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# **Smart Specialisation at work: Analysis of the calls launched under ERDF Operational Programmes**

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## **Abstract**

The goal of this paper is to assess how and to what extent resources under Thematic Objective 1 (TO1) of national and regional Operational Programmes for the European Regional Development Fund (ERDF) were allocated to operations falling within the innovation and research priorities set in the respective national and regional smart specialisation strategies (S3) during the first phase of the 2014-2020 programming period. The analysis is based on information drawn from calls for proposals launched under 46 Operational Programmes in Italy, Poland, Portugal, Czech Republic, Hungary, Lithuania and Slovenia and published by 31 December 2016.

In particular, the study assesses the coherence of calls with S3 priorities; it also looks at the concentration of resources on priorities by calculating the share of ERDF-TO1 funding made available to S3-related projects through calls. Moreover, the analysis explores the range of S3 priorities tackled by individual calls for projects, identifies the policy instruments utilised and the types of beneficiaries targeted by those instruments.

The examination reveals that the S3 approach is being translated into practice from a formal point of view. In most of the examined calls, S3 alignment is a binding eligibility condition for funding. Nearly the total amount of the ERDF-TO1 resources made available through calls supports project proposals falling exclusively within S3 priority areas. This could be interpreted as positive evidence of improved prioritisation and more strategic spending patterns, yet results should be taken with caution given the relatively short time-span of the analysis.

**Keywords:** Regional innovation policy; smart specialisation; prioritisation; EU Cohesion policy

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## 1 Motivation and objectives

The existence of national and regional innovation strategies for smart specialisation (S3) is a condition of accessing resources for research and innovation for the current programming period (2014-2020) of the EU Cohesion policy. On the basis of a participatory approach (entrepreneurial process of discovery), regions across Europe and some Member States were required to identify a set of innovation priority areas on which to concentrate public support (European Union, 2013) <sup>(1)</sup>.

The identification of priority areas for innovation-oriented investment is a key principle of smart specialisation. According to the European Commission's guidelines for designing smart specialisation strategies, priorities should be defined as "domains, areas and economic activities where regions or countries have a competitive advantage or have the potential to generate knowledge-driven growth and to bring about the economic transformation needed to tackle the major and most urgent challenges for the society and the natural and built environment" (European Commission, 2012b).

Despite differences in the reception of the S3 agenda across the EU, and the difficulties encountered in economically weak regions with limited institutional capabilities, there is evidence of advancements in regional and national innovation policies' design and a high commitment to S3 ideas and process.

The S3 approach is making priority setting in territorial policy more participatory and transparent, while addressing coordination problems that would otherwise be unchallenged (Fraunhofer ISI 2013; Kroll *et al.* 2014; Kroll 2015; McCann and Ortega-Argilés 2016; Polverari 2016).

Over the past few years, Member States and regions have been gradually moving from the design of their strategies to the implementation stage. The objective of this paper is to provide some early insights on this phase. In particular, we investigate the progress of S3 implementation in the context of the EU Cohesion policy, by looking at whether and how the priorities set in the strategies are guiding funding allocation mechanisms.

This analysis explores how public support measures provided under Thematic Objective 1 (TO1) "Strengthening research, technological development and innovation" of national and regional Operational Programmes (OPs), with an European Regional Development Fund (ERDF) component, have aligned with the S3 objectives and priorities of their respective strategies during the first phase of the current programming period (2014-2020).

The information examined is extracted from calls for proposals launched under 46 OPs in Italy, Poland, Portugal, Czech Republic, Hungary, Lithuania and Slovenia by 31 December 2016 <sup>(2)</sup>. The specific objectives of the analysis are:

- Evaluating the coherence of calls with S3 priorities by looking at the presence and type of explicit alignment mechanisms (e.g. eligibility or preferential evaluation);
- Assessing the concentration of spending on S3 priority areas by calculating the share of funding made available through S3-related calls.

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<sup>(1)</sup> For a detail account of the main theoretical underpinnings, ideas and guidance of the smart specialisation policy concept refer to European Commission (2012a) and to Foray and Goenaga (2013).

<sup>(2)</sup> The countries included in the sample were selected based on the relevance of their ERDF-TO1 allocation and the linguistic competences and availability of the S3 Platform team members who contributed to the data collection.

In relation to these goals, we examined the content of calls and, where possible, the related documents containing updates, amendments and application forms. We codified and analysed information regarding the amount of funding, the S3-alignment mechanisms in place, the types of policy instruments implemented, and the categories of beneficiaries targeted.

## **2 Methodology for data collection and analysis**

The basic units of analysis considered in this study are calls for projects giving access to public funding schemes co-financed by ERDF-TO1 resources through national and regional OPs. We screened and collected in our database calls published by end-2016. Closed, open and planned calls were analysed.

In the case of Poland, Italy, Portugal and the Czech Republic, data were collected internally by systematically screening institutional websites; whereas, in the case of Hungary, Slovenia and Lithuania, data collection was outsourced to the respective national authorities who searched for and analysed calls under our guidance. Data collection took place between November 2016 and February 2017.

