

ANALYSIS OF THE IMPLEMENTATION OF R&D PROJECTS OF ENTERPRISES WITH EU FUNDS IN THE SILESIAN VOIVODESHIP

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Purpose: The aim of the article is to make a mid-term analysis of the progress of the implementation of EU projects in the area of research and innovative development of Silesian enterprises within the Regional Operational Programme of the Silesian Voivodeship (ROP SV) 2014-2020 and to identify factors affecting the fulfilment of the assumed objectives of the Programme.

Design/methodology/approach: For the purpose of the research, an ex-post analysis as at the end of 2018, an ex-ante analysis was used as a simulation of the achievement of indicators in the period up to 2023 and a comparative analysis of output and financial indicators in 2018 and 2023 in relation to the planned execution framework.

Findings: An evaluation of the implementation processes of Priority Axis I Innovative Economy under the ROP SV 2014-2020 was carried out. Priority Axis I (OP I) is designed to support research and development activities (R&D) of entities in the Silesian Voivodeship. Based on source materials, reports, observations and own experience, the causes and effects of the current state of achieved indicator levels were identified as well as in the final perspective of the Programme in 2023. The analysis and evaluation of countermeasures taken by the Managing Authorities/Intermediate Bodies [IZ/IP] is presented.

Originality/value: As a result of the research, a list of recommendations was formulated in order to increase the absorption potential of the OP I and to increase the effectiveness of intervention in the area of R&D.

The study conducted identified a low level of absorption capacity in the OP I, which applies to the current (2018) and projected (2023) situation. The degree of achievement of the target mid-term level of the financial indicator at the end of 2018 is 21.1%, and its forecast for the end of 2023 is 79.4%. Two key problems can be identified which affect the absorption potential of Priority Axis I. The first one concerns the low level of interest and application of beneficiaries in the area of R&D within the OP I. The basic reason for this is the limitation of the intervention to the area of regional smart specialisations [RIS] of the Silesian Voivodeship and a large amount of documentation necessary to prepare at the stage of signing the co-financing agreement and at the stage of accounting for projects. The second key problem involves the need to adjust the intervention logic, i.e. the level of allocation, and thus the target indicators, to the actual demand for support in the area of R&D activity under the CSF ROP 2014-2020.

Keywords: EU funds, research and development activities, regional operational programme of the Silesian Voivodeship.

Category of the paper: research paper.

1. Introduction

The European Union (EU) cohesion and regional development policy has 11 thematic objectives to support economic growth, one of its main objectives being *to support research, technological development and innovation*. The tool for implementing regional policy in the Silesian Voivodeship is a Regional Operational Programme of the Voivodeship of Silesia – ROP SV 2014-2020.

Within the framework of the ROP SV 2014-2020, financial support for entities in the area of research and development activity (R&D) is offered by the Priority Axis I Innovative Economy (OP I), which provides for the following measures in the programmed period [SZOOP RPO WSL 2014-2020, p. 26, 34, 48 — Detailed Description of Priority Axes]:

- 1.1. Key research structure for the region;
- 1.2. Research, development and innovation;
- 1.3. Professionalisation of business environment institutions (IOB).

Currently, we are in the middle of the implementation process of ROP SV 2014-2020. The statistics in the local IT system [LSI], expert opinions, articles and comments, reports are already available, evaluation studies have been conducted on behalf of the Marshal's Office of the Silesian Voivodeship, experiences have been acquired by the MA/IP and the beneficiaries themselves. All this served to select, collect, order and systematise knowledge and later a more in-depth analysis (quantitative and qualitative) and to justify the conclusions on the current course of implementation processes and their further course in one of the selected sections, namely in the area of support for research and development activities of entities in the Silesian Voivodeship within the framework of the Silesia ROP SV 2014-2020. The aim of the study is to perform a mid-term analysis of the progress of the implementation of EU projects in the area of research and innovative development of Silesian enterprises under the Regional Operational Programme of the Silesian Voivodeship (ROP SV) 2014-2020 and to identify factors affecting the achievement of the assumed objectives of the Programme.

The article examines progress in achieving the assumed objectives, which are defined in the form of performance framework indicators for Priority Axis I Innovative Economy (OP I) under the Regional Operational Programme of the Silesian Voivodeship 2014-2020 in 2018 and in 2023. The causes and effects of the current status of the achieved indicator levels have been identified and in the final perspective of the Programme. The analysis of countermeasures taken by the Managing Authority/Intermediate Bodies (IZ/IP) was presented. Recommendations were

formulated in the direction of possible decisions to increase the absorption potential of Priority Axis I and the effectiveness of intervention in the area of R&D.

