

Evaluation of the PARP aid scheme within the framework of the Operational Programme Smart Growth 2014-2020

Final report





CONTRACTOR - Consortium:

IDEA Instytut Sp. z o.o.

(IDEA Institute Ltd.)

biuro@ideainstytut.eu

www.ideainstytut.eu

Fundacja Idea Rozwoju

(Idea of Development Foundation)

biuro@ideaorg.eu

www.ideaorg.eu

Uniwersytet Jagielloński, Centrum Ewaluacji i Analiz Polityk Publicznych

(Jagiellonian University in Kraków, Centre for Evaluation and Analysis of Public Policies)

ceapp@uj.edu.pl

www.ceapp.uj.edu.pl

CONTRACTING AUTHORITY

Polska Agencja Rozwoju Przedsiębiorczości

(Polish Agency for Enterprise Development)

www.parp.gov.pl

AUTHORS

Stanisław Bienias, Tomasz Gapski, Maciej Koniewski, Paulina Skórska, Rafał Trzciński (IDEA),
Katarzyna Lisek, Anna Szczucka (CEAPP UJ)

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2. List of acronyms

BEI	Business Environment Institutions
BGK	Bank Gospodarstwa Krajowego (National Economy Bank)
CATI	Computer-Assisted Telephone Interviewing
CAWI	Computer-Assisted Web Interview
DDPA	Detailed description of priority axes
DT	Design Thinking
EC	European Commission
EPO	European Patent Office
ESM	European Single Market
GBER	Commission Regulation (EU) No. 651/2014 of 17 June 2014 declaring certain categories of aid compatible with the internal market in application of Articles 107 and 108 of the Treaty (OJ L 187, 26.6.2014, as amended)
GUS	Główny Urząd Statystyczny (Statistics Poland)
IB	Innovation Barometer 2014-2020
IDI	Individual In-Depth Interview
ITI	Individual Telephone Interview
KRS	Krajowy Rejestr Sądowy (National Court Registry)
LSI	Lokalny System Informatyczny (Local IT System)
MA	Managing Authority
MiR	Ministerstwo Inwestycji i Rozwoju (Ministry of Investment and Economic Development) – since 15 November 2019 the instruments described in this report have been subject to the newly established Ministry of Development Funds and Regional Policy
MPiR	Ministerstwo Przedsiębiorczości i Technologii (Ministry of Enterprise and Technology) – since 15 November 2019 the instruments described in this report have been subject to the newly established Ministry of Development Funds and Regional Policy
MR	Methodology report
OP IE	Operational Programme Innovative Economy 2007-2013
OP SG	Operational Programme Smart Growth 2014-2020
OR	Opening report
PA	Partnership Agreement
PAIH	Polska Agencja Inwestycji i Handlu (Polish Investment and Trade Agency)
PARP	Polska Agencja Rozwoju Przedsiębiorczości (Polish Agency for Enterprise Development)
PFR	Polski Fundusz Rozwoju (Polish Development Fund)
PIP	Protection of industrial property
PNT-01	Report on R&D activity

PSM	Propensity score matching
R&D	Research and Development activity
RIA	Regional investment aid
SL2014	Central IT system supporting the implementation of operational programmes within European Funds 2014-2020
SME	Small and medium-sized enterprises
SP	Annual enterprise survey
TDI	Telephone In-Depth Interview
TOR	Terms of reference
TR	Technical report
UOKiK	Urząd Ochrony Konkurencji i Konsumentów (Office of Competition and Consumer Protection)
UP RP	Urząd Patentowy Rzeczypospolitej Polskiej (Patent Office of the Republic of Poland)

3. Executive summary

3.1. Introduction

This report presents the results of the mid-term evaluation with regard to the scheme of financial aid granted by the Polish Agency for Enterprise Development (*Polish PARP*), within the Operational Programme Smart Growth 2014-2020 (registered as SA.42799 (2015/X), hereinafter ‘the PARP aid scheme’ or ‘the aid scheme’). The evaluation in question has been conducted pursuant to the Commission Regulation (EU) No 651/2014 of 17 June 2014¹ declaring certain categories of aid compatible with the internal market in application of Articles 107 and 108 of the Treaty². In the case of the aid schemes whose average annual State aid budget exceeds EUR 150 million, the Regulation mentioned can be applicable for a period longer than six months, authorised by the EC following the assessment of an appropriate evaluation plan, notified by the member State concerned. This situation has referred to the PARP aid scheme, for which an evaluation plan was developed and approved in 2016³. The plan has covered the mid-term evaluation in question as well as the ex post evaluation, planned for the year 2024⁴.

The legal basis for the PARP aid scheme is *Rozporządzenie Ministra Infrastruktury i Rozwoju z 10 lipca 2015 w sprawie udzielania przez PARP pomocy finansowej w ramach Programu Operacyjnego Inteligentny Rozwój*⁵ [Regulation of the Minister of Infrastructure and Development of 10 July 2015 on financial aid granted by the PARP within the Operational Programme Smart Growth]. As such, the aid scheme does not constitute an independent programme of socio-economic development. It is an instrument which is the basis for granting State aid under selected measures and sub-measures within Operational Programme Smart Development 2014-2020 (OP SG), which indeed represents an independent programme of socio-economic development. Thus the main objective of the PARP aid scheme is the same as OP SG objective, which is an increase in the innovativeness of the Polish economy. It should be also stated that the achieving this objective is conditioned – to much extent – by the effectiveness of other OP SG instruments implemented out of the PARP aid scheme. They are, among others, the measures and sub-

¹ *General Block Exemption Regulation* (GBER) – the Commission Regulation (EU) No 651/2014 of 17 June 2014 declaring certain categories of aid compatible with the internal market in application of Articles 107 and 108 of the Treaty (OJ L 187, 26. 6.2014, as amended).

² Treaty on the Functioning of the European Union (OJ C 326, 26.10.2012, pp. 1-390).

³ cf. PARP evaluation plan, Decision No SA.42799 of 8 February 2016, Brussels, 08.02.2016, C(2016) 654 EN ACTE final http://ec.europa.eu/competition/elojade/isef/case_details.cfm?proc_code=3 as at 28.05.2020.

⁴ The task has not been included in the scope of the evaluation commissioned.

⁵ Por. <http://prawo.sejm.gov.pl/isap.nsf/DocDetails.xsp?id=WDU20150001027>

measures within the aid scheme implemented in parallel by the National Centre for Research and Development⁶, which focuses on direct support for R&D activity in Poland.

At the moment of preparing this report the PARP aid scheme was comprised of eleven⁷ instruments, implemented within the OP SG. Their overall budget, as at the end of 2019, was nearly EUR 1.47 billion. The average annual expenses over 2015-2020 (the period when the aid scheme has been in force) will account to about EUR 244.4 million.

The biggest share in the above amount is held by sub-measure 3.2.1 'Market research', whose allocation accounts for 67% of the overall budget of the PARP aid scheme. This instrument is aimed at increasing the innovativeness and competitiveness of SMEs by supporting implementation the R&D results. The implementation of new or significantly upgraded products is an expected, direct result of the support. Since 2019 it is also possible to support implementation of innovative technological processes. Under sub-measure 3.2.1 the prevailing State aid category is Regional Investment Aid (RIA) to which Section 1, Articles 13-14 of the GBER refers.

The second largest allocation value of financial resources is distributed under sub-measure 3.3.3 'Go to Brand' (11%), which concentrates on the internationalisation of SMEs' business activity. However, in this instrument the vast majority of the aid is represented by *de minimis* category, which constitutes about 96% of the funding value. The State aid granted pursuant to Art. 19 of the GBER (the other 4%) is slightly less than 0.3% of the overall budget of the PARP aid scheme.

The other 22% of the allocation is divided into eight support instruments. The share of each of them amounts to from 0.2% (sub-measure 3.1.5) to maximum 5% (sub-measures 2.3.1 and 2.3.2). These are relatively small instruments in terms of their overall value. At the same time they support a relatively large number of entities, which means that in practice the single unit aid value is very low as compared to the largest instrument (i.e. sub-measure 3.2.1). To illustrate the situation – within the sub-measure 'Market research' by the end of December 2019, the support had covered 308 projects with the average funding of nearly PLN 10 million. As for the other instruments whose beneficiaries are enterprises⁸, there are overall 2677 projects with the average funding at the level of about PLN 0.4 million.

⁶ The scheme is also subject to evaluation, pursuant to the decision of the European Commission No SA.41471 (2015/N) of 24 August 2015.

⁷ However, ten instruments are subject to the evaluation. The eleventh sub-measure - OP SG 2.3.6 Eurogrants' grants – was added to the PARP aid scheme at the final phase of implementing the evaluation in question and it was not specified for analysis at the mid-term evaluation as it was at the very early implementation stage (no competition was launched at that time and works on the project selection system were coming to an end).

⁸ The figures do not include projects implemented under sub-measures 2.3.3, 2.4.1 and measure 2., in which beneficiaries are respectively cluster organisations, the PARP and accelerators. Enterprises, by contrast, could be ultimate recipients of the aid granted by the beneficiary. The reporting of the OP SG, including the PARP aid scheme is carried out at the level of beneficiaries within the SL2014 system. Detailed financial data, among

The above situation was taken into account at the stage of planning mid-term evaluation. Sub-measure 3.2.1 was marked in the evaluation plan as a key instrument and specific methods, data sources, indicators etc. were assigned to it. In the course of the programme implementation a relative significance of this instrument has increased additionally. It resulted from the overall decrease in the intervention due to excluding three instruments from the PARP aid scheme. Their implementation was shifted to other institutions. Additionally, one of the sub-measures has been closed⁹. These four instruments constituted originally 20% of the budget of the PARP aid scheme and three of them (implemented under OP SG measure 3.1) have been marked as key instruments as regards to their potential impact. Also, the significance of another instrument, marked as key one, i.e. sub-measure 3.1.5 ‘Support for SMEs to access the capital market – 4Stock’, has diminished. The value of the allocation to this sub-measure has been decreased by almost 50% and nowadays it constitutes merely 0.2% of the overall aid scheme budget. The support was ultimately targeted at implementing only 76 projects¹⁰.

Looking back at the initial evaluation assumptions, regarding the instruments with potentially the greatest impact on trade and competition¹¹, it should be stated that the main (key) support instrument within the PARP aid scheme has solely remained sub-measure 3.2.1 ‘Market research’. Thus it is the instrument that special attention has been paid to in this report. The analysis conducted for it is also the most comprehensive.

The research approaches and methods as well as data sources applied to the evaluation, results directly from the PARP evaluation plan. According to its assumptions, the mid-term evaluation uses –in the broad sense – the results of the evaluation, research and analyses conducted so far. The key information sources cover the results of the PARP project ‘Barometer of Innovation’, a series of evaluations of the OP SG project selection system, as well as the counterfactual analyses¹² conducted by the GUS (Statistics Poland) and other evaluation research with regard to the OP SG implementation¹³. Moreover, within this mid-term evaluation, complementary field research have been conducted, such as case studies of

others, the values of the aid under the above mentioned sub-measures, granted to ultimate recipients (entrepreneurs) have been presented in the report chapters describing the so-called non-key instruments.

⁹ In the case of shifted instruments, such as 3.1.1 ‘Starter’, 3.1.2 ‘Biznest’(the sub-measures implemented by the so-called entity implementing the financial instrument within the cooperation of the Bank Gospodarstwa Krajowego [National Economy Bank], the Towarzystwo Funduszy Inwestycyjnych BGK S.A. [Association of Investment Funds] and PFR Ventures Sp. z o.o.) and 3.3.1 ‘Polish Technological Bridges’ (implemented by the Polska Agencja Inwestycji i Handlu S.A. [Polish Agency for Investment and Trade], a beneficiary of the non-competition project) – cf. www.funduszeuropejskie.gov.pl/strony/wiadomosci/nowe-formy-wsparcia-w-programie-inteligentny-rozwoj/, as at 28.05.2020. The implementation of OP SG sub-measure 3.1.3 ‘Innovation Loan Fund’ was completely resigned from. Detailed alteration to the PARP aid scheme have been described in chapter five of this report.

¹⁰ It was originally foreseen that 120 projects would be supported under sub-measure 3.1.5.

¹¹ Cf. Item 2.2 (14) of the Commission decision (SA.42799 (2015/X)) of 8 February 2016 .

¹² Counterfactual analyses have been conducted for sub-measures 3.2.1, 2.3.2 and 3.3.3.

¹³ The complete list of sources has been presented in the Appendix to this report.

the supported projects (20), interviews with the aid scheme stakeholders (33) and quantitative research in the group of the so-called unsuccessful applicants (540).

To sum up, the PARP aid scheme has undergone some important amendments in the course of its implementation. They were taken into account and the original assumptions were revised at the stage of developing the PARP evaluation plan. As a result, solely sub-measure 3.2.1 “Market research’ should be included in the key measures in view of a potential State aid impact on trade and competition. Naturally, the mid-term evaluation has covered all aid instruments of the aid scheme, however, the presentation of the results in the main part of the report focuses on sub-measure 3.2.1. It is also reflected in this executive summary. Similarly to sub-measure 3.2.1, the detailed analyses with regard to non-key instruments have been presented in the Appendix to this report.

3.2. Effectiveness of the aid granted and factors conditioning it

In the context of the analysis results presented in the report, it is necessary to be aware of the moment of conducting the mid-term evaluation. By the end of 2019, 775 projects had been completed, which constitutes one quarter of all funding agreements signed within the PARP aid scheme. The vast majority of projects are still in progress, so the assessment of the support effectiveness – meaning the long-term impacts – could not be performed. Due to this reason the evaluation focuses on the short-term impacts, including the so-called incentive effect, i.e. on finding out, whether the aid has had a significant impact on the scope of activities undertaken by beneficiaries, mostly at the project implementation stage. The effectiveness assessment has been made with taking account of a direct impact (i.e. on the beneficiaries of the aid) and an indirect impact (i.e. on the beneficiary environment).

3.2.1. Incentive effect

Key instrument – sub-measure 3.2.1 ‘Market research’

The results of the research indicate that apart from the incentive effect formally fulfilled¹⁴, it is also revealed as a factual change in the behaviour of the beneficiaries of sub-measure

¹⁴ To have the incentive effect fulfilled, pursuant to Art. 6 (2) of the GBER: *Aid shall be considered to have an incentive effect if the beneficiary has submitted a written application for the aid to the Member State concerned before work on the project or activity starts.* In the case of the evaluated PARP aid scheme, this requirement was verified by the European Commission services within the monitoring conducted in the PARP over 2018-2020 in respect of the aid subject to block exemption SA.42799 (2018/MX). Based on the information collected, the Directorate-General for Competition has claimed that the scheme mentioned and the individual aid granted by the Polish authorities within the scheme to selected beneficiaries are, prima facie, compliant with the provisions of the General Block Exemption Regulation (GBER) – cf. the letter of 11 March 2019 registered as COMP H1/PS-cda/D (2019) – 034142.

3.2.1, caused by the State aid received. Although, the implementation of the supported projects results from the overall development strategy of the companies and most of them would probably have been implemented irrespective of the State aid. However, at the same time the aid favourably influenced the selected parameters of the investments, including their implementation period (notably the completion time) and value. It is confirmed by the results of the analysis of beneficiaries' compared to the control group of companies which have not received the aid (unsuccessful applicants). Beneficiaries incurred significantly higher expenditures in 2016-2018, i.e. in the first three years of implementation of sub-measure 3.2.1. Within this period the beneficiaries incurred the overall expenditures that were higher on average by about PLN 10 million than the entities from the matched control group. The project implementation has also had an impact on the average increase in the value of the possessed machinery and technical equipment (together with the expenditures for their construction, purchase and upgrade). Over 2015-2018 the value of machinery and technical equipment increased in the group of beneficiaries on average by PLN 14.4 million, whereas in the control group by about PLN 6.8 million. The difference (DID) in the average value of PLN 7.6 million is statistically significant. At the same time an independent survey conducted among unsuccessful applicants has revealed that the lack of funding had in most cases (90%) a negative influence on the implementation of the project in question, when it comes to the perspective of the overall decision on its implementation, its scale or the completion date. About 24% of the representatives of the unsuccessful applicants have admitted that the project will not be completed at all or that no decision has been made yet in this respect. The other companies have already commenced the project (43%) or they are planning to do it (33%), however, the lack of funding has most frequently translated into shifting the moment its implementation is completed (47% of all the projects) or limiting its scale (29%). In the context of the support in question, which is the market launch of SME innovative products, each parameter influenced by the support is very important. It particularly concerns the time factor (priority in the market launch of the product).

The above mentioned positive impact of the aid scheme on the incentive effect mostly results from the volume of the projects and the value of the support granted in relation to the beneficiaries' scale of operation. In case of some companies, the value of the expenditures assumed in the projects have exceeded several times the value of their annual income. It is clearly seen at the level of particular categories with reference to the company size. As for micro-companies, the value of the expenditures planned was on average by 2.7 times as high as the annual incomes gained in the period prior to submitting the application. In small companies project budgets were close to annual revenues. In medium companies, in turn, these relations were reversed – the value of the income gained was on average about 2.6 times as high as the value of the projects implemented. Nevertheless, supported projects still must have constituted a very important share in the companies' annual financial operations. For most beneficiaries the projects implemented under sub-measure 3.2.1 are likely to have been the main investments made in the evaluated period. The implementation of these investments in a similar scale and timeline would have been much more difficult or

even impossible without the external support. It is also supported by the fact, that companies – to much extent – implement investments with the use of debt financial products (commercial credits and loans). The above conclusions are also confirmed by the opinions of the entrepreneurs taking part in the case studies. They clearly state that without the support selected parameters of the investments would have suffered. Additionally, the simplified analysis of the creditworthiness of selected beneficiaries shows, that funding such large investments entirely on the basis of repayable instruments would not have been possible (i.e. these entities would have been given a negative bank decision in this regard). Even if it would be possible, it would significantly have disturbed their credit capacity in the broader sense of limiting opportunities for their further development including implementation of other investments. It would also increased the risks for business activity in case of emergency situations (due to limited liquidity etc.). Consequently, a financial position of the companies would significantly have increased the risk related to the effective implementation of the investments in question. This argument seems to be more and more significant in the context of the economic downturn caused by the COVID-19 pandemic.

Non-key instruments

The analysis of the incentive effect in the group of non-key instruments has been mainly conducted on the basis of assessing the behaviour of unsuccessful applicants and in-depth case studies of the projects already completed. Under sub-measures 2.3.2 and 3.3.3 it was also possible to verify the incentive effect with application of the counterfactual approach.

The collected data and information shows that the scale of the incentive effect occurrence is differentiated, however, as for these instruments, the State aid plays at least the role of a catalyst for project implementation. It has an impact, similarly to sub-measure 3.2.1, on the implementation timeline or the scale of the investment (material or financial scope).

The size of incentive effect is related to the level of beneficiaries' determination to implement a given project, which in turn, results from the importance of the project in the overall business activity. The project implemented within non-key instrument of SG OP is usually only a part of a larger undertaking. Particular instruments implemented within the aid scheme can be notably classified by their place in the product investment cycle¹⁵. It is possible to distinguish here the instruments concentrating on the stage of innovation design (2.3.2, 2.4.1), gaining capital and the background for their development (2.5, 3.1.5), introducing innovations to the market (2.3.1, 2.3.5), providing their legal protection (2.3.4) and promotion abroad (2.3.3, 3.3.3). A relatively higher level of the incentive effect is observed in the instruments related to innovation design and their promotion abroad.

¹⁵ Particular instruments are often a natural combination of many features (e.g. they combine the stages of designing, planning and the stage of industrial property protection). In order to maintain the clear message the division presented takes account of these elements of a given instrument which are its subject matter.

For example, as for sub-measure 2.3.2 'Innovation vouchers for SMEs', nearly 40% of the entities which have been given a negative decision on funding within the OP SG have declared that they are no longer planning to implement the R&D project in question. The project, in turn, which have been set up or planned to be set up despite the lack of funding, will come to an end – in most cases - later than it was assumed at the stage of applying for the support. The positive incentive effect is mainly visible in the case of expenditures for R&D activity. The analyses show a distinctive increase in the share of beneficiaries incurring expenditures for external R&D activity (the increase by 27 p.p. in 2018 as compared to 2015 – respectively from 15% to 41%). As compared to the results for the matched control group, this increase (DID) amounts to as much as 29 p.p. (taking account of the share decrease in the control group, which – in the period under analysis - accounted for 3 p.p. – respectively from 11% in 2015 to 8% in 2018).

Similar conclusions, regarding the willingness to implement the project without the public support, have been observed in the case of sub-measure 3.3.3. Although, the share of the projects whose implementation has been given up due to the lack of funding was slightly lower (36%) than in sub-measure 2.3.2.

In the case of projects that involve implementing innovations (2.3.1, 2.3.5), the data collected, among others the case studies, reveal that due to the strategic significance of the projects, companies demonstrate relatively high determination for their implementation. At the same time it should be stated that in most cases the State aid makes it possible to accelerate the whole process or to increase its scope.

In the case of the instrument that involves supporting SMEs in gaining capital, representatives of the beneficiaries under sub-measure 3.1.5 clearly show that the implementation of the projects in questions would have come into effect regardless of the support received. However, in each case it would have happened at the expense of one or several parameters, such as having to limit the venture scale, decreasing the quality or delaying the implementation. It should be added that the specificity of this sub-measure and the final effect expected in the form of making the company public on the capital market – is so important from the company's perspective (the IPO will re-model its functioning) that it is difficult to expect that the fact of receiving funding for consultancy was a sufficient condition for taking such a step by the companies. It can be expected more frequently that the companies are on the development path and they are searching for opportunities of gaining external funding. The stimulus such as the grant for a consultancy service can accelerate this decision or increase the quality of the whole process.

The instruments in which the support constitutes a relatively insignificant part of the whole business venture are characterised by a slightly lower incentive effect. Particularly, this refers to the support on the protection of industrial property (sub-measure 2.3.4). In many cases, companies are applying for support with an innovation whose value significantly exceeds the support granted within the OP SG. A slightly lower level of the incentive effect do not invalidate, however, the legitimacy of this aid instrument. Sub-measure 2.3.4 is a

niche and unique instrument at the national level, which responds to the problem of low activity of Polish SME in the area of industrial property protection. Apart from making it possible to implement the projects, the support is also to serve for promoting activities of this kind as well as good practices. To some extent it can be said that the aspects related to the promotion of particular attitudes and activities among entrepreneurs are – in the case of sub-measure 2.3.4 – as significant as the financial support offered to the companies itself. It is also worth paying attention to the fact that obtaining protection rights is always an element of a much broader and very cost-absorbing process of implementing innovations, which is preceded by conducting R&D works and designing. In the above context, it should be pointed out that the support covers the projects of the relatively highest innovative level within the whole PARP aid scheme. Over 68% of them belongs to the sector of high and medium-high technologies (the average for the whole aid scheme amounting to nearly 46%). A specific situation is observed when it comes to the projects in which the companies are not the OP SG beneficiaries but act as the ultimate aid recipients (financial intermediaries). It concerns the following instruments: 2.3.3 ‘Key National Clusters’, 2.5 ‘Acceleration programmes’ and 2.4.1 ‘Centre for analyses and pilot implementation of new instruments-inno_LAB’ (the non-competition project implemented in partnership of the PARP and the Ministry of Development). As for these instruments, the assessment of the incentive effect is multi-levelled and because of this it is also difficult. However, as the research results shows, at the most general level (i.e. project beneficiaries which further distribute the aid to its ultimate recipients) and in the vast majority of the evaluated cases the support has been the necessary condition to set up particular projects.

Summary

To sum up the incentive effect, it is advisable to refer to the results of the survey conducted among unsuccessful applicants¹⁶. They show that over 64% of all entities which have not received the support have not taken on implementing the project. The other 36% of the unsuccessful applicants have set up the investment, funding it from another source. It is also worth stating that nearly one project out of 10 which has not received the support has been already completed. On the other hand, 35% of the entities from the evaluated group have declared that they will not implement the project in the future or that they have not made any decision in this respect yet. 30% of the companies under analysis¹⁷ had a plan for implementing the project in the future.

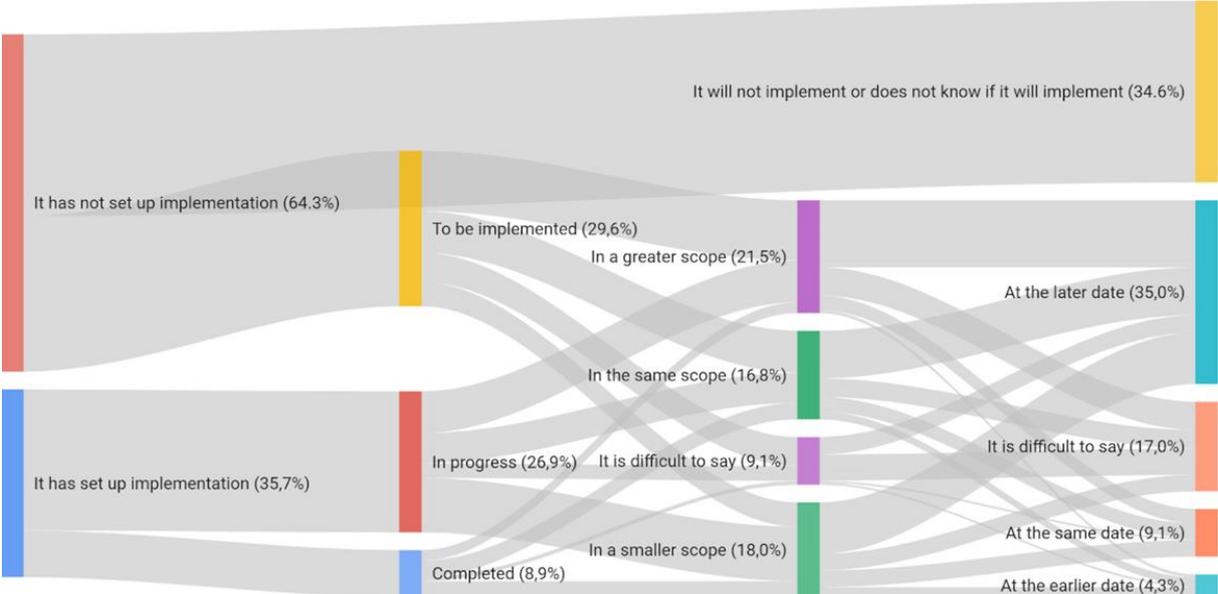
The lack of funding has had the greatest impact on the project implementation period. About 35% of the companies have indicated that they have decided or will decide to implement the project but its completion date has been or will be later than the planned in

¹⁶ The survey studies have been conducted in a group of unsuccessful applicants under sub-measures 2.3.1, 2.3.2, 2.3.4, 3.1.5, 3.2.1 and 3.3.3 SG OP, i.e. in those instruments whose direct beneficiaries were enterprises.

¹⁷ It should be stated that the evaluation was conducted in 2019 and it does not take account of a potential impact of the negative effects of the COVID-19 epidemic.

the application for funding. In the case of 18% of the companies, the lack of funds will translate into the limited project scope. What is important, the situation in which the projects of unsuccessful applicants have been or will be implemented without the support in the same scope and timeline as it was originally planned in the application has been rare, as it has concerned only 8% of the entities under analysis.

Diagram 1 The incentive effect from the perspective of unsuccessful applicants under OP SG sub-measure 3.2.1



Source: own study based on CAWI/CATI (n=540).

It is also worth pointing out that the tendency to implement the project – in case of a negative decision on funding – is related to the company size. The unsupported projects have been commenced by 43% of the unsuccessful applicants which are medium-sized companies, 38% of small companies and 32% of micro-enterprises. At the same time only 30% of representatives of the medium-sized companies have declared that they are not planning to implement the project in the future or that they do not know whether it will happen. A similar opinion has been expressed by 34% of representatives of the small companies and 37% as for micro-companies. This observation confirms the existence of the largest capital gap in the group of smaller entities, whose development is more dependent on the external support.

3.2.2. Direct impacts

Key instrument – sub-measure 3.2.1 ‘Market research’

The projects supported under sub-measure 3.2.1 will be completed in any case with the market launch of a new product. These products, according to the programme theory, are always the result of previous R&D work. This requirement must be met in order to receive the support. The projects for which the agreement had been signed by the end of 2019 (308) assume implementing overall 396 R&D results and launching overall 747 innovations,

including 428 product innovations, 221 process innovations and 98 non-technological innovations. At the level of OP SG indicators it has been assumed that the 'Market research' will be completed with the implementation of 360 R&D results and the introduction of 693 innovations (regardless of their type). Thus, concerning the contracted projects, these assumptions should be fulfilled. Taking into account the results of the incentive effect analysis, it can be assumed that the support of the PARP aid scheme will play an important role in achieving these objectives. It is also confirmed by the results of the counterfactual analyses which show that 80% of beneficiaries already introduced in the company new or significantly upgraded products over 2016-2018. In the control group, the implementation of such innovations in the same period was declared by 52% of the entities. The difference (DID 28%) is statistically significant.

At the same time the collected information and data indicate that one could have a sense of insufficiency when it comes to the innovativeness level of the supported products. All of the innovations formally have the values of novelty (at the national level), however, in the vast majority of cases they are not innovations which could turn out to be breakthroughs for the market. Most frequently they involve modifying the products which were already on the company's offer. Although it is not possible to claim that they do not fulfil the assumptions of sub-measure 3.2.1, it should be said that the expectations of the authors' intervention were much more ambitious in this respect. Basically, for this reason a positive impact of the project is likely to be revealed as a result of the primary investment, such as the extending of the production plant, installation of new technological lines, new equipment, machinery etc. As a rule, the beneficiaries of sub-measure 3.2.1 have invested in the-state-of-the-art technologies, which will enable them to increase both their efficiency and scale of operations. The data accessible also allow to predict that the products launched are very likely to bring the expected value of the income from their sales. However, due to the mentioned innovativeness level, which is lower than the expected, the source of this growth will be identified somewhere else. The introduction of innovative technologies to the company for producing the supported products will have a greater impact in this respect.

The cause of the lower innovativeness can be ascribed to the two important factors. Firstly, the stakeholders under analysis, including the experts assessing the applications for funding, pay attention to the generally low supply of projects with a desirable level of innovativeness. Secondly, it has been indicated that there is a lack of sufficient selection tools which would allow to more effectively exclude the projects not fitting entirely in with the adopted (expected) programme theory. As for the latter condition, (selection problem) in this respect further system improvements could be made, whereas when it comes to the low supply of projects, the problem is of a more complex nature. In general, it results from a small number of SMEs which fulfil the parameters of access to the support under sub-measure 3.2.1 and which would be interested in receiving the State aid for developing their own innovative activity. According to the PARP estimates, the number of such entities in Poland is slightly more than a thousand, so it corresponds with the number of companies which have already submitted applications for funding within the instrument in question. In order to solve this

problem it is necessary to make systemic changes with regard to key parameters of the intervention under analysis (cf. recommendations for the instrument).

With reference to the impact on the expected long-term effects, including an increase in competitiveness and employment, making conclusion at the mid-term evaluation stage is not possible due to the lack of appropriate data. It results from the fact that the instrument implementation is still in progress. The counterfactual analyses covering the period 2015-2018 do not confirm the occurrence of the impact of the support on a significant increase in the income from the sales or employment. However, it does not mean that the effects of sub-measure 3.2.1 will not be revealed in the this respect in the future, which also results from the theory of change regarding this intervention. It foresees that SMEs should obtain the results assumed both as for the income and employment in the project sustainability period, i.e. up to three years after the project completion.

Some light on a possible, broader impact of the support is shed by the results of the analysis of OP SG macro-economic effects, including the impact of the measures of the aid scheme in question on the GDP level, which has been commissioned by the PARP. They show that the support in which sub-measure 3.2.1 is the main instrument (in terms of value) will have a positive impact. At the same time due to the expected economic downturn caused by the COVID -19 epidemic, the analyses in this respect should be continued in the future.

Non-key instruments

The effectiveness of non-key instruments in obtaining direct results is differentiated. In most cases the objectives assumed, including those referring to the obligatory result indicators, will be achieved at the OP SG level. In many cases, however, it is still impossible to assess even the short-term direct project effects due to the project implementation progress.

As for sub-measure 2.3.1 'Pro-innovation Business Environment Institutions services for SMEs', it can be predicted that at the level of beneficiaries the sub-measure will achieve the objectives expressed in the result indicators. Particularly in respect of the number of implemented technological innovations. However, at the moment, it is not possible to estimate impact of the projects on the beneficiary-companies' financial results. Similarly, it is difficult to estimate impact of the support on the companies' overall innovative capacity. Although it can be predicted that the projects with an investment component (the last two calls from 2017-2018) will foster – to greater extent – implementation of further innovations in enterprises (i.e. they will have larger impact on the overall innovation capacity of the beneficiaries). They constitute a real development of the company's resources, in terms of investment in tangible fixed assets which are often the necessary condition in the implementation of innovation. The effect, which is likely not to materialise in the originally assumed scale is new jobs created. At the same time it should be expected that the projects with an investment component could again have a bigger impact in this respect.

R&D ventures initiated under sub-measure 2.3.2 'Innovation vouchers' result in implementing new products and processes. The evaluation results indicate that the

instrument support could be the first 'mock' stage for the venture continuation and the development of the product or process made by SMEs in a bigger scale. The aid granted under sub-measure 2.3.2 allows in such a situation to initiate and test cooperation with an external research centre in the first place, and then to identify and minimize risk factors before the strategy is implemented in a bigger scale. Within the counterfactual analyses it had been found that the support brings positive effects, identified in the form of a significant – as compared to the control group – share of beneficiary-companies launching new or upgraded products on the market over 2016-2018 (58% of the beneficiaries, 27% of the companies from the control group). The processes implemented and the products introduced to the market have a chance to translate into an increase in the income from their sales. However, in the context of financial effects of the support, the results of the evaluation are not clear at this stage. It is particularly seen through the results of the counterfactual research and the findings of the case studies. As for the former, in fact it was possible to find out that revenues from sales were rising in the group of beneficiaries over 2015-2018, on average by PLN 5.1 million. At the same time almost the same rise was observed in the control group – on average by PLN 5.7 million (the difference statistically insignificant). On the other hand the results of the incentive effect analysis, previously mentioned, indicate that the support granted was the necessary condition for maintaining and developing external R&D cooperation. It means that the support is an important factor stimulating the innovative behaviour in enterprises. What needs to be verified is the sustainability of the cooperation with research units, initiated by enterprises. The evaluation research shows that directly after the project completion the intensity of this cooperation declines in the phase of implementing the solutions worked out.

The services supporting internationalisation offered by the clusters under sub-measure 2.3.3 'Internationalisation of Key National Clusters' have been assessed as an effective tool of establishing cooperation with foreign partners. The participating entrepreneurs have indicated that they are satisfied with the scope and intensity of the services supporting their attendance on international fairs and foreign missions. They have established foreign contacts which, in their opinion, have a chance to translate into new trade relations in the future. The opportunity to attend a promotional event has been assessed as very high, whereas opinions on the quality of consultancy services has been divided. Some participants assessed these services as rather insignificant for obtaining the effects, the others, by contrast, have stated that this kind of support is indispensable and productive. The intervention's impact on the intensity of cooperation within the cluster has been assessed a bit lower. It was due to relatively limited cooperation of enterprises (the members of the Key National Cluster) in preparation of a consistent cluster offer in the evaluated projects and to the lack of requirement about such cooperation in the instrument structure. The situation improved in subsequent calls for applications. At the same time some doubts are raised by the question of opportunities created by the support for selecting and upgrading the cluster products. Within the projects it was possible to finance R&D activities, however, cooperation with the foreign R&D sphere has appeared in a relatively limited scope.

The effectiveness of sub-measure 2.3.4 in obtaining direct objectives can be assessed in two ways. Scale of the planned applications which are aimed at the protection of industrial property corresponds with the actual instrument assumptions, which are expressed at the level of programme indicators. However, it should be stated that initial goals were much greater. In 2015¹⁸ support was assumed for 450 enterprises and for submission of 455 applications for industrial property protection. The actual number of the applications will be most likely slightly smaller than in the original assumptions, whereas the number of entities which receive the aid will be four times as small. Although most projects are now at the implementation stage (these are the longest lasting projects within the OP SG) it can be cautiously assumed that the projects will be effective with regard to the objectives. This is guaranteed by the ex-ante procedures of project selection system, including the project selection criteria. However, to verify whether the support is effective in this respect it will be possible for most projects as late as in 2023.

Sub-measure 2.3.5 is apart from measure 2.5 the ‘youngest’ instrument implemented within the PARP aid scheme, therefore the assessment of its direct effects could be performed at the very preliminary level. Available data shows that companies effectively implement design projects, however, the products prepared within the projects have not been introduced to the market yet in any case, which is why no economic effects, such as the revenues from sales, still have not been revealed. Nevertheless, according to the declarations of the beneficiaries, it is observed that customers are beginning to be interested in the new offer (preliminary agreements, letters of intent). Within the case studies the beneficiaries under sub-measure 2.3.5 also declare that the cooperation with professional designers established within the project translates into an increase in their capacity and awareness in respect of the role of design processes in the functioning of the company.

Sub-measure 2.4.1 ‘Centre for analyses and pilot implementations of new instruments – inno_LAB’ has been assessed as highly effective. Project results in a dozen intervention designs and several pilot aid schemes, which were possible to work out thanks to innovative work methods. They consist of using solid knowledge base for defining problem, implementing Service Design methods for group work and engaging wide range of stakeholders into design process. The pilot implementations contribute to generating a great amount of evidence used for scaling up the solutions. At the mid-term evaluation stage it is difficult to assess to what extent the methods of designing and implementing public policies will permanently fit in with the way the organisations function. All pilot implementations have been relatively positively assessed by engaged entrepreneurs. ‘Seal of Excellence’,

¹⁸ Appendix No 2 to the OP SG DDPA – Table of direct outcome indicators and output indicators for measures and sub-measures, as at 28. Aug. 2015.

'Scale Up', 'Elektro Scale Up', and 'Poland Prize' have been regarded as particularly effective for entrepreneurs.

The effectiveness assessment of measure 2.5 'Acceleration programmes', like in the case of sub-measure 2.3.5 previously mentioned, is of preliminary character due to the initial stage of its implementation and the limited accessibility of appropriate data. In the evaluated schemes the accelerators effectively provide start-ups with high quality (positively assessed) consultancy services and financial support. Technology recipients cooperating with newly established companies share their resources and actively participate in the development of innovations. The validation of the solutions worked out progresses according to the assumptions. No risk of not achieving the objectives assumed in respect of implementations has not been identified.

The assessment of sub-measure 3.1.5 'Support for SMEs to access the capital market – 4Stock' indicates the moderate instrument effectiveness. One of the key objectives of the support has been the beneficiary –company's Initial Public Offering (IPO) on the target public market. Among companies which have completed the project, most of them have achieved this objective. However, the number of companies in the country scale is very small, which means that sub-measure 3.1.5 has not had a significant impact on the increased number of IPOs on the market of the Warsaw Stock Exchange, or even on the alternative market – NewConnect (which is more popular among the beneficiaries). The consequence of entering the target markets was to gain the capital for development, which in turn was one of the key outcomes at the company level. However, due to the present failures of the capital markets, less investors' interest and confidence in the companies with IPO on these markets, the capital gained did not always suit the companies' development needs. One of the companies evaluated within the case study has stated that it was not the level they had expected although it was 'minimum-sufficient' for expanding further business. In the other case, the effect of gaining the capital has been obtained but without the IPO. In the opinion of the experts it is the capital gained that should be the central effect of sub-measure 3.1.5, whereas entering regulated or alternative markets should be one of the opportunities within the support offered. At the same time on the basis of the research carried out, it is possible to point at the effects occurring in parallel to the IPO/issue. After the IPO the company is becoming more recognized on the market and its offers reaches a wider range of recipients and potential co-operators. Moreover, due to the reporting obligation the company is becoming more 'transparent' for potential contractors and consequently more credible as a business partner. With reference to the other planned effects of sub-measure 3.1.5, including the rating effect, the increased investments and the development of the supported companies' R&D activity, it is difficult – at the mid-term evaluation stage - to clearly make conclusions due to a small number of projects in which they could have materialised so far.

The evaluated beneficiaries of sub-measure 3.3.3 'Go to Brand' have indicated that the support gives them an opportunity to present their portfolio and is a chance to build cooperation with foreign partners. The same opinion has been also expressed by the experts

assessing the applications. They have claimed that the instrument makes it possible for the companies to undertake initiatives on foreign markets. The projects implemented are at the early stage of realisation, but some of them report first effects on export income. Their volume often exceeds the values assumed. The ratio of the public expenditures incurred to the income from exports is also satisfactory. At the present implementation stage of sub-measure 3.3.3 it is difficult to make conclusions on to what extent obtaining high incomes from the contracts concluded will become a common practice. On the one hand, by the end of 2019, signing 1908 contracts had been reported. It constitutes only 8% of the planned indicator value. Over 50% of the projects completed did not reveal obtaining this indicator value. On the other hand, it should be pointed out that the beneficiaries can report the outcomes obtained up to two years after the funding completion. The selected scheme stakeholders and the beneficiaries themselves are positive as for achieving the objectives assumed. The results of counterfactual analyses at the mid-term evaluation stage still do not give a clear answer in this respect. In fact, the first positive effects of the project participation are observed and they are expressed in the increase in the export sales (over 2015-2018 the beneficiaries observed a rise in the income in this respect, which was, on average higher by PLN 5.8 million as compared to the entities from the matched control group). At the same time this increase is a result of the increased volume of the sales of goods and materials. As for the exports of products to foreign markets, the increase in the group of beneficiaries amounted to about PLN 3 million in the evaluated period. However, a similar change in the value of the product sales has been also observed in the control group (PLN 2.3 million) - this is a small difference, statistically insignificant. In view of the above. The full scale effect verification should be postponed until a bigger number of agreements come to the end. Especially at this stage it is difficult to assess how the support will translate into the improvement of the overall beneficiaries' condition and their competitive position. As declared by the beneficiaries, their participation in foreign promotional events within the "Go to Brand" forces the product upgrade and the growth of employment, which could orient the companies' activities at further development.

3.2.3. Indirect impacts

Key instrument – sub-measure 3.2.1 'Market research'

The indirect effects of the projects implemented under sub-measure 3.2.1 are differentiated and to some extent they are related to the conclusions presented in respect of the limited innovativeness of the implemented products. In general, the data collected allow to state that the project impact on entities from the beneficiary environment, such as their co-operators – suppliers and service providers, is positive. As long as the observed rise in the scale of companies' activity, triggered by the investments implemented, is continued, the entities cooperating with them will also benefit from it. The vast majority of beneficiaries of sub-measure 3.2.1 (80%) are producers of final goods, which purchase materials and order services from a wide range of co-operators. In the beneficiaries' companies a systematic

increase in the costs of materials and energy has been observed. Especially in 2018, this increase was significant (on average it amounted to PLN 12.3 million as compared to the year 2015). The comparison with the control group does not bring a clear confirmation of the support impact (there are differences but they are not statistically significant), but it shows a certain positive trend. If complemented with the information gained within the case studies, it can be stated that the projects positively translate into the development of cooperation with external entities, especially with the suppliers of materials. They are bound, on the one hand, by the implementation of the investments in question and by the production which is about to start and which uses newly purchased machines, on the other hand. A particular group of co-operator's which so far have benefited indirectly from the support (most likely to the greatest extent), consists of suppliers of the production technologies implemented within the project. The majority of them are European companies from the sector of high technologies – producers of machinery and equipment.

It is also worth distinguishing potential positive indirect effects at the level of selected geographical regions, in particular the so-called medium-sized towns. Thanks to the dedicated calls, launched successively since 2017, it can be expected – with reference to sub-measure 3.2.1 – that the support will trigger positive results related to obtaining the objectives of the regional policy and the socio-economic cohesion of the country. It also fits in with the programme theory of the regional investment aid. By the end of 2019, overall 43 agreements had been signed with regard to implementing the projects on the area of medium-sized towns. The agreements within those calls constitute about 14% of all the projects supported under sub-measure 3.2.1. Regardless of the above, it is worth paying attention to the regional distribution of the projects supported. Nearly 40% of them have been implemented in five voivodeships from the macro-region of Eastern Poland. Indirectly, it could result from among others, the specificity of the support granted and the map of regional investment aid which foresees a higher support intensity on the area of four of these voivodeships¹⁹ and which is to signal the effectiveness of such a mechanism for using the regional investment aid.

At the same time, the impact of sub-measure 3.2.1 on the providers of innovative solutions, including entities performing R&D works will be limited. Before submitting the application, the beneficiaries engaged resources in implementing both internal (85%) and external (73%) R&D activities. However, the scope and the value of the works commissioned were very low – their average cost amounted to PLN 165 thousand (median: PLN 35 thousand). Comparing the value of the declared external R&D expenditures to the value of the projects, it turns out that on average they accounted for 0.7% (median: 0.1%) of the overall value of the expenditures assumed in the project. Consequently, the impact on strengthening the beneficiaries' innovative activity, also in respect of conducting R&D activity in cooperation with external entities, will be rather limited. It is also confirmed by the results of the

¹⁹ They are respectively Warmińsko-mazurskie, Podlaskie, Lubelskie and Podkarpackie voivodeships.

counterfactual analyses – in 2018 only 20% of the beneficiaries incurred expenditures for external R&D activity (as compared to 27% in 2015).

Due to the lack of appropriate data, in the course of the analyses it has not been possible to estimate a causal effect of the support on the employment in the beneficiary environment (suppliers and sub-contractors of beneficiaries). However, taking into account the fact that in the beneficiary group no impact have been observed in this respect, it is rather unlikely that the effects of this kind will occur in in the group of non-beneficiaries.

No occurrence of possible negative indirect impact(s) of the support, resulting from sectoral bias or bias toward incumbents, have been observed. In both cases the desired differentiation occurs, which – taking account of the great territorial dispersion of the projects and their relatively small number – limits a potential negative impact of the support on competition.

Non-key instruments

Like in the case of direct effects, it can be expected that the impact of the projects implemented in the group of the so-called non-key instruments will be differentiated at the level of indirect effects. Their occurrence is difficult to capture, especially at the primary stage of implementing the projects of a relatively small size.

For example, in sub-measure 2.3.4 ‘Protection of industrial property’, taking account of the fact that at the present stage the measurement of direct effects is difficult (e.g. the number of applications for industrial property protection), measuring potential indirect effects seems to be even more complicated. In this respect a possible impact of the projects on the entities providing services of professional intermediary (patent attorneys/legal offices) has been indicated. However, as a rule, it is not the assumed impact of the intervention. It is also foreseen that a potential impact of the support on this group will be short-lasting and relatively insignificant due to a small number of projects, their value, a relatively long implementation period and spatial dispersion. The data collected with regard to the service providers confirm the above statements – the occurrence of indirect effects will be very limited.

Taking account of such perspective for assessing the non-key instruments, it is mainly worth referring to the effects at the level of business environment and the system of accredited Innovation Centres engaged in the implementation of sub-measure 2.3.1. According to the results of the mid-term evaluation at the level of the intermediaries, the limited effectiveness of the scheme support can be expected. Particularly, the demand model applied to funding pro-innovation services for SMEs, provided by these institutions, will not allow to fully commercialise their operation. It is due to the fact of engaging a relatively small group of these entities for providing services under sub-measure 2.3.1. Out of 60 accredited institutions (formally eligible for providing services within the scheme) only half have been chosen by the companies for assistance in the process of innovation implementation. This group, however, is also differentiated – about half of them have been

engaged in a small number of projects, which means that the impact on developing the capacity of the whole system of Innovation Centres and on shifting these entities to typically business activity will be limited. Unfortunately, also in case of intermediaries which were engaged – to greater extent – in providing pro-innovation services under sub-measure 2.3.1 possible effects will be also differentiated. In some cases there is a risk that the observed increase in the capacity and the scale of activity could be temporary and limited to the implementation period for sub-measure 2.3.1. It particularly refers to the entities which have entered to the system with a relatively small capacity. Obviously, there is a chance that the implementation of several or a dozen pro-innovation services will allow them to obtain the appropriate critical mass, also when it comes to building the recognition of the Centre, establishing extensive contact network, gaining customers, etc., however, presenting decisive opinions in this respect at the mid-term evaluation stage is not possible.

Similarly limited indirect impacts were caused by sub-measure 2.3.3. The clusters participate – to much extent – in the instrument as aid operators (mainly *de minimis* aid). The instrument itself is oriented at building the capacity of these institutions to little extent. At the same time the broader impact is limited by the insufficient use of opportunities for cooperation within the cluster and working out joint products (including those with the use of accessible funding for external R&D services), particularly in the projects related to the first calls under sub-measure 2.3.3.

The support granted under the ‘Innovation vouchers for SMEs’ (sub-measure 2.3.2 translates into the development of external R&D activity (cooperation of entrepreneurs with the R&D sector), which has a chance in a longer perspective to result in increasing the companies’ capacity for developing and implementing innovations. It is particularly indicated by the results of the counterfactual research and the results of the case studies conducted, although at the present stage it is difficult to verify the sustainability of the cooperation established by the companies and the research units.

As for sub-measure 3.3.3, the beneficiaries often admit that the project has an impact on the increased number of the company’s co-operators. In the ‘Barometer of Innovation’ such an opinion has been expressed by 67% of the beneficiaries under sub-measure 3.3.3. Positive effects in this respect have been also confirmed by the participants of the case studies. The promotional initiatives undertaken on foreign markets have made the evaluated beneficiaries establish and expand cooperation with the present cooperators and suppliers.

It is also worth distinguishing the indirect effects of the non-competition project inno_LAB (sub-measure 2.4.1). They involve improving a new mechanism of functioning the learning organization. The inno_LAB re-models the implementation of new instruments supporting innovativeness by basing this process on the knowledge and experience gained from the stage of researching, designing, testing and pilot implementing (in a small scale). ‘Centre for analyses and pilot implementations of new instruments – inno_LAB’ is an important element of developing the system of support for innovativeness in Poland. Indirect results of inno_LAB might be also seen in process of scaling up designed solutions to large scale

interventions. The example of using knowledge and experience from pilot implementation for design of regular intervention is the 'scaled up' pilot implementation of the inno_LAB – Scale Up (implemented as a measure 2.5 within OP SG).

Within the evaluation of non-key instruments, no occurrence of potential indirect effects – expressed as negative phenomena of a potential impact on competition, i.e. sectoral bias or bias toward incumbents (the ration of old enterprises to new ones) – has been identified.

3.3. Appropriateness of support instruments

Key instrument – sub-measure 3.2.1 'Market research'

Sub-measure 3.2.1 has a great capacity for triggering rapid changes in the enterprises supported. It is indicated by among others, the value of expenditures incurred in relation to the volume of operations conducted in the beneficiaries', including the value of annual income. This instrument is an important element of the EU cohesion policy implemented in Poland and it is related to equalizing the levels of development in particular European countries. The differences in this respect are still seen and they are revealed in such key indicators as e.g. the value of R&D expenditures incurred, and consequently, they translate into the overall lower innovativeness and competitiveness of the Polish companies. The companies' limited innovative behaviour, particularly in the SME sector, has different roots – being risk-averse, insufficient resources and lack of the capital required, but frequently also insufficient awareness of how significant investments in innovations are. These problems overlap with the market failures diagnosed in the programming and strategic documents, which take account of launching the State aid.

The appropriate project implementation have a real chance to trigger (and they do trigger) impacts, which go beyond the level of the supported entities. What is important, sub-measure 3.2.1 makes it possible to implement the projects in the scale and at the time which would not have been possible without the support.

At the same time there is no justification for changing the formula of the support offered or its type. Particularly, it would be unjustifiable to replace the aid in the form of grants with repayable instruments. It is indicated by both administration representatives and independent experts. Similar conclusions can be made following the analysis of the case studies in which the selected projects have undergone a simplified assessment in view of their credit capacity for implementing the projects in question. The majority of them would have had problems with gaining repayable support. One company could have been provided with a credit for the project implementation, however, its receiving would have had a negative impact on the later operational activity, which would have been expressed in a significantly smaller capacity for further investments or – if such a need had appeared – in a significant limitation of using debt funds for supporting the current company activity (e.g. in the form of working capital credit). It should be stated again that in the context of the

current economic situation and the ongoing downturn caused by the COVID-19 epidemic, the sustainability of the instrument under analysis is increasing significantly.

For the above reasons, it is necessary to assess the appropriateness of the aid as high. At the same time it is advisable not to forget about indicated limitations of this sub-measure in the present financial perspective 2014-2020. It must be operationalized better in the future, which means that it is necessary to introduce solutions which would guarantee – to even more extent – the compliance of its implementation with the assumed programme theory, including the ambitious objectives goals, which concern the innovativeness level of the products (cf. detailed recommendations for the instrument).

Non-key instruments

In the case of non-key instruments, the support appropriateness should be assessed also generally high. The problems which were to be solved thanks to particular aid instruments are still in most cases up to date. Particularly, it concerns the identified market failures related to conducting innovative activity by enterprises from the SME sector.

The exception to the positive appropriateness assessment presented above is sub-measure 3.1.5 'Support for SMEs to access the capital market_4 Stock'. As for the instrument objective, which is the increased number of SME entries to capital markets, providing grants for related consultancy services should be regarded as appropriate to the objective obtained. Funding the stage of preparation for the IPO on capital markets, especially in the case of SMEs, could be a significant burden which is additionally accompanied by other non-financial costs related to the company transformation. At the same time, as indicated with reference to the incentive effect, the State aid in this case is an element which makes it easier to implement the company's strategic decision rather than an element which determines this decision. However, this instrument should be mainly analysed in a broader context, which defines the state of capital markets, including applicable regulations and investment moods. Bearing this in mind, it is necessary to pay attention to weakening the interest of potential issuers and investors in both the regulated market and the alternative market. The low interest of the companies in gaining investment capital from this source has been a small number of IPOs both on the NewConnect market and on the Warsaw Stock Exchange (WSE) in recent years. It results –to much extent – from overregulating these markets, significant burdens related to the IPO and functioning on the markets. These in turn, makes the interest of potential investors diminish, which deepens the weakness of the national capital markets. In such an intervention context, the objective of sub-measure 3.1.5 related to the IPO is less attractive to enterprises and capital-gaining itself could occur through other instruments, such as equity crowdfunding, capital funds and through Business Angels. Therefore in such a context the sub-measure relevance is out of date, and consequently, its objective is becoming less and less significant. However, the challenge which is the basis for the intervention remains unchanged, i.e. the capital gap in the SME sector, whose minimizing should be the objective of the sub-measure. It means there is the need to possibly modify the programme theory in a way which provides grants for

consultancy services leading to gaining investment capital by SMEs from diversified sources of this capital (not only by the IPO or another issue on the stock exchange)

Another questionable area of the support appropriateness is solutions – already mentioned at the level of indirect effects – which serve for supporting the business environment with the use of a regulated accreditation system for BEI. The overall assumption adopted in the OP SG – especially under sub-measure 2.3.1 – was based on the need of supporting the business environment in the so-called demand model, whose ultimate effect was to be the commercialisation of the activity of BEI. As it has been indicated, this objective – if it is ever achieved – will concern a relatively small group of the institutions (several, maximum a dozen entities). In the above context, it is necessary to consider, in the first place, an alternative support formula for enterprises in which providers of pro-innovation services are also entities operating in the open market (i.e. without accreditation), like e.g. in the case of sub-measure 2.3.5. Within this instrument consultancy services, provided according to the market rules, are funded in the following areas: 1) carrying out a professional design process aimed at developing a new design project and 2) implementing a new or significantly upgraded design product (facultative component of the project). It is not demanded that the entities providing consultancy services should be accredited or certified in any way. Secondly, it is necessary to consider changing the system of indirect support for the business environment. Taking account of the weaknesses of the demand model on the one hand, and the significance of the business environment in building a sustainable and valuable domestic/national innovation system, on the other hand, it is advisable to return to the direct support of the selected Innovation Centres. Detailed proposals in this respect have been presented in the context of evaluating sub-measure 2.3.1

3.4. Proportionality of the aid

Key instrument – sub-measure 3.2.1 ‘Market research’

The data collected in the evaluation allow to state that the aid granted under sub-measure 3.2.1 is proportional. Particularly, a decrease in the aid intensity and smaller amount of public aid would probably bring about even less interest in participating in this instrument. The proportionality of the aid should be assessed particularly high in the context of the identified incentive effect, including the support impact on the increase in enterprises’ expenditures from their own financial sources. In the group of beneficiaries between the years 2015 and 2018 they increased their expenses in this respect from the average level of PLN 2.6 million to PLN 7.3 million. In the control group the companies increased their expenses respectively from the average level of PLN 2.8 million to PLN 3,9 million. The difference in the growth (DID) of PLN 3.6 million is statistically significant.

It should be also noticed that the projects implemented mostly involve purchasing tangible fixed assets for implementing the results of R&D results. According to the scheme requirements, the supported tangible fixed assets must be purchased every time with application of the competitive process (obligation of publishing procurements in the

competitiveness online database), which means that the potential risk of inflating costs of the implementations in question is minimized. The volume of the project costs is also subject to an in depth expert analysis at the stage of selecting projects and - in case the cost inflating in relation to the market values is suspected – appropriate amendments are made or in case it is not possible to make the amendments, the project is excluded from the support.

Non-key instruments

The analyses conducted at the level of particular non-key instruments also point out that, as a rule, the aid granted within the scheme has been proportional to the problem it concerned and that it would not have been possible to obtain the same effects if the aid volume had been limited or if it had been granted in a different form. Particularly, it is confirmed by the situations related to the instruments in which it has been decided to change the volume and the type of the aid granted (sub-measure 2.3.1 and 2.3.2). Thanks to it, it was possible to obtain better materialisation of the assumed programme theory. It should be also noticed that the proportionality of the support granted under some instruments (sub-measures 2.3.1, 2.3.2, 2.3.5 and 2.5) could be different depending on the type of aid granted (consultancy services vs. investment support). Unfortunately, at the mid-term evaluation stage conducting the comparative proportionality assessment in this respect is not possible. It is necessary to state that the assessment of the aid proportionality should be repeated at the ex-post evaluation stage of the aid granted or in subsequent evaluations in which it will be possible to capture long-term financial effects. In the mid-term evaluation the effects in this respect could not have been revealed yet, which is why the assessment presented should be regarded as preliminary.

3.5. Summing up

The PARP aid scheme has undergone a detailed analysis, taking account of the Theory-Based Evaluation approach and – wherever possible – the Counterfactual Impact Evaluation (sub-measures 3.2.1, 2.3.2 and 3.3.3). Having in mind that the assessment made is of preliminary character due to the specificity of mid-term evaluation and the advancement of the scheme implementation, it can be stated that it is an effective support for the enterprises' innovativeness in Poland. It has been particularly confirmed at the level of the incentive effect, which is expressed by a positive impact of the support on accelerating and increasing the scale of project initiatives undertaken by the beneficiaries. Taking account of the objectives presented, the support outcomes observed so far and the conditions in which SMEs function, it is necessary to state that the aid is appropriate and proportional. However, the latter aspect of the assessment should be subject to the repeated ex-post verification when it is possible to make the measurement of the ultimate aid impact(s) and the detailed analysis of its efficiency.

In the end, it should be added that thanks to the in-depth evaluation studies of each instrument, it has been possible to formulate detailed conclusions and recommendations on the suggested way of implementing these instruments in the future, particularly within a

new PARP aid scheme, as an element of the national Operational Programme over 2021-2027 for supporting innovativeness. Proposals in this respect are presented in the main part of the report.

4. Introduction

4.1. Evaluation context

The evaluation in question has been commissioned by the Polish Agency for Enterprise Development (Polska Agencja Rozwoju Przedsiębiorczości, hereinafter 'the PARP') and conducted with reference to the provisions of Commission Regulation (EU) No. 651/2014 of 17 June 2014 declaring certain categories of aid compatible with the internal market in application of Articles 107 and 108 of the Treaty - the so-called General Block Exemption Regulation (hereinafter 'the GBER'). Pursuant to Article 1 (2)(a) of the GBER, the aid scheme whose average annual budget exceeds EUR 150 million is exempted from the obligation of notification to the EC for a period of six months after its entry into force. This exemption can be prolonged for a longer period authorised by the Commission following the assessment of an appropriate evaluation plan.

COMMISSION REGULATION (EU) No. 651/2014 of 17 June 2014 :

(8) In view of the greater potential impact of large schemes on trade and competition, aid schemes (...) should in principle be subject to (...) evaluation. The evaluation should aim at verifying whether the assumptions and conditions underlying the compatibility of the scheme have been achieved, as well as the effectiveness of the aid measure in the light of its general and specific objectives and should provide indications on the impact of the scheme on competition and trade. In order to ensure equal treatment, State aid evaluation should be carried out on the basis of an evaluation plan approved by the Commission(...)

