of “actual and potential connections with other regions”. According to Radosevic and Stancova (2018), this dimension is not generally viewed as potential vehicle of innovation and growth, due to a poor understanding of the opportunities afforded by trans-regional cooperation, or to insufficient interest or capacity to explore and support trans-regional cooperation. They note that the outward looking dimension is restricted to the early design and more upstream activities of S3, neglecting other activities (including the international dimension of policy mix design and evaluation). Using an EU-wide survey, Sorvik et al. (2016) also found that the most common activities for interregional collaboration are related to information-sharing and policy learning, followed by cluster and innovation network initiatives. Further, despite the possibility that ERDF rules allow to spend up to 15% of the funds outside the programme<sup>1</sup>, this is rarely taken up (Gianelle et al., 2016). In the next section we further address these dimensions.

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<sup>1</sup> Under article 70(2)(c) of the Common Provisions Regulation, regions can fund actors from another region with up to 15% of the total funds for the priority axis if the benefits from

## Unpacking outward facing innovation policies

Inter-regional collaboration for innovation and innovation-driven growth has been associated with a number of positive effects (OECD 2013; Uyarra et al. 2014; Miörner et al. 2017) including greater scale, scope and spillover effects, by building up critical mass and helping regions to exploit synergies and offset potential market and coordination failures limiting investment and growth (Rodrik 2004).

Collaboration has also been seen to address *lock-in and learning failures* (Smith, 1997) that arise due to excessive specialization and insufficient *connectivity* (Bathelt et al. 2004; Capello and Lenzi 2016), or *competence or capability failures* hindering innovation in certain regions, for instance as a result of poor access to specialist services or specialist infrastructure. Less developed regions may lack the scale and specialist skills and expertise to provide knowledge intensive services and funding opportunities (Pinto et al., 2015). External connectivity can enhance the pool of resources for innovation available to firms across regions, by enabling sufficient capacity and scale to run specialist facilities and services, and avoid duplication and unnecessary fragmentation of investment. It can also enable *policy learning*, particularly between peripheral (or lagging) regions and ‘core’ regions, and help prevent *government and institutional failures* associated with myopia, inertia and policy capture, factors which are likely to undermine the “drive for resource prioritization and concentration” of smart specialisation (McCann and Ortega-Argilés 2015, p.1299).

Collaborating beyond existing administrative and organisational boundaries can take many forms and degrees. For instance Braun (2008), following Peters (2006), draws a distinction between ‘negative’ and ‘positive’ coordination. While the former refers to the mutual adjustment of actors aimed at avoiding, or at least minimizing, duplication and overlap of initiatives, the latter involves specific cooperation or concerted action. More advanced stages involve the coordination of policy goals (‘policy integration’), or of visions and strategies (‘strategic coordination’). Using slightly different terminology, Edler (2010) differentiates between the notions of

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this collaboration exceeds 5%. However the costs need to be shared on a pro rata basis by both regions' Operational Programmes.

‘cooperation’, or bringing different elements into a ‘harmonious’ or efficient relationship, ‘collaboration’, with two or more partners working together on distinct project in pursuit of a common goal, and ‘integration’ involving greater transfer of competences and even a common governance structure.

Lundquist and Trippel (2013) note how cross-border cooperation usually begins on a bottom-up basis involving exchange of data and information, and then move on to experiment with one-off collaborative projects, to open up programs to allow collaboration with firms or universities located across the border, and eventually develop a comprehensive and integrated strategic innovation policy approach for the cross-border area. Outward orientation in the context of S3 can also be seen as a continuum (Uyarra et al., 2014; Gianelle et al., 2016). It may be limited to ‘negative coordination’, or the sharing of information of policies and good practices to enable mutual adjustment, or at least awareness of, other regions’ priorities and policy mixes. It can involve ‘positive coordination’, for instance aligning funding programme conditions and other schemes such as mobility incentives for researchers, sharing of programmes or structures across borders, joint delivery of specific services, and other concrete, ad hoc, collaborative projects. More active policy collaboration (or policy integration) may take the form of longer-term strategic programmes or actions involving joint funding to address common problems. Finally, collaboration may be more far-reaching and involve joint regional innovation strategies that are commonly designed, funded and implemented by the partner regions.

Policy integration does not always progress in a linear and concerted way however. As Candel and Biesbroek (2016) suggest, its evolution can be asynchronous, inconsistent and multi-layered, influenced by policy path dependencies, lack of political will, or insufficient resources to proceed. They also remind us of the pivotal role that certain actors, especially policy entrepreneurs, play through social learning and coalition building. Agency-centred mechanisms influence advances in policy integration, but may also explain its reversal. ‘Disintegration’ can also occur resulting from frictions between actors and institutions, changing ideas, new paradigms, or the perception that the policy problem has been addressed.

The literature is also rich in examples of obstacles to interregional collaboration, including geographical, cultural, institutional, political and economic barriers, mainly in relation to cross-border collaboration. Among them, regulatory and institutional differences across jurisdictions are viewed as constraints that can entail an opportunity

for collaboration (Miörner et al. 2017; Van den Broek et al, 2018), for instance differences in the rules governing intellectual property protection, standards, technology transfer, the evaluation of academic research, and funding for R&D. Policy integration, particularly in cross-border settings, may also be hindered by differences in the multilevel institutional architecture, including differences in coordination between the regional and state levels (Van den Broek and Smulders 2015; Grillitsch 2015). Collaboration has also been found to be influenced by informal institutions, including differences in working cultures, language barriers, low levels of trust and fears of competition (Koschatzky 2000; Trippel 2010); or by functional barriers due to different distances from the technology frontier (Lundquist and Winther 2006; Maggioni and Uberti 2009).