2. Analysis of the implementation processes and execution of the assumed objectives of Priority Axis I (OP I) of the ROP SV 2014-2020

In the set of OP I measures — Measure 1.2. The effectiveness of project implementation in Measure 1.2. — has a decisive impact on the effects of completion and achievement of target indicators of the entire Priority Axis I. The remaining measures of OP I have been assigned a supporting role for the research and development activity of enterprises in the Silesian Voivodeship.

Measure 1.2 *Research, development and innovation in enterprises* within the framework of CSF ROP 2014-2020 has been assigned to increase the research and development (R&D) activity and improve the pro-innovative environment, especially for micro, small and medium-sized enterprises in the Silesian Voivodeship. The specific objective to be achieved through the implementation of the subsidised projects is to increase the innovativeness of the region by increasing the number of enterprises involved in R&D activities resulting in their commercialisation, as well as to improve the quality of research infrastructure used for research and development activities (Regulations of the competition, [SCP], p. 13). The following two types of projects could be supported under Measure 1.2:

- Type 1. Creation or development of existing R&D infrastructure in enterprises for their innovative activities;
- Type 2. Support of R&D activities in enterprises.

The condition for support under *type 1* project is the presentation of a research plan by the enterprise. The R&D work plan should consist of industrial research and experimental development or exclusively experimental development using the infrastructure financed by the project lasting at least for the duration of the project. The condition for support under project *type 2* is the commercial use of the results of R&D works being the subject of the project in the economy (Regulations of the competition..., p. 13). The scope of support in both types of projects includes projects in accordance with the extended list of Regional Smart Specialisations [RIS] of the Silesian Voivodeship. For Measure 1.2 since the beginning of the Programme implementation seven competitions have been announced, their main features are presented in Table 1.

Table 1.

Competitions announced under Measure 1.2. Research, development and innovation in enterprises ROP SV 2014-2020

No.	Call for proposals/ competition	Value of allocation, PLN	Number of applications submitted	Number of applications selected for funding	Scope of projects
1	Call for proposals 30.06.2016 - 30.08.2016 Project type 1 and 2 for: SME Minimum amount of project funding: PLN 200,000.00	153580000	169	58	Investment funding for activities complying with RIS: energy, medicine, IT
2	Call for proposals 28.04.2017 - 17.07.2017 Project type 1 and 2 for: SMEs and large enterprises Minimum amount of project funding: PLN 200,000.00	293022210	104	47	As in competition 1
3	Call for proposals 19.10.2017 - 28.12.2017 Project type 1 and 2 for: SMEs and large enterprises Minimum amount of project funding: PLN 200,000.00	195971299	94	29	Extension of PKD code lists within RIS
4	Call for proposals 30.04.2018 - 28.06.2018 Project types 1 and 2 for: enterprises, special purpose/spin-off companies, consortia Minimum amount of project funding: PLN 100,000.00	62505000	60	28	As in competition 3, also: the minimum amount for applying for support was lowered, the scope of beneficiaries was extended
5	Call for proposals 28.09.2018 - 15.01.2019 Project types 1 and 2 for: enterprises, special purpose/spin-off companies, consortia Minimum amount of project funding: PLN 100,000.00	128319000	69	Deadline for the settlement of the competition - August 2019	Update of smart specialisations of the Silesian Voivodeship by the Resolution of the Sejm of 19 March 2018. Added: green economy, emerging industries
6	Call for proposals 29.11.2018 - 01.03.2019 Project type 2 for: enterprises, special purpose/spin-off companies, consortia, Minimum amount of project funding: PLN 100,000.00	50 000 000	10	Deadline for the settlement of the competition - September 2019	List of smart specialties of the Silesian Voivodeship - update 10.04.2018

Cont. table 1.

7	Call for proposals 31.07.2019 - 30.09.2019 Project type 1 and 2 for: Micro, small, medium and large enterprises, special purpose/spin-off companies, consortia Minimum amount of project funding: PLN 100,000.00 Maximum value of eligible expenditure PLN 20,000,000.00	107377500	Call for proposals in progress	Deadline for the competition. 1st round - December 2019 2nd round - February 2020	As in competition 6, also: the selection and settlement of the competition will take place in two rounds, which will shorten the process of applying for and signing contracts
	TOTAL	990775009	506		

Source: See Ogłoszenia i wyniki naborów [the announcements and results of calls for proposals], <https://rpo.slaskie.pl/lis/nabory> (12.08.2019).

