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**Programme Evaluation Office of the General Directorate for
Programming and System Coordination**

Summary of evaluations of the Competitiveness Operational Programme 2014-2020



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1 General overview of the evaluation work

The evaluation of the Competitiveness Operational Programme 2014-2020 (POC) covers the implementation of the interventions related to the first two priority axes. The evaluation in the **field of Research, Development, and Innovation** (CDI) is implemented through an agreement with a budget of 2,122,453.18 Lei. The evaluation in the **field of Information and Communication Technology** - TIC is implemented through a consultancy agreement, with a budget of 2,900,000 Lei. Both evaluations are structured in three evaluation cycles, with a report delivered at the end of each cycle. So far, two reports have been completed.¹ The last evaluation reports will be completed in October 2023. The evaluation results are validated by the members of the POC Evaluation Coordination Committee. The reports are made available to the public, being published on the website of the Ministry of Investments and European Projects.

The eight evaluation topics have been set out in relation to the intervention logic of the programme, namely to its specific activities and objectives (Figure 1). The evaluation analyzes the effectiveness of the interventions, the progress observed in relation to the specific objectives (gross effect), the extent to which this is attributed to the programme (net effect), unintended effects, the sustainability of the effects, the mechanisms that generated them and the good practices observed (Figure 1). The evaluation used multiple methods of data collection and analysis, such as the analysis of programme and project documents, descriptive statistics, counterfactual analyses, interviews, case studies, surveys, and focus groups.

Figure 1. Evaluation framework

Lot	Evaluation Topic (TE)	AP	OS	General Evaluation Questions (GEQs) and Supplementary Evaluation Questions (SEQs)
Lot 1 CDI	TE 1 CDI capabilities in the areas of smart specialization and health	1	1.1	ÎEG 1: Observed progress (gross effect)
	TE 2 Participation of Romanian research organizations and companies in Horizon 2020	1	1.2	ÎEG 2: Contribution of POC to observed progress (net effect)
	TE 3 Private investments in CDI	1	1.3	ÎEG 3: Unintended effects of interventions
	TE 4 Transfer of knowledge, technology and personnel with CDI skills between the research and private sectors	1	1.4	ÎEG 4: Disseminated effects of interventions
Lot 2 TIC	TE 1 High-speed broadband infrastructure	2	2.1	ÎEG 5: Sustainability of effects
	TE 2 The TIC sector from a growth perspective	2	2.2	ÎEG 6: Mechanisms that facilitated or prevented the effects
	TE 3 E-government systems	2	2.3	ÎEG 7: Effectiveness of interventions (extent to which they are delivered as expected, produce the desired change and should be funded further)
	TE 4 Internet use	2	2.4	ÎES 8: Good practice (under TE 3 and 4, Lot 1)

¹ The baseline dates of the evaluation reports on CDI interventions are 30.07.2020 and 24.11.2021. The baseline dates of the evaluation reports on TIC interventions are 31.03.2021 and 31.12.2021.



2. Evaluation Findings

AP. 1 Research, technological development and innovation (CDI) to support the economic competitiveness and business development

The interventions to increase the scientific capacity in the areas of smart specialization and health have proven to be successful interventions, supporting the recruitment of new researchers and enhancing the number of researchers working in improved research infrastructures.

Between 2014-2021, Romania's participation in research across the European Union has increased, compared to the period 2007-2013. The financed interventions contributed to the increase of Romanian participation in the Horizon 2020 Programme, as evidenced by the enhancement in the frequency of participation, the number of financed projects and their value. The interventions regarding the increase of private investments in the field of research, development and innovation had positive effects on enterprises with research and development activity. A positive effect was also registered on the number of companies supported or receiving support for introducing new products to the market. The interventions of the programme on the increase of private investments in the CDI field have shown that in the short term, the increase in the profitability of enterprises with CD activity and their chances of survival in the period 2018-2020 has been stimulated. As per the evolution of the progress observed in the behavior of research organizations and enterprises regarding the transfer of knowledge, technology and personnel, there has been an intensification of the cooperation of SMEs since the adoption of the programme, although the larger companies are those that collaborate more.