As far as Poland, Italy, Portugal and the Czech Republic are concerned, the data collection process largely benefited by the existence of well-organised on-line national and regional call repositories, easily accessible and navigable, within the dedicated OPs websites. Although we were not directly involved in screening calls for Hungary, Slovenia and Lithuania, we can confirm that, after some checks and discussions with national authorities, information accessibility and availability meet high standards in these countries as well.

For each call, the following information was recorded: (i) name and classification of the region or, alternatively, the name of the national OP; (ii) priority axis of the OP; (iii) a brief description of the call; (iv) the number of S3 priority areas addressed; (v) type(s) of policy instruments; (vi) type(s) of beneficiaries; (vii) overall public funding provided through the call (EU contribution and national co-financing); (viii) ERDF overall contribution for TO1 measures provided through the OP; (ix) the criteria used to verify the alignment with S3 priorities.

Where applicable, and only when documents were available, we considered all changes which occurred in the calls' design and process (call revisions, amendments, etc.) and assessed S3 alignment on the basis of the integrations and modifications to the original document. In a few cases where a call's budget was increased at a later point, and when the administrative process was traceable and the necessary information available, we modified the initial amount of public funding in order to consider additional funding made available through the same call to finance more projects.

In the case of Poland and Hungary, amounts expressed in national currency were converted into EUR by using the annual average European Central Bank exchange rate (from the European Central Bank online Statistical Data Warehouse), unless the corresponding amount in EUR was already specified in the call. For the Czech Republic, the Czech National Bank exchange rate was used.

We considered a call to be aligned to S3 priorities when "falling into or being consistent with S3 priority areas" represents either an *eligibility condition* for applications, or a

*preferential criterion* for the evaluation and selection of proposals. The first type of alignment mechanism is more stringent, as any proposal not explicitly related to an S3 priority area is not considered further. The S3 eligibility condition can be of two types: *formal*, when the applicants can be classified as belonging or not to S3 priority areas based on their main activity, according to an explicit taxonomy that in this case must be included in the strategy documents; or *substantial*, when it is the specific content of the proposal or project presented by the applicants to be evaluated by a committee as belonging to or being aligned with an S3 priority area. The preferential evaluation criterion is a less rigorous alignment mechanism, as proposals not related to S3 areas are eligible and evaluated, but do not benefit from preferential treatment. Details on the S3 alignment criteria are reported in Table 1.

**Table 1. Alignment criteria of ERDF TO1 calls with respect to S3: eligibility and preferential criteria**

<b>Alignment mechanism</b>	<b>Description</b>
<b>S3 alignment as an eligibility condition</b>	<b>Only S3-related proposals are eligible</b>
- <i>Formal eligibility</i>	Evaluation based on <b>the characteristics of the applicants</b> , i.e. whether or not applicants belong to the categories or sectors explicitly identified in the S3. This is typically the case when S3 areas are matched with NACE codes (notice that this should be explicitly stated in the approved S3 document); checking formal eligibility would then mean verifying that the (main) NACE code of the applicant is included in at least one S3 area.
- <i>Substantial eligibility</i>	Evaluation based on the <b>characteristics of the projects</b> , i.e. whether they are consistent with the S3 areas and the associated objectives.
<b>S3 alignment as a preferential criterion in the selection process</b>	<b>Non-S3 proposals are also eligible, but S3-related proposals are preferred in the selection process</b>
	Preference is given to S3-related projects, in the form of additional points or <i>ad-hoc</i> rankings. Evaluation based on the characteristics of the projects. This is an actual evaluation which is typically carried out by a selection committee.

The classifications of policy instruments and beneficiaries used in the analysis were adapted from well-established taxonomies in use within the European Commission and the OECD; they are reported in Tables 2 and 3 below.

**Table 2. Classification of policy instruments**

<b>Categories</b>	<b>Description</b>
1. Support to RTD&I projects	Funding for different typologies of RTD&I projects ("industrial research and experimental development", collaborative research, product development, commercialisation, innovation management, etc.). It usually includes the acquisition of specialised service, machinery and equipment, as well as research personnel expenses. Funding may be provided through grants, and other financial instruments (credit loans, repayable grants, equity financing, etc.).
2. Support to RTD&I projects (focus on the recruitment of researchers)	Funding allocated to RTD&I projects in which substantial part of the project budget is devoted to the recruitment of researchers (skilled personnel).
3. Support to RTD&I projects (focus on user participation)	Funding allocated to RTD&I projects in which problems and solutions are addressed through the direct involvement of the users (e.g. third sector associations, individuals and groups of citizens, public administrations, etc.).
4. Support to innovative SMEs creation and strengthening	Funding for RTD&I projects linked to the creation or strengthening of start-ups, spin-offs and innovative SMEs. It also includes public funding provided to financial service providers.
5. Innovation support services	Funding provided usually in the form of a voucher aimed to purchase innovation and technological services from public or private providers with a view to introducing innovations in current business operations. This category also includes support to advice and counselling services for technology transfer and absorption, or support for improved management and organisation change, information provision, training, etc. This category also includes the IPR protection services.
6. Public procurement for R&D and innovation	Funding aimed to create a demand for technologies and services that does not currently exist or is considered too low, or to target the purchase of R&D services (pre-commercial procurement of R&D).
7. Innovation prizes	Cash reward (or other type prize) provided for innovative business idea or innovative solutions to specific challenges.
8. Support to research infrastructures	Support to the establishment and strengthening of research infrastructures and to ESFRI – European Strategy for Research Infrastructure plans.
9. Support to business support organisations, innovation networks and platforms	Support to the establishment and strengthening of incubators, technology parks, clusters, innovation and competitiveness poles, technological districts, competence centres, innovation intermediaries, open-innovation platforms and spaces such as fablabs, maker spaces, co-working spaces, etc.

