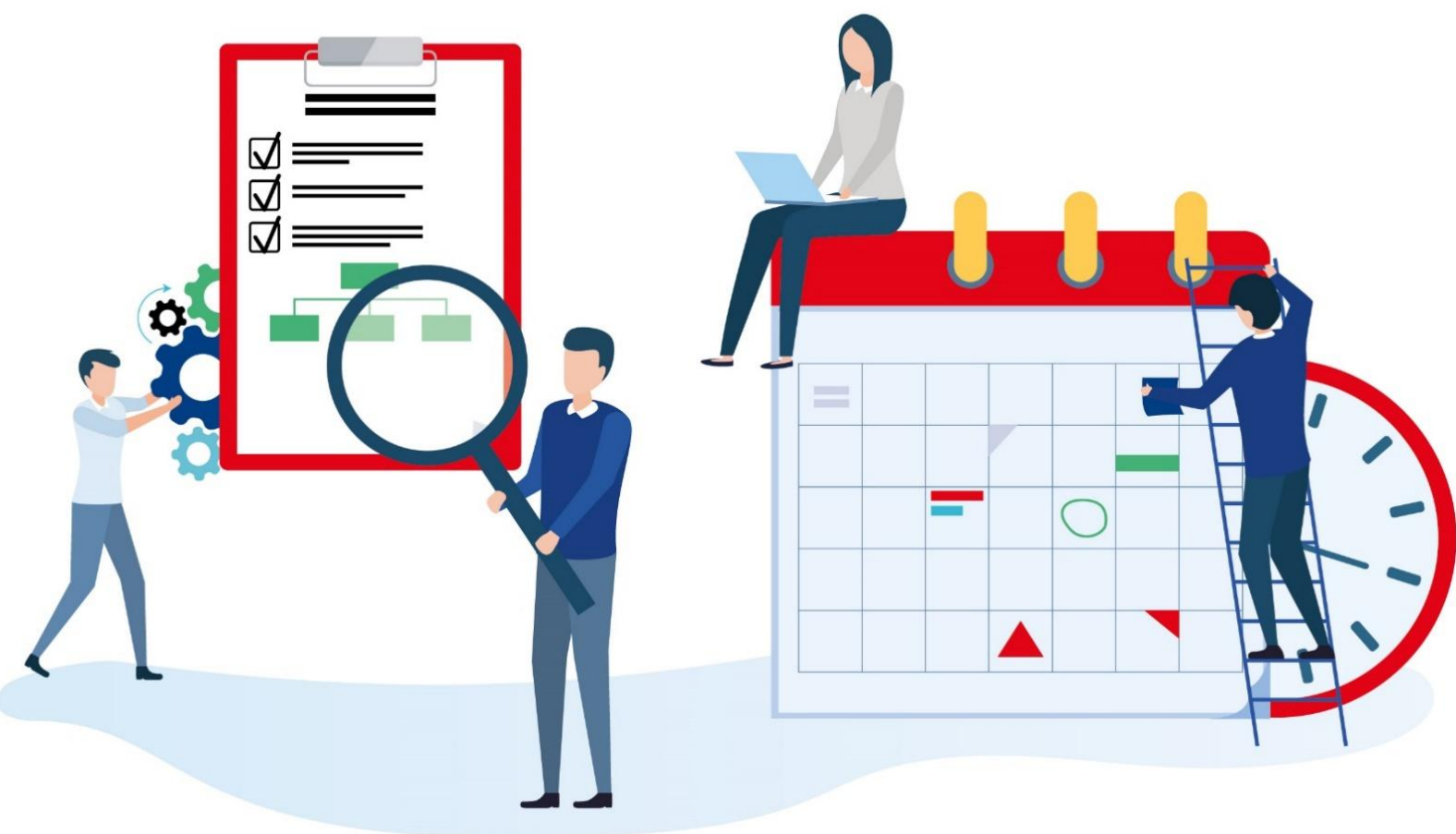


Ex post evaluation of the Basic Research Program

– Norwegian Financial Mechanism and EEA Financial Mechanism 2014-2021



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List of Abbreviations and Acronyms

Table 1. List of Applied Abbreviations

Skrót	Wyjaśnienie
CATI	Computer-Assisted Telephone Interview
CAWI	Computer-Assisted Web Interview
EOG	European Economic Area
IDI	In-Depth Interview
KPK	National Contact Point
MFIPR	Ministry of Funds and Regional Policy
MF EOG	Financial Mechanism of the European Economic Area
NCBR	National Centre for Research and Development
NCN	National Science Centre
NMF	Norwegian Financial Mechanism
RR	Response rate
SOPZ	Detailed Description of the Subject of the Order

Source: Own study

1. Summary

The “Basic Research” programme, implemented by the National Science Centre (NCN) under the EEA and Norway Grants, aims to support Polish scientific research that contributes to developing a knowledge-based society. The programme includes three main objectives:

- development of international cooperation in science,
- building strategic research partnerships,
- increasing the participation of Poland and Norway in the Horizon Europe programme.

The programme focuses, among other things, on polar and social research and support for young scientists. A total of EUR 57.37 million was allocated for the programme’s implementation.

The evaluation study aimed to analyse the impact of the activities carried out under the “Basic Research” programme on the development of science, international cooperation, and support for young scientists and to assess the effectiveness of the implemented programme management mechanisms. The study aimed to identify both positive and negative aspects of the implemented activities, indicate areas requiring improvement and assess the degree to which the assumed objectives were achieved.

Various research methods were applied in the study:

- **Analyses of existing data (desk research)** included reviewing programme documents and calls for proposals and assessing support for women and young scientists.
- **Individual in-depth interviews (IDI)** with representatives of the NCN, the Programme Committee, the Research Council of Norway, and programme beneficiaries, aimed at gathering detailed information on experiences and perceptions of the programme.
- **CAWI/CATI surveys** conducted with call winners, aimed to collect opinions on the project implementation outcomes within the program.
- **Recommendation workshop** aimed to develop practical recommendations for improving the programme’s effectiveness.

The structure of the report was built around the following issues:

- objectives and expectations,
- management,
- effectiveness,
- challenges,
- long-term impact.

The report concludes with findings and recommendations.

Objectives and expectations towards the Programme

The “Basic Research” programme, financed by the Norwegian and EEA Financial Mechanisms for the years 2014–2021 and operated by the National Science Centre (NCN), was highly rated in terms of its alignment with the priorities and objectives of the donors (Norway, Iceland, Liechtenstein). Its main priorities were also assessed as consistent with the NCN’s scientific and research policy. In the opinion of the study participants, the programme aligns with the mission of the National Science Centre by providing funding for basic research, guaranteeing the freedom to choose research topics, supporting young scientists, and promoting gender balance. Also, regarding the scientific quality of the funded projects, the Programme fully realises the NCN’s priorities. The Programme effectively responded to the research needs of Polish scientific institutions, taking into account current research directions and infrastructural needs, and provided support enabling the implementation of long-term projects. The **Programme met participants’ expectations**, and its value for Polish science and international cooperation was widely appreciated.

Management and implementation of the Programme

The study showed that the National Science Centre (NCN) effectively fulfilled its role as the operator of the “Basic Research” programme, ensuring high-quality management and support for beneficiaries. Beneficiaries appreciated the involvement and competence of project supervisors, who effectively supported the implementation of research. The effectiveness of electronic and direct communication was rated particularly highly, as it enabled quick responses to difficulties arising during project implementation. Programme management was assessed very positively; however, the identification and elimination of administrative barriers in future editions could significantly improve its effectiveness and increase the comfort of work for both beneficiaries and the Programme operator.

Impact of the programme on international cooperation

The “Basic Research” programme fulfilled its objectives in supporting international cooperation, enabling Polish and Norwegian researchers to build lasting relationships and carry out ambitious research projects. Although some difficulties arose due to procedural, organisational, and cultural differences, they did not significantly impact the overall assessment of the Programme. Participants emphasised the value of knowledge exchange, which improved the quality of research and increased the number of publications and grant applications (e.g. in Horizon Europe). The Programme also created conditions for conducting interdisciplinary research, fostering innovative approaches and methodologies. Interest in continuing the research is high, and the results achieved indicate a strong foundation for further cooperation within European programmes and international research consortia.

Effectiveness of the Programme and results achieved

The Programme effectively achieved its research objectives by filling financial gaps in basic research. Most beneficiaries reached the intended outcomes, which translated into an increase in the number of publications, the development of innovative research methods, and the strengthening of international cooperation, thereby enhancing research quality. The Programme created conditions for conducting interdisciplinary projects, which broadened the range of research topics and increased integration between various scientific disciplines. Key results include numerous publications in renowned journals and support for young scientists who have gained experience in international teams. The Programme contributed to developing innovative solutions that may be significant for the

further advancement of science and have potential practical applications, particularly in areas related to healthcare, climate change, and new technologies.

Challenges during the implementation of the Programme

The Programme encountered challenges that affected the course of research projects to varying degrees. The main difficulties stemmed from external factors such as the COVID-19 pandemic, the war in Ukraine, rising inflation, and administrative and procedural barriers that limited the efficiency of project implementation. Despite the difficulties encountered, programme participants and the NCN demonstrated considerable flexibility, which allowed for the effective implementation of projects. The NCN supported beneficiaries by enabling budget reallocations and schedule modifications, which minimised the adverse effects of external factors. As a result, projects could be adapted to changing conditions, and their objectives were effectively achieved.

Impact of the Programme on the long-term development of science, public policy, and the non-academic sector

The Programme was assessed as an effective mechanism for supporting the development of Polish science, enabling the implementation of high-level research and contributing to the increased competitiveness of Polish scientific institutions on the international stage. The research results achieved under the Programme provided valuable data, analyses, and tools that may be used in shaping public policies in various areas. In particular, research related to climate change, public health, migration policy, and education delivered findings that can support decision-making processes at both national and international levels.

The Programme also contributed to the growing importance of science beyond the academic sector. Many research projects delivered solutions that may be applied in medicine, technology, and industry.

The Programme's long-term effects are particularly evident in the context of international cooperation, research interdisciplinarity, and the integration of science with policy and the economy.

2. Introduction

2.1. Context of the study

The **Basic Research Programme** was one of 11 programmes implemented under the third edition of the Norwegian and EEA Funds. These funds aim to reduce social and economic disparities in the EEA and strengthen bilateral relations between the donor states and the beneficiary countries. Poland, with an allocation of EUR 809.3 million (the largest among EU countries), is responsible for implementing the funds under the supervision of the Ministry of Funds and Regional Policy in cooperation with the Financial Mechanism Office in Brussels¹.

The Research Programme consisted of two components: basic research and applied research. The National Centre for Research and Development (NCBR) managed the applied research component, while the **National Science Centre (NCN)** operated the Basic Research Programme (hereinafter: the Programme). EUR 57.37 million was allocated for basic research, prioritizing polar research and social sciences. The Programme partner on the donor side was the Research Council of Norway, which supported Polish-Norwegian cooperation².

Basic research includes experimental or theoretical undertakings to acquire new knowledge about fundamental phenomena without direct commercial application. The Programme was addressed to universities, scientific and research institutes, and individual researchers, supporting their research and the implementation of results².

The objectives of the Programme focus on strengthening scientific cooperation between Poland and Norway, increasing research potential, and promoting Polish and Norwegian researchers on the European stage. The key assumptions include³:

1. **Strengthening the development of science** based on international cooperation – through long-term partnerships and intensified knowledge exchange.
2. **Supporting joint research initiatives** to build strategic partnerships – by ensuring effective project management and high-quality administrative support.
3. **Increasing the participation of Poland and Norway in the Horizon Europe programme** – by encouraging joint applications to European research initiatives, thereby strengthening the international position of researchers and institutions.

The GRIEG, IdeaLab, and POLS calls were announced within the Programme. In addition, the predefined project CRIOS was implemented, along with a scholarship programme for students and researchers from Ukraine without a doctoral degree and the bilateral polar initiative HarSval⁴. Another bilateral initiative, Science and Society, in the field of humanities, social sciences, and the arts, has been implemented since September 2024 and was not included in the evaluation.

¹ <https://www.ncn.gov.pl/eeanorwaygrants/info> [Dostęp: 16.02.2025]

² <https://www.ncn.gov.pl/en/ogloszenia/konkursy/grieg> [Dostęp: 16.02.2025]

³ https://www.ncn.gov.pl/sites/default/files/pliki/prezentacja_konkurs_grieg_zasady%20kwalifikowalnosci_kosztow.pdf [Dostęp: 16.02.2025]

⁴ Ibidem.