Taking the obligations mentioned above into consideration, the PARP has prepared an evaluation plan of the aid scheme carried out within the framework of the Operational Plan SG. The scheme in the strict sense is *Rozporządzenie Ministra Infrastruktury i Rozwoju z 10 lipca 2015 w sprawie udzielania przez PARP pomocy finansowej w ramach Programu Operacyjnego Inteligentny Rozwój*²⁰ (*The Regulation of the Minister of Infrastructure and Development of 10 July 2015 on financial aid granted by the PARP within the framework of the Operational Programme Smart Growth*, hereinafter 'the PARP Regulation' or the 'aid scheme'), which defined in detail the allocation, conditions and mode of granting State aid and *de-minimis* aid by the PARP. The scope of the aid scheme includes aid instruments (measures and sub-measures targeted mainly at micro-, small and medium-sized enterprises) implemented by the PARP within OP SG priority axes II and III²¹. The PARP Decree predicts granting financial support within the European Regional Development Fund.

²⁰ Cf. the provisions published and amending acts

<http://prawo.sejm.gov.pl/isap.nsf/DocDetails.xsp?id=WDU20150001027>

²¹ Cf. Detailed Description of Priority Axes of the Operational Programme Smart Growth 2014-2020 :

<https://www.poir.gov.pl/strony/o-programie/dokumenty/szczegolowy-opis-osi-priorytetowych-programu->

The plan of evaluation has been notified to the European Commission and then approved by its decision of 8 February 2016 (SA.42799 (2015/X))²² The plan includes a complex assessment of the aid scheme in the predicted research periods (mid-term, ex-post). The mid-term evaluation in question is a study which comprehensively assesses the assumptions of aid instruments implemented by the PARP within the aid scheme. These assumptions were confronted for the first time with the effects obtained and also valued as.

In view of the evaluation scope and of the mode of conducting it, it is important that the plan was developed in accordance with the handbook by the European Commission *Common methodology for State aid evaluation*²³.

4.2. State aid granted by the parp under mid-term evaluation

4.2.1. OP SG instruments under evaluation

The evaluation study covers an analysis of particular aid instruments (measures and sub-measures) implemented by the PARP under OP SG priority axes I and II, including:

- 1) Pro-innovation Business Environment Institutions services for SME (2.3.1);
- 2) Innovation vouchers for SMEs (2.3.2);
- 3) Internationalisation of Key National Clusters (2.3.3);
- 4) Protection of industrial property (2.3.4);
- 5) Design for entrepreneurs (2.3.5);
- 6) PARP aid instruments - non- competition project inno_LAB” (Centre for analyses and pilot implementations of new instruments, sub-measure 2.4.1)²⁴;
- 7) Acceleration schemes (2.5);
- 8) Support for SMEs to access the capital market – 4 Stock (3.1.5);
- 9) Market research(3.2.1);
- 10) Support for SMEs in the promotion of Polish product brands– Go to Brand (3.3.3).

[inteligentny-rozwoj-2014-2020/](#), the Operational Programme covers altogether five the so-called Priority Axes. The first four axes group support instruments by thematic area. The PARP implements selected activities within priority axes II and III of the OP SG. Axis V covers activities in respect of technical aid. The allocation of instruments implemented by the PARP under the aid scheme accounts for about 17% of the whole OP SG allocation.

²² Cf. PARP evaluation plan, Decision No. SA.42799 of 8 February 2016

http://ec.europa.eu/competition/elojade/isef/case_details.cfm?proc_code=3_SA_42799, Brussels, 08.02.2016, C(2016) 654 EN ACTE final

²³ Cf. http://ec.europa.eu/competition/state_aid/modernisation/state_aid_evaluation_methodology_pl.pdf

²⁴ Evaluation of OP SG sub-measure 2.4.1 was a separate venture implemented within a parallel PARP procurement ‘Mid-term evaluation of non–competition project inno_Lab – Centre for analyses and pilot implementations of new instruments’. The evaluation results were included in the mid-term evaluation of the aid (cf. Sub-chapter 8.7).

4.2.2. Key and non-key instruments under the PARP aid scheme

The structure of analyses takes account of the division of the PARP aid scheme into the so-called key instruments and non-key instruments which was included in the evaluation plan. The former covers sub-measures 3.2.1 as well as 3.1.5 and 3.3.3 of the Operational Programme SG. The latter mostly comprises the other interventions from the list presented above. The indicated division into the two groups mentioned above took account of a potential significant impact on the target area of the aid scheme, including the impact on trade and competition.

It has been acknowledged – on the basis of the allocation volume of funds earmarked for particular aid instruments – that the greatest impact might be expected in the case of the investment support granted under sub-measure 3.2.1 *Market research* (nearly three quarters of the PARP aid scheme allocation). Taking a similar criterion into consideration, sub-measures 3.3.3 and 3.1.5 (in total about 10% of the scheme allocation), for which consultancy support for enterprises in the form of grants had been assumed, were included in key measures.

At the current stage of the PARP scheme advancement, it is necessary to make a reservation to the timeliness of the division into key and non-key instruments which was adopted in the plan. As for sub-measure 3.2.1, it is possible to state that no significant changes in the nature, form and scope of the support granted have been made, whereas the other two instruments have undergone such changes as far as both the type and scale of the aid granted are concerned, which has resulted in the reduction of potential impact of these instruments on competition and trade²⁵.

Prior to conclusions made in this respect, a material and financial summary referring to the OP SG advancement has been presented, taking account of key characteristics with respect to the aid granted under particular PARP instruments.

4.2.3. Advancement of the PARP scheme in financial and material terms

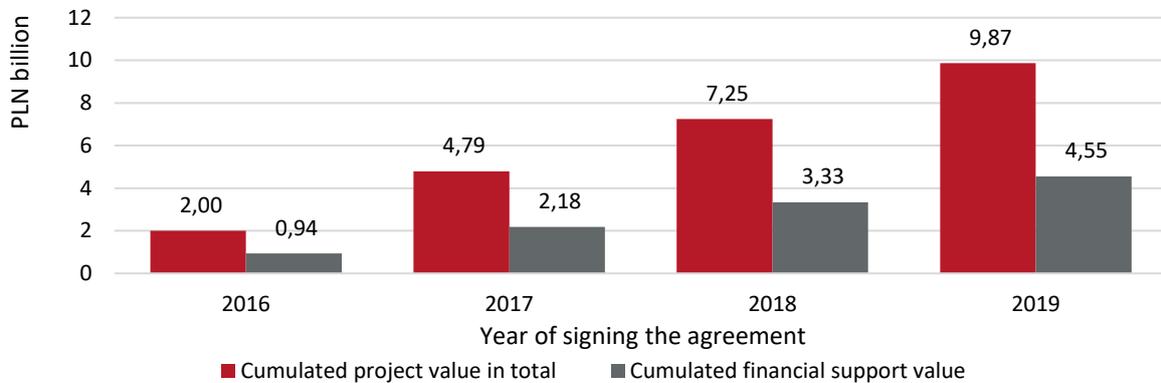
By the end of the year 2019, there were 3025 agreements on financial support under the PARP aid scheme signed²⁶. The first one was concluded in the second quarter of 2016, however a substantial increase in the contracting level was observed as late as at the end of 2016. Within the next year 2017, the increment of new agreements amounted to about 150-260 per quarter. Within the first three quarters of the next year the number stabilised at a slightly lower level and then soared dramatically in the last quarter, when 448 agreements were signed. It mainly resulted from the contracting of sub-measure 3.3.3 (*Go to brand*), under which 244 agreements were concluded. The year 2019 showed a similar stabilisation within the three first quarters and again a dramatic increase in the contracting at the end of

²⁵ Cf. conclusions and proposals presented in chapter 5 of this report.

²⁶ The figure indicated also refers to the non-competition project inno_LAB, carried out by the PARP. The data do not cover the agreements terminated. This remark concerns also the data presented hereinafter.

By the end of December 2019 the projects worth PLN 4.55 billion in total had been contracted.

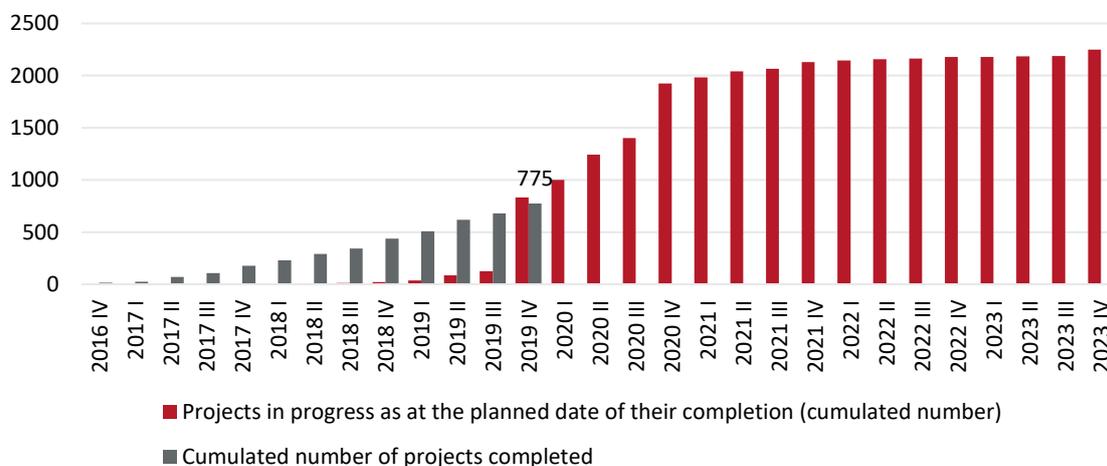
Diagram 4 The value of agreements signed under the OP SG by project value planned and by funding value



Source: own study based on SL 2014 data. As at 31 Dec.2019

In terms of the value of projects implemented and the financial support granted, the largest share is held by projects under sub-measure 3.2.1, whose contracted value as at the end of 2019 amounted to PLN 7.56 billion (77% of the total value of the projects implemented under the aid scheme), including the support value of PLN 3.05 billion (67%). Formally, by the end of the last quarter of 2019, 775 OP SG projects had been completed, which amounts to scarcely more than a quarter of all the projects contracted under the PARP scheme. In view of this, the vast majority of projects are still in progress, although the situation is likely to change in the year 2020, when the completion of nearly 1.9 thousand projects is predicted, including projects which - to much extent - have been supported under sub-measure 3.3.3 *Go to brand*, under sub-measure 2.3.1 *Innovation vouchers for SME* and under sub-measure 3.2.1 *Market research*.

Diagram 5 The number of projects with support completed and projects in progress as at the planned date of their completion



Source: own study based on SL 2014 data. As at 31 December 2019

In view of the status presented above, the assessment of the effectiveness of projects implemented is limited at the present stage. Taking account of a considerable part of PARP instruments, it is predicted that the planned outcomes are to be obtained at the investment completion (e.g. innovation implemented) or over the project sustainability (indicators concerning employment or revenues from the sales of innovations implemented).

The instruments under the PARP aid scheme are widely varied. One of the largest is sub-measure 3.2.1 *Market research*, both in respect of the total allocation (nearly EUR 1 billion), the average value of projects implemented (PLN 24.56 million), and the average financial support (PLN 9.91 million). The largest instrument as for the number of projects supported is sub-measure 3.3.3 *Go to brand* (1190 agreements), which- at the same time- is one of the smallest when it comes to the average value of projects implemented (PLN 0.59 million) and to the support value (PLN 0.4 million). The smallest of all, however, is sub-measure 3.1.5 *4 Stock*, which consumes barely 0.2% of the scheme allocation. The average project value accounts for about PLN 0.4 million with the support of about PLN 0.16 million. In terms of the number of projects completed, the most advanced instrument is sub-measure 2.3.2 *Innovation vouchers for SMEs* (407 projects with the support completed), however, the situation is supposed to change soon due to the large number of projects coming to their completion under OP SG sub-measure 3.3.3, which has been mentioned above. *Innovation vouchers* is also the most attractive instrument of direct support for enterprises under the PARP aid scheme, taking account of the average level of aid intensity (81% on average)²⁸. It is due to the fact that under this instrument expenditures have been funded pursuant to regulations referring to *de minimis* aid, which is further described in this report.

²⁸ A higher aid intensity is ascribed to sub-measure 2.5, for which the average level of financial support in respect of eligible costs reaches the general average level of 91%. However, under this instrument, aid is not targeted directly and in its entirety to enterprises, but through selected entities playing the role of accelerators.

Table 1 The basic parameters of instruments implemented under the PARP aid scheme

OP SG sub-measure/ measure	OP SG allocation (PLN million)	Allocation %	Number of agreements	Total project value		EU funding value* (PLN million)**		Funding level	Number of projects completed
				Average	Amount	Average	Amount	Average	
2.3.1	46.4	3%	308	1.26	387.2	0.65	200.4	66%	51
2.3.2	71.9	5%	668	0.38	253.6	0.24	163.7	81%	407
2.3.3	33.8	2%	29	6.69	194.1	4.20	121.9	70%	4
2.3.4	7.7	1%	116	0.49	56.3	0.21	24.3	50%	13
2.3.5	71.7	5%	319	1.02	326.6	0.53	169.6	70%	1
2.5	45.0	3%	10	14.92	149.2	13.32	133.2	91%	0
3.1.5	3.4	0,2%	76	0.40	30.5	0.16	12.0	48%	27
3.2.1	985.1	67%	308	24.56	7 563.1	9.91	3 051.8	51%	69
3.3.3	157.0	11%	1 190	0.59	707.5	0.40	473.4	74%	204
2.4.1	44.4	3%	1	202.84	202.8	202.84	202.8	100%	0
In total	1 466.4	100%	3 025	3.26	9 870.9	1.51	4 553.1	70%	776
In total - excluding inno_LAB	1 422.0	97%	3 024	3.20	9 668.1	1.44	4 350.3	71%	776

Source: own study based on SL2014 data. As at 31 Dec. 2019

* The values presented cover the whole funding granted to the aid scheme beneficiaries.

** values defined at the level of funding agreement – they do not include savings related to projects completed as they can be found hereinafter in Table 2.

Taking account of the contracting level as well as the advancement level at which the allocation has been used under particular OP SG instruments, the most advanced project is the systemic project under sub-measure 2.4.1 *inno_LAB*. In this case, as at the end of 2019 the whole predicted budget was contracted²⁹ and the share of applications for payment submitted for certification amounted to 46.6%. As for the instruments implemented following a competitive procedure, measure 2.5 is the most advanced in terms of contracting (nearly 100%). The lowest contracting level is currently represented by sub-measure 2.3.2 (59.8%), however, taking account of the value of applications approved for support this level is supposed to increase soon. Also in terms of expenditures, sub-measure 2.3.2 is the second most advanced (after sub-measure 2.4.1) with the applications for funding submitted for certification constituting nearly 36% of the allocation assumed under this instrument. It is followed by sub-measures 3.2.1 and 3.3.3 (30.5% and 32.6% respectively). Taking account of expenditures in their nominal values, the first place in all respects is bound to be held by sub-measure 3.2.1, under which the value of applications for

²⁹ Obviously, it is due to the specificity of the systemic project whose beneficiary is the Ministry of Enterprise and Technology (from November 2019 on the Ministry of Development) along with the Polish Agency for Enterprise Development – the project is implemented in partnership.

funding submitted for certification amounts to PLN 1303.1 million, which means 73% of all applications for funding under the PARP aid scheme.

Table 2 Financial progress in respect to particular instruments of the PARP aid scheme

OP SG sub-measure/ measure	Allocation (PLN milion) - with Performance Reserve	Applications eligible for funding		Funding agreements (taking account of savings related to projects completed)		Applications for payment submitted for certification	
		ERDF funding (PLN million)	Allocation %	ERDF funding (PLN million)	Allocation %	ERDF funding (PLN million)	Allocation %
2.3.1	247.89	216.68	87.4%	199.44	80.5%	39.79	16.1%
2.3.2	262.59	204.71	78.0%	157.16	59.8%	93.82	35.7%
2.3.3	143.44	128.19	89.4%	120.04	83.7%	20.84	14.5%
2.3.4	33.19	36.29	109.3%	23.96	72.2%	2.84	8.5%
2.3.5	309.30	271.70	87.8%	169.57	54.8%	0.77	0.2%
2.4.1	190.95	191.42	100.2%	191.44	100.3%	88.96	46.6%
2.5	133.46	133.22	99.8%	133.22	99.8%	14.34	10.7%
3.1.5	14.83	19.79	133.4%	11.42	77.0%	3.17	21.4%
3.2.1	4 279.16	3 791.53	88.6%	3 035.08	70.9%	1 303.10	30.5%
3.3.3	633.34	630.55	99.6%	463.19	73.1%	206.15	32.6%
Ogółem	6 248.16	5 624.08	90.0%	4 504.51	72.1%	1 773.79	28.4%

Source: own study based on data from OP SG Managing Authority. As at 31 Dec. 2019

Under the PARP aid scheme, State aid is granted on the basis of seven aid categories specified in the GBER and on the basis of regulations regarding *de minimis* aid³⁰. The main aid category under which projects supported within the PARP aid scheme are implemented is Regional investment aid – RIA (Articles 13-14 GBER). Over 74% of the total volume of funding granted covers eligible costs of projects within the State aid category. Such a large RIA share in the whole scheme is again due to the fact that a dominant position in the whole PARP scheme is held by sub-measure 3.2.1 *Market research*, under which this aid amounts to nearly 100% of the whole funding value (cf. Table 4). The second most important category in terms of the scheme share is *de minimis* aid, which covers almost 19% of the value of funding granted. The share of the other aid categories is negligible. The third category in terms of the share - *Aid for start-ups* (Art.22 GBER) accounts for less than 3%.The total share of aid granted under the aid scheme represents around 80% of the funding value.

³⁰ Commission (EU) No 1407/2013 of 18 December 2013 on the application of Articles 107 and 108 of the Treaty on the Functioning of the European Union to *de minimis* aid (OJ L 352, 24.12.2013, p.1)

Table 3 The share of particular aid categories under the PARP aid scheme

Aid category	Expenditures in total (PLN million)	Funding volume (PLN million)	Cost category share in funding
Art. 13-14 GBER <i>Regional investment aid</i>	7 933.3	3 251.7	74.5%
Art. 18 GBER <i>Aid for consultancy in favour of SMEs</i>	54.5	17.7	0.4%
Art. 19 GBER <i>Aid to SMEs for participation in fairs</i>	41.0	18.2	0.4%
Art. 22 GBER <i>Aid for start-ups</i>	124.0	121.4	2.8%
Art. 25 GBER <i>Aid for research and development projects</i>	17.9	4.6	0.1%
Art. 27 GBER <i>Aid for innovation clusters</i>	30.5	16.0	0.4%
Art. 28 GBER <i>Innovation aid for SMEs</i>	206.9	109.1	2.5%
Aid de minimis	1 209.8	816.7	18.7%
Direct costs of project team*	25.2	11.8	0.3%
Total expenditures of project implementation	9 643.1	4 367.2	100.0%

Source: own study based on PARP LSI data, as at 31 Dec. 2019

* Costs specified under OP SG measure 2.5 – ‘Acceleration schemes’

** With reference to selected projects under sub-measure 3.3.3

In the case of particular instruments implemented under the PARP aid scheme, a greater diversity in terms of the category of aid granted is noticeable, which is obviously a natural consequence of the specificity of undertakings which are subject to support under particular OP SG sub-measures. As for the majority of instruments, a combination of various types of State aid or State aid and *de minimis aid* is used. The exception to this rule is sub-measure 3.1.5 under which the whole funding is earmarked for *Aid for consultancy in favour of SMEs* (Art. 18 GBER). The most common aid category (in terms of prevalence, not support volume) is *de minimis aid*, which has to do with six out of ten instruments under analysis (i.e. 2.3.2, 2.3.3, 2.3.4, 2.3.5, 3.2.1, 3.3.3). In the four cases (2.3.2, 2.3.3, 2.3.5 and 3.3.3) it is the aid with the majority share in the support granted. The second most common category in this respect is RIA, which appears within the four instruments (2.3.1, 2.3.2, 2.3.5 and 3.2.1). This aid prevails within sub –measure 3.2.1, already mentioned, but also within 2.3.1³¹, in the case of which it amounts to over 58% of the funding value. Relatively, the least frequent categories are: *Aid for start-ups* – Art. 22 GBER (it appears solely within measure 2.5 and at the same time it constitutes over 91% of the aid granted under the measure); *Aid for innovation clusters* – Art.27 GBER (accessibly solely under sub-measure 2.3.3, however its

³¹ RIA under sub-measure 2.3.1 was included at the mid-point of the implementation of this instrument (at the end of 2017, i.e. in the third and the last, fourth call for proposals).

share in the whole aid volume is negligible – less than 2%): *Aid for consultancy in favour of SMEs* – Art. 18 GBER (solely under sub-measure 3.1.5, where it covers the whole State aid granted and under sub-measure 3.2.1, where its share accounts for 0.18% of the aid). The rarest category of State aid is *Aid for research and development projects* – Art. 25 GBER, which refers solely to sub-measure 3.2.1 and does not exceed 0.15% of the funding value.

Table 4 The share of particular aid categories under the PARP aid scheme instruments

OP SG Instrument	Aid category	Total expenditures (PLN million)	Funding (PLN million)	Funding share within aid category in total instrument funding	Average funding level
2.3.1	Art. 13-14 GBER (Regional investment aid)	238.1	116.6	58,0%	61,9%
	Art. 28 GBER (Innovation aid for SMEs)	149.2	84.4	42,0%	69,8%
	Total	387.3	200.9	100,0%	66,1%
2.3.2	de minimis aid	229.0	152.9	92,9%	82,2%
	Art. 13-14 GBER (Regional investment aid)	25.3	11.7	7,1%	56,6%
	Total	254.3	164.6	100,0%	81,1%
2.3.3	de minimis aid	162.4	105.4	86,4%	73,7%
	Art. 27 GBER (Aid for innovation clusters)	30.5	16.0	13,1%	50,0%
	Art. 19 GBER (Aid to SMEs for participation in fairs)	1.2	0.6	0,5%	65,0%
	Total	194.1	121.9	100,0%	70,4%
2.3.4	Art. 28 GBER (Innovation aid for SMEs)	57.7	24.7	99,7%	49,9%
	de minimis aid	0.2	0.1	0,3%	50,0%
	Total	57.9	24.8	100,0%	49,9%
2.3.5	Art. 13-14 GBER (Regional investment aid)	176.9	67.4	39,8%	48,0%
	de minimis aid	149.8	102.2	60,2%	84,8%
	Total	326.6	169.6	100,0%	70,4%
2.5	Art. 22 GBER (Aid for start-ups)	124.0	121.4	91,1%	100,0%
	Direct costs of project team	25.2	11.8	8,9%	47,8%
	Total	149.2	133.2	100,0%	91,1%
3.1.5	Art. 18 GBER (Aid for consultancy in favour of SMEs)	30.5	12.0	100%	48,3%
	Total	30.5	12.0	100,0%	48,3%
3.2.1	Art. 13-14 GBER (Regional investment aid))	7493.0	3056.0	99,65%	51,4%
	Art. 18 GBER (Aid for consultancy in favour of SMEs)	23.9	5.6	0,18%	40,8%
	Art. 25 GBER (Aid for research and development projects)	17.9	4.6	0,15%	32,8%
	de minimis aid	0.8	0.5	0,02%	57,5%
	Total	7535.6	3066.7	100,0%	51,4%
3.3.3	de minimis aid	667.7	455.8	96,3%	75,1%
	Art. 19 GBER (Aid to SMEs for participation in fairs)	39.8	17.7	3,7%	50,0%
	Total	707.5	473.4	100,0%	74,3%

Source: own study based on PARP LSI and SL 2014 data, as at 31 Dec. 201

5. Key Amendments to the PARP aid scheme and their impact on the evaluation scope

This chapter presents amendments which have been included in the PARP aid scheme since the PARP evaluation plan was approved by the EC, i.e. from 8 February 2016 on. A description of the amendments refers to the issues which are significant in view of this evaluation and its compliance with the EC decision in question. It mainly concerns amendments to the scope and structure of the PARP aid scheme. This chapter, however, does not describe detailed substantive amendments made at the level of particular instruments (measures and sub-measures) of the Operational Programme Smart Growth. Key modifications with reference to the verification of a theory of change are discussed, on a point of order, every time in the sub-chapter devoted to a given support instrument. More information on the detailed amendments regarding OP SG can be found in the descriptions of evaluations conducted³² and in programming documents³³.

Additionally, it should be stated that some essential amendments introduced to the aid scheme -taking account of the consequences those changes have for the PARP evaluation plan – were notified to the EC at the beginning of 2019. The notification did not result in a change of the evaluation plan itself. Following the EC reply of 14 March 2019, those issues should be described in an evaluation report, which is reflected in this chapter³⁴.

To begin with, it should be stated - while discussing the amendments introduced to the PARP aid scheme – that these modifications do not change, in principle, fundamental issues related to the justification of conducting an assessment in question (intervention value) or to the way it is supposed to be conducted (assessment criteria, evaluation questions, methods, etc.). What has been amended is the evaluation scope – a number of instruments under analysis and their volume. Therefore the instruments which are no longer implemented under the PARP aid scheme have been excluded from the evaluation. On the other hand, new instruments have been included in it. As for the latter, the assessment methods applied

³² Cf. Ewaluacja systemu wyboru projektów POIR 2014-2020 – ocena wybranych zmian, MIR, Warszawa 2019 (Evaluation of the Selection System of OP SG Projects 2014-2020 – assessment of selected amendments, Ministry of Infrastructure and Economic Development, Warsaw, 2019)

³³ All programming changes can be followed in documents available on OP SG website <https://www.poir.gov.pl/strony/o-programie/dokumenty/szczegolowy-opis-osi-priorytetowych-programu-inteligentny-rozwoj-2014-2020/>. Currently the DDPA version 12 is applicable. As for the scope of the PARP aid scheme, appropriate amendments are specified in *Rozporządzenie Ministra Infrastruktury i Rozwoju z 10 lipca 2015 w sprawie udzielania przez PARP pomocy finansowej w ramach Programu Operacyjnego Inteligentny Rozwój*:

<http://prawo.sejm.gov.pl/isap.nsf/DocDetails.xsp?pid=WDU20150001027> (The Regulation of the Minister of Infrastructure and Economic Development of 10 July 2015 on financial aid granted by the PARP within the framework of the Operational Programme Smart Growth). The Regulation has been amended four times so far.

³⁴ Cf. Correspondence between representatives of the UOKIK, Department of State Aid Monitoring (06.03.2019) and the European Commission, DG Competition (14.03.2019).

were similar to those which were planned for other non-key instruments. However, it should be remembered that the new instruments were included in the scheme over 2018-2018, so the assessment of their potential impact is barely preliminary. This remark also refers to the majority of interventions under analysis, which results directly from the advancement of project implementation. Due to this fact the approaches adopted in the evaluation and methods related to them have been adjusted to the reality – analyses were conducted in the scope which is now possible and justified. Such an approach was adopted, among others, to the way in which the intervention effectiveness was assessed. The main feature of the assessment is that much attention is paid to the so-called current impact (more information on the subject can be found in the next chapter –describing the evaluation concept).

The original average annual budget of the PARP aid scheme amounted to EUR 310.04 million and it was classified under Article 1(2)(a) GBER as a large scheme, exceeding the defined threshold of EUR 150 million³⁵. The notified amendments which were introduced into the PARP aid scheme resulted in decreasing its total value to EUR 1 466 379 562³⁶ and therefore the average annual expenditures will account for about EUR 244.4 million. It means that the scheme still meets the original criteria, according to which it has to be subject to evaluation.

The Original PARP aid scheme covered twelve different support instruments (OP SG sub-measures), i.e.:

- 1) 2.3.1 Pro-innovation Business Environment Institutions services for SMEs ;
- 2) 2.3.2 Innovation vouchers for SMEs ;
- 3) 2.3.3 Internationalisation of Key National Clusters ;
- 4) 2.3.4 Protection of industrial property;
- 5) 2.4.1 Centre for analyses and pilot implementation s of new instruments — inno_LAB;
- 6) 3.1.1 Investments in innovative start-ups – Starter ;
- 7) 3.1.2 Business angels’ group investments in SMEs — BizNest;
- 8) 3.1.3 Innovation Loan Fund ;
- 9) 3.1.5 Support for SMEs to access the capital market — 4 Stock;
- 10) 3.2.1 Market research ;
- 11) 3.3.1 Polish Technology Bridges;
- 12) 3.3.3 Support for SMEs in the promotion of Polish product brands — Go to Brand.

The changes made over the period 2017-2018 involved excluding four instruments from the scheme. They were as follows respectively:

³⁵ Following the information reported to the EC by Polish authorities, the total value of the PARP aid scheme amounted to EUR 1 860 228 959.00. The average annual aid value was estimated for the period 2015-2020.

³⁶ As at February 2020.

- 1) 3.1.1 Investments in innovative start-ups – Starter – the instrument was transferred in 2017 to be implemented by the PFR³⁷.
- 2) 3.1.2 Business angels' group investments in SMEs — BizNest – the instrument was transferred in 2017 to be implemented by the PFR³⁸.
- 3) 3.1.3 Innovation Loan Fund – no call for proposal has been put into effect. The implementation of the instrument in question was abandoned in June 2018. The allocation under this sub-measure has been transferred in favour of OP SG sub-measure 3.2.3 (Guarantee Fund to support innovative enterprises) to be implemented by the BGK³⁹.
- 4) 3.3.1 Polish Technology Bridges – the instrument was transferred in 2017 to be implemented by PAIH⁴⁰.

Furthermore, the following instruments were included in to the scheme:

- 1) 2.3.5 Design for entrepreneurs – the sub-measure was included in the PARP aid scheme in 2018⁴¹.
- 2) 2.3.6 Grants for Euro-grants – the sub-measure was included in the PARP aid scheme in 2019⁴²

³⁷ Cf. *Rozporządzenie Ministra Rozwoju i Finansów z dnia 22 lutego 2017 r. zmieniające rozporządzenie w sprawie udzielania przez Polską Agencję Rozwoju Przedsiębiorczości pomocy finansowej w ramach Programu Operacyjnego Inteligentny Rozwój 2014–2020*. [The Regulation of the Minister of Economic Development and Finance of 22 February 2017 amending the Regulation on financial aid granted by the PARP within the framework of the Operational Programme Smart Growth 2014-2020].

³⁸ Ibidem.

³⁹ Cf. *Ewaluacja mid-term postępu rzeczowego Programu Operacyjnego Inteligentny Rozwój 2014-2020*, MIR, 2019, s. 130. [Mid-term evaluation of material and financial progress with reference to the Operational Programme Smart Growth 2014-2020, MIR, 2019, p.130]

⁴⁰ Cf. *Rozporządzenie Ministra Rozwoju i Finansów z dnia 22 lutego 2017 r. zmieniające rozporządzenie w sprawie udzielania przez Polską Agencję Rozwoju Przedsiębiorczości pomocy finansowej w ramach Programu Operacyjnego Inteligentny Rozwój 2014–2020*. [The Regulation of the Minister of Economic Development and Finance of 22 February 2017 amending The Regulation on financial aid granted by the PARP within the framework of the Operational Programme Smart Growth 2014-2020].

⁴¹ Cf. *Rozporządzenie Ministra Inwestycji i Rozwoju z dnia 25 maja 2018 r. zmieniające rozporządzenie w sprawie udzielania przez Polską Agencję Rozwoju Przedsiębiorczości pomocy finansowej w ramach Programu Operacyjnego Inteligentny Rozwój 2014–2020*. [The Regulation of the Minister of Investment and Economic Development of 25 May 2018 amending The Regulation on financial aid granted by the PARP within the framework of the Operational Programme Smart Growth 2014-2020].

⁴² Cf. *Rozporządzenie Ministra Inwestycji i Rozwoju z dnia 8 sierpnia 2019 r. zmieniające rozporządzenie w sprawie udzielania przez Polską Agencję Rozwoju Przedsiębiorczości pomocy finansowej w ramach Programu Operacyjnego Inteligentny Rozwój 2014–2020*. [The Regulation of the Minister of Investment and Economic Development amending The Regulation on financial aid granted by the PARP within the framework of the Operational Programme Smart Growth 2014-2020]. **Due to the fact that this measure was included into the aid scheme after the set-up of this evaluation, it was not a subject under analysis.**

3) 2.5 Acceleration Schemes – the sub-measure was included in the PARP aid scheme in 2018⁴³.

The modifications mentioned above have resulted in obvious changes in the allocation structure with reference to particular instruments, which is presented in the table below.

Table 5 Amendments to the PARP aid scheme allocation structure– original version as at 21 February 2020 r ⁴⁴.

Intervention name	18.01.2016	21.02.2020	Difference	Aid share (2016)	Aid share(2020)
PARP aid scheme	1 860 228 959.00	1 466 379 562.00	- 393 849 397.00	100,00%	100,00%
Sub-measure 2.3.1	43 580 00.00	46 414 962.00	2 834 962.00	2.34%	3.17%
Sub-measure 2.3.2	80 670 000.00	71 914 700.00	- 8 755 300.00	4.34%	4.90%
Sub-measure 2.3.3	33 250 000.00	33 763 143.00	513 143.00	1.79%	2.30%
Sub-measure 2.3.4	47 620 000.00	7 694 403.00	- 39 925 597.00	2.56%	0.52%
Sub-measure 2.3.5	0	71 694 439.00	71 694 439.00	0.00%	4.89%
Sub-measure 2.4.1	100 000 000.00	44 380 565	- 55 619 435.00	5.38%	3.03%
Measure 2.5	0	45 038 272	45 038 272.00	0.00%	3.07%
Sub-measure 3.1.1	180 642 000.00	0	- 180 642 000.00	9.71%	0.00%
Sub-measure 3.1.2	58 197 977.00	0	- 58 197 977.00	3.13%	0.00%
Sub-measure 3.1.3	129 741 293.00	0	- 129 741 293.00	6.97%	0.00%
Sub-measure 3.1.5	6 353 334.00	3 406 358	- 2 946 976.00	0.34%	0.23%
Sub-measure 3.2.1	1 047 894 355.00	985 069 918	- 62 824 437.00	56.33%	67.18%
Sub-measure 3.3.1	42 280 000.00	0	- 42 280 000.00	2.27%	0.00%
Sub-measure 3.3.3	90 000 000.00	157 002 802	67 002 802.00	4.84%	10.71%

Source: own study based on DDPa data as at February 2020

In the context of the alterations made, it should be noticed that they resulted in rising the key instrument which is sub-measure 3.2.1 – *Market research* in importance (a rise in the allocation share by nearly 11 percentage points up to over 67%). Therefore particular attention has been paid to this instrument in this evaluation. At the same time sub-measures 3.1.1, 3.1.2 and 3.1.3, originally labelled as key instruments, were excluded from the aid scheme⁴⁵. The importance of sub-measure 3.1.5 (*4 – Stock*)⁴⁶ has also decreased, whereas

⁴³ Cf. Rozporządzenie Ministra Inwestycji i Rozwoju z dnia 25 maja 2018 r. zmieniające rozporządzenie w sprawie udzielania przez Polską Agencję Rozwoju Przedsiębiorczości pomocy finansowej w ramach Programu Operacyjnego Inteligentny Rozwój 2014–2020. [The Regulation of the Minister of Investment and Economic Development of 25 May 2018 amending The Regulation on financial aid granted by the PARP within the framework of the Operational Programme Smart Growth 2014-2020].

⁴⁴ The table does not include sub-measure 2.3.6 Grants for euro-grants, due to the fact that it is not specified in the DDPa version which was applicable at the time of conducting this evaluation.

⁴⁵ The original allocation to these three instruments amounted to nearly 20% of the total allocation under the PARP aid scheme

⁴⁶ The allocation to this sub-measure has been decreased by nearly 50%. Similarly, the expected outcomes for this sub-measure have also decreased, including the number of projects planned (cf. detailed information in this respect found in sub-chapter 7.2).

OP SG sub-measure 3.3.3 (*Go to brand*) has seen an increase. It is worth noticing that the State aid share in the implementation of this instrument is very small – in practice what prevails is *de minimis* aid, which amounts to around 96% of the aid granted.

Taking account of the information provided in the previous chapter, including details as for the structure of expenditures in terms of aid destination, it should be stated that in the course of implementation of the PARP aid scheme, the aid and its concentration have been aligned. First of all, the share of the aid granted under Art.13-14 GBER (Regional investment aid) was increased. To much extent it resulted from excluding three measures from the aid scheme, under which the application of repayable instruments was predicted (OP SG measure 3.1). It automatically contributed to the increased importance of other instruments, including the largest one – i.e. sub-measure 3.2.1 *Market research*, despite an insignificant decrease in the allocation to this sub-measure.

In parallel, new instruments were included in the aid scheme, such as sub-measure 2.3.5, under which aid is also granted partially pursuant to Art.13-14 GBER. Moreover, in the year 2017⁴⁷ an alteration was made as for OP SG sub-measure 2.3.1- *Pro-innovative BEI services for SMEs*, under which investments were also funded within RIA. The investment component was also chosen under sub-measure 2.3.2 – *Innovation vouchers for SMEs*, under which RIA is also included in 2018. However, all of the three sub-measures mentioned are relatively new solutions, whose effects by no means could have been captured in the mid-term evaluation of the PARP aid scheme. Because of this the main weight of the evaluation, when it comes to evidence both collected and analysed, concerns OP SG sub-measure *Market research*. The evaluation with regard to this aid instrument has also been conducted in accordance with the PARP evaluation plan.

Taking account of the information presented in this chapter, the original assumptions, made at the stage of developing the PARP evaluation plan, have been reviewed. As a result, solely sub-measure 3.2.1 – *Market research* should be regarded as a key measure in view of a potential impact of State aid, including trade and competition. However, in the main part of this report the most important evaluation results for all measures recognised as non-key measures are also presented. Detailed results for these instruments are found in an appendix to this report.

⁴⁷ In practice, it came into force as a result of the competitions settled in 2018.

6. Evaluation concept

6.1. Evaluation objective

The objective of mid-term evaluation was to identify and assess a positive and negative, direct and indirect impact(s) of the PARP aid scheme and its instruments. The evaluation took into account the following criteria and thematic areas (including evaluation questions and indicators):

- 1) direct impact of the aid granted on beneficiaries;
- 2) indirect impact of the aid scheme implementation (positive and negative);
- 3) proportionality and appropriateness of the aid.

The scope and specificity of the assessment within the above thematic areas have been described below.

6.1.1. Direct impact of the aid granted on beneficiaries

The direct impact of aid is related to an evaluation task which involves verifying the existence of the cause-effect relationship between the State aid granted and the situation (and its possible change) in a group of beneficiaries. The assessment covers the outcomes defined at the level of each aid instrument and at the broader level of the whole aid scheme⁴⁸.

The assessment of the relationship between State aid and the situation of beneficiaries has been made in two dimensions. First of all, the aid impact on making the decision about the implementation of an investment – its scale, time and scope (e.g. project innovativeness) was subject to verification. In other words, the occurrence of the so-called incentive effect was under analysis. Secondly, the aid impact on short- and long-term effects of the aid was verified. As for mid-term evaluation, due to the current state of implementing the scheme it was possible to verify the incentive effect and to partially assess short-term effects for the majority instruments under analysis. The evaluation of the impact, referring to long-term aid effects⁴⁹ will be possible at the stage of ex-post evaluation at the earliest, which is also in accordance with the evaluation plan.

What is important, both areas of analysis are directly related to each other. In view of the comprehensive assessment of aid impact, it was necessary to verify whether State aid had

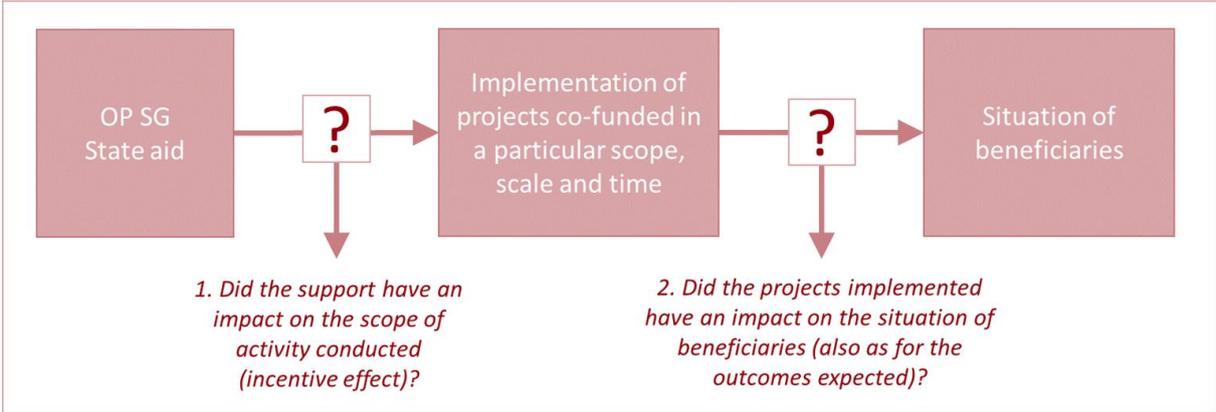
⁴⁸ A detailed assessment scope, including the aid impact, was defined in the evaluation plan for specified key OP SG instruments (cf. Table 3. in the plan). In the case of other instruments, outcomes were defined at the level of the reconstructed theories of change for each instrument.

⁴⁹ The term: long-term effects is certainly inaccurate. Within the range of various OP SG instruments which are assessed, the appropriate moment of assessing ultimate/long-term aid impact will be varied. The effects of large investment projects, such as e.g. those implemented under sub-measure 3.2.1, they will take time (a longer time) to be revealed, as compared to less complicated projects and to –in principle- smaller aid instruments (e.g. projects under sub-measures 2.3.1, 2.3.2 or 2.3.5).

an impact on the decision of enterprises – in a broader sense – to carry out the supported projects and at the same time whether those projects have brought the expected impacts. It is assumed implicitly that both conditions are met. However, apart from such a desirable situation, there are other three, which could be identified.

The first case involves obtaining the assumed project results but with no incentive effect. In other words, beneficiaries’ actions could have been relevant and effective, however, they would have been also achieved without State aid. The second hypothetical situation involves a lack of desired impacts preceded by great incentive effect. It means that beneficiaries would not have decided to set up the investments which were supported under the aid scheme. Unfortunately, those projects have not brought the assumed impacts. Such a possible result is particularly interesting in view of assessing the aid appropriateness and proportionality (cf. hereinafter). Finally, the third hypothetical scenario is that, there is no incentive effect, nor is an impact of the supported projects. It is obvious that all three situations described are not desirable. Every time their possible occurrence is subject to an in-depth analysis. The above is summarised in a visual way in the diagram below, which presents the main points of the evaluation of the direct impact of the aid.

Diagram 6 Direct impact of aid granted – general concept



Source: own study

The assessment scope defined in such a way results explicitly from the Evaluation plan. Taking account of such a scope of assessing a direct aid impact on the situation of beneficiaries, research questions about the issue were asked. Apart from the two essential ones, which are seen in the diagram above, there are more detailed and precise questions referring to the extent of aid impact and its possible diversification. One evaluation question includes additional details concerning the thematic area within which the impact of projects implemented should be verified.

Evaluation questions relating to direct aid impact on beneficiaries (in accordance with the PARP evaluation plan)⁵⁰

- 1) Has the aid granted had a significant impact on the scope of activity conducted by aid beneficiaries (**incentive effect**)?
- 2) Has the aid granted had an impact on the situation of beneficiaries (has their **competitive position** changed)?
- 3) To what extent have the **expected outcomes** of aid granted been obtained?
- 4) **How varied** have the **effects** of aid granted been (e.g. depending on the enterprise size, location, or business sector)?
- 5) Has the aid resulted in the increased **numbers and types of innovations** launched by beneficiaries⁵¹?

In fact, the questions above were defined explicitly in the plan only in connection to few instruments (3.2.1, 3.1.5, 3.3.3), however, it should be noticed that – in principle – they are universal for the vast majority of OP SG support instruments (apart from question 5). Therefore they are answered in the case of all instruments. A differentiating factor involves methods of defining the aid impact. As for the key instrument (3.2.1 *Market research*), in the evaluation it was possible – to a greater extent – to take into consideration the results of counterfactual analyses conducted in cooperation with the GUS. In the other cases, in principle, the support impact was based – to much extent – on the results of surveys, case studies, expert analyses, etc. It is worth adding that as for the set of questions listed above, the evaluation plan has predicted appropriate indicators, methods of their measurement and assessment which facilitate giving a comprehensive answer to the questions asked. The evaluation assumptions of the plan have been fully fulfilled.

6.1.2. Indirect impact of the aid scheme implementation

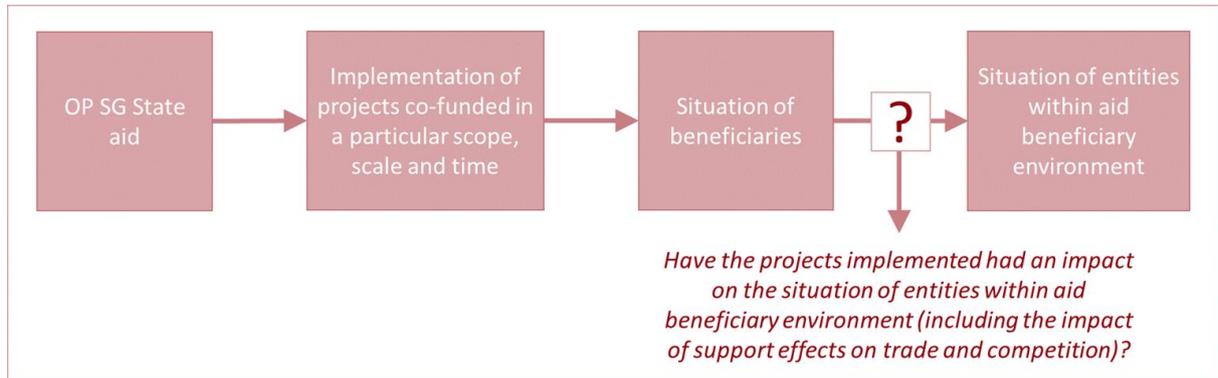
The second mid-term evaluation area goes beyond the beneficiaries of the aid. Particularly, it refers to a potential impact of the aid on entities benefiting from the development of direct beneficiaries of the scheme. Indirect support impacts could be both positive and negative. With reference to the former, it is necessary to mainly indicate a potential favourable aid impact on entities within the direct environment of beneficiaries, i.e. their co-operators, suppliers and least but not last customers. On the other hand, a negative impact may be observed, which results from an undesirable support impact on competition and trade (at the EU level). In this regard the company environment should be understood not only at the local level, but also from the perspective of entities participating in trade within the EU. In terms of evaluation in question this issue is significant, taking account of the assumptions regarding the aid granted by Member States.

⁵⁰ The list of questions above is based- to much extent- on EC guidelines included in the handbook: *Common methodology for State aid evaluation*, cf. pp. 5-6.

⁵¹ It concerns the instruments for which one of the expected direct outcomes is innovations launched, i.e. OP SG sub-measures 2.3.1, 2.3.2, 2.4.1, and 3.2.1

The operationalisation of the issue above has been presented more extensively while describing methodology applied to the case studies which were conducted in the evaluation and which are one of the main sources of verifying the assessment of OP SG indirect impact on competition and trade ⁵². The diagram below illustrates a general concept regarding the verification of indirect support impact.

Diagram 7 Indirect impact of aid granted – general concept



Source: own study

Like in the case of direct impact, the evaluation plan assumed asking questions about accurate information as for the indirect impact of the PARP aid scheme. They have been presented with regard to the positive and negative impact separately.

Evaluation questions related to indirect aid impact – positive impact

- 1) Has the intervention implementation resulted in the occurrence of the so-called spillover effect with reference to the activity of other enterprises (co-operators, service providers, etc.) or to other geographical regions?
- 2) Has the intervention contributed to the achievement of the objectives of regional and cohesion policies⁵³ which are to support innovativeness and competitiveness in Poland?

⁵² In the course of the evaluation it was especially significant to determine the balance of a potential negative and positive impact of State aid granted under the PARP aid scheme, especially with reference to its potential negative impact on competition and trade (mostly at the level of European Single Market (ESM)) and the effects observed at the level of particular beneficiaries, taking account of identified market failures which justified the set-up of State aid. At the operational level, an indirect negative aid impact occurs if the aid granted results in the increased aid beneficiaries' shares in the market (ESM) by: entering this market, increasing production or decreasing prices. It may happen at the expense of the previous competition share in a given market. Consequently, the competitors of OP SG beneficiaries (companies operating within (ESM) suffer from a profit decrease or they withdraw from the market (ESM).

⁵³ The assessment of the intervention impact with respect to achieving the objective of regional and cohesion policies concerns only OP SG sub-measure 3.2.1

Evaluation questions related to indirect aid impact - negative impact

- 1) Could there be observed any negative occurrences related to the selection of beneficiaries during the aid scheme implementation which have an impact on competition, such as sectoral bias (the vast majority of aid was granted to one branch within a multi-sectoral scheme) and incumbent bias (ratio of old enterprises to new ones)
- 2) Has the aid disrupted competition on the market (e.g. consultancy services)⁵⁴?

As previously, the questions above were asked in the evaluation plan in the context of key instrument assessment. However, it should be stated that at the defined general level it is possible to ask the questions with regard to all the support instruments under assessment. At the same time it is necessary to realize that the available information sources at the stage of mid-term evaluation will make it possible to verify -only to a limited extent - this issue within all instruments.

6.1.3. Proportionality and appropriateness of the aid

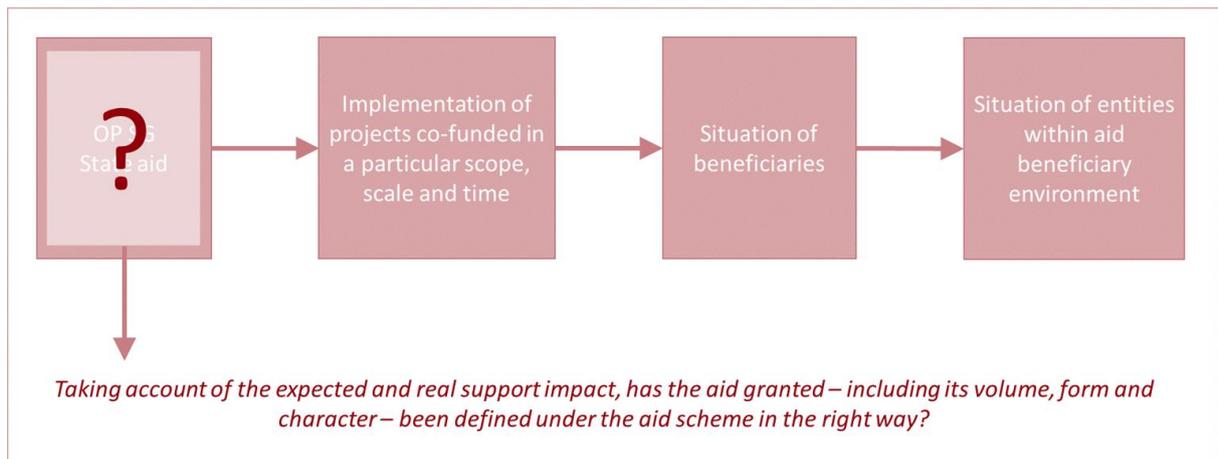
The third evaluation area specified in the evaluation plan covers the issue of proportionality and appropriateness of the aid granted. Both focus on verifying whether it should be recognised that the aid granted - including its volume, form and character – has been appropriately determined under the aid scheme, taking account of the assumed (and ultimately also obtained) support effects. Therefore the subject of interest is directly related to support instruments, defined at the level of assumptions of particular instruments. In this respect the assessment could be helpful when it comes to defining conditions on which Member States can grant State aid. As a rule, it must be aid which fits in with a given problem (needs) appropriately and which is limited to the necessary amount⁵⁵.

In this respect the assessment is based – to much extent – on expert knowledge, which is supported with results related to the current and expected support effects, but also on the feedback from scheme stakeholders, beneficiaries, the world of academics and branch experts. Ultimately (in ex-post evaluation) it will be also possible to apply rigorous methods of statistical analysis in which the economic effects of different instruments will juxtapose, taking account of the volume and intensity of the State aid granted. Below is presented a general concept of the assessment with regard to the evaluation issue in question.

⁵⁴ It concerns instruments within which the support was targeted (directly or indirectly) to entities providing consultancy services (sub-measures: OP SG 2.3.1, 3.1.5).

⁵⁵ Cf. *GBER Introduction (5)*: *The general conditions for the application of this Regulation should be defined on the basis of a set of common principles that ensure the aid serves a purpose of common interest, has a clear incentive effect, is appropriate and proportionate, is granted in full transparency and subject to a control mechanism and regular evaluation, and does not adversely affect trading conditions to an extent that is contrary to the common interest.*

Diagram 8 Proportionality and appropriateness of the aid – general concept.



Source: own study

In respect of the assessment of aid proportionality and appropriateness within the instruments defined as key ones the following evaluation questions have been formulated in the evaluation plan:

Questions related to aid proportionality

- 1) Has the aid been proportional to the problem it concerns? Would it have been possible to obtain the same effects with a smaller volume of State aid or with another aid form (e.g. projects of a relatively higher aid intensity vs. projects of a relatively lower aid intensity: projects of one aid type vs. projects of differentiated aid structure)?

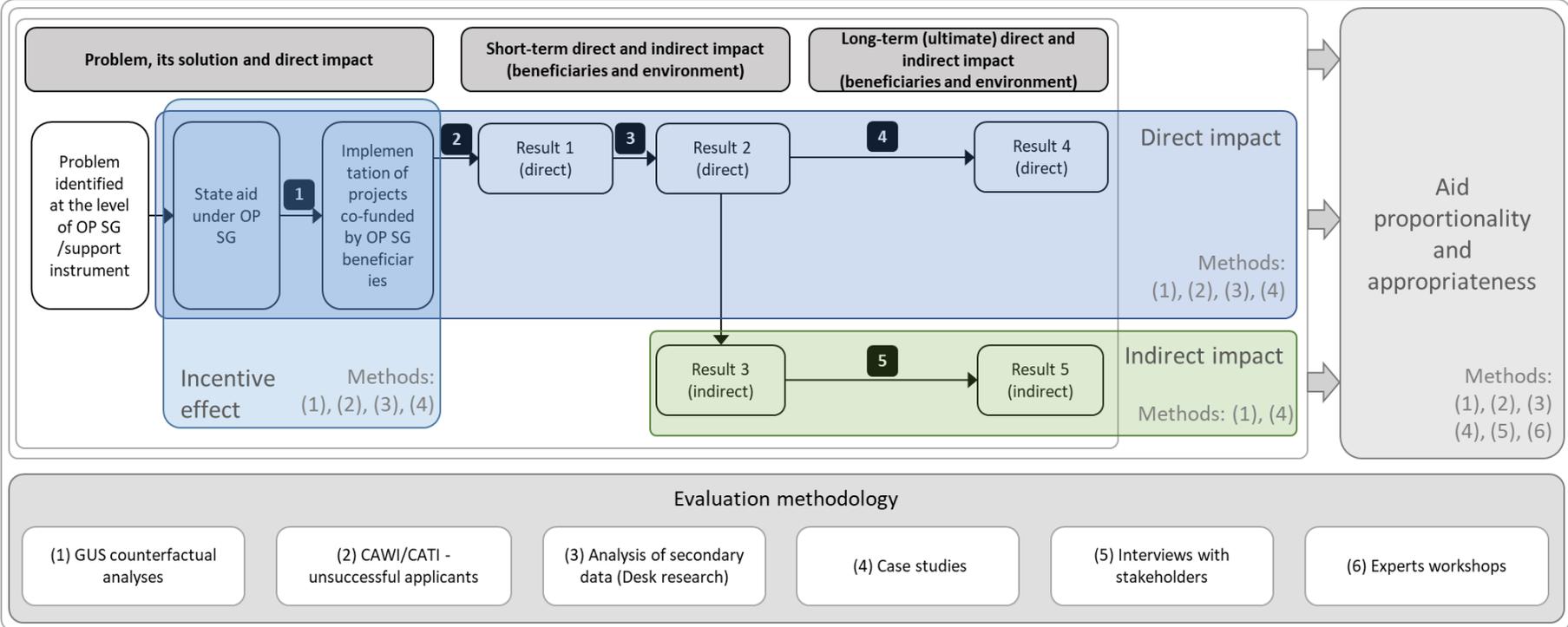
Questions related to aid appropriateness

- 1) Has the most effective aid instrument been selected? Would other aid instruments or intervention types have been more appropriate for achieving a given goal?
- 2) Would other support instruments or intervention types have been more appropriate for achieving goals of a given aid category?

6.1.4. Assessment scheme by evaluation areas

Taking into account the evaluation areas outlined above, they have been placed in the background of the casual chain of aid scheme interventions in order to visualise their interdependencies, which are seen in the set of casual relationships (e.g. obtaining result 2 is possible on the occurrence of result 1 etc.). Moreover, additional assumptions must be met and they have to be identified in detail at the level of each support instrument (these assumptions are symbolically presented in the table below by means of a black numbered square). The diagram also takes account of assigning methods and techniques used in the evaluation to particular areas subject to assessment. More detailed information on the methods and techniques of collecting and analysing data which were used in the evaluation can be found in the next chapter.

Diagram 9 Assessment scheme within mid-term evaluation by defined evaluation areas



Source: own study

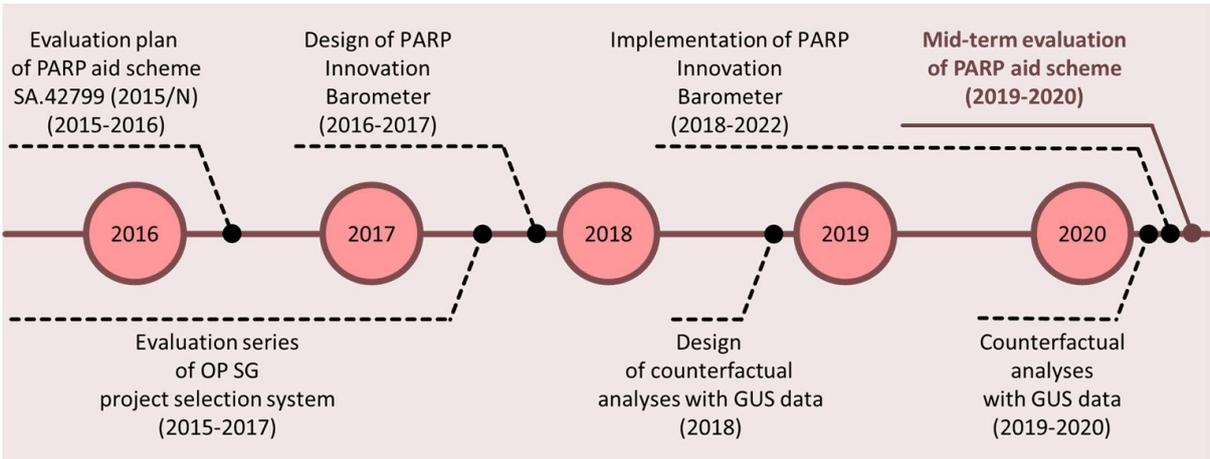
6.2. Approaches, methods and research techniques applied

6.2.1. The methodological concept of the study

The framework of the evaluation is marked by the two complementary approaches – Counterfactual Impact Evaluation (CIE) and Theory-Based Evaluation (TBE). The first approach focus on casual effects of the support. The knowledge in this respect allows to establish the effectiveness of a given intervention. In other words, the results of counterfactual analyses allow to give an answer to the question: ‘what works?’. The latter approach, in turn, is to explain the observed effectiveness of the support (or the lack of the effectiveness). In order to achieve this, the analysis has to cover the so-called programme theory of change, this is to say a series of cause-and-effect relationships which are to occur as a direct or indirect impact of the intervention. At the same time the assumptions which have to be fulfilled so that the given theory of change can materialise have to undergo verification. The Theory-Based Evaluation makes it possible to give an answer to the question about a given intervention ‘why does (not) it work?’

The application of the two approaches has required to use differentiated methods and techniques of data collection and analysis. It should be pointed out that the evaluation design is a result of the process that was launched long before this mid-term evaluation started. Within this process it is possible to distinguish a several, key undertakings which are of critical significance for the evaluation. They are comprised of both design and research studies. The most important elements of the process are presented in the diagram below.