Even a cursory review of the basic data presented in Table 1 shows that the activity of beneficiaries in the process of applying from competition to competition generally decreased, and the Managing Authority introduced further changes to increase the absorption potential under Measure 1.2, namely: extension of the list of smart specialisations and PKD codes (PKD – Polish classification of activities) included in the RIS, reduction of the minimum amount allowing to apply for support, extension of the subject scope of beneficiaries eligible to enter the competition. However, it is more crucial to analyse the progress of the implementation of OP I in terms of achieving the target values of mid-term indicators (at the end of 2018) and the forecast of the final indicators (in 2023).

In addition to the final objectives by 2023, intermediate objectives for operational programmes at the end of 2018, the so-called performance framework, were also defined. *The performance framework* is the intermediate and final financial and core objectives of the priority axes measured by the financial and output indicators defined in the operational programme, their values agreed with the European Commission for implementation at the end of 2018 and 2023. The European Commission recognises intermediate objectives as having been achieved if all indicators of the performance framework have reached at least 85% of the intermediate objective at the end of 2018. (EU funds are bringing results, NIK, 2019). The intermediate values presented in the performance framework reflect the stage of implementation of the priority axes, the achievement of which at the end of 2018 will also make it possible to achieve the final values at the end of 2023. In order to estimate the intermediate performance framework for individual priority axes and determine the necessary minimum level of certification at the end of 2018, each Operational Programme (OP) applied an appropriate algorithm (Monitoring Guidelines..., MliR, 2018, pp. 2-4). Output indicators refer to a specific activity and are calculated in material or monetary units that measure the tasks performed under the project. Financial indicator — is *the total amount of certified eligible*

expenditure¹ expressed in euro. Table 2 shows the mid-term target indicators (performance framework indicators at the end of 2018) and the progress towards them in terms of values and percentages at the end of 2018.

Table 2.

Degree of implementation of the mid-term objectives — framework for implementation of the 2018 Priority Axis I of the CSF ROP 2014-2020

Indicator	Measurement unit	Mid term target value 2018	Execution according to data as of 31.12.2018 (based on approved applications for interim and Final payment and certified expenditure)		The final target value 2023				
			Value	% of execution	Based on payment claims approved by 31.12.2018		Based on payment claims approved by 27.01.2019 and payment claims submitted from 01.01.2018 to 27.01.2019 and pending		
					Value	% of execution	Value	% of execution	
1. Number of enterprises receiving subsidies	pcs.	10	36	360.0 %	-	-	-	-	150
2. The amount of certified eligible expenditure	euro	27 256 634	5 742 810	21.1%	7 251 830	26.6%	10 677 479	39.2%	237 824 304

Source: own elaboration based on *Sprawozdanie roczne z realizacji RPO WSL 2014-2020 za rok 2018*, Zarząd Województwa Śląskiego 2019, s.156, 159, 161; *Ewaluacja mid-term dotycząca postępu rzeczowego RPO WSL 2014-2020 oraz wkładu Programu w realizację unijnej strategii EU 2020 dla potrzeb przeglądu śródkresowego*, Raport..., Re-Source 2019, p. 33.

As can be seen from Table 2, the performance framework for the output indicator at the end of 2018 was achieved with a large surplus (360%). However, as far as the financial indicator is concerned, according to the requirements of the criterion of at least 85% of the implementation level, its assumed mid-term values were not achieved. The financial indicator implementation rate is only 21.1% in relation to the mid-term target as of the end of 2018. The situation in which there is a problem in achieving the assumed value of the financial progress indicator,

¹ Pol. *Certyfikacja wydatków...*

while at the same time exceeding the medium-term objective of the material indicator, means that companies implemented projects of a smaller financial scale. Under the priority axes, as well as under individual measures, there are different types of projects (as for example in Measure 1.2), which have different cost intensity, while the types of less cost-intensive projects may be more popular. In this situation the growth of substantive indicators is faster than the progress of the financial indicators. At the same time, the value of mid-term progress of the financial indicator is estimated for the whole Measure, and the actual implementation of the assumptions concerning this indicator is a consequence of the popularity of particular types of projects, more or less cost-intensive. The extension of estimates (beyond the current methodology taking into account only certified eligible expenditure) to amounts based on payment claims approved by the end of 2018, the achievement of the financial indicator in force in 2018 is 26.6%, and the extension of estimates to amounts based on payment claims in progress gives only 39.2% in relation to the implementation framework in force in 2018. Therefore, the 2018 mid-term objective of OP I was not achieved. As a result, there are concerns about the achievement of the target indicators in 2023, as confirmed by the forecasts in Tables 3 and 4.