**Table 3. Classification of beneficiaries**

<b>Categories</b>
1. SMEs
2. Start-ups and spin-offs
3. Large enterprises
4. Enterprises (large and SMEs)
5. Research organisations (including Universities, High Education Institutions, and public and private research and scientific organisations)
6. Consortia of research organisations
7. Consortia of enterprises and research organisations (possibly open also to other categories of beneficiaries )
8. Consortia of enterprises
9. Business support organisations (including incubators, technology parks, technological districts, clusters, innovation poles, etc.)
10. Open-innovation platforms and spaces (fablabs, maker spaces, coworking spaces, etc.)
11. Financial institutions
12. Public administrations
13. Third sector organisations and associations

### **3 Scope of the exercise and data description**

The analysis covers calls for proposals published in Italy, Poland, Portugal, Czech Republic, Hungary, Lithuania and Slovenia. Although limited in geographical scope, the exercise provides preliminary insights on S3 implementation in some countries with a significant share of ERDF resources devoted to strengthening research, technological development and innovation under the 2014-2020 programming period.

Poland, Italy, Czech Republic, Portugal and Hungary are amongst the largest recipients of ERDF assistance for TO1 initiatives, as can be seen from the data in Table 4. With 8,351M EUR allocated, Poland is the highest recipient among the 28 member states; whereas, Italy (3,512M EUR), Czech Republic (2,421M EUR), Portugal (2,329M EUR) and Hungary (2,149M EUR) hold the fourth, fifth, sixth and seventh place respectively (see Table 1.4 and Figure 1.1). It is worth noting that these five countries taken together account for 46% of the overall ERDF-TO1 budget. Given the size of the countries, the ERDF-TO1 allocation in Lithuania and Slovenia is much smaller: 679M EUR (1.7% of the total) and 462M EUR (1.1%) respectively.

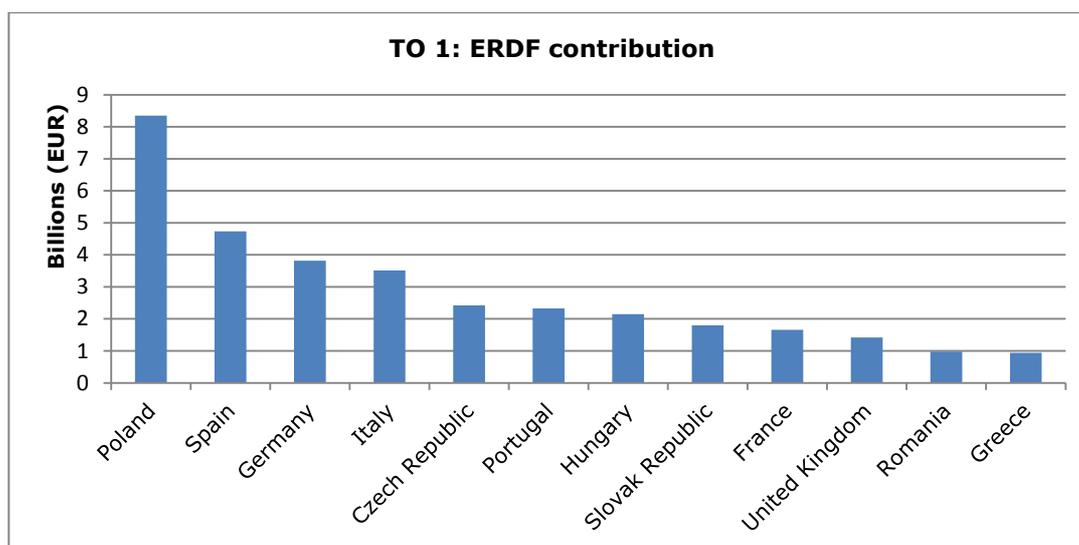
**Table 4. Thematic Objective 1 (Research and Innovation): ERDF largest recipients (top-7 countries), 2014-2020 programming period**

Member State	EU Amount (EUR) <sup>(1)</sup>	% of total ERDF contribution for TO 1 (EU-28)
<b>Poland</b>	<b>8,351,428,665</b>	<b>20.3</b>
Spain	4,736,201,898	11.5
Germany	3,819,050,875	9.3
<b>Italy</b>	<b>3,512,735,843</b>	<b>8.5</b>
<b>Czech Republic</b>	<b>2,421,050,979</b>	<b>5.9</b>
<b>Portugal</b>	<b>2,328,812,052</b>	<b>5.7</b>
<b>Hungary</b>	<b>2,148,860,450</b>	<b>5.2</b>

<sup>(1)</sup> The EU amount for each Member State does not include financial resources assigned through territorial cooperation programmes. The EU contribution for TO1 under territorial cooperation amounts to 1,8M EUR.