Diagram 10 Undertakings determining the methodology of mid-term evaluation of the PARP aid scheme



Source: own study

The following undertaking are of key significance for the design of the evaluation of PARP aid scheme (in chronological order):

- 1) **Evaluation plan of the PARP aid scheme, approved by the Commission decision of 8 February 2016.** The plan defined the evaluation scope, timeline and methodology. The latter takes account of the EC guidelines included in the handbook: *Common*

*methodology for State aid evaluation*⁵⁶, which put particular emphasis on a rigorous approach with respect to the State aid impact estimation.

2) Evaluation series of project selection system

Over 2015-2017 a series of evaluations with regard to the system of project selection was carried out. The system has been developed for most instruments implemented within the OP SG, including the measures and sub-measure of the PARP aid scheme. The evaluations conducted were commissioned by the MA of the OP SG and they were the first stage of recreating the theory of change for particular OP SG instruments in view of their operationalization at the selection criteria level⁵⁷.

3) Design of Innovation Barometer 2014-2020 (IB) study

Over 2016-2017 an ongoing evaluation of the OP SG system was designed. Its objective was among others, to get to know the beneficiaries' opinions on the changes which their companies undergo as a result of the projects co-funded under the selected OP SG and OP EP⁵⁸ measures. For each entity the evaluation foresees two measurements – at the beginning of the project implementation and one year after its completion. What is important, within the creation of the Innovation Barometer design the theory of change for particular instruments of the scheme was updated and translated into measurement tools (indicators, questionnaire questions, etc.).

4) Design of counterfactual analyses with the use of the Statistics Poland data (GUS data)

In 2018 a research project was implemented which specified the scope of possible counterfactual analyses. Within the project it was planned to use the data which were at the sole disposal of Statistics Poland. What is important, the authors of the analyses were GUS experts cooperating closely with the PARP and the research contractor within the IB. The works resulted in the expert report⁵⁹ in which the feasibility of the planned counterfactual research underwent a comprehensive assessment and their optimal methodology was developed. The research also

⁵⁶ cf. http://ec.europa.eu/competition/state_aid/modernisation/state_aid_evaluation_methodology_pl.pdf

⁵⁷ Evaluations conducted by a consortium of the entities: Fundacja Idea Rozwoju, IMAPP sp. z o.o.; Policy & Action Group Uniconsult Sp. z o.o. (PAG Uniconsult) oraz Uniwersytet Jagielloński – Centrum Ewaluacji i Analiz Polityk Publicznych [Jagiellonian University – Centre for Evaluation and Analysis of Public Policies] commissioned by the Ministry of Infrastructure and Development : Ewaluacja systemu wyboru projektów POIR – etap I”, Raport końcowy wraz z raportami cząstkowymi (2015); „Ewaluacja systemu wyboru projektów POIR – etap II”, Raport końcowy wraz z raportami cząstkowymi (2016-2017) [Evaluation of the system of OP SG project selection – stage I, Final report along with partial reports (2015); Evaluation of the system of OP SG project selection – stage II, Final report along with partial reports (2016-2017)].

⁵⁸ cf. <https://www.parp.gov.pl/badania/barometr-innowacyjnosci> as at 28 May 2020.

⁵⁹ Cf. Ustalenie wartości wybranych wskaźników ekonomicznych dla odbiorców pomocy, udzielanej za pośrednictwem PARP w ramach POIR i POPW, oraz dla dobranych grup kontrolnych – etap 1. Studium wykonalności, GUS, Warszawa 2018 [Defined values of selected economic indicators for recipients of the aid-granted through the PARP within the framework of OP SG and OP EP- as well as for matched control groups - stage 1. Feasibility study, GUS, Warsaw 2018.]

indicated and developed a design of the so-called current support effects, i.e. such potential impact areas of the analysed support instruments which should materialize at the project implementation stage (e.g in respect of the incentive effect). The report defines GUS indicators which could be useful in the identification of these effects within the planned counterfactual study.

5) Implementation of Innovation Barometer 2014-2020

Also, in 2018 the IB was launched and the first measurement in the group of the scheme beneficiaries was conducted. Within the mid-term evaluation, the results of four half-a-year measurement rounds (first of two measurements) were taken into consideration. In fact, within the evaluation plan it was predicted that the accessible data will make it possible to conduct the so-called relative counterfactual analyses. Unfortunately, in practice due to a small number of projects completed and consequently, a small number of IB final (second) measurements, it was not possible. At the mid-term evaluation stage of the PARP aid scheme it was possible to make use of the IB final measurement solely with reference to one non-key instrument (sub-measure 2.3.2). In the other cases, the results of the analyses conducted on the basis of the data from the first measurement (at the beginning of the given project).

6) Counterfactual analyses with the use of GUS data

In 2019 the phase of actual counterfactual analyses started. It was a direct continuation of the design phase of the project (cf. point 4). All analyses based on unit level data were conducted internally by experts of the Statistics Poland (due to statistical confidentiality in force) in close cooperation with the evaluators. What is important, the evaluation implementation was divided into two stages. The first one was implemented in 2019. At that time the impact measurement was based on the data referring to the period 2015-2017. The second stage was carried out at the beginning of 2020 and it additionally took account of the companies' reporting data for the year 2018. Ultimately, the analyses included three instruments of the PARP aid scheme, mostly key measure 3.2.1 and sub-measures 2.3.2 and 3.3.3.

7) Implementation of the mid-term evaluation of the PARP aid scheme

The mid-term evaluation of the PARP aid scheme within the OP SG, started in the first half of the year 2019. As indicated, at the starting point a great deal of information had been already collected and it was further systematically complemented (with among others, the results of IB measurements and counterfactual analyses which were conducted in parallel – cf. points 5 and 6). Additionally, complementary methods of data collection and analysis were foreseen in the evaluation. They were particularly planned to be used for the full implementation of the Theory-Based Evaluation approach. The following have been foreseen and implemented during the evaluation:

- a. **In-depth analysis of the secondary data (desk research)** – including other reports apart from the analyses mentioned above, the results of analyses, etc. and the data from the monitoring systems, including the SL2014 and LSI PARP

systems. At this stage the results of the actual evaluations were taken into consideration. Among them there was the research conducted in parallel and commissioned by the PARP: 'Mid-term evaluation of the inno_LAB – Centre for analyses and pilot implementations of new instruments' (non-competiton project) and 'Impact analysis of selected OP SG and OP EP measures at the sectoral and macro-economic levels with application of the macro-economic model'. A complete list of the sources used in the mid-term evaluation is presented in the Appendix.

- b. **Quantitative research on unsuccessful applicants** – with application of the mix of CAWI and CATI methods. The main objective was to examine the extent of the incentive effect. To find it out, it was necessary to discover whether – and if so to what extent and when – unsuccessful applicants launched the implementation of the projects which were given a negative application assessment. Ultimately, overall 540 completed questionnaires were filled in by representatives of the companies applying under six instruments of the PARP aid scheme (i.e. OP SG sub-measures 2.3.1, 2.3.2, 2.3.4, 3.1.5, 3.2.1, 3.3.3).
- c. **Qualitative research in the form of case studies** – an important contribution, supporting conclusions within the mid-term evaluation were case studies conducted in a group of the project completed under all the instruments which were subject to the evaluation⁶⁰. Overall 20 in-depth case studies have been conducted (two for each non-key instrument and four within sub-measure 3.2.1) and they were comprised of among others, an analysis of the project documentation, a visit to the project site, and last but not least interviews with representatives of the beneficiary and their environment. Each case constituted an empiric verification of the theory of change for a given PARP aid instrument.
- d. **Qualitative research in the form of in-depth interviews (IDIs) with the aid scheme stakeholders** – within the mid-term evaluation an attempt of capturing a wide range of attitudes and opinions related to the aid scheme implementation was made. In view of the above, 331 DIs have been conducted. The talks were held with among others, representatives of the administration and the structures of the scheme management, representatives of the world of science and research, branch institutions, or experts assessing the applications for funding.
- e. **Consultations on the evaluation results** – the final stage of validating the mid-term evaluation results and strengthening their utility involved holding workshops and meetings. After conducting the appropriate analyses, five expert workshops were carried out. They took account of both the

⁶⁰ Apart from the Inno_LAB project, which is subject to a separate research process, as previously mentioned .

operational level of managing the aid scheme and the strategic level, therefore their participants were also representatives of the PARP senior management and the Managing Authority of the OP SG. Particularly, the two last workshops were aimed at fostering the process of designing support instruments prepared for the needs of the subsequent financial perspective for the period 2021-2027, which is implemented in Poland within the EU cohesion policy.

A summary of the applied methods of data collection and analysis under particular support instruments of the aid scheme is presented in the table below.

Table 6 Methods applied within the mid-term evaluation of particular instruments of the PARP aid scheme

TOP SG instrument	Desk research (secondary data)	GUS counterfactual analyses	Questionnaires surveys among unsuccessful applicants	Case studies	In-depth interviews with stakeholders and experts	Expert workshops
2.3.1	✓		✓	✓	✓	✓
2.3.2	✓	✓	✓	✓	✓	✓
2.3.3	✓			✓	✓	✓
2.3.4	✓		✓	✓	✓	✓
2.3.5	✓			✓	✓	✓
2.5	✓			✓	✓	✓
3.1.5	✓			✓	✓	✓
3.2.1	✓	✓	✓	✓	✓	✓
3.3.3	✓	✓	✓	✓	✓	✓

Source: own study

The detailed methodology of conducting research and analyses, which results from the application of the above methods, has been presented in the methodology report. Below in this part of the chapter is presented the specificity of the conducted counterfactual analyses which are – as it has been indicated at the beginning – a basis for a rigorous assessment of the effectiveness of the support granted.

6.2.2. Counterfactual analyses

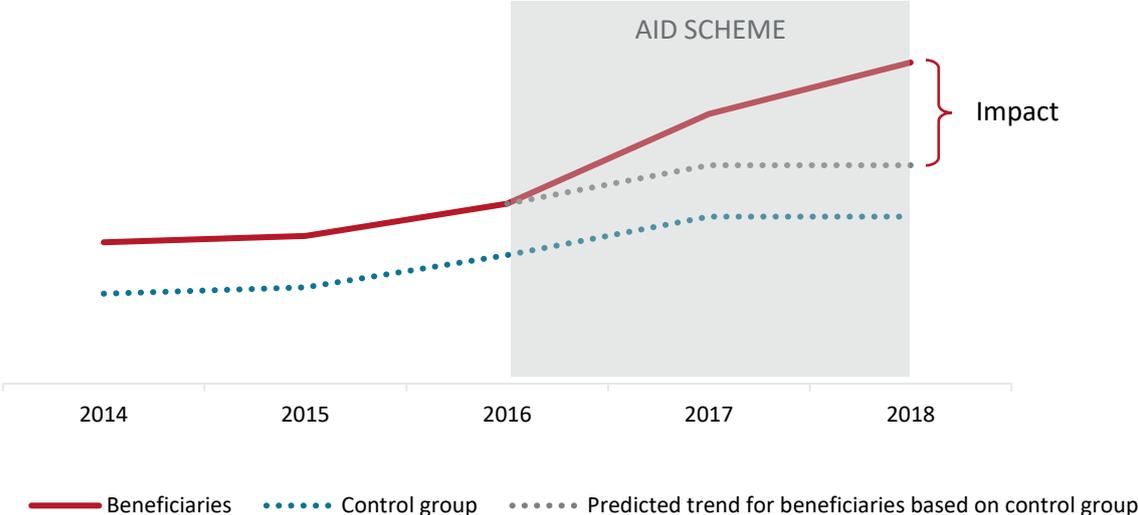
Research problem

The main challenge related to the effectiveness assessment is to define to what extent the changes observed in the beneficiaries are a causal effect of the aid granted and to what extent they are a result of occurrences and conditions independent of the aid. The estimation of causal effects of the support needs to define what would have happened to the beneficiaries (of the PARP aid scheme in this case) if they had not received the State aid

in question. Because the aid has already been granted, the results of a potential lack of the support cannot be observed – it is the so-called counterfactual (purely hypothetical) situation. In the literature in question it is defined as the fundamental problem of causal inference⁶¹.

Although at the unit level the problem is unsolvable, it can be overcome to some extent at population level, in case in which only some units are prone to the impact of a given treatment. Although additional assumptions need to be made, it is possible to use unsupported entities as the so-called control group, which constitutes approximation of the counterfactual situation for the treatment group (beneficiaries). In practice, however, it is necessary to adopt a sound and – at the same time -untestable assumption on the so-called parallelism of trends. It is assumed, that without the support, the situation of the beneficiaries would have changed over time identically to the situation of the units in the observed control group.

Diagram 11 Impact estimation with application of the assessment on parallelism of trends



Source: own study

Selection mechanisms and their control

Unfortunately, the assumption on parallelism of trends is difficult to be both fulfilled and verified. It results from among others, the fact that in public schemes complex selection mechanisms are present. These mechanisms are related to both factors limiting access to the support (application assessment criteria) and individual features of the entities which decide to apply for a given support (motivational factors, e.g. in respect of willingness to undertake investments in the innovation area). As a result, the beneficiaries are most likely a

⁶¹ Cf. Holland P., „Statistics and Causal Inference”, Journal of the American Statistical Association Vol. 81, Nr 396, 1986, pp. 945-960.

non-random sample, which differs from the overall population. It may happen that the characteristics of the beneficiaries are strongly related to the planned intervention objectives. In such a situation the changes observed in the beneficiary group might not indicate an impact of the support but they might entirely result from the specificity of a given group. In other words, they would have been also observed regardless of the support. In this situation comparison of the beneficiaries with a control group could lead to biased estimations of the impact of the support.

Some differences between the beneficiaries and the comparative group can be controlled as they are expressed by the observed characteristics (e.g. company size, sector, financial results, etc.). The others – such as the above mentioned motivational factors, tendency to take risks, etc., are difficult to be captured (they are non-observable). The objective of the counterfactual analyses is to capture all key differences in view of the selection process and the expected impact of the support. As for the schemes addressed to enterprises, an important factor in the unsupported entities is a motivation to finance an investment of a given type (e.g. implementations of innovative products). Within the evaluation in question – wherever accessible data made it possible – this issue was controlled by selecting the comparative group among unsuccessful applicants, i.e. entities which unsuccessfully applied for the support – under the same aid instruments and in the same time as the actual beneficiaries. Obviously, in the analyses other characteristics were also controlled which allowed to alleviate potential significant differences between the beneficiaries and the matched control units.

The control group has been selected with application of a matching technique called Propensity Score Matching (PSM), which attempts to estimate the likelihood of receiving the support by controlling a set of covariates. This technique is widely used due to its desirable balancing properties allowing to match a control group by referring to similarity at the level of many characteristics. The details of the approach, including a set of the characteristics controlled in matching models and the results of the analyses conducted with PSM application have been presented in the Appendix to this report.

Estimated effects

In the analyses a complementary technique to the Propensity Score Matching has been implemented, in form of Difference –In-Differences (DID). It allowed for additional correction in estimating causal effects. In this technique the effects are estimated by measuring the relative value of the change in the indicator analysed over time in the beneficiary group (first difference) as compared to a similar change observed in the matched control group (second difference). In this way possible primary inter-group differences in the area of the effects evaluated are additionally controlled.

In practice, there have been three differences (DID) estimated for each effect indicator under analysis - separately for the periods 2015-2016, 2015-2017 and 2015-2018. Every time the effect was estimated as a relative change in the situation as compared to the base year which

was 2015. That was the actual year prior to providing the support for the beneficiaries, or in other words, it was the last moment that was out of a potential impact of the State aid.

Adopting the presented scheme of effect estimations (triple measurement) is particularly significant in the context of time when the mid-term evaluation was carried out and when it comes to the type of the effects under analysis. For example, in the case of the effects with regard to expenditures or outlays, a periodic increase in the indicator values might be observed at the stage of project implementation. Along with the investment completion it may turn out that there will be a drop in the expenditure value and at the same time an increase in other dimensions (related to e.g. the sales revenues). Therefore the choice of the measurement moment is of key significance.

Taking account of a relatively short measurement time in relation to the moment of the intervention completion or even its commencement, the main attention in respect of the intervention impact analysis is paid to the analysis of the current (short-term) effects. In counterfactual research a short a time for revealing the impacts makes them very limited or just impossible to be captured. The funded projects which have been implemented will bring effects such as e.g. improved financial results or a strengthened competitive position only after some time. Launching the State aid itself does not have to immediately translate into market effects. On the other hand, the aid should be a stimulus which will trigger particular behavioral mechanisms among enterprises and, e.g. positively influence their investment and business decisions. Thus incentive State aid evaluation should in particular allow the direct incentive effect of the aid on the beneficiary to be assessed. Particularly, in a document regarding the methodology of State aid evaluation, the EC indicates the necessity of examining whether the support has had a significant impact on the aid beneficiaries' behavior (as for making the decision on the investment)⁶². It is one of the basic dimensions of verifying the occurrence of direct (short-term) impacts.

The conducted analysis of the intervention effects refers to the question whether receiving the support has an impact on enterprises' decisions regarding the scale, time, the scope of investments implemented, employment and current financial decisions reflected in cash flows, liquidity and indebtedness. Within the designing works on counterfactual analyses, in a methodology report, the GUS in cooperation with the PARP and the evaluator has worked out a list of indicators which made it possible to verify the occurrence of the impacts of the selected OP SG instruments⁶³. Moreover, the analyses have taken into consideration the

⁶² COMMISSION STAFF WORKING DOCUMENT, Common methodology for State aid evaluation, Brussels, 28.5.2014 SWD(2014) 179 final

⁶³ The proposal was presented in the methodology report „Ustalenie wartości wybranych wskaźników ekonomicznych dla odbiorców pomocy, udzielanej za pośrednictwem PARP w ramach POIR i POPW, oraz dla dobranych grup kontrolnych – etap 1. Studium wykonalności, GUS, 2018 [Defined values of selected economic indicators for recipients of the aid- granted through the PARP within the framework of OP SG and OP EP- as well as for matched control groups - stage 1. Feasibility study, GUS, 2018.]

indicators foreseen in the evaluation plan which refer to the target intervention effects. In the counterfactual research the following indicators have been analysed:

Table 7 Indicators examined in counterfactual analyses

No.	Indicator	Source	Period
1	Total expenditures	SP	2015-2018
2	Total expenditures from own resources	SP	2015-2018
3	Total expenditures from credits and loans	SP	2015-2018
4	Expenditures for fixed assets	SP	2015-2018
5	Tangible fixed assets	SP	2015-2018
6	Purchase – machines and technical equipment	SP	2015-2018
7	Machines and technical equipment with expenditures for their construction, purchase and improvement	SP	2015-2018
8	Average annual expenditures in total incurred over 2016-2018	SP	2015-2018
9	Average amount of total expenditures incurred over 2016-2018	SP	2015-2018
10	Share of companies incurring expenditures for internal R&D activity	SP	2015-2018
11	Share of companies incurring expenditures for external R&D activity	SP	2015-2018
12	Expenditures for intangible assets	SP	2015-2018
13	Fixed assets – costs of R&D activities completed	SP	2015-2018
14	Net income from sale	SP	2015-2018
15	Net income from sale of products	SP	2015-2018
16	Net income from exports sale	SP	2015-2018
17	Net income from exports sale of products	SP	2015-2018
18	Share of net income from exports sale in total income	SP	2015-2018
19	Average number of full-time employees	SP	2015-2018
20	Working persons (as at 31 Dec.)	SP	2015-2018
21	Operating costs - payroll costs	SP	2015-2018
22	Short-term liquidity indicator (I): Cash ratio	SP	2015-2018
23	Short-term liquidity indicator (II): Quick ratio	SP	2015-2018
24	Short-term liquidity indicator (III): Current ratio	SP	2015-2018
25	Long-term liquidity indicator (I)	SP	2015-2018
26	Long-term liquidity indicator (II)	SP	2015-2018
27	Costs of outsourced services	SP	2015-2018
28	Costs of materials and energy consumption	SP	2015-2018
29	Share of companies which introduced new or improved products over 2016-2018	PNT-02	2016-2018
30	Share of companies which introduced new or improved services over 2016-2018	PNT-02	2016-2018

Source: own study

The impact estimation was conducted with the use of the statistical package STATA, especially its modules *psmatch2* (user package) and *teffecs*, which are dedicated to this purpose. The

latter made it possible to estimate standard errors for the net effects, taking account of matching the control group on the basis of the estimated probability of being included in the support ⁶⁴.

Data sources

In the counterfactual analyses the used data came from the PARP (the database of applicants and beneficiaries of particular instruments of the aid scheme), the GUS (the results of enterprise reports for the period 2015-2018). However, as stated previously, in the case of the data of Statistics Poland, neither representatives of the evaluator nor the PARP has access to unit data due to statistical confidentiality. All operations with the data were made by GUS experts. The selection of sources for the analyses was based on the experiences from earlier evaluation stages. Consequently, the data used have been collected within the following GUS statistical research:

- SP (Annual enterprise survey) for the period 2015-2018;
- PNT-02 (Report on innovations in the industry sector) for the period 2016-18.

In the case of the latter it was decided to limit the number of the reports under analysis due to the evaluation specificity as the majority of variables (among others, in respect of innovations introduced to the market) refers to the last three years. When it comes to the research PNT-02 of the year 2019, the reporting period included the years 2016-2018, hence the first period in practice in which any effects of the support within the aid scheme, i.e. new products or services introduced to the market, could be revealed.

Validation of the estimations

The estimated effects underwent the validation phase aimed at checking to what extent they are stable and independent of the parameters of a given model (sensitivity analysis). In other words, the assumption on parallelism of trends has been under investigation. In the evaluation course validation was based on the following approaches:

- The use of different population groups for selecting control groups (unsuccessful applicants, the whole population of enterprises, sub-populations distinguished due to the type of the statistical report filled in);
- Applying different approaches to selecting the control group (matching one to one and one to many);
- Applying different model specifications (testing different sets of covariates);
- Analysing the context variables – which – in theory – should not be under the influence of the support. Thus they should change over time in the same way both in the beneficiaries and the control group.

⁶⁴ Cf. 'Matching on the estimated propensity score'. Abadie A., Imbens W. *Harvard University and National Bureau of Economic Research, 2012.*

Limitations of the conducted counterfactual analyses

The analyses conducted have a few significant limitations which are mentioned below:

- The first of them results from the GUS reporting data which have been used and which have an impact on a possible generalization of the results. Namely, the data collected on the basis of the enterprise report which is only obligatory for companies employing more than 9 persons. Smaller companies do not fill it in, which means that this group has not been included in the analyses and the results cannot be generalized for them. In fact, as for the analyses conducted under sub-measure 3.2.1, it should not be a significant burden because the companies employing more than 9 persons constitute about 93% of the beneficiaries, so the share of micro-companies amounts to only 7%. Unfortunately, in the case of sub-measures 2.3.2 and 3.3.3, the share of micro-companies is significantly bigger and it accounts respectively 49% and 45%. Thus, the presented estimates under these sub-measures should be used cautiously. The research PNT-02, in turn, covers only companies from section C (processing industry). In each case we deal with a slightly different group of beneficiaries. On the one hand, it has been a certain limitation to generalizing the results, but on the other hand, it allowed for additional validation of the results.
- Depending on the estimated indicators of the impact and type of the intervention, different control groups have been used. Taking account of the assumptions of the counterfactual approach, which have been described earlier, it would be optimal if it were always possible to use the control group formed among the so-called unsuccessful applicants (at it would be possible to take account of non-observable motivational factors for implementing the investments in questions). Unfortunately, it has not always been possible. The pool of such entities under some instruments turned out to be too small (often smaller than the beneficiary group, and consequently, the key assumptions adopted in the approach could not be fulfilled). For this reason unsuccessful applicants were used to create the control group solely in the case of the indicators estimated on the basis of the SP database and in the group of beneficiaries of sub-measure 3.2.1. As for the analyses with regard to the effects estimated on the basis of the PNT-02 basis (in practice two indicators) and sub-measures 2.3.2 and 3.3.3, the control group was comprised of all the entities which have not received the support, including the companies which have not applied for the support.
- Although the evaluation also included the estimated indicators with reference to the long term impacts of the support (incomes, employment, etc.), it must be remembered that due to the early measurement moment (the last reporting period accessible in the GUS data refers to 2018) it is not possible to make conclusions on the aid effectiveness in this regard. It should be postponed at least until the planned ex post evaluation of the PARP aid scheme.

7. Verification of the theory of change with regard to key instruments of the PARP aid scheme

7.1. OP SG Sub-measure 3.2.1

7.1.1. Theory of change

Justification of the instrument set-up and its expected effects

In terms of value, sub-measure 3.2.1 *Market research* is the largest instrument of support for enterprises, implemented by the PARP within the OP SG. Its total budget amounts to nearly EUR 1 billion⁶⁵, which constitutes about 67% of the PARP aid scheme under analysis. With reference to this instrument, ambitious objectives have been set and they are reflected, among others, in the direct outcome indicators, including mainly the expected income from the sales of new or improved products/processes which were launched under the OP SG. For the target year 2023 this value was determined at almost PLN 3.8 billion⁶⁶. The average indicator value per company⁶⁷ accounts for around PLN 15.2 million. Also, the output indicator in the form of private investments complementary to State aid for enterprises was defined in an equally ambitious way. Its expected value aggregated to the year 2023 is over PLN 4.4 billion. As a result, the total value of projects implemented under the sub-measure will account for about PLN 9 billion. The above outcomes are to be obtained due to irreclaimable support for SMEs in favour of implementing the results of R&D activities.

The direct justification of the set-up of intervention in question is – according to the programming documentation, as well as to the GBER rules of granting State aid – a market failure involving limited innovative activity of SMEs, which results from insufficient resources for investing in high-risk ventures. Following the DDPA of OP SG:

Providing State aid in this area is also relevant due to the fact that on the commercial market there is a lack of financial instruments including risky investments related to the implementation of R&D activity⁶⁸.

⁶⁵ The value was subject to relatively insignificant fluctuations in subsequent DDPA versions; in August 2015 the value amounted to EUR 1 047 894 355, in April 2019 it was EUR 1 085 099 540. As at December 2019, the instrument budget was set at EUR 995 099 540.

⁶⁶ Respectively: PLN 3 409 724 250 - underdeveloped regions, and PLN 368 250 219 – well-developed regions. The value was increased following the DDPA update of 6 Sep. 2019. The target values of the indicator under discussion were almost doubled (it mostly concerns underdeveloped regions).

⁶⁷ The target number of companies (beneficiaries) was defined in Appendix 2 to the DDPA of the OP SG. As at the end of 2019 it amounted to 249 entities.

⁶⁸ cf. *Detailed Description of Priority Axes of OP SG 2014-2020*, Warsaw 2019, the version applicable from 17 Dec.2019 to 20 Feb. 2020.

Similar problems were also noticed in the GBER provisions⁶⁹ :

SMEs often have difficulties in obtaining capital or loans, given the risk-averse nature of certain financial markets and the limited collateral that they may be able to offer. Their limited resources may also restrict their access to information, notably regarding new technology and potential markets. To facilitate the development of the economic activities of SMEs, this Regulation should therefore exempt certain categories of aid when they are granted in favour of SMEs. Those categories should include, in particular SME investment aid and SME participation in fairs.

Short-term effects

Following the provisions of OP SG programming documents, interviews with authors of the programme and representatives of institutions engaged in its implementation, the expected short-term support effect is innovative products and services launched by SMEs. It is to be obtained due to financial support granted to companies for necessary investments (purchase of tangible fixed assets – machines and equipment) and due to consultancy in respect of developing research results which were worked out or purchased. The products introduced into the market are to bring enterprises measurable financial benefits. The funding granted under the sub-measure is also to provide an additional – apart from the direct support-motivation for SMEs to take on R&D activities and to increase the efficiency of support which is granted for the research stage of projects within the OP SG by the National Centre for Research and Development (NCBiR *in Polish*)⁷⁰ under its aid scheme. As assumed, by providing resources for implementing research project results on the market, the instrument is to be complementary to the support offered within OP SG axis I (where the NCBiR co-funds R&D activities carried out by companies).

In the theory of change with regard to this instrument and short-term effects, it is also worth distinguishing the expected indirect effects of support, including the project impact on entities carrying out R&D activity (providing the activity results related to a OP SG project). An intervention as such does not limit a range of entities which can provide services in this respect. Among them there could be science units, research institutes or private entities. Another aspect of the expected indirect impact of investments implemented under the sub-measure is the development – in the broad sense – of cooperators – suppliers, cooperating companies, service providers, etc., whose performance is to expand in parallel with the companies supported within the OP SG. As for cooperators, on the one hand, there are providers of technology which is purchased in connection with the implementations planned (cooperation within the project) and on the other hand, it is worth mentioning cooperators, suppliers, etc. who are involved in permanent or temporary cooperation with the beneficiary due to its core activity (cooperation out of the project). As assumed, the impact on these entities is supposed to turn into long-term instrument effects, which are described below.

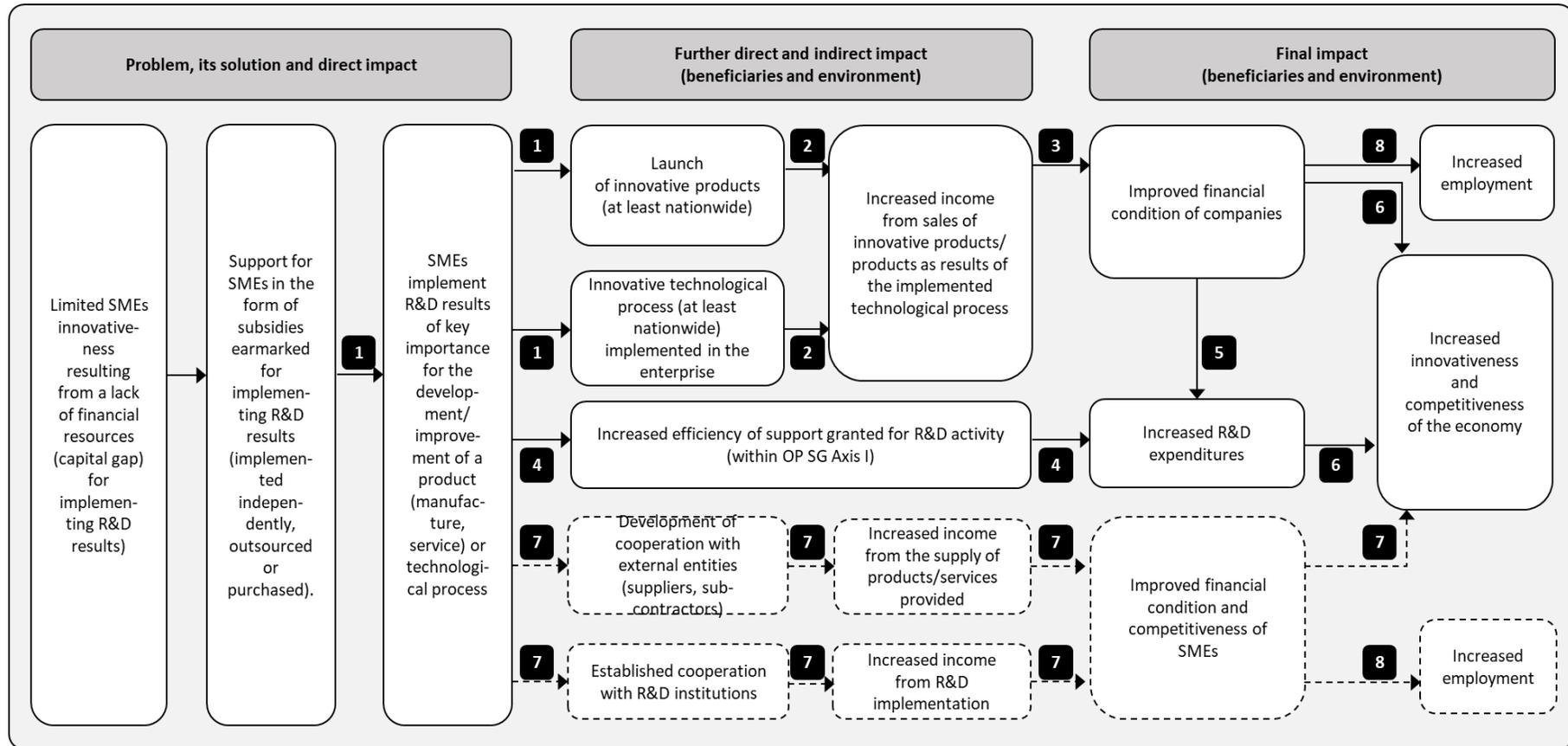
⁶⁹ cf. Introduction to the GBER, (40).

⁷⁰ cf. DDPA (OP SG) 2014-2020, Warsaw 2019.

Long-term effects

In the long-term perspective the support granted under *Market research* is supposed to translate into the overall development of supported enterprises, which means the improvement of their financial results, higher competitiveness and increased employment. At the same time the instrument in question aspires to trigger effects felt at the macro- and micro-level, such as the increased innovativeness and competitiveness of the whole economy as the results of the direct support granted to beneficiaries using financial resources under sub-measure 3.2.1 and also as the results of triggered indirect effects. Among the expected long-term outcomes of projects under sub-measure 3.2.1 there is also an increase in R&D expenditures within SMEs. It is possible not only due to the positive business outcomes of completed implementations and the market success of products, but also due to positive experiences, including the increased innovative capacity, which are gained at the stage of research works in favour of implementations under sub-measure 3.2.1. The mechanism described has been illustrated in the diagram below.

Diagram 12 Logic diagram of OP SG sub-measure 3.2.1 – Market research⁷¹



Source: own study

⁷¹ It is worth mentioning that since 2017 under the instrument there have been implemented the so-called dedicated calls, which aim to concentrate some allocations on selected fields (e.g. electro-mobility), areas (e.g. medium-sized towns) or which fit in with the assumptions of increased product accessibility to people with functional limitations. These competitions are organised in line with standard calls for proposals. However, the clarifications specified have not changed – in principle – the overall theory of change presented in the diagram above.

Key assumptions conditioning the effectiveness of intervention

The occurrence of cause-and-effect demands that many assumptions should be met. Below all key cause-and-effect relationships are presented (their numeration corresponds with the numeration in the diagram above) and the main assumptions which condition their occurrence.

Cause-and-effect relationship 1: The funding contributes to implementation of R&D results by SMEs, which entails launching innovative products/introducing an innovative technological process in the company.

Assumptions:

- 1) Without the State aid, beneficiaries would not have implemented a given project co-funded under OP SG sub-measure 3.2.1 – as for its subject matter, scale and duration – and hence, they would not have launched innovative solutions (products or services) to be sold. The assumption means that the market failure defined at the scheme level, which justifies the instrument set-up, has been identified appropriately and it will remain up to date throughout the whole instrument implementation.
- 2) The existing selection system results in selecting for support companies with sufficient capacity and resources necessary for implementing given projects. In other words, the system of project selection excludes companies which would not be able to implement the project (due to the lack of capacity, experience, resources, etc.).
- 3) The selection system is effective in excluding projects which do not fit in with the programme theory of change.

Cause-and-effect relationship 2: As a result of including new products in the offer, companies gain an income from their sales and/or as a result of introducing new technological processes, activities carried out in the company have been improved/ the quality of activities have been improved, which, in turn, has contributed to an increased income from the sales⁷².

Assumptions:

- 4) Companies have taken relevant investment decisions on preparing the project and applying for financial support (i.e. relevantly defined target groups /customers and demand for a given product/ relevant diagnosis regarding other possibly competitive solutions available on the market).
- 5) Companies have made relevant decisions on sale/marketing/promotion, etc.
- 6) Companies have made a relevant diagnosis as for the process improvements introduced.
- 7) The new technological process has been correctly implemented and used in the company.

⁷² Co-funding new technological processes to be introduced in the company refers to the latest calls carried out under sub-measure 3.2.1 (alterations introduced in 2019).

Cause-and-effect relationship 3: The launch of innovative products improves the financial position and competitiveness of the supported SMEs.

Assumptions:

- 8) Financial benefits from the innovations introduced outweigh their costs (the investments are cost-effective).
- 9) Incomes and profits from the products manufactured/ process innovations introduced reach the appropriate critical mass so that their introduction in the company can be significant/visible.

Cause-and-effect relationship 4: The support for implementing R&D results increases the efficiency of the support granted with regard to the research stage of projects and it is an additional incentive for R&D activity (within the OP SG framework and after its completion)

Assumptions:

- 10) Among beneficiaries related to sub-measure 3.2.1 there are beneficiaries within OP SG priority axis I (entities which have granted R&D support from the NCBiR).
- 11) Implementations completed have turned out to be successful on the market (i.e. innovative products which are the result of R&D activity sell well and bring profits).

Cause-and-effect relationship 5: In the long-term perspective the R&D results implemented successfully by beneficiaries translate into the increase in R&D expenditures in the economy.

Assumptions:

- 12) Beneficiaries base their development on innovative activity.
- 13) Implementations completed have turned out to be successful on the market (i.e. innovative products which are the result of R&D activity sell well and bring profits).
- 14) R&D results implemented successfully lead to the increased attractiveness of performing R&D activity among supported enterprises and to the so-called behavioral change, including intensified cooperation with R&D institutions.

Cause-and-effect relationship 6: In the long-term the increased competitiveness of supported enterprises and R&D expenditures will have an impact on increased innovativeness and competitiveness of the whole economy.

Assumptions:

- 15) Enterprises implementing R&D results develop and achieve good financial results.
- 16) Beneficiaries base their development on innovative activity.
- 17) An overall increase in R&D expenditures will lead to a noticeable increase in innovativeness with regard to the whole economy.

Cause-and-effect relationship 7: R&D results implemented by beneficiaries and increased production, which is related to the former, have a positive impact on the environment of beneficiaries.

Assumptions:

18) Implementations completed turn out to be successful on the market, which translates into increased sales and consequently into increased demand for products and services of suppliers and sub-contractors.

19) The company development through innovation is of strategic importance, not incidental and therefore it also facilitates further cooperation with R&D institutions.

Cause-and-effect relationship 8: The effect of carrying out projects and implementing innovation and of improving the financial condition of companies is new jobs created (as for beneficiaries and their environment).

Assumptions:

20) Implemented projects and outputs generate a real need for additional employment.

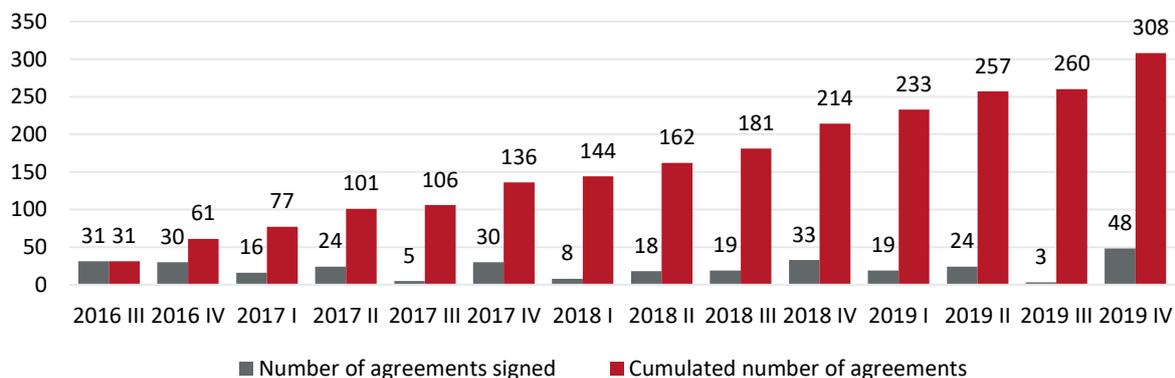
21) Financial resources of companies allow to increase employment.

22) The economy condition, business environment, the situation of a given branch, etc. foster the company development, including an increase in employment.

7.1.2. Summary of the actual implementation

By the end of 2019 within *Market research*, 308 funding agreements had been signed⁷³. The contracting was rather evenly distributed over time, i.e. in subsequent quarters there were signed several up to several dozen funding agreements (on average 22 agreements per quarter). The first agreements were signed in quarter III of the year 2016 with regard to the projects approved for funding within the call which was settled as early as in 2015.

Diagram 13 The number of agreements signed under OP SG sub-measure 3.2.1 in subsequent quarters



Source: own study based on SL 2014 data. As at 31.Dec.2019 r.

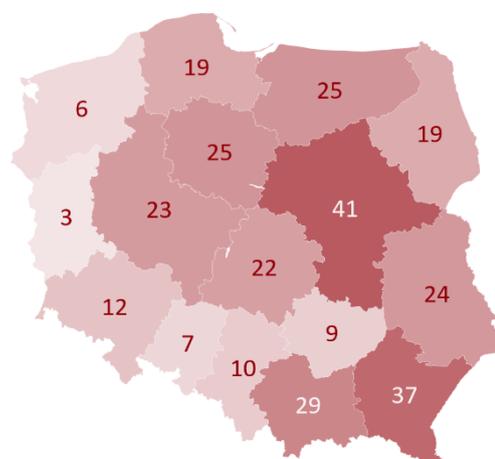
According to the actual version of result programme indicators, it was planned to grant –under the instrument in question- support for 249 enterprises⁷⁴, so the main objective of the measure has been achieved.

⁷³ The figure does not include agreements signed and terminated.

⁷⁴ It results from the DDPA alterations of September 2019, which, among others, decreased the aid allocation under sub-measure 3.2.1

The projects are not evenly distributed across regions. Relatively more projects are implemented in central, eastern Poland (apart from Świętokrzyskie voivodeship) and in the north. Distinctively, fewer projects are under implementation in western and south-west voivodeships. As for the regional project distribution, what is important is the intensity of available aid under sub-measure 3.2.1 based on the so-called Regional aid map – the aid higher in eastern regions and lower in the others. The most projects (41) are implemented in Mazowieckie voivodeship, which is followed by Podkarpackie (37) and Małopolskie (29). The fewest agreements have been signed in Lubuskie (3), Zachodniopomorskie (6) and Opolskie (7) voivodeships.

Diagram 14 The number of agreements signed by voivodeships – location of project implementation⁷⁵



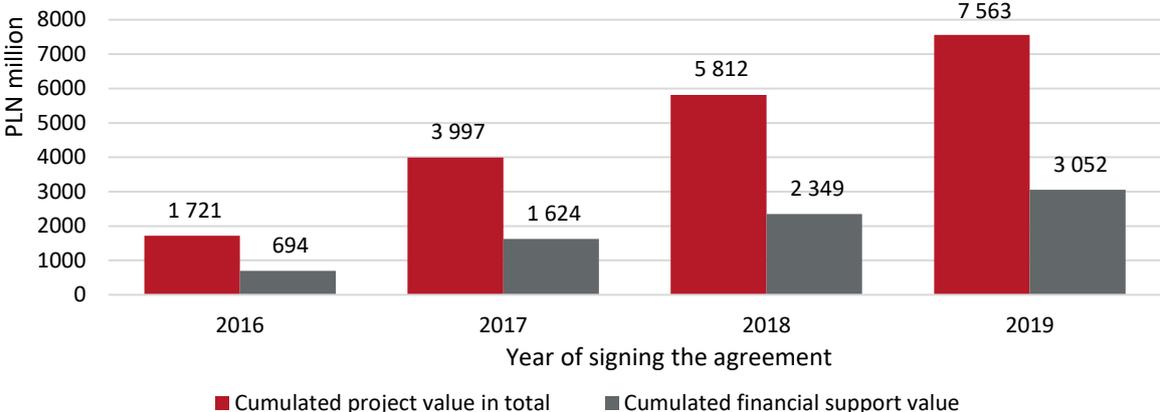
Source: own study based on SL 2014 data. As at 31.Dec.2019

It is worth noticing that in five voivodeships with the smallest number of agreements, the total number of projects is smaller than in the above mentioned Mazowieckie voivodeship alone.

Taking account of the value of agreements signed, by the end of 2019, projects whose total value amounted to over PLN 7.56 billion had been contracted and the total amount of support was PLN 3.05 billion. The objective of the output indicator for this instrument – private investments complementing State aid for enterprises (subsidies) – accounting for slightly above PLN 4.4. billion has been already achieved - at least at the level of declared values in projects commenced.

⁷⁵ The total number of projects presented in the map is 311 (including 308 projects under implementation in total). It is due to the fact that several project are being implemented simultaneously in several voivodeships.

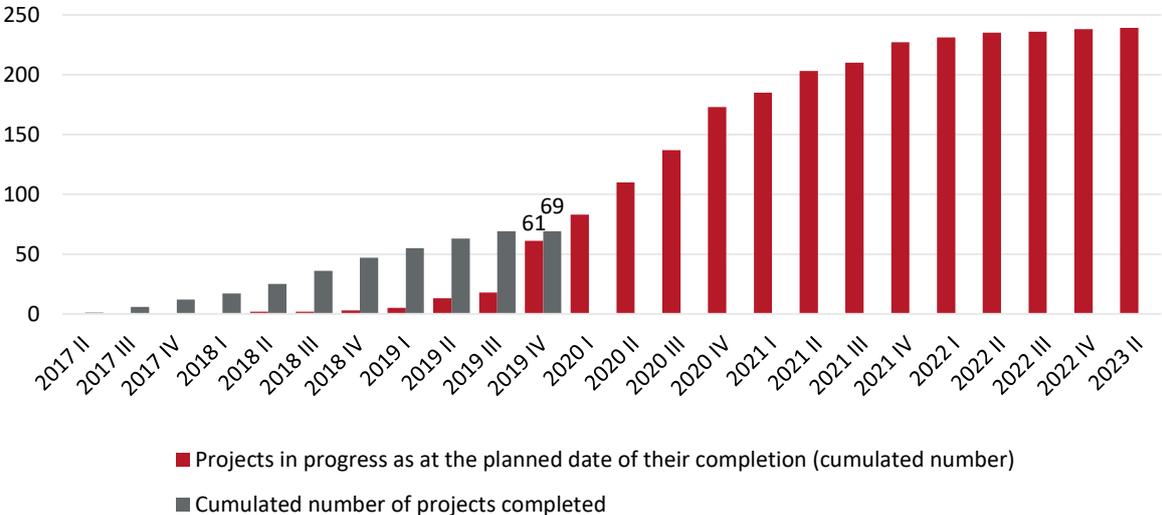
Diagram 15 The value of agreements signed under OP SG sub-measure 3.2.1 by project value planned and by funding value



Source: own study based on SL 2014 data. As at 31 Dec.2019

By the end of the last quarter of the year 2019, the number of projects completed was equal to 69. Theoretically, this number is supposed to be twice as high, however, as it is seen in the next diagram, 61 projects which should have been completed are still in progress (according to SL 2014 database). The vast majority of projects which are implemented under the applicable agreement should terminate in 2021. By the end of 2018 only 47 funding agreements were terminated.

Diagram 16 The number of projects with support completed and projects in progress as at the planned date of their completion



Source: own study based on SL 2014 data. As at 31 December2019

The information presented above are particularly important for the interpretation of the results of counterfactual analyses, presented later on. It should be pointed out that one of the main data sources referring to the analysis of cause-and-effect relationships is financial statements of enterprises. Collected and analysed by the GUS, they cover the period 2015-2018. It means that the most results of these analyses refer to projects which are still in progress. Consequently, the measurement of long-term effects of the support was not possible.

7.1.3. Verification of the theory of change

This chapter presents the results of analysing the material collected – the results of research and analyses of secondary data as well as the results of research and analyses conducted within the evaluation in question. First of all, this chapter focuses on the verification of the occurrence of cause-and-effect relations presented in the theory of change. To achieve this, the following methods have been taken into consideration: the results of counterfactual analyses conducted by the GUS, OP SG monitoring data (SL2014 and LSI data), the results of OP SG on-going evaluation *Innovation barometer*, the results of survey conducted in the group of unsuccessful applicants. The information collected within the case studies for selected projects implemented under sub-measure 3.2.1 was complementary to the former data.

Assessment of the intervention impact on the expected outcomes

Direct support impact on aid beneficiaries

Incentive effect

In accordance with the GBER,⁷⁶ aid shall be considered to have an incentive effect if the beneficiary has submitted a written application for the aid to the Member State concerned before work on the project or activity starts. As a rule, this requirement is met for all projects supported within the OP SG as every time it is verified in detail at the stage of assessing the application for funding⁷⁷. Additionally, according to the methodology of State aid evaluation⁷⁸, the assessment of State aid should notably regard the direct incentive effect to the beneficiary and it should answer the question whether the beneficiary who was provided with the aid decided to take another course of action and how significant an impact the aid granted had. The basic sign of existing incentive effect is that the project was implemented over the defined time, in the defined scale (the size of projects implemented) and in the defined scope (the type of initiatives taken is characterised, e.g. by the level of innovativeness)⁷⁹.

The verification of the above issues has been conducted with the use of several sources of data and information. First of all, it is worth referring to the results of GUS analyses within which selected indicator values – estimated for beneficiary companies – were compared to a

⁷⁶ cf. GBER, Art.6.

⁷⁷ This issue was also monitored in the PARP by EC services over 2018-2019. The EC proceedings did not reveal any failure in this respect.

⁷⁸ cf. *COMMISSION STAFF WORKING DOCUMENT Common methodology for State aid evaluation*, Brussels, 28.5.2014 SWD(2014) 179 final, chapter: “2 The objectives of State aid evaluation” s. 4.

⁷⁹ cf. Research thesis. *Ustalenie wartości wybranych wskaźników ekonomicznych dla odbiorców pomocy, udzielanej za pośrednictwem PARP w ramach POIR i POPW, oraz dla dobranych grup kontrolnych – etap 1. Studium wykonalności, GUS 2018* [Defined values of selected economic indicators for recipients of the aid granted through the PARP within the framework of OP SG and OP EP, as well as for selected control groups – stage 1. Feasibility study, GUS 2018]

statistically matched⁸⁰ control group of unsuccessful applicants. Below are presented estimate results referring to financial expenditures incurred by beneficiaries and to matched entities from the control group. Among the indicators under analysis there are as follows:

- Total expenditures, including those from the company's own resources and from credits and domestic loans,
- Expenditures for fixed assets.

Every time in both groups the indicator value is presented over 2015-2018. The impact is estimated as the difference of indicator increase between the group of beneficiaries and the control group in comparison with the base year (2015) prior to the year of granting the support⁸¹.

In the case of total expenditures, in 2016 beneficiaries received their average value at the level similar to the value in 2015 – about PLN 5.5 million (in comparison with less than PLN 5 million in the previous year). In the year 2017 this value was doubled up to almost PLN 10 million on average per company (the average increase by nearly PLN 5 million as compared to the base year). In the case of control group, the values of expenditures incurred in the year 2016 amounted to PLN 5.7 million on average and in comparison with 2015 it was higher (by almost PLN 2 million). It shows that presumably some projects (or their stages) excluded from funding were set up all the same as early as in 2016⁸². However, the situation in the year 2017 was different as unsuccessful applicants slightly reduced the volume of expenditures as compared to the year 2016 (on average to PLN 4.5 million). Taking account of the considerable increase in beneficiaries' expenditures, which has been already mentioned, it can be stated that there is a significant difference between the two groups. The effect ascribed to the year 2017, measured in relations to the base year shows that the average expenditures were higher by about PLN 4.2 million in the case of beneficiaries. The year 2018 shows a similar dependence – beneficiaries increased the average expenditures to PLN 11.2 million as compared to PLN 6.3 million in the control group. In comparison with the year 2015 beneficiaries invested PLN 3.8 million more on average at that time than unsuccessful applicants.

As far as funding sources are concerned, in both groups enterprises' own resources prevail and they are followed by resources acquired in the form of domestic credits and loans. The higher share of own resources in funding expenditures is clearly noticed in the group of

⁸⁰ Matching was aimed at eliminating inter-group differences. The base year for which matching was conducted was 2015. More information on matching, including its quality, can be found in the Appendix.

⁸¹ The presented way of calculating the impact is defined in related literature by the difference in differences method (DID). The first difference is estimated at the level of indicators regarding beneficiaries (a change of indicator value over time). The other difference is comparing the volumes of estimated differences in the group of beneficiaries and in the control group. Such an approach is aimed at reducing a possible impact on the estimated effects, differences in the values of indicators under analysis which were recorded 'on entrance', i.e. in the case of sub-measure 3.2.1 in the year 2015.

⁸² The conclusion is also confirmed by the results of quantitative research conducted on the group of unsuccessful applicants, which are further presented .

beneficiaries. It increases in subsequent years – as compared to the year 2015, beneficiaries invested in 2018 on average PLN 3.6 million more their own financial resources than companies from the control group (statistically significant difference). The differences with regard to the level of debt capital involved are insignificant.

The main increase in total expenditures results from the expenditures incurred for fixed assets. In the group of beneficiaries they amounted to -on average- 97-98% of the expenditures incurred over 2016-2018. It is obviously the main category of costs which are subject to the support under sub-measure 3.2.1. The observed dependencies and inter-group differences are similar to those which were observed with regard to total expenditures. The data indicate that beneficiaries set up the full-scale investment in 2017, but it is also possible that PLN 5.3 million which they already spent in the year 2016 is also included in the expenditures involved in the project supported under sub-measure 3.2.1. It is confirmed by the data further presented concerning the purchase of machines and technical equipment and also by the data on submitted applications for payment within the project (cf. Diagram 7.). At the same time, it is visible that - as for unsuccessful applicants - the scale of investments undertaken is smaller, which is observed in both 2017 and 2018.

Table 8 Expenditures in the group of beneficiaries under OP SG sub-measure 3.2.1 and in the matched control group of unsuccessful applicants

Indicator	Year	B	C	Difference within the year (B-C)	S.E.	Change from 2015 (B)	Change from 2015 (C)	Difference (DID)	S.E.	P> z
	(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)	(ix)	(x)
Total expenditures	2015	4 971	3 795	1 177	1 725	-	-	-	-	-
	2016	5 519	5 651	-132	1 720	548	1 856	-1 308	2 069	0.53
	2017	9 919	4 535	5 384	1 816	4 948	740	4 208	2 087	0.04
	2018	11 223	6 370	4 853	2 029	6 251	2 575	3 676	2 433	0.13
Total expenditures from own resources	2015	2 627	2 804	-177	872	-	-	-	-	-
	2016	3 583	3 090	492	883	956	287	669	923	0.47
	2017	5 931	3 510	2 421	1 460	3 304	706	2 598	1 441	0.07
	2018	7 306	3 905	3 401	1 369	4 679	1 101	3 578	1 455	0.01
Total expenditures from credits and loans	2015	1 015	409	606	620	-	-	-	-	-
	2016	1 270	2 555	-1 284	1 089	256	2 146	-1 890	1 286	0.14
	2017	2 683	904	1 780	879	1 669	495	1 174	874	0.18
	2018	2 393	2 312	81	1 156	1 379	1 904	-525	1 318	0.69
Expenditures for fixed assets	2015	4 794	3 722	1 073	1 705	-	-	-	-	-
	2016	5 326	5 604	-277	1 750	532	1 882	-1 350	2 100	0.52
	2017	9 733	4 449	5 283	1 788	4 938	728	4 211	2 080	0.04
	2018	10 986	6 328	4 658	2 013	6 191	2 607	3 585	2 432	0.14

Source: own study based on the results of research: Defined values of selected economic indicators for recipients of the aid- granted through the PARP within the framework of Operational Programmes 2014-2020: Smart Growth (OP SG) and Eastern Poland (OP EP)- as well as for matched control groups (Stage 2), GUS 2019. Note! The data regard entities employing over 9 people (in the group of beneficiaries under sub-measure 3.2.1, companies which employ more than 9 people constitute 93%). Legend: (i) reporting period (ii) indicator value for beneficiaries (N=84) in the indicated period (iii) indicator value for entities which do not use the support (N=84) in the indicated period (iv) difference between beneficiaries and the control group in the indicated period (v) standard error (vi) change in the indicator value in the group of beneficiaries in the indicated period relative to the base year 2015 (vii) change in the indicator value in the control group in the indicated period relative to the base year 2015 (viii) estimated difference in differences effect with regard to the change over time in the group of beneficiaries and in the control group in comparison with the base year 2015 – column vi-column vii (ix) standard error (x) difference significance⁸³

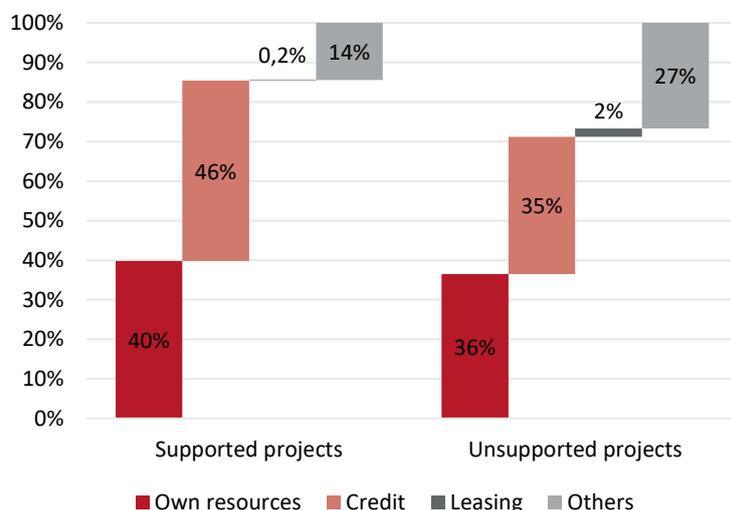
The results above are partially reflected in the financial sources for private expenditures of enterprises, which were declared in applications for funding. According to the declarations and plans of enterprises at the stage of applying for support, these are mainly credits and own resources. It refers to projects of both beneficiaries and unsuccessful applicants⁸⁴. As for the projects for which the funding agreement has been signed, the financial resources planned to be received from credits amount to on average almost 46% (PLN 6.6 million) of the expected expenditures value, and with respect to projects which have not received these resources account for 35% (about PLN 4.6 million). Own resources are to constitute about 40% (PLN 5.8 million) of the expenditures related to beneficiaries' projects, and about 37% (PLN 4.8 million) with regard to projects excluded from the support. As for the latter, other sources of expenditures are pointed out more frequently (27% as compared to about 14% in the projects supported). A small part of the project value is to be ensured through financial leasing (on average 2% in the projects of unsuccessful applicants and 0.2% in the projects of beneficiaries).

⁸³ For the purposes of this description reporting the results has been assumed to be statistically significant in case the so-called p value is less than 0.05.

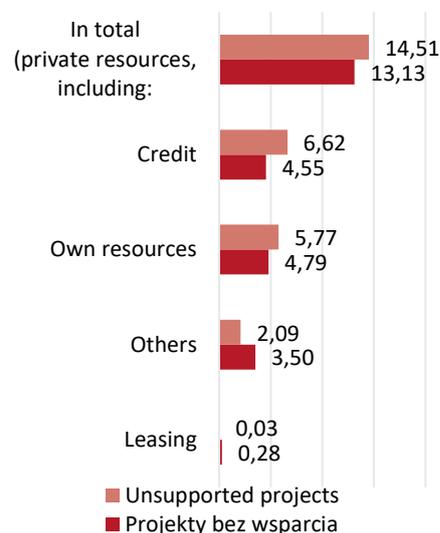
⁸⁴ It should be noticed that the data presented on financial sources concern all projects, both co-funded and excluded from support – in contrast with the presented results of GUS analyses within which the control group set up among unsuccessful applicants is matched on purpose (i.e. it was fitted in with the group of beneficiaries in respect of selected characteristics).

Diagram 17 Private expenditures in the projects under OP SG sub-measure 3.2.1 by financial sources planned

A: The structure of financial sources for expenditures based on the data included in applications for funding



B: Financial sources for private expenditures by source category and their average value (PLN million)



Source: own study based on PARP data collected within LSI, as at 31 Dec. 2019

The data above should be treated as the approximation of the structure of financial sources for the project. It could have already changed in the course of their implementation, which is reflected in GUS reporting data. They show that own resources have a bigger share in expenditures than resources from credits and loans.