Other challenges include the absence of a shared vision and engagement from key stakeholders, insufficient resources or competences needed to work inter-regionally, or a lack of political commitment (OECD 2013). The latter may be due to pressures on policy makers to ensure that benefits from investments are captured in their region. Lack of clarity in the objectives and benefits of collaboration, or the absence of data and indicators suitable for the monitoring and evaluation for these activities have also be found to hinder collaboration (OECD, 2013; Uyarra et al., 2014). Border challenges and barriers may change over time however; for instance Van der Broek et al. (2018) observed a reduction of the blocking effects of the Dutch-Flemish border over time as the potential benefits of collaborating became ‘more concrete and achievable’.

Finally, new relationships are difficult to form, and as a result collaboration may be hindered by relational inertia and path dependency (Capello and Lenzi 2016; Muller et al. 2017). However relational and institutional inertia strongly limits but does not fully prevent change, and in this change there is a major role for individual agency (Gertler, 2010, pp.7–8). As mentioned earlier, paying attention to these barriers should not blind us to how purposeful, agency-centred mechanisms such as policy networks may work to counteract, seek alternatives and even work to change informal institutions influencing policy integration through collective action (Miörner et al. 2017; Sotarauta, 2018). Reflecting on the collaboration activities of the province of Limburg, Severijns (2017) highlighted the importance of having a ‘person/problem owner/project champion’ driving these projects and bridging the gap between policy definition and implementation.

## **Methodology**

The empirical strategy developed for this work is two-fold: it collects novel data through a survey to gather systematic information concerning inter-regional collaboration in research and innovation strategies, and then it delves further into the patterns of inter-regional collaboration in research and innovation (R&I) policies with interviews. In doing so, the work adopts a mixed method design that combines the results of a bespoke on-line questionnaire with a series of in-depth interviews. One advantage of this design is that while exploring commonalities across regions, it then qualitatively investigates the analytical differences emerging from the data. Thus, although the work adopts an exploratory perspective, its contribution tries to move beyond the cross-sectional nature of the information and tests the motives guiding respondents' choices of implementation of R&I policy collaboration.

### ***Survey design***

The population of interest for the survey is EU regions and associated countries. Accordingly, the sampling frame is drawn from the S3 Platform,<sup>2</sup> which at the time of the analysis included representatives for 151 EU Regions and fourteen national level representatives, equivalent to more than fifty percent of Europe's regional areas. The survey targeted respondents among the public organisations involved in developing and implementing S3, such as managing authorities and regional development agencies, to capture relevant factors spanning from individual experience. The survey was first piloted and then carried out between March and September 2015 (see Sorvik et al., 2016). The questionnaire followed a circular approach. Respondents were first asked if they experienced collaboration in the five years previous to data collection. Those who had were then questioned about instruments, drivers, barriers and perceived outcomes of the collaboration. Conversely, respondents who had not collaborated were asked only about the barriers that may have hampered collaboration from taking place. This follows

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<sup>2</sup> The Smart Specialisation Platform provides professional advice to EU countries and regions for the design and implementation of their research and innovation strategies for smart specialisation (RIS3). <http://s3platform.jrc.ec.europa.eu>



the idea that while initiating a collaboration process, barriers can emerge and be successfully overcome or can emerge and not be overpowered. Accordingly, those who failed in establishing a collaboration process were also surveyed in order to gain a rounded perspective on the factors inhibiting inter-regional collaboration.

To address the breadth of collaboration practices within EU regions and support consistency, comparability between answers and the internal validity of the survey, the work adopts a definition of inter-regional collaboration in innovation policy as “*one or more regions (within and between countries) coordinating the design, jointly funding and/or managing a particular policy scheme*”.

With this scope in mind, the survey looked at a range of policy instruments employed while implementing regional collaboration. These include both low-intensity activities related to information sharing and analysis and more intense collaborative efforts such as funding or demand side policies (Table 1).

#### TABLE 1 AROUND HERE

The survey collected 102 responses from fifty-three regions in twenty-four member states plus two associated countries. This corresponds to twenty-two percent of all the representatives registered in the S3Platform. In relation to the sampling strategy adopted, a caveat should be introduced with regards to issues of self-selection and responded biases arising from survey based approaches (Olsen 2011). In particular, this concerns the risk of having a majority of respondents that have had either very positive or very negative experiences associated with inter-regional collaboration and thus would provide skewed representation of the overall underlying population of interest. However, as McCann and Ortega-Argilés (2016) note, surveys can nevertheless represent the best evidence that we have to provide a picture that is broadly reflective of what is actually happening on the ground.

Table 2 contains descriptive statistics on the respondents’ characteristics. The survey answers were balanced across North and Central, Eastern and Southern EU regions. Respondents were mainly representatives from managing authorities, regional development agencies, and innovation agencies. Almost all had a Smart Specialisation Strategy in place (78%) or in development (13%) and/or a different kind of R&I strategy at the time of the survey (54%).