Source: authors' elaboration based on European Commission - DG Regional Policy data sets (Open data platform).

**Figure 1. Thematic Objective 1 (Research and Innovation): ERDF largest recipients (top-12 countries), 2014-2020 programming period**



Source: authors' elaboration based on European Commission - DG Regional Policy data sets (Open data platform).

We examined 285 calls published by 39 regions (of which, according to the taxonomy adopted in the EU Cohesion policy, 20 are classified as "less developed regions", 15 as "more developed regions" and 4 as "transition regions") and by 7 national authorities. To our knowledge, they represent the totality of the calls published up to 2016 in Poland, Italy, Portugal, Czech Republic, Hungary, Lithuania and Slovenia under ERDF-TO1, assigning altogether around 9 billion EUR, including both the ERDF contribution and national co-financing. As shown in Table 5, the ERDF contribution already allocated

through the calls accounts for a little more than 8.2 billion EUR, representing 41% of the overall ERDF-TO1 financial resources available for the seven Member States during the whole 2014-2020 period, amounting to nearly 20 billion EUR.

The country breakdown of data shows a relatively higher performance, in terms of speed of funding allocation, in Hungary, Portugal and Poland. Hungary and Portugal assigned more than a half of their total ERDF-TO1 resources. In the same period, Poland assigned 46%. Much lower instead was the share of funding allocated in Italy (22%), where some of the OPs and strategies were approved at a later stage: as of 31 December 2016, no calls for projects related to TO1 were available within the national OP "Research and Innovation (2014-2020)" and five regional OPs.

**Table 5. Number of published calls and funding in the target countries**

Member State	Published calls (end-2016)			Overall ERDF funding for TO1 in each MS (2014-2020)	Share of the overall ERDF-TO1 funding allocated through the calls (%)
	Number	Total resources – ERDF and national contribution (EUR) <sup>(1)</sup>	ERDF contribution (EUR)		
Italy	70	1,322,093,924	774,080,874	3,512,735,843	22.0
Poland	109	3,860,223,995	3,860,052,103	8,351,428,665	46.2
Portugal <sup>(2)</sup>	54	1,253,320,000	1,253,320,000	2,328,812,052	53.8
Czech Republic	24	873,251,940	828,856,824	2,421,050,979	34.2
Hungary	11	1,405,006,452	1,194,255,484	2,148,860,450	55.6
Lithuania	10	244,536,487	244,536,487	678,878,835	36.0
Slovenia	7	94,040,784	75,232,627	461,739,158	16.3
<b>TOTAL</b>	<b>285</b>	<b>9,052,473,581</b>	<b>8,230,334,399</b>	<b>19,903,505,982</b>	<b>41.4</b>

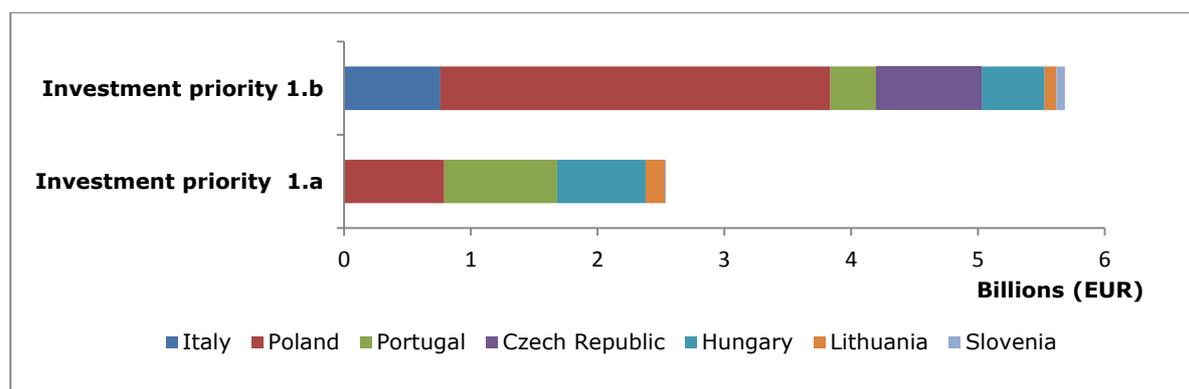
<sup>(1)</sup> When no specific information was provided on the national financial contribution for the call (neither in the call's documents nor on institutional websites and in other administrative documents), the national public co-financing rate of the OP was used. In some cases, calls are entirely financed by ERDF.

<sup>(2)</sup> For Portugal, the amounts indicated are underestimated since no information on funding was available for 3 calls.

Source: authors' elaboration based on data reported by OPs and institutional websites and European Commission - DG Regional Policy data sets (Open data platform).