Following the assumptions of OP SG sub-measure 3.2.1, a significant part of expenditures for fixed assets should be deposited in tangible fixed assets, including notably new machines and technical equipment. It is the dimension that should also reveal the real incentive effect. Its verification is facilitated thanks to GUS analyses which were conducted taking account of the counterfactual approach. Their results overlap – to much extent - with previous observations in respect of total expenditures. A considerable increase in tangible fixed assets possessed by companies has been observed in particular. Over 2015 – 20218 these assets increased systematically from PLN 24 million to nearly PLN 42 million (the average increase by PLN 17.7 million). As for the control group, in the period under analysis there was the increase from PLN 18 million to nearly PLN 26 million (the increase by PLN 7.7 million on average). In view of this, the increase in tangible fixed assets was higher in beneficiaries by about PLN 10 million on average (the difference statistically significant). The substantial share in this increase results from investments in machines and technical equipment. Overall, within 2015-2018 beneficiaries increased the possession of machines and equipment by around PLN 14.4 million, taking account of expenditures for their construction, purchase and improvement. In the control group, over the same time the increase in the value of indicator under analysis amounted to about PLN 6.8 million and it was smaller than in the group of beneficiaries (the difference statistically significant).

Table 9 The purchase of machines and equipment in the group of beneficiaries under OP SG sub-measure 3.2.1 and in the matched control group of unsuccessful applicants

Indicator	Year	B	C	Difference within the year (B-C)	S.E.	Change from 2015 (B)	Change from 2015 (C)	Diff. (DID)	S.E.	P> z
	(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)	(ix)	(x)
Tangible fixed assets	2015	24 080	18 131	5 950	6 435	-	-	-	-	-
	2016	27 732	21 020	6 712	6 646	3 652	2 889	763	1 798	0.67
	2017	35 057	23 094	11 963	6 972	10 977	4 963	6 013	2 962	0.04
	2018	41 742	25 917	15 825	7 121	17 661	7 786	9 875	3 634	0.01
Purchase – machines and technical equipment	2015	3 308	1 569	1 740	1 289	-	-	-	-	-
	2016	3 047	2 287	760	1 238	-261	718	-980	1 517	0.52
	2017	6 268	2 124	4 144	1 239	2 959	555	2 405	1 546	0.12
	2018	7 449	3 430	4 019	1 499	4 141	1 861	2 280	1 855	0.22
Machines and technical equipment ⁸⁵	2015	21 658	17 915	3 742	5 955	-	-	-	-	-
	2016	23 988	19 114	4 874	6 394	2 330	1 199	1 132	1 338	0.40
	2017	29 295	21 661	7 633	6 673	7 637	3 746	3 891	1 772	0.03
	2018	36 081	24 755	11 326	7 290	14 423	6 840	7 583	2 625	0.00

Source: own study based on the results of research: Defined values of selected economic indicators for recipients of the aid- granted through the PARP within the framework of Operational Programmes 2014-2020: Smart Growth (OP SG) and Eastern Poland (OP EP)- as well as for matched control groups (Stage 2), GUS 2019. Note! The data regard entities employing over 9 people (in the group of beneficiaries under sub-measure 3.2.1, companies which employ more than 9 people constitute 93%). Legend: (i) reporting period (ii) indicator value for beneficiaries (N=84) in the indicated period (iii) indicator value for entities which do not use the support (N=84) in the indicated period (iv) difference between beneficiaries and the control group in the indicated period (v) standard error (vi) change in the indicator value in the group of beneficiaries in the indicated period relative to the base year 2015 (vii) change in the indicator value in the control group in the indicated period relative to the base year 2015 (viii) estimated difference in differences effect with regard to the change over time in the group of beneficiaries and in the control group in comparison with the base year 2015 – column vi-column vii (ix) standard error (x) difference significance.

The significant differences between beneficiaries and the control group have been observed since 2017. In terms of time it overlaps with the dynamics of implementing sub-measure 3,2,1. According to the information obtained from supervisors of the instrument implementation and also from entrepreneurs participating in the case studies, companies most frequently postponed setting up project activities, among which there was incurring its actual financial costs, until the results of the first call for proposals were announced (April 2016) or even until the funding agreement was signed (the first agreements signed in July 2016). Starting up an investment soon after submitting the application was observed in the

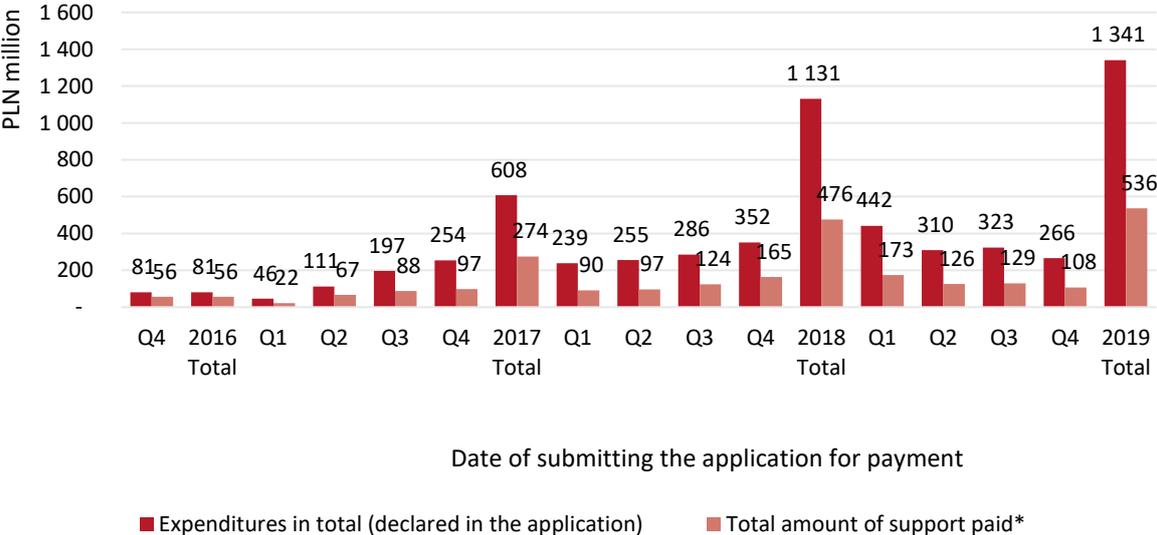
⁸⁵ With expenditures for their construction, purchase and improvement.

case of single companies, whose determination to implement the investment was the greatest (hence possibly the smallest incentive effect of the instrument.)

The progress in implementing the sub-measure, which results from submitted applications for payment or applications for advancement payment, confirms the above statements. The first applications for payment were submitted by beneficiaries in quarter IV of the year 2016 (it concerned, however, only 15 projects altogether). The value of expenditures declared in the projects amounted to PLN 81 million in total, including the costs subject to funding worth PLN 56 million. The data presented are a kind of approximate scale of the expenditures incurred by entrepreneurs, because it is possible that applicants submitted the application for payment with regard to expenditures incurred in 2016 as late as at the beginning of the year 2017. It is due to a general process of implementing and settling the investment which is –by its nature- sequential. However, when it comes to the overall expenditures in subsequent years, it is observed that the implementation of projects commenced on a large scale in 2017, when applicants declared in applications for payment that the total expenditures incurred were worth PLN 608 million (over 7-fold increase relative to the year 2016).

The accessible monitoring data also confirm that this increase is even bigger in 2018, when the overall expenditures declared were twice as much reaching over PLN 1.1 billion. In the year 2019 the expenditures incurred in terms of the value of submitted applications for payment amounted to over PLM 1.3 billion.

Diagram 18 Overall expenditures declared by beneficiaries in applications for payment and the volume of funding paid to beneficiaries (refunds and advanced payments) by quarters



Source: own study based on PARP data collected within LSI, as at 31 Dec. 2019

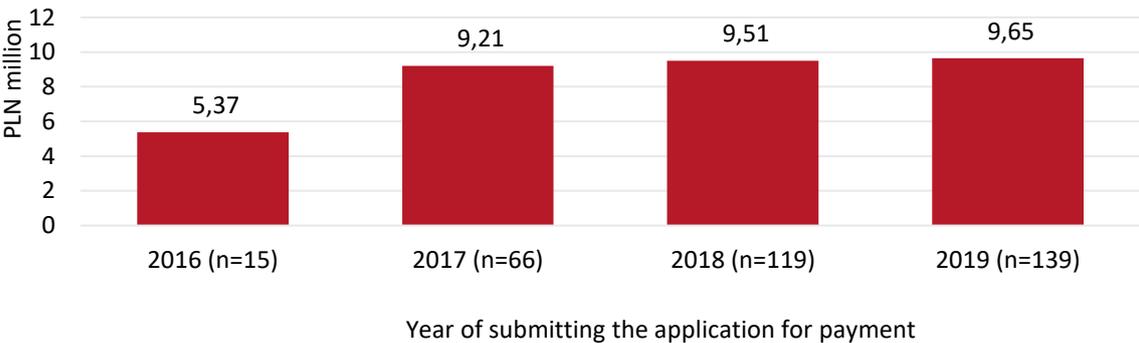
* The values presented cover both refunds of expenditures and advance payments provided to beneficiaries.

The observed increase in total expenditures results naturally from further projects approved for funding and from a growing base of entrepreneurs implementing investments (and still a relatively small number of entities which completed the investment). However, as for the

average expenditures per company, a certain regularity can be observed. The applications for payment submitted by 15 beneficiaries in 2016 included the average value of total expenditures incurred at the level of around PLN 5.4 million. This amount results from the fact that at the beginning a relatively small number of projects were implemented (cf. the prior period). In the year 2017 this value increased to PLN 9.2 million and remained at a similar level over the next two years (it was relatively PLN 9.5 million in 2018 and PLN 9.7 million in 2019).

The information presented, when compared to the average expenditures incurred by beneficiaries following GUS data (on average PLN 9.9 million in 2017 and PLN 11.2 million in 2018,) shows that with reference to the majority of companies supported, the project implemented under sub-measure 3.2.1 was the main or even the only investment undertaken at that time. This observation has been also confirmed in the case studies by representatives of the enterprises under evaluation.

Diagram 19 The average value of total expenditures per project incurred by beneficiaries in subsequent years following the data included in applications for payment



Source: own study based on PARP data collected within LSI, as at 31 Dec. 2019

The summary of the observations with respect to the expenditures incurred by companies over the period under analysis could be the comparison of the amount of total expenditures over 2016-2018 in the group of beneficiaries and in the matched control group. As for beneficiaries, the value of total expenditures amounted to PLN 26.7 million on average. In the case of unsuccessful applicants, the value was PLN 16.6 million, so the difference in the value of expenditures incurred accounted for PLN 10.1 million in favour of beneficiaries. Over the period under analysis beneficiaries incurred the average annual expenditures of PLN 8.9 million in total, as compared to PLN 5.5 million in the matched control group of unsuccessful applicants. On average beneficiaries invested over the year by PLN 3.4 million more than unsuccessful applicants. Both differences are statistically significant.

Table 10 The average amount of total expenditures incurred over 2016-2017 by beneficiaries under OP SG sub- measure 3.2.1 and by companies in the matched control group of unsuccessful applicants

Indicator	B	C	Difference (B-C)	S.E.	P> z
	(i)	(ii)	(iii)	(iv)	(v)
Average amount of total expenditures incurred over 2016-2018 (PLN thousand)	26 661	16 556	10 105	4 010	0,01
Average annual expenditures in total incurred over 2016-2018 (PLN thousand)	8 887	5 519	3 368	1 337	0,01

Source: own study based on the results of research: Defined values of selected economic indicators for recipients of the aid- granted through the PARP within the framework of Operational Programmes 2014-2020: Smart Growth (OP SG) and Eastern Poland (OP EP)- as well as for matched control groups (Stage 2), GUS 2019. Note! The data regard entities employing over 9 people (in the group of beneficiaries under sub-measure 3.2.1, companies which employ more than 9 people constitute 93%). Legend: (i) indicator value for beneficiaries (N=84) (ii) indicator value for entities which do not use the support (N=84) (iii) difference between beneficiaries and the control group (iv) standard error (v) difference significance.

The analysis of changes in the selected indicators presented above over 2015-2018 drives to the conclusion that the support granted under sub-measure 3.2.1 has had a positive impact on the volume of investments implemented by beneficiary companies. It could be also assumed that the aid granted will have a positive impact on the project duration. In fact, the data presented show that some unsuccessful applicants have decided to set up the investment soon after they received the negative assessment of their project from the PARP. Nevertheless, the scale of activities undertaken is incomparable to the investments implemented by beneficiaries (also in practice GUS data do not make it possible to claim that expenditures incurred by units from the control group are somehow related to the projects submitted to the PARP project). It also means that beneficiaries' investments are the most likely to be completed earlier than they would have been completed without the State aid.

The presented picture can be complemented by the results of a survey conducted within the evaluation, in which some unsuccessful applicants have been asked to state if they have implemented or intend to implement the project which they had planned to fund within OP SG. If the answer was 'Yes', the respondents were asked to subsequently define the scale and the timeline when it happened/it will happen. 104 unsuccessful entrepreneurs that had applied for the support under sub-measure 3.2.1 agreed to take part in the survey.

The survey results show that in the vast majority of cases (nearly 90%) the lack of funding has had a negative effect on the implementation of the project in question, taking account of the general decision on its implementation, scale or completion date. Among the respondents, 24% of company representatives admit that the project will not be

implemented at all or that a decision in that respect has not been made yet. The other companies have already set up the project (43%) or they intend to (33%). The lack of funding, however, has most frequently translated into postponing the completion of project implementation (47% of projects in total) or limiting its scale (29%).

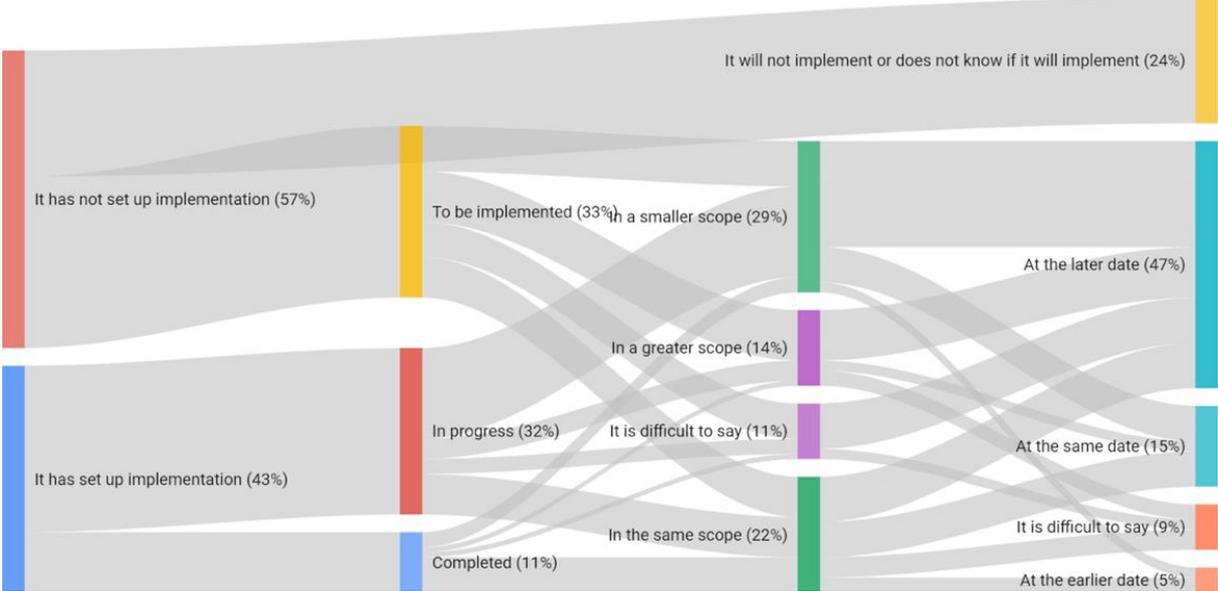
The survey also identified, among its respondents, some cases of projects already completed (11%), projects in progress or planned to be implemented in the approximate (22%) or even greater (14%) scope than the OP SG scope, as well as projects planned to be completed at a similar (15%) or prior date (5%) with reference to the project submitted to the PARP.

However, the overall combination of the implementation parameters under analysis (i.e. the scale and completion date) has shown that the lack of funding under sub-measure translates unfavourably into one of these parameters. It is most frequently the date of project completion – on average the companies paid attention to the shift slightly longer than 2 years. Also, it is worth noting that as for the projects whose implementation is in progress or it has already completed (43%), the vast majority of them commenced in the year defined in the application (47%) or even earlier (36%) - so presumably soon after receiving the negative decision on funding from the PARP. That explains - observed in GUS results - a slightly higher level of total expenditures in 2016 for the group of unsuccessful applicants as compared to the group of beneficiaries, which were very likely to delay the decision on expenditures until after the funding agreement was signed.

The group of unsuccessful applicants which was subject to the survey could be taken into consideration when defining an alternative (counterfactual) scenario of development for beneficiary companies if they had not received the support. In this respect an extremely unfavourable situation – defined in related literature as *deadweight* (or in other words lack of incentive effect) - in which companies set up investments irrespective of State financial aid in the same or even greater scope or at the same or earlier date concerns potentially about 11% of entities.

The above results, like GUS analyses, confirm a great incentive effect in the case of projects implemented under sub-measure 3.2.1. The results have been visualised in the further diagram, which shows the roundabouts of 104 unsuccessful applicants that agreed to take part in the survey.

Diagram 20 The incentive effect from the perspective of unsuccessful applicants under OP SG sub-measure 3.2.1



Source: own study based on CAWI/CATI (n=104).

Finally, the results of case studies conducted within this evaluation shed additional light on all the settlements of surveys and quantitative analyses which are presented above. Four projects altogether (completed, which is important) under sub-measure 3.2.1 took part in the evaluation.

With regard to the incentive effect under analysis, company representatives state explicitly that the implementation of projects under analysis would have come to effect in all likelihood regardless of the State aid granted. However, in each case it would have happened at the expense of any parameter, e.g. it would have been necessary to limit the investment scale, its innovativeness or duration. Every time a project parameter which would have suffered most was specific for a given enterprise and investment. The argument which was raised relatively most often regarded the limited company capacity for implementing so significant investment over the expected time.

Case study 1

Would we have been able to do in financial terms?..... it's hard to say, we may have challenged it, we may have succeeded, but return of that investment would be much harder and much - let's say - stretched over time. Well, we wouldn't have been able to..... Surely, we would have implemented it step by step, wouldn't we? Otherwise, putting dozen million at one go isn't so easy in our case, but for sure the direction would have been the same. From the very beginning- whether with the support or without it- we have always set the bar high, searched for..., well because to fight a losing battle is no gain, right? So it's necessary to look for a product, a sort of starting point to be distinctive, because we're actually fighting against global companies.

The companies' determination and initiatives taken earlier in favour of development, as assumed were of key importance as for the implementation of project in question. The support only facilitated catalysing the process.

Case study 2

[...] before we were granted the support we had already had a patent application, so we are determined enough and if we start something we finalise it, the only thing is that it seems to me that the effect of this growth would have been postponed by.. I don't know...2-3 years.

As for some companies, the support would not have changed the time of project implementation, but it would have negatively influenced their momentum and the level of innovativeness.

Case study 3

Would your project have ever been implemented but for the support? Also in a modified form?

- It would have been significantly limited.

Would it have been implemented earlier, at the same time, or later, taking account a scenario without the support?

- No, well, the time would have been the same.

And what would the total value of expenditures have been?

- Well, it would have been sort of lower. It would definitely have been a setback.

How about the innovativeness level?

- It would have been less ambitious for sure and it would have translated into the later development, into what is going on now [...] Me, to be honest. I think we would be sort of a family company this is to say we would be performing.... There are a lot of German companies of this kind, they have their own customers, doing sort of little projects, they just exist...[...] in a region and we would have presumably tried to invest something, we would have had to, one way or another, and it would have been something like that.

To sum up, the results of the surveys and analyses presented show that apart from the incentive effect formally required and fulfilled (the implementation of the project commenced after submitting the application), it was also revealed as a real change in the behaviour of beneficiaries under sub-measure 3.2.1. In fact, the implementation of projects co-funded results from an overall strategy for the development of companies and –in principle- the projects would have presumably been implemented regardless of the State support, however, State aid has a favourable impact on selected parameters of the investments, including on the impact on their duration and volume. As for the support in question, which is aimed at the launch of innovative products, as assumed, each of these elements is very important. It particularly it concerns the factor of time.

Short-term (current) effects

Impact on innovation activity

This sub-chapter presents results with regard to a potential support impact on beneficiaries at the actual stage of implementing the OP SG instrument (the so-called current effects). In the first place, new innovative products on beneficiaries' offer - as a direct, expected effect of the implemented R&D results - are subject to the evaluation. The second subject under analysis is financial results of the launched innovations. Taking account of the fact that the vast majority of projects are still in progress or have just been completed, the assessment in this respect is naturally preliminary. Additionally, the analysis of the current effects of support has included the observed changes in employment – in a short-term project perspective – and (similarly) changes in the companies' liquidity⁸⁶.

The investments implemented thanks to the support, including machines and technical equipment purchased, are to serve – following the programme theory – for launching innovative product and services. The formal settlement and completion of the project means that it is possible to buy a product on the market for which the company has received the support.

As for the projects on which agreements had been signed by the end of 2019 (308), it is assumed that altogether 396 results of R&D activities are to be implemented and altogether 747 innovations to be launched, including 428 product innovations (with regard to goods or services), 221 process innovations and 98 non-technological innovations. As for the OP SG programme indicators, it has been assumed that the sub-measure will end up implementing 360 R&D results and launching 693 innovations (regardless of their type). With regard to the projects in progress, the programme assumptions should be fulfilled. As at the end of December 2019, the level of the indicators obtained corresponded with the advancement of the programme, amounting to 23%-35%. To remind, at that time there were 69 agreements terminated, which constitutes 22% of the projects contracted to that time.

Table 11 Programme and project assumptions in respect of innovations implemented under OP SG sub-measure 3.2.1

OP SG indicator	Value assumed in projects (N=308)	Value obtained at the end of 2019	Implementation% within projects	Target value assumed in OP SG*	Implementation% in OP SG
Number of R&D results implemented	396	98	25%	360	27%
Number of innovations launched:	product innovations	428	100	693	30%
	process innovations	221	74		
	Non- technological	98	34		

⁸⁶ According to the research thesis - Defined values of selected economic indicators for recipients of the aid- granted through the PARP within the framework of OP SG and OP EP as well as for matched control groups -Stage 1. Feasibility study, GUS 2018.

Source: own study based on SL 201 data. As at 31 Dec. 2019 and on the Table of indicators of direct outcome and output for measures and sub-measures (Appendix 2 to DDPA OP SG, as at 31 Dec. 2019).

* Regardless of the type of innovations).

Preliminary results with regard to the impact of the support in the above respect include the results of counterfactual analyses based on companies' reports on launched innovations⁸⁷. These results concern solely companies performing in processing industry, so the sample is slightly smaller as compared to the previously presented results with regard to enterprises' expenditures. Also, it is necessary to point out that in the case of these analyses, the reference group consists of companies selected from all companies reporting to the GUS on innovations in the industry (PNT-02). Regrettably, it was not possible to create - to the needs of analysing innovation indicators - a sufficiently similar control group of unsuccessful applicants (in this case the sample of units among unsuccessful applicants identified within GUS PNT-02 was smaller than the sample of beneficiaries). In view of this, all possible generalisation as for the results of the analyses above must take account of this limitation.

In the GUS report, 80% of beneficiaries pointed out that they introduced in the company new or improved products⁸⁸ over 2016-2018. In the control group the introduction of such an innovation at the same period was declared by 52% of entities. The observed difference (28%) is statistically significant. As for services, the percentage of entities implementing innovations is similar in the two groups and it is at a relatively low level – respectively 13% in the case of beneficiaries and 9% as for the matched control group.

Table 12 The share of companies which introduced new or improved products or services over 2016-2018

Indicator	B	C	Difference within the year (B-C)	S.E.	z	P> z	95% confidence interval	
	(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)
Share of companies which introduced new or improved products over 2016-2018	0.80	0.52	0.28	0.08	3.39	0.00	0.12	0.44
Share of companies which introduced new or improved services over 2016-2018	0.13	0.09	0.04	0.06	0.62	0.53	-0.08	0.15

⁸⁷ GUS PNT-02 Report on innovations in the industry. To measure the impact, the report from 2018 has been used, which covers the period 2016-2018. Taking account of time progress in implementing sub-measure 3.2.1, it was assumed that it was the period when the first OP SG support effects could be revealed.

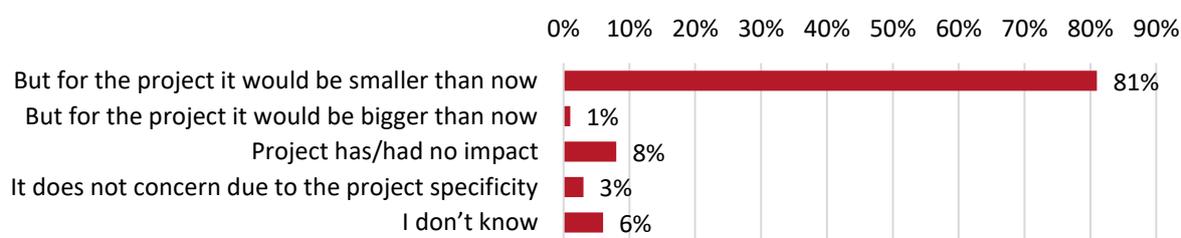
⁸⁸ According to the PNT-02 data, a product innovation means the launch of a new or improved output (product or service) which are considerably different from the products or services previously offered by the company. It concerns: significant changes in product design, the introduction of digital products or services; it does not concern the resale of new products and only aesthetic changes. Cf.

<http://form.stat.gov.pl/formularze/2019/passive/PNT-02.pdf>

Source: own study based on the results of research: Defined values of selected economic indicators for recipients of the aid- granted through the PARP within the framework of Operational Programmes 2014-2020: Smart Growth (OP SG) and Eastern Poland (OP EP)- as well as for matched control groups (Stage 2), GUS 2019. Note! The data regard entities employing over 9 people (in the group of beneficiaries under sub-measure 3.2.1, companies which employ more than 9 people constitute 93%) and entities which submitted report PNT-02 in 2018 – Report on innovations in the industry. Legend: (i) indicator value for beneficiaries (N=54) (ii) indicator value for entities which do not use the support (N=54) (iii) difference between beneficiaries and the control group (iv) standard error (v) statistics z (vi) difference significance (vii) lower 95% confidence limit for the mean (viii) upper 95% confidence limit for the mean.

The picture of impact of the co-funded project in this respect is complemented by companies' statements from 'Innovation barometer'⁸⁹. Within the so-called primary measurement (i.e. in the course of investment implementation) the vast majority of beneficiaries (81%) declare that if there OP SG project had not been implemented, the actual level of product development/ company's offer would be lower.

Diagram 21 The project impact on the actual level of product development/company's offer declared by beneficiaries



Source: own study based on 'Innovation barometer', results after round IV of the primary measurement 2017-2019 (n=176).

Also, it is necessary to point out that a key aspect of the innovations introduced to the company's offer is the requirement under sub-measure 3.2.1 according to which these innovations should base on the results of R&D activities conducted prior to submitting the application for funding⁹⁰ to the PARP. Additionally, at the stage of application assessment it was demanded that the products launched by companies should be innovative at least at the country level. According to PARP data, beneficiaries had used their resources for conducting both internal (85%) and external (73%) R&D activities⁹¹ before they submitted the application. About 58% of companies have declared that these activities were both in-company and outsourced.

⁸⁹ On-going evaluation conducted over 2018-2021 by the PARP based on survey methods (CAWI questionnaires for co-funded enterprises), covering, among others OP SG sub-measures included in the PARP aid scheme.

⁹⁰ For example, in competition 2015 within the criterion of application assessment 'The project concerns the implementation of R&D activity' it was pointed out that : *It should be assessed whether the project concerns the implementation of results of R&D activities conducted by the Applicant on their own or commissioned by them. R&D activities conducted must be of key importance to developing/improving the output (product or service).* Cf.: www.parp.gov.pl/storage/grants/documents/56/Zal_1_do_RK_Kryteria_wyboru_projektow_20190214.pdf

⁹¹ It concerns the agreements signed by the end of 2019.

However, it is worth noticing that the financial value of these activities was in both cases relatively small. It strikes notably in the context of the value of projects implemented. In many cases the cost of R&D activities conducted amounted to a small percentage of the implementation activity cost. In terms of absolute values, the average costs of R&D activities implemented internally accounted for PLN 431 thousand (median: PLN 136 thousand), whereas the cost for outsourced activities was PLN 165 thousand (median: PLN 35 thousand). Comparing the value of R&D expenditures declared to the value of projects, it turns out that as for internal activities, they amounted on average to 2.4% (median: 0.6%) of the total value of expenditures assumed, and in the case of outsourced activities, they accounted for barely 0.7% of the total expenditures (median: 0.1%). In total, B&R activities (internal and/or external) constituted 2.6% of the value of projects implemented (median: 0.8%).

The modest significance of R&D activities implemented and stated in applications for funding - in terms of both value and quality – has been pointed out by representatives of all stakeholders involved in implementing sub-measure 3.2.1, ranging from the authority in charge of the competition to experts assessing applications and experts responsible for evaluating the assessment system of project selection within the OP SG.

An expert assessing applications

[...] They are just looking for an opportunity for an investment and research in many cases is just symbolic [...]. It results from the simple rule – I need money to modify production, let's say... to make toilet paper that is thinner, anyway of any kind, but my machine is now outdated and terribly inefficient. So what shall I do? Well, sub-measure 3.2.1 is at hand. But sort of research is at stake, so the entrepreneur knocks on the nearest research centre asking – are you into any research? [...] the researcher reaches for a drawer and takes out, exhumes actually sort of research results asking- would this be OK?

Well, if I read in the application that PLN 5 thousand has been earmarked for the research, it is absolutely clear to me that it's a fake 'cause I conduct R&D works myself and I do realize the real costs of these works.

Evaluator

[...] it is seen in the vast majority that R&D is really negligible and these are typical investment projects. [...] It seems that they sit and say: the market forces us to exchange machines and equipment, to change technology, so we must go into it, and we do. Well, O.K. we can do it in a cheaper way because there is something like that but we have no R&D. And that is how all that mess begins, and the consultant that is needed to make up R&D attached to the application, and if it is rejected, there is no problem. So they do what they want to and there is no R&D ... they go and lease specific machines, etc.

A similar problem has been also noticed in an evaluation report on the system of project selection, commissioned by the OP SG Managing Authority: *'Experts paid attention to*

insufficiently precise descriptions of the results of activities conducted and to the excessive focus of applicants on preparing documents which only confirm the fact that the activities have been conducted. After the first competition a requirement was imposed according to which a report on the R&D activities conducted had to be attached to applications for funding, which is supposed to significantly facilitate the expert assessment of this aspect. What is of key importance in this criterion is that it excludes ordinary investment projects in which R&D activities are actually seeming⁹².

According to our respondents, despite amendments made in the rules applicable to the project selection and the accounts of expert panel included in the system (from the very beginning of sub-measure 3.2.1 implementation), the problem of the modest significance of R&D activity results in projects applying for support has not been successfully solved. Consequently, the innovativeness level of products which are to be an effect of the instrument implementation is dubious. In practice, many of them – in the opinion of evaluation participants – involve making certain improvements of the products already on the company's offer. The fact that such projects could successfully apply for support is also confirmed by the judgement of the Administrative Court in Warsaw in the aspects related to the innovativeness and market capacity of the products as a project effect⁹³. The judgement was given with reference to a complaint of an applicant which did not approve of a PARP negative assessment of their application. In fact, the Court agreed with the PARP assessment in respect of limited innovativeness of the outcome by stating that:

In the view of the Court with reference to the letter of appeal, the assessment of the project has been conducted correctly in respect of fulfilling this criterion. It is difficult not to agree with the opinion that [...] are not a new product but only improved one as compared to the products existing on the market. Nor is it a project in the scope of high or medium high technologies in accordance with the Eurostat classification, which is not questioned by the Complainant themselves. The arguments presented in the complaint cannot change the assessment. The Complainant argues that it is an innovative project, which is not questioned by anyone. However, in the view of the Court, what is concluded from the project description itself included in the application for funding is that it is solely an improvement of the products already existing on the market (the applicant states that the improvement is assessed at 10-20%), which- combined with the fact that it is not a project of high or medium high technologies- justifies the assessment conducted.

At the same time the Court contested the correctness of PARP assessment in respect of the second criterion (market capacity of the project) and referred the protest for

⁹² „Ewaluacja systemu wyboru projektów POIR – etap II”, Raport końcowy wraz z raportami cząstkowymi (2016-2017) [Evaluation of the system of OP SG project selection – stage II, Final report along with partial reports (2016-2017)], Fundacja Idea Rozwoju, IMAPP sp. z o.o.; Policy & Action Group Uniconsult Sp. z o.o. (PAG Uniconsult) oraz Uniwersytet Jagielloński – Centrum Ewaluacji i Analiz Polityk Publicznych, commissioned by the Ministry of Infrastructure and Economic, Warsaw 2017, p. 111.

⁹³ Cf. The judgement of the Administrative Court in Warsaw of 7 October 2016, V SA/Wa 2380/16

reconsideration. All in all, the project was provided with funding and implemented. Obviously, the limited innovativeness does not rule out their importance in terms of market value and future market success, which will be discussed in the part regarding the expected project outcomes and assumed income from sale. However, such a situation shows that selected projects are divorced from the assumed, ambitious programme theory.

Moreover, the selected case studies show that under sub-measure 3.2.1 there are also supported projects whose innovativeness level goes even beyond the country level and has the competitive capacity also on foreign markets.

Case study 2

We are watching these trends, we are talking with producers, we know, more or less, what direction the market is evolving into, [...] we are competing with this innovation, yes - the worldwide one. So we also demand that all these sensors that we order, we describe technical parameters which we define, that they should be fresh on the market and the newest ones.

This platform has been dedicated to these new markets, [...] it was unique and it still is unique, in this respect it positions us very well on the European market.

The examples of entrepreneurs also show that the projects implemented fit in with the real development needs of the enterprises and that the products worked out facilitate their development, increased profitability and possibility of maintained market competitiveness.

Case study 1

If you took, on one hand, the implementation of this project and on the other hand the expected results, this is to say the increase in activity scale, incomes, turnovers. How would it be, hypothetically, without the support?

- [...] we would be entirely cut off this project market [...] we would focus mainly only on these basic products, this is to say on this ordinary 'bread'⁹⁴, not on this complicated and what it entails – a definitely lower profitability from this product, and definitely bigger competition [...]

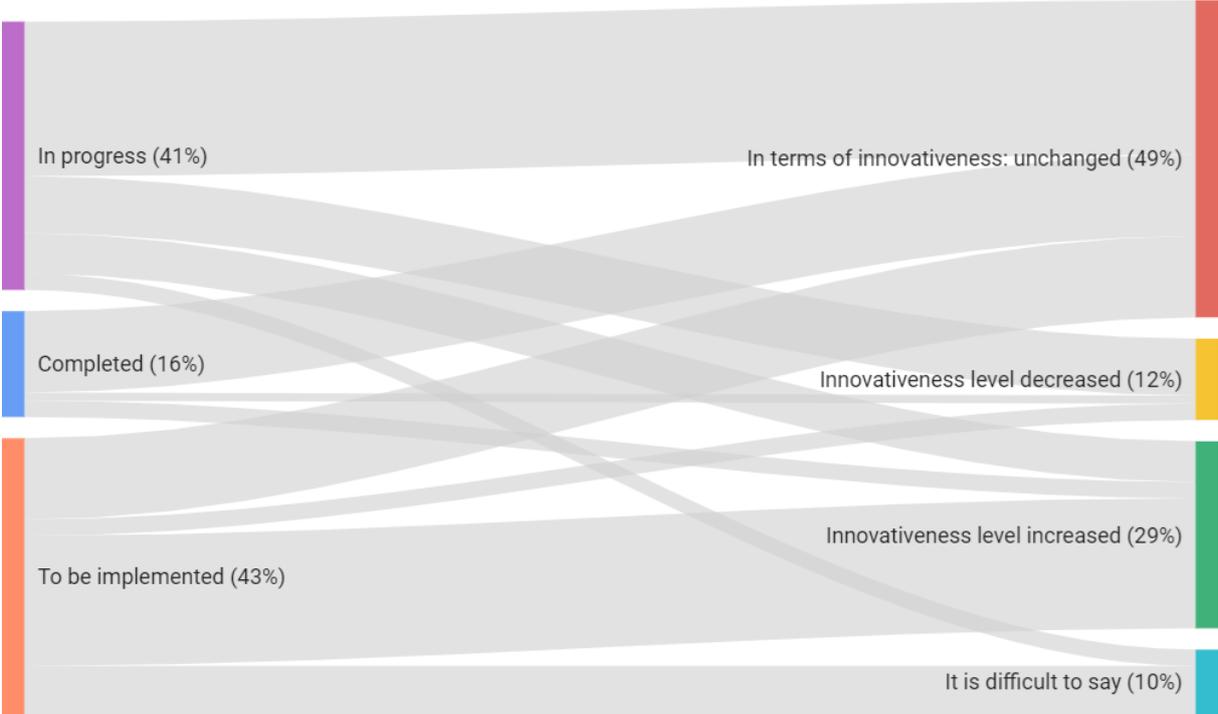
The problem is that most projects supported would have achieved similar objectives if the R&D component would not have been so much exposed in the theory of change. Entrepreneurs, in principle, are aware of the need for implementing innovations in their business activity. When the market and competition are recognised well, they are also convinced that their development has to be primarily based on adapting well-known technological solutions which are successfully applied by market leaders. Product innovativeness, supported by the results of R&D activities is secondary in this respect. Obviously, it does not automatically mean that it is less significant, but available data and

⁹⁴ The respondent uses a metaphor here, referring to the project outcomes in the sector of processing industry.

information show that a key role in the development of beneficiaries' companies will be internal technological innovations implemented.

It is also confirmed by the survey conducted with regard to unsuccessful applicants. Among entities which declared that they had decided to implement the project or that they planned to do that (overall about three quarters of the unsuccessful applicants covered by the survey) nearly half have pointed out that – in terms of innovativeness – the outcome of their project, implemented out of sub-measure 3.2.1 will remain unchanged (i.e. it will be equally innovative). Moreover, about 29% of the companies have stated that the level is or will be even higher. Such an attitude results from the rational calculation of enterprises which are aware of the need for building competitive advantage based not only on the price, but on the level of quality and innovativeness with reference to products offered on the market.

Diagram 22 Statements of unsuccessful applicants in respect of planned, implemented or completed projects by the innovativeness level of project outcomes.



Source: own study based on CAWI/CATI (n=80).

As previously stated, unsuccessful applicants are forced to reduce the volume of investments undertaken and to delay their implementation over time. The support under sub-measure 3.2.1 enables beneficiaries to implement an innovation faster and in the scale they probably would not be able to afford without external support.

Moreover, it has not been observed that the implementation of projects has a significant impact on the scale of innovative activity conducted by beneficiaries. It is worth noticing that over subsequent years beneficiaries stay active as for their internal R&D activity – over 2015-2018 56-61% of them reported that they incurred expenditures in this respect. In the case of external R&D, a decreasing tendency is visible (from 27-30% over 2015-2016 to 20% in 2018). Comparing activity in this area to the control group is not entirely clear – depending

on the type of matched control group⁹⁵ models provide varied estimates. In the table presented below, where the control group was matched from unsuccessful applicants, significant differences in the scope of conducting external R&D activities are noticed, however in the case of other models, a similar phenomenon has not been captured in such a scale. However, it is possible to observe a certain general tendency – the control group limit their activity in respect of the R&D works conducted (both internal and external). On the other hand, the average value of expenditures for intangible assets as well as the costs of development works completed reveal that R&D activity is rather insignificant in the companies supported. In the period under analysis beneficiaries maintained the value of expenditures for intangible assets (including the purchase of patents, licenses, know-how, unpatented technical expertise) at a similar level – it was on average PLN 160 thousand annually, with a temporary drop to slightly over PLN 105 thousand in 2017. As for the costs of development works completed, they rose systematically from PLN 67 thousand in 2015 to PLN 232 thousand on average in 2018 (balance sheet item). In the control group the increase in nominal values was lower, however, the differences observed are not statistically significant.

Table 13 Innovative activity in the group of beneficiaries under sub-measure 3.2.1 and in the matched control group of unsuccessful applicants

Indicator	Year	B	C	Diff. within the year (B-C)	S.E.	Change from 2015 on (B)	Change from 2015 on (C)	Diff. (DID)	S.E.	P> z
	(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)	(ix)	(x)
Share of companies incurring expenditures for internal R&D activity	2015	0.60	0.49	0.11	0.11	-	-	-	-	-
	2016	0.58	0.39	0.19	0.11	-0.01	-0.10	0.08	0.12	0.49
	2017	0.61	0.25	0.36	0.10	0.01	-0.24	0.25	0.13	0.06
	2018	0.56	0.24	0.32	0.12	-0.04	-0.25	0.21	0.13	0.10
Share of companies incurring expenditures for external R&D activity	2015	0.27	0.48	-0.20	0.10	-	-	-	-	-
	2016	0.31	0.18	0.13	0.10	0.04	-0.30	0.33	0.11	0.00
	2017	0.26	0.08	0.18	0.09	-0.01	-0.39	0.38	0.13	0.00
	2018	0.20	0.06	0.14	0.08	-0.07	-0.42	0.35	0.12	0.01
Expenditures for intangible assets (PLN thousand)	2015	160	67	93	65	-	-	-	-	-
	2016	168	34	134	161	8	-33	41	173	0.81
	2017	105	81	24	74	-56	14	-69	83	0.40
	2018	161	39	122	54	0	-28	28	81	0.73

⁹⁵ Estimates have been examined in which the control group included, apart from unsuccessful applicants, entities selected from all companies reporting to the GUS (matching 1 to 1 and 1 to many). The entities were limited to companies submitting the report on conducting R&D activity in the industry (PNT-02) for the years 2016-2018.

Indicator	Year	B	C	Diff. within the year (B-C)	S.E.	Change from 2015 on (B)	Change from 2015 on (C)	Diff. (DID)	S.E.	P> z
	(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)	(ix)	(x)
Fixed assets – costs of R&D activities completed (PLN thousand)	2015	67	10	56	52	-	-	-	-	-
	2016	129	32	97	74	63	22	41	58	0.49
	2017	146	23	122	97	79	13	66	97	0,50
	2018	232	80	151	145	165	70	95	148	0,52

Source: own study based on the results of research: Defined values of selected economic indicators for recipients of the aid- granted through the PARP within the framework of Operational Programmes 2014-2020: Smart Growth (OP SG) and Eastern Poland (OP EP)- as well as for matched control groups (Stage 2), GUS 2019. Note! The data regard entities employing over 9 people (in the group of beneficiaries under sub-measure 3.2.1, companies which employ more than 9 people constitute 93%). Legend: (i) reporting period (ii) indicator value for beneficiaries (N=84) in the indicated period (iii) indicator value for entities which do not use the support (N=84) in the indicated period (iv) difference between beneficiaries and the control group in the indicated period (v) standard error (vi) change in the indicator value in the group of beneficiaries in the indicated period relative to the base year 2015 (vii) change in the indicator value in the control group in the indicated period relative to the base year 2015 (viii) estimated difference in differences effect with regard to the change over time in the group of beneficiaries and in the control group in comparison with the base year 2015 – column vi-column vii (ix) standard error (x) difference significance.

The theory of the OP SG includes an assumption on synergy of sub-measure 3.2.1 with the instrument of priority axis I, within which projects that involve funding R&D activities are funded. However, providing funds for the implementation of R&D activity results under sub-measure 3.2.1 – whose effect was supposed to be the increased efficiency of the whole system of support for enterprises – has not yet had a chance to come into effect. In practice, among beneficiaries which have implemented their projects within priority axis I, 36 companies have used the OP SG support under sub-measure 3.2.1, however, only in 7 cases appropriate time sequence with regard to the projects implemented has been observed (project completion which involves implementing R&D activities before project commencement which involves implementing the results of R&D activities)⁹⁶. At the present stage it could be explained by the fact that the first R&D projects commenced over 2015-2016 within OP SG priority axis I were completed not a long time ago⁹⁷. In view of this, the situation mentioned above is expected to change. It could mean a rapid increase in the quality of R&D activities selected, and hence definitely greater compliance of the instrument

⁹⁶ Following SL 2014 base as at the end of March 2020, actual substantive relationship between projects in question has not been analysed due to no access to the data regarding projects funded by the NCBR. Based on how the project titles were formulated, it could be only assumed that the relationship of projects is noticed in the case of 5 entities.

⁹⁷ By the end of 2019 about 13% of projects within OP SG priority axis I had been completed.

Research market with the adopted theory of change. The same possible progression of occurrences is also foreseen by the authors of *Comparative analysis of instruments under OP SG measure 3.2 'Support for implementing results of R&D activities'*⁹⁸, who claim that *it cannot be ruled out that in a short time the demand for funding implementations is bound to increase. It is indicated by information with regard to the planned completion dates for R&D projects supported within OP SG*. However, the same authors pay attention to potential risks if this scenario comes true. First of all, they point out the lack of sufficient *time "margin", which would make it possible to complete research and then to proceed to implement it using another support source*. In practice, it may turn out that beneficiaries of OP SG priority axis I miss funding implementations within OP SG axis III. Secondly, the authors of the analysis point out that in the case of axis I there might be occurrences when within co-funded projects in addition to R&D activities – there are also conducted at least partial implementations of these activities ; *There is also no certainty whether in the projects supporting R&D ventures (without implementations) it is not possible to successfully take account of expenses/ activities which foster implementation process(...)*. Such opinions were expressed by some experts assessing applications for support within expert panels in both grant schemes of priority axis I and OP SG sub-measures 3.2.1 and 3.2.2. Some participants were convinced that in practice, such situations do occur⁹⁹. Finally, the relationship of the two instruments is likely to be limited due to negative effects of COVID-19 epidemic following an overall reduction of investments in private sector, particularly risky innovation investments.

Financial results

The real verification of how important innovations supported under sub-measure 3.2.1 are should be the market and hence, the importance of new products in beneficiaries' offer. At the present stage, following available data from the monitoring system, preliminary indicator values with regard to beneficiaries' income from the sale of supported products have been analysed. Also, the results of GUR research into the group of beneficiaries and the control group have been examined and the results of PARP 'Innovation barometer' has been taken into consideration.

Taking account of the data included in 68 financial statements of enterprises prepared after the completion of investment implementation (the so-called sustainability questionnaires submitted after the first full year from the investment completion¹⁰⁰), it can be observed that –in principle- companies obtain project outcomes at the level of planned income from

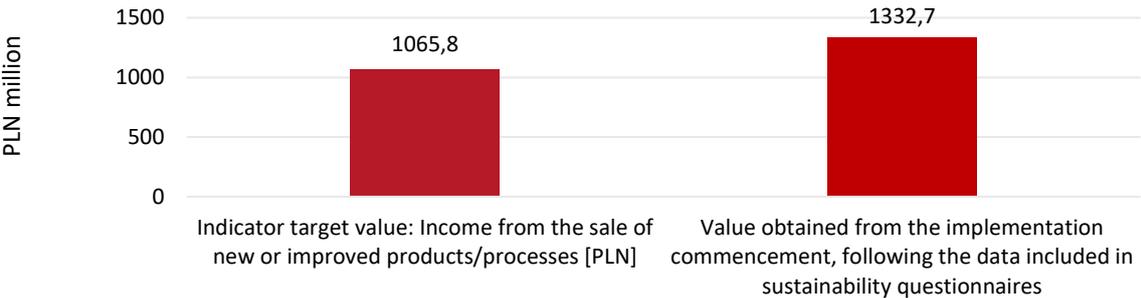
⁹⁸ Cf. *Comparative analysis of instruments under OP SG measure 3.2 'Support for implementing results of R&D activities'*, PAG-Uniconsult, commissioned by the Ministry of Infrastructure and Economic Development, Warsaw 2018, p. 94

⁹⁹ Ibidem pp.93-94

¹⁰⁰ The sustainability period covering time for obtaining the assumed outcome indicators has been defined for SMEs as 3 years from the project completion on.

sale very fast. In the group under evaluation 56% of companies (938 out of 68 entities) have pointed out that they obtained income values exceeding the planned ones. Regardless of this fact, the total amount of income obtained by all companies which submitted a statement in question to the PARP has already exceeded the assumed amount of income which was expected for the whole group. According to the statements, as for monitoring indicators, it was expected to obtain the sale of PLN 1.1 billion, whereas this value (declared by enterprises) has already reached the amount of PLN 1.3 billion¹⁰¹.

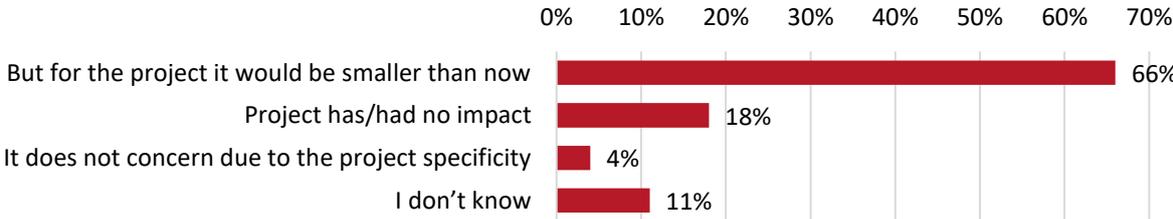
Diagram 23 The income value from sale in projects completed – target values and values declared to be obtained



Source: own study based on PARP (SL 201, LSI) data, n=68, as at 31 Dec. 2019

Apart from the implementation statements, beneficiaries also express in surveys their positive opinions on the impact of project implemented on the level of incomes obtained. Interestingly, such declarations are made even before projects have been completed, i.e. within the primary measurement of PARP ‘Innovation barometer’. Following the declarations of about 66% of the companies under evaluation, the level of annual income from the sale of products would have been lower without the project. 18% of entities present the opposite opinion, 11% do not have enough knowledge in this respect.

Diagram 24 The actual impact of project implemented on the level of annual income from the sale of products, as declared by beneficiaries



Source: own study based on ‘Innovation barometer’, the results after round IV of the primary measurement 2017-2019 (n=176).

¹⁰¹ In some projects beneficiaries have obtained the income value which considerably exceeds the target value planned in the project, hence despite the fact that only 56% of monitored projects have reached this indicator, the value obtained exceeds the target value.

Similar conclusions can be made on the basis of another survey in which beneficiaries were asked to assess the risks of not obtaining the income assumed in the project after the implementation of innovations. Within the scale 1-5, where 1 means a very high risk, and 5 means no risk at all, beneficiaries most frequently assessed the chance of its coming true at 4 (44.7%) and at 5 (26.3%). The extremely negative assessments (respectively 1 and 2) did not appear at all¹⁰².

The results of GUS analyses over 2015-2018, which refer to a relatively early phase of projects implemented under sub-measure 3.2.1, partially confirm the observations above. As it turns out, beneficiaries do increase the scale of income from sale. In the year 2016 the increase reached the average value at the level of about PLN2 .3 million, in the subsequent year the value amounted to nearly PLN 8 million (PLN 10.1 million as compared to the base year), in 2018 beneficiaries again increased their total incomes by PLN 8 million on average (18.3 million relative to the year 2015). Also, in the control group, the average increase in 2016 amounted to PLN 1 million, in the subsequent year 2017 it was the average increase of PLN 2.4 million, whereas in the year 2018 it was slightly bigger and accounted for about PLN 6.3 million (the increase by nearly PLN 10 million relative to the year 2015). However, it should be stated that although the differences between beneficiaries and the control group are growing, they are not statistically significant. The increase incomes in both groups are due to revenues from the sale of products and services.

Table 14 The change in income values and export activity in the group of beneficiaries under OP SG sub-measure 3.2.1 and in the matched control group of unsuccessful applicants

Indicator	Year	B	C	Difference within the year (B-KC)	S.E.	Change from 2015 on (B)	Change from 2015 on (C)	Difference(DID)	S.E.	P> z
	(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)	(ix)	(x)
Net income from sale	2015	51 418	45 402	6 017	8 915	-	-	-	-	-
	2016	53 692	46 396	7 296	9 043	2 274	994	1 280	2 693	0.64
	2017	61 548	49 063	12 485	11 561	10 129	3 661	6 468	5 955	0.28
	2018	69 704	55 374	14 330	13 356	18 285	9 972	8 313	7 631	0.28
Net income from sale of products	2015	45 849	42 057	3 792	8 853	-	-	-	-	-
	2016	48 068	43 006	5 063	8 868	2 219	949	1 271	2 839	0.66
	2017	54 184	45 514	8 670	11 294	8 335	3 457	4 878	5 915	0.41
	2018	62 403	51 334	11 069	13 190	16 554	9 277	7 277	7 392	0.33

¹⁰² Cf. evaluation results: Ewaluacja pierwszych efektów wsparcia PO IR w zakresie prac B+R oraz wdrażania wyników prac B+R realizowanych w przedsiębiorstwach, LB&E, EGO S.C., Warszawa 2020. [Evaluation of the first OP SG support effects in respect of R&D activities as well as of implementing the results of R&D activities conducted in enterprises, LB&E, EGO S.C., Warsaw 2020]

	2015	16 807	11 265	5 542	4 954	-	-	-	-	-
Net income from exports sale	2016	18 859	13 627	5 233	5 251	2 052	2 361	-309	1 184	0.79
	2017	21 546	11 335	10 211	5 889	4 739	70	4 669	2 460	0.06
	2018	23 836	11 900	11 936	7 270	7 028	635	6 393	3 598	0.08
	2015	16 128	10 889	5 239	4 919	-	-	-	-	-
Net income from exports sale of products	2016	18 286	13 280	5 006	5 202	2 158	2 391	-233	1 137	0.84
	2017	20 414	10 911	9 502	5 765	4 286	22	4 264	2 287	0.06
	2018	22 915	11 459	11 456	7 174	6 787	570	6 217	3 520	0.08
Share of net income from exports sale in total income	2015	0.25	0.24	0.01	0.06	-	-	-	-	-
	2016	0.28	0.28	-0.01	0.06	0.03	0.04	-0.01	0.02	0.61
	2017	0.28	0.25	0.03	0.06	0.03	0.01	0.02	0.03	0.53
	2018	0.27	0.24	0.03	0.06	0.02	0.00	0.02	0.03	0.54

Source: own study based on the results of research: Defined values of selected economic indicators for recipients of the aid- granted through the PARP within the framework of Operational Programmes 2014-2020: Smart Growth (OP SG) and Eastern Poland (OP EP)- as well as for matched control groups (Stage 2), GUS 2019. Note! The data regard entities employing over 9 people (in the group of beneficiaries under sub-measure 3.2.1, companies which employ more than 9 people constitute 93%). Legend: (i) reporting period (ii) indicator value for beneficiaries (N=84) in the indicated period (iii) indicator value for entities which do not use the support (N=84) in the indicated period (iv) difference between beneficiaries and the control group in the indicated period (v) standard error (vi) change in the indicator value in the group of beneficiaries in the indicated period relative to the base year 2015 (vii) change in the indicator value in the control group in the indicated period relative to the base year 2015 (viii) estimated difference in differences effect with regard to the change over time in the group of beneficiaries and in the control group in comparison with the base year 2015 – column vi-column vii (ix) standard error (x) difference significance.

To sum up, the available data show that at the level of projects there is no risk with regard to obtaining the assumed target values of outcome indicators related to obtaining an income from the sale of innovations.

Another potential current effect of investments implemented under sub-measure 3.2.1 could be the deterioration of liquidity of beneficiaries related to expenditures incurred. As the previous analysis has shown, a considerable part of expenses incurred by beneficiaries came from their own resources, although the share of debt instruments, such as credits and loans, in funding investments is also significant.

As previously, the results of GUS analyses facilitate the assessment of the impact of implementing projects co-funded in the above respect. What results from the analyses is that indicators of both short- and long-term liquidity remain at the safe and desirable levels. In fact, over 2017-2018 i.e. in the period of a considerable increase in project expenses, the cash ratios and the current ration slightly deteriorated slightly relative to the values observed in 2015, however that drop was within the accepted borderline. In the first case the desirable target value, similar to 0.2, is usually pointed out. Lower values could mean difficulty settling current liabilities, whereas higher values point at inefficient management of resources possessed. As for beneficiaries, this value amounted on average to 1 in the

years 2015 and 2016 and dropped to 0.4 in the year 2018. The values higher than desirable in intermediate periods could result from the project expenses planned. The ratio value dropped along with the progression of implementing the investment. As for the current ration, it is usually expected that current assets (cash, liabilities, inventory, short-term investments) should be higher than current liabilities. The ratio value should be higher than 1. Among beneficiaries, the average value of this indicator amounted to over 3 within 2015-2016 and dropped to 2.1 in the year 2018. In the period under analysis it remained in the group under analysis at the safe level.

The situation of beneficiaries, as compared to the results of the matched control group of unsuccessful applicants, shows that despite higher expenditures incurred in relations to projects implemented - especially over 2017-2018 - it does not translate negatively into the indicators under analysis. The liquidity in the group of unsuccessful applicants is similar to the liquidity of beneficiaries over subsequent years under analysis. The noticeable differences are not statistically significant. Similar conclusions could be made while interpreting the differences in changes referring to indicators of long-term liquidity.

The above results can be assessed positively because - as a rule – State aid should reduce a potential negative impact of the investments implemented on enterprises' liquidity. It could be notably fostered by interim settlements of projects (system of refunds and advance payments). Following the GUS report ¹⁰³, the values of liquidity indicators are not supposed to be significantly worse in the group of beneficiaries than in the group of entities which have not received the support. The prediction made in this respect has turned out to be relevant. Also, due to visible tendencies in deteriorating all indicators related to liquidity, it is advisable to analyse further progression in this respect (at least in the period of project sustainability).

¹⁰³ Cf. *Ustalenie wartości wybranych wskaźników ekonomicznych dla odbiorców pomocy, udzielanej za pośrednictwem PARP w ramach POIR i POPW, oraz dla dobranych grup kontrolnych – etap 1. Studium wykonalności, GUS 2018* [Defined values of selected economic indicators for recipients of the aid- granted through the PARP within the framework of OP SG and OP EP- as well as for matched control groups - stage 1. Feasibility study, GUS 2018.]