2.2. Subject, main assumptions, and objectives of the study

The objective of the evaluation study was to assess the implementation of the Programme's key assumptions and to support adjustments for the future edition of the Norwegian and EEA Funds. The focus was on evaluating the current implementation of the Programme, taking into account the impact of external and internal factors on the pace of achieving the planned outcomes and the feasibility of meeting the objectives. The evaluation also provided information about the Programme operator and the implementation and management processes, identifying areas requiring improvement, including the adaptation to the needs of different target groups.

The evaluation study assessed the Programme concerning three criteria:



Figure 1. Evaluation criteria

Source: Own study

In relevance, the assessment focused on whether the Programme addressed the objectives, strategies, and policies of the Donor States and the needs of the NCN as the Programme Operator. The criterion of effectiveness analyzed the extent to which the Programme's results were achieved, the evidence of its accomplishments, and the nature of cooperation between various individuals and institutions (e.g. project leaders, implementing entities, Polish-Norwegian scientific cooperation, beneficiaries – NCN), taking into account the impact of external factors such as the COVID-19 pandemic or the war in Ukraine. In the area of impact, both the positive and negative effects of the research conducted were evaluated, including their impact on the development of science in Poland.

3. Description of the applied methodology

A variety of research methods were applied in the evaluation study.

The first method was the analysis of existing data (desk research), aimed at developing a framework of the "Basic Research" Programme implemented by the NCN, including a review of the announced calls for proposals. The scope of tasks and roles of entities involved in the Programme's implementation was analyzed, with particular attention to the support for women and young scientists, as well as additional positive effects—i.e. activities and actions that were not originally planned. The analysis also included international cooperation and the identification of problems in implementing the Programme, aiming to propose solutions to improve its effectiveness. The study was based on Programme documents of the NFM and EEA FM, internal NCN procedures, data on projects under the Programme, interim reports, and project evaluation results.

The second method consisted of qualitative research methods, including individual in-depth interviews (IDI), dyads, and triads, which were conducted with at least 22 individuals involved in the programme's implementation. The interviews covered the NCN Directorate and staff, the Basic Research Programme

Committee members from Poland and Norway, the Research Council of Norway, and Programme beneficiaries. The interviews aimed to obtain detailed information about experiences, perceptions of the Programme, and its outcomes.

Another method used was quasi-quantitative CAWI/CATI research, aimed at collecting data from winners of Programme calls and additional activities. In the case of such calls as GRIEG, POLS (Small Grant Scheme), and the Scholarship Programme for students and researchers from Ukraine, the research sample covered 50% of beneficiaries who received funding under each of the calls and the Scholarship Programme. Each of the listed calls/programmes had 35 beneficiaries who received funding. Research sample units were randomly selected from the project database until the desired number of returned questionnaires was reached—i.e. a response rate (RR) of 50%. Due to the considerable number of surveyed beneficiaries and the random selection of the research sample units, the study can be considered representative of the entire population.

In the case of the IdeaLab call, the predefined polar project CRIOS, and the bilateral initiative HarSval: 1 person per initiative was included; the sample was complete, meaning it covered all beneficiaries who received funding. The entire research sample consisted of 58 individuals/beneficiaries.

The final research method was a recommendation workshop aimed at developing practical recommendations for implementing the Programme. The workshop was organized with the participation of the study's researchers and NCN staff responsible for Programme implementation. The goal was to prepare recommendations that could be used by the individual institutions involved in the Programme's implementation.

4. Description of the results

4.1. Operating principles of the Basic Research Programme and intervention logic

4.1.1. Overview of the announced calls for proposals

GRIEG – a call for Polish-Norwegian research projects (budget: €46.18 million)⁵.

GRIEG was the flagship call of the Basic Research Programme, financed by the Norwegian Financial Mechanism, aimed at developing Polish-Norwegian scientific cooperation and increasing the internationalization of research. The Programme supported scientific collaboration across various fields, particularly polar research and social sciences, facilitating knowledge exchange between researchers from Poland and Norway. It enabled scientists from both countries to jointly implement projects, fostering knowledge sharing, developing research competencies and establishing long-term partnerships⁶.

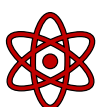
The participants were Polish research organizations acting as consortium leaders, cooperating with Norwegian partners. Partnership with Norwegian research institutions was mandatory and constituted a requirement for project eligibility. The minimum partnership requirements were intended to strengthen scientific relations between the countries⁷.

Applications in the GRIEG call were submitted to disciplinary panels in three research areas⁸:



Humanities, Social Sciences and the Arts (HS1–HS6) – covering issues related to culture, politics, society, and institutions.

Life Sciences (NZ1–NZ9) – covering biology, medicine, immunology, public health, and pharmaceutical sciences.



Physical Sciences and Engineering (ST1–ST10) – including, among others, mathematics, computer science, physics, engineering, and Earth sciences.

Figure 2. Research areas in the GRIEG call

Source: Own study.

An international team of experts, excluding Polish and Norwegian experts, conducted the substantive evaluation of applications in the GRIEG call in two stages—first in compliance with the call's requirements, and then through expert peer review. The experts paid particular attention to scientific

⁵ <https://www.ncn.gov.pl/eeanorwaygrants/info> [Dostęp: 16.02.2025]

⁶ https://www.ncn.gov.pl/sites/default/files/pliki/prezentacja_konkurs_grieg_zasady%20kwalifikowalnosci_kos_ztow.pdf [Dostęp: 16.02.2025]

⁷ Ibidem.

⁸ Ibidem.

quality, innovation, and the potential impact of the projects on the development of international cooperation⁹.

GRIEG was the Programme's largest call in terms of budget and number of applications. It was implemented using a bottom-up formula, allowing scientific freedom in selecting project topics. A mandatory requirement was that project be implemented in Polish-Norwegian cooperation, with the minimum participation of one Norwegian partner. As such, it inherently supported international cooperation.

A total of 306 applications were submitted to the call, confirming the high level of interest from the scientific community. Funding was awarded to 35 projects (approximately 11%) due to the size of the financial allocation designated for the call.

IdeaLab – an innovative, interdisciplinary call for researchers from Poland, Norway, Iceland, and Liechtenstein for research projects addressing significant societal challenges (budget: €4.43 million)¹⁰.

The unique formula of the call was based on the selection of research projects developed as a result of workshops conducted using the “sandpit” method, applied by the UK Engineering and Physical Sciences Research Council and the Research Council of Norway¹¹. The National Science Centre organized the call. Around 30 participants (researchers from various disciplines) selected through an open call and evaluated by a team of experts¹² took part in the workshops.

During the intensive, multi-day workshops, participants collaborated on developing new, innovative research projects. The workshops encouraged questioning established patterns, exploring new perspectives, and adopting interdisciplinary approaches. Experts acted as moderators, supporting creative thinking and helping participants identify the most groundbreaking research concepts. Facilitators conducted working sessions, facilitating collaboration and the development of research projects among the participants¹³.

After the workshop, research teams could apply for funding, provided they met the partnership criteria—each project had to include at least one partner from Poland (as the consortium leader) and at least one partner from Norway, Iceland, or Liechtenstein¹⁴.

The call was implemented in a top-down formula, with a theme defined by the NCN Council and the Basic Research Programme Committee: “Managing Threats”. The theme addressed a broad range of social and environmental issues, from climate change to geopolitical threats. The projects were expected to develop innovative solutions for effective risk management and threat mitigation¹⁵.

⁹ <https://www.ncn.gov.pl/en/ogloszenia/konkursy/grieg> [Dostęp: 16.02.2025]

¹⁰ <https://www.ncn.gov.pl/eeanorwaygrants/info> [Dostęp: 16.02.2025]

¹¹ Załącznik nr 1 do SOPZ.

¹² https://www.ncn.gov.pl/sites/default/files/pliki/prezentacja_idealab_konkurs_i_warsztat.pdf [Dostęp: 16.02.2025]

¹³ Ibidem.

¹⁴ Załącznik nr 1 do SOPZ.

¹⁵ Załącznik nr 1 do SOPZ.

As a result of the call, the selected projects received funding from the EEA Financial Mechanism, and their results were published in renowned scientific journals following the open access policy. In addition to publications, particular emphasis was placed on building lasting international partnerships and facilitating knowledge transfer among researchers¹⁶.

POLS – a mobility call under the Small Grant Scheme for researchers from abroad wishing to conduct research in Poland (budget: €7 million)¹⁷.

The POLS call supported scientific mobility by offering research grants to scientists from abroad who wished to conduct research in Poland. The aim was to internationalize Polish science, attract talent, and strengthen Polish research institutions¹⁸. The call supported the implementation of projects by researchers from abroad in Poland, the integration of Polish researchers with the international academic community, the development of their careers in international teams, and the increased effectiveness of Polish institutions in applying for prestigious grants such as ERC¹⁹.

POLS was addressed to researchers from abroad holding at least a doctoral degree. The call's thematic scope was broad and covered all fields of science following the NCN discipline panels. The funding included the researcher's remuneration and the costs of conducting research in Poland²⁰.

The number of applications submitted under the POLS call was 99, which was lower than expected (the call was announced during the COVID-19 pandemic). A total of 35% of the submitted applications were approved for implementation.

Other initiatives

CRIOS – a project for modernizing the cryosphere monitoring network on Spitsbergen (€1.27 million), funded by the EEA Financial Mechanism. It was implemented by seven partners – members of the Polish Polar Consortium – in cooperation with four Norwegian partners.²¹ [Annex No. 1 to the Terms of Reference], with the University of Silesia acting as the leader of the Polish-Norwegian consortium.

Scholarship programme for students and researchers from Ukraine without a doctoral degree (~€0.5 million) under the Bilateral Cooperation Fund. A total of 35 scholarships were awarded at Polish academic institutions²².

HarSval – an initiative supporting Polish-Norwegian polar cooperation in Svalbard, implemented under the Bilateral Cooperation Fund (BCF) with a budget of €1.58 million. The University of Silesia leads the consortium, and the initiative involves 25 partners (14 from Norway and 11 from Poland)²³.

¹⁶ <https://www.ncn.gov.pl/en/ogloszenia/konkursy/idealab>

¹⁷ <https://www.ncn.gov.pl/eeanorwaygrants/info>

¹⁸ https://www.ncn.gov.pl/sites/default/files/pliki/centrum-prasowe/NCN_ulotka_POLS_2019.pdf

¹⁹ https://www.ncn.gov.pl/sites/default/files/pliki/centrum-prasowe/NCN_ulotka_POLS_2019.pdf

²⁰ Ibidem.

²¹ Załącznik nr 1 do SOPZ.

²² Załącznik nr 1 do SOPZ.

²³ Ibidem.

4.1.2. Scope of tasks and roles performed by entities involved in the programme

Key institutions were involved in implementing the Programme funded by the Norwegian and EEA Funds, with the Research Council of Norway (RCN) acting as the primary partner supporting the National Science Centre (NCN). The RCN was responsible for coordinating the cooperation of Norwegian beneficiaries, promoting research and innovation that contribute to the development of science, the economy, and social capital. A significant aspect of the RCN's involvement in the programme was the support of international research cooperation, which facilitated Polish researchers' access to Norwegian partners, resources, and expertise, thereby enhancing the quality and internationalization of Polish research²⁴.

The NCN acted as the Programme Operator, responsible for the application process, project funding, and the development of international cooperation networks. Thanks to the cooperation between the NCN and the RCN, Polish researchers could apply for funding to carry out basic research and implement projects in partnership with Norwegian institutions²⁵.

Effectiveness of the structure of the National Science Centre (NCN)

The results of the quantitative and qualitative studies on the effectiveness of the NCN as the Programme Operator were unequivocally positive. The NCN's structured organization successfully ensured effective handling of applications, project management, and administrative support for both Polish and international partners. Thanks to its specialized teams, the NCN efficiently coordinates research calls, ensuring financial transparency and high-quality support for researchers (detailed research results are presented in section 4.3.1).

4.1.3. Intervention logic of the Basic Research Programme – application of the concept mapping method

The Basic Research Programme was a key intervention supporting the development of scientific research in Poland, particularly in international cooperation with the Donor States: Norway, Iceland, and Liechtenstein. The Programme addressed the need to improve the quality of scientific research, strengthen Poland's position in the European research system, and promote equal opportunities for women, men, and young researchers.

²⁴ Ibidem.

²⁵ Ibidem.



Strengthening international scientific cooperation, particularly between Poland and the Donor States.

Promoting equal opportunities in science, including by increasing the participation of women and young researchers.



Creating long-term social and economic effects resulting from the implementation of scientific research.

Strengthening institutional cooperation in the field of science and innovation.



Improving the quality of scientific research in Poland, particularly in the area of basic research.

Figure 3. Visualisation of the Programme's strategic objectives

Source: Own study.

The intervention logic was codified through concept mapping and the creation of a problem tree, which was then presented in graphical form—as a diagram.