Nearly 80% of the total calls, providing 5.7 billion EUR of ERDF contribution, is concentrated on *Investment priority 1.b* "Promoting business investment in R&I and developing links and synergies between enterprises, research and development centres and the higher education sector". The remaining share, allocating 2.5 billion EUR, addresses *Investment priority 1.a* "Supporting research and innovation (R&I) infrastructure and capacities to develop R&I excellence and promoting centres of competence, in particular those of European interest" (Figure 2).

**Figure 2. ERDF allocation of the calls by Investment priority under Thematic Objective 1 (end-2016)**



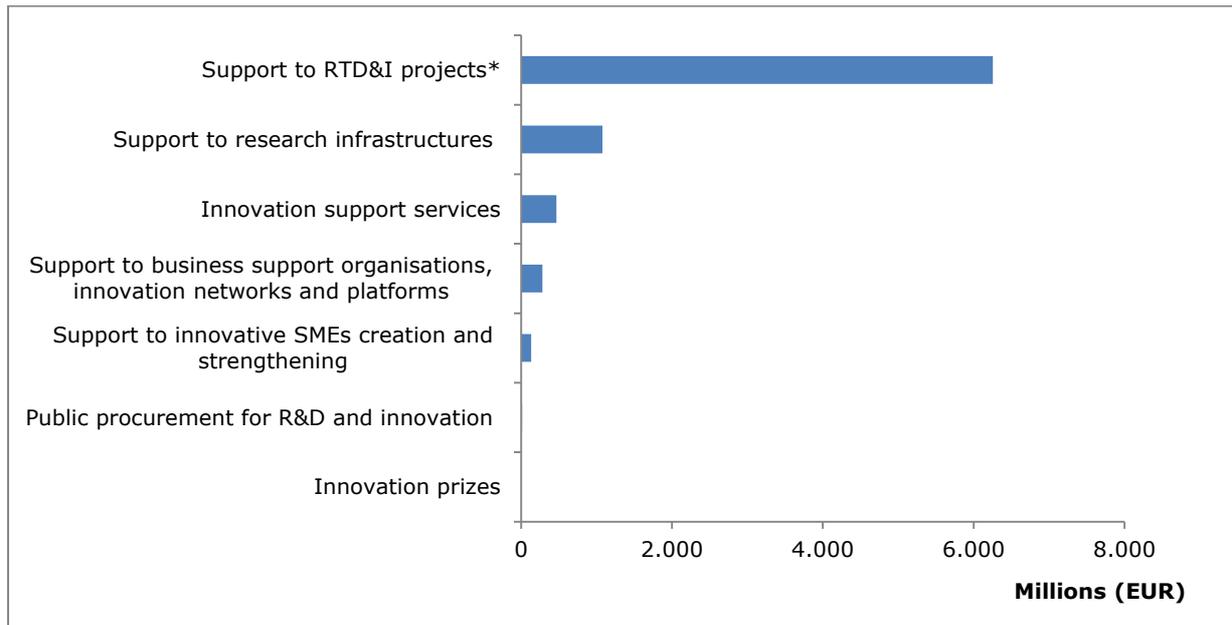
Source: authors' elaboration based on data reported by OPs and institutional websites.

Concerning policy instruments (Figure 3), *support to R&TDI projects* represents the most used instrument by far: nearly two thirds of the calls and 6.3 billion EUR of ERDF were devoted to it. 1.1 billion EUR went to *support to research infrastructure* (17 calls), 467 million to *innovation support services* (66 calls) and 282 million to the *support of business support organisation, innovation networks and platforms* (7 calls).

Figure 3 clearly shows how the use of "more innovative" policy instruments, such as *public procurement for R&D or innovation prizes*, is not yet common among national and regional authorities. There are in fact only three calls falling within these two categories. Nevertheless, we observed some interesting retooling, in line with S3 features, of "more traditional" policy instrument, such as *support to RTD&I projects*. For example, the case of calls including some specific disclosure agreements for beneficiaries, who are required to share their project's results, and so to increase the possibilities of turning research results into commercially viable products and services by other actors, creating in this way a critical mass around a particular innovation area. Encouraging imitative entry is a key ingredient of the smart specialisation agenda, so that agglomeration economies can be realised (Foray *et al.*, 2011).

Likewise, particularly interesting are the measures grappling with coordination failure problems (Foray *et al.*, 2011; Rodrik, 2007), the strengthening of the regional relational infrastructure (Storper *et al.*, 2015) and the production of local collective competition goods (Crouch *et al.*, 2001). For example, to address the aforementioned issues, calls have been devoted to supporting the activities of clusters, innovation poles and platforms, whose main goal is to promote industry-research collaboration, enhance collective action, explore opportunities for regional companies in global value chains and identify market potentials for innovative products and services.