Table 15 The change in indicator values with regard to liquidity in the group of beneficiaries under OP SG sub-measure 3.2.1 and in the matched control group of unsuccessful applicants

Indicator	Year	B	C	Difference within the year (B-C)	S.E.	Change from 2015 on (B)	Change from 2015 on (C)	Difference (DID)	S.E.	P> z
	(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)	(ix)	(x)
Short-term liquidity indicator (I): <i>Cash ratio</i>	2015	1.0	1.5	-0.5	0.5	-	-	-	-	-
	2016	1.0	1.0	0.0	0.4	0.0	-0.5	0.4	0.3	0.17
	2017	0.8	0.8	-0.1	0.5	-0.3	-0.7	0.4	0.4	0.32
	2018	0.4	1.0	-0.6	0.4	-0.6	-0.5	-0.2	0.3	0.57
Short-term liquidity indicator (II): <i>Quick ratio</i>	2015	2.2	3.0	-0.9	0.8	.	-	-	-	-
	2016	2.3	2.2	0.1	0.7	0,1	-0.9	1.0	0.5	0.03
	2017	2.1	2.2	-0.1	0.9	-0,1	-0.8	0.7	0.7	0.26
	2018	1.3	2.1	-0.8	0.5	-0,8	-0.9	0.1	0.5	0.86
Short-term liquidity indicator (III): <i>Current ratio</i>	2015	3.3	3.9	-0.6	1.2	-	-	-	-	-
	2016	3.3	2.9	0.5	1.0	0.0	-1.0	1.0	0.5	0.05
	2017	3.1	3.3	-0.2	1.4	-0.2	-0.6	0.3	0.8	0.66
	2018	2.1	2.9	-0.8	0.6	-1.2	-1.0	-0.2	0.8	0.80
Long-term liquidity indicator (I)	2015	1.3	1.7	-0.4	0.4	-	-	-	-	-
	2016	1.2	1.6	-0.3	0.3	-0.1	-0.2	0.1	0.2	0.61
	2017	1.0	1.4	-0.4	0.2	-0.3	-0.4	0.0	0.2	0.93
	2018	0.8	1.3	-0.4	0.2	-0.5	-0.5	0.0	0.3	0.96
Long-term liquidity indicator (II)	2015	1.5	2.0	-0.5	0.4	-	-	-	-	-
	2016	1.4	1.8	-0.4	0.3	-0.1	-0.1	0.1	0.2	0.68
	2017	1.3	1.6	-0.3	0.2	-0.3	-0.4	0.1	0.2	0.65
	2018	1.1	1.5	-0.4	0.2	-0.4	-0.5	0.1	0.3	0.82

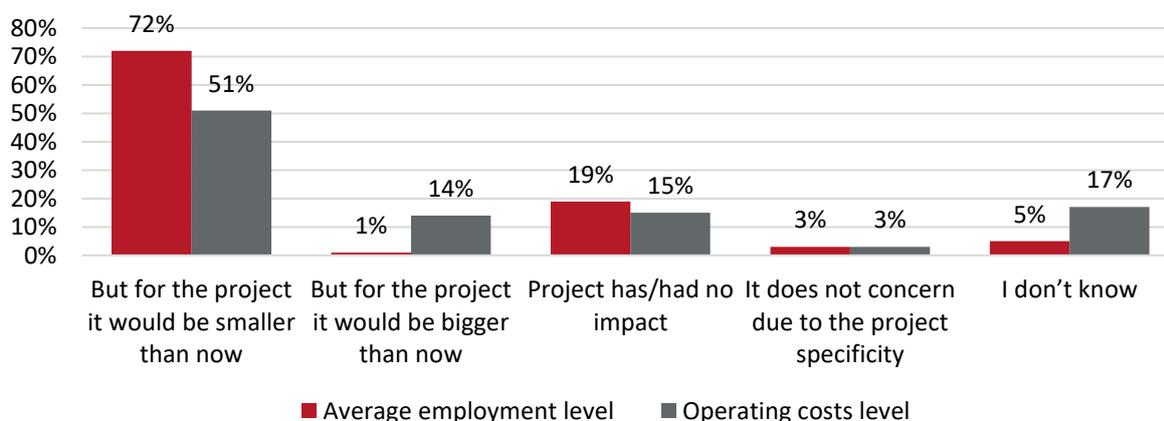
Source: own study based on the results of research: Defined values of selected economic indicators for recipients of the aid- granted through the PARP within the framework of Operational Programmes 2014-2020: Smart Growth (OP SG) and Eastern Poland (OP EP)- as well as for matched control groups (Stage 2), GUS 2019. Note! The data regard entities employing over 9 people (in the group of beneficiaries under sub-measure 3.2.1, companies which employ more than 9 people constitute 93%). Legend: (i) reporting period (ii) indicator value for beneficiaries (N=84) in the indicated period (iii) indicator value for entities which do not use the support (N=84) in the indicated period (iv) difference between beneficiaries and the control group in the indicated period (v) standard error (vi) change in the indicator value in the group of beneficiaries in the indicated period relative to the base year 2015 (vii) change in the indicator value in the control group in the indicated period relative to the base year 2015 (viii) estimated difference in differences effect with regard to the change over time in the group of beneficiaries and in the control group in comparison with the base year 2015 – column vi-column vii (ix) standard error (x) difference significance.

Impact on employment

As for potential current effects of the support, the impact of projects under sub-measure 3.2.1 on employment and an overall level of operating costs in beneficiaries' companies¹⁰⁴ is expected. With regard to the assumed outcome indicators it has been foreseen in the scheme that employment in enterprises supported will increase to the level of 2108 jobs (FTE). As at the end of 2019 an following the data collected within the system of monitoring project sustainability within which 68 completed projects were examined by the PARP, the assumed indicator value has been obtained in 57 out of 61 projects (in 7 projects increased employment was not planned). As for these projects, the assumed number of people employed amounted to 582 (FTE)), whereas the obtained value of this indicator accounted for 635.97 FTE. Hence, no threat to the implementation of this outcome seems to exist.

Taking account of the above it is worth noticing that three quarters of beneficiaries, when asked in 'Innovation barometer', admit that they see a positive relationship between the project and the increased employment. The opposite view is expressed more or less by every five entities. Also, half of beneficiaries have stated that the project has had an impact on the increased level of operating costs, which cover, among others payroll costs.

Diagram 25 The impact of project implemented on the level of employment and operating costs, as declared by beneficiaries



Source: own study based on 'Innovation barometer', the results after round IV of the primary measurement 2017-2019 (n=176).

The above declarations can be partially verified thanks to the reporting data from companies which were included in counterfactual analysis. In fact, they show that in the group of beneficiaries under sub-measure 3.2.1. employment rises over subsequent years. In the base year 2015 it amounted on average to 91 jobs (FTE) and 96 working persons. In 2016 it

¹⁰⁴ Cf. *Ustalenie wartości wybranych wskaźników ekonomicznych dla odbiorców pomocy, udzielanej za pośrednictwem PARP w ramach POIR i POPW, oraz dla dobranych grup kontrolnych – etap 1. Studium wykonalności, GUS 2018* [Defined values of selected economic indicators for recipients of the aid- granted through the PARP within the framework of OP SG and OP EP- as well as for matched control groups - stage 1. Feasibility study, GUS 2018.]

increased respectively to 97 jobs and 98 working persons. In 2017 it accounted 103 jobs and 106 working persons. Hence, the average annual increase in the period under analysis accounted for about 5-7 jobs/ working persons, which corresponds with the growth at the level of 6-7%. In the control group the change in employment is similar when it comes to its direction and intensity, that is why there are no significant differences between the groups.

Data on total payroll costs also confirm the limited impact of support under sub-measure 3.2.1 in this respect. In the group of beneficiaries salaries increased by about PLN 1.8 million over 2015-2018. A similar increase (PLN 2 million on average) was observed in the matched group of unsuccessful applicants. The payroll costs rose proportionally to the increase in employment, which shows that also in respect of employment structure (competence, experience, etc.) both in the group of beneficiaries and in the control group of unsuccessful applicants the changes in the period under analysis were similar, regardless of the State aid granted.

To sum up, the observed changes in employment are at the present stage independent of investment under implementation. In the light of similar changes in employment in the matched control group it is difficult to ascribe the rise in employment in the group of beneficiaries directly to State aid – as it is very likely that companies would grow in terms of employment also without the support.

Table 16 The change in employment and payroll costs in the group of beneficiaries under OP SG sub-measure 3.2.1 and in the matched control group of unsuccessful applicants

Indicator	Year	B	C	Difference within the year (B-C)	S.E.	Change from 2015 on (B)	Change from 2015 on (C)	Difference (DID)	S.E.	P> z
	(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)	(ix)	(x)
Average number of full-time employees	2015	91.4	94.9	-3.4	12.6	-	-	-	-	-
	2016	96.8	98.2	-1.3	14.5	5,4	3.3	2.1	3.7	0.58
	2017	102.8	105.5	-2.6	14.1	11.4	10.6	0.8	4.8	0.87
	2018	109.4	110.6	-1.2	14.5	17.9	15.7	2.2	6.6	0.74
Working persons (as at 31 Dec.)	2015	96.2	99.5	-3.4	13.2	-	-	-	-	-
	2016	102.0	101.3	0.7	15.0	5.8	1.7	4.1	3.9	0.30
	2017	108.6	112.0	-3.3	14.5	12.5	12.4	0.0	6.2	1.00
	2018	116.2	114.4	1.8	15.0	20.1	14.9	5.2	6.8	0.45
Operating costs - payroll costs (PLN thousand)	2015	4 365	4 202	164	628	-	-	-	-	-
	2016	4 792	4 739	53	730	427	537	-110	153	0.47
	2017	5 420	5 416	4	876	1 055	1 214	-159	397	0.69
	2018	6 150	6 227	-77	965	1 785	2 025	-240	520	0.64

Source: own study based on the results of research: Defined values of selected economic indicators for recipients of the aid- granted through the PARP within the framework of Operational Programmes 2014-2020: Smart Growth (OP SG) and Eastern Poland (OP EP)- as well as for matched control groups (Stage 2), GUS 2019. Note!

The data regard entities employing over 9 people (in the group of beneficiaries under sub-measure 3.2.1, companies which employ more than 9 people constitute 93%). Legend: (i) reporting period (ii) indicator value for beneficiaries (N=84) in the indicated period (iii) indicator value for entities which do not use the support (N=84) in the indicated period (iv) difference between beneficiaries and the control group in the indicated period (v) standard error (vi) change in the indicator value in the group of beneficiaries in the indicated period relative to the base year 2015 (vii) change in the indicator value in the control group in the indicated period relative to the base year 2015 (viii) estimated difference in differences effect with regard to the change over time in the group of beneficiaries and in the control group in comparison with the base year 2015 – column vi-column vii (ix) standard error (x) difference significance.

It would be advisable to complement the observations above with comments of entrepreneurs participating in the case studies, which point at varied directions of the investment impacts. One entity under evaluation has provided an argument which indicated not necessarily a positive relationship between the implementation of innovative solutions and the rise in employment.

Case study 3

[...] I see sort of contradiction, 'cause on the one hand we talk about automation, about companies that should automate, but on the other hand we say that they should employ more [...]. It works when it comes to a technological line, doesn't it? When you build a factory. But if we take our core activity into consideration, which is really..... well, this technology is really high.

- What our customers expect from us is actually eliminate a human factor, if possible, putting it rather improperly, but this is what they do want [...] We have customers who need to minimize the number of field trips, field visits by humans, ...you see it's hard to find an employee, etc.

The opinion above should be complemented by a view presented by a representative of a company in which a new technological line was set up. The survey participant points at an overall increase in efficiency thanks to the investment implemented, also thanks to increased work automation.

Case study 1

- Employment? At the moment there are over 170 people. On general, a couple of people would have arrived, however as if disproportionately as compared to the increase in sales, right? 'cause if all the devices... they are a bit more efficient and there is no need for such a big team of workers, the more so that there are some operations where people mustn't stay close and aren't allowed to do it, so that's the way it looks like.

And how has the situation changed since the production line was set up? Has it made work easier somehow?

- It has made it easier, very much, [...] we used to have to select sort of bigger units to be paired. Now they come in automatically, in the right order, the one we want,

besides they are already well-prepared, finished up, complete. There is no need to do about them- if I can put it this way- but assembly and send to the customer.

Similar conclusions can be made following another case study which also concerns a production plant.

Case study 4

And how about employment in your company? Before the project commencement there were 160 people employed. Has it changed? Was it increasing or decreasing?

- I think it is at a very similar level. Now there are 170 employees, so I think it's the question of natural staff turnover that concerns a few people.

As for this new machine, did a need to employ new people arise?

- No, there was insignificant shuffling, because it turned out that that we need support in the construction engineering unit.

Also, it should be stated that the above observations do not rule out an impact of the investments implemented on employment in the long-run (i.e. in compliance with the intervention theory of change which was previously mentioned). It will be possible or even necessary if supported companies expand substantially their business. The respondent related to case study 1 confirmed it implicitly. In their company employment has increased due to an overall expansion of their business, although disproportionately as compared to the increase in the income. It means higher work efficiency, which should be considered positively. It is also worth adding that in the case of projects completed and included in the monitoring system over the sustainability period, the planned indicators regarding employment have already been obtained (it refers to data from 21 companies). Overall, in this group it was planned to employ 191 FTE. Following the declarations of beneficiaries, the employment level obtained was 225 FTE (on average 10.7 FTE per project). It could be a promising prediction as for obtaining the assumed values of employment indicators also by other beneficiaries. Obviously, it is not possible to find out under mid-term evaluation which part of this employment refers to the cause-and-effect project impact¹⁰⁵.

Moreover, according to the results of evaluation of the project selection system within the OP SG¹⁰⁶, it should be noticed that the significance of the outcome indicator related to the employment in projects under OP SG sub-measure 3.2.1 tends to lessen. In one of the first competitions, the average target value of this indicator amounted to slightly more than 11 jobs (FTE) per project, whereas in the eighth competition (call for proposals No. 18/2)¹⁰⁷

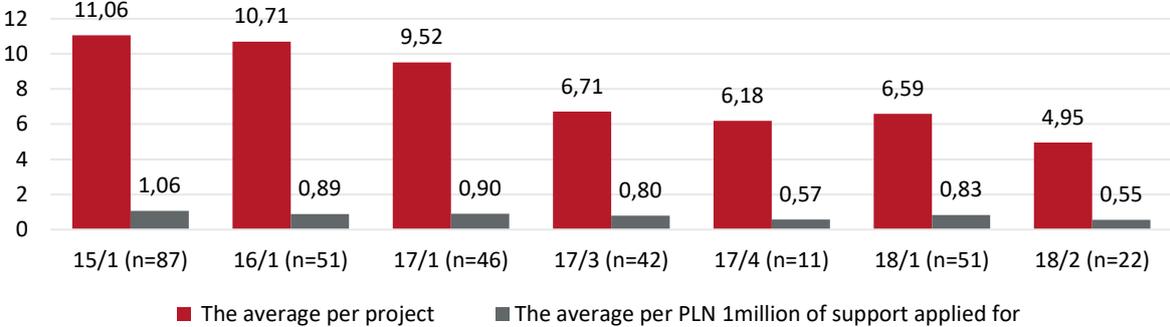
¹⁰⁵ Theoretically, it will be possible to do it within ex-post evaluation of the PARP aid scheme, which is planned for the year 2024.

¹⁰⁶ Cf. „Ewaluacja systemu wyboru projektów POIR 2014-2020 – ocena wybranych zmian”, PAG-Uniconsult, IDEA Instytut, na zlecenie Ministerstwa Inwestycji i Rozwoju, Warszawa 2019 r. [‘Evaluation of the OP SG project selection system – assessment of selected changes’, PAG-Uniconsult, IDEA Instytut, commissioned by the Ministry of Investment and Economic Development, Warsaw 2019]

¹⁰⁷ The diagram does not take account of competition No. 4 (03.02.01-17/002), within which no project was supported.

there were only 5 FTE jobs. In parallel, a decrease in the value of this indicator per PLN 1 million of the support which was applied for has been observed.

Diagram 26 The increase in employment in enterprises supported [FTE] – target values of OP SG outcome indicator*



Source: own study based on the research „Evaluation of the OP SG project selection system – assessment of selected changes’, MIR, 2019, as at 5 June 2019

* The data present values for applications approved (funding agreements were not signed in all cases).

The above means that the greatest project impact in respect of employment could be expected in the case of projects selected to be co-funded within the first three calls of sub-measure 3.2.1, which happen to be under this analysis (within the counterfactual research presented, among others). On the basis of the above it is possible to cautiously make a forecast stating that the employment effect unrecorded so far is unlikely to occur with regard to beneficiaries from new competitions under sub-measure 3.2.1. Naturally, this statement needs to be verified in the future.

In view of the above, it is advisable to consider the justification for employment as an obligatory outcome indicator. These doubts appear with reference to the specificity of projects implemented which involve – to much extent – implementing solutions that foster in a short-term perspective the automation of production processes and that consequently have a limited impact on the increased demand for additional staff. As already mentioned, it does not rule out the employment effects in the long-term if the investments supported translate into a growth of business activity. However, in the short-run the anticipation of the increased employment related to investments in question is divorced from the practice of doing business. In this context it should be positively assessed that employment indicators are not subject to appraisal at the stage of assessing applications for funding (these are required to be presented, but their assessment does not depend on their changed value).

Current effects – summary

Summing up the results presented so far – including those with regard to the current effects of the instrument, it should be stated that undoubtedly the support translates favourably into investments undertaken by beneficiaries. The results of analyses presented allow to state that without State aid some projects would probably have been significantly limited or delayed. Thus, launching innovative products planned would have been delayed as well.

Unfortunately, it must be also stated that the innovativeness level of the implemented results of R&D activities is globally lower than originally assumed. The research results notably call into question the significance of conducted R&D activities for new processes, products, services. Thus, the development of enterprise innovativeness related to projects implemented under sub-measure 3.2.1 is questionable. Their innovativeness is mainly reflected in the novelty of technology purchased or its application to the company activity. Obviously, it is not contradictory to the fact that the improved products (i.e. innovative in the broader sense) could be desirable by customers and successful on the market. However, what is dubious in this process is the share and importance of the results of R&D activities presented as the basis for implementations conducted. The outcomes of implementing the sub-measures in this respect are divorced from the theory of change.

Moreover, the first results of analyses with regard to the income from sale show that beneficiaries –in principle – have no difficulty obtaining their targets defined in the applications for funding. Similarly, the results of analyses concerning the control group reveal a potential favourable impact of the support as for sales results, although they have to be confirmed in the long-run. In view of the information presented so far, it could be supposed that the observed increase in income may result - to much extent – from investments made in machines and production equipment, which made it possible for some beneficiaries to increase relatively fast the existing production capacity.

In the light of the data available, no project impact on the employment has been observed. However, it cannot be ruled out that the effects in this respect will materialize later on if implementations completed translate into a significant increase in the volume of the company's operations, which will also result in the increased number of working persons. Due to the moment of conducting this evaluation the verification of this impact cannot have been possible. Predictions in this respect are also hindered by potentially negative effects of COVID-19 epidemic, whose significance for beneficiaries are difficult to define.

What is important, the analyses of liquidity indicators in enterprises show that the companies supported are, in general, in a good financial condition – there are no symptoms which would indicate a negative impact of projects implemented in this respect. It could also reflect the fact that the system of instrument implementation, which takes account of partial settlements (advance payments and refunds) is well designed and implemented.

Long-term (final) effects

As already mentioned many times, it is not currently possible to capture long-term indirect effects of the support offered under sub-measure 3.2.1. It should be pointed out that the number of projects completed is still relatively small and those already completed still need more time to have a potential impact of the aid granted on the overall companies' competitiveness, employment or innovativeness revealed. It also concerns the projects completed which were subject to an in-depth analysis within the case studies. At present, making conclusions in this respect is also hindered by the economic downturn caused by COVID-19 epidemic.

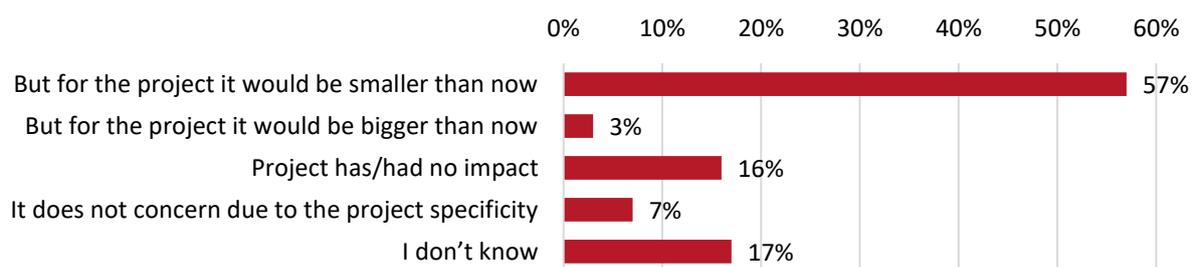
Indirect effects

This sub-chapter refers to the so-called indirect effects of investments under OP SG sub-measure 3.2.1, i.e. the results observed in entities other than direct beneficiaries. These effects – in accordance with the evaluation methodology, including EC guidelines on methods of assessing State aid – have been divided into positive and negative effects. The latter focus mainly on a potential negative impact of State aid which could cause disturbances in market competition, including trade within the Single European Market. Naturally, the assessment of this phenomenon is complicated due to a limited amount of information available. Because of this, the conclusions included in this part are based - to much extent – on declarative data, although an attempt to base them on the results of GUS counterfactual analyses have been made.

Positive effects

As for indirect positive effects, it is possible to indicate at least two potential levels of support impact. Like in the case of indirect effects, it is worth distinguishing in the analysis potential short- and long-term effects. As far as the former are concerned, companies implementing the project very often admit that it translates into the increased number of their cooperators. Such an opinion has been expressed by 57% of beneficiaries under sub-measure 3.2.1 with regard to 'Innovation barometer'. About 26% of the respondents (total answers: the number of cooperators would be larger without the support – 3%; the project does /did not have any impact -16%; it does not concern due to the project specificity -7%) have expressed the opposite view. The other 17% of the respondents have found it difficult to give a clear answer. Over the last 12 months companies have cooperated, on average, with about 27 cooperators (median:5).

Diagram 27 The present impact of project under implementation on the overall number of company's cooperators, as declared by beneficiaries



Source: own study based on 'Innovation barometer', the results after round IV of the primary measurement 2017-2019 (n=176).

It could be confirmed implicitly by indicators related to the costs incurred for outsourced services and those related to the costs of materials and energy consumed by beneficiaries and the control group (unsuccessful beneficiaries). As for beneficiaries, an increased demand for outsourced services is observed in 2018 as compared to the year 2015. In the control group the situation is comparable, although the relative rise is slightly lower (inter-group differences are not significant).

A similar tendency has been observed in respect of the costs incurred for materials and energy. Over 2015-2018 in the group of beneficiaries the costs of materials consumption increased by about 45%. The increase was also visible in the control group, however, it amounted to about 25%. Despite the fact that in nominal values the differences are not statistically significant, it is possible to suppose – based on the changes observed - that projects translate positively into the development of cooperation with external entities, mainly with suppliers of materials (necessary for implementing investments in questions, but also for increased production in which newly purchased machines and technical equipment are used).

Table 17 The change in costs of outsourced services and costs of materials and energy consumption in the group of beneficiaries under OP SG sub-measure 3.2.1 and in the matched control group of unsuccessful applicants

Indicator	Year	B	C	Difference within the year (B-C)	S.E.	Change from 2015 on (B)	Change from 2015 on (C)	Diff. (DID)	S.E.	P> z
	(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)	(ix)	(x)
Costs of outsourced services (PLN thousand)	2015	7 677	5 972	1 705	2 549	-	-	-	-	-
	2016	7 246	6 145	1 101	1 898	-431	173	-604	1 084	0.58
	2017	7 545	5 409	2 135	1 633	-132	-562	430	1 785	0.81
	2018	8 626	6 670	1 956	2 063	949	698	251	2 161	0.91
Costs of materials and energy consumption (PLN thousand)	2015	27 229	24 055	3 174	6 609	-	-	-	-	-
	2016	28 902	25 166	3 736	7 012	1 673	1 111	563	1 662	0.74
	2017	33 777	27 653	6 125	9 524	6 549	3 598	2 951	4 244	0.49
	2018	39 586	30 300	9 286	10 578	12 357	6 245	6 112	5 250	0.24

Source: own study based on the results of research: Defined values of selected economic indicators for recipients of the aid- granted through the PARP within the framework of Operational Programmes 2014-2020: Smart Growth (OP SG) and Eastern Poland (OP EP)- as well as for matched control groups (Stage 2), GUS 2019. Note! The data regard entities employing over 9 people (in the group of beneficiaries under sub-measure 3.2.1, companies which employ more than 9 people constitute 93%). Legend: (i) reporting period (ii) indicator value for beneficiaries (N=84) in the indicated period (iii) indicator value for entities which do not use the support (N=84) in the indicated period (iv) difference between beneficiaries and the control group in the indicated period (v) standard error (vi) change in the indicator value in the group of beneficiaries in the indicated period relative to the base year 2015 (vii) change in the indicator value in the control group in the indicated period relative to the base year 2015 (viii) estimated difference in differences effect with regard to the change over time in the group of beneficiaries and in the control group in comparison with the base year 2015 – column vi-column vii (ix) standard error (x) difference significance.

The above observations are also confirmed by selected statements expressed by participants of the case studies. As for enterprises which have seen an increase in sales, it also translates naturally into measurable financial benefits in the group of cooperators.

Case study 2

- Surely, the range of our suppliers has increased in respect of both machines and materials for production. We used to buy a lot less material, now the quantity of material purchased, its kind is definitely much bigger, also when it comes to suppliers of different elements, spare parts, so I can say this indirect material, which is necessary to keep production going, so here it has also increased.

Has – to the best of your knowledge- the increased scope of cooperation with cooperators brought in any economic and financial benefits for these entities, and consequently, has their situation also improved?

- Well, we are not familiar with detailed financial results, but we can suspect that due to the fact that our production has increased, they are definitely implementing much bigger contracts with us...[...]

- Well, they thrive on us [...] there is greater stabilisation from their point of view, this is to say they have one more leg, sort of a solid foundation.

In the case of some entities, the indirect impact of projects also goes beyond the local level.

Case study 3

How do you fare as for cooperation with smaller entities? How many of them come from your town or voivodeship?

- Actually, we do not have sub-supplier from here, as these are companies selling practically to everyone. Częstochowa, Dąbrowa Górnicza, Sandomierz. These are where our main suppliers come from, the others, are from Opole, we also bring stuff from Germany, some things come from Latvia too, depending what component is needed.

And locally ?

- Well, locally there is no such production.

It is worth paying attention to a potential significant indirect impact of projects implemented under sub-measure 3.2.1 related to the technology purchased for the needs of implementing the results of R&B activities in question.

Case study 3

- Taking account of our demand, an Austrian company, the biggest supplier [...] has decided to proceed to tender and provide the latest solution ever.

- Of course, at that time nobody had produced the stuff before. So they, entered the market of new technologies through our project.

Because they already have this equipment on their standard offer, don't they?

- But it was us that bought the first specimen in the world, because we are the most experienced in cooperating with them. [...] In fact, they did start offering it on the market a year later.

To sum up, beneficiaries of sub-measure 3.2.1 increase the scale of their operations, which is reflected in the sales results presented previously, but also in the volume of materials and semi-products ordered. It should be mentioned in this respect that following the results from 'Innovation barometer', almost 80% of beneficiaries under sub-measure 3.2.1 are producers of final products. It means that a potential support impact on cooperators of beneficiary companies could be significant.

An important element of sub-measure 3.2.1 is the so-called dedicated competitions which focus on selected fields and which have been implemented since 2017 in parallel to general competitions. They include calls for proposals on electro-mobility (1 competition) referring to the scheme Accessibility Plus (2 competitions) and those targeted at medium-sized town (4 competitions). Particularly, the competition mentioned as the third one, which refers to projects implemented in medium-sized towns¹⁰⁸(within the so-called Package for medium-sized towns¹⁰⁹ directly related to putting proposals included in the Strategy for Responsible Development) is significant in the context of potential positive support effects. The Package mentioned concerns towns whose population is over 20 thousand, exclusive of voivodeship capital cities, as well as towns with the population of over 15 thousand which are district capital towns and which are under the biggest threat of losing the so-called socio-economic functions¹¹⁰. The support is aimed at ensuring equal opportunities of development for all areas, particularly those with the biggest socio-economic problems.

Following the settlement of the three competitions, by the end of 2019, 43 funding agreements were signed. They constitute about 14% of all projects supported under sub-measure 3.2.1. At the end of October 2019 a subsequent competition in this area was completed.

¹⁰⁸ The list of indicative towns along with neighbouring communes specified in the Package for medium-sized towns, approved by the Ministry of Economic Development – initially 255 towns, finally 824- cf.

<https://www.parp.gov.pl/component/grants/grants/badania-na-rynek-miasta-srednie-1> As at 31 Oct. 2019.

²⁴ cf. <https://archiwum.muir.gov.pl/strony/strategia-na-rzecz-odpowiedzialnego-rozwoju/kluczowe-projekty/pakiet-dla-srednich-miast/> As at 31 Oct. 2019.

¹¹⁰ cf. Delimitacja miast średnich tracących funkcje społeczno-gospodarcze. Instytut Geografii i Przestrzennego Zagospodarowania PAN, opracowanie na potrzeby Strategii na rzecz Odpowiedzialnego Rozwoju, 2016 [Delimitation of medium-sized towns which lose their socio-economic functions. Institute of Geography and Spatial Organization PAS, elaboration for the Strategy for Responsible Development, 2016].

Table 18 Calls for proposals under sub-measure 3.2.1, taking account of thematic specificity

Call No.	Call for proposals	Call character	Call duration	Number of agreements
1	1/3.2.1/2015	'General'	31.08-28.10.2015	63
2	1/3.2.1/2016	'General'	1.06-28.09.2016	41
3	1/3.2.1/2017	'General'	13.03-26.04.2017	35
4	2/3.2.1/2017	'Electro-mobility'	13.03-26.04.2017	0
5	3/3.2.1/2017	'General'	5.09.2017-28.02.2018	36
6	4/3.2.1/2017	'Medium-sized towns'	5.09.2017-28.02.2018	7
7	1/3.2.1/2018	'General'	20.03-5.12.2018	55
8	2/3.2.1/2018	'Medium-sized towns'	20.03-5.12.2018	25
9	1/3.2.1/2019	'General'	25.03 – 8.05.2019	35
10	2/3.2.1/2019	'Medium-sized towns'	25.03 – 8.05.2019	11
11	3/3.2.1/2019	'Accessibility Plus'	25.03 – 8.05.2019	0
12	4/3.2.1/2020	'General'	1.10.2019-31.10.2019	under assessment
13	5/3.2.1/2020	'Medium-sized towns'	1.10.2019-31.10.2019	under assessment
14	6/3.2.1/2020	'Accessibility Plus'	1.10.2019-31.10.2019	under assessment

Source: own study based on PARP data within LSI system, as at 31 Dec. 2019.

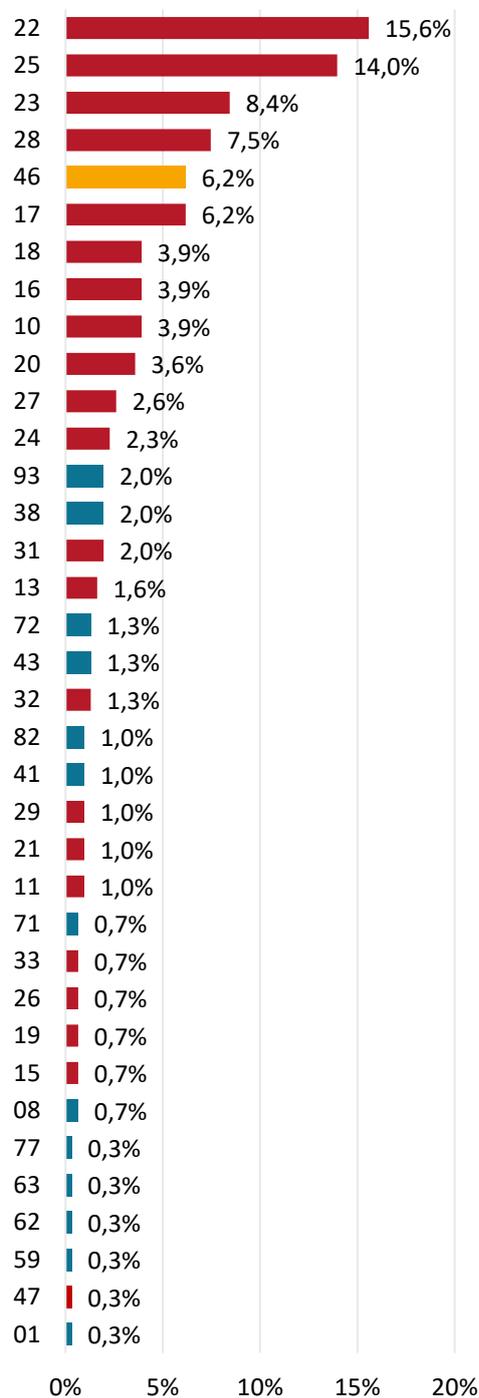
Although it is necessary to wait for potential effects of the support granted within the distinguished areas, it is worth noticing that the broadened profile of competitions under sub-measure 3.2.1 corresponds with the areas of indirect positive impact (it notably refers to the target area which is medium-sized towns) which were identified in the evaluation plan of the PARP aid scheme. Namely, it concerns the expected spillover effect with reference to other geographical regions as well as the achievement of objectives of regional and cohesion policies in respect of supporting innovativeness and competitiveness in Poland.

Negative effect

Potentially indirect negative effects of the support have been defined in the evaluation plan with reference to the mode of selecting beneficiaries which could have an impact on competition. This mode is related to sectoral bias (within a multi-sectoral programme, the vast majority of aid was granted to one sector) and to bias toward incumbents (ratio of existing enterprises to enterprises newly established). This sub-chapter presents the results of analyses in this respect.

The results with regard to the distribution of beneficiaries under sub-measure 3.2.1 classified in accordance with PKD sections (Code List of Classification of Business Activities in Poland) show that the biggest share – amounting to as much as 82.1% - is held by companies from Section C PKD (processing industry). The second most numerous group (although a lot smaller) comprises representatives of section G (wholesale and retail trade; repair of motor vehicles, including motorcycles) within which 6.5% of beneficiaries perform business activity. The other 11.4% of companies represent eight different PKD sections holding a similar share.

Diagram 28 Six specific PKD sections among beneficiaries under sub-measure 3.2.1



Legend:

- 01 Agricultural cultivation, raising of animals, hunting, including support activities
- 08 Other mining and quarrying
- 10 Manufacture of food products
- 11 Manufacture of beverages
- 13 Manufacture of textiles
- 15 Manufacture of leather and leather goods
- 16 Manufacture of products of wood and articles of cork, excluding furniture; manufacture of articles of straw and plaiting materials
- 17 Manufacture of paper and articles of paper
- 18 Printing and reproduction of recorded media
- 19 Manufacture and processing of coke and refined petroleum products
- 20 Manufacture of chemicals and chemical products
- 21 Manufacture of basic pharmaceutical products and medicines and other pharmaceutical products
- 22 Manufacture of rubber products and plastic goods
- 23 **Manufacture of abrasive products and other non-metallic mineral products**
- 24 Metal production
- 25 Manufacture of fabricated metal products, excluding machinery and equipment
- 26 Manufacture of computers, electronic and optical products
- 27 Manufacture of electric equipment
- 28 Manufacture of machinery and equipment not elsewhere classified
- 29 Manufacture of motor vehicles, trailers and semi-trailers, excluding motorcycles
- 31 Manufacture of furniture
- 32 Manufacture of other articles
- 33 Repair, maintenance and installation of machinery and equipment
- 38 Collection, processing and neutralizing of waste, recovery of materials
- 41 Building works related to erection of buildings
- 43 Specialised construction activities
- 46 Wholesale trade, excluding trade of motor vehicles
- 47 Retail trade, excluding trade of motor vehicle
- 59 Motion picture, video, television programme production, sound recording and music publishing activities
- 62 Computer programming, computer consultancy activities and related activities
- 63 Information technology service activities; technical testing and analyses
- 71 Architectural and engineering activities
- 72 Research and experimental development
- 77 Rental and lease
- 82 Office administrative service activities and other business support service activities
- 93 Sport, amusement and recreation activities

■ Section C – processing industry ■ Section G – wholesale and retail trade ■ Other sections

Source: own study based on PARP data, LSI, as at 31 Dec. 2019.

What is important, when it comes to representatives of branches within processing industry, the diversity observed is much bigger. There are representatives of 21 out of 24 divisions

without significant cumulation within any branch. A slightly bigger group of entities have been found in sections 22 - manufacture of rubber products and plastic goods (15.6%) and 25 – Manufacture of fabricated metal products, excluding machinery and equipment (14%). The former concerns 48 entities, the latter refers to 43. These figures do not provide evidence that within the instrument there is sectoral bias which could translate unfavourably into competition. According to GUS data, within the PKD sections mentioned, there are respectively 14.8 thousand and 69 thousand entities functioning in Poland in the MSE private section¹¹¹

The above conclusion is confirmed by the results of an analysis conducted with the use of GUS data which indicate the level of the so-called sectoral concentration within particular PKD divisions, taking account of section C – processing industry. The data concern business entities which employ more than 9 people, i.e. they better suit to the structure of beneficiaries under sub-measure 3.2.1¹¹². Moreover, the share of beneficiaries in particular divisions of section C, taking account of the structure of manufacture sold¹¹³. In the case of beneficiaries, the volume of income gained in 2015 or 2016 was adopted as the approximation of manufacture sold¹¹⁴.

Taking account of the concentration level of manufacture sold, which is measured by the value of the two indicators - Herfindahl-Hirschman index and Lorenz index¹¹⁵- it should be stated that this level has similar values in particular divisions of section C and shows a moderate value of sectoral concentration. It means that in particular divisions there are relatively a lot of entities with a moderate share of manufacture sold. In particular divisions and categories of manufacture sold the number of beneficiaries under sub-measure 3.2.1 ranges from 0 to 25 maximum (division 22 - Manufacture of rubber products and plastic goods, the annual manufacture sold amounts to PLN 40 million and more).

The share of beneficiaries as for particular categories of manufacture sold/ income amounts to 3.3% maximum (division 19 – Manufacture and processing of coke and refined petroleum products – 2 companies supported out of 62 operating in this branch), on average it is 0.7%. The share analysis, taking account of classification by the value of income gained/

¹¹¹ Monthly information on entities of national economy listed in the REGON register (National Official Business Register), as at 31 Dec. 2019.

¹¹² In the group of beneficiaries under sub-measure 3.2.1 micro-entities constitute about 8% of all companies.

¹¹³ cf. GUS – Rocznik statystyczny przemysłu, 2017 [Statistical Yearbook of Industry, 2017]. Manufacture sold concerns the whole business activity of the economic entity, i.e. both industrial and non-industrial activity.

¹¹⁴ The data on the income come in most cases from the PARP monitoring system (LSI), except for the data regarding the first competition as this information was not collected in applications for funding. The data with regard to entities from this group were complemented on the basis of financial statements gathered in the KRS (data for 44 entities out of 65 companies were collected, as for the others, there is lack of data).

¹¹⁵ Following remarks included in the Statistical Yearbook of Industry, Herfindahl – Hirschman index is calculated by squaring the share of manufacture sold of each entity in a given aggregate (division) and then summing the resulting numbers. The index value can range from $1/n$ to 1, with n referring to the number of enterprises in a given branch. The more entities operates on the market, the smaller the index value. Lorenz concentration index was calculated using an interpolation formula created on the basis of Lorentz curve. Its value ranges from 0 to 1 – the higher the concentration level, the more the index value approaches 1.

manufacture sold, indicates a slightly higher share of companies in the two divisions. First, division 18-Printing and reproduction of recorded media – in the group of entities with the manufacture sold of PLN 20 million to PLN 40 million the share of beneficiaries amounted to 8.9% (5 companies supported out of 56 companies of similar size and operating in the same branch). The second category with a higher share of beneficiaries is division 17 (Manufacture of paper and articles of paper), also with the manufacture sold between PLN 20 million and PLN 40 million – the share of beneficiaries amounted to 7.3% (6 supported entities out of 82 active in 2016).

Table 19 The number of entities in industry (a), including beneficiaries under OP SG sub-measure 3.2.1 (b) by the value of manufacture sold, taking account of concentration index

Section C by PKD divisions	Number of entities		Entities with manufacture sold (PLN million)							Concentration index		
			2 and less	2.01-5.00	5.01-10.00	10.01-20.00	20.01-40.00	40.01 and more	n.d.	Herfindahl-Hirschman i (HHI)	Lorenz	
Section C overall	a	31015	6924	10036	5018	3367	2291	3379	n.d.	0.002	0,792	
	b	221	9	8	16	27	57	87	17			
10	a	5620	1483	1667	761	572	436	701	n.d.	0.004	0.782	
	b	12	0	0	1	3	4	3	1			
11	a	179	21	40	27	25	18	48	n.d.	0.062	0.689	
	b	3	0	0	0	0	1	2	0			
13	a	787	206	251	134	93	56	47	n.d.	0.036	0.741	
	b	5	0	0	0	0	2	2	1			
15	a	502	191	184	61	31	20	15	n.d.	0.066	0.729	
	b	2	0	0	0	2	0	0	0			
16	a	2158	425	953	373	198	114	95	n.d.	0.013	0.734	
	b	12	0	0	1	1	5	5	0			
17	a	727	59	178	174	108	82	126	n.d.	0.020	0.729	
	b	19	2	0	2	2	6	4	3			
18	a	753	132	302	134	77	56	52	n.d.	0,021	0.711	
	b	12	0	0	3	2	5	2	0			
19	a	62	No data							62	0.367	0.636
	b	2	0	0	0	0	2	0	0			
20	a	695	79	117	132	90	95	182	n.d.	0.018	0.677	
	b	11	1	0	0	0	1	8	1			
21	a	141	17	26	17	20	21	40	n.d.	0.109	0.664	
	b	3	0	0	1	0	1	1	0			
22	a	2347	257	676	476	325	232	381	n.d.	0.006	0.703	
	b	48	3	0	1	3	11	25	5			
23	a	1555	321	492	276	161	126	179	n.d.	0.010	0.768	
	b	26	1	2	1	3	9	10	0			
24	a	448	75	90	71	61	48	103	n.d.	0.081	0.726	
	b	7	0	0	0	0	2	4	1			

Section C by PKD divisions	Number of entities		Entities with manufacture sold (PLN million)							Concentration index	
			2 and less	2.01- 5.00	5.01- 10.00	10.01- 20.00	20.01- 40.00	40.01 and more	n.d	Herfindahl- Hirschman i (HHI)	Lorenz
25	a	5138	839	1995	972	589	351	392	n.d.	0.003	0.700
	b	43	1	5	4	6	8	16	3		
26	a	484	89	145	80	61	40	69	n.d.	0.061	0.806
	b	2	1	0	0	0	1	0	0		
27	a	707	93	182	125	85	72	150	n.d.	0.030	0.730
	b	8	0	0	0	2	3	3	0		
28	a	1527	207	432	302	260	148	178	n.d.	0.011	0.709
	b	23	2	2	3	5	7	2	2		
29	a	614	67	131	83	65	51	217	n.d.	0.028	0.630
	b	3	0	0	0	0	0	3	0		
31	a	1962	542	717	249	187	110	157	n.d.	0.019	0.776
	b	6	0	0	1	0	2	3	0		
32	a	676	171	264	96	72	31	42	n.d.	0.016	0.729
	b	4	0	0	1	1	1	1	0		
33	a	1514	No data						1514	0.008	0.706
	b	2	0	1	0	0	0	1	0		

Source: own study based on data by GUS (Statistical Yearbook of Industry, 2017), PARP (LSI, as at 31 Dec. 2019), KRS (reporting data of entities for the year 2016).

* The data regard entities employing over 9 people.

** In the case of beneficiaries of OP SG sub-measure 3.2.1, the manufacture sold was approximate to data on the income from sale for the year 2016 or 2015 (with regard to applicants which submitted an application for funding in 2016).

It should be also noticed that the share of beneficiaries in the overall number of entities operating in a given branch rises along with the increase in the value of manufacture sold (over PLN 20 million). It is due to the specificity of the support granted under sub-measure 3.2.1, which was received –to much extent- by medium-sized entities. Also, the average value of projects implemented amounts to nearly PLN 25 million, which demands that supported companies should have an appropriate capacity. Despite the increased share of beneficiaries in the indicated groups it should be judged that it remains at a relatively low, acceptable level.

Table 20 The share of beneficiaries under OP SG sub-measure 3.2.1 in the group of entities by the value of manufacture sold

Section C by PKD divisions	Share of beneficiaries	Entities with manufacture sold (PLN milion, 2016)					
		2 and less	2.01-5.00	5.01-10.00	10.01-20.00	20.01-40.00	40.01 and more
Overall	0.7%	0.1%	0.1%	0.3%	0.8%	2.5%	2.6%
10	0.2%	0.0%	0.0%	0.1%	0.5%	0.9%	0.4%
11	1.7%	0.0%	0.0%	0.0%	0.0%	5.6%	4.2%
13	0.6%	0.0%	0.0%	0.0%	0.0%	3.6%	4.3%
15	0.4%	0.0%	0.0%	0.0%	6.5%	0.0%	0.0%
16	0.6%	0.0%	0.0%	0.3%	0.5%	4.4%	5.3%
17	2.6%	3.4%	0.0%	1.1%	1.9%	7.3%	3.2%
18	1.6%	0.0%	0.0%	2.2%	2.6%	8.9%	3.8%
19	3.2%	no data					
20	1.6%	1.3%	0.0%	0.0%	0.0%	1.1%	4.4%
21	2.1%	0.0%	0.0%	5.9%	0.0%	4.8%	2.5%
22	2.0%	1.2%	0.0%	0.2%	0.9%	4.7%	6.6%
23	1.7%	0.3%	0.4%	0.4%	1.9%	7.1%	5.6%
24	1.6%	0.0%	0.0%	0.0%	0.0%	4.2%	3.9%
25	0.8%	0.1%	0.3%	0.4%	1.0%	2.3%	4.1%
26	0.4%	1.1%	0.0%	0.0%	0.0%	2.5%	0.0%
27	1.1%	0.0%	0.0%	0.0%	2.4%	4.2%	2.0%
28	1.5%	1.0%	0.5%	1.0%	1.9%	4.7%	1.1%
29	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	1.4%
31	0.3%	0.0%	0.0%	0.4%	0.0%	1.8%	1.9%
32	0.6%	0.0%	0.0%	1.0%	1.4%	3.2%	2.4%
33	0.1%	no data					

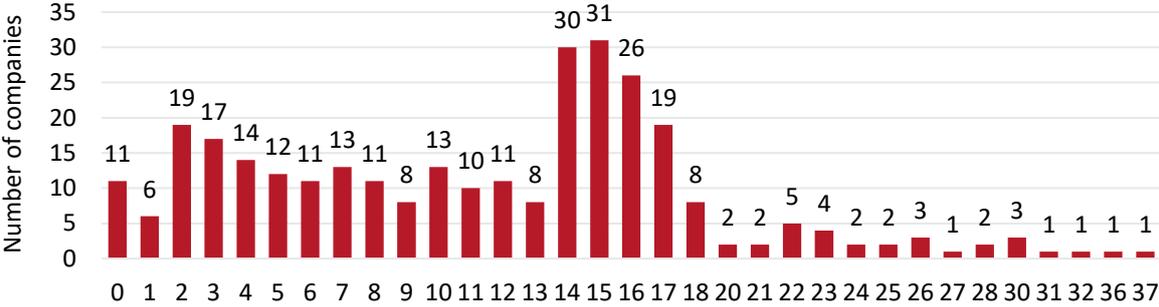
Source: own study based on data by GUS (Statistical Yearbook of Industry, 2017), PARP (LSI, as at 31 Dec. 2019), KRS (reporting data of entities for the year 2016).

* The data regard entities employing over 9 people.

** In the case of beneficiaries of OP SG sub-measure 3.2.1, the manufacture sold was approximate to data on the income from sale for the year 2016 or 2015 (with regard to applicants which submitted an application for funding in 2016).

Taking account of the age of beneficiary companies, a considerable diversity is observed in this respect. The average company age at the time of submitting an application for funding was 11 years (median:12). The share of young companies, which had been operating up to 5 years at the time of submitting an application, amounts to 25.7%, which should be regarded as a satisfactory result in view of financial possibilities to implement investments of a relatively large scale. At the same time the share of old companies which had been in operation for 20 years and longer did not exceed 10%.

Diagram 29 Distribution of companies by age at the time of submitting an application for funding



Company age at the time of submitting an application for funding

Source: own study based on PARP data, LSI, as at 31 Dec. 2019.

To sum up, indirect negative effects of support which result from sectoral bias or bias towards incumbents has not been identified. In both dimensions of the analysis (sector, age) there is desirable diversity observed, which—in the situation of territorial dispersion of beneficiaries - reduces a potentially negative impact of support under sub-measure 3.2.1 on competition.

Explanation of the defined support impact in view of fulfilling the key assumptions of interventions

This sub-chapter presents the explanation of the effects of support under sub-measure 3.2.1 defined and described in the previous sub-chapters. The research process at this stage appeals to the cause-and-effect relationships which have been already described and to key assumptions ascribed to the relationships and conditioning their occurrence. Further relationships are presented below and it is indicated to what extent particular assumptions have been fulfilled.

Cause-and-effect relationship 1: The funding contributes to SMEs implementing R&D results, which entails launching innovative products/introducing an innovative technological process in the company¹¹⁶.

Findings in the course of evaluation show that the mentioned cause-and-effect relationship has occurred. It is mainly indicated by preliminary results of counterfactual analyses, surveys of unsuccessful applicants, as well as information and data collected within the case studies. They confirm that the support has had a really favourable impact on the change in beneficiaries’ behavior, which involves the acceleration of implementations and probably a substantial increase in the scale of investments undertaken. This should be a preliminary conclusion due to the fact that the main analyses covered the scheme implementation over

¹¹⁶ The support impact on introducing innovative technological processes in the company has not been subject to verification within mid-term evaluation due to the fact that this outcome appeared along with amendments introduced into the calls for proposals which were conducted in 2019. In the course of evaluation the first call was in progress and it took account of that aspect but its assessment was bound to be limited.

2015-2018, which means that in the case of most projects, the investment implementation has not been completed yet. Despite the fact that the occurrence of the cause-and-effect relationship mentioned above has been verified positively in general, one significant reservation should be made. It refers to what was really subject to implementations within projects, notably what significance R&D activities had in this process. The information collected in the evaluation course shows that the results of R&D activities have not always been a key source and condition of the innovations planned to be implemented. In practice, the innovations planned within projects were often based on relatively simple research and development activities which constituted barely a small percentage or even permille of the investment project value. In many cases, innovations that were subject to implementation involved insignificant improvements of the products which companies had already offered. Obviously, there were exceptions to the rule, which was noticed within the case studies. The above is, in general, in line with the requirements of sub-measure 3.2.1, i.e. R&D activities were conducted following the definition which is formally applicable and consequently, the results of these activities were to be subject to implementation. However, it could have been expected that among the products co-funded under sub-measure 3.2.1 there would be more breakthroughs, which could stand out when it comes to the innovativeness level. The project selection criteria with regard to product innovativeness adopted in subsequent competitions refer to the problem above. They were amended in further calls for proposals¹¹⁷, nevertheless the assessment of projects submitted confirmed that the innovativeness level is limited. The average score for innovativeness of projects approved for funding was 3.2 points (within the scale 0-5), in subsequent competitions the score was even 2.2 points. (within the scale 0-4). The share of projects approved with the maximum score within this criterion amounted to barely 7%.

Verification of assumptions

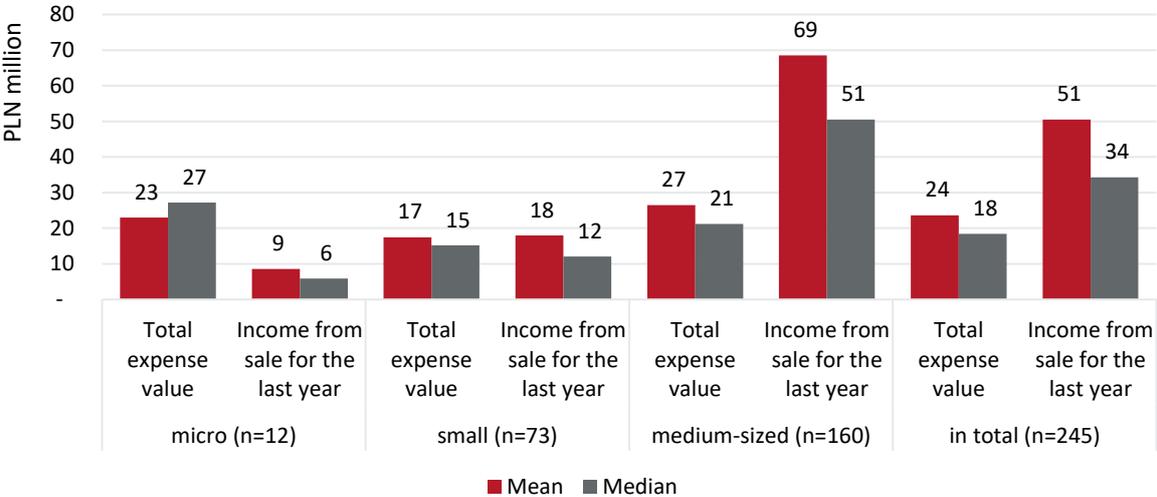
The first key assumption conditioning the cause-and-effect- relationship under discussion concerns the appropriate definition of market failure which is a lack of sufficient financial resources for investments in risky ventures implemented by SMEs. The statement that the assumption was fulfilled is based mostly on the scale of investments planned to be implemented relative to the scale of activities conducted which were measured in an annual income. The average value of total expenses assumed in the projects which had received the support accounts for PLN 24.6 million (median: PLN 19.4 million). Also, in the year prior to submitting an application for funding beneficiaries declared the income value at the average level of PLN 51 million (median: PLN 34 million).

Regardless of the selected measure examining the average project value, it is observed that projects planned to be implemented are – with regard to the company size – large

¹¹⁷ cf. „Ewaluacja systemu wyboru projektów POIR 2014-2020 – ocena wybranych zmian” [‘Evaluation of the OP SG project selection system – assessment of selected changes’]. Within the first two calls it was possible to obtain 0-5 points, within the third call and subsequent calls the scale and mode of assessment were amended – it was possible to obtain 0-4 points.

(ambitious) investments. In the case of some companies, the value of expenses assumed exceeded the value of income obtained several times. It is clearly seen when it comes to the size of companies. The value of expenses planned in micro-companies was on average about 2.7 times as much as the income in the year prior to submitting the application. In small companies the expenses planned were similar to the value of annual income obtained. In medium-sized companies the relations were reversed (the value of income obtained was on average 2.6 times as much as the value of projects implemented). However, the projects supported still constituted a very important share in annual financial operations of the company.

Diagram 30 The comparison of average project values with the value of income from sale by company size*



Source: own study based on PARP data collected within LSI system, as at 31 Dec. 2019.

*The date do not cover the first competition for funding - it did not collect date on the applicant's income from sale.

To sum up, based on the sources under analysis, it can be stated that these are the main investments made by most supported companies in this period (i.e. project period). Also, it is quite unimaginable that enterprises could have implemented investments on such a scale and within the duration predicted but for external support. It is also indicates that companies - to much extent - finance the investment from debt instruments (credits and loans) in parallel to the support granted. The above conclusions are additionally confirmed by the opinions of entrepreneurs within the case studies which have been already quoted. They do not hesitate to admit that without the support selected parameters of the investments planned to be implemented would have suffered, which is also in line with experts' opinions.

With regard to the reservation made on the limited significance of R&D activities for implementing investments and building up competitive advantages, it should be stated that it is rooted, among others, in the selection system of projects to be supported. The system fulfilled the assumption on excluding projects which do not meet the instrument

assumptions only to a minimum requested extent. It means that all projects supported were compliant with the formal requirements for access to the support but only a few of them went beyond the minimum. The evaluation of selection system has identified the problem in this area from the very beginning. Subsequent competitions introduced solutions aimed at tackling the problem (e.g. the requirement of attaching a statement of R&D activities conducted to the application for funding, which was introduced after the first competition)¹¹⁸, however they have not brought in the satisfactory outcomes expected. In the opinion of experts, it results, among others, from the fact that the criteria rely too much on parameters to which specialist consultancy companies adjust well-written projects which are difficult to be formally excluded. Obviously, during the instrument implementation further amendments in this respect have been made, however none of the solutions was a sufficient response to the problems identified.

The above question is also an effect of a low supply of projects fitting in with the theory of sub-measure 3.2.1. According to the results of the analyses conducted by the PARP in 2018¹¹⁹, the problem could have much deeper roots running to the limited capacity of Polish SMEs for the investments planned under sub-measure 3.2.1. The estimates made by the PARP indicate that the pool of innovative companies from the SME sector with an appropriate financial capacity which launch product innovations at the country level amounts to slightly over 6 thousand. Following findings presented within another PARP evaluation¹²⁰, only 16% of companies are truly interested in State aid for innovative activities. In view of this, PARP representatives have estimated the actual target group within sub-measure 3.2.1 at slightly over 1 thousand entities. So far such a number of companies have actually submitted to the PARP applications for funding under sub-measure 3.2.1. At the same time a systematic decrease in the number of applications submitted has been observed, which could be confirmed by the estimates presented.

Cause-and-effect relationship 2: As a result of including new products in the offer, companies gain an income from their sales and/or as a result of introducing new technological processes, activities carried out in the company have been improved/ the quality of activities have been improved, which, in turn, has contributed to the increased income from the sales¹²¹.

At the present stage there are only observed the first outcomes in question – most frequently the available data refer to projects which are still in progress or a small sample of

¹¹⁸ Cf. Ewaluacja systemu wyboru projektów PO IR – etap II, na zlecenie Ministerstwa Inwestycji i Rozwoju, Warszawa, 2017 r. [Evaluation of the OP SG project selection system – stage II, commissioned by the Ministry of Investment and Economic Development, Warsaw, 2017].

¹¹⁹ cf. PARP internal material – an analysis of interest in OP SG sub-measure 3.2.1, October 2018.

¹²⁰ cf. „Monitoring innowacyjności polskich przedsiębiorstw, PARP 2018. [Monitoring of Innovativeness of Polish Enterprises], PARP 2018].

¹²¹ The opportunity of funding for the introduction of new technological processes into companies refers to the latest competitions under the sub-measure (amendments introduced in 2019).

companies which have just completed the investment. Even so, the findings of the evaluation lead to stating cautiously that there should not be any problems with obtaining the income objectives assumed. The same opinion is also expressed by people coordinating the investment.

The main assumption in this area is related to the relevant investment decisions of enterprises at the stage of developing the project and planning the progression of company's sales strategy (i.e. a relevant definition of target groups/customers and a demand for a given product).

Following the results of the case studies already quoted, as well as experts' opinions, the majority of these projects are a consequence of the strategy adopted by the company. Whether with support or without it the company would have made attempts at implementing investments in question. Companies which implement projects are driven by their own interest, including mainly maximizing their profits. The rationality of actions also results from the limited support intensity, which amounted to 30-70% (on average 51.4%)¹²² in selected companies. In view of this it could be assumed that companies will make investment decisions which in their opinion and interest seem to be the best. Such decisions are additionally adjusted by a group of specialised experts at the stage of assessing applications for funding. This assessment, despite the imperfections described above, analyse in detail the market capacity of investments in question and it is a kind of additional protection against irrational spending financial resources. As a rule, this assumption has been fulfilled, although its full verification will be possible after a bigger number of products have been launched.

An unknown factor is of course the impact of COVID-19 epidemic on obtaining the objectives assumed. At present, it is not possible to define the scale of its negative impact on the group of entities supported.

Cause-and-effect relationship 3: The launch of innovative products improves the financial position and competitiveness of the supported SMEs.

The cause-and-effect relationship cannot have been verified due to the advancement of scheme implementation and a small number of projects completed. At the same time, taking account of the available beneficiaries' financial results, which have been already presented, and comparing them to the results of unsuccessful applicants, it is possible to cautiously state that there are no signs which could confirm that the relationship was not to occur. It is indicated by preliminary results with regard to the obtained income from sale and by selected indicators referring to the liquidity of companies.

Cause-and-effect relationship 4: The support for implementing R&D results increases the efficiency of the support granted with regard to the research stage of projects and it is an additional incentive for R&D activity.

¹²² According to the map of regional aid the intensity could have ranged from 20% to even 75%.

At the present stage it was not possible to confirm the occurrence of this relationship. Within OP SG priority axis I only single projects have been covered by sub-measure 3.2.1 so far (time sequence has been maintained - at first R&D within axis I, then implementations under sub-measure 3,2,1). People managing the scheme indicate that they are still expecting an increased number of projects within axis I to be submitted, especially projects which are about to be completed within the NCBiR Fast Track (OP SG 1.1.1). Also, there is some criticism that in practice funding provided within axis I satisfies the implementation needs of NCBiR beneficiaries¹²³. It might turn out that the time necessary for the acquisition of capital necessary for further large investment could be insufficient for the entrepreneur as for the present perspective 2014-2020.

Cause-and-effect relationship 5: In the long-term perspective the R&D results implemented successfully by beneficiaries translate into an increase in R&D expenditures in the economy.

A complete quantitative verification of the occurrence of this relationship is not possible due to the present advancement of the scheme. Preliminary analyses conducted with the use of the control group do not confirm a significant increase of innovative activity, including R&D activities conducted by beneficiaries. At the same time, the problems described in the report which concern, in general, a limited significance of R&D activities presented by beneficiaries under sub-measure 3.2.1 lead to deducing at this moment that the support effects in this respect will be rather limited.

Cause-and-effect relationship 6: In the long-term the increased competitiveness of supported enterprises and R&D expenditures will have an impact on the increased innovativeness and competitiveness of the whole economy.

Similarly to relationship 5, it is not yet possible to verify this cause-and-effect relationship due to the fact that the implementation of the projects supported is not advanced enough. The preliminary results in this respects are provided by the research commissioned by the PARP –Analyses of effects of selected OP SG & OP EP activities at sectoral and macroeconomic levels with the use of macroeconomic model. Following the evaluation findings, the support within selected OP SG instruments, in which sub-measure 3.2.1 has a bigger share, will increase over 2018-2021 Poland's GDP by 0.1% -0.7% (with its peak in 2019)¹²⁴.