AP. 2 Information and Communication Technology (TIC) for a competitive digital economy

Progress was registered in all specific objectives, but the degree of achievement of the targets proposed by the programme was not the same in all objectives. Thus, the interventions regarding the digitization of small and medium-sized enterprises have made the most progress in terms of completion. The initially set target of 45 products or services developed by SMEs was far exceeded, so that by December 2021, 153 products and services had been developed. At the baseline date of the evaluation (31.12.2021), a solid progress was also observed in terms of the development of big data platforms and e-government services, the projects approaching completion and being able to be used by the public authorities involved and even the general public by the end of 2022. However, progress on the expansion of next-generation NGN/NGA high-speed broadband communications infrastructure has been relatively slower due to longer approval processes across the local authorities and the delays caused by the restrictions in the context of the COVID-19 pandemic. Regarding the expansion of broadband networks in under-served areas, construction works have been completed in most localities. At the same time, new projects regarding education in the electronic environment (distribution of tablets) and telemedicine were approved, but they were in a too early stage of implementation to register significant progress. Overall, the evaluation shows a certain preliminary progress towards achieving the programme's TIC objectives, but the implementation is still in the early stages and does not allow a full evaluation.



Table 1. Findings of the evaluation reports already completed for the Priority Axis 1

Priority axis	P.I. O.S.	Findings	Result indicators	Output indicators	Activities undertaken (optional)	ID rating
AP1.	P.I. 1.1	The interventions have led to an increase in the number of researchers working in improved research infrastructures, contributing positively to increasing researchers' chances of integrating into international research teams, co-publishing scientific articles with researchers abroad and generating new research projects.	All related to PI Public-private scientific co-publications (per 1.000 inhabitants) (3S1); Horizon 2020 contribution raised by participating institutions from Romania (3S2); Public-private scientific co-publications (3S44); Projects submitted to the EU Framework Programme Horizon 2020 or other EU research programmes (3S45)	All related to PI 1.1: Private investments combined with public support for innovation or CD projects (million euros) (CO27); Number of researchers working in improved research infrastructures (CO25); Number of new researchers in supported entities (CO24); Number of supported companies (CO01); Specialists from abroad employed in supported projects (3S6); Support centers for applications to Horizon 2020 and other international programs (3S5); Patent applications (3S7)		1R1, 1R2
AP1.	P.I. 1.1	The status of achievement of the indicators based on the targets assumed by the projects under implementation at the time of the evaluation shows that the targets foreseen for the year 2023 at the investment priority level will be achievable. The only exceptions are the CO01 indicator - which is reported to be only 38% of target - and the 3S7 indicator - which has no value recorded.	All	All		1R1, 1R2
AP1.	O. S. 1.1.	In terms of the impact of interventions, the O.S. 1.1 supported the hiring of new researchers in supported entities and the increase of researchers working in improved research infrastructures. The researchers belonging to supported organizations benefited more from access to large CD infrastructures, national and international CD networks or scientific publications, compared to similar researchers in non-beneficiary organizations.	All (3S1, 3S2, 3S44)	All (CO27, CO25, CO24, CO01, 3S6)		1R1, 1R2



Priority axis	P.I. O.S.	Findings	Result indicators	Output indicators	Activities undertaken (optional)	ID rating
AP1	O. S. 1.1.	O.S. 1.1 has contributed, along with other equally important factors, to the beneficiaries' performance in: obtaining new/improved products, processes, technologies; producing publications and articles; improving C&D collaborations. These effects have led to improved technology transfer of products, processes, technologies, as well as knowledge dissemination effects to other companies and CD organizations.	All	All		1R1, 1R2
AP1	O. S. 1.1	The contribution of O.S. 1.1 to the production of public-private scientific co-publications per 1 million inhabitants was the highest, at 150 public-private co-publications (i.e. about 7.8 public-private co-publications per 1 million inhabitants). The achieved value represents 43% of the target value. 1.	3S1	-		1R1, 1R2
AP1	O. S. 1.1	Estimates based on the counterfactual analysis highlighted that the chances of improving the performance of researchers working in organizations that have benefited from projects under the POC O.S.1.1 are higher in terms of: integration into international research teams (by about 20.4%), co-publication of scientific articles with researchers from abroad (by about 20%), generation of new research projects (15.5%).	All	All		1R2
AP1	O. S. 1.1	Estimates based on the difference-in-differences method at the regional level revealed a direct effect of the intensity of POC interventions through the O.S. 1.1 on the number of international scientific co-publications, total research-development expenditure and the number of tertiary-educated persons employed in science and technology (thousands of persons).	All	All		1R2