The steps used to reconstruct the intervention logic included formalising the intervention theory and translating it into research questions and tools.



Figure 4. Visualisation of the intervention logic of the Basic Research Programme

Source: Own study.

4.2. Goals and expectations for the Programme

4.2.1. Alignment of the Programme's objectives with the priorities and goals defined by the Donor States

The Basic Research Programme was consistent with the priorities and goals defined by the Donor States (Norway, Iceland, Liechtenstein). All participant groups in the evaluation study unanimously agreed that the Programme's objectives aligned with the assumptions established by the Donors, and they did not see a need for any modifications. Some respondents did not feel fully entitled to evaluate the objectives, suggesting that the Donors should make this decision.

4.2.2. Consistency of the Programme with the NCN's scientific and research policy

The Basic Research Programme was fully aligned with the NCN's scientific and research policy objectives. The NCN's mission is to support the scientific community by funding basic research, ensuring its high quality, and granting researchers freedom in selecting their research topics. The Programme supported a wide range of scientific fields through funding in the bottom-up formula used by the NCN in almost all its calls for proposals.

A key goal of NCN policy is to support young researchers and to ensure gender balance in research funding. The Programme included provisions (in the GRIEG and POLS calls) for awarding additional points to researchers who obtained their doctoral degree no more than seven years prior and promoting gender balance in disciplines where women or men are underrepresented. Furthermore, measures were implemented to support researchers raising children, such as extending the period from which scientific achievements could be presented. Another important NCN priority is the internationalization of Polish science, which is realized through international calls and an Open Access policy. The NCN actively promotes making the results of scientific research accessible to a broad audience in line with the principles of the San Francisco Declaration, emphasizing the importance of disseminating publicly funded research results. The Programme fits the NCN's strategy, supporting Polish researchers in establishing international contacts and increasing their access to international research infrastructure.

4.2.3. Scientific excellence as a key priority

The Programme fully meets the NCN's priorities regarding the scientific quality of funded projects. The criterion of scientific excellence served as the foundation for selecting projects under the Norwegian and EEA Funds, allowing for the financing of research at the highest substantive level. Adding additional points for young researchers and women in underrepresented research disciplines increased the diversity of funded projects. It contributed to levelling the playing field in access to funding.

4.2.4. Beneficiaries' expectations

Analysing the survey results and individual in-depth interviews indicates that the Programme met the beneficiaries' expectations. Over 90% stated that it fulfilled their expectations to a very large or large extent. At the same time, none of the beneficiaries felt that the Programme met their expectations to a small extent. The evaluation results demonstrate the relevance of the chosen forms of support and the high effectiveness of the Programme in achieving its objectives.

Table 2. To what extent did the support you received meet your expectations?

To a very large extent	48,39%
To a large extent	41,94%
To a moderate extent	9,68%
To a small extent	0,00%
It does not meet expectations at all	0,00%

Source: CAWI/CATI with representatives of winners from the completed calls and additional activities carried out within the programme.

The participants' expectations for the Programme can be divided into several main areas:

- 1) Development of research infrastructure and access to modern equipment is needed. This will enable the implementation of advanced projects and improve research quality.
- 2) The internationalisation of research achieved through establishing international collaborations and adopting research standards and methodologies applied in other countries.
- 3) Support for young researchers.
- 4) Interdisciplinarity and the undertaking of innovative research topics often crucial for the advancement of specific fields.
- 5) Dissemination of research results, reflecting the need for increased resources to promote scientific outcomes.
- 6) Tailoring support to substantive needs, reducing administrative formalities, and increasing flexibility in project implementation.

The Programme's beneficiaries evaluated it very positively, highlighting that the financial support provided significantly facilitated the implementation of basic research projects and the development of research teams. The ability to finance the employment of specialists—thanks to more realistic salary and scholarship rates, particularly for young researchers—as well as full-time employment of administrative managers within projects significantly contributed to team building. At the time of the Programme's calls launches, these measures exceeded the standard funding mechanisms available from other NCN sources. They were very well received by project leaders and the Programme Operator's supervisors. It was especially noted that the Programme supported young researchers, enabling them to gain valuable experience and build networks within the international research community. Investing in the younger generation of researchers may contribute to a long-term increase in the quality of research in Poland and better prepare scientists for conducting interdisciplinary and highly advanced projects.

4.2.5. The programme's response to the research needs of Polish scientific institutions

The Programme effectively addressed the current research needs of Polish scientific institutions, considering current research trends, infrastructure requirements, and support for developing international research collaboration. Providing funding for basic research made it possible to carry out projects that previously could not be financed due to financial constraints. Many project leaders expressed satisfaction with the Programme, which enabled such broad funding for research while highlighting the underfunding of basic research in Poland. The Programme was deemed essential and

suitable for bridging research gaps (i.e., overly or insufficiently explored scientific areas) in many disciplines.

Table 3. From your perspective, does the support programme you participated in address the current research needs of scientists/institutions and the gaps identified in the Polish research system?

To a very large extent	45,16%
To a large extent	41,94%
To a moderate extent	9,68%
To a small extent	3,23%
It does not meet expectations at all	0,00%

Source: CAWI/CATI with representatives of winners from the completed calls and additional activities carried out within the programme.

4.3. Programme management and implementation

4.3.1. High effectiveness of cooperation with NCN as the Programme Operator

The NCN, as the Programme Operator, effectively supported project implementation by ensuring proper communication, administrative assistance, and substantive support and responding flexibly to challenges reported by beneficiaries.

Beneficiaries evaluated their cooperation with the institutions managing the Programme and the results achieved very positively, emphasizing that the Programme served as a catalyst for innovative research and allowed them to accomplish objectives that would have been difficult to achieve under other circumstances.

In both survey and in-depth interview studies, 96% of beneficiaries positively rated collaboration with the National Science Centre as the Programme Operator.

Table 4. How would you rate your cooperation with the programme operator (National Science Centre)?

Strongly positive	54,84%
Somewhat positive	41,94%
Neither positive nor negative	3,23%
Somewhat negative	0,00%
Strongly negative	0,00%

Source: CAWI/CATI with representatives of winners from the completed calls and additional activities carried out within the programme.

The key strengths of this cooperation included the dedication and high competence of project supervisors and their support in administrative, organizational, and financial matters.

Communication with the NCN—both electronic and face-to-face—functioned smoothly and effectively, enabling quick responses and resolution of emerging issues. The availability and willingness to provide information were appreciated, facilitating the efficient implementation of project activities.

Beneficiaries particularly valued the readiness and engagement of project supervisors in challenging situations, especially those arising from the pandemic, inflation, and the outbreak of war in Ukraine. Assistance during difficult circumstances, such as budget reallocations or adjustments to project timelines, was seen as a crucial aspect of support. Beneficiaries praised the NCN's flexible approach to resolving issues that arose during project implementation.

Nonetheless, beneficiaries noted specific challenges that affected the efficiency of project execution. Problems often stemmed from the particular nature of some projects and time constraints that made it difficult to achieve intended objectives. NCN experts and staff actively worked to provide instructions and tools to help beneficiaries keep projects on schedule and meet established standards.

Respondents also highlighted that the effectiveness of the collaboration partly depended on individual skills and the beneficiaries' commitment. As a result, some projects proceeded smoothly while others encountered difficulties.

From the NCN's perspective, cooperation with beneficiaries was efficient, though some challenges arose from differences in expectations and procedures between the NCN and the beneficiaries. However, the need to adapt rules to a dynamically changing research environment and the time-intensive nature of some procedures suggest that further optimization of management processes is needed.

4.3.2. "Bottlenecks" in the Programme's implementation process and proposals for their mitigation

More than half of the respondents participating in the study reported difficulties in project implementation.

Table 5. Have you identified any factors or procedures that hindered the implementation of the projects?

Yes	51,61%
No	32,26%

Source: CAWI/CATI with representatives of winners from the completed calls and additional activities carried out within the programme.

The analysis of Programme implementation highlights several factors and procedures that hindered the execution of activities, both administratively and operationally. During the study, beneficiaries identified the main challenges they faced during the Programme's implementation. It is worth noting, however, that most of these challenges did not pertain to the Programme itself but were related to adverse external factors during project execution and the administrative processes of the institutions employing the project leaders. Below are the most commonly cited challenges encountered during project implementation:

- **The burden associated with reporting**, including difficulties arising from delays in the review of reports, which created uncertainty and hindered the planning of subsequent actions. It is worth noting that reviewing annual and final reports was time-consuming for project supervisors, and frequent errors, particularly related to cost descriptions and financial statements, required repeated corrections. The need to re-verify the same documents increased administrative workload and caused delays. Additionally, the requirement for the

Programme Committee's approval of substantive reports extended the review process²⁶, contributing to a general perception among beneficiaries that administrative procedures were time-consuming. In the case of final report evaluations, the process was further prolonged due to the involvement of the NCN Council, as required by law.

- **Accounting procedures.** Members of the Programme Committee observed that excessive emphasis was placed on ongoing project accounting, which they considered too stringent and overly bureaucratic in the context of basic research. They pointed out that in basic research, there is no need for frequent assessments of project progress or outcomes, as the impacts of such research become apparent only after a long time. It would be more effective to focus on the final outcomes of the projects rather than on their ongoing monitoring.
- **Requirements for scientific publications in Open Access journals** and the difficulty of meeting the demands of publishing research results in Open Access proved to be a challenge, especially in the context of short-term POLS projects and GRIEG projects funded from the reserve list, where the short implementation period made it difficult to prepare publications for high-quality journals.
- **Collaboration between Polish and Norwegian researchers** was more challenging than anticipated for many scientists. These difficulties stemmed from a lack of experience in close cooperation and cultural and methodological differences between the teams. Previous experience working with Norwegian partners or prior established connections in the scientific community proved particularly helpful for researchers (an example could be a project on cancer cell diversity).
- **Objective, external difficulties—such as the COVID-19 pandemic, inflation, and the outbreak of armed conflict in Ukraine**—required project schedules and budget adjustments. These factors led to numerous modifications, and, consequently, additional annexes, which entailed further formalities and required time to prepare the necessary documents on the part of both the Beneficiaries and the Programme Operator. While such changes were often essential to adapt the project to real-world conditions, their implementation was associated with an administrative burden that could slow down the project's execution.
- **The adverse impact of external factors led to supply chain and logistics issues.** Many beneficiaries encountered problems such as switching suppliers, significant price increases, and extended waiting times for equipment, reagents, and other materials. For polar research, key challenges included Arctic weather conditions and the potential degradation of samples during transportation.

²⁶ The Program Committee, which served in an advisory capacity, was often seen by evaluation participants as a "bottleneck." Among the concerns raised were an excessive focus on scientific excellence at the expense of interdisciplinarity, international collaboration, and support for young researchers. The requirement for substantive review of annual reports and providing documents two weeks before Program Committee meetings increased the workload for supervisors and beneficiaries.

Among the “bottlenecks” in project implementation, beneficiaries devoted considerable attention to the difficulties encountered in scientific institutions, such as:

- **Issues with hiring staff (e.g., postdocs)** – insufficient flexibility in employment procedures, particularly for foreign nationals, within scientific institutions.
- **Procurement procedures carried out in scientific institutions** – beneficiaries complained about unclear, prolonged, and overly bureaucratic procurement processes. These often caused delays in the delivery of materials and equipment and increased costs. The long wait times for materials and equipment required changes to research plans, restructuring specific tasks, and adjusting schedules in response to evolving conditions, causing stress and disruption.
- **Technical problems, such as laboratory equipment failures, measurement inaccuracies, or the misalignment of analytical methods, necessitated additional corrections and extended the research timeframe.** While these challenges undoubtedly hindered project implementation, it must be acknowledged that such issues are a routine part of research projects, as it is rare for researchers to avoid all technical difficulties.

Despite these difficulties, research teams undertook adaptive measures, such as adjusting schedules, optimizing budgets, and introducing changes to research methodologies.

According to the respondents, possible solutions to these “bottlenecks” could include:

- **Automating administrative processes** – implementing electronic systems to facilitate communication with beneficiaries and the review of reports.
- **Simplifying reporting requirements** – reducing the number of required reports, including eliminating annual substantive reports and streamlining verification and approval procedures.
- **Reviewing the Programme Committee’s function** – clarifying its role to align more closely with the programme’s objectives, which could improve efficiency and expedite decision-making processes in future programme editions.
- **Making hiring procedures more flexible, especially for foreign nationals** – allowing recruitment processes to begin earlier, before the official start of the grant.
- **Adapting procurement procedures** – enabling more flexible planning of research material deliveries to avoid delays in obtaining essential materials.