Table 3.

Output indicator — forecast 2023: The value of the output indicator of the performance framework forecasted based on the actual effectiveness complemented by the effectiveness assumed from finalised projects and projects in progress for the Priority Axis I of the CSF ROP 2014-2020

Priority Axis I	Measurement unit	Target value 2023	Estimate based on signed contracts	
			Value	2023%
Number of enterprises receiving subsidies	pcs.	150	100	66,7%

Source: own elaboration based on *Ewaluacja mid-term dotycząca postępu rzeczowego RPO WSL 2014-2020 oraz wkładu Programu w realizację unijnej strategii EU 2020 dla potrzeb przeglądu śródkresowego*, Report prepared by Re-Source Research and Consulting Laboratory Korczyński Sarapata general partnership, commissioned by the Office of the Marshal of the Silesian Voivodeship, April 2019, p. 40.

Table 4.

Financial indicator — forecast 2023: The value of the financial indicator of the performance framework forecasted based on the average annual rate of contracting to date for Priority Axis I CSF ROP 2014-2020

Priority Axis I	Target value – Eligible expenditure certified 2023, in euro	Estimate based on signed contracts	Forecast based on the average annual contracting rate - optimistic scenario	Forecast based on the average annual contracting rate –pessimistic variant			
			Value, in euro	2023%	Value, in euro	2023%	Value, in euro
Eligible expenditure	237 824 304	95 026 505	40,0%	729 434	79,4%	165 303 702	69,5%

Source: own elaboration based on: *Ewaluacja mid-term...* Report, Re-Source, April 2019, p. 44.

According to forecasts, considering the current average annual contracting rate², achieving the objectives set at the end of 2023 will amount to 66.7% for the product indicator (Table 3), and achieving the financial indicator will amount to 79.4% (Table 4) under the basic optimistic scenario, without consideration of implementation risks that may take place in the future. In this situation:

- firstly, as stipulated in the Partnership Agreement, failure to achieve the intermediate objectives results in the impossibility to use the Performance Reserve of a given Priority Axis³. As a result, the Performance Reserve of Priority Axis I set at just over EUR 10.1 million will have to be transferred to another Priority Axis of the CSF ROP where the mid-term objectives have been achieved. This way of proceeding is confirmed by the *Methodology for the division of the performance reserve under the Partnership Agreement for 2014-2020* established by the Ministry of Investment and Development;
- secondly, the situation examined relates to *the middle* of the implementation period of Priority Axis I, and this does not yet mean that the target indicators set at the end of 2023 cannot be met, as the situation may change. For this purpose, it is necessary to analyse the *causes* of the failures, *assess the countermeasures already taken* and identify *possible corrective actions* for such a state.

In the further part of the research, an attempt was made to identify factors — causes of the negative situation and factors — catalysts for improvement of the existing situation in order to achieve the final indicators (2023) for OP I Innovative Economy of the RPO SV 2014-2020.

² Pol. *Kontraktacja...*

³ Pol. *Rezerwa wykonania.*

3. Identification of factors influencing the implementation processes and the level of achieving the objectives of Priority Axis I of the ROP SV 2014-2020

3.1. Cause and effect factors

The research identified *the most important reasons* for the failure to achieve the assumed financial value of the mid-term indicator of OP I at the end of 2018:

