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COVER NOTE

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Subject:	COMMISSION STAFF WORKING DOCUMENT EXECUTIVE SUMMARY OF THE EVALUATION of the Research and Technological Development (RTD) infrastructures and activities supported by the European Regional Development Fund (ERDF) in the period 2007-2013

Delegations will find attached document SWD(2023) 72 final.

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COMMISSION STAFF WORKING DOCUMENT

EXECUTIVE SUMMARY OF THE EVALUATION

of the

Research and Technological Development (RTD) infrastructures and activities supported by the European Regional Development Fund (ERDF) in the period 2007-2013

{SWD(2023) 71 final}

1. Context and scope

The European Commission, Directorate-General for Regional and Urban Policy, drafted a staff working document to report on the results of the ex-post evaluation of investment in research and technological development (RTD) infrastructures and activities supported by the European Regional Development Fund (ERDF) in the period 2007-2013. The evaluation study was conducted by an external contractor and the final report was published¹ in December 2021².

In the period 2007-2013, over EUR 86 billion, nearly 25% of total Cohesion Policy funding, went towards innovation in the broader sense. Looking at RTD specifically, some EUR 17 billion was invested under the ERDF through 215 operational programmes (OP) in projects supporting RTD infrastructure, competence centres and activities in Member States and regions. Of these resources, more than EUR 11 billion supported the construction of new infrastructure, the modernisation of existing infrastructure, and equipment purchase. The remaining almost EUR 6 billion was invested in other forms of support to research activities.

Operational programmes highlighted two main groups of investment needs: a lack of a critical mass of infrastructure endowments and research capacities to enable the production of top-class research (relevant in particular for EU13³) and a need to increase the industrial relevance of the regional science base by linking existing or emerging poles of scientific excellence to areas of industrial strength.

Between 2007 and 2017, the average growth rate in the number of research and development (R&D) personnel and researchers in the regions receiving ERDF support was 40%, and average regional ERDF expenditure on infrastructures and R&D projects in higher education institutions was about EUR 35 million. Over the same period, scientific publications almost doubled in terms of volume over the EU as a whole, but the EU13 regions experienced a higher growth rate as compared with regions in the EU15⁴ (145% against 96%), highlighting an ongoing catching-up process. The observed growth rate in the share of tertiary-educated people in the target regions was, on average, 7% in the period 2007-2017, from a minimum of -5% in the German region of Chemnitz (DED1) to a maximum of 18% in the region of Prague (CZ01).

The average value growth rate in the number of patents in the period 2008-2016 in the target regions was 48%. Looking at the two extremes of the distribution of the growth rate, four regions, located in Poland and Romania, experienced an increase in the number of patents higher than 500%, while a set of regions, located mainly in the EU15, recorded negative growth rates. The growth rate in the number of public - private co-publications in the period 2008 - 2015 followed a similar path.

https://ec.europa.eu/regional_policy/en/information/publications/evaluations/2021/evaluation-of-investmentsin-research-and-technological-development-rtd-infrastructures-and-activities-supported-by-the-europeanregional-development-funds-erdf-in-the-period-2007-2013

² The analysis and conclusions are based on the analysis of 53 operational programmes (OPs) out of the total of 215 OPs funded by the ERDF and covering 18 Member States out of 28 as well as 85% of the total RTD investments financed by the ERDF.

³ EU13 comprises the following Member States: Czechia, Estonia, Cyprus, Latvia, Lithuania, Hungary, Malta, Poland, Slovakia, Slovenia, Romania, Bulgaria, and Croatia.

⁴ EU15 comprises the following Member States: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, the Netherlands, Portugal, Spain, Sweden, and the United Kingdom.

2. Findings

Effectiveness

The evaluation has shown evidence that ERDF investments, aimed at modernising education facilities, have contributed to increasing both the number of people with tertiary education and the number of tertiary-educated people employed in science and technology. Evidence also points to an increase in scientific publications as a result of ERDF support. Some positive results were also reported in terms of softer innovation aspects measured by the growth rate of EU trademark applications. Positive effects were also reported regarding the managerial capacity of research institutions and the enhancement of their research and innovation capacities.

The evaluation has shown no evidence that ERDF support was successful in stimulating business R&D, which is the main driver of technological outputs. The capacity to generate economic benefits from the commercial valorisation of R&D results and to increase knowledge transfer capacities and mechanisms from scientific to industry partners was also limited. Expected results in terms of consolidation of research partnerships showed limited sustainability in the long run. The ERDF was also less effective in facilitating coordination and interactions between all actors involved in the innovation ecosystem.

Efficiency

ERDF RTD investments were geographically concentrated: more than 50% of mapped funds were invested in Poland, Germany and Czechia, 70% were directed to convergence regions and 64% to urban areas. ERDF support for RTD was overall sufficiently concentrated to lead to upgrades in both the quality of research infrastructure and research management capacities in most of the countries examined.

Some implementation issues may have led to inefficiencies. This was mainly related to limited administrative capacity or an unclear legal framework, as reported especially for collaborative R&D. Uncertainties in the interpretation and application of rules, especially for what concerns State-aid rules, caused delays and generated confusion and adjustments during the implementation process.