In summary, the Programme achieved its objectives; however, identifying and eliminating the “bottlenecks” in future editions could significantly improve its efficiency and enhance the experience for both beneficiaries and the Programme Operator.

4.4. Impact of the programme on international cooperation

4.4.1. Supporting international cooperation between Poland and Norway in the context of scientific research development

According to NCN representatives, the Basic Research Programme significantly contributed to the development of cooperation between Poland and Norway by supporting research initiatives and integrating the academic communities of both countries. This was particularly evident in large-scale research projects, the predefined CRIOS project, and the bilateral HarSval initiative in polar research.

The study findings show that collaboration was characterized mainly by positive experiences, including effective knowledge exchange, teamwork in executing specific tasks, and joint efforts toward achieving set goals. Most beneficiaries in the evaluation studies rated the collaboration between project leaders and the institutions conducting the research very highly.

Table 6. What, in your opinion, was the collaboration like between the project managers and the research-performing entities?

Strongly positive	44,90%
Somewhat positive	44,90%
Neither positive nor negative	3,75%
Somewhat negative	7,48%
Strongly negative	0,00%

Source: CAWI/CATI with representatives of winners from the completed calls and additional activities carried out within the programme.

NCN representatives also positively assessed the collaboration between project leaders and research-performing institutions, highlighting its effectiveness despite administrative and cultural challenges.

Beneficiaries were equally satisfied with the cooperation between Polish and Norwegian research teams, rating it as very positive or rather positive. The collaboration ran smoothly, primarily due to pre-existing relationships and trust between partners. Clear communication guidelines and regular online meetings were crucial, enabling real-time problem-solving.

Table 7. In your opinion, how did the cooperation between the Polish and Norwegian research teams progress?

Strongly positive	49,89%
Somewhat positive	33,27%
Neither positive nor negative	12,45%
Somewhat negative	4,16%
Strongly negative	0,00%

Source: CAWI/CATI with representatives of winners from the completed calls and additional activities carried out within the programme.

The most common difficulties arose from:

- Procedural differences, particularly in project cost reporting and financial report verification. Some institutions encountered difficulties due to unclear divisions of responsibility. The need for Norwegian institutions to adapt to a more formalized reporting system imposed by the donors' regulations and guidelines—especially regarding financial documentation—proved challenging.
- Differences in organizational work culture—Norwegian partners' more structured approach, openness to discussion, and flexibility toward scientific critique were seen as conducive to teamwork. On the other hand, Polish partners demonstrated more significant attention to

detailed scientific justifications and precision and thoroughness in their analyses. While differences in English proficiency levels were noticeable, they did not significantly affect the collaboration process.

- In-person contact was limited during the early stages of research projects. Collaboration was less intense and more isolated than in previous Polish-Norwegian project cycles. This was largely attributed to the COVID-19 pandemic, which restricted collaboration by preventing meetings and hindering research activities.
- In some cases, projects were carried out more independently, with less emphasis on direct collaboration during the research phase. Partners often followed their own pre-designed research paths, which, of course, did not facilitate international integration.

It is worth noting that only a small number of beneficiaries found working in international research teams challenging. The vast majority expressed interest and positively assessed Norwegian researchers' different organizational cultures, working styles, and approaches, emphasizing the collaboration's friendliness and efficiency. Beneficiaries considered the opportunity to participate in projects under the Programme a very valuable experience.

Naturally, random challenges arose during project implementation, such as personnel changes, maternity leaves, and illnesses, which necessitated adjustments to the project plans. However, these issues were not systemic in nature. As the Programme Operator, NCN demonstrated great understanding and flexibility in processing these changes, allowing projects to adapt to the dynamic research conditions.

4.4.2. Changes in international collaboration

Most participants in the evaluation study emphasized the positive changes in international collaboration resulting from the project's implementation. Many pointed to developing new, promising research projects with international partners, creating new research methodologies, and even developing new research instruments.

Respondents noted that this collaboration led to joint grant applications, scientific publications, and co-hosted conferences and seminars. Strengthening ties between research teams resulted in improved cooperation quality and increased activity effectiveness. Moreover, the Programme contributed to greater recognition of Polish research teams on the international stage.

Table 8. In your opinion, what changes occurred in international collaboration as a result of your project's implementation?

Strongly positive	32,26%
Somewhat positive	45,16%
Neither positive nor negative	3,23%
Somewhat negative	3,23%
Strongly negative	0,00%
Strongly positive	3,23%

Source: CAWI/CATI with representatives of winners from the completed calls and additional activities carried out within the programme.

Additionally, according to the respondents, international collaboration facilitated the exchange of experiences and the development of younger researchers, including doctoral students and undergraduates. In some cases, the projects helped establish new research teams that continued their collaboration even after the project ended. Respondents also highlighted the positive impact of participating in international conferences, which enabled them to disseminate their research results. Consequently, international cooperation became vital to their scientific work, leading to new research perspectives and opening doors to future joint projects.

Moreover, the experiences gained through the Programme allowed researchers to form new contacts and partnerships with countries outside Europe, further broadening their collaborative reach.

Representatives of the NCN and the Programme Committee also noted that the Programme significantly enhanced Polish-Norwegian collaboration, mainly through knowledge and experience exchange and the mobility of young researchers. The projects allowed them to work internationally, learn research procedures, and participate in joint studies conducted in both countries, broadening their skills and academic horizons. The Programme fostered the establishment of new partnerships and the continuation of existing collaborations, especially in social and polar research fields. A testament to the effectiveness and durability of these relationships was the submission of joint grant proposals under initiatives such as Horizon 2020.

4.4.3. Developing long-term scientific relationships between Poland and Norway

Given the very positive assessment of Polish-Norwegian cooperation, most participants in the evaluation studies believe that the Programme's implementation positively impacted long-term scientific relationships between Poland and Norway. Only a few beneficiaries noted that while most of their research occurs within international collaborations, not all partnerships established through the Programme are long-term.

Table 9. In your opinion, has the program's implementation impacted long-term scientific relations between Poland, Norway, and other donor states?

Definitely yes	38,71%
Probably yes	29,03%
Probably not	3,23%
Definitely not	3,23%
Hard to say	25,81%

Source: CAWI/CATI with representatives of winners from the completed calls and additional activities carried out within the programme.

According to the beneficiaries, the Programme fostered the building of lasting scientific relationships between Poland and Norway. A key factor supporting the continuation of cooperation was the opportunity to meet partners and assess their scientific competencies directly. This created a foundation for future joint projects, enabling the preparation and securing of funding for new research initiatives. Access to the knowledge and experience of Norwegian partners was a critical advantage, facilitating the continued development of long-term international collaboration.

The vast majority of respondents plan to continue working with their Norwegian partners.

Table 9. Do you intend to continue the established international collaboration?

Definitely yes	67,74%
Probably yes	9,68%
Probably not	6,45%
Definitely not	6,45%
Hard to say	9,68%

Source: CAWI/CATI with representatives of winners from the completed calls and additional activities carried out within the programme.

Projects that do not promise further international collaboration are those where one partner's engagement has lapsed or the project has no direct thematic connection to either Poland or Norway, thus limiting the potential for continued collaboration between these countries. Some respondents stated that their scientific interests and research directions evolved differently from their original plans, making further cooperation unwarranted. In some instances, foreign partners showed low levels of commitment due to changing jobs, which naturally hindered the continuation of the partnership.

Nevertheless, these situations were marginal, and the Programme significantly strengthened long-term research relationships. Some researchers established new scientific relationships even after the formal collaboration under the Programme ended, suggesting that while specific partnerships may fade, the Programme contributed to building new research networks.

4.4.1. Benefits of international knowledge and experience exchange for Programme participants

Almost all beneficiaries gained from the international exchange of knowledge and experience through the Programme's support. Only a tiny percentage of respondents did not benefit from this exchange, likely due to individual circumstances or project-related limitations.

According to experts, the outcomes of this collaboration may include expanded scientific cooperation and the development of new research initiatives. For these outcomes to be sustainable, it is essential to appropriately leverage and widely disseminate the research results so they can influence, for example, science policy and efforts to combat climate change and protect the environment. The goal is for these topics to be reflected in long-term research policies, which could lead to even deeper international collaboration in areas like climate change. Strengthening international scientific consortia, integrating research findings into climate protection policies, and advancing projects funded by European sources such as Horizon Europe will be crucial.

Similarly, research on health protection, including civilizational and oncological diseases, shows significant potential for continued collaboration. These studies' interdisciplinary nature and international engagement support the development of innovative technologies and therapeutic methods. As part of the completed projects, substantial progress has been made in developing advanced biomaterials, bioactive composites, and diagnostic technologies (e.g., algorithms for blood cell counting). Research on the molecular and morphological diversity of microorganisms may find applications in diagnosing and treating civilizational diseases, opening up opportunities for further cooperation with medical and clinical institutions.

Health-related projects have facilitated intensive knowledge and experience sharing between Polish and international research teams. Collaboration with Norway and other countries has allowed for the

development and testing novel technologies in an international research environment, providing a solid foundation for future initiatives. Despite administrative challenges and constraints caused by the COVID-19 pandemic, interest in continuing these studies remains high, and the results achieved indicate strong prospects for further cooperation under European programmes and international research consortia.

4.5. Programme effectiveness and results achieved

4.5.1. Addressing science and innovation priorities in the context of international research collaboration

The Programme significantly addresses science and innovation priorities critical to international research collaboration, such as climate change, future technologies, and sustainable development. Over 70% of respondents confirmed that projects funded under the Programme tackled key global challenges.

Some respondents emphasized that the nature of basic research, which focuses on understanding fundamental processes and phenomena, means that its impact on priority science and innovation topics may be indirect but is essential for further developing applied solutions.

Table 10. In your opinion, to what extent does the support programme you participated in address science and innovation priorities that are particularly important in the context of international research collaboration (e.g., climate change, future technologies, s

To a very large extent	32,26%
To a large extent	41,94%
To a moderate extent	19,35%
To a small extent	3,23%
Not at all	3,23%

Source: CAWI/CATI with representatives of winners from the completed calls and additional activities carried out within the programme.

A key assumption of the evaluated Basic Research Programme, funded by the NCN, was to promote scientific excellence without imposing thematic restrictions. Projects proposed by researchers through the bottom-up formula often addressed significant global issues. They reflected current scientific and societal challenges—many completed projects focused on climate change and biodiversity conservation. An exception was the IdeaLab call, whose theme, “Managing Threats,” was determined by the “Basic Research” Programme Committee with input from experts representing the NCN Council and the Research Council of Norway.

The Programme enabled the implementation of research projects related to the priorities of international scientific cooperation without imposing thematic constraints or directly steering them toward these priorities. Instead, it allowed researchers to choose their research area freely. This openness allowed for research in diverse fields, including projects directly linked to these priorities (e.g., sustainable agriculture, marine pollution, pesticide reduction) and those that may influence them in the long term (e.g., research on lifestyle diseases or the development of technologies used in advanced scientific experiments).

4.5.2. Achievement of intended outcomes in relation to primary research objectives

Nearly 97% of respondents believed the Programme achieved all or most of its intended research objectives. The majority of positive responses confirm the high effectiveness of the support programmes. Among the reasons for not fully achieving the outcomes, objective difficulties prevailed, such as limitations related to the COVID-19 pandemic, technical problems (e.g., equipment failures or sample degradation), and delays in task implementation due to human factors.

Additionally, many projects yielded unexpected additional results, underscoring their scientific value and flexibility in adapting to changing conditions.

Table 11. How would you rate the extent to which the intended support outcomes (results) were achieved?

All intended outcomes were achieved	58,06%
Most intended outcomes were achieved	38,71%
Most intended outcomes were not achieved	3,23%
None of the intended outcomes were achieved	0,00%

Source: CAWI/CATI with representatives of winners from the completed calls and additional activities carried out within the programme.

Although budgetary constraints remain challenging, the Programme facilitated the implementation of projects crucial to addressing global challenges while supporting the development of Polish science and an innovative economy.

The Programme was especially beneficial for young researchers. Mentorship activities embedded in the projects played a significant educational role, preparing young scientists to effectively manage complex international research projects in difficult circumstances such as the pandemic, inflation, supply chain disruptions, and challenges recruiting research team members.

4.5.3. Results achieved by participants in the Basic Research Programme

The outcomes achieved through the implementation of the projects were highly diverse in terms of both thematic scope and potential applications. The vast majority of respondents (96.77%) identified new publications as the main result. A significant portion of projects also led to the development of innovative solutions (45.16%) and new technologies (25.81%).