1. The whole process of implementation of the CSF ROP 2014-2020 was delayed, which resulted from a longer time of preparation of various types of legal regulations defining the boundary conditions for launching the intervention. For example, the first call for proposals under Measure 1.2 was not launched until 30 June 2016.
2. The problem of multiple legal regulations, their imprecision and high complexity should be recognised. These are national and community legal acts, as well as guidelines which do not have the status of legal acts, but are binding, of a system-wide nature, concerning the whole process of implementing EU measures or specific areas. This limits the possibilities of flexible reaction of the Managing Authorities (IZ) in overcoming difficulties in achieving performance framework indicators. On the other hand, despite a general extensive overregulation of the whole Programme, there is a lack of formal and legal solutions that would sufficiently take into account the specificity of the R&D sphere, that is, 'tailor-made' in this area. This, however, makes the regulations applicable to typical investment support, which does not always ensure the efficiency necessary for R&D projects.
3. There was a long time of evaluating submitted applications for subsidies and deciding on the results of contests (this period lasts at least 7 months), problems in cooperation with experts evaluating applications (low quality of experts' work), extended deadlines for signing the subsidy agreement (up to 3 months) due to time consuming process of completing the whole documentation required at this stage. Numerous applications for changes in the projects submitted by the beneficiaries required verification, which at the same time with long project implementation deadlines — the average project duration in OP I is 677 days (Evaluation mid-term... 2019, p. 124) — had an impact on later processes of submitting applications for payment and certification of eligible expenditure. These factors resulted in the postponement of the implementation of substantive and financial assumptions of the projects.
4. The announced contests in OP I were not very popular with the beneficiaries, and there was little interest of potential beneficiaries in applying for funds under Priority Axis I with a high allocation in each competition. The limited demand for selected aid instruments with a relatively high allocation amount is shown in Table 5, where the activity of beneficiaries in other selected axes is shown for comparison.

Table 5.*Interest of beneficiaries in particular areas of intervention in the CSF ROP 2014-2020*

Priority Axis/Measure	Share of the amount requested in the call for proposals budget
Priority Axis I Innovative Economy	90.0%
Measure 1.1 Key research structure for the region	73.4%
Measure 1.2 Research, development and innovation	95.7%
Measure 1.3 Professionalisation of BEIs	49.9%
Priority Axis II Digital Silesian Voivodeship	208.1%
Priority Axis III Competitiveness of SMEs	162.4%
Measure 3.2 Innovation in SMEs	251.9%
Priority Axis IV Energy efficiency, renewable energy sources and low carbon economy	112.5%
Measure 4.1 RES (Renewable Energy Sources)	463.2%
Priority Axis V Protection of the environment and efficient use of resources	122.2%
Measure 5.5 Strengthening the capability of rescue services	1043.4%
Priority Axis VI Transport	199.1%
Priority Axis VII Regional labour market	299.6%
.....	

Source: based on Ewaluacja mid-term ... 2019, p. 121.

It is shown in Table 5 that the total amount of applications submitted in OP I did not exceed the budget (on average, it accounted for 90% of the competition budget), for example, in Measure 4.1 or Measure 5.5, the amounts submitted exceeded the competition budget several times and accounted for 463.2% and 1043.4% respectively.

Despite the fact that the mid-term indicator at the end of 2018 concerning the number of enterprises receiving subsidies in OP I was exceeded several times (360%, Tab. 2), the fact that the target value of the financial indicator was not reached (21.1%, Tab. 2) suggests that the scale of demand for forms of support offered to entrepreneurs in OP I is smaller than a very large pool of financial resources involved in this area could indicate. At the same time, a large amount of allocation logically resulted in a high limit concerning the established financial objectives. The omission of actual needs from the planned scope of support and low progress in the implementation of the financial indicator also occurred because entrepreneurs were more interested in projects of the type 'Support for R&D activities in enterprises' (projects which are less cost-intensive) than projects of the type 'Creation or development of existing R&D infrastructure in enterprises supporting their innovative activity' (more cost-intensive projects).

According to the results of the analyses concerning the current and forecasted situation, the assumptions concerning the level of needs and interest in support in Priority Axis I proved to be too optimistic. As a consequence, the amount of allocation turned out to be too high, and a possible decision of the European Commission (EC) is required to make the target values of indicators realistic towards their reduction.