¹²³ Cf. The results of the evaluation already quoted: Comparative analysis of instruments under OP SG measure 3.2 'Support for implementing results of R&D activities', PAG-Uniconsult, commissioned by the Ministry of Infrastructure and Economic Development, Warsaw 2018, p. 94

¹²⁴ Cf. „Analizy efektów wybranych działań POIR i POPW na poziomie sektorowym i makroekonomicznym za pomocą modelu makroekonomicznego. Raport z 1. fazy badania”, WISE Europa i Ecorys Polska na zlecenie PARP, Warszawa 2019. [**Analyses of effects of selected OP SG & OP EP activities at sectoral and macroeconomic levels with the use of macroeconomic model. Report on research stage 1', WISE Europa and Ecorys Polska, commissioned by the PARP, Warsaw, 2019**].

Cause-and-effect relationship 7: R&D results implemented by beneficiaries and increased production, which is related to the former, have a positive impact on the environment of beneficiaries.

Within analyses three possible areas of intervention have been distinguished at the following levels : 1) suppliers of technology, machinery and equipment for implementing the investments planned; 2) cooperators, suppliers, service providers, etc., cooperating permanently with beneficiaries in relation to their core activity and 3) entities supporting companies in the implementation of B&R activities related to both the project supported and ultimately further R&D initiatives.

Undoubtedly, at each of these levels, a positive support impact will materialize, however, its scale and sustainability is differentiated. In terms of time when the effects occur, the biggest advantage (material one) is observed in the first group of entities. Expenditures for tangible fixed assets constitute the vast majority of the costs related to implementing the investment. The support granted to beneficiaries reaches external suppliers very fast. As for the beneficiaries which were subject to the case studies, their suppliers have been leading European companies from machinery or high technologies branches. Unfortunately, following the declarations presented by experts and scientists taking part in the evaluation, Polish companies are not in a position to respond to the investment needs of this kind. It could be supposed that suppliers of technology will continue – at least in some cases – to cooperate with beneficiaries in respect of service and warranty.

As for the second group, comprising cooperators, the analyses conducted and the material collected allow to state that indirect effects of support for this group will be the most sustainable. This sustainability is only conditioned in a way similar to relationships 2 and 3. If beneficiaries keep developing thanks to the investment implemented, their cooperators will also take advantage. The first effects in this respect have been successfully identified, however, the early stage at which the assessment has been conducted made it impossible for the effects to be fully revealed.

Finally, when it comes to the last group – entities supporting beneficiaries in implementing R&D activities, the data collected make it possible to state that the indirect support impact will be insignificant (taking account of the volume of R&D commissioned and no change in beneficiaries' behavior in the area of R&D activities) and the least sustainable. It seems that the problem is to fulfill the second key assumption necessary for the materialization of this cause-and-effect relationship. According to this assumption, beneficiaries have to demonstrate a strategic approach to their own development based on innovations. It is worth referring to the results within 'Innovation barometer', in which only 21% of beneficiaries indicated that they have a strategy developed in writing, which covers, among others, implementing innovations in the company. Nearly 72% of beneficiaries declared that they possess such a strategy, however it had not been written as a document, the other 7% admitted to not possessing such a strategy at all. Although the figures quoted are not ideal, they may communicate that activities undertaken in the area of innovations are rather

casual, not well-thought-out in many respects nor based on a consistent vision and planning. As for conducting R&D activities, which lead to innovations, the latter approach is indispensable.

Cause-and-effect relationship 8: The effect of carrying out projects and implementing innovations and of improving the financial condition of companies is new jobs created (as for beneficiaries and their environment).

The verification of this cause-and-effect relationship could only be conducted in a short – term perspective (with regard to project duration). No significant differences between beneficiaries and unsupported entities have been identified in this respect. The complete verification of the occurrence of the above relationship, like other final intervention effects, will be possible after the completion of projects (within ex-post evaluation of the PARP aid scheme). It is worth noticing that following their declarations, beneficiaries observe a favourable project impact in this respect and that in the case of investments completed (a small sample), no difficulty in obtaining the values of employment indicators which were approved at the planning stage have been identified. Also, this relationship occurs due to the project impact itself as there is a need to generate additional employment despite the fact that processes within the investment implemented are partially automated. However, as indicated in the primary assumptions a key significance in this respect is ascribed to a general economic situation (including consequences of a downturn due to COVID-19 epidemic) and possible amendments in domestic regulatory environment of enterprises. It should be also stated that the employment planned in projects reported within subsequent competitions for sub-measure 3.2.1 has been observed to be on the decrease. Thus, a potential impact on generating new jobs will concern –to a greater extent – the projects approved within the first three calls.

7.1.4. Summary of implementing OP SG sub-measure 3.2.1

This sub-chapter summarises the conducted verification of the theory of change for sub-measure 3.2.1. It will further be a basis for the assessment of the instrument in terms of effectiveness, relevance and proportionality. Based on the information collected, an attempt to develop a forecast with regard to obtaining intervention objectives will be made. Taking account of the assessment conducted, proposals for improvement will be presented further in this report and they will concern both a short-term period and a subsequent financial perspective.

Effectiveness of State aid and its conditioning

Summing up all the results of the analyses and research conducted, it could be stated that:

The support granted under sub-measure 3.2.1 should be – in principle – regarded as effective, in the sense of a positive impact on beneficiaries’ activities undertaken with regard to the investments implemented.

The support set-up has notably had a favourable impact on the volume of investments undertaken and on their duration (completion date). The scale of investments planned and the volume of available funding were significant in this respect. Despite the fact that the majority of investments supported would probably have been implemented by companies, it is necessary to admit that State aid has triggered a desirable incentive effect and has an impact on the volume of projects supported and the pace of their implementation, which is extremely important while launching innovations. It has been estimated that thanks to the support it was possible to postpone the investment implementation by slightly over two years. Bearing in mind the high probability of implementing investments in question¹²⁵ (at least partially) without State aid, it can be stated that it resulted from the structure of sub-measure 3.2.1 itself and from conditions to be fulfilled by applicants at the stage of applying for the support. As a rule, funding could be granted to entities which have the capacity, including financial one, necessary for implementing investments in question and which have a great financial stability¹²⁶. In view of this, it does not come as a surprise that companies decide to implement the investment even in the case of a negative support decision. In this process another important factor is companies' determination, because – as it has been previously mentioned in the report – investments implemented are often a consequence of a well-thought-out strategy of the company's development. OP SG support turns out to be a useful accelerator, which is a kind of protection against a significant limitation of the companies' ability to implement other investments.

Every time the investments co-funded will end up launching an innovative product.

However, the data under analysis indicate that one could have a sense of insufficiency when it comes to the innovativeness level of products which are to appear as a result of investments implemented. A considerable number of them involve improving parameters of the products which are already on the company's offer. From a formal point of view, every time they result from the R&D activities conducted, however, in practice the research conducted and its results will be rather of limited significance in the context of building up competitive edges. The main, positive impact of the project is very likely to be revealed as a result of important improvements made in companies in the form of setting up new production plants or extending the existing ones (the primary investment), including new technological lines installed, new equipment purchased, etc. Under sub-measure 3.2.1 the companies have invested in the-state-of-the-art technologies, which will enable them to increase both their efficiency and scale of operations. Surely, it will also allow, at least some of them to enter new markets, increase the number of cooperators, or it may even facilitate further development with regard to the products offered.

¹²⁵ Based on statements of unsuccessful applicants, it is possible to foresee that about three quarters of projects would have been also implemented by beneficiary companies without the support.

¹²⁶ Cf. Project selection criteria – among others, substantive criterion No.5: *The applicant is in a position to finance the project: It assesses whether the Applicant is in possession of appropriate financial resources to cover all expenditures within the project. The Applicant has to be at the disposal of financial resources sufficient for implementation of the project, for ensuring its liquidity, taking account of funding [...].*

Unfortunately, the value added of R&D results implemented in projects is limited in view of the innovative capacity of products developed. The problem is rooted in a generally low supply of innovative projects which goes along with the lack of sufficient selection tools that would make it possible to more effectively exclude from the support projects which do not entirely fit in with the scheme theory adopted. As for the latter condition (the problem of more effective selection), further systemic improvements could be made, however, in the case of the low supply of projects, such opportunities are more limited (with regard to narrowing support to SMEs). The point is that generally there is a small number of entities which meet the access parameters under sub-measure 3.2.1 and which –at the same time– would be interested in obtaining State aid of this volume for the development of R&D activities. Following the PARP estimates, the number of such entities amounts to slightly over 1 thousand, so it corresponds with the number of companies which have already submitted an application for funding under sub-measure 3.2.1. In order to solve the problem it is necessary to introduce structural changes with regard to the key parameters for the intervention under analyses.

The new products are very likely to bring the expected value of the income from sale. It is indicated, among others, by preliminary conclusions from the results of monitoring project sustainability. In most projects there are no problems related to achieving the objectives assumed in this respect. However, due to the innovation level mentioned, which is lower than the expected, the growth resulting from the implementation of R&D results will not be a surge. A greater impact in this respect could be ascribed to innovative technologies introduced into companies to manufacture the product in question. In order to increase the significance of ‘innovativeness factor’ in the projects implemented and the outcomes obtained, it is worth considering whether the project assessment should not include the planned percentage share of the income from the sale of innovative products implemented relative to the total sales. A higher value of such an indicator could be rewarded in an appropriate way. Such an approach would make it possible to reward projects in which a specific innovation is very important for functioning the company and not only a pretext to obtaining support for technological development.

Consequently, the project impact on strengthening the innovative activity of beneficiaries, including R&D activities conducted in cooperation with external entities, will be limited.

R&D activities presented in applications for funding show that the capacity, readiness to incur high R&D expenditures and also presumably, opportunities for implementation or efficient outsourcing and approval of the research of this kind in the future are limited among beneficiaries. It is confirmed by the reporting data with regard to R&D expenditures incurred. In fact, beneficiaries do incur any R&D expenditures more frequently as compared to the control group of unsuccessful applicants under evaluation. However, in 2018 such activities were conducted by merely every fifth beneficiary supported. Moreover, a decreasing trend has been observed in this respect – in 2015 the expenditures for external R&D activity were incurred, more or less, by every fourth beneficiary.

Also, a further positive support impact on entities from the beneficiary's environment, such as their cooperators – suppliers and service providers is expected. If companies actually keep growing thanks to the investments implemented, entities cooperating with them will also benefit. Beneficiaries under sub-measure are mostly manufacturers of final goods, which use material and services provided by a wide range of cooperators. A particular group of cooperators, which most rapidly took advantage of the implementation of investments in question, consists of suppliers of machinery and technical equipment purchased within the project. The vast majority of them are European companies from the sector of high technologies, including machinery sector.

It is also worth distinguishing possible indirect positive effects at the level of selected geographical regions, namely medium-sized towns. Thanks to the competitions dedicated to these areas, which have been organised consecutively since 2017, it could be expected that the support will trigger positive effects related to achieving the objectives of regional and cohesion policies with regard to supporting innovativeness and competitiveness in Poland. The achievement of this goal could be also confirmed by the regional distribution of projects implemented. Over 37% of them are implemented in five voivodeships which are regarded as the poorest macro-region of Eastern Poland. However, to confirm a positive intervention impact in the regional dimension (including regional investment aid under sub-measure 3.2.1, it will be necessary to take some time.

Moreover, within the analyses conducted, indirect negative support effects, which result from sectoral bias or bias toward incumbents, have not been identified. In both cases under sub-measure 3.2.1 diversity is desirable, which –taking account of great territorial dispersion- limits a negative impact of State aid on competition.

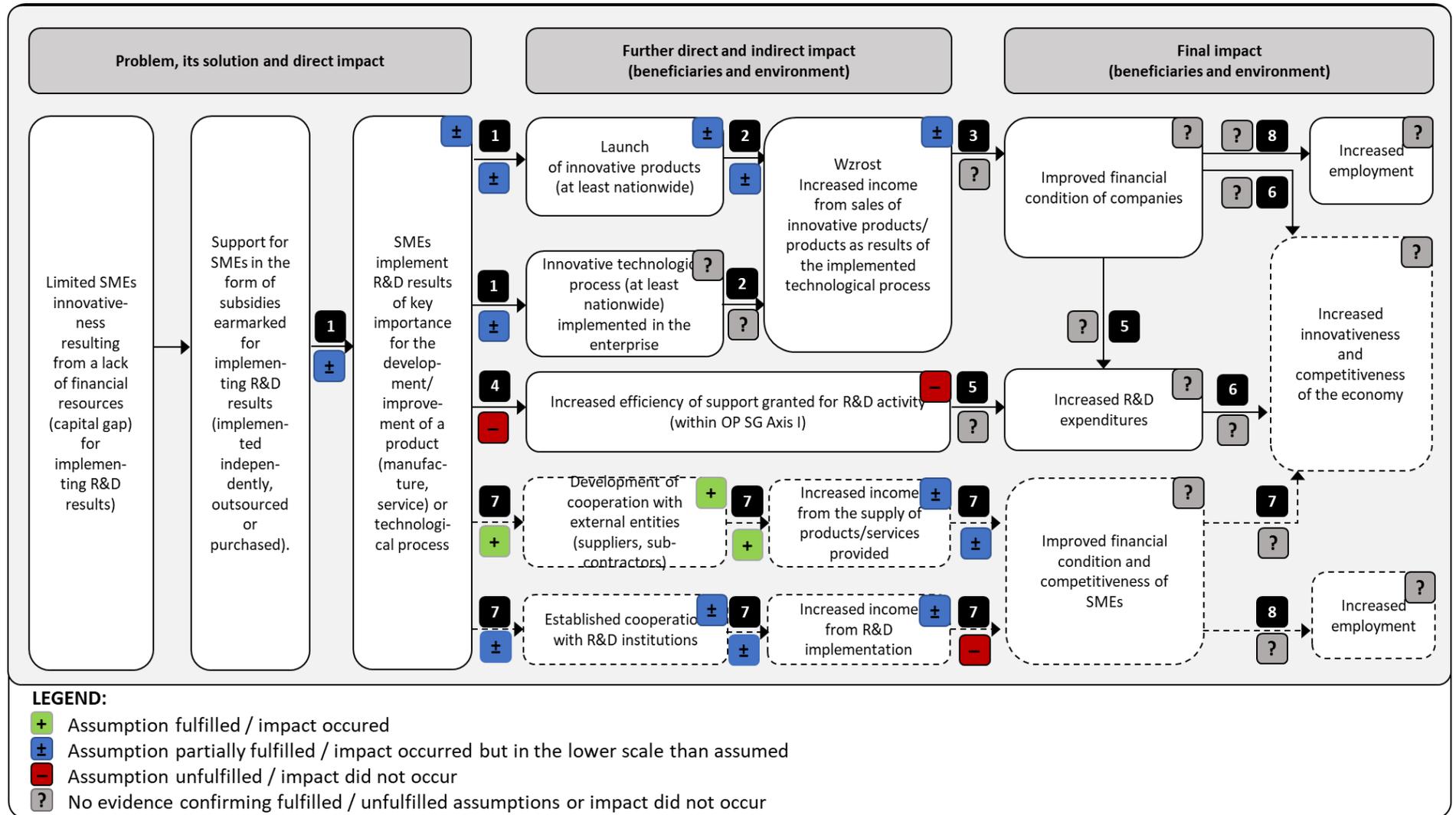
At the current level of OP SG implementation there is no synergy of sub-measure 3.2.1 with activities conducted within OP SG priority axis I. Also, the scale in which it may be revealed in the future is unknown. In this respect, the authorities coordinating the scheme implementation and external experts express different opinions. In the light of the available data, the synergy of both instruments of support for enterprises, which are implemented independently by the PARP (implementations) and NCBiR (R&D), has been observed incidentally (in several projects).

Taking account of the project impact of the long-term outcomes expected, including increased competitiveness and employment -also in the macro- scale - it is not possible to currently conduct a reliable assessment as there are no data available due to the fact that the instrument implementation is still in progress. Some information in this respect could be derived from the results of the research commissioned by the PARP on the impact of selected OP SG activities regarding the GDP level. What can be deduced from it is that the support for which sub-measure 3.2.1 is the main instrument (in value terms) will have a positive impact.

A summary of the statements above has been presented in the next diagram. It shows which elements of the theory of change have been materialized and to what extent it has occurred.

In this context the level of fulfilling key assumptions is depicted. Some elements of the theory, as previously mentioned, could not be subject to verification, which is indicated by a question mark.

Diagram 31 Logic diagram of OP SG sub-measure 3.2.1 – Market research – after verification of the theory of change



Source: own study

Predictions on the probability of achieving the instrument objectives after its completion

Following the data and information as at the end of 2010, there were no risks that the assumed intervention objectives, including the assumptions expressed by direct outcome indicators (with regard to the planned income from sales and employment) would not be achieved. It was confirmed by the current progression of instrument implementation, the present level of obtaining indicators and interviews with representatives of the institutions responsible for the instrument coordination and implementation. Similar conclusions are also made on the basis of the evaluation of mid-term OP SH material progress commissioned by The Managing Authority of the Programme and conducted in 2019¹²⁷. As for the expected final effects of support, some issues are still unclear, which is due to the time of conducting this evaluation research. The lack of clarity refers, among others, to the support impact on enterprises' competitiveness or a broader impact on the economy. Also, the economic downturn caused by COVID-19 epidemic has contributed to a great uncertainty.

Appropriateness of the support instrument

Sub-measure 3.2.1 is a continuation of the support instruments for enterprises, which were previously implemented by the PARP, such as OP SG measure 4.1 2007-2013 and a much earlier SOP IEC 2004-2006. To some extent the sub-measure, as a type of support, has permanently fitted in with a range of interventions targeted at Polish enterprises. However, it is not an instrument whose implementation involves mere copying the solutions worked out previously (obviously with the introduction of some amendments in subsequent perspectives, which results from priorities defined each time in a new way). As a matter of fact, this instrument is an important element of the EU Cohesion Policy implemented in Poland and it is related to the levelling of development with regard to particular European countries, particularly the development of enterprises. Differences in this respect still exist in EU State Members and they are revealed in such key indicators as e.g., the value of R&D expenditures and consequently, they indicate overall lower innovativeness and competitiveness of companies, including Polish ones. The limited innovative operations of enterprises, particularly in the SME sector, obviously result from different factors – a risk-averse approach, the lack of own financial resources for innovative investments, including a deficiency in capital and capacity, but frequently also the lack of awareness of how significant it is to introduce innovative solutions to business on a daily

¹²⁷ Ewaluacja mid-term postępu rzeczowego Programu Operacyjnego Inteligentny Rozwój 2014-2020, Konsorcjum LB&E, EGO, na zlecenie Ministerstwa Inwestycji i Rozwoju, Warszawa, 2019. [Evaluation of mid-term material progress of the Operational Programme Smart Growth 2014-2020, Konsorcjum LB&E, commissioned by the Ministry of Investment and Economic Development, Warsaw, 2019].

basis. The problems overlap with market failures – diagnosed in the programming and strategic documents - which assume the possible launch of State aid.

Sub-measure 3.2.1 has a great capacity for triggering a surge of changes in supported enterprises. It is reflected in the value of expenditures incurred relative to the volume of operations conducted in beneficiary enterprises, including e.g. the value of annual income from sale. The support targeted appropriately and the correct implementation of projects are really likely to trigger –and they do- effects which go beyond the entities supported. What is important, the measure makes it possible to implement projects in the scale and at the time which could not have been within reach for beneficiaries if there had been no access to State aid.

At the same time, there is no justification for making changes in the formula or type of the support offered. What notably results from the interviews with experts or administration representatives is that it would be unjustifiable to replace the aid in the form of grants with repayable instruments. Similar conclusions can be also made following the analysis of the case studies within which the projects were subject to a simplified assessment in view of the credit rating for implementing projects in questions. Three out of four projects would have had difficulty receiving repayable support, the fourth one could have counted on receiving it, however, the support acquired would have had a negative impact on the later operating activity. It means that the capacity for further investments would have significantly diminished or that opportunities of using debt instruments ((e.g. working capital credit) –providing that such a need had appeared - for supporting the company current activities would have considerably been limited. In the opinion of experts and state administration representatives, the most important argument is that replacing grants with repayable support would not arise a sufficient interest among enterprises, particularly with regard to the objectives of sub-measure 3.2.1. The supply of projects submitted to the PARP under sub-measure 3.2.1 has been lower than the assumed (except for the first competition) and it is on the decrease. It results from the objectives - which seem to be quite ambitious -as for the values of investments planned and a limited number of SMEs in Poland. In practice, it is such enterprises that fit in with the assumptions of programming theory under sub-measure 3.2.1.

The above findings are confirmed by the data on the overall innovativeness of Polish enterprises. Following the GUS data, over 2015-2017 only 12% of industrial enterprises and barely 5.4% of companies from the service sector launched product innovations. When it comes to small companies, which employ 10-49 people, their share was even smaller (it amounted to 6.8% in the processing industry sector and 3.8% in the service sector). It seems to be better in the case of medium-sized companies (50-248 employed persons), however, companies constantly introducing product innovations are in the minority.

Table 21 The share of companies which introduced innovations over 2015-2017 by the number of employed persons

SPECIFICATION		Enterprises which introduced innovations			
		product	process	organisational	marketing
		w %			
Industrial enterprises		12	15.3	8.4	7.5
Number of persons employed:	10-49	6.8	9	5.5	5.5
	50-249	21.3	26.7	12.2	10.2
	250 and more	45.1	53	31.3	24.2
Enterprises from service sector		5.4	8.3	7	6.9
Number of persons employed:	10-49	3.8	5.3	5.7	5.7
	50-249	11.3	20.3	11.3	10.6
	250 and more	24.1	36.7	23.2	22.6

Source: GUS, *Innovative activity of enterprises in Poland over 2015-2017*

It should be pointed out that the statistics presented by the GUS concern innovation in possibly a broad sense (i.e. new solutions for the company)¹²⁸. The objectives of sub-measure 3.2.1 were defined in a much more ambitious way because the supported enterprises are expected to launch innovative products at least at the country level.

Additionally, the GUS research into expenditures for innovative activity shows a decreasing trend (in the sector of industrial enterprises). In the year 2015 they amounted to PLN 31.1 billion, whereas in 2016 and 2017 – respectively PLN 28.3 and 28.0 billion¹²⁹.

Taking account of the above reasons, it should be stated that the relevance of the support under sub-measure 3.2.1, which is oriented at backing the implementations of innovative products, is general high. Having in mind the drawbacks of this sub-measure identified in the current financial perspective 2014-2020, it is necessary to better operationalize it, which means that solutions ensuring the compliance of the sub-measure implementation with the assumed theory of the scheme. Framework proposals in this respect have been presented further in the part describing recommendations.

¹²⁸ According to the general definition of innovativeness included in *Podręcznik OSLO - zasady gromadzenia i interpretacji danych dotyczących innowacji*, Ministerstwo Nauki i Szkolnictwa Wyższego, Departament Strategii i Rozwoju Nauki – Polish edition, 2006. [OSLO Manual – guidelines for collecting and interpreting data on innovations, Ministry of Science and Higher Education, Strategy and Science Development Department, 2006].

¹²⁹ *Działalność innowacyjna przedsiębiorstw w Polsce w latach 2015-2017*, GUS, Warszawa 2018. [Innovative activity of enterprises in Poland over 2015-2017, GUS, Warsaw, 2018.]

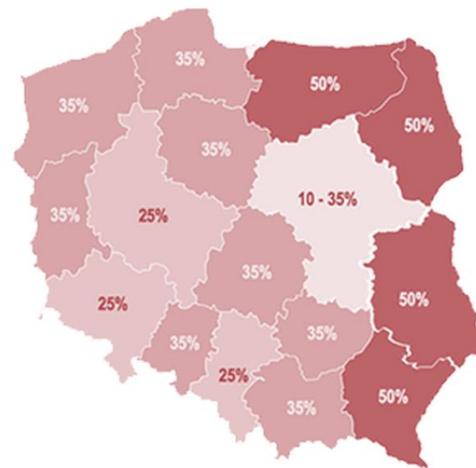
State aid proportionality

The assessment of aid proportionality must state whether the aid has been appropriately adjusted to the problem it concerned. Detailed evaluation questions in this area regard finding out whether it would have been possible to obtain the same effects with a smaller amount of State aid or its different form. In this context it should be pointed out that the aid intensity level is regulated according to the applicable map of regional aid¹³⁰

As for sub-measure 3.2.1, the aid intensity could reach from 20% to even 70%. According to the PARP aid scheme, micro-and small companies applying for the support were able to obtain an extra bonus amounting to 20%. In the case of medium-sized enterprises it was increased additionally by another 10%.

The competition rules have also specified the maximum intensity of the R&D aid which amounts to 35% of eligible costs for medium-sized enterprises and 45% of eligible costs for micro- and small enterprises. When it comes to consultancy services, the maximum aid intensity was 50% of eligible costs.

Diagram 32 The map of regional investment aid

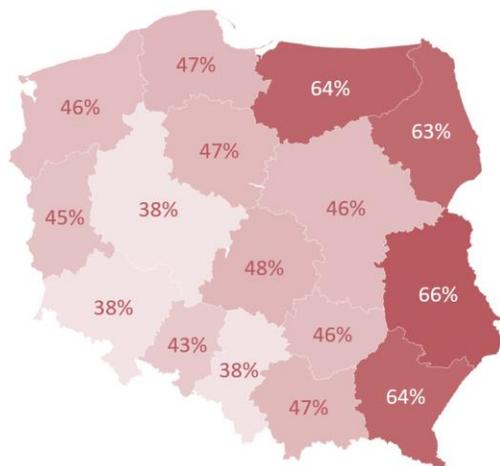


Source: PARP, website dedicated to OP SG sub-measure 3.2.1

In reality, the minimum value of the aid granted accounted for 30%, whereas the maximum value was 70%. The average aid intensity amounted to nearly 52% (median: 45%).

¹³⁰ Rozporządzenie Rady Ministrów z dnia 30 czerwca 2014 r. w sprawie ustalenia mapy pomocy regionalnej na lata 2014-2020 (Dz. U. z 2014 r. poz. 878). [The Regulation of the Council of Ministries of 30 June 2014 on defining a regional aid map over 2014-2020 (Journal of Laws from 2014, item 878)].

Diagram 33 The average support intensity by regions



Source: PARP, LSI, as at 31 Dec. 2019

At the regional level, the support intensity corresponds with the map presented. The values, higher on average by about 9-16% than the values presented in the diagram above naturally result from the bonus for the applicant's size, which is predicted in the regional aid map. The highest average support intensity has been observed in four voivodeships of the macro-region of Eastern Poland (on average 63-66%). The lowest average value of funding refers to projects from Śląskie, Dolnośląskie and Wielkopolskie voivodeships (38%). As for the other nine voivodeships, the average intensity of funding amounted to from 43% to 47%.

With regard to the assessment of aid proportionality, it is worth looking back at the problem which has always referred to the instrument under analysis – i.e. the interest in the support within sub-measure 3.2.1, which has been considerably less than expected. A range of initiatives have been undertaken to encourage enterprises to apply for grants (significant decreasing of the minimum value of eligible costs from PLN 10 million, subsequently to PLN 5 million and then to the present minimum level of PLN 1 million). The amendments have not influenced an important rise in interest. The reasons for the above have not been entirely recognised yet, however, it is stated that this phenomenon could result from the limited support attractiveness, also in financial terms.

Administration representative

Companies are more and more aware of the fact that it is not that easy, that someone will just write an application and we enter the scheme and that it is a happy ending. The truth is that it is just the beginning, and nobody knows how the story will come to an end. It seems to me that the approach to grants has changed in Poland as compared to what we had a few years ago. Commercial external funding is sometimes more attractive than, theoretically, money for free from grants. Here also companies analyse some things and in the end make the decision that they do not go for it and they don't want to boast about their investment.

Furthermore, it is worth paying attention to the fact that the actual intensity of the aid granted is lower than the one which is visible at the level of monitoring the support system. As for the cost of investment implementation, the enterprise has to include, among others, the consultant's support for preparing the application (quite a popular activity nowadays), the costs related to people engaged in supervising the project, settling it or to all processes of monitoring

the project. They also have to include the costs of risks related to implementing the investment with the use of State aid and to potential failures (sometimes due to insufficient awareness of how complicated the investment is, not due to an intentional activity). Finally, the beneficiary has to obey the investment implementation rules, also those with regard to obeying the defined procedures of selecting contractors and suppliers.

With regard to the above, it should be stated that the projects implemented involve - for the most part - purchasing tangible fixed assets for implementing R&D results. Following the scheme requirements, each purchase of co-funded tangible fixed assets has to be put into effect in the competitive mode (a duty of publishing procurements in the public competitive base), which is to minimize a potential risk of making the costs of implementations in question and the purchase of tangible fixed assets higher. The value of project costs is also subject to an in-depth expert assessment at the stage of project selection. In case there are suspicions that the costs have been inflated in relation to the market value, appropriate amendments are made or if they are impossible to be made (i.e. when the acceptable threshold is exceeded or when the applicant does not give their consent) the project is excluded from the procedure of obtaining the support. To sum up, it should be admitted that the aid granted under sub-measure 3.2.1 is proportional. A decrease in the aid intensity would definitely lead to even a less interest in using this instrument among enterprises and consequently, to the lack of opportunities to achieve its objectives.

Conclusions and recommendations for the support instrument

It should be clearly stated that the instrument which involves supporting enterprises' innovative activities is important and a similar intervention in Poland should be continued in the 2021-2027 financial perspective. There is no comparable solution which would address – in a similar way and scale – the SMEs needs and market failures related to them, which were identified within both the OP SG and the GBER regulation. The investments undertaken thanks to the grants under sub-measure 3.2.1 would be also difficult to implement on the basis of repayable instruments, and even if they were (in some cases), they would translate negatively into the functioning of companies due to a considerable debt burden and a credit capacity in the broad sense¹³¹ (limited opportunities for further development, subsequent investments, increased risks related to business in emergency states, limited liquidity, etc.). This argument seems to be more and more significant, especially in the present economic downturn caused by COVID-19 epidemic.

¹³¹ i.e. the sense which is not narrowed to the credit capacity defined at the stage of applying for debt support.

At the same time, the instrument limitations described in this evaluation, need some amendments, which will foster its effectiveness in achieving the appropriately defined objectives.

The weakest link in the verified theory of change regarding sub-measure 3.2.1 has been the significance (value added) of R&D results of investments implemented by companies. Both objective factors (the value of R&D expenditures incurred, the expenditure share in the investment volume) and subjective ones (the score given at the application stage with regard to innovativeness criteria, the opinions of experts and institutions in charge of the instrument implementation, the assessment made within the evaluation) show that the implementation of R&D activities mostly has been a contribution made to fulfill the requirements regarding access to the support. Obviously, from a formal point of view, all the projects supported met the instrument assumptions by implementing the research results which fitted in with the definition of R&D activities. At the same time the results of those activities are relatively easy to be reproduced in terms of both cost intensity and time consumption and in fact have rather low market value. The main strength of the projects implemented involves the mode of implementing large – from the perspective of the entities supported – investments in tangible fixed assets, including modern machinery parks and technical equipment. The R&D conducted will definitely have a favourable impact on achieving the instrument objectives, such as the increased competitiveness of beneficiaries and their environment. The results of macro-economic analyses also indicate the occurrence of positive effects for the economy, such as an increase in Poland's GDP.

Taking account of the above, it is worth considering in the future the two complementary options for the modification of the instrument.

Option I – maintaining the high significance (value added) of R&B component in the investments implemented

Assuming that the main instrument assumption – which indicates that the implementations of R&B results are the basis of the investments made – is still applicable, it is necessary to:

- Raise the expectations for R&D component. In principle, it is the R&D results whose launch is related to risks that should be subject to implementation. The financial support in this regard should be a kind of 'bonus' for such risks related to implementing an innovative solution. The support should not be granted when the risks do not exist or when they are so insignificant that it is possible to make an implementation with the use of financial instruments. Taking the above suggestions into consideration is really difficult within the adopted OP SG system. It is not enough to make amendments to the provisions regarding the criteria of project assessment or to modify the assessment system - such attempts have been already made in recent years and they have not brought desirable effects. In order to raise the significance of R&D activities conducted it

is possible to partially come back to selected solutions under OP SG measures 1.4-4.1, which were implemented in the previous financial perspective 2007-2013. In their cases, implementations (measure 4.1) were a direct consequence of the conducted R&D activities which were supported within the first stage of the project co-funded (measure 1.4). Both the R&D activities planned and the implementation were treated as a whole and they were subject to the verification by the funding institution and experts. Although this solution is also not free of drawbacks¹³², it allows to control to a greater extent what sort of R&D results are implemented.

- It's important to ensure in the next financial perspective (2021-2027) funds for implementing the results of R&D activities conducted in the current financial perspective (within OP SG priority axis I 2014-2020). Obviously, if the results of these activities are valuable in terms of unique solutions developed and if these assumptions on key business activity do not come out of date (also with regard to commercial demand for a given product, cost –effectiveness for a given technology and for materials or components used, etc.).
- With regard to the project assessment, applicants are definitely expected to indicate each time in the outcome indicators parameters characterising the products under development which prove its innovativeness or considerable improvement. The product parameters expressed in indicators have to be obtained as a result of the project implementation. The validity of the selection of indicators and their significance with regard to the scheme objective should be the key subject under project assessment. As a rule, the innovation parameters proposed have to be significant in view of real market value – on the one hand they have to be desirable for potential consumers/customers, but on the other hand they have to be brand new/unique. The mere improvement of the indicator value parameter related to the implementation of a given innovation cannot be the basis for its acceptance, and consequently for a positive decision on granting the support. Although, theoretically, these elements are subject to assessment within the present criteria set¹³³, the entrance threshold seems to be unsatisfactory, also when it comes to assessing the significance of new qualities and the functionality of the products for its potential recipients. As for the actual provisions of the assessing criterion applied to sub-measure 3.2.1, in practice, product innovativeness is difficult to be contested by the assessing parties. Currently it is enough to meet the criterion at the

¹³² It is necessary, among others, to estimate in advance the costs of implementations before real R&D activities are conducted. The problem is also 'freezing' funds for implementations and a risk of having to return the funds in case they are not used within the financial perspective.

¹³³ These issues, however, are assessed separately – within the criterion regarding indicators and within the criterion regarding product innovativeness.

basic level (it is requested to obtain 1 point out of 5 in the scale of assessing innovativeness) to have the project supported under the sub-measure.

- In order to increase the significance of ‘innovativeness factor’ in the projects implemented and the outcomes obtained, it is worth taking account of including in the project assessment the planned percentage share of the income from the sale of innovative products launched in the total sales of the beneficiary company. A higher value of such an indicator should be appropriately scored. This system would make it possible to reward projects in which a specific innovation is of great significance for functioning the company and it is not merely a pretext to receive a grant for technological development. The implementation of such a solution needs an appropriate monitoring system which- at the stage of signing the funding agreement- would explicitly define the consequences of not obtaining the income assumed* (the share of innovative products sales in the total income).
- To consider – with regard to the organic innovative capacity of Polish enterprises from the SME sector – expanding the support to mid-cap companies, i.e. entities bigger than SMEs in terms of employment but significantly smaller than companies traditionally regarded as large when it comes to the turnovers obtained,, especially as compared to companies from Western Europe. Following the data available, these companies have – in principle- a bigger capacity for implementing innovations. In general, this proposal meets the diagnosed organic supply of entities which are in a position to fit in with the requirements and expectations included in the theory of sub-measure 3.2.1. The proposal will be also fulfilled by changing the definition of SMEs, from which the criterion examining companies in terms of employment will be excluded. The employment criterion is becoming less and less significant taking account of solutions with regard to the so-called industry 4.0, which are spreading systematically. In view of this, it is also advisable to consider resigning from the employment volume as an obligatory outcome indicator in this kind of projects.
- It is also recommended to consider abandoning the excessive parametrization of project assessment in favour of solutions which recognise greater discretion in this process (in the good sense). It should be pointed out that the amendments made in the perspective 2014-2020, which involve, among others, the use of common expert panel assessment under sub-measure 3.2.1, have proved to be very good. It is confirmed, among others, by the evaluation of the project selection system¹³⁴. The solution suggested here goes

¹³⁴ Cf. ¹³⁴ Cf. „Ewaluacja systemu wyboru projektów POIR 2014-2020 – ocena wybranych zmian”, PAG-Uniconsult, IDEA Instytut, na zlecenie Ministerstwa Inwestycji i Rozwoju, Warszawa 2019 r. [‘Evaluation of the OP SG project

further and entails subsequent necessary amendments in the project selection system in which appeals against the substantive assessments would be limited¹³⁵. At the same time the maintenance of transparency in the whole assessment process needs even more expert backing and increasing the democratization of the project selection process. With this aim, it would be advisable to establish a separate collegial body/assessing committee, which – supported by external experts, including those pointed at by the applicant – will conduct the final assessment of the support validity for a given project. The assessment of a given project made by the representative body with the commonly recognised mandate would be incontestable and it would be impossible to appeal against its results. As compared to the existing expert teams, the body would differ in its content (extension) and representation (participating representatives of the senior management from the unit providing the support). The assessment could take account not only innovativeness of a given product, but also its significance in the whole portfolio of projects which are currently implemented by the PARP. It would help, e.g. to avoid replicating the implementation of ventures with similar parameters or those which could disturb market competitiveness. It would be a good idea to pay attention to similar solutions applied to other systems which support innovativeness in Europe, but also in Poland¹³⁶. Also, as it is necessary to maintain high effectiveness of the assessment process, the solution suggested here could concern a narrower range of projects which focus on strategic and whose potential impact scale is large.

Option II – limiting the high significance of R&D component in the investments implemented or its eliminating

It is suggested that the implementation of an instrument similar to the present sub-measure 3.2.1 should be considered – as a solution alternative or complementary to option I. Under the instrument R&D activities in the projects implemented would not be so significant. Obviously, they could be additionally rewarded but they would not be the necessary condition for receiving State aid. The introduction of such an instrument is especially recommended in

selection system – assessment of selected changes’, PAG-Uniconsult, IDEA Instytut, commissioned by the Ministry of Investment and Economic Development, Warsaw 2019].

¹³⁵ Currently such a solution is not possible due to the applicable rules of the so-called implementation act –i.e. the acts of 11 July 2014 regarding the rules of implementing programmes within the cohesion policy in the financial perspective 2014-2020.

¹³⁶ Cf. An example of project selection system applicable in Denmark by the Danish Innovation Fund within the Programme Grand Solutions : Evaluation of the OP SG project selection system – assessment of selected changes’, MIR, 2019, p.90. A similar solution will be also used for financial instruments which were set up in 2019 within Norway Funds –cf. ,e.g. the instrument ‘ Environmental Technologies’

<https://www.parp.gov.pl/component/grants/grants/innowacje-w-zakresie-zielonych-technologii>

case the EC does not make a positive decision on expanding the support also to larger entities (i.e. if the actual SME definition is maintained).

The objective of such an instrument with reference to the outcomes expected would be the same as the objective of sub-measure 3.2.1, which is implemented at present (raising enterprises' competitiveness due to new investments in innovations), however, the way of obtaining it would be different. It would be – to a greater extent – consistent with what refers to most projects supported under sub-measure 3.2.1. Nevertheless, the support for enterprises with a limited R&D component would mean additional requirements which could address at the level of project selection system. Particularly, the following would be necessary:

- In the assessment to take account of the social utility of investments implemented, which is related to targeting the support at problematic issues. It could be done partially as a continuation of the approach adopted through the so-called dedicated competitions under sub-measure 3.2.1 (medium-sized towns, projects supporting accessibility) and partially as a promotion of solutions for implementing environmental innovations or those for transforming the national economy by modernizing it due to automation. In view of this, what could be expected is calls for proposals which could significantly contribute to solving important social problems, such as reducing pollution, limiting negative effects of accidents, adjusting plants to employment of the disabled, etc.
- Taking account of the above, such projects whose effect is waste production (e.g. packaging, foil, etc.) or projects which increase carbon emission/pollution should be excluded from the support in principle. The exception to the rule could be projects with a high value added and innovativeness at the above average level (worldwide).
- Following the evaluation results with regard to the project selection system within the OP SG, it is necessary to consider - in the option in question- *'adding a criterion whose goal would be to minimise the deadweight effect, which would involve co-funding projects which would be also implemented if the grant were not provided. In practice, it would mean that experts would assess whether a given project has a chance to obtain, e.g. debt funding in the banking sector and reject applications of this kind. This criterion could also reward projects of the highest technological risk, whose occurrence diminishes a chance to obtain debt funding in financial institutions and justifies a public intervention in this respect.'*¹³⁷. Providing such a solution would also reduce a potential negative impact of State aid on disturbing market competitiveness.

¹³⁷ Evaluation of the system of OP SG project selection – stage II, partial reports, MR, p.96.

8. Verification of the theory of change with regard to non-key instruments of the parp aid scheme – the most important results

This chapter presents a **summary of the most important results of the evaluation** conducted with regard to all instruments of the PARP aid scheme which are of non-key character, taking account of a potential impact of State aid on the market competition disturbances and on trade. The detailed results of the analyses for particular instruments are presented in the **appendix to this report**.

8.1. OP SG Sub-measure 2.3.1

8.1.1. Overall theory of change

Sub-measure 2.3.1 – Pro-innovation Business Environment Institutions (BEI) services for SMEs- is the first¹³⁸ among five instruments implemented under measure 2.3. – Pro-innovation services for enterprises. The support within this intervention group is supposed to serve for **enabling enterprises to get access to pro-innovation services provided by external entities** – by both state and private ones¹³⁹.

Within the instrument under analysis the support refers to the process of innovation introduction with the use of external consultancy services provided by **accredited Business Environment Institutions – the so-called Innovations Centres**. This function is held by entities selected within an independent procedure¹⁴⁰. The accreditation process is to ensure the high quality of services provided for enterprises.

The main **support outcome is supposed to be the launch of innovations which will be products or processes of technological character**. In a longer-term perspective a positive impact of activities conducted on the enterprises' improved economic condition is expected. At the same time a positive impact of projects under sub-measure 2.3.1 on further beneficiaries' innovative activity is expected.

Apart from the effects at the enterprise level it is expected that thanks to SMEs' cooperation with external service providers, **the professionalisation of these institutions (BEI) will be going on**. As assumed, it was to be expressed by BEIs transforming entirely into the market business

¹³⁸ In the second half of the year 2019 the sixth sub-measure was launched (2.3.5 – Support for SMEs in preparation for EU programmes participation – Eurogrants' Grants) under OP SG measure 2.3, however it is not subject to this evaluation.

¹³⁹ Cf. OP SG DDPA, September 2019.

¹⁴⁰ Cf. <https://www.gov.pl/web/przedsiębiorczosc-technologie/osrodki-innowacji> As at 5 Sep. 2019.

model. Moreover, the support under sub-measure 2.3.1 should also bring positive results at the level of entities which offer SMEs innovative solutions to be implemented (other companies, science units, etc.).

Monitoring indicators for this sub-measure also predict that the projects co-funded will have an impact on increased employment in the group of beneficiaries, however, this issue seems problematic as the instrument objective defined by this indicator misses its real possibilities¹⁴¹. Ultimately, it has been decided in this respect to substantially reduce the original expectations expressed in the target values of employment indicator in the course of scheme implementation.

8.1.2. Summary of the implementation up to now

Under sub-measure 2.3.1, by the end of 2019, 4 calls for proposals had been carried out altogether, which resulted in signing **308 funding agreements**. Most of them (over 86%) were a result of the two last competitions organised in the second half of 2017 and in the first half of 2018. At first, the intervention did not raise much interest and the level of selecting projects under sub-measure 2.3.1 was quite high¹⁴². A breakthrough in the instrument implementation was noticed when funding for covering the primary investment costs was introduced into the third call. It resulted in a sharp rise in applications submitted and in funding agreements signed. By the end of 2019, 51 projects had been completed, which constitutes about 17% of all the agreements signed.

Under sub-measure 2.3.1 no further competitions have been foreseen.

¹⁴¹ This issue was commented upon in, among others, a series of evaluations of the OP SG project selection system, carried out over 2016-2017 and commissioned by the OP SG Managing Authority, which pointed out that in the case of sub-measure 2.3.1, the ascription of the outcomes expected, such as increased employment was exaggerated – especially taking account of the scale and type of support offered. Cf.: 'Evaluation of the OP SG project selection system – stage I, partial report II', consortium: IMAPP, Idea of Development Foundation, PAG Uniconsult, the Jagiellonian University- Centre for Evaluation and Analysis of Public Policies, commissioned by the Ministry of Investment and Economic Development, 2017.

¹⁴² Following the results of the evaluation: 'Evaluation of the OP SG project selection system 2014-2020 - the assessment of selected amendments', the Ministry of Investment and Economic Development, 2019.

8.1.3. Assessment of the sub-measure 2.3.1 implementation

Effectiveness of State aid and its conditioning

Taking account of the accessible data and the advancement level of implemented sub-measure 2.3.1, it should be pointed out that the present effectiveness assessment could be merely preliminary¹⁴³. The two levels ought to be considered in the assessment – beneficiaries of sub-measure 2.3.1 (SMEs) and institutions providing them with pro-innovation services (BEI).

Based on the information accessible, it can be foreseen that at the level of beneficiaries, the assumed objectives of sub-measure 2.3.1 expressed in direct income indicators will be achieved, particularly in respect of implementing technological innovations. Defining the level at which these implementation will translate into measurable financial results is not possible yet at this moment. It is even problematic to the beneficiaries of projects completed, which are under analysis within the case studies. At the same time findings gained in the evaluation course show that within the projects funded companies carry out more extensive investment plans which result from an overall development strategy. For this reason it is possible to assume that companies do their best to achieve business objectives with regard to the implementations planned. It should be also remembered that the support under sub-measure 2.3.1, notably with reference to the first two calls – i.e. without the investment component – was substantially limited. And consequently, companies had to entirely cover the costs of implementing innovations from their own financial resources.

The impact of State aid on investments implemented is mostly expressed in the pace of project implementation – but for the aid under sub-measure 2.3.1 they would have been implemented in most cases (about 70%), however, it would have occurred later. **Taking the above into consideration, it should be stated that the incentive effect has been fulfilled.**

The project impact on the increased innovative capacity of supported entities will be of indirect character. Taking account of the fact that the projects implemented within the OP SG are an element of the extensive company development process with the use of innovations, it should be assumed that if these projects become successful in market terms, they will confirm the appropriateness of the strategy carried out and they will be continued in the future. Also, it can be foreseen that projects under sub-measure 2.3.1 with the investment component will have a greater impact on the development of the companies' capacity for conducting innovative activity. When it comes to the projects within the first two calls, companies had to ensure that capacity by funding it from other sources or to possess it the moment they entered the project. The innovation implementation was expressed – in this case – in adjusting the existing production line more frequently to the investment supported than to the purchase of

¹⁴³ This situation is expected to significantly change in 2020.

completely new solutions. Projects with the investment component, in turn, determine a real development of the company's material resources, including tangible fixed assets which are the necessary condition in the innovation implementation process. Their lack could have been an obstacle in applying for grants within the first two calls.

The direct effect which will not be materialised in the scale originally assumed is new jobs created. At the same time it should be expected that the projects with the investment component could have a greater impact in this respect. In the case of projects from the initial phase of implementing sub-measure 2.3.1 (the first two calls), the expectation that the support impact on employment will occur has been exaggeratedly included in the instrument in question. It should be also pointed out that as for micro- and small companies, the development with the use of innovative solutions goes along with the cost optimisation process. The expectation of increased employment is not always justified in this situation. In view of the above, the limitation of the target value of direct outcome indicator, which concerns this issue, should be assessed positively.

At the level of effects concerning BEIs, it can be expected that the intervention effectiveness will be limited and differentiated at the same time. The limitation results from the fact that a relatively small group of BEIs has been engaged in providing pro-innovation services under sub-measure 2.3.1. Out of about 60 accredited institutions, only half of them (32) were selected by companies for assisting in the process of implementing innovations. In addition, there are big differences within the group itself – about half of them were engaged in a small number of projects, which means that the impact of the support granted with reference to the demand for developing BEIs' capacity and for shifting to a typically market activity will be limited.

In the case of BEIs which are more engaged in providing pro-innovation services under sub-measure 2.3.1, possible effects will be also differentiated. Some BEIs are exposed to the risk related to the fact that the observed increase in capacity and activity scale could be temporary and limited to the OP SG duration. It notably refers to entities which entered the accreditation system with a relatively insignificant capacity. Obviously, there is a chance that implementing several or a dozen pro-innovation services will allow them to achieve the right critical mass of positive factors for business development, including those with reference to BEIs' recognisability, establishing an extensive network of contacts, gaining customers, etc., however, it is not possible to determine it at the mid-term evaluation.

Also, it is necessary to be aware of the fact that BEIs are also engaged in the implementation of other instruments, similar to sub-measure 2.3.1. Moreover, in Poland there are two parallel

accreditation systems for BEIs in which these entities are active as well¹⁴⁴. Therefore in order to see a big picture of the impact of interventions co-funded within the framework of EU cohesion policy on achieving the objectives defined in the Partnership Agreement 2014-2020 with reference to business environment in Poland, it is necessary to adopt a definitely more complex and horizontal approach. However, at the OP SG level, it should be stated that under sub-measure 2.3.1 the scale of intervention impact on building a sustainable system of business environment institutions will be limited.

Appropriateness of the support instrument

Sub-measure 2.3.1, like other instruments under measure 2.3, is based on a broader assumption that in the innovation implementation process enterprises need some support as for cooperation with external entities. **The justification for implementing the intervention in this formula has been presented by both representatives of the scheme administration and beneficiaries themselves in the course of this evaluation.**

In this context, an important aspect of implementing all instruments under OP SG measure 2.3, including sub-measure 2.3.1, is the fact that they are mainly used by micro- and small companies with a relatively lower capacity for launching innovations, which has been already presented while describing the relevance of sub-measure 3.2.1 – *Marker research*. Due to this, regardless of the support formula, it should be stated that the problem which should have been overcome by sub-measure 2.3.1 is still up to date and it should be addressed also in the future. Micro- and small companies are significantly deficient in resources for launching innovations. Such deficiencies refer to competence, time and financial resources. For this reason, an intervention oriented at reducing these deficiencies will be always useful in view of expanding this group of entities.

Another dimension of assessing the relevance is the instrument structure. As previously indicated, in the middle of implementation the scope of support was expanded by co-funding the primary investment costs. It has significantly influenced arising interest in the new instrument formula. Obviously, this fact is not enough to state – at the present stage of mid-term evaluation- which formula of implementing the instrument is better. It will be possible following a detailed analysis of the costs and effectiveness within the ex-post evaluation. At the present moment it is only possible to state that **both formulas applied to sub-measure 2.3.1 are – in principle- relevant, however they form in fact two different aid schemes addressed to slightly different target groups.** The former refers to companies with – at the beginning – have

¹⁴⁴ cf. The accreditation system of Mazovian Business Environment Institutions:
<https://innowacyjni.mazovia.pl/dzialania/institucje-otoczenia-biznesu/akredytacja-iob-2.html>,
As at 15 Oct. 2019.

a higher capacity for implementing innovations – it refers in particular to companies implementing product innovations which need the necessary production background such as machinery, equipment or technological lines. When it comes to competitions number 3 and 4 under sub-measure 2.3.1, the companies had a lower capacity in this respect. It is confirmed by the monitoring system findings, according to which a bigger share of micro-entities is observed within the last two calls. As for the first two calls, the presence of small and medium-sized companies was noticed. (although the overall number of beneficiaries was dominated by micro-companies). It is also reflected in financial characteristics of these enterprises in the period prior to submitting the application for funding. As a rule, the beneficiaries of the first two calls had on average bigger resources expressed in, among others, the balance sheet total and in the equity capital possessed. At the same time the scale of activities conducted by them, measured by investment expenditures and the net income, was bigger.

Considering similar aid schemes in the future, it would be advisable to decide where the support is supposed to be targeted. As for companies with a smaller capacity, it would be necessary to maintain funding for some primary investment costs. However, such a solution leads to limiting the access of *Pro-innovation Business Environment Institutions services* to a wider range of entities. Within the budget accessible and due to the higher cost absorption of the primary investment, it is possible to finance a smaller number of projects, which leads to asking a question about the support proportionality, which is described in the next sub-chapter.

Finally, **the third aspect of assessing the relevance of sub-measure 2.3.1 is the question of functioning and supporting BEIs.** The general assumption adopted for the OP SG under sub-measure 2.3.1 in particular, was based on the idea of supporting BEIs in the so-called demand model, whose ultimate impact was supposed to be marketing their activity. As revealed while analysing the effectiveness of sub-measure 2.3.1, this objective – if it is obtained in general - will concern only some BEIs. At the same time it will be - in nominal terms – a very small group. (several, maximum a dozen entities).

In view of the above, **it would be advisable to consider – in the first place – an alternative support formula for enterprises in which providers of pro-innovation services are also entities operating in the open market (i.e. without accreditation).** Such a solution has been functioning under sub-measure 2.3.5 – *Design for enterprises*, under which consultancy services, provided on the market rule, are funded in the following areas: 1) carrying out a professional project process aimed at developing a new design project and 2) implementing a new or significantly improved product (project facultative component). It is not demanded that entities providing consultancy services should be accredited or certified in any way. It is very important in view of the companies' access to a wide range of potential service providers, and it also significantly simplifies the instrument implementation system.

Secondly, **a change in the system of supporting** BEIs should be considered. Taking account of the indicated weaknesses of the demand model, on the one hand, and the importance of business environment for building a sustainable and valuable domestic/national innovation system, on the other hand, it would be advisable to consider **returning to the direct support for selected innovation centres**. The need for a similar solution is also suggested following the evaluation results with regard to the analysis of Innovation Centres' capacity (IC) and their impact on implementing the concept of smart specialisations in Poland. It indicates that *'in the case of highly specialised IC services provided on the basis of R&D infrastructure, it is necessary to address support directly to ICs, preferably to consortia of these units, including those established with science units, which act as applicants and point at specific groups of enterprises which will use the support from these centres (consortia). Such an arrangement will facilitate support concentration, concentrating expenditures and (as a result) concentrating the demand'*¹⁴⁵. Obviously, it is necessary to realize that not all pro-innovation services ordered by enterprises under sub-measure 2.3.1 demanded R&D infrastructure. Some of them (e.g. implementing IT systems supporting management in the company) are of relatively standard character. In their case, companies' orders which could be responded to by entities from the open market will be rather more efficient.

Aid proportionality

As for aid proportionality, it should be stated that what matters for the assessment is whether the aid covered the primary investment costs or not. As a rule, consultancy aid under sub-measure 2.3.1 is granted pursuant to Art. 28 of the GBER (Aid for supporting SME innovativeness) with the highest funding possible at the level of 70% of eligible costs. As far as the primary investment costs are concerned, they are funded pursuant to Art. 14 of the GBER (Regional investment aid), i.e. according to the regional aid map and funding from 10% up to 50% as well as with a potential bonus including the company's size (+20% for micro- and small companies and +10% of additional funding for eligible costs in the case of medium-sized companies). In practice, the average grant value under sub-measure 2.3.1 amounted to 66%, whereas in the consultancy component it was about 70% and in the investment component 62% respectively. The differences in this respect were not very big, though, which results from the prevailing share of micro- and small companies from eastern voivodeships, particularly from Podkarpackie and Lubelskie. In view of the above, assessing the aid proportionality is possible

¹⁴⁵ cf. 'Analysis of innovation centre capacity and their impact on the assumption (concept) implementation of smart specialisations in Poland', Final report. Consortium Policy & Action Group Uniconsult, Taylor Economics, commissioned by the Polish Agency for Enterprise Development, Warsaw, 2019

through taking account of the effects obtained, especially financial ones, related to launching innovations. Unfortunately, at this moment assessing this aspect is not possible.

The first conclusions can be made as for the analysis of occurring the incentive effect related to the fact of undertaking the investment itself. At the present stage, mostly results of the qualitative research indicate that **implementing the project without State aid – taking account of the assumed level of innovativeness and risks – would not have had a chance of obtaining funds on the commercial (debt) market.** It results from the companies' size and a cautious banks' approach to funding investments of this kind in the SME sector. Therefore the projects implemented under the instrument fit in with the definition of failure which is included in the OP SG programming documents and air regulations.

At the same time, taking account of the number of innovations implemented, it can be stated that in general, the instrument proportionality¹⁴⁶ has been declining over time. It is confirmed well by the evaluation results with regard to the system of OP SG project selection of 2019. Following the results, as for projects approved to be funded¹⁴⁷, the average number of innovations introduced has been rising in the subsequent calls. However, if it is viewed in the background of the value of the grants applied for, the opposite trend is observed. It results from the fact that the absolute support value per project increased due to including the primary investment in the funding. On the other hand, the first two competitions brought about a small number of agreements. **If it had not been for the increased support under sub-measure 2.3.1, the number of projects implemented within the last two calls would definitely have been comparable to calls number 1 and 2 (i.e. several times lower), which means that the assumed intervention objectives could not have been successfully achieved.**

The volume of support accessible for SMEs, also taking account of the maximum values of eligible costs foreseen for consultancy and the primary investment, is also assessed positively by BEI representatives. They point out that the currently defined level is generally well adjusted to the capacity of enterprises supported under sub-measure 2.3.1.

Taking account of the above, the aid granted under the instrument is question should be regarded as proportional to its objectives.

8.1.4. Conclusions and recommendations for the support instrument

The results of mid-term effectiveness, relevance and proportionality of aid under sub-measure 2.3.1 indicate that it is necessary to continue a similar support instrument for the innovativeness development of SMEs. It seems that a key issue in this respect is to focus on micro- and small entities in the formula taking account of cooperation with external entities

¹⁴⁶ Although in this respect it is also appropriate to refer to the efficiency criterion.

¹⁴⁷ For some of them the funding agreement has not been signed.

(service providers). What is problematic refers to the support scope (with or without the primary investment) and an effective model of cooperation with external entities.

In the first case, the appropriateness assessment shows that both models applied are justified and that they are relevant as for the objectives defined. However, each time the group of support recipients is slightly different. The first two calls under sub-measure 2.3.1 (without the primary investment) were about to force beneficiaries to possess a higher capacity for launching innovations. The last two calls (taking account of the investment support) fostered this process significantly, notably in the group of companies with a lower capacity, which brought about an immediate increase in the interest in sub-measure 2.3.1. The decision which model should be applied in the future should be based on assessing the support impact and the results of analysing the costs and effectiveness of both aid schemes (particularly projects with the primary investment, implemented from the last quarter of 2018 on), which will be possible at the stage of ex post evaluation, on the one hand and it should take account of the volume of accessible allocation of aid funds, on the other hand.

In the second case, it should be stated that there is a wiggle room for applying similar pro-innovation support for enterprises, which engages service providers – entities form business environment but only if market mechanisms as maintained as a whole (e.g. in the same way as under sub-measure 2.3.5 – *Design for enterprises*). In the ‘open mode’ companies should be appraised taking account of the outcomes of launched innovations.

At the same time, **taking account of the need for further development of BEIs, which play an important role in domestic/national innovation systems, it is advisable to consider departing (or partial departing) from the demand model of supporting these institutions.** The model in the present formula will not allow to build a sustainable system of business environment. Similar conclusions can be made following the evaluation previously mentioned with regard to the analysis of innovation centres capacity with regard to NSSs, which indicates reasonably that particularly in the case of highly specialised services implemented with the use of R&D infrastructure, the support should be directly targeted at BEIs, preferably at consortia of these units, also established with science units which act as applicants and point at specific groups of enterprises which will use these units’ (consortia’s) ¹⁴⁸support. The evaluators also point out that what will be significant for further and efficient development of innovation centres in

¹⁴⁸ cf. ‘Analysis of innovation centre capacity and their impact on the assumption (concept) implementation of smart specialisations in Poland’, Final report. Consortium Policy & Action Group Uniconsult, Taylor Economics, commissioned by the Polish Agency for Enterprise Development, Warsaw, 2019

Poland is also support for the BEI networking system – both among each other and with the environment, including the mentioned science sector. It suggests returning at least partially to solutions functioning in Poland in the past, such as the National Innovation Network¹⁴⁹. Taking account of the conclusions from the evaluation in question and the need for developing and strengthening pro-innovation business environment in Poland, the above suggestions should be regarded as justifiable.

In the end, with reference to the amendments made within the instrument, which involved including the primary investment in the support in question, **the scope of outcome monitoring system under sub-measure 2.3.1 should be broadened**. Particularly, it refers to the key OP SG indicator – ‘incomes from the sales of new or improved products/processes’.

8.2. OP SG Sub-measure 2.3.2

8.2.1. Overall theory of change

OP SG sub-measure 2.3.2 addresses the problem of insufficient scope of cooperation between the enterprise sector (SMEs) and the R&D area, as well as the problem of low intensity of know-how transfer to the economy, which results from the former. The instrument is also supposed to be a response to the insignificant R&D activity conducted by enterprises.