Priority axis	P.I. O.S.	Findings	Result indicators	Output indicators	Activities undertaken (optional)	ID rating
AP1	O. S. 1.1	Most of the case studies indicate an improvement in internal competitiveness and economic growth in the areas targeted by the projects. This impact can be observed mainly among completed projects. The support provided through the POC has had an important influence in this respect, but in most cases it has not been the main cause of influence.	All	All		1R2
AP1	O. S. 1.2	The analysis of the indicators reveals a limited contribution of POC OS 1.2, but essential for some of the indicators related to the participation of Romania in Horizon 2020. There has been an increase in the number of Horizon 2020 support centres, in the number of projects submitted under Horizon 2020 or other international programmes and good collaboration with foreign specialists attracted to POC projects.	All (3S1, 3S2, 3S45)	All (CO27, CO25, CO24, CO01, 3S6, 3S5, 3S7)		1R1, 1R2
AP1	O. S. 1.2	Overall, the potential of interventions to contribute significantly to innovation is limited. The competitiveness and innovation capacity of beneficiary organizations is reduced by the lengthy process of project selection procedures. Thus, there is a risk that investment priorities are not aligned with the changing needs of these sectors.	All	All		1R1, 1R2
AP1	O. S. 1.2	POC had a contribution to the projects submitted to the EU Horizon 2020 Framework Programme or other EU research programmes. The project results led to an over-achievement of the target, with an achievement level of 124%.	3S45			1R1, 1R2



Priority axis	P.I. O.S.	Findings	Result indicators	Output indicators	Activities undertaken (optional)	ID rating
AP1	O. S. 1.2	The case studies confirm that the interventions have contributed to increasing Romanian participation in European and international projects. Concretely, there has been an increase in the number of Horizon 2020 support centres, in the number of projects submitted to Horizon 2020 or other international programmes and a good collaboration with foreign specialists attracted to POC projects.	All	All		1R2
AP1	O. S. 1.2	The empirical results of the analysis at regional level (DID method) revealed a statistically significant causal impact of the intensity of interventions on the number of participants in Horizon 2020, the success rate at regional level and the EU financial contribution.	All	All		1R2
AP1	P.I. 1.2	The interventions have positively contributed to the increase in the number of supported companies and new researchers in supported entities, leading implicitly to an increase in CDI expenditure. Positive effects are also noted on the increase in patent applications resulting from projects, while the contribution to the increase in public-private co-publications is more modest.	All related to P.I.2 Public-private scientific co-publications (per 1.000 inhabitants) (3S1) ; Innovative SMEs collaborating with others (3S4) ; Number of small and medium sized enterprises (separate legal entities) with whom the applicant cooperated (3S46)	All related PI 1.2: Number of supported companies (CO01) Private investments combined with public support for innovation or CD projects (million euros) (CO27) Number of companies benefiting from support for introducing new products to the market (CO28) Number of companies benefiting from financial support other than grants (CO03) Number of new enterprises supported (CO05) Number of new researchers in supported entities (CO24) Number of companies cooperating with research institutions (CO26) Patent applications resulting from projects (3S7)		1R1, 1R2