5. Additional factor restricting the application was the use of mechanisms narrowing the scope of intervention and directing support to sectors qualified as smart specialisations of the Silesian Voivodeship. The issue of substantive narrowing of intervention in the area of R&D to smart specialisations was already highlighted in the current evaluation study in 2017. (Current evaluation..., Ecorys, 2017), where it was pointed out that such a narrow formula of support results in limiting the availability of support in the area of R&D for companies from outside the industries representing smart specialisations of the region, which would be interested and have the potential to conduct research and development works. A factor that additionally decreased the demand for support in the enterprise sector was the fact that the region's potential in the scope of indicated smart specialisations is to a greater extent possessed by the R&D sector (to a lesser extent the enterprise sector), which is not able to absorb the funds addressed to it, which are addressed precisely to entities representing smart specialisations of the region. Some negative impact of this factor was reduced by the later extension of the catalogue of smart specialisations for the Silesian Voivodeship.
6. There was often a delay in the certification of expenditure in implemented projects, which also resulted in difficulties in achieving the financial indicator targets in Axis I. Relatively long duration of verification of payment applications, complex procedure, number of errors made by the beneficiaries, limited human resources as well as staff turnover (in institutions involved in the process of implementing the ROP SV 2014-2020, as well as among the beneficiaries), varied frequency of payment applications and often their low value at the initial stages of project implementation — all this had an impact on financial progress. Considering the long period of project implementation, in particular research and development projects, this period has a direct effect on the extension in time of the expenditure incurred, which is the basis for subsequent submission of payment applications and their verification.
7. Difficulties and delays in project implementation also result from the need to apply the Public Procurement Law or the competition principle. Such regulations make it difficult to cooperate with entities with which the beneficiary cooperated previously and which have the required, often specialised, substantive potential and experience. Moreover, the need to apply the applicable procedures for selecting contractors/suppliers makes mistakes or inaccuracies in the selection procedure result in further financial corrections, which in turn adversely affects the progress of financial indicators.

8. The presence of support of a competitive nature in relation to Measure 1.2 of the ROP SV 2014-2020, mentioned in the national Operational Programme Smart Development (OP IR), also implemented in the Silesian Voivodeship, contributed to the reduction of the absorption potential. This programme was perceived by potential applicants as attractive due to a wider list of 19 national smart specialisations. A larger number of potential applicants had a chance to be included in the scope of smart specialisations established in the OP IR, which reduced the demand for support under ROP SV 2014-2020, which was addressed to entities in a much narrower way. This is one of the factors that adversely affected the level of interest in support under Measure 1.2 of the ROP SV 2014-2020, which, in turn, due to the large amount of the allocation planned to be launched in this area of support — resulted so far in a very low level of financial indicator implementation.

Summarising the cause-and-effect relations limiting the application activity of the beneficiaries, the importance of the above mentioned factors is all of the greater that in the case of Priority Axis I not only the problem of failure to achieve the mid-term objective (2018) in financial terms was identified, but also a real threat of failure to achieve the financial final objective (2023). Therefore, it is crucial to take specific actions to mitigate this risk.

3.2. Countermeasures taken by the Managing Authority, with particular emphasis on Priority Axis I

By 2018, the Managing Authority undertook a number of actions aimed at improving the processes of applying for EU funds under the ROP SV 2014-2020, including those concerning OP I. As the results of the analysis of the source documentation show, these are among others (Current evaluation... Ecorys, 2017; Mid-term evaluation... Re-Source, 2019):

1. Consultations and negotiations of the MA (IZ) with institutions supervising the implementation of the Programme on the national and Community level in response to the identified and difficult to overcome difficulties in the implementation of the assumed mid-term values. Attempts were made to renegotiate the values of material progress indicators or to make transfers of financial resources in order to reduce the target value of the financial indicator. To increase demand within OP I, the following were of particular importance: establishing cooperation with entities associating enterprises operating within the framework of smart specialisations; carrying out additional calls for proposals; intensive information and promotion activities; expanding the list of PKD codes defining the scope of smart specialisations in the Silesian Voivodeship; reducing the minimum amount of money that can be applied from PLN 200,000 to 100,000; expanding the population of beneficiaries from 'enterprise' to 'enterprise, special purpose/spin-off companies, consortia'. The actions performed have significantly increased the demand of the enterprise sector for the implementation of R&D projects.