The topics addressed within the projects and publications covered a wide range of themes, including:

- **Ecology and climate change:** studies on the impact of urbanization on aquatic ecosystems, Arctic climate change, the bioavailability of pharmaceuticals in food webs, and emotional responses to climate change.
- **Medicine and biology:** identification of cancer biomarkers (e.g., breast cancer), development of microfluidic devices for analyzing cancer cell deformability, COVID-19 epidemiology, and research on the properties of new biological and structural materials.
- **Technologies and engineering:** advancements in genome sequencing methods, fluid mechanics, process kinetics modelling, development of tools based on large language models (LLMs) for analyzing social media big data, and imaging circadian rhythms in cell cultures.

- **Social sciences and humanities:** studies on secularization processes, women's activism in Kurdistan, cultural representation, the influence of social media on the spread of misinformation, and analysis of urban heat experiences among vulnerable groups.
- **Materials technology:** research on new semiconductor structures.

The number of interdisciplinary projects was smaller; however, it should be noted that these projects proved to be valuable in terms of knowledge gained. In the future, efforts should be made to facilitate the implementation of interdisciplinary projects by moving away from limiting them to a single scientific discipline.

Table 12. What main outcomes were achieved as a result of the project?

New publications	96,77%
Development of innovative solutions	45,16%
Other results, including the advancement of new technologies	25,81%

Source: CAWI/CATI with representatives of winners from the completed calls and additional activities carried out within the programme.

One significant outcome of the Programme was improving the quality of scientific publications. The research's high substantive value and compelling subject matter translated into an increase in the number and quality of publications, as evidenced by publication metrics.

A comprehensive assessment of the Programme's impact on science requires a longer timeframe due to the time needed to publish and disseminate research results and the potential for these research outcomes to lead to innovative solutions and practical applications.

4.5.4. Evidence of achieving the programme's key objectives

The achievement of the Programme's key objectives is evidenced primarily by the improvement in research quality, the development of international collaboration, and the effective transfer of knowledge.

First, the Programme significantly enhanced the quality of research, as confirmed by over 87% of beneficiaries. Projects implemented modern tools and research methods, which were crucial for the precision of data analysis and interpretation, thus improving the reliability and credibility of results. This increase in research quality added scientific value to the completed projects and enhanced the visibility of Polish researchers in the international academic community. This improvement was significant in basic research, where data and methodology quality form the foundation for further scientific development and potential innovations.

Second, the development of international collaboration was also highly rated (again, over 87% positive feedback from beneficiaries) and proved to be a critical factor in the projects' success. The Programme stimulated the exchange of knowledge and experience and access to new technologies and research methods, significantly broadening the scope of ongoing research.

Third, over 61% of respondents noted that one of the Programme's key outcomes was effective knowledge transfer. By efficiently disseminating research findings in academic and applied contexts, the Programme facilitated the implementation of new technologies, innovative solutions, and analytical methods. All these factors contributed significantly to the projects' scientific and practical

success. The exchange of knowledge and experience between researchers from both countries helped advance research in Poland, particularly in polar studies and social sciences.

Table 13. In your opinion, what demonstrates the achievement of the results you mentioned?

Improved research quality	87,10%
Expanded international collaboration	87,10%
Knowledge transfer	61,29%

Source: CAWI/CATI with representatives of winners from the completed calls and additional activities carried out within the programme.

Although full outcomes such as publications, innovative solutions, or new technologies have not yet materialized in the short term, positive trends have been observed in the increasing engagement of young researchers and the growth of international collaboration. Strengthening these relationships and fostering effective knowledge exchange provide a solid foundation for future achievements, including scientific publications and innovative solutions, which may emerge over the long term.

4.5.5. Programu Innovations and technologies resulting from research carried out under the Programme

Over 45% of respondents said the project led to the development of innovative solutions or technologies. The creative solutions identified by participants span all three thematic areas the Programme covers.

Table 14. Do you think that any innovative solutions or technologies were developed within the framework of the project?

Yes	45,16%
No	29,03%
Hard to say	25,81%

Source: CAWI/CATI with representatives of winners from the completed calls and additional activities carried out within the programme.

Humanities, Social Sciences, and Arts

- New methods for studying speech in multilingual individuals.
- Analysis of the impact of emotions on pro-environmental actions.
- Use of big data analysis methods to study social networks.
- Agent-based modelling to predict social processes.
- Development of a panel painting model with a detailed crack pattern for assessing risks in museums and historic buildings.
- Language models enabling quick analysis of social media data, made available in open repositories.
- Generation of knowledge on the impact of participation in culture and arts on psychological well-being, indicating new directions for interdisciplinary research.

Life Science

- Use of environmental DNA and RNA (eDNA, eRNA) technologies to study freshwater organisms.
- Development of new microfluidic devices for clinical diagnostics, including cancer cell detection.
- Applications of cell mechanics for evaluating drug efficacy in cancer therapy.
- Combining genetic and imaging methods to monitor circadian rhythms in cell cultures.
- Advancements in amplicon sequencing technology for analyzing biological data.
- Publicly available bioinformatics analytical tools for processing amplicon sequencing data.
- Potential implementation of diagnostic tools in transplant medicine.
- Genetic analyses of potato disease resistance, providing valuable data for breeders and supporting eco-friendly agricultural practices.
- Research methodologies in citrullination analysis and mathematical modelling, forming the basis for further development of laboratory technologies.

Physical Sciences and Engineering

- New methods for injecting a dry CO₂ stream into a water-saturated porous structure.
- Development of new semiconductor structures on a laboratory scale.
- Creation of new indicators of paleoclimatic and palaeoceanographic changes in the Arctic.
- Application of big data analysis methods in climate and oceanographic research.
- Studies on cryosphere measurements and their impact on climate sciences.
- Demonstrating the effectiveness of underwater robots for seabed visualization and sample collection, which supports the growth of the underwater robotics market and enables better modelling of methane and CO₂ emissions in the marine environment.

It is worth emphasizing the distinction between narrow and broad approaches to innovation. In the traditional sense, for a solution to be considered commercialized and innovative, it must be implemented in some form—typically reflected in a granted license, technology transfer, or the application of research results by external entities.

However, a broader perspective on innovation, advocated by some researchers, is particularly inspiring. This view sees innovation not only as finalized implementations but also as novel scientific and technological solutions that have the potential to lead to commercialization in the future. Proponents highlight the development of numerous technologies and research methods, which, even though they often remain in early stages, represent a significant step toward further scientific and economic progress.

In this sense, innovation includes pioneering approaches to analysis, diagnostics, and the creation of new materials that can be applied in future practical contexts.

4.5.6. Good practices and areas for improvement in the programme's implementation process

Within the Programme's implementation, over 51% of respondents identified particularly effective measures (known as best practices) that positively influenced the progress of research projects and could be applied to other projects.

Table 15. Do you notice any particularly effective measures (known as best practices) that positively contributed to the implementation process and could potentially be used within a similar support system? If so, what are these measures?

Yes	51,61%
No	12,90%
Hard to say	35,48%

Source: CAWI/CATI with representatives of winners from the completed calls and additional activities carried out within the programme.

The identified key best practices include:

- **Building interdisciplinary teams.** Many researchers indicated that involving scientists from various fields enabled the formation of interdisciplinary teams, allowing for effective integration of research methods and achieving better results (e.g., combining ecology, genetics, and microbiology).
- **Assigning a "product" owner.** Identifying a person responsible for the project's outcome helped maintain clear accountability and focus.
- **Flexible management and improved reporting processes.** Programme participants emphasized that reducing the time between submitting reports and receiving evaluations allowed for quicker adjustments and better adaptation of plans to changing conditions. Administrative measures—such as simplified procedures and clear guidelines—facilitated more efficient operation of research teams.
- **Innovative technological solutions.** Developing cutting-edge research tools, such as microfluidic devices for analyzing cells' mechanical and adhesive properties, proved to be a successful implementation of technology that improved research precision and opened up potential clinical and diagnostic applications.
- **Joint equipment procurement.** Coordinating tenders among several research units allowed for harmonization of research methodologies and more efficient resource use.
- **Involving young researchers.** Providing opportunities for early-career scientists enhanced their skills, raising the quality of research and their potential for future collaboration.
- **Adapting to crisis conditions.** In the face of external crises, utilizing online communication tools and flexible experiment planning enabled research to continue despite mobility

restrictions. This approach to remote work and digital communication platforms exemplify adaptive best practices that could be further developed in future projects.

- **Budget management optimization and responding to changing market conditions.** To address rising material costs and price fluctuations, research teams employed flexible budgeting approaches—such as renegotiating contracts and seeking more affordable alternatives—ensuring continuity of research despite unforeseen challenges.

Table 16. Looking back, do you notice any methods/actions/project solutions that turned out to be ineffective?

Yes	25,81%
No	19,35%
Hard to say	54,84%

Source: CAWI/CATI with representatives of winners from the completed calls and additional activities carried out within the programme.

Despite many positive aspects, just over 25% of respondents pointed out ineffective measures that negatively impacted project implementation.

More than 61% of respondents believe that future support should be adjusted, suggesting that the programmes need to adapt to the realities of research.

Table 17. Should comparable future support include any changes?

Yes	61,29%
No	25,81%
Hard to say	12,90%

Source: CAWI/CATI with representatives of winners from the completed calls and additional activities carried out within the programme.

Recommended changes include:

- **Greater flexibility regarding Open Access publications.**
- **Reducing bureaucratic burdens, particularly in reporting.**
- **Increased openness to interdisciplinary research projects.**
- **Simplifying reporting processes.**

The implementation of the Programme revealed both effective practices and areas needing improvement. Interdisciplinary collaboration, flexible project management, and modern research technologies proved critical to success, while administrative barriers, restrictive publication policies, and challenges in recruiting research personnel presented significant hurdles. Adjusting administrative procedures, increasing flexibility in publication policies, and better aligning projects with scientific realities could substantially enhance the efficiency of future research initiatives.

4.5.7. Challenges in project implementation related to external factors: the COVID-19 pandemic, the war in Ukraine, and inflation

According to both the beneficiaries and NCN representatives, the challenges posed by external factors such as the COVID-19 pandemic, inflation, and the war in Ukraine significantly impacted the progress of many activities. These challenges primarily caused administrative delays, difficulties in organizing experiments, supply chain disruptions, and limited researcher mobility.

Table 18. Did the following external factors affect the implementation of the project?

	COVID-19 pandemic	War in Ukraine	High inflation level
Definitely yes	54,84%	0,00%	19,35%
Probably yes	19,35%	12,90%	41,94%
Probably not	12,90%	32,26%	22,58%
Definitely not	9,68%	32,26%	9,68%
Hard to say	3,23%	22,58%	6,45%

Source: CAWI/CATI with representatives of winners from the completed calls and additional activities carried out within the programme.

Impact of inflation

The key difficulties arising from increasing inflation included:

- **Increase in material and service costs.** Significant price hikes in research materials, laboratory equipment, and reagents. Higher expenses for research and transport services (sometimes rising by 30–50%). Increased costs for business trips and organizing international meetings.
- **Challenges in budgeting and financial adjustment.** There is a need to adjust project budgets to accommodate rising costs. The value of available funding has actually declined since the granted funds remained fixed. In some cases, this led to reducing the scope of research or abandoning specific planned tasks.
- **Impact on human resource management and salaries.** Maintaining the planned number of research staff is difficult due to rising living costs. Raising wages in Norway to retain staff further strains project budgets.
- **Limited financial flexibility.** No additional funding within the granted amounts, forcing internal savings. Difficulties in renegotiating new purchasing and contract terms with suppliers in the face of rapidly changing prices.

Impact of the COVID-19 pandemic

The pandemic significantly affected timelines and the way research was conducted, leading to challenges in project implementation that can be grouped into several categories:

- **Administrative and organizational delays:** project approval and funding delays ; challenges with tendering and procurement procedures, which slowed project implementation; delays in travel procedures and outright travel bans.
- **Limitations on mobility and team collaboration:** the inability to hold face-to-face meetings and the need to switch to remote work. Difficulties in establishing effective communication, particularly in newly formed international teams. Travel restrictions hampered collaboration between institutions. The inability to organize meetings and directly exchange experiences among researchers from different countries affected collaboration dynamics and research progress.
- **Challenges in conducting research:** restricted access to laboratories, which complicated the planning and execution of experiments. Given limited mobility, requiring several team members to be present in the laboratory at the same time was a major challenge. Research methods must also be suspended or modified (e.g., conducted experiments remotely), and there is a lack of access to key research tools, such as subjective tests.
- **Delays in research outcomes and publications:** delays in preparing scientific papers and international publications due to untimely completion of experimental studies and disruptions in their execution. The necessity to reorganize schedules and manage multiple tasks simultaneously.
- **Supply chain and budget issues:** delays in delivering research equipment and laboratory materials, increased costs of research materials, equipment, reagents, and services, budget adjustments forced by the pandemic in response to rapidly changing conditions, and difficulties extending subscriptions for research tools like Qualtrics under bureaucratic constraints.
- **Adapting work methods to the new reality:** an increased need for flexibility in administrative work and internal team communication, including implementing new communication tools.
- **Recruitment and human resources issues:** difficulties recruiting postdoctoral researchers, especially from outside Europe. Challenges in hiring and retaining key team members due to financial and administrative uncertainties. Limited opportunities to hire new staff during the projects' duration.