The majority of respondents were experienced officials who worked with regional innovation policies for at least two years (64%). More than half of them

reported their region had engaged in interregional policy collaboration within the last five years (54% or N= 55). The regions that do collaborate are also becoming more intensively involved in collaboration over time, with 69 % reporting that collaboration intensity increased in the previous 2 years and 30 % reporting a stable level of activity.

TABLE 2 AROUND HERE

### ***Interviews***

A series of telephone interviews with selected respondents was set up after the data analysis covering a representative overview of the sample. Fourteen interviews were carried out between February and June 2016 (see annex 1). Each telephone interview lasted between forty-five minutes to one hour and targeted regional authorities that had either active experience of collaboration in R&I policy or encountered barriers to implementing collaboration. The interviews focussed on the experiences matured in relation to S3 and put particular emphasis on the outward looking feature of the collaboration strategy in terms of development and implementation. In line with the survey design, the interviews collected complementary information on drivers of collaboration in relation to content and partner's selection, and on challenges encountered in the design and implementation stage of the process. Finally, respondents were asked to provide examples of policy areas where collaboration took place and further insights on the nature of the collaborations developed with other regions.

### ***Methods***

The present work is exploratory in nature and it aims to find systematic evidence of the commonalities associated with drivers and barrier of inter-regional policy cooperation. In order to identify such patterns, we analysed reported characteristics favouring or hindering inter-regional collaboration by means of Factor analysis. Most specifically, given that the answers to the survey are categorical values, we used a Factormat analysis with Quartimax rotation retaining those factors with Eigenvalue above one (Hair et al. 2016). Results are interpreted focusing on groups of EU-regions distributed as: North and Central EU (Austria, France, Germany, Netherland, Denmark, Belgium, United Kingdom, Sweden, Finland, Norway); Eastern EU (Bulgaria, Romania, Hungary, Poland, Czech Republic, Slovakia, Estonia, Slovenia); and Southern EU (Portugal, Greece, Spain, Italy, Croatia, Malta). This choice is in line with other

literature (Kroll 2015; Szerb et al. 2013), and aims to facilitate contextualisation and comparability (Camagni et al. 2014), and to identify differences in the way S3 is interpreted and implemented across Europe.

The following sections will discuss the aggregate results making use of both the survey and interviews material. In particular, we will analyse instruments of collaboration, drivers, and barriers to then propose a reflection on the communalities arising in the implementation of collaboration practices as well as emerging differences between aggregated regions in the EU.

### ***Instruments, Drivers and Barriers***

The outward orientation of S3 can involve the use of a range of mechanisms and tools for coordination and mutual adjustment (Table 3). These instruments offer different degrees of commitment to inter-regional collaboration ranging from information sharing to forms of longer-term programmes involving joint funding or regulation setting. Respondents reported extensive use of information sharing and analysis and joint platforms for dialogue in R&I, as well as instruments to support business connectedness in terms of mobility of resources, knowledge transfer and collaborations around infrastructures for research. Some surveyed regions also showed to be involved in more forward looking and structured forms of collaboration such as the reciprocal alignment of priorities and strategies, or the funding of private R&D and venture capital schemes.

TABLE 3 AROUND HERE

Providing better support to improve industry connectedness, establishing linkages and exploiting new markets and technological opportunities were the most frequently reported drivers of inter-regional collaboration (Table 4). S3 was employed to create connections to international pipelines and increase regional visibility while re-orienting regional policy and sharing good practices.

TABLE 4 AROUND HERE

At the other end, collaboration seems to be mostly hampered by barriers related to financial resources (Table 5), followed by a perceived lack of commitment in the policy arenas both at the national and regional level. Interestingly, previously reported cultural

barriers, such as language and socio-cultural mismatch do not seem to play a great role for the S3 development, albeit wide differences are reported in responses between geographical areas. For instance, lack of resources and experience or cultural barriers to collaboration are more problematic in Southern EU regions than in Northern EU. Similarly insufficient engagement at the national level affects more deeply Eastern EU than other regions in the South or North.

TABLE 5 AROUND HERE

### ***Differences and Commonalities across EU regions***

The results discussed above bring to light the interconnectedness of the outward looking feature of S3. This is confirmed by further analyses that look at the underlying commonalities across drivers and barriers and investigate their patterns in relation to hampering or supporting S3 strategies.

The internal consistency of the drivers of collaboration returns good results (Cronbach's alpha: 0.87). The drivers of collaborative processes are fully presented in Table 6 that shows results of the Factor analysis and the loading of the retained components<sup>3</sup>. Drivers of collaboration seem to be mostly pushed by *policy learning* (0.914), particularly sharing experiences and good practices. A number of interviews referred to the advantages of mutual learning, and the benefits from increased capabilities and knowhow for innovation policy making. As one interviewee noted, learning from good practices was particularly helpful "at a time when we were designing the strategy".