**Figure 3. ERDF-TO1 allocation by typology of policy instrument**

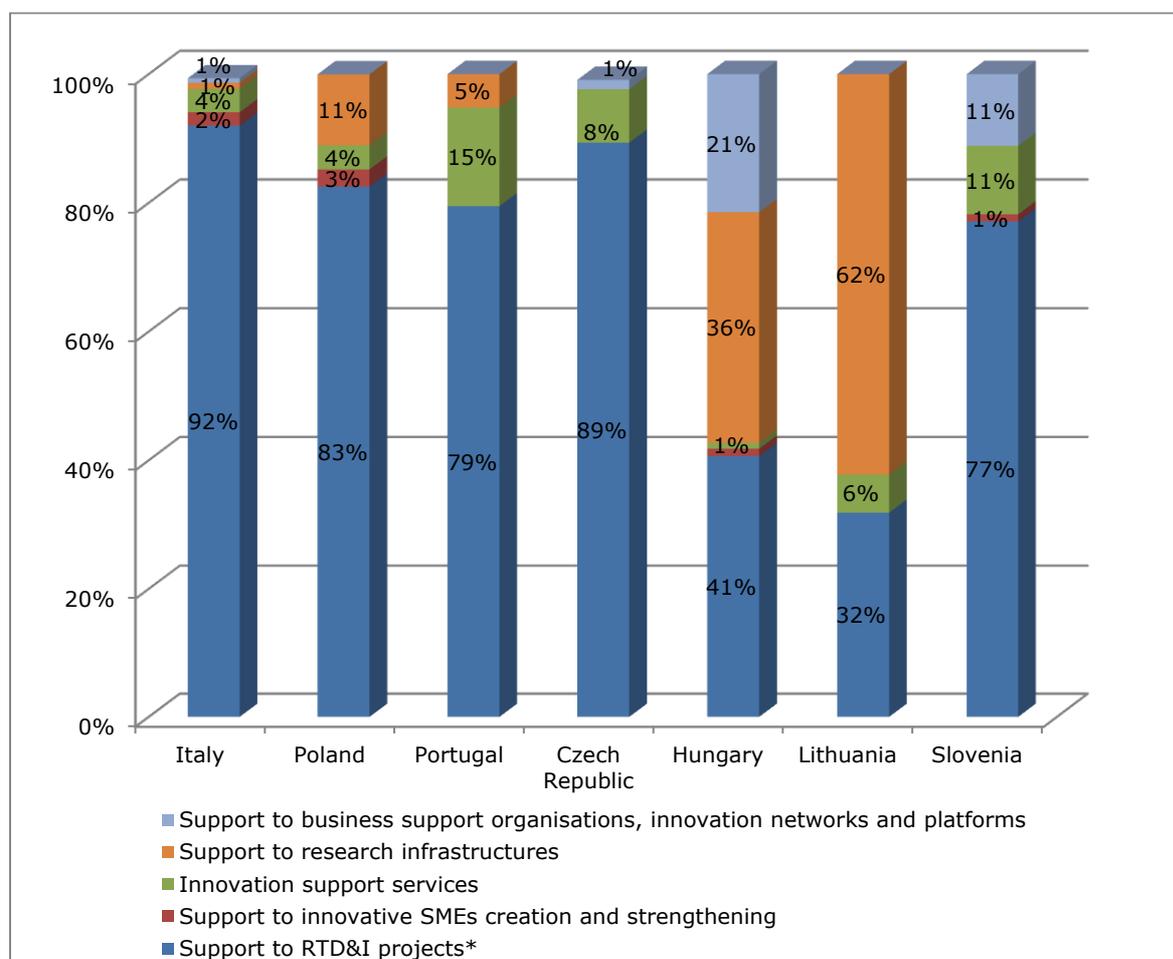


(\*) "Support to RTD&I" includes the first three categories of policy instruments shown in Table 2.

Source: authors' elaboration based on data reported by OPs and institutional websites.

The country breakdown of data (Figure 4) shows how *support to R&TDI projects* was the most prominent policy instrument in Italy (92% of the total ERDF funding allocated through the calls published by end-2016), Czech Republic (89%), Poland (83%), Portugal (79%) and Slovenia (77%). In Lithuania, *support to research infrastructures* instead prevailed: 62% of the overall ERDF resources were devoted to this instrument. Substantial resources for the strengthening of research infrastructures were also allocated in Hungary and Poland, respectively 36% and 11%.