The sub-measure budget amounts to EUR 61 million, which constitutes about 4.2% of the PARP aid scheme budget. The main support objectives, which are reflected in output and outcome indicators are: an increase in the number of enterprises undertaking cooperation with science and research centres (836 enterprises cooperating with research centres) as well as an increase in the number of product and process innovations (1504 innovations planned to be launched as a result of the support, including 1170 product innovations and 334 process innovations). The indicator regarding private investments which are complementary to State aid for enterprises was defined at PLN 108.7 million.

The support involves co-funding R&D services for micro-, small and medium-sized companies (also with regard to design projects) which are provided by research centres and which contribute to developing new products (service stage I). It also takes account of co-funding the initial investment (investment stage II – from 2018 on). The projects concern technological innovations (product and process ones) in the sectors of production and services.

R&D services can be provided by public and private entities: science units (science category A+B), special purpose vehicles within a university or a science unit, university centres of technology transfers, enterprises with the status of R&D centre, accredited laboratories and

¹⁴⁹ cf. <https://poig.parp.gov.pl/index/index/1438>, as at 28 May, 2020

institutes functioning within the Lukasiewicz Research Centre. The services involve developing a new or significantly improved output (a product or a service, including a technology related to manufacturing / providing them) or a new design project. At the preliminary implementation stage (over 2016-2017), the services of research centres provided for SMEs also concerned non-technological innovations (organizational and marketing ones).

The initial investment refers to implementing an product or a process developed at stage I and it covers investments related to setting up a new plant, production diversification by introducing outputs previously unproduced in the plant as well as – additionally in the case of process innovations - investments with regard to the increased production capacity and the changed production process of the existing plant.

The instrument quality which is significant in respect of the scope and the objectives of this evaluation is the fact that it is based on the *de minimis* aid scheme as for the service stage and regional investment aid for the investment stage.

The intervention is assumed to translate into a rise in SME competitiveness and innovativeness and into strengthening relationships between enterprises and research centres. At the level of enterprises, the innovations implemented and the development of cooperation with R&D units should translate into economic effects in the form of increased revenues from sales of new products (and/or decreased costs of conducting activities), increased expenditures for innovations and R&D activities and the company's increased capacity for developing and implementing innovations based on cooperation with the R&D sector. The indirect support effects are also economic benefits gained by service providers (market validation of solutions, professionalization of activity, paths of cooperation with SMEs worked out by science units, improved financial condition, increased employment) and by other entities cooperating with the beneficiary (contractors, suppliers, customers). In the long-term perspective, the support granted within *Innovation vouchers* should – by assumption- translate into the increased intensity of the know-how and technology transfer from research centres to the economy (implementations of R&D results) and hence into its increased innovativeness and competitiveness. At the enterprise level, increased employment and increased B&R expenditures (including those for external research works in research centres) are also expected.

8.2.2. Summary of the implementation up to now

By the end of the last quarter of 2019, 668 agreements had been signed under the sub-measure. In particular years the agreements were concluded quite evenly for each quarter. The first agreements were signed in quarter IV of the year 2016 and by the end of 2017 the number of agreements signed was 277.

The distribution of support with respect to regions is uneven. It is clearly seen that the voivodeships: Mazowieckie (123 projects) and Śląskie (95 projects) have the edge. The fewest projects have been implemented in Opolskie (only 8 projects implemented) and Lubuskie (10 projects) voivodeships. The territorial distribution of the support results from the specificity of the sub-measure (cooperation of companies with research centres) and on the one hand it is conditioned by the entrepreneurship level in a given region, but on the other hand, by the existing institutional infrastructure, such as research units (including universities and research institutes, which are notably most often chosen for cooperation).

By the end of the year 2019, the total value of the agreements signed amounted to PLN 254 million. The grants for the projects were worth PLN 164 million. 407 projects have been completed (61%). For the other projects the completion date is 2020.

8.2.3. Assessment of OP SG sub-measure 2.3.2 implementation

Effectiveness of State aid and its conditioning

The results of R&D activities conducted within this evaluation allow to claim the following:

The support granted under sub-measure 2.3.2 can be regarded as effective with respect to its impact on the scope, scale and time of investments implemented. The evaluation results, including the research conducted among unsuccessful applicants, confirm the occurrence of the incentive effect. A positive incentive effect is mostly observed as for R&D expenditures. The results of analyses indicate a distinctive increase in the share of beneficiary companies incurring expenditures for external R&D activity (the increase by 27 percentage points as compared to 2015). In comparison with the results of the control group this increase amounts to as much as 29 percentage points (taking account of the decreased share in the control group, which – in the period under analysis - accounted for 3 percentage points).

Ventures result in implementing new products and processes. The results of counterfactual analyses confirm the support effectiveness in this respect. Additionally, the case studies show that the support within *Innovation vouchers* could be the first ‘trial’ stage for continuing the R&B venture and developing the product or process in a larger scale. In such a situation, the aid granted under sub-measure allows in, the first place, to start and test cooperation with the external research centre, and then to identify and minimize risk factors before implementing the strategy in a larger scale.

The processes implemented and the products launched are likely to translate into the increased revenues from sale. However, the research results at the current implementation stage are ambiguous. It could be assumed that the effect is likely to occur in the long-term, within a few years from the launch of innovations developed on. Nevertheless, it should be

remembered that for some projects (oriented at a decline in operating costs) a rise in sales is not a direct objective for undertaking R&D activities.

The support granted within *Innovation vouchers* translates into the development of external R&D activity (cooperation with the R&D sector), which has a chance – in a long-term perspective – to result in raising the companies’ capacity for developing and implementing innovations. It is notably indicated by the results of counterfactual research and the conclusions of the case studies conducted. Nevertheless, it has been observed that the intensity of cooperation between companies and research units tends to weaken soon after the project completion, which could result from the cycle of implementing R&D projects. In view of this, the sustainability of the relationships established with research centres needs to be additionally verified at the stage of ex-post evaluation.

At the present implementation stage it is not possible to verify the occurrence of the **long – term aid impact** on the improvement of SMEs’ (sub-measure beneficiaries) financial condition and on their increased competitiveness.

The intervention **moderately translates into positive effects for the closest environment and external entities.** The evaluation results indicate an increase in expenditures for beneficiaries’ external services, but it is not significantly bigger than the increase in the companies’ expenditures within the control group (the difference is 3 percentage points). Nevertheless, the results of the case studies show that with regard to some specific projects, it is possible to observe some measurable benefits for science units, such as an income from service sales, their increased capacity for providing services for business, developing paths of cooperation with companies, and possible market validation of the solutions developed.

The analysis of the sub-measure implemented up to now, as well as the interviews with representatives of the intermediary authority (PARP) conducted within this evaluation **do not indicate significant risks related to not obtaining the assumed targets for the instrument under evaluation.** It is also confirmed by the evaluation results concerning mid-term progress of the whole OP SG¹⁵⁰. However, the authors of the evaluation quoted point out that there is a risk of not obtaining the target value for the number of supported companies from underdeveloped regions and consequently, also for the number of enterprises cooperating with research centres. It is due to the methodology assumptions adopted at the stage of estimating target values. According to them, the average grant amount for which enterprises applied was lower than in reality¹⁵¹.

¹⁵⁰ Konsorcjum LB&E, EGO, Ewaluacja mid-term postępu rzeczowego Programu Operacyjnego Inteligentny Rozwój 2014-2020, MIR, 2019. [Evaluation of mid-term material progress of the Operational Programme Smart Growth 2014-2020, MIR, 2019].

¹⁵¹ Ibidem

Appropriateness of the support instrument

The main goal of *Innovation vouchers* is to establish cooperation between the sector of enterprises and the research sector, whereas the instrument itself is oriented at addressing the needs of SMEs which have no experience in conducting R&D activities and cooperating with research centres. The innovativeness of solutions is required, but its level is not assessed, therefore it is not an obstacle for applying companies which are inexperienced in R&D respect.

The results of the analyses which could be conducted at the present stage allow to assess the instrument as relevant. The support reaches mostly micro- or small companies, which are at a relatively preliminary development stage. These companies have little experience in respect of implementing R&D activities in cooperation with research centres (the results of GUS research show that in 2015 only 16% of the beneficiaries of *Innovation vouchers* incurred expenditures for external R&D activities). At the same time the results of analyses confirm an observed support impact on the companies' behavior in this area as compared to the control group. The case studies also allow to preliminarily assess the instrument as relevant. Following the beneficiaries' declarations, the support made it possible for them to undertake the first – or the first time in such a scale - activities in favour of R&D cooperation. As for the beneficiaries covered by the case studies, the instrument has fulfilled its role as a kind of help in testing the utility of this activity at a lower risk (thanks to grants) and it has also allowed to design further actions in a broader scale. In this context, extending the support by an investment component (investment stage II - from 2018 on) should be also regarded as relevant.

An obstacle identified within the evaluation (notably with regard to the case studies) which diminishes the relevance of the instrument assumptions is the procedure of selecting research centres based on the competitiveness principle. Its application is partially inconsistent with the business logic of ventures planned. This principle imposes an obligation of providing equal access to the information on a given SME order so that no service provider will be more privileged than others. In fact it means that earlier cooperation and consultation on project assumptions with the later service provider (research centre) is formally impossible. Taking account of the fact that such a business practice is frequently an important condition determining the final success in cooperation of the two parties and the venture efficiency, it seems that the optimum solutions in such cases would be tender with negotiations, in compliance with the Public Procurement Law.

Aid proportionality

Under the sub-measure, it is possible to obtain aid at the intensity of up to 85% as for the service stage and from 20 to 70% within the investment stage (following the regional aid map). The possible grant level amounts to: up to PLN 340 000 with regard to the service stage (with eligible costs from PLN 60 000 to PLN 400 000), up to PLN 560 000 for the investment stage

(with eligible costs which are not lower than the eligible expenditures at the service stage and not higher than PLN 80 000). In reality, the average aid intensity for the service stage was 81% (median: 85%) and the average grant amount accounted for PLN 236 000 (median: PLN 260 000).

Taking account of the actual sub-measure effects, the support granted could be regarded as proportional. The results of the case studies show that the grant amount at the service stage is appropriate to the activities undertaken and to R&D cooperation, although it is not always sufficient for the advanced product and for the implementation of strategy in a larger scale. Therefore, the amendment made in 2018 which makes it possible for beneficiaries to take advantage of the investment stage should be again recognized as relevant.

8.2.4. Conclusions and recommendations for the support instrument

Summing up the chapter on assessing sub-measure 2.3.2 – *Innovation vouchers* – one can clearly state that this instrument is relevant in view of the needs of Polish enterprises and the economy. Moreover, the preliminary research results show that it is also effective in respect of developing SME external R&D activity (cf. the results of GUS counterfactual analyses with regard to external R&D expenditures). No significant obstacles have been identified when it comes to implementing the instrument, except for the partial inappropriateness of the competitiveness principle for this type of business projects (cf. the assessment of support relevance), which has been already mentioned.

At the present evaluation stage, the results with regard to possible translation of the project outcomes into measurable economic effects for SMEs, which in turn, depend on the effective launch of innovation developed, are ambiguous. Due to their nature and support scale, the projects implemented within *Innovation vouchers* often need to be continued in a broader scale, which is confirmed by the case studies. However, it should be pointed out that it results from the support assumptions themselves, according to which its objective is to initiate R&D activities and cooperation with research centres. The need to continue projects in a broader scale means the occurrence of the expected behavior of companies and it could be regarded as a measurement of the effectiveness and sustainability of intervention effects. In this context, at the later stage (2024 - ex post evaluation of the PARP aid scheme), it would be advisable to consider assessing the investment component, introduced in 2018, with regard to its utility as an instrument of implementing and developing the solutions worked out by SMEs at the research stage.

The evaluation results show that the continuation of implementing the instrument in its present form is justifiable. The two-stage support scheme, which gives an opportunity to continue the project at further stages of the innovative process, should be regarded as relevant. The fact that *Innovation vouchers* is a kind of brand well-recognised on the market thanks to its

long presence is another argument in favour of the support continuation in its present form (apart from the observed positive effects which have been described above). On the one hand, it enables enterprises to plan projects in a longer perspective, and on the other hand, it makes it easier for the intermediary authority to effectively implement the instrument thanks to much interest.

8.3. OP SG Sub-measure 2.3.3

8.3.1. Overall theory of change

The objective of sub-measure 2.3.3 is to increase internationalisation of companies operating within the Key National Clusters (KNCs). This aim will be achieved by co-funding complex services targeted at promoting cluster's products, with special attention for the most advanced ones. The support directed to companies through the KNCs cover consultancy and training services, purchase of foreign R&D services and foreign trips for fairs and exhibition events, as well as economic missions. It is supposed to contribute to solving the problem of a low internationalisation level of Polish SMEs and the insufficient capacity for carrying out internationalisation processes on their own.

The short-term expected effect is the intensification of cooperation between cluster members and its coordinator. Using internal and external R&D activities, the KNC is to work out a joint product or a group of products and then to plan a joint strategy of foreign expansion. Making use of training and consultancy support, as well as trips for international fairs and exhibition events, the project participants (SMEs) establish new business relations which are to result in signing foreign contracts.

In the long-term perspective, the effect of internationalisation initiatives will be increase in export income among supported companies. The income-is supposed to improve the condition of companies engaged and to allow them to increase employment and to strengthen pro-export attitudes. When it comes to the cluster level, the relationships established with foreign partners are to strengthen its position on foreign markets and consequently, to increase its effectiveness at supporting its members' internationalization.

8.3.2. Summary of the implementation up to now

By the end of 2029, 29 funding agreements had been signed with clusters, whose total value reached nearly PLN 122 million, which constitutes 82% of the allocation planned. The projects have been implemented by 10 KNCs.

A direct support beneficiary is the KNC coordinator. It receives operational aid, settled in the form of lump sum at the level of 15.23% of the other eligible costs of the project. The support for a particular cluster member is distributed (transferred) in the form of *de minimis* aid or

State aid (Art. 27 of the GBER – Aid for innovative clusters or Art. 19 of the GBER – Aid for SMEs' participation if fairs)/ The most frequently chosen form of aid is *de minimis* –nearly PLN 105 million has been paid in this form, which constitutes 86% of the value of support granted.

Taking account of the fact that as at the end of 2019, 15 entities had the KNC status, sub-measure 2.3.3 has covered two thirds of them. It should be pointed out that not all of the clusters were interested in the sub-measure. As the PARP implementing department indicates, it could be caused by a good international networking of these clusters or by different strategy with regard to internationalisation.

By the end of 2019, only 4 projects had been completed – the vast majority of them are still in progress. Taking account of the fact that obtaining many assumed project effects (including the key ones: gaining foreign contracts and the income from exports) is, by assumption, shifted in time, making conclusions on the effectiveness of aid under sub-measure 2.3.3 at the stage of mid-term evaluation is limited.

8.3.3. Assessment of OP SG sub-measure 2.3.3 implementation

State aid effectiveness and its conditioning

Services supporting the internationalisation of SMEs, offered by clusters under sub-measure 2.3.3, have been assessed as an effective tool for establishing cooperation with foreign partners. The cluster coordinators have pointed out that without the support they would not have been able to provide similar services for their members. They have made positive remarks mainly on opportunities of going on trips, whose scale goes beyond their everyday activity. Trips for promotional events have been assessed very high by beneficiaries, whereas the opinions on the quality of consultancy services have varied. While one KNS pointed at the insignificance of such services for obtaining the project effects, another one regarded such support as indispensable and productive. It was underlined that the utility of consultancy is on the increase if it is directly related to the foreign trip planned, e.g. to the characteristics and culture of a given market, ways the offer for a given event are prepared. General trainings aimed at increasing pro-export competence of the project participants have been assessed less positively.

The service impact on the intensification of cooperation within the cluster has been assessed a slightly lower. It was due to not sufficient cooperation of enterprises in respect of preparing a consistent cluster offer in the projects under analysis and the lack of requirement with regard to such cooperation. On the one hand, sub-measure 2.3.3 is the only OP SG instrument within which KNSs can carry out their strategies and intensify cooperation among the members. The implementation of a joint project forces enterprises to intensify communication and experience exchange and to increase the scale of cooperation between KNS members and its

coordinator. It also mobilizes the company's own contribution into the project implementation. On the other hand, in the two projects covered by the case studies, enterprises were unrelated to each other and they prepared separate export strategies for their own products. In the projects started at very early stage of sub-measure 2.3.3 implementation, the composition of enterprises within supported project were changing, so it was difficult to cooperate in a stable way within the cluster. As declared by the PARP implementing department, the situation has improved in the projects implemented within later calls for funding applications.

Other problematic aspect of the intervention is selections and improvement of clusters' products. The support aimed at purchasing foreign R&D services for the needs of cluster's product development is not an obligatory element of sub-measure 2.3.3. In the case of the projects within the first calls, it was chosen relatively rarely. Nevertheless, beneficiaries, who took part in the case studies have pointed out that despite the lack of resources for R&D activities, the products covered with the support were improved and adjusted to foreign markets. For doing that they used outputs from internal R&D activities. Without the support granted entering the foreign market with the products (commercialisation) would not have come to effect. On the other hand, the case studies have indicated that the selection of enterprises for the projects under analysis was relatively accidental and the promoted products did not have to do a lot with each other. This aspect is not verified by the project selection system, which could mobilise (reward) applicants for creating a well-thought cluster offer. As the PARP implementing department indicates, the understanding of this matter was better among applicants of next calls, and subsequently cohesion of clusters' offers increased.

At the present implementation stage, the effectiveness of sub-measure 2.3.3 in respect of concluding foreign contracts by SMEs- cluster members -can be regarded as promising.

Ultimately, under sub-measure 2.3.3 as a whole, almost 700 such agreements are expected to be signed. So far concluding foreign contracts has been reported in the case of five projects (including four projects completed). The number of contracts within the projects completed amounted to 122 and in most cases it went beyond the beneficiaries' expectations. All ultimate aid recipients under sub-measure 2.3.3 (KNS members) in both projects analysed within the case studies have signed new foreign contracts (mainly in the form of letters of intent). It was successful due to supporting their participation in foreign promotional events. It is difficult to make conclusions on to what extent those agreements will translate into real business transactions (particularly in the uncertain situation related to the COVID-19 pandemic). They confirm, however, many relations established which could be a solid base for developing business cooperation. As KNS coordinators and entrepreneurs themselves point out, business relations established during foreign trips, even those of informal character, are one of the most important project effects. They allowed them to develop their offer based on recognised needs of foreign contractors. The relations established can translate not only into the sales of a given product, but also further cooperation in other contexts.

At the present implementation stage of sub-measure 2.3.3, it is difficult to make conclusions on level of income from export sales obtained by beneficiaries. They are obliged to obtain the indicator value assumed in the application within one year after the project completion. So far four beneficiaries have declared obtaining the total income value of PLN 125 million. Two of them have obtained the income four or five times as much as it was assumed in the application submitted. As for the income obtained within the projects contracted, its amount accounts for PLN 2134 million, i.e. 109% of the indicator target value defined at the level of sub-measure 2.3.3 which has been planned to be achieved by 2023. It should be indicated that obtaining the income from exports worth PLN 1900 million in total was planned within three projects implemented by one KNS. It means that the other 26 projects, implemented by 9 KNSs, have declared to obtain altogether only 20% of the whole income indicator which was planned. This phenomenon should be perceived as a risk element for obtaining the planned objective with regard to the income under sub-measure 2.3.3. Possible difficulties noticed in one entity could cause negative effects for the effectiveness of the whole sub-measure. It particularly raises some concerns in the unpredictable economic situation related to the COVID-19 epidemic.

Unknown effects on the income from export sales obtained by SMES- cluster members do not allow to make conclusions on the impact of these additional funds on the companies' condition and investment decisions. It is assumed that enterprises, encouraged by good export results, will keep investing in export activity and that their employment will be increasing. Some enterprises engaged in the KNS projects have observed a growth of new jobs (by 182 jobs per almost 500 jobs planned). Unfortunately, as it is seen following the interviews with beneficiaries, the growth of employment in their enterprises has been strictly related to the project implementation and it has not been sustainable. The ultimate aid recipients under sub-measure 2.3.3 (SMEs) that have been under analysis have declared that the project implementation under sub-measure 2.3.3 absorbs a lot of their attention and resources, so at the present moment they are not in a position to engage in another export activity. Their decision whether to continue such activities will depend a lot on the effects brought by the project.

Following the beneficiaries' declarations, the first long-term effects are observed in the clusters. Their position on foreign markets is strengthening and their image is becoming more and more recognisable. It is difficult to clearly make conclusions whether it is solely an effect of sub-measure 2.3.3, as they conduct extensive internationalisation activity (it is one of the criteria for their selection as key clusters) and are becoming recognised also thanks to other forms of international engagement. To make the obtained image effects sustainable, the sustainable presence of the cluster brand in international promotional events is also necessary. The observed weakness of sub-measure 2.3.3 in terms of image is the lack of its connection to the Polish Economy Brand. Consistent visual identification could be a hallmark also for KNSs

Appropriateness of the support instrument

The solutions proposed under sub-measure 2.3.3 have been assessed as relevantly fitted in with the challenges faced. The relevance analysis has been conducted in confrontation with the most frequent barriers for the development of SMEs' export activity, which were pointed at by experts from the world of science.

The first significant aspect which stops entrepreneurs from starting international expansion is the high risk level related to new, unknown markets. What could be a hindrance for them is exchange rate fluctuations and the uncertain economic situation. The support proposed minimizes these threats in the two dimensions. Firstly, it **offers financial aid which covers a great deal of costs related to preparing and initiating export activity** (on average 74% in the form of *de minimis* and 65% in the form of State aid for SMEs' participation in fairs). The entrepreneur can risk -in such circumstances - recognising a foreign market without having to involve considerable company's resources for these purposes. Secondly, **the support comes through the cluster as an intermediary** which - thanks to its experience and knowledge gained - can show solutions with a higher capacity for success in given conditions.

Enterprises entering new markets search how to build the competitive edge and become credible in the branch as a reliable partner. Taking account of the relatively poor image of the country on foreign markets, Polish enterprises are forced to use the hybrid strategy, i.e. competing by means of quality and product price. The promotion of products, conducted through the cluster, could be a response to the above challenge. **A consistent and attractive offer promoted under one banner is much catchier than individual marketing efforts.** Moreover, it also builds the national brand making it easier for entrepreneurs to enter the market.

A challenge for Polish enterprises, pointed out by the experts, is low competence in respect of conducting international marketing activity. It has been indicated that national brands often manage relations with customers or promotional activities with the 'fire-fighting' approach rather than with a reasonable, well-thought, long-term strategy. In this respect participation in foreign fairs or missions, where unprepared and unsupported entrepreneurs observe competitors instead of conducting effective selling activities, could turn out to be unsuccessful.

Sub-measure 2.3.3 responds to this challenge in three possible ways. On the one hand, **it offers consultancy and training support** which is aimed at preparing entrepreneurs for marketing tasks. The support weakness in this respect could result from the fact that there is no requirement for the tight relation of trainings conducted with trips planned (with reference to promotional events, target market) in which SMEs- training participants are to participate in. However, the beneficiaries' opinions, both KNS coordinators' and some entrepreneurs', point at the support utility in this respect. On the other hand, sub-measure 2.3.3 allows to fit **the**

entrepreneur in with a broader strategy of internationalisation conducted by the cluster and it fosters learning from the experiences of the whole network of enterprises. Finally, it **allows the entrepreneur to gain their own experiences during several foreign trips for promotional events.**

Aid proportionality

At the present implementation stage of sub-measure 2.3.3, it is difficult to make conclusions on the final project effects, so it is also difficult to refer their scale to the value of aid granted. Therefore the actual assessment will be based on the predicted effect levels which were written down in the programming documentation with reference to sub-measure 2.3.3. and at the level of particular projects.

As indicated in the part referring to the support effectiveness, the planned incomes from exports within the projects contracted have achieved the volume assumed within the DDPA mainly thanks to three agreements signed by one beneficiary, which has committed to implement 88% of the indicator target value under sub-measure 2.3.3. As for the three projects, it can be assumed that PLN 111 million of the income from exports will be generated per PLN 1 million of funding, whereas in the case of other projects it is planned that PLN 1 million of funding will bring PLN 2.23 million of an additional income. Although it is possible to think that the big difference is justified by the cluster activity branch (the largest projects are implemented within the cluster related to aviation industry), it should be also remembered that within some projects the income effect obtained was planned at a lower level than the value of funding granted.

As for the aid proportionality assessment of sub-measure 2.3.3 conducted in view of the planned incomes from exports, it is necessary to take account of several limitations of such an approach. **The beneficiaries' caution in defining their income planned as a target project effect – observed at the stage of submitting the application for funding – could result from the competition structure.** This indicator serves not only for monitoring effects, but also for settling the beneficiary with reference to the project implementation in material and financial terms. Although it is the cluster coordinator that is the entity which takes responsibility for the indicator implementation, the units which do generate the income are the cluster members. Taking account of the fact that it is possible to change participants in the project duration and difficulty in coordinating activities among many entities operating in different conditions, the income is declared (estimated) at a possibly low level.

It should be remembered that the data under analysis refer to the income planned (assumed in the project), not the obtained. It is difficult to state what implementation level the indicator will achieve in reality. Although the results of the two projects completed under sub-measure 2.3.3

allow to be optimistic in this respect, it is difficult currently to foresee the impact of economic effects of the global COVID-19 epidemic, which started in 2020.

Also, it should be stated that the export incomes in this case are not the best indicator of the effectiveness assessment of pro-export activities in question and consequently, it is difficult to assess the support proportionality with reference to them. Taking account of the complex structure of sub-measure 2.3.3, the incomes are the third order effects, after relations established and then official contracts concluded with foreign contractors. The sales of products on an entirely new market is a process demanding a lot of work and time from enterprises without export experience. The KNS project implemented could bring a financial effect for enterprises within the period later than one year after its completion (i.e. the period to which beneficiaries refer while reporting the export income indicator). The project of this kind generates mostly soft effects, such as established cooperation within the cluster, the joint offer developed, established foreign relations, the KNS position strengthened abroad.

8.3.4. Conclusions and recommendations for the support instrument

To sum up, the structure of sub-measure 2.3.3 has been regarded as appropriate for the challenges it faced. The implemented projects bring satisfactory short-term effects and allow to considerably optimistically look on the opportunities of obtaining long-term effects. However, the uncertain economic and social situation related to the COVID-19 pandemic has some significance as for the final effects. **The internationalisation support for KNSs should be continued.** At the same time the evaluation indicates that some areas should be modified as for the instrument shape.

Attention should be paid to the way the internationalisation support for SMEs is distributed. It is through the KNSs acting as intermediaries with the use of their capacity in terms of consolidation and organization. Such a form of aid distribution allows to administratively unburden the PARP and consequently, to implement the instrument faster and more effectively. The cluster coordinators know the branch in which they operate and the members' needs, that is why they can offer the support adjusted to them.

It is necessary to make the priority for creating a joint cluster's offer and consistent export strategy more significant. This is the element which distinguishes the instrument under analysis as compared to other pro-export measures and determines its relevance in the background of the SMEs' and KNSs' challenges in this area. This requirement should be executed more decisively as early as at the level of assessing applications for funding. Due to a particular significance of technologically advanced products in the offer of this group of clusters (the leaders selected by the Ministry of Economic Development that gained the KNS status), it is also necessary –in the project selection system - to pay attention to the application of internal and external R&D activities to the applicant's project. In the case of rewarding this type of project

elements, the appropriate indicator of monitoring effects of this support should be also planned.

As indicated previously in this sub-chapter, estimating – by the KNS coordinator - the planned income from exports as a result of activities undertaken in the project is related to a high risk. In the case of more complex projects, these effects of the third order (in fact these are indirect effects, not direct ones – as it is stated in the official theory of change for sub-measure 2.3.3) can be visible a few years after the project completion. Sub-measure 2.3.3. has many other objectives than translation into the condition of companies engaged. They are: strengthening KNSs, creating space for building up a consistent offer and strategy, as well as establishing foreign partnerships. **It is suggested that the export incomes obtained within the project should be excluded from the range of indicators referring to the project implementation and at the same time that these incomes should be monitored as one of evaluation indicators.**

It is also recommended to more tightly combine the offered training support with the foreign trips planned for KNs members. The assessment of KNS training support has indicated that there are no measurable effects of it and there are some doubts about its utility for entrepreneurs. At the same time the KNS coordinators and some entrepreneurs, like the experts, have pointed out that for enterprise beginners the development of pro-export competence in the broad sense is very important. Closer connection of training support to foreign trips planned for promotional events, which is required in the application for funding, could make its results more visible and translatable more easily into effects of further orders (including sales results on foreign markets).

It is necessary to coordinate sub-measure 2.3.3 with other pro-export instruments implemented within national and regional programmes. It seems that fitting cluster activities in with the image policy of Polish Economy Brand is particularly important. These efforts combined would strengthen identification effects of the two initiatives. Also, it is necessary to take care of greater separation (demarcation) and complementarity with regard to sub-measures 2.3.3 and 3.3.3. Due to relatively insignificant emphasis on creating a joint cluster offer under sub-measure 2.3.3, these instruments have become very similar to each other, so entrepreneurs could choose a more profitable (competitive) form of internationalisation (i.e. more attractive financial aid and lower costs of project service).

8.4. OP SG Sub-measure 2.3.4

8.4.1. Overall theory of change

The objective of sub-measure 2.3.4 is to support enterprises in the process of protection of industrial property (PIP) in the domestic, regional, EU or international mode, excluding notification to the Patent Office of the Republic of Poland in order to obtain protection solely on the territory of Poland and its implementation¹⁵².

The instrument is supposed to encourage SMEs for greater activity in the scope in question, which is to result in, among others, **an increase in the number of applications aimed at obtaining protection of industrial property (PIP)**¹⁵³ (i.e. patents, protection rights for utility models and rights by registering industrial designs).

Under sub-measure 2.3.4 two separate components have been envisaged. **The first one supports the process related to obtaining PIP.** It is also possible to finance costs of consultancy services, analyses, expertise as well as initiatives necessary in preparing for commercialisation process. However, it should be noticed that commercialisation itself is not the instrument objective (it cannot be the only project objective).

Within the second component – which ultimately has not been used by any beneficiary – the support was to facilitate implementing PIP, when the applicant acts in the proceedings initiated as the entity defending their rights and when the proceedings concern: a) invalidation of the patent, the protection right for the utility model or the right by registering an industrial design: b) revocation of the patent, the protection right for the utility model or the right by registering the industrial design.

Although the scheme intervention logic is focused on the objective involving an increase in patent applications, industrial designs and utility models, it should be noticed – which is indicated by other OP SG evaluations¹⁵⁴- that **from the economic point of view obtaining PIP is not the sole objective as such.** Obtaining protection rights (exclusive rights) is to result in gaining an appropriate competitive edge, which in turn leads to commercialisation of the subject of patent application and measurable financial benefits. Protection rights obtained should also foster gaining new business partners or investors. **The final effects of this process should be expressed in the overall company development.**

¹⁵² Cf. OP SG DDPA, the Ministry of Investment and Economic Development, version as at 6 Sep. 2019.

¹⁵³ Cf. 'Evaluation of OP SG project selection system – stage I, final report', the Ministry of Development, 2016.

¹⁵⁴ Evaluations of OP SG project selection system, Innovation barometer and others.

8.4.2. Summary of the implementations up to now

In terms of volume, sub-measure 2.3.4 is one of the smallest of all instruments implemented within the PARP aid scheme. Its budget is nearly EUR 7.7 million, which constitutes slightly over 0.5% of the scheme value. It is also reflected in the number of projects supported. By the end of 2019, 116 funding agreements had been signed, which have been implemented by 85 SMEs.

Under sub-measure the last call for funding applications finished on 12 June 2019. No further competitions are foreseen under this instrument, which results from the process duration related to obtaining PIP (the average period of project implementation is about 5 years). Subsequent calls would mean that some projects would be at high risk of not being completed before the acceptable date of eligibility for costs within the OP SG, i.e. before the end of 2023.

8.4.3. Assessment of 2.3.4 sub-measure implementation

Effectiveness of State aid and its conditioning

Under sub-measure 2.3.4, by the end of 2019, 116 projects (the overall number planned was 100) had been supported, within which about 371 PIP-related applications were submitted. They were mainly patent applications for innovation protection and applications for registering industrial designs (the overall number planned was 350)¹⁵⁵. **The scale of projects implemented and planned applications within these projects fulfils the current assumptions expressed at the level of OP SG monitoring indicators (even excessively).** However, it should be stated that original ambitions were greater in this respect. In 2015¹⁵⁶ it was assumed to support 450 enterprises and to submit overall 455 PIP applications. **Thus, it is clearly seen that the number of PIP applications planned within the projects co-funded is smaller by 100 and it constitutes 78% of the original target value. Moreover, the number of entities which will be ultimately supported under sub-measure 2.3.4 is almost four times smaller.**

Currently it is not possible to fully assess the effectiveness of projects implemented. The basic effectiveness measurement will be the number of domestic and foreign applications submitted to the Patent Office followed by potential financial effects for SMEs as a result of property rights obtained. Unfortunately, even in the first case, making conclusions on the effectiveness is very limited, taking account of the fact that the average project duration under sub-measure 2.3.4 is about 5 years. At the same time, based on the results of 'Evaluation of OP SG project

¹⁵⁵ Appendix No 2 to the OP SG DDPA – Table of direct outcome indicators and output indicators for measures and sub-measures, as at 12 Dec. 2019.

¹⁵⁶ Appendix No 2 to the OP SG DDPA – Table of direct outcome indicators and output indicators for measures and sub-measures, as at 28. Aug. 2015.

selection system'¹⁵⁷, **it can be cautiously assumed that the projects supported will be effective with regard to the objectives set – it is guaranteed by the ex -ante procedures of selecting projects, including by the set of assessment criteria adopted.** However, to empirically verify whether those assumptions have been fulfilled will be possible for most projects as late as in 2023.

Sub-measure 2.3.4 has not turned out to be effective with regard to the component related to supporting the process of protection implementation, as well as with respect to supporting commercialisation of the subject of application (possible supplement to the first instrument component). In both cases an opportunity of co-funding costs of these activities missed the enterprises' interest. It is due to independent factors (a high complexity level and a long time of PIP proceedings) rather than failures of the instrument itself or the procedures of its implementation. Taking account of the support for the process of protection implementation, it is worth paying attention to the amendments made to the Polish law at the beginning of 2020, which – similarly to solutions in other countries (among others, Germany, Switzerland, Portugal or Great Britain) – introduce courts specialised for protection of intellectual property¹⁵⁸. The amendments made with the aim of shortening the proceedings time could also have an impact on the number of the cases of this kind in the future¹⁵⁹. As for activities aimed at commercialisation of the subject of application, representatives of the scheme administration pay particular attention to the limited accessibility of service providers, which could support beneficiaries in this respect.

The analysis of the incentive effect conducted leads to the conclusion that most co-funded projects would probably have been implemented also without State aid. The support additionality is reflected in ensuring the right quality of the process in progress and – in some cases- making it possible for beneficiaries to expand the scale of projects implemented (e.g. by obtaining protection on a bigger number of markets). At the same time, sub-measure 2.3.4 is a kind of promotion of particular initiatives undertaken by SMES in the PIP area. **It could be stated -to some extent- that aspects related to promoting particular approaches and activities in the SME sector are with respect to sub-measure 2.3.4 as significant as the financial support offered to companies itself.** What is important, the instrument is unique in the national scale – there is no analogous solution within other operational programmes. It is also worth paying

¹⁵⁷ Cf.2. Evaluation reports on OP SG project selection system, commissioned by the OP SG Managing Authority (Ministry of Investment and Economic Development), including evaluations conducted by the consortium of entities: Idea of Development Foundation, IMAPP sp. z o.o.; Policy & Action Group Uniconsult Sp. z o.o. (PAG Uniconsult) and the Jagiellonian University- Centre for Evaluation and Analysis of Public Policies: 'Evaluation of the OP SG project selection system – stage I', Final report along with partial reports (2015);, 'Evaluation of the OP SG project selection system – stage II' Final report along with partial reports (2016-2017).

¹⁵⁸ Cf. Act of 13 Febr.2020 amending the act – Code of Civil Procedure and some other acts.

¹⁵⁹ The act is due to come in force on 1 July 2020.

attention to the fact that obtaining protection rights is always an element of a much more extensive and cost-absorbing process of introducing a given innovative solution to everyday business practice and that this process is also preceded by R&D activities or designing. In the view of the above, it is advisable to additionally pay attention to the fact that under the instrument the support covers projects of relatively the highest innovativeness level in the whole PARP aid scheme. Over 68% of them come from the sector of high and medium-high technologies (the average for the whole scheme amounts to nearly 46%).

At the stage of mid-term evaluation it is not possible to assess long-term support effects due to the present advancement of project implementation (10% of them have been completed) and the project specificity (they are completed the moment the application has been submitted). Potential effects with regard to commercialisation of the protected products (as previously mentioned – PIP is not the objective as such) could be assessed a few years after the support completion under the instrument. It will be difficult to see a big picture of long-term effects under this instrument, even within the ex-post evaluation of the PARP aid scheme planned for 2024. However, at this time it will be possible to find out the support effectiveness with regard to the number of applications submitted, which is the major instrument objective.

Appropriateness of the support instrument

Sub-measure 2.3.4 is a response to the **low activity of Polish enterprises in the PIP area**. It has been similar for years, with only insignificant changes on going. It is confirmed by data from both the Office of Patents of the Republic of Poland and the EPO (European Patent Office) over 2014-2018, when the average number of applications amounted from about 4 thousand to nearly 4.7 thousand application per year. As a rule, **Poland still holds the distant 31st place as for the number of patent applications submitted (data from the year 2018) per one million inhabitants (13.9)**. We have been outpaced by such European countries as Portugal (21.2), the Czech Republic (22.6), Spain (36) or Estonia (37). There is a big distance between us and the countries holding the top places on the list – Germany (332.2), Sweden (403.3), Denmark (411.4), the Netherlands (416,3) and Switzerland (955.9)¹⁶⁰

In fact, the EPO data show a constant increase in Polish enterprise' activity in respect of patent applications submitted and the number of patents obtained over 2010-2019. **However, the data indicate the co-existence of increased enterprises' activity in the area in question with the accessibility of State aid in this respect.** Particularly, it has been observed that a sharp rise in the number of applications submitted to the EPO coincides with a bigger number of projects coming to an end under OP SG sub-measure 5.4.1 (i.e. the counterpart of OP SG sub-measure

¹⁶⁰ Data from the EPO, as at the year 2018:

<https://www.epo.org/about-us/annual-reports-statistics/statistics.html#applications>

2.3.4). In addition, a considerable decrease in the number of application submitted is noticed along with the ending financial perspective 2007-2013.

The low enterprises' activity in the PIP area is related to low innovativeness indicators of the Polish economy. However, taking account of the fact that deficiencies in this respect are widely supported (among others, within numerous OP SG measures focused on supporting companies' activity in the RDI area, including the PARP instruments implemented within the aid scheme in question), it should be expected that this process will be accompanied by a rising demand also for the support in the area of procedures related to obtaining protection. Therefore the instrument such as sub-measure 2.3.4 is an important element (but a niche) of the system of supporting innovation policies in Poland.

In the light of the information collected, the PIP support granted under sub-measure 2.3.4 should be considered to have been and to be relevant. The problem it was supposed to address still remains up to date. As a rule, the support of this kind should be also continued in the next financial perspective. In this context, it is worth paying attention to benefits from maintaining the continuation of a given scheme, which is noticed by the authors of an evaluation devoted to OP SG effects in respect of R&D activities and implementations¹⁶¹. It was indicated in the evaluation that the continuation of support instruments contributes to their greater recognisability among entrepreneurs and to planning projects in a longer perspective.

Regardless of the above generally positive assessment of sub-measure 2.3.4, some improvements with regard to the mode of supporting enterprises' activity in the PIP area could be made, which is described in the part devoted to conclusions and recommendations.

Aid proportionality

Most eligible costs incurred by beneficiaries of sub-measure 2.3.4 (i.e. official fees related to obtaining the patent or any other protection right, the costs of services provided by a professional proxy and translations) are indispensable and relatively objective, i.e. if they had not been incurred, it would not have been possible to obtain the assumed project objectives. These costs are very differentiated, depending on the type of application and the countries within which protection is to be obtained. For this reason, under sub-measure 2.3.4 a great differentiation in the project volume is rightfully allowed¹⁶². In view of this, it should be stated that **it is not possible to limit overall costs of the projects co-funded and eligible costs. In most**

¹⁶¹ cf. The results of 'Evaluation of the first effects of OP SG support with regard to R&D activities and implementation of the results of R&D activities conducted in enterprises', LB&E, EGO S.C. commissioned by the Ministry of Development Funds and Regional Policy, Warsaw, 2020.

¹⁶² Eligible costs under sub-measure 2.3.4 could amount to from PLN 10 thousand to PLN 1 million

cases, they will be independent of the company applying for PIP. It should be also noticed that selecting providers of services with regard to patent applications, conducting proceedings before the competent authority with the aim of obtaining patents, etc. are in accordance with the competitiveness rules¹⁶³. Moreover, the expenditures planned in the project in question, including their value, are each time examined in detail by PARP experts at the stage of assessing the application for funding.

Under sub-measure 2.3.4, the maximum funding is defined at the level of 50% of the eligible cost value and on average it did reach this level in projects approved for grants¹⁶⁴. **Assessing this level with the question in mind: ‘ would it have been possible to obtain the same effects with a smaller volume/intensity of State aid or with the use of other form of aid?’, three issues should be considered.** On the one hand, the SMEs’ interest in PIP support which was less than the expected and relatively great companies’ determination to implement projects also without State aid (i.e. the potentially low incentive effect, as previously mentioned), on the other hand. Thirdly, the need to disseminate particular behavior related to PIP among SMEs. All the three factors balance each other.

It should be expected that a decrease in the support intensity would have translated into even a greater limitation of companies’ interest in the support. In this context, it is worth paying attention to the fact that in the previous financial perspective 2007-2013, under OP SG sub-measure 5.4.1 (i.e. the counterpart of OP SG sub-measure 2.3.4), with a similar implementation period and similar institutional implementation conditions, 431 projects had been supported ¹⁶⁵, hence over four times as many as at present. However it was accompanied by the actual average intensity of support granted at the level of more than 66%¹⁶⁶ as compared to the present 50%¹⁶⁷. Taking the above into account- along with the fact that if companies assess the support effectiveness and attractiveness they consider not only the support volume and its intensity, but also additional administrative burdens resulting from the project service – **it could be stated that further decrease in the support intensity would**

¹⁶³ Among others, the obligation to publish advertisements for the procurement in the Competitiveness Base: <https://bazakonkurencyjnosci.funduszeuropejskie.gov.pl/>

¹⁶⁴ Based on SL 204 data, as at 31 Dec. 2019.

¹⁶⁵ Beneficiary list of EU Funds 2007-2013, as at 31 Dec. 2018:

¹⁶⁶ In the previous perspective (2007-2013), under OP SG sub-measure 5.4.1, *de minimis* aid was granted - pursuant to the Commission Regulation(EC) No 1998/2006 of 15 December 2006 on the application of Articles 87 and 88 of the Treaty to *de minimis* aid (Oj L 379, 28.12.2006). In accordance with the Regulation, the aid intensity - depending on the applicant’s size and on whether the invention, industrial design or utility model was an effect of industrial or development activities – could have reached from 35% to up 70%. The highest intensity was foreseen for micro- or small companies if the invention, utility model or industrial design was the effect of industrial research conducted.

¹⁶⁷ The maximum aid intensity cannot exceed 50%, i.e. the intensity gradation with regard to the support has not been foreseen in connection with, e.g. the size of the entity implementing the project.

probably mean that the number of companies willing to apply for the support would be even smaller. In such a situation it would be advisable to return to the assessment of support relevance in the context of its overall efficiency. Now the administrative cost of this instrument service with regard to organising competitions, assessing and settling applications is for sure relatively high.

On the other hand, **the high beneficiaries' determination to implement projects in question-as previously mentioned – indicates that a large part of projects would have been implemented regardless of State aid. However, it would have been without the support for the quality of this process granted by a public partner.** Although there are no representative data accessible in this respect, it could be supposed – based on the statements of the companies' representatives under analysis in the case studies – that at least in the case of some projects, it would probably have been necessary to limit the scale of protection obtained, e.g. with regard to markets on which protection is in force¹⁶⁸.

Finally, the aid granted under sub-measure 2.3.4, apart from the direct support for enterprises, is a tool for the dissemination of greater SMEs' activity in the PIP area. It is particularly justified in view of the issue described above, which regards the high support relevance resulting from the unsatisfactory level of companies' activity in this business area.

Taking account of the above, it should be stated that the adopted support level in terms of possible amount range, relatively wide, and its intensity is appropriate and the support itself is proportional to the problem it concerns.

8.4.4. Conclusions and recommendations for the support instrument

The mid-term evaluation does not allow to make a complex assessment of the effectiveness of the support offered under sub-measure 2.3.4. Nevertheless, **the analysis conducted indicates that the aid granted is highly relevant and –in principle- it should be also continued in a similar form in the next financial perspective.** It can be assumed that in the Polish conditions it still will be a niche instrument used by the companies aware of their needs and active in the innovation field.

At the same time it is necessary to point out the instrument significance in view of promoting the above mentioned approaches in the group of companies where this awareness is limited. **Particularly, it is worth continuing and expanding activities on the edge of direct promotion which involve encouraging to use the PIP support with regard to such entities which in the**

¹⁶⁸ The conclusions of this kind are also made based on the evaluation conducted by WYG PSDB Sp. z o.o. 'OP SG impact assessment with regard to protection of intellectual property, MIED 2016.

present financial perspective have obtained intellectual property rights (e.g. beneficiaries of OP SG priority axis I, beneficiaries of sub-measure 2.3.2 –*Innovation vouchers for SMEs*).

What is important, it is necessary to maintain the low level of instrument complexity and to further simplify the process of both support application and implementation. Initiatives undertaken in this respect in the present perspective - particularly with reference to the funding conditions and the project selection system, including its relative stability over time – should be regarded as a good practice. Also, further initiatives in this area should serve for **the simplification of the settlement system, which has been noticed by selected beneficiaries. It notably refers to the projects of a relatively low value, for which the settlements rules are identical to projects several or even a dozen times as big.** It is a result of a quite wide range of ventures implemented. Now that, as the above mentioned, this solution – in principle - is justifiable, it would be advisable to consider modifying internal procedures which make it possible to introduce simplifications in respect of the settlements of projects with a relatively lower aid value.

Regardless of the above, it is recommended that **the formula of support for enterprises in the process of obtaining PIP should be complemented.** It would involve including grants for activities related to the protection procedures under the instruments which are directly oriented at the development of innovative products (i.e. under sub-measures 2.3.1, 2.3.2 or 2.3.5). A similar solution works, e.g. under OP SG sub-measure 1.1.1, which is oriented at supporting companies' R&D activity (the instrument included in the NRDC aid scheme) and which allows – within the so-called pre-implementation activities - to cover costs related to services provided by a patent attorney, obtaining a certificate and a patent (the first registration)¹⁶⁹. Similarly, as for selected instruments of the PARP aid scheme, a supplement could be activities with regard to PIP. However, it should not be an obligatory component. If the need for protection resulted from the specificity of the project implemented, a possibility to take account of these costs at the stage of applying for the support, would also allow to simplify the system of State aid implementation. A given entity would apply for support only once. Taking account of the possibility of funding such initiatives as such, would be also an element of independent promotion of PIP-related approaches.

¹⁶⁹ Cf. The Guide of cost eligibility for OP SG sub-measure 1.1.1 (The Fast Track): https://www.ncbr.gov.pl/fileadmin/POIR/1_1_1_1_2020/zasady_konkursu/4_Przewodnik_kwalifikowalnosci_kosztow_07_01_2020.pdf

8.5. OP SG Sub-measure 2.3.5

8.5.1. Overall theory of change

The intervention under sub-measure 2.3.5 – ‘Design for entrepreneurs’- is a response to an insufficient level of design processes used by SMEs in business practice and a narrow scope of companies’ cooperation with designers. In order to address these needs, under sub-measure 2.3.5, funding for consultancy services provided by professional designers is granted. These services are oriented at developing a design project which could serve SMEs for implementing a new or improved product. Additionally, the company might receive some support for consultancy and investments related to the product launch (implementation).

The instrument objectives reflected in output and outcome indicators are as follows: an increased number of enterprises establishing cooperation with designers (441 enterprises making use of consultancy services related to developing or implementing a new or significantly improved product), an increased number of design projects implemented (441 new projects). The target level of private investments supplementing State aid for enterprises was defined at the level of PLN 211.7 million. It constitutes about 69% of the budget earmarked for the instrument implementation.

The short-term support under sub-measure 2.3.5 should result in starting the company’s cooperation with the designer, which finishes with the successful design project implementation and the launch of a new or significantly improved product. New products on the market should translate into additional SMEs’ revenues from their sales. Thanks to the cooperation with the designer and the implementation of design innovations developed – as assumed in the instrument- companies will increase their capacity for using design projects as a source of competitive advantage. Projects should also translate into current benefits for the designer – companies providing design services and consultant-companies providing services related to implementing outputs, such as increased incomes as well as an increased capacity for further providing consultancy services for business.

In the long-term perspective, it is expected that the supported SMEs’ competitive position and their financial situation will improve. Thanks to the experience gained within the project and to the increased capacity, it is assumed that the companies will launch new innovative products with the use of design. The support is also to translate into sustainable cooperation of SMEs with professional designers.

8.5.2. Summary of the implementation up to now

By the end of 2019, within the ‘Design for entrepreneurs’, 319 funding agreements had been signed. All of them were concluded in 2019, most of which (about 62%) in the last quarter. The value of the agreements signed up to now amounts to PLN 327 million, whereas the funding

value is PLN 170 million. Hence, the declared level of private investments supplementing the State aid for the agreements signed, which accounts for PLN 157 million (i.e. 74% of the indicator target value under sub-measure 2.3.5).

By the end of 2019, 3 competitions had been carried out (1 in 2018 and 2 in 2019), (one of them dedicated to the programme Accessibility Plus). All projects (except for one completed in the year 2019) are still in progress. Due to the fact that sub-measure 2.3.5 was included in the PARP aid scheme relatively late, i.e. in 2018¹⁷⁰, this assessment of the instrument is preliminary as it could mainly base on qualitative research methodology.

In the regional structure, the support distribution is uneven. There is clear prevalence of Wielkopolskie voivodeship (67 projects). Noticeably fewer projects are implemented in western voivodeships. Companies from voivodeships of eastern Poland (Lubelskie, Podlaskie, Podkarpackie, Świątokrzyskie and Warmińsko-Mazurskie) have access to relatively similar support under measure 1.4 within the Operational Programme Eastern Poland – Design for competition'. According to the demarcation adopted, these companies are excluded from the support under OP SG sub-measure 2.3.5 until the allocation under OP SG measure 1.4 runs out.

The aid granted within the 'Design for entrepreneurs' constitutes 60% of *de minimis* aid (consultancy services) and 40% of regional investment aid (regional investment aid covers 67% of the projects implemented under sub-measure 2.3.5).

8.5.3. Assessment of sub-measure 2.3.5 implementation

State aid effectiveness and its conditioning

Based on research works conducted within this evaluation with regard to the present stage of sub-measure 2.3.5 implementation (as at the end of 2019), it can be stated that:

In the case studies under analysis companies effectively implement design projects. In the two projects researched into, the planned activities would have been conducted also without State aid because they were an element of a broader plan for the company's development. However, those ventures would have been shifted in time. Moreover, the support received within the 'Design for entrepreneurs' has given the companies an opportunity for the professionalisation of design processes which - due to market conditions and the type of

¹⁷⁰ The Regulation of the Minister of Investment and Economic Development of 25 May 2018 amending the Regulation on financial aid granted by the PARP within the framework of the Operational Programme Smart Growth 2014-2020.

products offered by these companies- have been carried out on their own but at the same time in a limited mode for financial, technical and substantive reasons.

In the case of both companies, the product developed have not been launched yet, therefore the economic effects, such as revenues from their sales could not have occurred. Nevertheless, representatives of the companies under analysis positively assess the significance of the projects for their enterprises' development. Despite the fact that the projects have not been completed yet and the products have not been launched (in one case a prototype has been developed, in the other one proceedings related to selecting the prototype contractor are still in progress), the entrepreneurs have noticed initial interest in the new offer, including among others, letters of intent and preliminary agreements.

The beneficiaries under analysis declare that the cooperation with professional designers, established within the project, translates into an increase in their capacity for implementing design projects and in awareness of their role in the functioning of their company. The change observed is reflected, among others, in further ventures of this kind, planned by the companies researched into. A significant factor fostering the effectiveness of support under sub-measure 2.3.5, which is pointed at, is including designers in cooperation with SMEs at initial (diagnostic) stages of the venture.

Predictions on the probability of achieving the instrument objectives after its completion

Due to the relatively early stage of implementing sub-measure 2.3.5, the assessment of the expected intervention effectiveness is not possible. The analysis of the current state of instrument implementation and the opinions of representatives of the PARP department implementing the scheme do not show, however, that there are significant risks of not achieving the sub-measure 2.3.4 objectives. It results from among others, great popularity of the 'Design for entrepreneurs', which has made the amount of over PLN 90 million be shifted to the budget of sub-measure 2.3.5 from other sub-measures implemented within the OP SG¹⁷¹.

It is also worth paying attention to the implementation level of the indicator with regard to the level of private investments which supplement State aid. At the current stage of instrument implementation, the private investment level declared in the funding agreements is 74% of the target value of this indicator for the whole sub-measure 2.3.5. Nevertheless, in terms of all the agreements signed so far, the level of private investments which supplement State aid constitutes 92% (PLN 157 million) of the total funding granted (PLN 170 million), whereas the target value for private investments (PLN 212 million) constitutes only 69% of the support

¹⁷¹ Consortium: LB&E, EGO, ' Mid-term evaluation of material progress of the Operational Programme Smart Growth 2014-2020. MIED, 2019.

planned (PLN 309 million). Thus, it can be expected that the intervention under sub-measure 2.3.5 will generate a higher level of private investments supplementary to State aid than the expected.

The assessment of final support effects, including those with reference to the impact of sub-measure 2.3.5 on companies' competitiveness (also beneficiary-companies and service provider-companies) or a broader impact on the economy, is not possible to be conducted at the current stage of mid-term evaluation.

Appropriateness of the support instrument

The main objective of the 'Design for entrepreneurs' is dissemination of the model of creating the product market value by implementing the original product designs and cooperating with designers. As assumed, the support itself is directed to SMEs with less experience in innovative activity, including the activity based on design processes.

The results of the intervention logic analysis and the qualitative research conducted allow to regard the instrument as relevant. The instrument appropriateness for SMEs' needs is confirmed by, among others, much companies' interest in the support. Within the first three competitions for sub-measure 2.3.5 almost 1.5 thousand applications for grants were submitted which met the formal requirements¹⁷². The support, according to the assumptions, has reached – to much extent - young companies (about 40% of beneficiaries are companies operating up to 5 years the moment the application was submitted) with less experience in implementing innovative projects based on design. It is confirmed by the results of the case studies in which the instrument helped initiate cooperation with designers and carry out the first entirely professional design process in companies.

At the present stage of instrument implementation it is not possible to make the full assessment of applying the investment component to sub-measure 2.3.5, which supports companies in implementing solutions worked out. On the one hand, investment support allows companies to effectively implement design projects in a bigger scale that up to now. It is illustrated by one of the case studies conducted, where the investment - that involved acquiring tangible fixed assets which made it possible to create a demonstration product- was an integral element of the project and it significantly diminished the risk related to the venture implemented by the company for the first time in this respect. On the other hand, there is a risk of pushing out (replacing) private funds by (with) public resources. This question needs additional analyses to be conducted at the stage of ex-post evaluation.

¹⁷² Consortium: PAG, IDEA, JU, ' Evaluation of OP SG project selection system 2014-2020 – assessment of selected changes', MIED, 2019.

The project selection rules should be also regarded as relevant in view of the objectives of sub-measure 2.3.5. The criteria are of access character (zero-one) and serve for identifying ventures which meet basic conditions for carrying out an effective design project. So they are not a significant barrier for applicants and at the same time they could eliminate projects which do not fit in with the instrument assumptions. Companies applying for support within the 'Design for entrepreneurs' assess the criteria applied as comprehensible (90% of them regard the criteria as definitely comprehensible or rather comprehensible)¹⁷³.

Also, an amendment made in the regulations of competitions carried out from 2019 on, which involves making the requirement of cooperating with a service provider more precise. According to this amendment the service should be provided by the entity which guarantees - for implementing the design process - a team with at least one professional designer. This amendment should be regarded as relevant in the context of long-term support effects. The quality and utility of services provided by designers is - according to the results of the intervention logic analysis - a significant condition for the occurrence of economic indirect effects in a longer perspective.

Based on the observations made at the present stage of the instrument implementation, the market (open) model of cooperation with designers should be assessed as relevant. Service providers have to meet the condition of having a team with at least one professional designer. In view of this, these entities are not subject to accreditation or they do not have to submit a particular certificate, and the verification of the quality of their services is made on the market rules by companies themselves (service recipients). Such a solution could be regarded as utile, e.g. in the context of the indirect objective of sub-measure 2.3.5 which is to create a functional market of design services for SMEs. The instrument fits in with broader market needs in the design field, which is confirmed by the opinions of the experts participating in the research.

Aid proportionality

Under sub-measure 2.3.5, it is possible to receive aid with the intensity of up to 85% in the case of the service stage and from 20% to 70% within the investment stage (according to the support intensity possible to be received on the basis of the applicable map of regional aid). The minimum eligible costs of the project amount to PLN 60 000 (as for expenses for consultancy services related to developing a new design project and implementing a new or significantly improved product which uses the design developed), whereas the maximum costs are PLN 1 500 000 (including maximum PLN 500 000 for consultancy services related to developing a new

¹⁷³ Ibidem.

design project and implementing a new or significantly improved product which uses the design developed, and maximum up to PLN 1 million for the investment)¹⁷⁴. In reality the average funding level within the “Design for entrepreneurs’ accounted for about 69% and the average funding amount was about PLN 535 000.

The assessment of support proportionality involves verifying whether it would have been possible to obtain similar effects with a smaller volume of State aid or by means of another aid form. For objective reasons (lack of measurable support effects due to the early implementation stage of sub-measure 2.3.5) it is not possible to fully assess the proportionality of the intensity and value of the aid granted for obtaining given intervention effects. Also, it should be noticed that the support proportionality could be differentiated depending on its allocation (purchase of consultancy services vs. purchase of assets). This question needs conducting additional research at the stage of ex-post evaluation.

8.5.4. Conclusions and recommendation for the instrument

To sum up the assessment of sub-measure 2.3.5 –‘Design for entrepreneurs’, it can be stated that this instrument is relevant in view of the needs of Polish companies and the economy. The relevance is reflected in the subject of support (design) and to some extent - as much as it is possible to make the assessment in this respect at the present stage of implementing the instrument - in the instrument structure itself (among others, the instrument accessibility for companies with the relative maintenance of the basic conditions of the design project effectiveness or the requirement of establishing cooperation with the designer at the initial venture stage).

Due to the initial implementation stage of sub-measure 2.3.5, it is not possible - within the mid-term evaluation- to make the analysis of the support effects and to fully assess the effectiveness and utility of the support granted within the ‘ Design for entrepreneurs’. Also, potential recommendations for amendments can be formulated at later stages when the first of the projects being implemented at present are completed.

¹⁷⁴ DDPA OP SG, September 2019.

8.6. OP SG Sub-measure 2.4.1

8.6.1. Overall theory of change

Justification of launching the instrument and expected effects

The objective of sub-measure 2.4.1 is to create a new, efficient mode of developing innovations in Poland with the use of State aid. It is a response to the problem of Polish enterprises' low innovativeness as well as to the excessive dispersion of pro-innovation activities of different market participants (enterprises, representatives of the science sector, public administration, business environment institutions, socio-economic partners and other organisations). Under the sub-measure, the non-competition project – *Centre for analyses and pilot implementations of new instruments – inno_LAB* has been implemented. It has two components : A. Laboratory – focused on designing and testing new instruments of innovativeness support, and B. Animation – dealing with the issues of integrating the National Innovation System (NIS). This chapter concentrates on component A, which refers to the support granted within the PARP aid scheme in question.