A second relevant factor in driving collaboration is linked to instruments improving business *connectedness* both in terms of expanding companies' capabilities (by exploiting technological opportunities or support linkages with R&I) and exploiting new markets. Inter-regional collaboration in this instance is perceived to lead to greater

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<sup>3</sup> Given the size of the sample and according to relevant literature (Hair et al. 2016), comments on the factors for both drivers and barriers are offered only for those components that present a threshold value in the factor loading meaningfully above 0.4

business connectivity, improved service provision and access to markets by linking industry with research. Particularly this matches behaviours where collaboration entails the further exploitation of technological opportunities (0.952) and the expansion of incumbent firms to new markets (0.899). This is expected and seems to reflect a capacity of collaboration in S3 to contribute to entrepreneurial discovery processes by following the actual geographies of business rather regional administrative boundaries and in so doing tackle the aforementioned learning and connectivity failures hindering innovation.

#### TABLE 6 AROUND HERE

Finally, a third commonality driving inter-regional collaboration is associated with the more upstream motivation of achieving greater research *critical mass* (0.875) and research expertise (0.482). Many interviewees have reported that the ex-ante conditionality process, which required a SWOT analysis of the regional strengths and weaknesses, had made them reflect on their positioning compared to other regions. This was deemed a useful exercise “*in terms of understanding which regions would be good to work with*”. Respondents look at cooperation as a way to acquire complementary skills, access researchers and new technology providers. Broadly, they want to collaborate with partners with useful complementary knowledge, or as stated by one interviewee “*The regions you want to collaborate with must be at the same level or a little better. They must have something you want. Ideally we want an advanced partner*”.

Naturally, broad differences exist on the relevance of each of those macro-drivers across EU regions. Table 7 reports values on the average scores of the three retained factors by North & Central, East and South EU regions, illustrating how much within those areas the common drivers are perceived as more or less important. For instance, policy learning drives collaboration mostly in Eastern EU regions. Establishing a critical mass for research and innovation is a priority for the Southern regions, and while across the whole sample increasing the capacity to support companies’ connectedness in terms of access to resources and new markets is the principal reason to engage in collaboration, Southern EU respondents feel more strongly about it than Eastern or North & Central regions.

#### TABLE 7 AROUND HERE

In terms of barriers, our results confirm there is underlying commonality also among factors hampering the process of development (Cronbach's alpha: 0.78). Table 8 presents the results of the Factor analysis on barriers to R&I policy collaboration. In this instance the two retained factors (with Eigenvalue above 1) load characteristics associated with lack of institutional commitment and lack of competences and capabilities in terms of articulation of objectives among the relevant actors.

The lack of institutional commitment emerges as the most relevant barrier, for interviewees reported many difficulties in garnering political attention and securing buy-in from regional stakeholders. They described a strong political resistance to form new collaborative networks and open up funding to other regions: *“There is a rule that you can spend a % of your ERDF money on partners outside of your region. But all secretariats and all partners firmly believe they should spend the money in their own region. Nobody is using it”*. Such efforts are hampered by a path dependent *“old fashion way of thinking”*. As expressed by one interviewee, *“stakeholders tend to be inward looking so communication with them is an issue. Some stakeholders are just too ‘old’ and they don’t want to change their ways or don’t see why they should.”*

As was pointed out by another regional representative, *‘there is a strong inertia in collaboration, and a lot of old thinking preventing us from forging new partnerships’*. While some regions are getting involved in more collaborative projects than in the past, these are not, according to another regional representative *“necessarily with the regions identified in the strategy”*. This is because *“there are transaction costs for collaborating and it takes time to find a good partner. [...] We have established a club of regions, because they have gained experience on how to collaborate.”*

As an example of this relational inertia, interviewees discussed how a collaboration initiative between North East Romania and Northern Netherlands was initially met with strong resistance. This was successfully overcome by securing funding and support from the European Commission for a pilot project that could start to prove both the benefits and the rationale of collaborating in terms of advancing common priority areas and supply chains (around e.g. agro food, waste, water, new

materials and energy). Several interviews also mentioned the Vanguard Initiative<sup>4</sup> as a successful example of securing political buy-in, for it requires support from the highest political level from each participating region. Such political commitment has been perceived to increase the legitimacy of the process and create an incentive for stakeholders to engage.

Some of the main barriers to collaboration in Smart Specialisation are linked to administrative procedures of funding programmes. The complexity of available funding instruments for research and innovation in terms of different priorities, eligibility rules, funding levels and regulatory procedures, has been reported to prevent regions from adopting a more strategic and joined-up approach to collaboration. This is aggravated by a perceived lack of administrative clarity around the rules and conditions for collaboration in S3, *“there are no rules of how to start these interregional collaborations. When you don't have any rules or methodologies, everybody has to find their own way of how to approach this. It is not clear what is allowed, how you should do it and so on and so forth”*.

Another institutional challenge is the asymmetric levels of political autonomy across regions. For example, a respondent from Southern EU reported challenges in collaborating with a border region from another country due to differences in decision-making capacity, with one region requiring the involvement of their national authorities before any commitment to collaboration. Similar sentiments have been expressed by Northern regions.

#### TABLE 8 AROUND HERE

The second factor points to barriers associated with competences and capabilities. Particularly, the factor loads a pattern driven by the mismatch of objectives and incentives, the asymmetry in political competence and the lack of clarity of the objectives of collaboration. There is a failure in recognising mutually beneficial opportunities from collaboration, i.e.: in identifying *“what are the benefits, where is our profit? Who is profiting from it?”*

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<sup>4</sup> This is an initiative where several EU regions collaborate based on their Smart Specialisation strategies, <http://www.s3vanguardinitiative.eu/>

There is a general perception that collaboration is “*very time-consuming and requires a lot of resources*”, particularly in the southern European regions where resource constraints have been severe for authorities hit by austerity budgets. As a result, while there is an acknowledgement of the opportunities available, many respondents feel unable to act upon them, due to a reported lack of resources, for instance a shortage of staff to engage in collaborative processes, but also lack of *capabilities and knowledge of the current staff* around the processes required to collaborate internationally. This is an observation in many EU regions and not only the Southern ones. .