2. There was regular contact with beneficiaries implementing projects in areas where there was a risk of not achieving the mid-term objectives. Meetings/consultations with the beneficiaries were aimed at identifying possible difficulties and finding possible ways to reduce the risk of time shifts in the implementation of projects and thus the achievement of target values for indicators. An essential aim of these contacts was also to persuade the beneficiaries to submit payment applications even in a situation where it was not originally planned by the beneficiary to submit such an application at a given time, e.g. due to the small amount of expenditure incurred during the reporting period. The submitted payment claims could still increase the financial indicators achieved in 2018.
3. In response to the low level of activity in previous calls for proposals, measures were undertaken aimed at increasing interest of potential beneficiaries and encouraging them to apply for support. Under Priority Axis I, intensive information activities and meetings were conducted for applicants from the enterprise sector; particularly, however, the number of calls was increased in relation to the originally planned calls in order to broaden the possibility of applying for funding by the largest possible group of potential beneficiaries.
4. The launch of consecutive calls for proposals was accompanied by modifications of the anticipated scope of intervention, as a result of which the group of eligible and interested project proponents has expanded. This concerns the implementation of calls for proposals with an extended catalogue of smart specialisations of the Silesian Voivodeship, as well as the extension of the permitted scope of subsidised projects, e.g. extending the catalogue of project types in Measure 1.2 with the type: 'Purchase of pro-innovative services by SMEs').
5. There was monitoring of potential difficulties in the implementation of the original project assumptions; consultations and negotiations on possible modifications of the material and financial scope; intensification of the process of settling payment claims — these are further countermeasures. A significant part of the activities were implemented not only by the MA/IB (IZ/IP) or the beneficiaries themselves, but in cooperation between the two main categories of interested parties.
6. Calls for proposals for 2019 have been planned in several rounds, which have been subject to the earliest possible launch of as many new projects as possible.
7. There were discussions with the European Commission concerning possible changes in the Programme, including further changes which may take place after the mid-term review and considering its conclusions.

3.3. Possible corrective actions — recommendations

In accordance with the guidelines and the $n+3$ rule, the ROP SV 2014-2020 will be implemented by the end of 2023, we are in the middle of the Programme implementation period. Consequently, in the years 2019-2023 it is still possible to undertake measures aimed at improving the indicators of Priority Axis I. The conducted research gives the opportunity to formulate the following recommended corrective actions in the scope of support for research and development activity of enterprises under OP I:

1. The state of implementation of the objectives of the mid-term performance framework presented above indicates that it will be impossible to use the Performance Reserve in Priority Axis I. In this situation it is recommended to transfer EUR 10 million of the basic OP I allocation to Priority Axis IV from the same fund, so that it would increase the allocation of Measure 4.1. *Renewable energy sources (RES)*. The argument in favour of the transfer of funds in this direction is the ongoing need to improve air quality in Silesia, and this is made possible by the production of energy from renewable sources. This type of support is consistent with the Clean Air Programme, the energy and climate package (20/20/20), the directions outlined in the EU-2020 Strategy and the Programme for Silesia. As shown above (Table 5), Measure 4.1 has a high absorption potential and the implementation of additional investments in this area is particularly desirable.
2. It will be essential to prioritise calls for proposals, considering the duration of the evaluation of applications for funding and the outcome of contests. The year 2019 should be treated as the moment of the greatest accumulation of the number of calls for proposals, and priority should be given to the publication of contests for those activities in which the projects are long-lasting. In turn, the last calls are usually the most popular among potential applicants, as they are aware that this is the last chance to obtain funding in the current funding period. That is why the last possible dates for calls should be determined taking into account the duration of projects and pre-implementation procedures, and these proposals are presented in Table 6.

Table 6.

Estimated dates for starting calls for proposals and for starting projects (at the latest) in the area of Priority Axis I intervention

Axis/Measure	Average duration of projects, in days	Estimated time for starting projects at the latest	Average time from application to start of implementation, in days	Estimated time for starting calls for proposals at the latest
Priority Axis I	677	December 2021	268	March 2021
Measure 1.1	1178	August 2020	231	December 2019
Measure 1.2	661	January 2022	270	April 2021
Measure 1.3	774	September 2021	125	May 2021

Source: based on *Ewaluacja mid-term...*, Re-resource, 2019, p. 122.