Within component A the three tasks are conducted; (1) monitoring trends with regard to supporting innovativeness in Poland and in the world, (2) designing and testing new instruments of innovativeness support by the Design Thinking/Service Design method and (3) pilot implementation of selected tests with the use of small samples¹⁷⁵. They are implemented sequentially: the monitoring provides information which is the basis for the design process and it, in turn, is completed with a phase of tests which lead to working out a pilot project that is further implemented. The most important effect of a pilot implementation is gaining knowledge of the instrument effectiveness and methods of its implementation. The knowledge is the basis for scaling up effective instruments to the dimension of regular competitions.

The project assumes creating a learning support system for pro-innovation activities which will respond to the needs of stakeholders and within which it will be possible to rapidly test

¹⁷⁵ In the original plan of implementing the 'inno_LAB' project it was assumed that the efficiency of selected pilot implementations would be measured by experiments involving among others, matching randomly a defined form of support and applicants (RTC). In the course of the project implementation this element was given up, The team implementing the project decided to focus on ensuring high quality activities related to introducing novelty methods of designing support tools and as well as on entering new thematic areas set by the latest development trends. The knowledge on the effectiveness of designed instruments has been collected through monitoring and evaluation research.

solutions. Testing the effectiveness of pilot implementations before they are carried out on a large scale is supposed to allow to learn the lesson from own mistakes but in the micro-scale and then to improve the mode the whole system works. The project effects could be long-term and they can go far beyond the implementation perspective. The system worked out with the engagement of NIS members has a capacity to build up a sustainable change in the mode of designing and implementing instruments of innovativeness support for enterprises in Poland by increasing the capacity of business environment and raising the innovativeness of the Polish economy.

8.6.2. Summary of the implementation up to now

By the end of 2019 within the inno_LAB, 13 tests and 8 pilot implementations had been set up. Three activities have been designed by the inno_LAB team but their implementation is ongoing with the use of funds from other programmes. As for the other pool of designed activities, two were at the very beginning of their implementation.

As for the activities conducted within the inno_LAB, most of them are targeted at entrepreneurs. In the case of the two – gov_LAB and gov_TECH – the support addressees are local government units. The activity ‘Good idea’ has been addressed to individual innovators, whereas ‘School for an innovator’ to primary schools. Four activities addressed to entrepreneurs (‘Scale Up’, ‘Grants for Design’, ‘Electro Scale Up’, ‘Poland Prize’) are acceleration schemes run by operators. The function of support appeared in the case of ‘Good idea’, gov_TECH and ‘School for an innovator’.

Among the inno_LAB activities (i.e. project component A, already mentioned), an important role is played by those which are an element of the PARP aid scheme. Within the project by the end of 2019, 5 such activities (pilot implementations) had been conducted: ‘Scale Up’ (the acceleration scheme for start-ups), ‘Poland Prize’ (acceleration for foreign start-ups), ‘Electro Scale Up’ (acceleration for start-ups from the electro-mobility branch, ‘Grants for Design’ (support for the furniture branch) and ‘Seal of Excellence’ (entrepreneurs with the SoE certificates¹⁷⁶). They are implemented in a small scale, which allows to test the modes for their implementation and the efficiency and the effectiveness of State aid invested in these modes before scaling them up to the dimension of regular activities. Within these activities entrepreneurs are provided with: 1) State aid for enterprises starting their business (Art. 22 of the GBER), 2) State aid for R&D projects (Art. 25 of the GBER) and 3) *de minimis* aid.

¹⁷⁶ The activity covered support for companies which have gained the Seal of Excellence certificate within Phase 1 of the SME instrument of the programme Horizon 2020, or which obtained author’s economic rights and the right for exercising derivative author’s rights to the project which has obtained the Seal of Excellence.

8.6.3. Assessment of sub-measure 2.4.1 implementation

State aid effectiveness and its conditioning

The systematic monitoring of trends with regard to innovativeness support and applying new design methods have led to setting up new support instruments. In most design processes the Design Thinking/Service Design methodology has been used. It was done with due diligence, taking account of a diversity of techniques and professional moderation. The factors fostering the task success were as follows: including a wide range of recipients (also persons responsible for their implementation) in the process, mobilizing their commitment at all design stages and a positive partners' approach to the whole process and its effects. However, it is worth remembering that the application of the whole Design Thinking process was not a necessary condition for designing effective aid tools. In the cases of a very high level of knowledge on beneficiaries, gained before the project has commenced, the chance of the inno_LAB team for creating a relevant and effective aid tool (such as the Scale Up pilot implementation) was not lost if the full Design Thinking process was not applied.

New pilot support instruments have contributed to obtaining the effects planned among their recipients. The instruments worked out and implemented have been assessed as effective or very effective. It is predicted that they will be in a position to obtain the effects assumed at a satisfactory level. However, it should be stated that the implementation of most of them is at the very beginning.

Among pilot aid instruments, as at the end of 2019, the only completed and scaled up tool was 'Scale Up'. It could be regarded as an example of a model inno_LAB activity. It involved providing acceleration support for start-ups with the help of large companies – technology recipients. Within the 'Scale Up' ten acceleration schemes were implemented which - apart from financial support- included consultancy and training support. The schemes raised a lot of interest and their effects have been assessed very positively. 80 technology implementations were carried out in customers from large companies. Following the activity conducted in a small scale, the intervention effectiveness has been assessed and a list of conclusions on the implementation process has been prepared. They were later used for constructing a large activity which could avoid implementation problems identified at the pilotage level.

Another completed aid activity has been 'Grants for Seal of Excellence'. Due to a simple instrument structure, obtaining the assumed direct effects was not a big problem. The ultimate activity effectiveness will be regarded as high if projects whose feasibility assessment has been conducted are implemented. The other inno_LAB aid activities, as at the end of 2019, were at such an early implementation stage that within their framework no outcomes obtained have been observed yet. The two acceleration pilot implementations ('Electro Scale Up – oriented at supporting enterprises from the electro-mobility branch, and 'Poland Prize' – dedicated to

foreign start-ups) have been in progress and no implementations have been reported within either of them. As for “Grants for Design’, 20 enterprises eligible for the support have completed the material project implementation (including final products designed and presented, among others, in foreign promotional events) however, formally at the end of 2019 this activity was not done (settled).

Testing new support instruments has allowed to partially make conclusions on their effectiveness and to simultaneously generate knowledge of units implementing and designing public policies, however, the way this knowledge is documented could be improved. The inno_LAB possesses tools for documenting the effects of the process of designing and implementing aid tools. On the basis of the on-going evaluations conducted so far (‘Scale Up’) important conclusions have been made for organizing regular competitions within the OP SG, which deserves particular appreciation in the context of the fulfillment of project assumptions.

In addition, there are areas in which the process of gaining knowledge could be improved. The indicators monitored at the level of both the whole inno_LAB project and particular activities refer to implementation progress. Relatively detailed evaluations focusing on one activity refer solely to aid tools (e.g. the Scale Up evaluation). Comprehensive evaluations, in turn, which are planned for a larger number of tests and pilot implementations, assess them at a different advancement level (among others, this mid-term evaluation) and they are focused mainly on the issues of effectiveness and utility (e.g. the evaluations within the Innovation Barometer), which makes it difficult to deepen the questions related to their implementation.

Testing the new methodology of designing public interventions has allowed to make conclusions on its effectiveness and application in other circumstances, taking account of minimizing risks identified within this method. The effectiveness of the method of designing public services which has been worked out and based on Design Thinking has been very highly thought of by representatives of the groups engaged in the project implementation. The tools worked out in this way have been regarded as effective and utile by both people implementing them and beneficiaries. A similar assessment is also justified by the level of the effects obtained through these instruments so far.

At the same time it should be remembered that the methodology applied has its limitations, particularly in the two aspects: deformations of group thinking which could occur while designing and the loss of perspective with regard to broader, socio-economic objectives of the public intervention. In the inno_LAB it is possible to point at several elements which were to minimize the risk indicated. The work during workshops was supervised by professional moderators using a range of best practices mobilising different ways of thinking at the appropriate designing moment. The processes included not only a group of target aid addressees (potential beneficiaries to be), but also other groups of stakeholders. Thanks to

that, designing was based on negotiating different positions. The solutions worked out considered institutional and legal conditions in respect of granting the aid. The ultimate shape of the pilot implementation carried out was made by the Steering Committee. The implementation of the process based on Design Thinking came into effect at quite a late designing level, which made it focus on adjusting some solutions previously selected to the expectations of target groups and minimize the risk of separating the aid tool from the social and economic objectives of the project. For example, in the activities 'Electro Scale Up' and 'Poland Prize' it was already clear before the designing process that the tool used would be accelerators (acceleration schemes). The Design Thinking process was to lead to working out such a form of acceleration which would be the most attractive for ultimate users (start-ups from the electro-mobility branch or foreign start-ups), and pilot implementations were supposed to test their real capacity. Such a solution narrows the area of modifications which could be brought about by the design process.

Appropriateness of the support instrument

At the level of the whole sub-measure 2.4.1, the inno_LAB was to be a response to the enterprises' low innovativeness and to the insufficiently effective system of State innovativeness support. It has been pointed out that the Polish system of supporting innovativeness needs a new, fresh approach which is better adjusted to the beneficiaries' needs and which fills in gaps related to the solutions used so far.

Designing activities within the inno_LAB is always preceded by the verification of the level of knowledge on the area it is to concern. After the analysis of accessible sources, the Steering Committee is presented with a design flashcard summing up the most important conclusions. This document is also a basis for further design teams' activities. Thanks to this procedure, both the decision on undertaking the intervention and its designing process are based on knowledge and evidence, which builds up solid foundations for developing relevant support tools.

Design Thinking/Service Design is a novel method of working out public policies in Poland.

The application of this method has been inspired by experiences of the Anglo-Saxon and Scandinavian countries. Its use in the inno_LAB along with support by professional trainers allowed to systematically include all stakeholders of a given instrument in the designing process. A range of methods and techniques were used at the right designing process which supported group work on divergence and convergence thinking. It is necessary to positively assess the engagement of PARP implementation departments as early as at the first stages of work on the activity, which contributed to the popularisation of this working method almost throughout the whole organization. Such a way of implementing the project leaves hope that the initiated change (process and organisational innovation) will be sustainable.

As previously pointed out, the Design Thinking process, in this case used for designing socially utile solutions, could pose a lot of risks related to inappropriate management of group processes and to public policies placed in reality. In the project a number of tools minimizing these risks have been used. It is necessary to be aware of them in subsequent design processes and in the course of transforming them into another substantive context.

Another aspect of the project which influences the assessment of its appropriateness is a pilot character of activities implemented. Their insignificant scale and a short time of conducting these activities allow implementation departments to test the solutions worked out. Such an approach facilitates using more courageous solutions and verifying them empirically before scaling up the instrument to the level of regular activity.

Inno_LAB could be regarded as a relevant instrument for increasing the quality of the public innovativeness support system due to its openness to stakeholders, focus on accessible knowledge and testing character. In the evaluation the two main threats to obtaining this relevance in reality have been identified. These are the mode of collecting and disseminating knowledge and the mode of using Design Thinking.

Within the project large resources of knowledge on the whole system and particular pro-innovation interventions are generated. The project assumes, among others, quite detailed monitoring of national and foreign aid measures which is used in designing subsequent OP SG measures. However, not all project activities have been covered by research which allows to deepen their characteristics. The codification of knowledge on the implementation and effects of particular measures in the course of their implementation in the form of a short elaboration could be an effective tool for storing the knowledge at the organisation level and for sharing experiences with other organisations.

Aid proportionality

If aid proportionality is interpreted as the rationality of the volume of state resources spent relative to the effects of activities funded, the assessment of this dimension in the case of inno_LAB is very difficult. Among the main project effects there are no effects which are directly related to the income or particular outputs worked out, therefore it is impossible to estimate the return rate of the public investment. The key project effects are as follows: increased knowledge, the new system of designing interventions built, recommendations for further actions worked out – they are difficult to be quantified and to be referred to in terms of amounts spent. Due to the soft character of project success indicators and the great complexity of tasks conducted, it is difficult to state whether the effects obtained within the project could have been achieved with smaller financial expenditures, Due to the above, the proportionality assessment has been made only at the level of the inno_LAB pilot implementations carried out within the PARP aid scheme.

The intensity of support offered within the pilot implementations is similar to the intensity within OP SG regular competitions which cover the same aid category. Within the inno_LAB competitions in which State aid is granted to enterprises starting their business activity (Art.22 of the GBER), just like within regular calls, the support intensity amounted to 100% of the eligible costs. State aid in terms of R&D projects (Art.25 of the GBER), granted solely within the pilot implementation 'Seal of Excellence', was differentiated depending on the entity size and it accounted for relatively 70% in the case of micro- and small companies and 60% as for medium-sized companies. The average intensity in this aid category within the SoE pilot implementation accounted for 69%, which is also comparable to regular competitions for enterprises which use the same aid category (e.g. the Competition 1/1/1/1/2019 SEAL OF EXCELLENCE organised by the NRDC).

As for the aid volume, the largest pilot implementation inno_LAB – Scale Up deserves some attention. Pursuant to Art. 22 of the GBER, the aid worth PLN 56.6 million has been granted. In 10 financed acceleration schemes 276 start-ups took part. The grant level accessible per one enterprise was repeated in the pilot implementation Prize Poland. Under OP SG sub-measure 2.5 –*Acceleration Schemes* – which was the version of Scale Up pilot implementation scaled up to the regular dimension, PLN 121.38 million was allocated to the aid under Art. 22 of the GBER. Taking account of this amount, the accelerators committed to grant aid to 538 start-ups. It means that the unit cost of the instrument per the number of start-ups planned to be covered by the support was comparable. Although the total support volume in the Scale Up pilot implementation was relatively big – taking account of the fact that the activity objective was to test the instrument effectiveness rather than make a change at the economy level – it should be remembered that the pilot implementation scale allowed to formulate relevant and utile recommendations for the regular competition sub-measure 2.5), therefore it has fulfilled its main objective.

Due to the early stage of project implementation, it is difficult to make conclusions on the relation of the outcomes of overall inno_LAB activities to the costs incurred. In the survey a significant majority of the respondents within the pilot implementations Grants for Design and Electro Scale Up have pointed out that without the support they would not have decided to conduct tasks and the innovations they are currently working on probably would not have been made. As for the other project activities under analysis, it has been indicated that obtaining the assumed effects would have been shifted in time or would have been made in a smaller scale. Within Scale Up, the only pilot implementation where the final effects of the activities undertaken have been measured within the PARP Innovation barometer, the assumed number of implementations had been exceeded.

To sum up, the analyses made at the stage of mid-term evaluation indicate that – in principle- the aid granted under sub-measure 2.4.1 has been proportional to the problem it addressed

and that it would not have been possible to obtain the same effects if its volume or form had been limited.

8.6.4. Conclusions and recommendations for the support instrument

The conclusions on the actual state of the inno_LAB project implementation (under sub-measure 2.4.1) confirm that **the measures implemented are effective and necessary for further development of the system of innovativeness support in Poland**. Particular attention should be paid to basing the system designing public interventions on reliable data, to including a wide range of stakeholders in designing, using professional workshop techniques, tests and pilot tools before scaling them up to the dimension of regular competitions. Such an approach has a potential to become a source of good practices for processes of designing interventions also within other policies. **The project using the above tools, including pilot aid schemes, should be continued in the next financial perspective.**

The recommendations from the evaluation of sub-measure 2.4.1 concern the areas of **collecting knowledge, Design Thinking processes and pilot implementation** within the inno_LAB project.

At the level of sub-measure 2.4.1 great knowledge is generated which concerns implementation processes and the effectiveness of different types of activities and their conditioning. The knowledge on the effectiveness of particular activities (including pilot aid instruments) is collected – to much extent by the direct engagement of particular persons responsible for designing and implementing the instruments. It is recommended that the assessment process of the activity effectiveness should be fit in in their project and implemented along with the task progression. In this case **internal evaluation** is of great significance as it helps systemize knowledge collected by particular departments in the implementation process. It is also suggested that the character of indicators monitored be changed. The suggested approach involves **minimizing indicators which serve for settling beneficiaries' accounts** for implemented outputs and expanding indicators which measure real desirable intervention effects. Taking account of such innovative activities conducted within inno_LAB, it is also recommended to examine unexpected effects, which could be done with the use of qualitative methods.

As for the Design Thinking/Design Service process, the evaluation has shown that it is not always necessary to obtain satisfactory effects. The examples of activities which have been assessed as very effective and in which the full Design Thinking process was not used in designing the support instrument are Scale Up and Connect & Scale Up. The experience of designing these activities shows that knowledge on the target group and its needs is extensive, **it could be considered using only some process elements** focusing, e.g. only consultations or

tests. In such cases it is possible to take account of organizing short series of Design Thinking, minimizing the organizational burden that may sometimes be associated with these methods.

As pointed out, in some cases the Design Thinking processes have been launched after making the decision on what form the pilot aid instrument will have and they mainly served adjusting it to the needs of the target group. Such an approach is justified by legal and institutional limitations and, as stated above, it could tie the design tool more tightly to its socio-economic objectives. At the same time it is suggested that an attempt to start selected **design works earlier** – already at the stage of searching for the support method - should be considered. Such an approach may contribute to finding even more innovative attitudes to innovativeness support.

While planning each new designing process, **it is necessary to pay attention to limitations of the method applied** and bear in mind conditions whose meeting minimizes risks related to them. Among the boundary conditions identified which need to exist for the process to come to an end successfully the following could be mentioned: a well -defined activity area and designing process objectives, a relevantly defined group of stakeholders, the process carried out in the workshop mode in clearly defined time conditions, the process carried out by a professional moderator, qualitative methods used, prototypes created and tests with final recipients.

As previously pointed out, one of the distinctive aspects of the inno_LAB project is the implementation of support instruments in a small scale (pilot implementations) so that they can be scaled up to the dimension of regular competitions after introducing necessary modifications. Such an attitude allows the organization to learn in action, to more bravely plan instruments and to more rationally manage resources. It is recommended to continue the project with such an approach, particularly in the case of pilot aid instruments. Thanks to pilot implementations it is possible to verify the instrument effectiveness and utility before its implementation in a big scale and to introduce necessary amendments or to entirely resign from its continuation. At the same time it is recommended that pilot implementations should be really carried out with the participation of a minimum number of beneficiaries (small samples of target aid addressees), sufficient for testing solutions and formulating reliable recommendations. It should be remembered that the objective of a pilot implementation is to prepare the instrument ready for implementation in a large scale, not to make a change at the level of the whole economy.

8.7. OP SG Measure 2.5

8.7.1. Overall theory of change

Measure 2.5 – ‘Acceleration programmes’ – aimed at support for start-ups and their innovative products. The programmes are implemented by accelerators selected and monitored by the PARP (among others, through assessing and accepting regulations, including the start-up selection rules). Within the schemes, start-ups are offered specialised consultancy services, financial support and opportunities of testing solutions worked out in cooperation with technology recipients (TRs) – medium-sized and large enterprises. Thanks to cooperation with TRs, companies have access to human, technological and financial resources or sales channels.

The measure budget amounts to EUR 31 million, which constitutes about 2% of the PARP aid scheme in question. The main objectives of the *Acceleration programmes*, expressed in output and outcome indicators are an increase in the number of innovations (396 innovations planned to be launched as a result of the support) and an increase in the engagement of medium-sized and large companies in cooperation with start-ups (75 enterprises engaged as TRs).

In a short-term perspective an expected effect of measure 2.5 is gaining by start-ups access to specialised consultancy and resources – in the broad sense- of medium-sized and large companies participating in acceleration programmes (including financial resources of TRs, which, as assumed under measure 2.5, increase their engagement in the acceleration process). An effect of cooperation with TRs should be the validation of an innovation developed by the start-up in conditions similar to the real ones. As a result of the consultancy support obtained and cooperation with TRs completed with testing the solutions worked out, newly established companies supported should increase their business and innovation capacity, develop a product offer and expand access to markets, as assumed under measure 2.5. From the perspective of TRs participating in measure 2.5, a short term effect should be working out or developing paths of cooperation with start-ups.

In the long-term perspective, the support within ‘acceleration programmes’ is to translate into an improvement of competitive position and into further sustainable development of the start-ups supported (increased activity scale, increased sales, increased expenditures for RDI activities). The intervention under measure 2.5 should also contribute to an increase in the scope of efficient cooperation of large and medium-sized companies with start-ups.

‘Acceleration programmes’ are a regular OP SG measure introduced on the basis of the ‘Scale Up pilot instrument – developed and implemented by the PARP over 2016-2018 in the ‘Centre for analyses and pilot implementations of new instruments- inno_LAB’. Measure 2.5 was

introduced relatively late, i.e. in 2018 in accordance to the amendment of the PARP aid scheme¹⁷⁷.

8.7.2. Summary of the implementation up to now

Under measure 2.5 one competition has been organised so far (2018), whose result was signing 10 agreements with accelerators. The total value of the projects amounts to PLN 149 million, whereas the total value of grants is PLN 133 million. All the acceleration programmes are at the initial implementation stage. The first completion dates fall in the year 2021.

Under measure 2.5, in view of aid category, the majority is aid granted pursuant to Art. 22 of the GBER to enterprises starting their business activity (91%). The other support (9%) concerns direct costs related to designing teams and indirect costs and it does not constitute State aid¹⁷⁸.

8.7.3. Assessment of OP SG measure 2.5

Effectiveness of State aid and its conditioning

Following the research conducted within this evaluation, it could be stated as follows:

Within the programmes under analysis, accelerators effectively provide high quality (positively assessed) consultancy services and financial support. The evaluation results show considerable differences in the level of business competence and in the type and scope of knowledge and experience which are at the disposal of start-ups. It translates into differentiated expectations of such a service recipient, which are often expressed in specific needs, e.g. in respect of legal services in a particular field. The differentiated demand of start-ups for specialised support makes too little structure flexibility of services offered within the schemes become a certain barrier. This problem results from the instrument assumptions themselves, according to which before the scheme commencement the accelerator employs a team of experts at different fields. The issue has been raised in the two cases under analysis by both accelerators and companies making use of the support.

Due to the early stage of implementing relatively complex projects – which engage intermediaries/accelerators and target aid recipients /start-ups, but also technology recipients/larger companies – as well as applied qualitative research methods, it is not possible to estimate -at the mid-term evaluation stage - the scale of the occurrence of incentive effect

¹⁷⁷ The Regulation of the Minister of Investment and Economic Development of 25 May 2018 amending the Regulation on financial aid granted by the PARP within the framework of the Operational Programme Smart Growth 2014-2020.

¹⁷⁸ Cf. Ibidem, Art. 45 (1) (Financial aid which does not constitute State aid).

under measure 2.5. Nevertheless, some positive symptoms in this respect show the case studies conducted. As for the first case, where the operator was an entity with a lot of experience in such a kind of activity conducted commercially, the scheme would have been implemented without the OP SG support (in fact it would have been the continuation of the accelerator's core activity). However, the scheme would have been implemented in a more limited scope, i.e. without the grant part for start-ups. In the second case, where the accelerator is a public entity (with majority shareholding of the Treasury), the project would not have been implemented but for the funding. In respect of financial support for start-ups the incentive effect has been observed in the two cases under analysis.

TRs cooperating with start-ups make their resources accessible and participate actively in developing innovations. At the present stage of project implementation, according to the plan, the first direct effects are noticed in the form of validations of solutions worked out by start-ups. They are part of pilot implementations carried out in cooperation with TRs and they concern all companies participating in the acceleration. Within the case studies under analysis, in this respect no significant risk of not achieving the assumed objectives of the acceleration programmes supported have been identified. In this context the survey participants have also pointed out a positive role of the requirement that is a contribution of private TRs' funds, which clearly translates into their involvement in the acceleration process.

Due to the initial stage of implementing measure 2.5, it is not possible to assess the long-term support impact on the companies' growth- in case of both start-ups and TRs. The effects such as implementations of innovations have not occurred yet in enterprises. It should be added that these implementations, according to the scheme assumptions, are to concern only some of innovative solutions which are subject to acceleration. In the opinion of the accelerators, taking account of their earlier experience, the success factor in respect of implementations should be at the level of 40-50% of the supported start-ups. The results of qualitative analyses show, however, the first economic benefits observed thanks to the participation in acceleration schemes – when it comes to both single start-ups and TRs. In the case of one start-up participating in the programme, cooperation with a corporate partner (TR) has translated into – in their opinion- distinctly improved quality of services provided (the change resulting directly from the support from the TR) and into the increased interest of business partners cooperating with the start-up.

Predictions on obtaining the instrument objectives after its completion

By the end of 2019 under measure 2.5, the whole allocation foreseen for it had been contracted. The target effectiveness in respect of obtaining intervention objectives will depend on the effectiveness of implementing particular projects (acceleration schemes).

On the basis of the analysis of implementing the instrument so far and on the interviews with representatives of the PARP implementation department, no risks of not achieving the assumed objectives of measure 2.5 have not been identified at the present stage. It is also confirmed by the results of mid-term evaluation of OP SG material progress¹⁷⁹.

Appropriateness of the support instrument

The evaluation results, including the case studies conducted and interviews with experts and representatives of the companies participating in the acceleration programmes show that the support offered under measure 2.5 relevantly addresses the needs of start-ups. Companies at early development stages perceive cooperation with corporations (TRs) as a value added and as an important factor increasing their chance to effectively launch their product offered. The support utility is confirmed by the results of the evaluation conducted within one of the schemes under analysis (Case study 1), where all participants (start-ups) except for one, have regarded their participation in the programme as favourable for their growth, and in the opinion of 71% of the participants, the programme made it possible for them to achieve all assumed objectives (24% of the participants have partially achieved their objectives). Moreover, 65% of the participants have revised (improved) the assumptions of their business model¹⁸⁰ as a result of participating in the scheme.

The support relevance is also reflected in limiting the transactional costs related to establishing cooperation with larger companies. The results of the case studies show that thanks to the accelerators' activities, such as implementing the process of call and selection of participants (start-ups and TRs) and matching them with respect to mutual needs, the programmes participants limit their costs related to searching for partners willing to cooperate and having a utile offer for them.

A certain barrier identified within the mid-term evaluation, which could pose a risk of decreasing the support relevance of measure 2.5, is an imbalance between partners (start-ups and TRs) observed in some cases. It might result in non- optimal solutions in view of the supported start-ups' needs and business objectives (e.g. in respect of intellectual property), which is observed in some cases.

The question of intellectual property reflects a more extensive risk of the imbalance between start-ups and TRs, which has been signaled in the interviews. Due to the existing disproportions in the capacity between cooperating entities, there is a risk –in the opinion of experts – that further development of the start-up could depend on its corporate partner's decision. It shows

¹⁷⁹ Consortium: LB&E, EGO, ' Mid-term evaluation of material progress of the Operational Programme Smart Growth 2014-2020. MIED, 2019.

¹⁸⁰ Evaluation report 6th edition of the MIT EF CEE, 2019

how important post-acceleration activities conducted within the schemes are. This requirement has been introduced following the experiences gained during the Scale Up pilot implementation (sub-measure 2.4.1/inno_LAB). In the context of the observations mentioned previously, this amendment should be assessed as relevant in view of ensuring long-term project effects reflected in the sustainable development of the companies supported. The case studies also show that the minimizing of the above described risk sometimes occurs at the start-up level – within its strategy which involves activity diversification and cooperation with business partners.

In this context, it is also worth pointing at the mediatory role of accelerators and the key significance ascribed to the function of start-up supervisor that is responsible for building up and developing partnership relations of start-ups with TRs in the process of individualized support model.

Aid proportionality

Under measure 2.5, the minimum value of grants for projects implemented by accelerators amounts to PLN 10 million, the maximum one is PLN 15 million. The maximum funding intensity with regard to financial aid covering costs for start-ups accounts for 100%. This aid is granted to an ultimate recipient (start-up) in the form of grant worth PLN 200 thousand - for developing technology and preparing it for implementation – and in the form of consultancy services worth up to PLN 50 thousand. Additionally, within the projects the accelerators' operating costs are co-funded (up to 50%), which does not constitute State aid and which is regulated by provisions of the Regulation on financial aid granted by the PARP within the OP SG (i.e. the aid scheme in question)¹⁸¹. In reality the average funding level for projects implemented by accelerators amounted to 91% and the average funding amount was about PLN 13 million.

The assessment of support proportionality involves verifying whether it would be possible to obtain similar effects with a smaller amount of State aid or with a different aid form. Due to the initial stage of instrument implementation and the fact that it is not possible to assess the proportionality of the intensity and value of aid granted to the intervention effects obtained. In this respect it should be noticed that the ultimate proportionality assessment with regard to financial aid for start-ups could be differentiated depending on its allocation (consultancy versus financial aid for technology development).

8.7.4. Conclusions and recommendations for the support instrument

Summing up the assessment of measure 2.5, it should be stated that the instrument is relevant in view of both start-ups and recipients of their technology. At the present stage, the

¹⁸¹ Pursuant to Art. 45(1) of the Regulation.

acceleration programmes are implemented in accordance with the assumptions and no risks related to not obtaining the assumed intervention objectives have been identified. Some complications in this respect, however, could be caused by the uncertain situation related to the COVID-19 epidemic, which will have an impact on the larger companies' (TRs) readiness for cooperating with start-ups.

The results of the qualitative research conducted allow to formulate some proposals for improvement to be considered while designing similar instruments for supporting the start-up acceleration in the future:

- Due to differentiated needs among supported start-ups, it would be advisable to consider introducing a more flexible formula of consultancy services offered by accelerators (matching expert services and specific start-ups' needs identified during the process).
- In order to ensure the long-term effectiveness of the programmes and to decrease the risk of excessive start-ups' dependence on corporate partners (including the risk of taking over the project or key persons from the design team by TR companies) it is recommended to put more emphasis (also within the selection criteria used at the stage of assessing applications for funding projects) on post-acceleration activities, among others, in respect of developing the companies' capacity for building investors relations after the project completion, such as organizing meetings (pitch decks) with private investors.
- Due to great translation of TRs' needs into the start-up selection process, there is a risk of selecting such solutions offered by start-ups which address current TR's needs and are easily 'implementable' instead of solutions at a higher level of innovativeness and risks (it also generates a risk of financing ventures which would be implemented by TRs also without State aid for start-up programmes). Following the results of the analysis of intervention logic, a condition for the occurrence of long-term economic effects of measure 2.5, also at the economy level, is to support companies and products of high innovativeness level and market potential. Thus, it is advisable to consider putting more emphasis on this element of the schemes at the stage of their selection and monitoring (also within the procedure with reference to regulations, including, among others, a proposal of selecting start-ups which are approved by the PARP) and on the increased role of the PARP in the start-up selection process (e.g. through the Agency representatives' participation in works of the investment committees assessing and selecting companies for particular acceleration programmes).

8.8. OP SG Sub-measure 3.1.5

8.8.1. Overall theory of change

Sub-measure 3.1.5 – *Support for SMEs to access the capital market – 4 Stock*, is one of the activities oriented at diminishing the market failure related to the capital gap of SMEs, which is based on innovative and risky projects. According to the theory of the measure, the problem of capital gap is a derivative of ,among others, a high level of risk related to financing innovative ventures and the specificity of young companies¹⁸². The identified problem is deepened by challenges related to difficulty in access to external sources of funding investments, alternative to bank credits, especially investment funding regulated markets (e.g. from Stock Exchange, NewConnect or Catalyst¹⁸³). The support under sub-measure 3.1.5 is targeted at minimizing obstacles which innovative companies encounter in access to capital and debt markets by providing specialized consultancy in the process of preparing companies for their debut.

The objective of sub-measure 3.1.5 reflected in indirect outcome indicators is to make companies from the SME sector public on the target financial markets and enable them to gain the share capital on capital markets (GPW, NewConnect, foreign regulated markets) or debt capital by issuing bonds on the Catalyst debt market¹⁸⁴.

The company IPO (Initial Public Offering) is also supposed to be related to the marketing effect, which in a longer perspective should translate into the company's financial results. According to the theory of sub-measure 3.1.5, the rating effect and the company's increased capacity for gaining capital from other sources, such as bank credits, hedging funds, business angels and others, should be also observed. It is also important that the people managing SMEs should acquire knowledge and competence.

In the long-term perspective the support granted within *4 Stock* is supposed to lead to SMEs' increased R&D investments. It is assumed that the commercialization of the investment effects will have a positive impact on the companies' financial position and consequently, both further

¹⁸² cf. *Szczegółowy Opis Osi Priorytetowych PO IR 2014-2020*, Warszawa 2019, s.79. [Detailed Description of OP SG Priority Axes 2014-2020, Warsaw 2019, p. 79]

¹⁸³ Giełda Papierów Wartościowych w Warszawie (GPW) [Warsaw Stock Exchange (WSE)]- the Polish stock exchange, public joint-stock company aimed at ensuring security trading (such as shares, bonds, pre-emptive rights, etc.) as well as non-securities financial instruments admitted to listing;
NewConnect - an organised share market, funding the development of SMEs of a high growth capacity, based on an alternative trading system and run by WSE Inc.
Catalyst – the system of authorization and financial instrument trading run by transactional platforms of WSE Inc. for retail customers – in the formula of regulated market and alternative trading system) as well as BondSpot Inc. (for wholesale customers – in the formula of non-stock exchange regulated market and ASO[alternative trading system]).

¹⁸⁴ Ibidem, p.81

investments and the improved financial situation will translate into an increase in employment in the supported companies and trigger positive effects such as the increased innovativeness and competitiveness of companies.

8.8.2. Summary of the implementation up to now

The call for proposals was conducted within two competitions divided into several stages. The second and the last call under this sub-measure (in the period under this analysis) was completed in the last quarter of 2017.

By the end of 2019 under sub-measure 3.1.5, 112 funding agreements had been signed – as many as 36 agreements were terminated and 76 agreements are still valid in the period under analysis. The last agreements were signed in the second quarter of 2018. At present, the sub-measure is not continued (it has been suspended).

Within the period under analysis only 1/3 of projects (27) were completed. Among other things, it results from the long duration of projects, which could last even 3 years, but also from the enterprises' anticipation of an appropriate, more favourable situation on capital markets. It really matters as for making conclusions on the sub-measure effects, not only the long-term ones (only 20 projects, i.e. ¼ had been completed by the end of last year, but merely 9 by the end of 2017), but also indirect effects, related to the effectiveness of the sub-measure objective, which is to get access to the capital market. Obviously, an additional, significant hindrance in this respect will be potentially negative effects of COVID-19 epidemic.

8.8.3. Assessment of OP SG sub-measure 3.1.5 implementation

Effectiveness of State aid and its conditioning

It could be predicted that at the level of support beneficiaries, the sub-measure will achieve the objectives assumed as for the expected direct outcome indicators, notably with regard to gaining access to the capital market (numbers of SMEs which have gained access to capital markets). However, it results from the reduction of the target value of this outcome, which is defined at a low level. Such a scale does not foster a significant impact on implementing the whole OP SG and obtaining outcomes at the level of the economy.

Monitoring data on sub-measure 3.1.5 indicate that even maintaining a percentage success in gaining by companies access to the capital market within the project still in progress does not have real chances to trigger a strong market impact (especially on trade and competition on the SEM). It is caused by several factors, among which the most important is **the small sub-measure scale**, which directly limits the range of effects triggered by the intervention.

Additionally, a small number of beneficiaries was decreased -in the course of implementation – by companies which resigned from further process of preparing for IPO (over 30%).

At the present state of project implementation it is not possible to find out to what extent the direct outcome (IPO on the capital market) has translated into the company's measurable results, such as financial results, employment and increased R&D investments.

Moreover, it is necessary to pointed out that the **sub-measure should be regarded as merely a part of a broader investment venture** which must be undertaken by beneficiaries so that the effects in the area of innovativeness and competitiveness can be materialized. In this case, the economic success is not determined only by the implementation of a OP SG project, no matter how effective it is. It is not even determined by attracting the investor successfully (completing the process commenced by IPO). What determines the success is the **implementation of the whole R&D&I investment venture which is supported by financial resources gained from private investors, as well as discounting potential economic benefits** .

Summing up the actual and predicted effects of sub-measure 3.1.5, it should be stated that both direct effects and consequently, long-term ones will be revealed in too small a scale to be regarded as fully satisfactory and those bringing a significant value added at the level of the whole economy. On the one hand, it results from the instrument structure, which concentrates on IPO on the regulated and alternative markets, instead of gaining investment capital from diversified financial sources (which could be selected following consultancy). Moreover, the instrument in such a form is relatively more attractive to start-ups, which are built on the basis of innovative solutions, than to bigger and more financially stable companies, which –in principle- are not interested in funding relatively risky ventures based on such a financial source. It limits significantly the whole sub-measure 3.1.5 scale. Finally, the implementation context, namely external factors (stock exchange condition, investors' moods, lack of investment resources at the stock exchange and access to alternative sources) are very important for the effects under this sub-measure as they limit them and diminish significantly the present relevance of the sub-measure.

The solution which is consultancy is aimed at preparing companies for their IPO, assumes its attractiveness for beneficiaries. The change in this starting point (lowered attractiveness) causes the situation in which subsequent elements of the relationship assumed in the theory of change of sub-measure 3.1.5 will not trigger the expected effect in quantitative terms. It is also difficult to admit that there is a justification for the support granted to entities entering the markets if they are burdened with failures to such an extent.

Appropriateness of the support instrument

The problem of capital gap has been diagnosed relevantly the moment the sub-measure was designed. At present this challenge is still up to date, which is pointed out by both experts at the capital markets and the sub-measure beneficiaries under evaluation.

However, the context of the sub-measure implementation has changed. It is confirmed by the companies' little interest in IPO, which is a result of overregulated markets, IT burdens and other costs related to maintaining the issuers on the market, as well as investors' less interest in companies with IPO on the stock market.

Moreover, in the view of companies searching for capital for development, other instruments and channels have become more attractive, e.g. share crowdfunding, private equity or debt instruments, which are an alternative to gaining investment capital for enterprises interested in development. The regulated or alternative market is rather an unattractive source of funding for a risky R&D&I process, notably as for bigger and more stable companies, which have a wider range of opportunities to gain capital than young innovative start-ups.

In such a situation, **the tool for funding consultancy services prior to IPO on capital and debt markets is no longer the best tool for minimizing the above mentioned market failure.**

Looking at the problem from a different perspective, co-funding consultancy services could be an appropriate step toward minimizing the SME capital gap but only if gaining grants is not limited solely to public capital or debt markets, as designed in sub-measure 3.1.5.

Aid proportionality

As a rule, consultancy aid under the sub-measure is granted following Art. 18 of the GBER (Aid for consultancy services for SMEs). The maximum percentage of EU funding for eligible costs amounted to 50% at the project level. In practice, the average grant for projects was 48.33%. In total, the funding for the projects implemented accounted for PLN 12 million.

The results of qualitative analyses conducted with the participation of support beneficiaries' representatives show that the accessible support volume, including the maximum accessible volume of eligible costs which are predicted for consultancy, is assessed as appropriate and proportional to the expected indirect effects. It means that the level of support intensity and volume defined under the sub-measure is, in general, well -adjusted to the capacity of enterprises, which have used the support under sub-measure 3.1.5. The results of the case studies indicate that the project implementation could have occurred despite the lack of support, however, the project would have been of worse quality and/or its scope would have been more limited.

Obtaining the long-term results planned under the sub-measure would have demanded to take account of the capital volume which was gained by supported companies from target markets, on which they had their IPO and of the capital destination. However, at this stage conclusion-making in this respect is very limited, due to : 1) a small share of companies which have completed the project(1/3),2) a multi-stage possibility of gaining capital from the market (shares/bonds issued several times, capital flow in tranches), 3) a long-lasting investment

process, which starts with gaining capital and needs to conduct R&D&I activities and then demands implementations and the materialization of benefits at the company level.

Also, when it comes to projects in which the available data allow to compare the level of the support received to the offer presented by companies on the target market (the expected level of financial resources from investors), it is possible to state that the proportion of the State aid spent to the private resources potentially gained is very favourable - on average it amounts to 1:37 (offers ranging from PLN 120 thousand to over PLN 10 million). Given that micro- and small companies are the majority among beneficiaries, it could be concluded that such capital (assuming that it was gained) will allow them to substantially increase their development capacity.

8.8.4. Conclusions and recommendations for the support instrument

The situation around sub-measure 3.1.5 is different from the other measures and sub-measures under analysis. **The support under this instrument has been suspended and is very likely not to be continued.** Due to the problems described above it could be concluded that **this decision is appropriate because maintaining the present support scheme is not justifiable.**

Also, the evaluation results show that consultancy itself is a process that prepares companies effectively for a long-term investment strategy, which also can support R&D&I activities. It is also a process which is supposed to lead to the selection of companies which should not enter the regulated market because they are not ready enough. In this case the assessment is not clear – consultancy in the process of gaining investors is regarded as a very important factor but connecting it to the effects of companies' projects (access to the market) is dysfunctional in the adopted consultancy model. It could lead to the concentration of advisory activities on IPO, which is not necessarily favourable for companies in the long run.

Similarly, an unfavourable impact could also be observed when gaining capital is narrowed to regulated and alternative markets, which can be an appropriate source for financing R&D processes only for a limited group of companies.

In view of the above, it would be advisable to consider –provided the support is to be continued – **modifying the objective of project implementation, namely giving up efforts for IPOs/issues on regulated markets in favour of gaining investment capital from a wide range of sources** (each time selected with regard to the needs and the situation of a given beneficiary), such as share crowdfunding, private equity, different debt instruments. It will allow to increase the chance to fulfill the assumption that capital investments will support R&D&I processes in companies and to widen the pool of companies (by bigger and more stable entities) for which such support will be appropriate to their needs.

It would be also recommended to develop such a **support system which** – in the case of IPO on capital markets- **would made consultants helping with the IOP preparation more attached to**

supporting the functioning of companies on the capital market (in case such a source of capital is selected). It would strengthen the consultancy companies' responsibility for the long-term effects in enterprises and would highlight the significance of criteria for selecting appropriate companies to go public. It would have a favourable impact on investors' confidence and translate into an increase in investment capital.

Moreover, **as for this sub-measure, there are key challenges** (as at the end of the year 2019) **which are related to external factors but do not result from the instrument structure itself**.

Among them the most important are as follows:

- 1) overregulated capital markets – in the area of both entrance criteria and burdens related to being present on these markets, which are excessive and inappropriate with regard to the size and development level of issuer companies,
- 2) high costs of entering the markets,
- 3) small number of issuers and hence less investors' interest,
- 4) inappropriateness of some issuers' capacity,
- 5) greater accessibility of alternative sources of funding.

Although the change of these conditions is not in the remit of the Managing Authority of the OP SG, it is recommended that his institution should have an indirect impact on them. However, it is necessary to point out that the problem of poor condition of the Polish capital market had been already noticed by the Ministry. For this reason works on the strategy for financial market development - widely consulted within the environment of financial market actors - have commenced. The main strategy recommendation, which concerns lowered requirements and costs of entrance to capital markets, as well as functioning on these markets, should be considered just in this spirit.

8.9. OP SG Sub-measure 3.3.3

8.9.1. Overall theory of change

Sub-measure 3.3.3 – Support for SMEs in the promotion of Polish product brands – *Go to Brand* - is aimed at the increased competitiveness of Polish SMEs via the internationalisation of their business activity. It has been assumed that the support for enterprises will make it possible to overcome barriers of entering foreign markets and facilitate access to high-level consultancy, particularly with regard to establishing relationships with potential foreign partners. The support is addressed to SMEs and targeted notably at branches of high competitive and innovative capacity as well as at the expansion into selected priority foreign markets.

The support is fitted in with a broader strategy of supporting the internationalisation of the Polish economy. It is implemented in parallel with OP SG sub-measure 2.3.3 – *Internationalisation of Key National Clusters*. The promotional directions and strategies

implemented by beneficiaries of sub-measure 3.3.3 are defined by the Branch Promotion Schemes – documents worked out in the office of the Minister competent for the economy issues (from 2020 on – the Ministry of Economic Development) for 12 most promising branches. In the competitions organised over 2017-2018 the expansion directions were also defined by general promotion schemes covering 5 perspective markets. Moreover, calls for proposals related to specific promotional events, such as Hannover Messe and Expo in Astana were conducted. All beneficiaries are obliged to use the visual identification of Polish Economy Brand.

A compulsory element of the participation in *Go to Brand* is conducting tasks related to the international promotion of the enterprise and its products during economic missions and international fairs. In order to increase the efficiency of the trips, enterprises could make use of consultancy services aimed at preparing them for specific meetings or fairs. These tasks could be funded from the State aid within Section II, Art. 19 of the GBER – *Aid to SMEs for participation in fairs* and/or from *de minimis aid*.

Promotional activities are supposed to lead to establishing business relationships with new partners and getting to know the conditions of functioning on new perspective markets, which, in turn, is to contribute to signing business contracts. It is assumed that at least some of them will turn into selling products by the beneficiary and consequently, it will bring an income for the enterprise. Opening to new markets is to improve the competitiveness of enterprises under sub-measure 3.3.3. Furthermore, the processing of foreign orders will also have an impact on the beneficiary's environment – its contractors and partners. Besides, strengthening the visibility of highly-competitive Polish products on the foreign markets promoted via consistent visual identification is supposed to strengthen the image of Polish Economy Brand in the world.

8.9.2. Summary of the implementation up to now

By the end of 2019 within *Go to Brand* 1190 agreements had been signed worth PLN 473 million in total. By that time 2014 projects had been completed. Applicants are very much interested in the competitions. The biggest percentage share of projects under sub-measure 3.3.3 is implemented in Mazowieckie voivodeship, however, the latest call for grants, implemented in 2020, excludes enterprises from this voivodeship.

Almost the entire funding amount under sub-measure 3.3.3 has been granted to enterprises as *de minimis aid*. Nearly 4% of beneficiaries have decided to take advantage of the State aid within Art. 19 of the GBER (Aid to SMEs for participation in fairs).

8.9.3. Assessment of OP SG sub-measure 3.3.3 implementation

Effectiveness of State aid and its conditioning

Due to the beginning of implementation of most projects, the assessment of sub-measure 3.3.3 effectiveness will be preliminary. It should be pointed out that beneficiaries are obliged to obtain key outcome indicators of the projects (the number of contracts concluded and the value of income from the export sales) as at two years after the project completion. The first data showing the final project effects will be available in 2020 at the earliest.

Thanks to the support under sub-measure 3.3. enterprises take part in promotional activities, including fairs and economic missions, as well as in supportive activities, which allows them to present their offer on international markets. By the end of 2019 beneficiaries had conducted 2.5 thousand of promotional initiatives related to exhibition activity in fairs and had nearly 500 economic missions. As for two thirds of the agreements signed, a consultancy support had been also planned. Beneficiaries think highly of their participation in promotional activities. Representatives of the companies taking part in the case studies have declared that due to obstacles with regard to funding, competence and networking, they would not have implemented the projects in a comparable scale and timeline if it had not been for the support received. They are convinced that the trips allowed them to get to know a new market and to establish business relationships with new partners. The support offered under sub-measure 3.3.3 is becoming more and more popular among enterprises, which often apply for grant more than once searching for new markets for their products. What is perceived very positively is changes related to simplifying procedures, such as settling the grant by means of lump sum. It allows for a kind of flexibility, better-maintained liquidity and more economical management of financial resources.

It is not certain how the participation in fairs and economic missions will translate into the number of foreign contracts signed by beneficiaries. On the one hand, by the end of 2019 signing 1908 contracts had been reported, which constitutes merely 8% of the indicator value planned. Over half of the projects completed have not confirmed obtaining this indicator. On the other hand, it should be stated that beneficiaries can report the outcomes obtained up to two years after the funding completion, so some information on the contracts signed may be revealed in the future. Among the projects completed which resulted in concluding foreign contracts, almost two thirds of beneficiaries reached or even exceeded the number of contracts planned. Analysing the indicator, it is necessary to indicate that the trade contract does not guarantee the conclusion of a large sales transaction. Obtaining the values assumed could confirm establishing many promising foreign relationships, but it should not be the reason for making conclusions on the market success of the products promoted.

Due to the early stage of project implementation, it is not possible to clearly assess the effectiveness of the measure in generating the income from export sales. By the end of 2019 the income had been obtained within 129 projects, which constitutes 11% of all agreements. It amounted to PLN 3997 million in total, which is 21% of the values declared in the funding

agreements. However, as for the income from export sales, the first effects of the projects implemented under sub-measure 3.3.3 are revealed in counterfactual analyses. The sub-measure beneficiaries saw a bigger increase in the income from export sales between 2015 and 2018 than enterprises without the support. The average income of the beneficiaries in this respect in 2018 accounted for PLN 17.6 million. Among beneficiaries, the average share of the income from export sales in the overall income is growing: from 25% in 2015 to 31% in 2018. This percentage in non-beneficiaries was about 30% throughout the whole period under analysis. It should be pointed out that the faster pace of increasing the income from exports is observed in beneficiaries selling goods and materials. The pace of increasing the income export from products in beneficiaries and non-beneficiaries is more or less the same. The result is worrying enough, taking account of the fact that sub-measure 3.3.3 is targeted particularly at promoting products and it is them that are supposed to become an axis for building the export strategy. On the other hand, the lack of differences in the effects measured by the value of product sales could be justified by the early measurement stage.

Due to a small percentage of companies which have succeeded in obtaining the income from export activity, it is difficult to make conclusions on the importance of projects implemented for the companies' competitiveness. At the initial stage of project implementation under sub-measure 3.3.3 beneficiaries taking part in 'Innovation barometer' have claimed that joining *Go to Brand* is significant in terms of companies' employment and operating costs because of the effort they have to make to implement the project. In the same survey it was indicated that the project would be of great significance for the product development, presumably in relation to the necessity of adjusting it to the external market. Counterfactual analyses also indicate a more dynamic increase in jobs created among beneficiaries than in unsupported enterprises. However, it is necessary to take account of the fact that the data concern the period of the greatest cumulation of project activities. Therefore, the jobs created might be directly related to the project implementation and not be sustainable.

An impact of the projects implemented on beneficiaries' environment is expected. It should be stated on the basis of the 'Innovation barometer' that the average number of beneficiaries' cooperators under sub-measure 3.3.3 amounted to 16 at the moment the project commenced and the average number of foreign partners was 4. Over two thirds of beneficiaries under sub-measure 3.3.3 indicate at the same time that the project implemented will be of significance for deepening their cooperation with the business environment.

Experts and beneficiaries under sub-measure 3.3.3 say that the visibility of competitive products produced by strong and well-developed enterprises could strengthen the economic image of Poland internationally and improve the recognisability of Polish Economy Brand. The initiatives undertaken allow Polish entrepreneurs to promote not only their own products, but also show the capacity of Polish economy and have an influence on creating

Poland's image internationally as a country with which it is worth cooperating. The beneficiaries participating in the case studies have pointed out that their appearance in fairs and promotional events under one national brand is a value added of the scheme. However, both beneficiaries and experts indicated that in order to make the effect of building one brand in many branches strong enough it is necessary to undertake consistent activities. It was stated that skipping strategic events, even within one year, could dramatically diminish the recognisability of the brand built for years. Therefore ensuring a kind of continued strategy can be regarded as a very important aspect of the sub-measure.

Appropriateness of the support instrument

The relevance of the instrument under analysis could be confirmed by the fact that its structure corresponds with the most important export barriers, indicated by experts from the world of academics, which are related to competence (too little knowledge of enterprises about new perspective markets), networks (insufficient networking among enterprises, lack of knowledge on branch institutions and exports opportunities) and finances (too high operating costs as compared to the company's size). In response to these challenges sub-measure 3.3.3 :

- **reduces investment risks taken by enterprises while entering new markets.** The financial aid which they receive for internationalisation activities makes them incur only some indirect costs of foreign expansion and consequently, they can make braver decisions without exposing the enterprise to a temporary loss of liquidity. Thanks to the funds under sub-measure 3.3.3 the scope of initiatives undertaken is scaled up and therefore their effects can be obtained faster and at a bigger scale than without the support.
- **has a consultancy aspect.** The beneficiary has an opportunity to make use of a consultancy service (by 2018 a training service had been also at stake) which supports a selected expansion direction. It is the enterprise that decides about the service scope. Thus, it has a chance to increase its awareness of the challenges facing it on the new market and of possible solutions.
- **allows participants to directly contact foreign partners.** A compulsory support element is the participation in economic missions or fairs. As beneficiaries indicate, the most important effect of their presence in these events is establishing relationships and expanding the networking of their enterprise.

The instrument structure also responds to some recommendations concerning State aid for exports when it comes to enterprises in the area of National Smart Specialisations (NSS)¹⁸⁵. In this respect sub-measure 3.3.3 :

- **recommends valuable branch events.** The Branch Promotion Schemes indicate these events which have been recognised as valuable for a given branch and despite the fact that *Go to Brand* gives the beneficiary a chance to choose different promotional methods, they are still a kind of tip for searching.
- **introduces a geographical limitation.** The Branch Promotion Schemes include a list of perspective markets, less popular and with a bigger number of potential market gaps, where the beneficiary's expansion could turn to more successfully.
- **facilitates lump sum settlements,** which simplifies the complicated system of settling business trips abroad. The project duration has been shortened to 2 years and lump sum settlements have been introduced. In this way the amount allocated to one project has decreased to EUR 100 thousand maximum. These alterations have resulted in designing projects of a smaller scale but of greater precision in terms of output, market and time. The same enterprises implement different projects on different markets and /or different products.

As for the support relevance, what may raise doubts is the criteria of application assessment introduced in 2018 which do not take account of the innovativeness and competitiveness of products. In fact, they do not concern directly the subject matter of the instrument implemented, however, they are related to the aspects conditioning the obtaining of desirable effects. At the present stage of implementing the sub-measure it is difficult to assess whether the projects supported within later calls for proposals which did not consider the criteria mentioned above pose a risk of lower effectiveness. The indicator values declared in applications for funding do not confirm that such a risk is possible. If the efficiency of applicants within later calls is compared to the beneficiaries receiving support before the alteration, the modification introduced could be assessed as a justified simplification of the application selection system.

A long-term phenomenon, related to SME internationalisation, which has attracted the attention of experts from the world of academics is the change which should be made in enterprises as a result of a successful export process. The problem was indicated by both

¹⁸⁵ „Ocena internacjonalizacji krajowych przedsiębiorstw z obszaru specjalizacji KIS. Raport końcowy”. Bluehill Sp. z o.o., Quality Watch Sp. z o.o. na zlecenie PARP, Warszawa 2019. [‘Assessment of the internationalisation of national enterprises in the NSS area. Final report’. Bluehill Sp. z o.o., Quality Watch Sp. z o.o., commissioned by the PARP, Warsaw 2019].

experts and beneficiaries themselves. Concluding big international contracts makes the small or medium-sized company face the necessity of changing business model and restructuring the company due to new, more complex tasks and orders coming from abroad. The challenges occurring related to e.g., managing contact bases, scaling up production and distribution might induce financial and organizational concerns or problems. It is often a great challenge for enterprises, especially if they go through this process rapidly and without any support.

The instrument offered assumes that as for the final effects, the obtained income from export sales will influence the improved financial situation of the companies supported and consequently, it will be a driving force for further investments made by enterprises. An inability to cope with challenges created by new contracts could be a hindrance for obtaining these effects.

Aid proportionality

As previously indicated, due to the preliminary stage of sub-measure 3.3.3 implementation, the analysis of the relation of expenditures incurred to the beneficiary's prime costs will not be reliable enough due to inaccurate data available at this stage.

The vast majority of beneficiaries have chosen funding in the form of *de minimis* aid. It allows for a greater funding intensity relative to the beneficiary's prime costs. Within the agreements contracted by the end of 2019, beneficiaries committed to incur costs of private investments worth in total PLN 235 million, whereas the overall amount of the funding granted accounted for PLN 473 million, which means that they will amount to 33% of the value of projects implemented. The agreements whose support intensity is over 60% constitute only 8% of all contracts signed. Among agreements signed, 43% of them assume funding at the level of 80% and higher. Such a high support intensity is related to a high percentage of micro- and small companies using the support, as well as to the aid form they choose, which allows for a high share of the grant in the project eligible costs. It should be also remembered that the nominal value of the grants is not high: its average value is PLN 397.8 thousand. It is one of the lowest among the all OP SG sub-measures.

The two most measurable impact indicators which are assumed for sub-measure 3.3.3 are the number of foreign contracts signed as a result of promotional activities and the income from export sales. In the projects completed, the average number of foreign contracts concluded per PLN 100 thousand of the funding divided amounted to 1.3. It should be remembered that at the time of conducting the evaluation only in the case of 42% of projects completed, signing such agreements has been reported and it is expected that this effect will be reported in subsequent reporting cycles. As for the income from exports, in the projects completed the average income per one foreign contract signed accounted to PLN 2.1 million. The average income per PLN 100 thousand of the support granted reached nearly PLN 3.3 million. Also in this case it should be

remembered that the income has not been reported by more than 50% of beneficiaries which have completed the project. Taking account of only projects whose implementation ended up with obtaining an income, the average income per PLN 100 thousand accounted for PLN 7.6 million.

Looking at the relation of the income obtained as a result of the implementation of projects completed to their funding amount, it could be claimed that the return rate from the public investment is substantial. If companies with no income obtain a similar value of this indicator in subsequent reporting cycles, it will be possible to regard sub-measure 3.3.3 as successful and the effects as disproportionately high to the value of grants.

8.9.4. Conclusions and recommendations for the support instrument

Sub-measure 3.3.3 as a support instrument for SMEs in order to activate them on foreign markets and to make them undertake development initiatives seems to be relevant. It clearly responds to the most important challenges that exporters face: thanks to providing access to consultancy services it broadens knowledge, allows to establish contacts during foreign missions and fairs, as well as offers financial support for promotional activities. Moreover, it is fitted in with a broad strategy of providing State aid for exports. The beneficiaries' expansion directions and the scope of promotional activities have been defined very clearly in Promotion Schemes, which targets the support under sub-measure 3.3.3 at the most promising sectors and markets.

Short-term effects assumed in projects are observed almost immediately. Entrepreneurs prepare a promotion and take part in foreign events, establishing trade contacts. They also make use of pro-export consultancy.

At the present stage of sub-measure implementation merely the first beneficiaries are reporting the obtaining of final aid effects, such as the contracts signed and the incomes from export sales obtained. The average income from the trade transactions is satisfactory and proves a high return rate of the funding granted. Some enterprises have already exceeded the income level declared in the application for funding. At the present stage it is difficult to say to what extent such a level of effects obtained will be common for other beneficiaries. If they obtain similar results, it will be possible to state that sub-measure 3.3.3 has proven very successful.

The uncertain social and economic situation caused by COVID -19 pandemic poses a risk to obtaining objectives within the instrument under analysis. Limited mobility and also the enterprises' condition and the situation on foreign markets will definitely have an impact on development and export decisions of supported companies.

Among recommendations whose application could have a positive impact on the implementation of this pro-export support in the future there are the following:

- Pointing at reliable consultancy companies (e.g. certification, accreditation or quality seal). Smaller enterprises often have difficulty finding professional, targeted consultancy service regarding a given market - it would be very helpful if a base or network of reliable experts competent at the specificity of doing business on the markets indicated were created.
- Providing support for enterprises as for scaling up their activity. As experts state, an important challenge Polish export companies face is an ability to scale their business after foreign contracts have been signed. Orders from foreign partners create a lot of new organizational challenges related to, among others, a change in business model, managing contact bases, scaling up production or supply logistics. It is recommended that the launch of consultancy support at this stage of implementing foreign orders should be considered.
- Support decentralisation. Because of a very big number of beneficiaries the support service provided by the PARP implementing department is more and more difficult. With regard to the next financial perspectives it would be advisable to take account of implementing this support with the help of operators or accelerators. Such institutions could unburden both the implementing department and entrepreneurs themselves when it comes to administrative service for project implementation. Besides, specially selected Business Environment Institutions could help less experienced beneficiaries find valuable consultancy and consult themselves substantive challenges arising in projects.
- Continuing activities related to the Polish Economy brand. As indicated in the evaluations within the previous financial perspective and in statements made by experts and beneficiaries themselves, the key to obtaining image effects related to the national brand is taking consistent actions. Continuing activities related to building up a consistent image could lead to the strengthening of effects worked out in recent years.
- Continuing efforts aimed at simplifying financial and reporting issues with regard to the implementation of projects on export promotion. The complicated system of settling the costs incurred and reporting activities undertaken makes project service absorb considerable resources from both the PARP and beneficiaries. Continuing simplifications may result in proceeding projects faster.

9. Annex

9.1. Evaluation of PARP public aid under OP SG 2014-2020 - report in Polish

9.2. Verification of the theory of change with regard to non-key instruments of the PARP aid scheme - detailed results

9.3. Detailed description of the evaluation methodology