Again, barriers are perceived differently in different spaces, and although all respondents felt institutional capacity to commit is the strongest factor impeding collaboration, results point out that this is particularly so in Eastern EU regions, while a gap in competences and capabilities hampers more Southern EU than Eastern and North & Central regions respectively (Table 9).

TABLE 9 AROUND HERE

## **Discussion**

The ex-ante conditionality of S3 entails that regions now have a mandate to develop innovation policies that are more selective and strategic. This includes the adoption of an outward looking orientation and a more strategic approach to interregional collaboration.

Our findings suggest that the way this mandate has been interpreted and articulated varies significantly, and that a number of common factors contribute to driving and blocking regions’ capacity to develop R&I policy collaboration.

While regional strategies seem to be increasingly outward looking, this seems mostly restricted to ‘negative coordination’ (Braun, 2008) around the identification of key domains, the alignment of priorities and policy learning networks. Existing exchange platforms supporting mutual learning activities such as ERRIN<sup>5</sup> and the S3

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<sup>5</sup> ERRIN is a Brussels-based platform of around 120 regional stakeholder organisations promoting knowledge exchange and joint actions and partnerships to strengthen regional research and innovation capacities.



Platform (S3P) and peer-review exercises are deemed valuable to improve regional capacities for policy implementation, monitoring and data collection. A number of interregional collaborative projects aimed at improving S3 effectiveness have enabled regions to share good practices and aid the implementation of S3 processes. One example is provided by the Interreg Europe project ‘Beyond EDP’ or the Interreg ‘KNOWHUB’ project, aimed at addressing shortages of experience in designing and implementing S3.

Beyond dissemination, mutual learning and awareness-raising platform activities, connectivity seems to be limited. There is little evidence of ‘positive coordination’ (Braun, 2008) beyond specific projects, for instance by opening up eligibility criteria of programmes to other regions, or sharing programmes or structures across borders. Exceptions to the latter include cross-border and interregional initiatives such as the collaboration between Norte in Portugal and Galicia in Spain who have co-developed a joint S3 strategy, the strategic partnerships between North East Romania and Northern Netherlands, or the networks forged within Vanguard Initiative and the Thematic Platforms, trying to build joint platforms where innovation activities can be coordinated and funding aligned for joint work in identified strategic areas.

The broad drivers and perceived benefits of interregional collaboration identified by our respondents echo previous research on the advantages of adopting a more outward looking innovation policy (Uyarra et al, 2014; Miörner et al, 2017). This suggests an increased appreciation of the importance of collaboration to build critical mass and exploiting synergies with similar and/or complementary knowledge. However, moving beyond the mere awareness of other regions’ strategic priorities and good practices into concrete actions, and even more so transitioning towards longer term partnerships and integrated policies and strategies, is a challenging enterprise. Such efforts are often stalled by a number of barriers such as lack of political commitment, differences in multilevel institutional architecture as well as relational and institutional inertia (Van den Broek and Smulders 2015; Capello and Lenzi, 2016).

Strong inertia prevents the formation of new collaborations. Many regions have extensive experience in cross-border collaboration in the context of Interreg and macro-regional strategies and are relying on those networks to explore opportunities rather than seeking new partnerships based on the identified S3 priorities. Relational inertia is aggravated by a lack of political commitment from one or both sides and from difficulties interviewees reported in securing buy-in from other stakeholders, as found

in previous studies (e.g. OECD, 2013). Particularly, it is difficult to explain the direct benefits and objectives and align goals across different stakeholders working with different time frames and incentives. In some instances project networks are formed because there is available funding, but the need for the project activity is not deeply rooted in stakeholder needs. There is also a dearth of clear guidelines and good examples showing the benefits and reducing the uncertainty regarding collaboration. Regional administrators, but also other actors, tend to be averse to change as a result.

Finally, some of the main barriers to collaboration emerging from our findings are linked to administrative procedures of funding programmes hindering policy integration. As one interviewee put it, operational programmes are not designed to enable interregional collaboration, adding that “*we did not really program our money in a way that makes it possible for partners from abroad to work with us*”.

There is a perceived mismatch between the experimental concept of S3, which envisions a systemic and joined-up approach in developing roadmaps and mixes of policy interventions in coordination with other stakeholders, and the more traditional approach of funding through calls for independent non-connected projects. The plethora of collaboration programmes for research and innovation is extensive and creates incongruities between partnerships to pursue, objectives and priorities of S3 and the eligibility criteria and conditions of other available funding programmes. Respondents have lamented this lack of flexibility that hampers options to fund innovative projects from different sources and ultimately restricts chances of greater synergy and alignment of regulatory procedures between funds and more flexibility for the support the S3 priorities.