According to both beneficiaries and Programme Committee representatives, the COVID-19 pandemic was the biggest challenge faced during project implementation. The pandemic's restrictions had a wide-ranging impact—from administrative issues to limitations on international collaboration, research activities, and budgets.

Impact of the war in Ukraine

The war in Ukraine had a lesser impact on projects overall, though it affected the planning of international activities in certain instances. The armed conflict in Ukraine primarily influenced project implementation through:

- **Disruption of supply chains and procurement issues:** Supply disruptions affected research's logistical and organizational aspects. Delays in delivering essential materials and laboratory equipment destabilized laboratory work.
- **Impact on project budgets:** Rising costs of research services, transportation, and inflation caused by the war necessitated budget adjustments. In some cases, significant price increases—such as those for helicopter rentals—restricted the scope of research activities.
- **Changes in partnerships and international collaboration:** Some project partners withdrew, affecting the structure of collaborations.
- **Organizational challenges and adverse effects on team morale:** Uncertainty about long-term cooperation with institutions in conflict-affected regions and reluctance from certain Norwegian partners to travel to Poland complicated meeting arrangements. Furthermore, stress and anxiety stemming from the geopolitical situation reduced team morale and motivation.
- **Support for Ukrainian researchers:** The introduction of a scholarship programme for Ukrainian students and early-career researchers without doctoral degrees provided a vital support element.

4.5.8. Adaptive mechanisms and strategies to minimize the negative impact of external crises on project implementation

The program flexibly responded to changing research needs and crises while pursuing its initial objectives. The National Science Centre and the project teams demonstrated adaptability, enabling activities to continue despite the challenges. Effective management and the introduction of mitigating mechanisms minimized the adverse effects of crises, ensuring project stability.

Mechanisms implemented to minimize the negative impact of the COVID-19 pandemic.

- **Digitization of administrative** processes to facilitate information exchange and progress monitoring.
- **Shifting parts of** research to digital platforms wherever possible.
- **Flexible planning of experiments and running parallel** tasks to optimize resource use.
- Enhancing theoretical research efforts during periods of limited laboratory access.
- **Implementation** of remote work and online project management tools.
- **Use video conferencing tools** (Zoom, WhatsApp, Messenger) for effective communication.

- **Regular online meetings** with project partners to track progress and quickly respond to changes.
- **Increased budgetary flexibility**, including allocating additional funds for supply chain continuity, staff support, and infrastructure adaptation.
- **Flexible deadlines** for project stages to minimize delays.

Mechanisms implemented to minimize the negative impact of the war in Ukraine.

- **Establishing partnerships** with new collaborators after previous partners withdrew, adjusting projects to the evolving geopolitical context.
- **Reorganizing activities** and adapting research plans to the new partnership structures.
- **Enhancing the involvement** of research teams to accelerate task completion and recover from delays.

Mechanisms implemented to minimize the negative impact of inflation.

- **Securing additional funds**, such as those allocated for conferences.
- **Providing supplementary funding** of up to 10% of project values to cover additional costs.
- **Reallocating financial resources** between domestic and international budgets.
- **Strengthening collaboration within project partnerships**, including sharing resources and tools ensured continuity despite supply challenges.

Mechanisms applied in all crises

- **Extending project timelines by 6–12 months**, allowing activities to adjust to delays caused by the pandemic or geopolitical situations.
- **Reorganizing schedules and prioritizing research objectives** to adapt to new conditions.
- **Optimizing budgets**, including seeking alternative funding sources and flexible allocation of resources to address rising costs.
- **Implementing a financial monitoring system** to adjust allocations and maintain project continuity despite challenging conditions.
- **Changing suppliers and vendors** and identifying lower-cost substitutes for laboratory materials and reagents when supply chains were disrupted.
- **Risk management** through ongoing monitoring and prompt changes, supported by regular team meetings and remote collaboration tools.
- **Increased consultation with NCN** for more effective crisis management.

- **Providing project teams** with crisis management training to improve their decision-making abilities and maintain engagement.
- **Responding quickly to shifting regulations and economic conditions** to continue research without interruption.
- **Introducing flexibility in extending subscriptions for essential tools** (e.g., Qualtrics), previously hindered by administrative procedures.

While beneficiaries appreciated NCN's understanding during external crises, they noted the need for greater project management flexibility. Strict timelines created stress, and the inability to extend projects for an entire year limited the effectiveness of remedial actions. Future iterations could benefit from adaptive mechanisms for unforeseen crises, making adjusting to unpredictable external conditions easier.

4.6. The Program's impact on the long-term development of science, public policy, and the non-academic sector

4.6.1. Positive and negative effects of research projects implemented under the Basic Research Program

The expected positive effects included:

- **Strengthening scientific potential** by opening new research areas that promote further discoveries.
- **Developing and testing innovative technological solutions**, including diagnostic and analytical methods.
- **Increasing the number of scientific publications** thanks to additional funding and expanded research scope.
- **Improving research team management skills**, enabling more effective project execution.
- **Establishing new international collaborations** that advance participants' scientific careers.
- **Gaining experience in international environments**, including participation in conferences and experiments by early-career researchers.
- **Raising awareness** of science's practical importance and its societal impact.
- **Enhancing scientific collaboration**, leading to new research initiatives and projects.

Table 19. Do you notice any unanticipated effects of the support?

Yes, positive	38,71%
Yes, negative	0,00%
No	16,13%
Hard to say	54,84%

Source: CAWI/CATI with representatives of laureates from concluded competitions and additional activities implemented under the program.

The unexpected positive effects included:

- Identification and exploration of new research areas.
- Unplanned scientific research conducted within partnership collaborations.
- Development of innovative technological solutions, including diagnostic methods and research methodologies.
- Unplanned scientific publications in renowned journals.
- Popular science activities, including interviews and articles.
- Raising awareness of the practical significance of science and its socio-economic impact.
- Developing skills in managing research teams under challenging, unpredictable, and variable economic, social, and political conditions.
- Creating analytical technologies and research methods applicable across various scientific fields.
- Establishing new international collaborations, both within the EU and globally, that advance participants' scientific careers.
- Initiating new research initiatives and projects.
- Attracting students and young researchers, confirming the appeal of the ongoing research.
- Unexpected interdisciplinary discoveries, such as a new musical instrument developed through mathematical research.
- Supporting Ukrainian students and young researchers, enabling them to continue their studies and research under challenging circumstances.

Negative effects included delays due to organizational issues, a shortage of Polish collaborators, and an increased workload for junior researchers, especially during the pandemic. This hampered the analysis of results and publication efforts and limited international collaboration.

4.6.2. The impact of research conducted under the Program on the development of science and innovation in Poland

The Program's support has significantly impacted Poland's science and innovation development.

Table 20. Does the support received under the program positively impact the development of science and innovation in Poland (including improving the quality of research at Polish research institutions)?

Strongly agree	64,52%
Somewhat agree	29,03%
Somewhat disagree	3,23%
Strongly disagree	0,00%
Hard to say	3,23%

Source: CAWI/CATI survey of recipients of resolved program competitions and additional activities.

Positive effects encompass several areas:

Knowledge transfer. The program enabled extensive knowledge exchange at the international level, particularly in highly specialized fields such as nuclear physics. Collaborations with foreign institutions like the Max Planck Institute and King's College increased the prestige of Poland's scientific community and facilitated integration into the global research network. This knowledge exchange fostered new grant applications and scientific publications and accelerated the implementation of innovative solutions in Poland.

Improved research quality. Projects conducted with foreign partners enhanced access to modern technologies and analytical methods, thereby elevating the quality of research.

Scientific publications and dissemination of research results. The program contributed to increased publications in prestigious international journals, boosting the visibility of Polish science. Participation in international conferences allowed researchers to share their findings with a broad audience of experts, promoting their work and establishing new collaborations.

Development of scientific staff. The program gave Polish research teams valuable experience in the global academic environment, particularly by supporting young researchers. Involvement in international projects, access to modern technologies, and stable employment conditions supported their professional growth. For some researchers, the program served as a springboard for a scientific career.

Changes in academic structures. The program transformed traditional academic structures by promoting a more balanced and collaborative model of research team management.

New research methods. The program fostered the development and dissemination of new research methods, methodologies, and approaches, establishing a foundation for further optimization and application in subsequent projects.

New technologies. The program facilitated the adoption of innovative research technologies that had not previously been used in Polish institutions. The modernization of research equipment enhanced the capacity to conduct cutting-edge studies at a global level.

Impact on innovation and long-term development. While the program was not implementation-oriented, its outcomes in basic research laid a strong groundwork for future innovations. It positively influenced the development of Polish scientific innovation, particularly in social and technological research. Moreover, it secured access to modern measurement equipment through 2029, supporting the long-term growth of Polish science.

Development of polar research. The program supported polar research, especially projects conducted on Svalbard, attracting numerous international partners, including from Norway. It strengthened the reputation of Polish scientists in global environmental and climate research.

4.6.3. Improvement in the quality of research at Polish scientific institutions

Many respondents believe that the program has clearly contributed to an improvement in research quality.

Table 21. In your opinion, did the program contribute to improving the quality of research at Polish scientific institutions?

Definitely yes	51,61%
Rather yes	32,26%
Rather no	3,23%
Definitely no	0,00%
Hard to say	12,90%

Source: CAWI/CATI with representatives of laureates from concluded competitions and additional activities implemented under the program.

The acquisition of modern equipment increased research throughput and improved the accuracy and reliability of results. Implementing new measurement techniques and methodological approaches broadened research perspectives while hiring young researchers and contributing to developing research teams. Access to unique resources, such as polar infrastructure and research vessels, enabled the execution of advanced experiments and enhanced the credibility of findings.

4.6.4. Long-term effects of implementing research projects on science and research policy in Poland

The projects carried out under the Program can potentially significantly influence science and research policy in Poland. However, a comprehensive evaluation of their effects will only be possible in the future.

Table 22. Have you identified any long-term effects of the research projects on Poland's science and research policy?

Yes	35,48%
No	6,45%

Source: CAWI/CATI with representatives of laureates from concluded competitions and additional activities implemented under the program.

Five key areas of impact can be identified:

1. **Significantly increased recognition of Polish scientists on the international stage.** The program enhanced the visibility of Polish researchers globally, strengthening the prestige of Polish science and solidifying Poland's position in the global research network.
2. **Continued professional and academic development of early-career researchers.** The program provided young researchers with experience in international research teams, access to advanced research infrastructure, and active participation in scientific publications and conferences. As a result, some found employment in prestigious scientific and research institutions.
3. **Increased competitiveness of Polish institutions.** Funding covered the costs of acquiring modern equipment, conducting research, and providing salaries, thereby improving their competitiveness in the research market.
4. **Ongoing international collaboration.** The projects initiated long-term scientific relationships, especially with Norway, promoting knowledge exchange and technology transfer. Previous editions of the Norwegian Funds demonstrated that such partnerships can endure for years, supporting the development of research and innovation in Poland.
5. **Increased innovation.** The program supported the development of new methods and technologies that form the foundation for further research and additional grant applications. It contributed to knowledge transfer to industry, facilitating the practical application of research outcomes.

4.6.5. Direct impact of research results on public policies and the non-academic sector in Poland

Over half of the respondents indicated that the research results achieved under the Program could have broad applications, particularly in shaping public policies, education, and technology. While their impact is often long-term, they serve as a valuable resource for policymakers, public administration, and the technology sector, contributing to tangible socio-economic changes.

Table 23. Could the outcomes of the research project potentially be applied on a broader scale, for instance, in public policies or within specific sectors of the economy?

Yes	51,61%
No	9,68%

Source: CAWI/CATI with representatives of laureates from concluded competitions and additional activities implemented under the program.

Shaping policies

Research findings can support **public policy planning** by providing models that forecast social changes and evaluate the effectiveness of policy interventions. Examples include migration policy, especially in combating stereotypes about migrants and promoting gender equality.

Fighting disinformation and ensuring internet safety are critical challenges where research findings can help develop effective regulatory strategies. Innovative tools, such as applications that assess susceptibility to disinformation and train individuals to identify manipulated content, can significantly **raise public awareness** and improve media literacy.

In health policy, research results support the development of innovative solutions, such as new medical products or therapies. **Demographic and public health studies offer valuable input into governmental strategies.** Their importance is underscored by including researchers as advisors in policy-making processes.