Priority axis	P.I. O.S.	Findings	Result indicators	Output indicators	Activities undertaken (optional)	ID rating
AP1	P.I. 1.2	PI 1.2 has contributed significantly to the increase in the number of companies collaborating with research institutions. There was also a positive effect on the number of companies supported or receiving support for new product launches, although for the latter the effects were more modest. It also contributes to the increase in patent applications resulting from projects.	All	All		1R1, 1R2
AP1	P.I. 1.2	The evolution of the output indicators over the period 2018-2021 shows significant overall contributions to the achievement of the specific objectives, with an upward trend over the period under review. On the basis of the targets assumed by the projects under implementation at the time of the evaluation, it is expected that the targets foreseen for 2023 at the investment priority level will generally be achieved.	All	All		1R1, 1R2
AP1	O. S. 1.3	The interventions have contributed to an increase in the number of new researchers in supported entities, an indicator for which the proposed target for 2023 has been exceeded. Positive effects have also been seen on the increase in the number of companies supported, leading implicitly to an increase in CDI expenditure.	All (3S1)	All (CO01, CO27, CO28, CO03, CO05, CO24, 3S7)		1R1, 1R2
AP1	O. S. 1.3	Positive effects are also noted on the increase in patent applications resulting from projects, while the contribution to the increase in public-private co-publications is more modest. The interventions have led to some intermediate effects at the level of enterprises on their profitability rate, the average number of employees and their chances of survival.	3S1	All		1R1, 1R2



Priority axis	P.I. O.S.	Findings	Result indicators	Output indicators	Activities undertaken (optional)	ID rating
AP1	O. S. 1.3	The case studies confirm that in the vast majority of the projects selected for analysis, the proposed indicators for the implementation period were met or exceeded, but in some cases there were difficulties in meeting the indicators due to the way the COVID 19 pandemic restrictions affected different sectors.	3S1	All		1R1, 1R2
AP1	O. S. 1.3	The empirical results of the regional analysis (DID method) revealed a statistically significant causal impact of the intensity of interventions of the POC through objective O.S.1.3 in the case of the indicator trademark applications, while for the other indicators (PCT patent applications and R&D expenditure in the business sector) the results should be viewed with due reservation, given the regional discrepancies induced by the development of the Bucharest-Ilfov region.	3S1	All		1R2
AP1	O. S. 1.4	From the perspective of the impact of interventions, analyzing the evolution of the indicators, important contributions to the achievement of the targets foreseen for 2023 can be observed, with a significant impact being observed on the number of companies cooperating with research institutions, an indicator for which the target has been far exceeded.	All (3S4, 3S46)	All (CO01, CO27, CO28, CO26, 3S7)		1R1, 1R2
AP1	O. S. 1.4	The Interventions have contributed positively to the increase in the number of companies supported or receiving support for new product launches. The projects have also led to new patent applications and public-private co-publications.	All	All		1R1, 1R2



Priority axis	P.I. O.S.	Findings	Result indicators	Output indicators	Activities undertaken (optional)	ID rating
AP1	O. S. 1.4	In terms of disseminated effects, it was found that the interventions led to the improvement of some public services, the applicability of innovative products and equipment beyond the boundaries of the project and the dissemination of improved business practices, knowledge and skills, products and technologies to other entities, the generation of new study and development prospects and the attraction of young researchers to a career in research.	All	All		1R1, 1R2
AP1	O. S. 1.4	As per the number of small and medium-sized enterprises (separate legal entities) with which the applicant has cooperated, according to MySMIS data, at the level of all projects contracted before November 2021, 211 SMEs were declared to have cooperated with out of the total number of targets assumed by projects, of 532 cooperations with SMEs, the degree of achievement being thus about 40%.	3S46	-		1R1, 1R2
AP1	O. S. 1.4	In most of the case studies analyzed, beneficiary CD institutions show better valuation of existing CD infrastructures, development of human capital, knowledge and skills of CD staff, and creation and maintenance of jobs within CD institutions.	All	All		1R2
AP1	O. S. 1.4	In the regional profile, the intensity of interventions has a direct effect on the number of public-private co-publications, an indicator that captures public-private research links and active collaborative activities between business and public researchers resulting in academic publications.	All	All		1R2



Priority axis	P.I. O.S.	Findings	Result indicators	Output indicators	Activities undertaken (optional)	ID rating
AP1	P.I. 1.1 P.I. 1.2	It is recommended to continue the funding for the evaluated intervention, as well as the output of a financial allocation that allows the launch of several competitions in a programming cycle (in the period 2014-2020, only one competition of this type was launched). Also, greater predictability and regularity of competitions generally dedicated to public-private knowledge transfer are needed.	All	All		1R1, 1R2
AP1	P.I. 1.1 P.I. 1.2	It is also recommended to stimulate the attraction in partnerships of small companies that are very dynamic and have the potential to exploit different market niches. However, the success in attracting small companies depends on the co-financing percentage requested for certain types of applied research activities, but also on the administrative burden generated by the high bureaucracy of the reporting procedures specific to European projects	All	All		R1 R2