However, attitudes towards these inter-regional links appear to be changing. On the one hand, there is an increased awareness of the need to be more selective and strategic. Some respondents recognise that collaboration in the past was often driven by inertia or funding availability but have, as a consequence of S3, started to be more selective and think more strategically about their interregional links. On the other side there is an appetite among many regional practitioners to move forward to stronger forms of collaboration. They consider that previous collaborative initiatives had been too project and platform-based (Interreg) and insufficiently connected to S3 objectives, thus failing to enact a transformative effect. Respondents expressed a desire to move beyond temporary alliances around specific projects and build longer-term collaboration structures and frameworks with selected regions.

Collaborative efforts, like other dimensions of S3 such as entrepreneurial discovery processes, are not just technical but social and political processes (Sotarauta et al, 2018), shaped by individuals able to change the social networks and institutions in which smart specialization is embedded. In the above examples of ‘against the odds’ strategic collaborations, interviewees pointed out to the importance of enterprising individuals in driving change, in terms of capability to build networks, mobilise and link up resources and garner political support through lobbying and collective action, in other words actors who “navigate and/or remove the policy traps towards collective action” (Sotarauta, 2018; p.200).

## **Conclusions**

This paper has dealt with the conceptual gap that exists in understanding the rationales and drivers of outward oriented policies, and a perceived mismatch between the aspirations of a more integrated policy framework and the policy capacity to deliver it.

Our analysis suggests that, while there is greater awareness about the need to adopt a global outlook in the definition of priorities and strategies, this outward orientation is not necessarily well understood and translated in concrete actions, nor aligned to S3 priorities. The principle of outward orientation is therefore far from being mainstreamed in strategic thinking and embedded in the definition of action plans for smart specialisation.

Our results have concrete implications for regional innovation policy and strategies. This includes more active support by national governments to interregional and cross border R&D activities and a consolidation of mutual learning platforms and communities of practice. To complementing capacity building efforts, greater support could be given to the exchange of expert practitioners and regional champions that could act as mentors to other regions.

But connectivity needs to go beyond dissemination and learning activities and involve both upstream and downstream activities, including business support that considers the actual geographies of innovation and entrepreneurial discovery processes rather than administrative boundaries. Successful experiences such as the Vanguard Initiative could also be strengthened and extended to include broader regions, particularly less favoured ones.

We found that collaboration takes many forms, over diverse geographies and for different reasons, which contrasts with the often rigid boundaries and eligibility

conditions of funding mechanisms. As the Commission moves forward to the design of the new S3 period after 2020, there is an opportunity to boost its international dimension, learning not only from implementation failures but also from the ‘entrepreneurial discovery’ efforts in certain regions, whose project champions and place-based leaders have been able to seize collaboration opportunities with strategic partners, often without funding. Besides revising the priorities, processes and structures of S3, a closer attention to the political and human dimension of S3 implementation is needed.

This work represents a first attempt to unpack the challenges, differences and varied contributions of smart specialisation and its capacity to develop the foundations for a more comprehensive framework for inter-regional collaboration across EU regions. However, there are limitations associated with the granularity of the analysis and the novelty of the data collected, and the inherent subjectivity of survey data. In relation to the former, future analyses should move beyond the comparison of North, East, Central and Southern EU regions and explore collaborations at a more micro level as well extend their reflections to all the stakeholders involved in the process. Also, future analyses should look at the outcomes and performances of inter-regional collaboration, distinguishing the impact of different degrees of cooperation practices on the regional economy as a whole. This would allow understanding to which extent S3 can create inter-regional synergies and how those play out in terms of additivity and complementarity with other established programmes of R&I collaboration.

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## ANNEX 1



Table 1: Inter-Regional instruments for collaboration in R&I policies

<i>Inter-Regional instrument for collaboration in R&amp;I policies</i>	
<i>Sharing information</i>	
<i>Policy peer review / Benchmarking</i>	<i>Information sharing and analysis</i>
<i>Joint platforms for dialogue on R&amp;I</i>	
<i>Monitoring and evaluation of R&amp;I policies</i>	
<i>Alignment of rules and conditions of R&amp;I support</i>	
<i>Coordination of R&amp;I priorities</i>	<i>Alignment of priorities and strategies</i>
<i>Development of Cross-border R&amp;I strategies</i>	
<i>Foresight</i>	
<i>Technical services and other business support</i>	
<i>Mobility schemes between academia and industry</i>	
<i>Other knowledge transfer</i>	<i>Policy instruments</i>
<i>Collaboration around research infrastructures</i>	
<i>Technology transfer infrastructure</i>	
<i>Cluster and innovation network initiatives</i>	
<i>Funding for private and collaborative R&amp;D</i>	<i>Funding</i>
<i>Early stage finance/ Venture capital</i>	
<i>Setting of standards/regulation</i>	<i>Demand side</i>
<i>Public procurement of innovation</i>	