3. More regular calls for proposals increase the absorption capacity of the activities. However, preparation of contests requires time, so even without announcing additional contests there is a chance to increase the pool of applications and projects qualified for grants. For this purpose, a list of reserve projects should be prepared and, after careful analysis, reserve projects should be launched. Simultaneously, it is advisable to apply over-contracting mechanisms in areas characterised by a high level of interest in support in order to accelerate implementation processes of the whole Axis.
4. In order to ensure an adequate supply of projects that will contribute the most to the achievement of the milestones and targets, additional conditions required from the beneficiaries should be introduced, e.g. concerning a greater degree of preparation of the investment, its location, possession of environmental decisions, detailed research plans, etc., which are to optimise the process of project implementation or achievement of the expected result. It is recommended to carefully link the project selection criteria to the performance indicators used in the implementation so that the final objectives can be achieved by the end of 2023. It is also essential to demonstrate that the institution has properly planned interventions in time to achieve the values set.
5. It would be advisable to correct the amount of the Priority Axis I allocation and to consider the possibility of extending the scope of implementation of interventions under Measure 1.2 of the ROP SV 2014-2020, which would mean the adjustment of the intervention logic to the actual demand among potential project providers.
6. Potential measures increasing the absorption potential in Priority Axis I would require examining the possibility of broadening the scope of implementation of interventions under Measure 1.2 of ROP SV in such a way that the requirement for the subsidised undertaking to comply with the smart specialisations defined for the Silesian Voivodeship would not apply. The other way may be the introduction of changes in the SZOOP (Detailed Description of Priority Axes) in the form of new measures in OP I or new types of projects in the scope of research and development activity, which would not be covered by the requirement to subscribe to RIS of the Silesian Voivodeship. The capacity to influence the increase of absorption potential in this case is significantly increasing.
7. The processes of verification of payment applications should be simplified and made more flexible, the percentage of deviations from the original assumptions should be increased without the need for their acceptance by the MA/IB (IZ/IP), the possibility of increasing the co-financing of projects with a change in circumstances affecting the course of implementation and financing of projects should be allowed without changing the target indicators.
8. In the scope of R&D projects, the requirements for the application of the Public Procurement Law or competition rules must be eliminated or lenient. The most common way to protect intellectual property, both in Poland and other Central European

countries, is by means of trade secret. In a research conducted by Deloitte among 329 companies in Central Europe, 82% of the surveyed Polish companies indicated it, and in the entire region — 67% (Report..., Deloitte, 2018, p. 5). This implies that enterprises are sensitive to disclosure, even indirect, of their plans and secrets related to R&D activity, which may discourage them from taking part in competitions in this field.

9. The relevance of the indicators' selection, the appropriateness and correctness of the methods used for estimating the target values of indicators at the intervention programming stage may prove to be inadequate in real terms over several years. Based on historical data, historical observations of the pace of implementation of similar projects, available analyses, additional ex-ante studies, expert opinions, benchmarks etc., additional factors could be identified which could have an impact — first of all — on the change in the range of indicators selected for the performance framework; secondly, on the change in the methodology itself for estimating intermediate and final values, and thirdly, on the change in the set limits for the achievement of the target indicators. Should such factors be identified during implementation and their impact be sufficiently significant, the methodology setting out the new performance framework for OP I, the estimation methods and the values of milestones and targets need to be updated accordingly. Then the Managing Authority may consider this as a well justified case and submit a request to the EC to amend the operational programme in accordance with the normal procedure for introducing changes.

4. Conclusions

The conducted research (on the basis of source documentation, primary and secondary data) identified a low level of absorption potential in OP I of the ROP SV 2014-2020, which concerns the current and forecasted state by 2023. Summarising the results of the conducted analysis, two key problems affecting the absorption potential of Priority Axis I can be distinguished. The first one concerns the low level of interest and application of beneficiaries in the area of R&D within OP I. The basic reason for this appears to be the narrowing of the intervention to the area of smart specialisation of the Silesian Voivodeship and a large amount of documentation necessary to prepare at the stage of signing the contract for co-financing and at the stage of project settlement. In this context it is recommended, despite the simplification of procedures, to examine the possibility of deviating from the requirement of compliance of co-financed projects with the list of smart specialisations. In particular, the scope of intervention under Measure 1.2. The second key problem concerns the necessity of adjusting the intervention logic, that is, the level of allocation, and consequently — target indicators, to the actual demand for support in this area. It would be more reasonable to transfer funds from OP I and adjust the

target values of indicators of this axis, than to strive at all costs for increasing the absorption potential in this area. Firstly, there will be no time available to absorb and consume the allocated funds, which in turn depend on the long-term character of the implemented projects in the field of R&D activity.

It should be emphasised that a more thorough analysis and evaluation can be conducted after the end of the 2019 call for proposals and a much greater awareness of the beneficiaries' interest. It will then be feasible to formulate more precise recommendations, whilst at the same time there will still be enough time to take specific measures until the end of 2023 to increase the absorption capacity of OP I and the scale of implementation of the target indicators.

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