Priority axis	P.I. O.S.	Findings	Result indicators	Output indicators	Activities undertaken (optional)	ID rating
AP1	P.I. 1.1 P.I. 1.2	It is recommended to continue the implementation of programs that stimulate the establishment and development of cooperation relationships between research organizations and enterprises for the purpose of transferring knowledge, technology and R&D personnel, with an emphasis on adapting these interventions to economic developments, but also on supporting the dissemination of knowledge at the level of less developed regions, too	All	All		R1 R2

Source: Evaluation reports 1R1, 1R2

Priority axis 1 (AP1): Research, technological development and innovation (CDI) to support the economic competitiveness and business development

Investment Priority 1.1 (P.I 1.1): Consolidation of research and innovation (R&I), of the infrastructure and capacities for the development of excellence in the field of R&I, as well as the promotion of centers of competence, especially those of European interest
Specific objectives:

OS1.1 Increasing CDI capacity in the areas of smart specialization and health

OS1.2 Increasing Romanian participation in EU-level research

Investment Priority 1.2 (P.I 1.2): Promoting investments in C&I, developing links and synergies between the enterprises, the research and development centers and the academic education, in particular promoting investments in product and service development, technology transfer, social innovation, eco-innovation and public service applications, driving demand, networking and clustering and open innovation through smart specialization, as well as supporting technological and applied research activities, pilot lines, early product validation actions, capabilities of advanced and early production, in particular in the field of essential generic technologies and the diffusion of technologies for general use, as well as supporting the necessary investments to strengthen crisis response capacities in health services

Specific objectives:

OS2.1 Increasing private investment in CDI

OS2.2 Increasing the transfer of knowledge, technology and personnel with CDI skills between the public and private environment



Table 2. Findings of the evaluation reports already completed for Priority Axis 2

Priority axis	P.I. O.S.	Findings	Result indicators	Achievement indicators	Actions taken (optional)	Evaluation ID
AP2	P.I.2 .1	For Ro-NET, the construction works on all lots have been completed and they are at various stages of administrative acceptance and processing. The project has progressed in implementation in 2021. Lot 1 is operational and the completion of four more out of seven lots is imminent.	All related to PI 2.1: NGA broadband coverage/availability (3S8)	All related to PI 2.1: ICT infrastructure: New households with broadband access of at least 30 Mbps (CO10)		2R1, 2R2
AP2	P.I.2 .1	Progress on the roll-out of high-speed NGN/NGA networks has been relatively slower, due to longer approval processes and delays caused by restrictions associated with COVID-19. As regards the extension of broadband networks in under-served areas, construction works have been completed in most localities.	3S8	CO10		2R1, 2R2
AP2	O.S. 2.1	The NGA broadband coverage/availability exceeded its proposed target of 80%, reaching 87% of households according to 2020 EC data.	3S8	-		2R1, 2R2
AP2	P.I.2 .2	Considerable progress has been made in financing innovative products and services and improving the level of digitization in firms. However, the products financed from these investments are in the early stages of market testing and scale-up to be able to show effects on firm-level achievements such as profitability and turnover	All related to PI 2.2: Gross added value generated by the ICT sector (3S9)	All related to PI 2.2: Supported innovative ICT products and services (3S11)		2R1, 2R2
AP2	P.I.2 .2	The counterfactual analysis shows statistically significant increases in firm size, with no effect on firm turnover or net profits one year after project completion.	3S9	3S11		2R1, 2R2