Table2: Collaboration patterns

<b>Patterns of Inter-Regional collaboration in R&amp;I</b>	<b>North &amp;</b>			
	<b>Central</b>	<b>East</b>	<b>South</b>	<b>Total</b>
<b>Collaboration activity of the Region (last 5 years)</b>	<b>(%)</b>	<b>(%)</b>	<b>(%)</b>	<b>(%)</b>
<i>No</i>	13.72	13.73	18.63	46.08
<i>Yes</i>	21.57	15.69	16.67	53.92
<i>Total</i>	35.3	29.41	35.29	100
<b>Respondent – Collaboration experience</b>	<b>(%)</b>	<b>(%)</b>	<b>(%)</b>	<b>(%)</b>
<i>0-6 months</i>	0.98	0	0	0.98
<i>6-12 months</i>	0.98	2.94	0.98	4.9
<i>1-2 years</i>	3.92	11.77	14.72	30.41
<i>2-5 years</i>	14.8	7.84	7.83	30.38
<i>More than 5 years</i>	14.7	6.86	11.76	33.33
<i>Total</i>	35.3	29.41	35.29	100
<b>Change in regional collaboration in previous 2 years</b>	<b>(%)</b>	<b>(%)</b>	<b>(%)</b>	<b>(%)</b>
<i>Increased</i>	28.30	24.5	18.8	69
<i>Stayed the same</i>	11.32	5.6	11.3	27
<i>Total</i>	39	30	30	100

(N= 102)

Table 3: Instruments

<b>Instruments for Inter-Regional collaboration in R&amp;I</b>		<b>North &amp; Central</b>	<b>East</b>	<b>South</b>	<b>Total</b>	
		<b>(%)</b>	<b>(%)</b>	<b>(%)</b>	<b>Row (%)</b>	<b>Group (%)</b>
<i>Information sharing and analysis</i>	<i>Sharing information</i>	18.62	14.71	15.69	49.02	30.06
	<i>Policy peer review / Benchmarking</i>	10.78	6.86	8.82	26.47	
	<i>Joint platforms for dialogue on R&amp;I</i>	15.68	7.84	12.75	36.27	
	<i>Monitoring and evaluation of R&amp;I policies</i>	11.76	9.8	10.78	32.35	
		<b>(%)</b>	<b>(%)</b>	<b>(%)</b>	<b>Row (%)</b>	<b>Group (%)</b>
<i>Alignment of priorities and strategies</i>	<i>Alignment of rules and conditions of R&amp;I support</i>	9.8	2.94	7.84	20.59	19.63
	<i>Coordination of R&amp;I priorities</i>	12.74	2.94	11.76	27.45	
	<i>Development of Cross-border R&amp;I strategies</i>	11.76	2.94	9.8	24.51	
	<i>Foresight</i>	9.8	2.94	8.82	21.57	
		<b>(%)</b>	<b>(%)</b>	<b>(%)</b>	<b>Row (%)</b>	<b>Group (%)</b>
<i>Policy instruments</i>	<i>Technical services and other business support</i>	10.78	3.92	7.84	22.55	34.76
	<i>Mobility schemes between academia and industry</i>	6.86	4.9	9.8	21.57	
	<i>Other knowledge transfer</i>	7.84	2.94	6.86	17.65	
	<i>Collaboration around research infrastructures</i>	14.7	6.86	11.76	33.33	
	<i>Technology transfer infrastructure</i>	12.74	8.82	8.82	30.39	
	<i>Cluster and innovation network initiatives</i>	17.64	10.78	12.75	41.18	
		<b>(%)</b>	<b>(%)</b>	<b>(%)</b>	<b>Row (%)</b>	<b>Group (%)</b>
<i>Funding</i>	<i>Funding for private and collaborative R&amp;D</i>	12.74	8.82	8.82	30.39	9.82
	<i>Early stage finance/ Venture capital</i>	9.8	3.92	6.86	20.59	
		<b>(%)</b>	<b>(%)</b>	<b>(%)</b>	<b>Row (%)</b>	<b>Group (%)</b>
<i>Demand side</i>	<i>Setting of standards/regulation</i>	1.96	7.84	2.94	12.75	5.73
	<i>Public procurement of innovation</i>	7.84	2.94	3.92	14.71	

(N= 102)

Table 4: Drivers (very important)

Drivers of Inter-regional collaboration in R&I	North & Central	East	South	Average
	(%)	(%)	(%)	(%)
<i>Share policy good practices and experiences</i>	32.73	27.27	27.27	29.09
<i>New orientation of regional policy</i>	23.64	20	23.64	22.43
<i>Increase regional visibility</i>	21.82	10.91	16.36	16.36
<i>Solve common socio-economic problems</i>	12.73	7.27	12.73	10.91
<i>Achieve critical mass in research</i>	9.09	3.64	16.36	9.70
<i>Access to research expertise</i>	12.73	5.45	12.73	10.30
<i>Share costs and risks</i>	3.64	0	14.55	6.06
<i>Support linkages between R&amp;I and industry</i>	20	14.55	21.82	18.79
<i>Support industry in exploiting tech opportunities</i>	18.18	10.91	14.55	14.55
<i>Support industry in exploiting new markets</i>	21.82	9.09	9.09	13.33
<i>Better/more integrated services for SMEs</i>	21.82	10.91	12.73	15.15

(N=55)

Table 5: Barriers (very important)