The long-term financial sustainability of RTD infrastructures was challenging in some cases. The limited use of infrastructure by the private sector and external users made the infrastructures highly dependent on public funding for their operation and maintenance. The case studies confirm that collaborative R&D policy instruments were not fully successful in ensuring the sustainability of the research projects' results, stemming from the lack of translation of research results into practical innovations.

Coherence

The ERDF played a countercyclical role in many regions, preventing the erosion of R&D systems in a moment of severe cuts in public funding for education and research, given the economic downturn of 2008. The ERDF policy mix for RTD was also generally coherent with regional and national RTD strategies but was mainly driven by co-financing obligations. The role of the ERDF in shaping national and regional policies was stronger in those countries where it represented a significant share of national or regional R&D expenditure.

Coherence with other forms of ERDF support was generally high. There was robust coordination among different OPs and between different priority axes within the same OP, clearly considering

possible synergies and complementarity of respective roles. Good synergies were reported with the European Social Fund, with specific reference to support in the higher-education sector, while coherence between cohesion and competition policy remains unsolved. The ERDF and the EU framework programmes for research and innovation were seen as serving related but essentially different purposes. Despite ambitions to build on complementary strengths, no specific arrangements were implemented to facilitate or promote active synergies.

EU Added Value

Managing Authorities highlighted that there was significant added value, in particular in the EU13, where ERDF 2007-2013 programmes represented the first systematic set of interventions addressed to the research field, after years of underinvestment and limited political priority.

EU-wide effects occurred through the development of EU-level research communities in specific fields, enabling the construction or upgrading of strategic infrastructures of pan-European relevance (as confirmed by the later inclusion into the European Strategy forum on Research Infrastructures Roadmap) and also supporting the internationalisation of research communities. It helped structuring and consolidating a European Research Area by promoting the achievement of EU standards in RTD capacities and production.

Relevance

ERDF support appeared to address the most pressing needs of expansion and modernisation for the national RTD systems and, in particular, the huge infrastructure gap of Central and Eastern European countries. However, the ERDF support also reflected the need to improve science-industry collaboration, mainly in more advanced regions. Overall, ERDF support to RTD investments concentrated on interventions on the supply side, mainly focused on strengthening RTD capacities rather than on improving the performance of regional RTD systems as a whole.

Most RTD interventions were geared at supporting excellence objectives. ERDF prioritisation strategies targeted territories/institutions/sectors with significant potential or comparative advantages. When the distribution of ERDF support was not geographically driven by eligibility criteria, such as in national OPs in Central and Eastern Europe, ERDF expenditure was mainly concentrated in urban areas, economically stronger sectors and more competitive institutions and organisations.

3. Conclusions

Overall, ERDF support has positively contributed to the catch-up process of RTD capacities particularly in lagging regions, where it also acted as a key buffer against a general decrease in national public expenditure for RTD investments during the financial crisis.

ERDF investment contributed to reducing disparities among EU regions in performing quality research. This was mainly delivered by infrastructure investments, while support for R&D projects, both individual and collaborative, was also important. As a result, there were observable effects on scientific production and capacity, as witnessed by some key RTD performance indicators: the increase in the volume of scientific publications; the increase in the number of people with a tertiary education employed in science and technology; and the growth rate in the number of R&D personnel and researchers.

The main drawback reported by the study relates to the lack of observable long-term impacts in the use of research results for technological development and innovation. Evidence shows that the improved

scientific knowledge did not translate into technological development and innovation and ultimately did not increase regional competitiveness. The findings also show that the support was not successful in stimulating business R&D and encouraging industrial and commercial application of the research results. The evidence shows that synergies and complementarity with other EU funding sources were not always well exploited. The evaluation concludes that support to RTD infrastructures and activities alone may not be sufficient to achieve a noticeable shift in technological capacity. Other supporting factors, such as more place-based approaches, including comprehensive long-term regional strategies and sufficient administrative capacity may play an important role.

The subsequent legislative frameworks introduced a series of innovations to address the underlined drawbacks, notably the obligation to introduce smart specialisation strategies in the 2014-2020 and 2021-2027 periods. Smart specialisation strategies addressed these issues by stimulating coordination, concentration and prioritisation of funding at local level, having a stronger emphasis on market orientation (i.e. higher technological readiness levels) and greater focus on capability building for regions left behind. Among the most ambitious innovations, a notable one is also the Interregional Innovation Investments Instrument, which aims at supporting interregional innovation projects in their commercialisation and scale-up phases.

In addition, the 2014-2020 and 2021-2027 periods have also seen a progressive improvement in the monitoring system for financial, output and result indicators, which was still limited in 2007-2013. Building on this, future evaluations, particularly the ex-post evaluation of cohesion policy programmes 2014-2020, will continue to assess RTD investments⁵.

⁵ <u>https://ec.europa.eu/regional_policy/en/policy/evaluations/ec/2014-2020/</u>