**Figure 4. ERDF-TO1 allocation by typology of policy instrument per Member State**

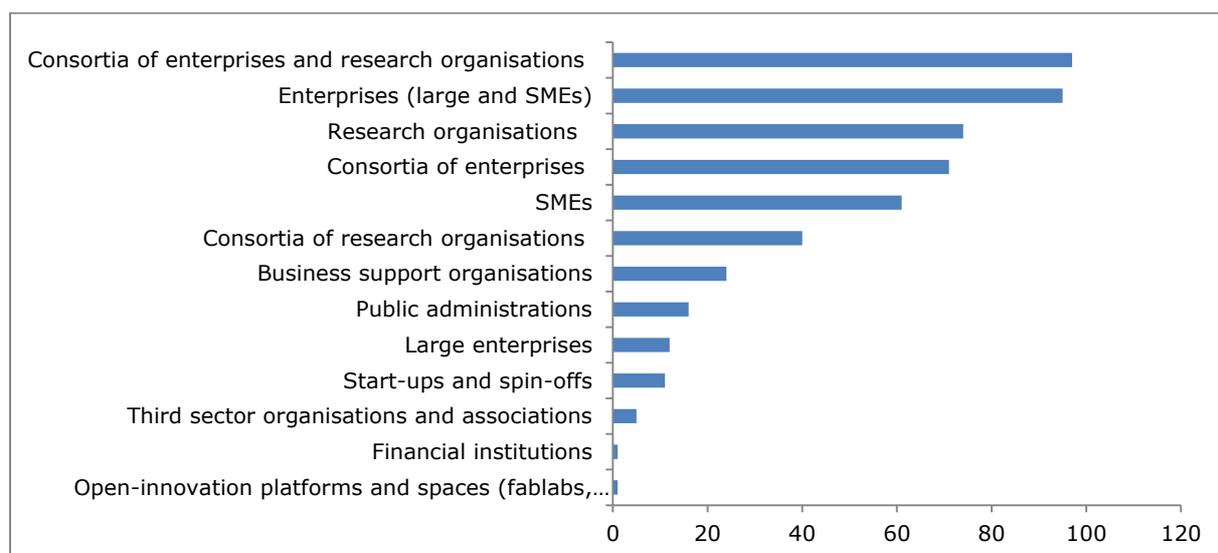


(\*) "Support to RTD&I" includes the first three categories of policy instruments shown in Table 2.

Source: authors' elaboration based on data reported by OPs and institutional websites.

Considering that strengthening industry-research relations is one of the most recurrent objectives in S3, it comes as no surprise that the most recurrent category of beneficiaries, addressed by nearly 100 calls, is *consortia of enterprises and research organisations*. Together with other four categories, *single (large, small and medium sized) enterprises, research organisations, consortia of enterprises, and SMEs*, they are generally the beneficiaries of calls aiming to support RTD&I projects, which represent the most frequent typology of calls examined in our exercise. Figure 5 illustrates how little involvement "new" typologies of beneficiaries have. There are few calls tailored to address third sector organisations, associations and open-innovation platforms and spaces as beneficiaries, although, in some cases these categories of actors can be part of the consortia eligible to apply.

**Figure 5. Typologies of beneficiaries addressed by the calls**



Source: authors' elaboration based on data reported by OPs and institutional websites.

## **4 Results: S3 alignment and funds absorption**

For the bulk of the examined calls (corresponding to 93% of the total), only project proposals in line with, and contributing to, the innovation priority areas selected in the S3 were eligible for funding. In these cases, failure to align to S3 priorities disqualifies a project from the selection process. As shown in Table 6, there are 7 calls in which the alignment to S3 priorities gave preference to projects in the selection procedure, which is conceived as either an attribution of additional points or the existence of an *ad hoc* preferential ranking for S3-related proposals.

Finally, there are only 14 calls with no specific reference to S3 priority areas whatsoever. Often, these calls were published before the approval of S3. In Poland, there are around 30 calls in which projects alignment with S3 is an eligibility criterion, yet they consider proposals not related to the current S3 priority areas, if they are explicitly aimed at redefining such areas or exploring new potential innovation domains. This can be considered an example of a continuous entrepreneurial discovery process.

**Table 6. ERDF OPs – Thematic Objective 1 (Research and Innovation): number of calls by categories: S3-related calls (eligibility condition), S3-related calls (preferential condition), no S3-related calls**

Member State	Published calls (end-2016)	S3-related calls (eligibility condition)		S3-related calls (preferential condition)	No S3-related calls
	Number	Number	% of total calls	Number	Number
Italy	70	65	92.9	3	2
Poland	109	105	96.3	1	3
Portugal	54	54	100.0	-	-
Czech Republic	24	16	66.7	-	8
Hungary	11	7	63.6	3	1
Lithuania	10	10	100.0	-	-
Slovenia	7	7	100.0	-	-
<b>TOTAL</b>	<b>285</b>	<b>264</b>	<b>92.6</b>	<b>7</b>	<b>14</b>

Source: authors' elaboration based on data reported by OPs and institutional websites.

Very few are the calls for proposals targeting just one or two S3 priority areas at the same time. In fact, nearly all the S3-related calls simultaneously address all S3 priority areas. Some calls contain a breakdown of resources by priority area.

Focusing on the typology of eligibility conditions, we can observe that, in most cases (255, that is 97% of the total), calls rely exclusively on the *substantial* type of eligibility, where a selection body assesses whether the project aligns or not with S3 on the basis of the contents of the application form submitted by the proponents (Table 7). There are only 3 calls in which the alignment is only judged through the *formal* type of eligibility on the basis of the characteristics of the applicants (i.e. whether or not the applicants belong to the categories or sectors explicitly identified in the S3). In 6 cases, eligibility is evaluated both in formal and substantial terms.

**Table 7. ERDF OPs - Thematic Objective 1 (Research and Innovation): number of calls by type of eligibility condition**

Member State	Calls with S3-related as an eligibility condition	Calls by typology of eligibility condition		
		Only formal	Only Substantial	Both substantial and formal
Italy	65	3	56	6
Poland	105	-	105	-
Portugal	54	-	54	-
Czech Republic	16	-	16	-
Hungary	7	-	7	-
Lithuania	10	-	10	-
Slovenia	7	-	7	-
<b>TOTAL</b>	<b>264</b>	<b>3</b>	<b>255</b>	<b>6</b>

Source: authors' elaboration based on data reported by OPs and institutional websites.