Environmental research contributes to biodiversity protection strategies and monitoring human activity's impact. **DNA biomonitoring** enables more effective identification of ecological threats, while analyses of pharmaceutical pollution can help shape more effective environmental regulations.

Research outcomes also influence agricultural and environmental policies by reducing pesticide use and promoting sustainable food production. Studies on the cryosphere and climate change provide data for global initiatives and climate reports, forming a basis for political decisions. Findings from polar research are **essential for climate policies, supporting environmental protection and climate adaptation efforts.**

Education

Research on foreign language teaching in multilingual contexts supports the development of educational programs, social **integration, and international education.** Projects that **popularize science**—such as the bilateral initiative Science and Society—translate research findings into practical activities, including workshops, educational apps, and partnerships with the public sector.

Technology

Research can contribute to the development of new technologies, including artificial intelligence, digital tools, and systems that support public administration.

Research Methodology

Companies managing water resources can adopt **developed water monitoring tools**, enabling improved **water quality** assessment and the identification of ecological threats. Similarly, research findings on image **sensitivity to environmental parameter** changes can influence **museum conservation regulations**, leading to more effective microclimate control. This impact is already reflected in updated versions of conservation standards.

4.6.6. Changes in researchers' career development due to participation in the Program

Most respondents believed participating in the Program positively impacted researchers' careers, particularly for early-career scientists.

Table 24. Did participating in the program lead to any changes in your research career (e.g., promotions, new career paths)?

Yes, positive	70,97%
Yes, negative	6,45%
No, participation in the program did not impact my professional situation	22,58%
Hard to say	6,45%

Source: CAWI/CATI with representatives of laureates from concluded competitions and additional activities implemented under the program.

Participation in the program significantly increased the visibility of the Polish scientific community. Implementing prestigious grants bolstered researchers' status as experts, opening doors to collaborations with both national and international scientific institutions. One notable outcome was strengthening Polish scientists' standing on the global stage through experience managing international research teams and establishing valuable scientific connections.

A key aspect was also the development of managerial skills—some researchers enhanced their abilities in financial management, team leadership, organizing work at an international level, and promoting research outcomes while effectively communicating them to the public. This, in turn, increased their competitiveness even beyond the academic sector.

The expansion of scientific networks resulting from participation in the program significantly impacted researchers' career advancement. The program facilitated collaboration with distinguished scientists, strengthened researchers' potential, and helped initiate subsequent scientific endeavours, opening new career opportunities.

The program also contributed to the professional growth of its participants. This growth often manifests as new experiences, research areas, and academic publications. However, it's worth noting that the intense involvement in the project sometimes delayed promotion processes, as the researchers' focus and dedication were directed toward the research and the project itself. It's also important to mention that many lead researchers involved in the program were already highly regarded in their fields, often holding the title of professor. While their participation didn't directly result in promotions, they acknowledged that it was a profoundly significant experience in their academic careers.

5. Recommendations

Nr	Conclusion	Recommendation	Adressee	Implementation Method	Implement Timeline	Recommendation Class	Topic Area	Effect
	Strategic							
1.	The completed evaluation studies demonstrated significant success, particularly in terms of substance and in the internationalization of Polish researchers' work. The projects' outcomes have undeniably contributed to the career development of both the principal investigators and other participants, firmly supporting the rationale for continuing the Program in the future.	Given the very positive reception of the program and collaboration with NCN by researchers, it is recommended that NCN continue as the Program Operator in future editions.	The Donor States NCN	Continuation of program management by NCN in future editions	In the next edition of the program	Strategic	The development of science	<p>Further development of international cooperation and researchers' careers</p> <p>Further development of international cooperation and researchers' careers</p>

Nr	Conclusion	Recommendation	Adressee	Implementation Method	Implement Timeline	Recommendation Class	Topic Area	Effect
2.	The research revealed a lack of clarity regarding the division of responsibilities and tasks between advisory bodies such as the NCN Council and the Program Committee. This ambiguity contributes, among other factors, to delays in evaluating reports, leading to dissatisfaction among the beneficiaries.	It is recommended that the responsibilities and tasks of the Program Committee be precisely defined, including considering whether its existence is justified, given the overlap with the statutory competencies of the NCN Council. It is also recommended that another advisory body dedicated solely to the Program be established.	The Donor NCN	Clarifying responsibilities and, if needed, consolidating advisory bodies	In the next edition of the program	Organizational	Program management	Shortening the report evaluation time, resolving competency disputes
Systemic								

Nr	Conclusion	Recommendation	Addressee	Implementation Method	Implement Timeline	Recommendation Class	Topic Area	Effect
3.	<p>Although the implemented projects were grounded in specific scientific disciplines, some overlapped and incorporated insights from other fields of study. These projects enable the identification of research niches, uncovering gaps in the current knowledge, and establishing a substantial scholarly position in emerging interdisciplinary areas. Interdisciplinary projects required broader collaboration, more significant effort, and enhanced communication skills by project leaders. The successful completion of these initiatives suggests that they should be highlighted as best practices and promoted</p>	<p>In the next edition of the program, solutions (e.g., selection of evaluating experts) that would facilitate a greater extent of interdisciplinary research are recommended. Increasing the number of such projects in subsequent editions is considered beneficial. While this approach requires organizational efforts on the part of NCN and greater involvement from researchers, it consistently yields excellent scientific outcomes.</p>	<p>The Donor States NCN</p>	<p>Better support for interdisciplinary research projects</p>	<p>In the next edition of the program</p>	<p>Systemic</p>	<p>Interdisciplinary in research</p>	<p>A greater number of high-quality interdisciplinary studies</p>

Nr	Conclusion	Recommendation	Adressee	Implementation Method	Implement Timeline	Recommendation Class	Topic Area	Effect
	as viable approaches in future editions.							
4.	The solutions adopted in the Program concerning young researchers and gender balance have demonstrated very positive effects. In some instances, awarding additional points enabled projects to qualify for funding, facilitated the researcher's career development, and, most importantly, resulted in a successfully completed project.	It is recommended that the proposed measures for young researchers and gender balance be maintained, particularly the system of additional points for young researchers, women working in male-dominated disciplines, and men in female-dominated disciplines.	NCN	Retaining the system of awarding additional points to young researchers.	In the next edition of the program	Systemic	Support for young researchers	A greater number of young researchers involved in projects
5.	The program implemented focused on basic research, and its nature means that it is	It is recommended that the next edition of the program emphasise evaluating the societal	NCN Beneficiaries	Incorporating the societal impact of projects at the proposal stage	In the next edition of the program	Systemic	The impact of research on society	Improved communication of the importance of science to society.

Nr	Conclusion	Recommendation	Adressee	Implementation Method	Implement Timeline	Recommendation Class	Topic Area	Effect
	not typically possible to speak of developing innovations or commercialisation immediately after the study concludes. Nevertheless, discussions with project managers revealed that they see the projects' results as having practical applications for society, including educational programs, public policies, and more.	<p>impact of the research projects. Project leaders should consider the potential societal effects and include a detailed description in their proposals. This approach will significantly enhance the valuation of Polish and Norwegian science.</p> <p>The application process should include a dedicated section where applicants can reflect on how their project might impact society in the future and outline how its results will be communicated during and after project implementation.</p>						
6.	One of the most common challenges highlighted by project leaders was publishing in Open Access journals.	It is recommended that greater flexibility be introduced regarding publications, particularly	NCN	Adjusting the publication policy in consultation	In the next edition of the program	Systemic	Scientific publications	Increased accessibility of publications for a broader audience

Nr	Conclusion	Recommendation	Adressee	Implementation Method	Implement Timeline	Recommendation Class	Topic Area	Effect
		allowing works produced under the projects to be published in accordance with NCN's current publication policy at the time.		with the beneficiaries				
7.	During the evaluation process, evaluators observed that many project leaders did not emphasise communicating their achievements to the public—be it the general public, other researchers, or policymakers. This attitude often stems from the researchers' modesty or belief that fundamental research	It is recommended that the next edition of the Program devote more attention to informing, training, and requiring project leaders to communicate the outcomes of their projects to society—both planned and positive unplanned results. These actions serve as science marketing and positively impact on all Program and external	NCN Beneficiaries	Requiring research teams to communicate their results	In the next edition of the program	Systemic	Popularisation of science	Greater visibility of Polish science and its achievements

Nr	Conclusion	Recommendation	Adressee	Implementation Method	Implement Timeline	Recommendation Class	Topic Area	Effect
	does not directly lead to inventions, innovations, or marketable products and services. However, discussions revealed that these projects often generated exciting solutions, outcomes, methodologies, and insights that could and should be shared with a broader audience in a compelling manner.	stakeholders, including the general public. Additionally, it is recommended that research teams highlight effective communication practices with society in their final project reports. The best practices collected should be turned into informative and training materials and disseminated among other researchers in Poland.						
Organizational								
8.	Some beneficiaries, particularly those participating in international programs for the first time, noted significant differences in work culture between Poland and Norway, where practices such as a strong work-life balance	Given that the organizational culture of teamwork is a critical component of project success (fostering good relationships, mutual understanding, and avoiding conflicts), it is recommended that	NCN Beneficiaries	Preparing training sessions for beneficiaries on cultural differences and working within multicultural teams	In the next edition of the program	Organisational	International cooperation	Better integration of research teams and increased cooperation efficiency

Nr	Conclusion	Recommendation	Adressee	Implementation Method	Implement Timeline	Recommendation Class	Topic Area	Effect
	are standard. The feedback extended beyond the project's implementation and touched on overall working conditions for Norwegian partners, especially aspects of organizational culture, work organization, logistics, and related matters.	training be developed for beneficiaries of the next program edition. This training would address the cultural differences identified during the current Program's implementation. Such preparation would better equip beneficiaries to work effectively in international teams. Additionally, the training should be based on best practices identified in the completed Program and incorporate other relevant experiences, particularly those of NCN staff and project supervisors.						
9.	Although many beneficiaries successfully collaborated with researchers, institutions, and research units from Norway, it was noted that this collaboration could have been more	It is recommended that the next edition of the Program include a description of best practices for international cooperation, particularly those derived from the ongoing Program and	NCN Beneficiaries	Preparing a guide on best practices for international cooperation	In the next edition of the program	Organizational	International cooperation	Better integration of research teams and increased cooperation efficiency

Nr	Conclusion	Recommendation	Adressee	Implementation Method	Implement Timeline	Recommendation Class	Topic Area	Effect
	intensive, frequent, and thus more fruitful. In particular, some research teams opted to merely allocate specific tasks to the Norwegian partner, which the partner then carried out. This approach did not require scientific discussion or frequent contact.	those based on the knowledge and experience of NCN staff and supervisors.						
	Financial							
10.	Evaluation results suggest that for many Polish researchers, implementing international projects—featuring both ambitious tasks during the project and significant outcomes at its conclusion—requires substantial commitment. Despite the	It is recommended that, following the model of other programs implemented by NCN (e.g., Sonata Bis), the next edition of the Program offers academic institutions employing the project leader a reimbursement of 50%-75% of their teaching load.	NCN Beneficiaries Research units	Introduction of a reimbursement mechanism for part of the teaching load	In the next edition of the program	Financial	Managing academic staff	Greater involvement of project managers in research projects

Nr	Conclusion	Recommendation	Adressee	Implementation Method	Implement Timeline	Recommendation Class	Topic Area	Effect
	high satisfaction with the funding received and the opportunity to carry out their planned research, the significant organizational effort needed to balance responsibilities within their academic institution and project-related duties remains evident. It's worth emphasizing that this often applies to highly active researchers with extensive track records and considerable experience, who are challenging to replace in their respective roles.							
11.	The evaluated Program did not include funding for activities to ensure research continuity. While not all projects require continuous research processes that	It is recommended that funding research continuity be considered in the next edition of the Program, focusing on projects whose results have proven particularly	NCN and RCN	Introducing the option to fund research continuity through the WEAVE program implemented in	In the next edition of the program	Financial	Research continuity	Ensuring the continuity of key research projects

Nr	Conclusion	Recommendation	Adressee	Implementation Method	Implement Timeline	Recommendation Class	Topic Area	Effect
	generate associated costs, there are some research projects for which halting the work at the end of the project would be detrimental.	valuable, impactful, and socially significant.		collaboration between NCN and RCN.				
12.	Extending the eligibility period for expenditures, which was very positively received by Program beneficiaries, creates organizational challenges for the Program operator. These challenges stem from the limited time available to review final reports and process them following established procedures.	It is recommended to extend the final accounting deadline for the entire program by the Operator.	Donor States	Extending the overall program settlement deadline	In the next edition of the program	Financial	Financial management	More efficient financial handling of projects