Barriers to Inter-regional collaboration in R&I	North & Central (%)	East (%)	South (%)	Average (%)
<i>Insufficient political commitment</i>	12.9	11.83	18.28	14.34
<i>Insufficient engagement of regional stakeholders</i>	12.63	11.58	14.74	12.98
<i>Insufficient engagement of national stakeholders</i>	3.3	13.19	7.69	8.06
<i>Legal or administrative barriers</i>	5.26	11.58	8.42	8.42
<i>Lack of trust between potential partners</i>	8.7	7.61	6.52	7.61
<i>Lack of resources (e.g. financial)</i>	13.27	15.31	21.43	16.67
<i>Lack of previous experience in policy collaboration</i>	3.23	6.45	11.83	7.17
<i>Lack of clarity of the objectives</i>	12.37	11.34	14.43	12.71
<i>Asymmetric incentives/ mismatch of objectives</i>	8.7	4.35	9.78	7.61
<i>Asymmetric levels of policy competence</i>	5.49	6.59	10.99	7.69
<i>Socio-cultural mismatch (language barriers)</i>	0	4.26	6.38	3.55

(N=102)

Table 6: Drivers of inter-regional collaboration (Factor analysis)

<b>Drivers of inter-regional collaboration (Main Factors)</b>	<b><i>Policy Learning</i></b>	<b><i>Critical mass</i></b>	<b><i>Supporting business connectedness</i></b>
<i>Share policy good practices and experiences</i>	<b>0.9142</b>	0.1885	0.1099
<i>New orientation of regional policy</i>	<b>0.3818</b>	0.0533	0.3708
<i>Increase regional visibility</i>	0.2497	0.1409	0.2176
<i>Solve common socio-economic problems</i>	0.0903	0.0703	0.2914
<i>Achieve critical mass in research</i>	0.1951	<b>0.8756</b>	0.4092
<i>Access to research expertise</i>	0.131	<b>0.4825</b>	0.6778
<i>Share costs and risks</i>	-0.0045	0.2974	0.5949
<i>Support linkages between R&amp;I and industry</i>	-0.0202	0.1778	<b>0.8332</b>
<i>Support industry in exploiting technological opportunities</i>	-0.2024	0.0737	<b>0.9529</b>
<i>Support industry in exploiting new markets</i>	0.3309	-0.128	<b>0.8993</b>
<i>Better/more integrated services for SMEs</i>	0.0156	0.0588	0.6828

Factor Analysis (Quartimax rotation) N=55. Alpha coefficient 0.87.

Factors extracted at Eigenvalue > 1. Proportion of explained variance 75%

Table 7: Drivers of inter-regional collaboration – Average values

<b>Drivers - Main factors</b>	<b>North &amp; Central</b>	<b>East</b>	<b>South</b>
<i>Policy Learning</i>	2.06	<b>2.35</b>	2.05
<i>Critical mass</i>	0.13	0.36	<b>0.76</b>
<i>Supporting business connectedness</i>	2.5	2.39	<b>2.68</b>

(N= 55)

Table 7: Barriers to inter-regional collaboration (Factor analysis)

Barriers to inter-regional collaboration (Main Factors)	Lack of institutional commitment	Lack of competences and capabilities
<i>Insufficient political commitment</i>	<b>0.844</b>	0.126
<i>Insufficient engagement of regional stakeholders</i>	<b>0.781</b>	-0.009
<i>Insufficient engagement of national stakeholders</i>	<b>0.528</b>	0.014
<i>Legal or administrative barriers</i>	0.251	-0.063
<i>Lack of trust between potential partners</i>	0.486	0.185
<i>Lack of resources (e.g. financial)</i>	0.34	0.015
<i>Lack of previous experience in policy collaboration</i>	0.137	0.134
<i>Lack of clarity of the objectives</i>	0.015	<b>0.693</b>
<i>Asymmetric incentives/ mismatch of objectives</i>	0.193	<b>0.843</b>
<i>Asymmetric levels of policy competence</i>	0.087	<b>0.736</b>
<i>Socio-cultural mismatch (language barriers)</i>	0.063	0.156

Factomat Analysis (Quartimax rotation). N = 102. Alpha coefficient 0.7

Factors extracted at Eigenvalue > 1. Proportion of explained variance 85%

Table 8: Barriers to inter-regional collaboration – Average values

Barriers - Main factors	North & Central	East	South
<i>Lack of institutional commitment</i>	2.16	<b>2.39</b>	2.28
<i>Lack of competences and capabilities</i>	1.56	1.5	<b>1.92</b>

(N=102)

## Appendix 1: Summary of interviews: Regions, Countries and Organisations

Region	Country	Organisation	Name
Andalucia	Spain	Regional authority	Junta de Andalucia
Castilla y Leon	Spain	Regional authority	Junta de Castilla y Leon
Cornwall	United Kingdom	Local authority	Growth Office
Dalarna	Sweden	Regional authority	Region Dalarna
Lithuania	Lithuania	National authority	Res. Infr. & Inn. Policy Monitoring
Lombardia	Italy	Regional authority	Regione Marche
Malta	Malta	Development agency	Information Technology Agency
Marche	Italy	Regional authority	Regione Lombardia
Niederösterreich	Austria	Regional authority	Dep. of Economic, Tourism & Technology
Noord-Holland	Netherlands	Development agency	Northern Netherlands Development Agency
Nord-Est	Romania	Development agency	ADR Nord-Est
Östergötland	Sweden	Regional authority	Region Östergötland
South Moravia-Brno	Czech Republic	Development agency	South Moravian Innovation Centre
Värmland	Sweden	Regional authority	Region Värmland
Weser Ems	Germany	Regional authority	Weser Erm Region