AP2	P.I.2 .2	The cost per product analysis highlighted the fact that the average net value of digitization support to SMEs per product or service developed determined a competitive cost in relation to the market. At the same time, there is a wide heterogeneity of products/services supported, which offers flexibility for the varied needs of SMEs	-	3S11	2R1, 2R2
AP2	O.S. 2.2	The gross value added generated by the TIC sector reached the 6.7% of GDP according to the INS, at the level of the year 2021 (over the target 5% of GDP)	3S9	-	2R1
AP2	O.S. 2.2 O.S. 2.5	The counterfactual analysis carried out indicated that input costs, such as staff and fixed assets, increase in case of companies that receive grants, but this increase does not translate into results in terms of innovation or economic performance of firms in the very short term and is likely to show results only in the medium term.	All	All	2R1, 2R2
AP2	O.S. 2.2 O.S. 2.5	Most of the funds were used to hire human resources (programmers) and, in some cases, to purchase hardware and software. Investments at company level are not measurable yet, as the products developed are still either in the market testing or in the early launch phases.	All	All	2R2
AP2	P.I. 2.3	The projects targeting the education in the electronic environment (distribution of tablets) and telemedicine (isense integrated system for monitoring patients through telemedicine, developed in the Iconic IT cluster, MySMIS code 129410), were in December 2021 too early in implementation to make significant progress.	-	All related to PI 2.3: Developed/updated /extended IT systems in e-health (3S43) The Defense Telemedicine System Capability supported by Project (3S53) Schools using OER, WEB 2.0 in education (3S17)	2R1, 2R2



AP2	P.I. 2.3	Solid progress has also been seen in the development of big data platforms and e-government services, with projects nearing completion and scheduled to be used by the public authorities involved (e.g. The Competition Council, The National Registry Office, The Ministry of Culture) and even by the general consumers (e.g. the Culturalia.ro platform) by the end of 2022.	-	All		2R1, 2R2
AP2	P.I. 2.3	The case studies carried out to assess the impact of interventions related to e-government services suggest that there is a sustainability risk to these data platforms, due to the limited technical capacity for operational maintenance at the reference date of the assessment (31.12.2021). Thus, complementary investments in human resources, as well as financing for operations, maintenance and technological modernization are needed in the coming years.	-	All		2R2
AP2	O.S. 2.3	As most projects are in various phases of implementation (and testing of completed parts of software/platforms), the beneficial results of new e-government services - such as cost savings from online implementation and time savings from using digital public services - are not yet observed and cannot be evaluated.	-	All		2R2
AP2	P.I. 2.1 P.I. 2.2 P.I. 2.3	Given the number of projects still under implementation, the sustainability of the funded interventions could not be fully addressed in this report and will be explored in more detail in the last evaluation report, due to be completed in September 2023.	All	All		2R2
AP2	P.I. 2.1 P.I. 2.2 P.I. 2.3	It is recommended to coordinate closely with national, regional and local authorities, to coordinate and systematize the processes of granting construction permits and speeding up the implementation of projects	All	All		2R1, 2R2
AP2	P.I. 2.1 P.I. 2.2 P.I. 2.3	The design of high-value e-government projects must include a thorough needs assessment and a plan for sustainability beyond the programming period.	All	All		2R1, 2R2



AP2	P.I. 2.1 P.I. 2.2 P.I. 2.3	It is also recommended the extension of funding and programming to support the digitization of SMEs and the development of innovative products by SMEs and at the same time, the continuous assessment of the demand and need for such help.	All	All	2R1, 2R2
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Source: Evaluation reports 2R1, 2R2

Priority Axis 2 (AP2): Information and Communication Technology (ICT) for a competitive digital economy

Investment Priority 2.1 (P.I 2.1): Expanding broadband and deploying high-speed networks and supporting the adoption of new technologies and networks for the digital economy

Specific objectives: OS2.1 Expansion and development of high-speed broadband communications infrastructure

Investment Priority 2.2 (P.I 2.2): Development of ICT products and services, e-commerce and ICT demand

Specific objectives: OS2.2 Increasing the ICT sector's contribution to economic competitiveness

Investment Priority 2.3 (P.I 2.3): Strengthening ICT applications for e-government, e-learning, e-inclusion, e-culture and e-health

Specific objectives: OS2.3 Increasing the use of e-government systems

OS2.4 Increasing the degree of the Internet use



3. General conclusions

The programme targets the increased economic competitiveness of Romania in two strategic areas: research, development and innovation and information and communication technology. On the one hand, we are talking about strengthening CDI capacity in the areas of smart specialization and health, participation in European research, increasing private investment in CDI and strengthening public-private partnerships. In the field of ICT, the strengthening of broadband communications infrastructure, the contribution of the ICT sector to economic growth, e-government systems and the use of the Internet are targeted.