At 31 December 2016, the financial resources assigned through S3-related calls accounted for nearly the total amount of the ERDF-TO1 funds allocated by calls in the seven countries investigated, 7.9 billion EUR of ERDF contribution, corresponding to 96% of the total. In Portugal, Lithuania and Slovenia this percentage goes up to 100%. Overall, the funding explicitly related to S3 and which has been already allocated amounts to 40% of the total ERDF-TO1 resources for the whole 2014-2020 programming period. Detailed results and the country breakdown of financial resources are reported in Table 8.

**Table 8. ERDF - Thematic Objective 1 (Research and Innovation): funding allocated through S3-related calls (31 December 2016)**

Member State	ERDF resources			Overall ERDF funding for TO1 in each MS (2014-2020)	S3 related calls: % of TO1 resources
	Total published calls (EUR)	S3-related calls (EUR)	% of S3-related calls		
Italy	774,080,874	747,453,316	96.6	3,512,735,843	21.3
Poland	3,860,052,103	3,846,348,571	99.6	8,351,428,665	46.1
Portugal	1,253,320,000	1,253,320,000	100.0	2,328,812,052	53.8
Czech Republic	873,251,940	659,267,479	79.5	2,421,050,979	27.2
Hungary	1,194,255,484	1,073,610,323	89.9	2,148,860,450	50.0
Lithuania	244,536,487	244,536,487	100.0	678,878,835	36.0
Slovenia	75,232,627	75,232,627	100.0	461,739,158	16.3
<b>TOTAL</b>	<b>8,230,334,399</b>	<b>7,899,768,803</b>	<b>96.0</b>	<b>19,903,505,982</b>	<b>39.7</b>

*Source:* authors' elaboration based on data reported by OPs and institutional websites and European Commission - DG Regional Policy data sets (Open data platform).

Finally, during our exercise, we also noticed how S3 influences public resources allocation in other policy areas and TOs: in particular, local production systems strengthening and repositioning (TO3); digital agenda (TO2); shift towards a low-carbon economy (TO4); and training and education (TO8 and TO10). There are, for example, calls supporting industrial doctorate and research fellowships as well as calls promoting SMEs internationalisation and start-up creation in S3-related innovation areas.

## 5 Final considerations

The results of this analysis reveal that the S3 approach is being translated into practice, at least in formal terms, and has so far guided the ERDF-TO1 funding decisions within national and regional OPs. In most of the examined calls, S3 alignment is a binding eligibility condition for funding. Nearly the total amount of the ERDF-TO1 resources made available in 2014-2016 through the calls goes to project proposals that must fall exclusively within S3 priority areas.

We also observed the influence of S3 on shaping calls for proposals regarding other policy areas. In the future, it would be interesting to explore this, in a more systematic way. Evidence of S3 alignment with other policies may be quite reasonably perceived as a stronger commitment to the S3 agenda.

Overall, such results show policy makers' increased efforts for more strategic allocation decisions and concentration of resources on a limited number of priorities, providing some grounds for optimism. Yet, some cautions and caveats apply.

First of all, the analysis's time window (2014-2016) only covers the first phase of S3 implementation within the EU Cohesion policy framework and, hence, provides a partial picture of the implementation process. Allocation decision patterns may increase in

scope and complexity in the next years. Therefore, the future alignment of funding with S3 priorities should be closely monitored.

Second, an effective concentration of funds would require a fine tuning of the prioritisation process in the course of the strategy's implementation phase. This is particularly relevant when strategies lack granularity in the definition of priorities. In some cases, we found that S3 priority areas, both at the national and regional level, are, in our view, still quite broad and potentially all-encompassing. The fine tuning of priorities relies in turn on the existence of monitoring mechanisms which provide policy makers with information regarding not only the output and results of the interventions, but also, and at a much earlier stage, the results of the application process in terms of number and distribution of applicants and their reaction to/satisfaction with the framing and targets of the calls. This type of monitoring should be carried out at the call and project levels, allowing information to feed back into the policy decision process. Further investigation is needed in this direction.

Finally, there is a potential black-box dimension associated to the projects' selection process. In particular, we recognize two major potential concerns:

(i) *Composition and activity of the evaluation committees.* Public officials are generally very knowledgeable about administrative procedures, but may know very little about research and innovation policies for S3 areas. A sound and rigorous selection process necessarily requires the inclusion (within the evaluation committee) of research and innovation experts for each specific S3 priority area. We have found that some regions explicitly state that the evaluation committees need to include external experts but, in general, the text of the calls does not tell much about the composition, activity and rules of the evaluation committees. These elements should be further investigated.

(ii) *The challenge of evaluation in the presence of broad or vaguely defined S3 priorities.* Priority areas which are too broad imply, by definition, broader acceptance. Whereas, when priorities are vaguely defined, it may be difficult to assess how the projects proposed would contribute to them.

On a more general level, it would be interesting to explore how regions, especially those characterised by weak institutional frameworks, are pursuing improvements in human capital and administrative capabilities that are required by the smart specialisation agenda.

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