Despite progress towards programme goals, **Romania continues to be below the average of European Union (EU)**. In 2020, 0.48% of GDP was spent on research and development, well below the 2% target set by the *Europe 2020* Strategy and Romania ranks last in the EU on this issue. Although private R&D spending has increased slightly since 2014, public spending has seen a decline. The increase in the number of scientific publications and the intensification of public-private collaboration indicate a development of CDI, but insignificant compared to the objectives set out in strategic documents or the EU average. Although Romania has a high use of ultra-fast broadband, less than a third of the population has basic digital skills. The use of digital technologies in businesses and the availability, access and use of digital public services are well below the EU average, even though the Covid-19 pandemic has boosted the adoption and use of digital technologies in businesses and households.

The pandemic has affected the implementation of interventions. Activities scheduled within the projects (e.g. vocational training sessions or workshops) could no longer be carried out in the usual format due to social distancing measures, which led to extensions of implementation periods. Coupled with the fact that, in general, contracting, and actual funding of projects started late (the first calls took place in 2017), a significant percentage of projects were still under implementation at the time of the 2021 evaluation. Considering that the **effects of the interventions, especially the long-term effects, did not have time to materialize**, a first limitation of the evaluations carried out is the fact that only a partial observation of the impact could be achieved. The evaluation focused on studying the immediate effects of implemented project activities and on the project indicators.

In terms of the **effectiveness of the programme**, there is progress under all the specific objectives, but at different rates. Overall, the CDI projects achieved their short-term objectives. Although many projects are still not finalized, by and large, the indicator targets and direct results foreseen in the funding applications are being met. POC has supported the growth of CDI capacity in the fields of smart specialization and health by increasing the number of researchers in the supported entities, upgrading or creating new laboratories, and increasing the number of publications. The participation of Romania in EU research has increased through the submission of applications to Horizon 2020 and the attraction of foreign researchers. Although modest, private investment in CDI is almost exclusively due to POC interventions. Moreover, the programme has increased the number of private companies collaborating with public research institutions. The performance is weaker in terms of increasing innovation capacity, given the low indicators on patent applications and the production of new products, processes and technologies demanded by the market. Under AP 2-TIC, projects to support the increase of added value generated by the ICT sector and innovation in the field through the development of clusters are mostly completed. By December 2021, supported SMEs have developed more than 153 digital products or services, well above the programme target of 45. Projects on the development of *big data* platforms and e-government services are also nearing completion. Progress on extending high-speed infrastructure has been slower, due to longer approval processes and delays caused by the restrictions associated with Covid-19. However, in most localities in disadvantaged areas, the construction of broadband networks has been completed.



The **impact** of the programme on the economic competitiveness of Romania and the possible **unintended or disseminated effects** will be investigated in more detail in the next evaluation cycle in 2023, subject to the proviso that, at that time, some of the interventions may still be in the process of being completed or may have recently been completed. For the moment, the beneficiaries of funding perceive the support in respect of Research, development and innovation as essential for their activity and, in general, for the development of the whole field. Without this support, they would not have been able to make the investments in their own CDI capacity. The interventions on the development of TIC products and services by SMEs, e-business and TIC demand had an impact rather on the number of employees of the supported firms, but not on turnover or net profits. Unplanned and disseminated effects identified are isolated. In the field of CDI, stakeholders consulted reported improvements in project implementation capacity and working conditions. The reputation and visibility of the supported organizations has increased in their fields of activity and the infrastructure, products and developed equipment developed can also be used for purposes related to those of the projects.

The evaluation exercises carried out so far have not been able to conclude to what extent the results can bring about a sustainable transformation in the areas covered. However, aspects have been identified that can contribute to the **sustainability of the impact of POC**. New jobs have been created, the infrastructure created or upgraded were needed and will continue to be exploited, and the supported firms feel more competitive and more confident to cope with economic crises or shocks. The identified risks suggest, however, that complementary investments are necessary in the maintenance and development of the infrastructures created. Phenomena such as the migration of labor force, may affect the results achieved so far. There is also a need to re-prioritize these areas, in particular CDI, at national public policy level.

Delays in the governance of legislative and institutional processes have affected the programme implementation. The first calls were launched in 2017. Together with the Covid-19 pandemic, it is one of the **external mechanisms** that the evaluation points to. In the TIC sphere, progress in improving broadband infrastructure and internet access has been challenged by the heterogeneous nature of local regulations and poor coordination between the central and municipal levels in addressing these issues. Among the **internal mechanisms** identified, the following should be mentioned: the long time taken to evaluate and sign funding contracts, the complexity of the guidelines and reporting processes, the long time taken to process reimbursement requests. The effects of these mechanisms have been partly ameliorated thanks to the Managing Authority of the programme, which has maintained close cooperation with beneficiaries and has taken steps to simplify administrative procedures.



2 Annex 1. Evaluations of POC 2014-2020

ID.	Brief description of the measures/interventions subject of the evaluation	Title	Funds	Thematic objective	Link to the report
1R2	<p>The report refers to the second evaluation of POC interventions 2014-2020 (reference date of the evaluation being 24.11.2021) in the field of research-development-innovation, being structured on 4 themes, covering:</p> <ol style="list-style-type: none"> 1. Evaluation of POC interventions on CDI capabilities in the areas of smart specialization and health 2. Evaluation of POC interventions related to improving the participation of Romanian research bodies and enterprises in Horizon 2020 3. Evaluation of POC interventions related to private investments in RDI 4. Evaluation of POC interventions related to the transfer of knowledge, technology and personnel with CDI skills between the public and private research environments <p>The priority axis 1 (PA) being: Research, technological development and innovation (CDI) in support of economic competitiveness and business development</p>	Second evaluation report	FEDR	TO 01 Strengthening research, technological development and innovation	Second evaluation report
1 R1	<p>The report refers to the first evaluation of POC interventions 2014-2020 (reference date of the evaluation being 30.07.2020) in the field of research-development-innovation, being structured on 4 themes, covering:</p> <ol style="list-style-type: none"> 1. Evaluation of POC interventions on CDI capabilities in the areas of smart specialization and health 2. Evaluation of POC interventions related to improving the participation of Romanian research bodies and enterprises in Horizon 2020 3. Evaluation of POC interventions related to private investments in RDI 4. Evaluation of POC interventions related to the transfer of knowledge, technology and personnel with CDI skills between the public and private research environments <p>The priority axis 2 (AP) being: Research, technological</p>	First evaluation report	FEDR	TO 01 Strengthening research, technological development and innovation	First evaluation report



	development and innovation (CDI) in support				
2R2	<p>The report refers to the second evaluation of POC interventions 2014-2020 (reference date of the evaluation being 31.12.2021) in the field of information and communication technology, being structured on 4 themes, covering:</p> <ol style="list-style-type: none"> 1. Evaluation of POC interventions related to the expansion and development of high-speed broadband communications infrastructure 2. Evaluation of POC interventions in the ICT sector from the perspective of increasing economic competitiveness 3. Evaluation of POC interventions in the field of e-government systems 4. Evaluation of POC interventions in the field of increased Internet use <p>The priority axis (AP) being: Information and communication technology (ICT) for a competitive digital economy</p>	Interim evaluation report with ongoing evaluations of FESI-funded projects approved after 30 June 2020	FEDR	TO 02 Improving the accessibility, use and quality of information and communication technologies	Second evaluation report
2R1	<p>The report refers to the first evaluation of POC interventions 2014-2020 (reference date of the evaluation being 31.03.2021) in the field of information and communication technology, being structured on 4 themes, covering:</p> <ol style="list-style-type: none"> 1. Evaluation of POC interventions related to the expansion and development of high-speed broadband communications infrastructure 2. Evaluation of POC interventions in the ICT sector from the perspective of increasing economic competitiveness 3. Evaluation of POC interventions in the field of e-government systems 4. Evaluation of POC interventions in the field of increased Internet use <p>The priority axis (AP) being: Information and communication technology (ICT) for a competitive digital economy</p>	Evaluation report summarizing the findings of the initial evaluations, together with the lessons learned and key recommendations for the period 2021-2027	FEDR	TO 02 Improving the accessibility, use and quality of information and communication technologies	First evaluation report