Nr	Conclusion	Recommendation	Adressee	Implementation Method	Implement Timeline	Recommendation Class	Topic Area	Effect
	Operational							
13.	Beneficiaries' opinions on collaboration with NCN during project implementation were very positive. Beneficiaries highly appreciated the support provided by NCN advisors, their assistance in addressing ongoing issues, and their flexibility regarding adjustments to schedules or budgets. It should be noted that these changes in schedules or budgets were related to unforeseen circumstances arising from the COVID-19 pandemic, the war in Ukraine, and inflation.	It is recommended that the currently established principles of collaboration and communication with beneficiaries be maintained and that the flexibility in project implementation be preserved, whenever possible. This is due to the nature of the Program, which involves research projects where outcomes may differ from initial assumptions. Research projects inherently carry significant risks.	NCN	Maintaining budgetary and scheduling flexibility	In the next edition of the program	Operational	Project management	Better adaptation of projects to changing conditions

Nr	Conclusion	Recommendation	Adressee	Implementation Method	Implement Timeline	Recommendation Class	Topic Area	Effect
14.	Despite numerous positive assessments of collaboration within the projects, project leaders frequently pointed out excessive administrative burdens, often indicating that they handled administrative tasks within the project. According to the program's guidelines, an administrative manager could be hired with their salary financed by the project. However, the analysis revealed that not all projects employed such staff members. In some projects, multiple individuals served as assistants, which could mean that the allocated salary was distributed among several university administrative staff members. At the same time, project supervisors emphasized that cooperation was much smoother in projects	It is recommended that beneficiaries be informed of the good practice of hiring a project manager and using a full-time position for up to two individuals. This approach reduces the project leader's administrative involvement, facilitates coordination and task execution within university administration, and improves collaboration and communication between the beneficiary and the National Science Centre.	NCN Beneficiaries	Promoting best practices for hiring administrative assistants	In the next edition of the program	Operational	Project management	Reducing the administrative burden on project managers

Nr	Conclusion	Recommendation	Adressee	Implementation Method	Implement Timeline	Recommendation Class	Topic Area	Effect
	where a dedicated assistant position was established and communication was significantly improved.							
15.	Evaluation results indicate that communication between beneficiaries and project supervisors often helped resolve issues that initially seemed insurmountable from the beneficiaries' perspective. It demonstrates that ongoing communication, direct contact, and engagement between beneficiaries and supervisors are practical tools for quickly and effectively addressing project challenges and problems.	It is recommended that projects be monitored at least continuously and preferably increased through study visits and direct contact between project supervisors and beneficiaries, both during project implementation and throughout the sustainability period. Financial resources within the Program should also be allocated to support this initiative.	Donor States NCN	Increasing the number of study visits and direct engagements with beneficiaries	In the next edition of the program	Operational	Project support	Better project monitoring and support

Iceland
Liechtenstein
Norway grants grants



Source: Own study.

6. Attachments

6.1. Table of Contents

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6.3. Research Tools Projects

6.3.1. Scenario for individual in-depth interviews with the NCN management and office staff

Template for the research tool
<p>Dear Sir/Madam,</p> <p>The consortium of companies Polska Agencja Ewaluacji Sektora Publicznego S.A. and EU-CONSULT sp. z o.o., commissioned by the National Science Centre, is currently conducting an ex post evaluation of the Basic Research Program – Norwegian Financial Mechanism and EEA Financial Mechanism 2014-2021. A part of the study includes in-depth interviews with various groups of entities involved in the implementation of the "Basic Research" program. For this reason, we invite you to participate in the interview, which will last approximately 60 minutes.</p>
<p>1. In your opinion, do the goals of the "Basic Research" program align with the priorities, objectives of cooperation, and assumptions designed by the Donor Countries (Norway, Iceland, Liechtenstein)?</p> <p>a. If so, how?</p> <p>b. Do you see a need to modify the program's goals to better address this aspect? If so, what changes should be made?</p>
<p>2. Similarly, in your opinion, is the program consistent with the goals of the science and research policy of NCN as the program operator?</p> <p>a. How is this consistency manifested?</p> <p>b. Do you see a need to modify the program's goals to better align with this aspect? If so, what changes should be made?</p>
<p>3. Has it been necessary to make changes to the program in the context of adjusting its assumptions to the needs and expectations of the beneficiaries?</p> <p>a. If so, what were these changes about?</p> <p>b. At what stage were these changes introduced?</p>
<p>4. In your opinion, does the program sufficiently address the priorities in the field of science and innovation that are particularly important in the context of international research collaboration (e.g., climate change, future technologies, sustainable development)? If so, how are these priorities integrated into the scope of the intervention? If not, why?</p>
<p>5. In your opinion, does the program address the current key research needs of Polish scientific institutions and the identified gaps in the Polish research system? What main needs does the program address? What, if anything, is lacking in the context of current needs?</p>
<p>6. In your opinion, has the program achieved its intended results in relation to the main research objectives? What are its key effects? What evidence demonstrates the achievement of the program's key goals (e.g., improved research quality, international cooperation, knowledge transfer)? What has not been accomplished? Why?</p>
<p>7. From your point of view, how did the collaboration between project leaders and entities conducting the research proceed, including between Polish and Norwegian</p>

Template for the research tool	
	research teams? Were there any difficulties encountered in this regard? If so, what were they related to? How were they addressed?
8.	How do you assess the issue of collaboration with the project beneficiaries? How did you support the implementation of the projects? Were there any difficulties in this area? If so, what were they?
9.	Have you identified any challenges related to project implementation in the context of external factors, such as the COVID-19 pandemic or the war in Ukraine? If so, what were they? Did they have a significant impact on the actions being implemented? How were they addressed?
10.	Do you identify any other difficulties encountered within the program? If so, what were they? What were they related to? What was the scale of their impact? How were they addressed?
11.	Do you identify any "bottlenecks" in the program implementation process? If so, what factors or procedures hindered the smooth implementation of the projects? In your opinion, how can their impact be minimized?
12.	In your opinion, has the implementation of research within the program impacted the development of science and innovation in Poland? If so, how? If not, why?
13.	Do you identify any unintended effects of the research projects? If so, what are they? Are they positive or negative in nature?
14.	To your knowledge, have there been any changes in international cooperation, particularly with Norway and other Donor Countries, as a result of the implementation of projects within the program? If so, what are they? In your opinion, could the implementation of the program have influenced the development of long-term scientific relationships between Poland and Norway, as well as other international partners? If so, how? If not, why?
15.	Do you notice any long-term effects of the research projects on science and research policy in Poland? If so, what are they related to? What factors influence the long-term sustainability of these effects?
16.	In your opinion, did the results of the research conducted within the projects have or could they have an impact on public policies, the technology sector, the social sector, or other social sectors in Poland? If so, in which area? How might their impact be visible? If not, why?
17.	In the context of the program's implementation, do you notice any particularly effective solutions (so-called best practices) whose application positively contributed to the implementation process and could potentially be used in the future within a similar support system? If so, what are these solutions?

6.3.2. Scenario for individual in-depth interviews with representatives of the Basic Research Program Committee

Template for the research tool
<p>Dear Sir/Madam,</p> <p>The consortium of companies Polska Agencja Ewaluacji Sektora Publicznego S.A. and EU-CONSULT sp. z o.o., commissioned by the National Science Centre, is currently conducting an ex post evaluation of the Basic Research Program – Norwegian Financial Mechanism and EEA Financial Mechanism 2014-2021. A part of the study includes in-depth interviews with various groups of entities involved in the implementation of the "Basic Research" program. For this reason, we invite you to participate in the interview, which will last approximately 60 minutes.</p>
<p>1. In your opinion, do the goals of the "Basic Research" program align with the priorities, objectives of cooperation, and assumptions designed by the Donor Countries (Norway, Iceland, Liechtenstein)? If so, how? Do you see a need to modify the program's goals to better address this aspect? If so, what should these changes be about?</p>
<p>2. Has it been necessary to make changes to the program in the context of adjusting its assumptions to the needs and expectations of the beneficiaries? If so, what were these changes about? At what stage were they introduced?</p>
<p>3. In your opinion, does the program sufficiently address the priorities in the field of science and innovation that are particularly important in the context of international research cooperation (e.g., climate change, future technologies, sustainable development)? If so, how are these priorities integrated into the scope of the intervention? If not, why?</p>
<p>4. In your opinion, does the program address the current key research needs of Polish scientific institutions and the identified gaps in the Polish research system? What main needs does the program address? What, if anything, is lacking in the context of current needs?</p>
<p>5. To your knowledge, has the program achieved its intended results in relation to the main research objectives? What are its key effects? What evidence demonstrates the achievement of the program's key goals (e.g., improved research quality, international cooperation, knowledge transfer)? What has not been accomplished? Why?</p>
<p>6. Were there any challenges related to project implementation in the context of external factors, such as the COVID-19 pandemic or the war in Ukraine? If so, what were they? Did they have a significant impact on the actions being implemented? How were they addressed?</p>
<p>7. Do you identify any other difficulties encountered within the program? If so, what were they? What were they related to? What was the scale of their impact? How were they addressed?</p>
<p>8. In your opinion, has the implementation of research within the program impacted the development of science and innovation in Poland? If so, how? If not, why?</p>
<p>9. Do you identify any unintended effects of the research projects? If so, what are they? Are they positive or negative in nature?</p>

Template for the research tool	
10.	To your knowledge, have there been any changes in international cooperation, particularly with Norway and other Donor Countries, as a result of the implementation of projects within the program? If so, what are they? In your opinion, could the implementation of the program have influenced the development of long-term scientific relationships between Poland and Norway, as well as other international partners? If so, how? If not, why?
11.	Do you notice any long-term effects of the research projects on science and research policy in Poland? If so, what are they related to? What factors influence the long-term sustainability of these effects?
12.	In your opinion, did the results of the research conducted within the projects have or could they have an impact on public policies, the technology sector, the social sector, or other social sectors in Poland? If so, in which area? How might their impact be visible? If not, why?
13.	In the context of the implemented program, do you notice any particularly effective solutions (so-called best practices) whose application positively contributed to the implementation process and could potentially be used in the future within a similar support system? If so, what are these solutions?
14.	Has the implementation of the program influenced the development of long-term scientific relationships between Poland and Norway, as well as other international partners?
15.	What innovations or technologies have emerged as a result of the research conducted within the program?

6.3.3. Scenario for individual in-depth interviews with a representative of the NCN Scientific Council and the Norwegian Research Council

<p>Template for the research tool</p> <p>Dear Sir/Madam,</p> <p>The consortium of companies Polska Agencja Ewaluacji Sektora Publicznego S.A. and EU-CONSULT sp. z o.o., commissioned by the National Science Centre, is currently conducting an ex post evaluation of the Basic Research Program – Norwegian Financial Mechanism and EEA Financial Mechanism 2014-2021. A part of the study includes in-depth interviews with various groups of entities involved in the implementation of the "Basic Research" program. For this reason, we invite you to participate in the interview, which will last approximately 60 minutes.</p>
<p>1. In your opinion, do the goals of the "Basic Research" program align with the priorities, objectives of cooperation, and assumptions designed by the Donor Countries (Norway, Iceland, Liechtenstein)? If so, how? Do you see a need to modify the program's goals to better address this aspect? If so, what should these changes be about?</p>
<p>2. In your opinion, does the program sufficiently address the priorities in the field of science and innovation that are particularly important in the context of international research cooperation (e.g., climate change, future technologies, sustainable development)? If so, how are these priorities integrated into the scope of the intervention? If not, why?</p>
<p>3. In your opinion, does the program address the current key research needs of Polish scientific institutions and the identified gaps in the Polish research system? What main needs does the program address? What, if anything, is lacking in the context of current needs?</p>
<p>4. Were there any challenges related to project implementation in the context of external factors, such as the COVID-19 pandemic or the war in Ukraine? If so, what were they? Did they have a significant impact on the actions being implemented? How were they addressed?</p>
<p>5. Do you identify any other difficulties encountered within the program? If so, what were they? What were they related to? What was the scale of their impact? How were they addressed?</p>
<p>6. In your opinion, has the implementation of research within the program impacted the development of science and innovation in Poland? If so, how? If not, why?</p>
<p>7. In your opinion, has the program contributed to the improvement of research quality in Polish scientific institutions? If so, how? If not, why?</p>
<p>8. Do you identify any unintended effects of the research projects? If so, what are they? Are they positive or negative in nature?</p>
<p>9. To your knowledge, have there been any changes in international cooperation, particularly with Norway and other Donor Countries, as a result of the implementation of projects within the program? If so, what are they? In your opinion, could the implementation of the program have influenced the development of long-term scientific relationships between Poland and Norway, as well as other international partners? If so, how? If not, why?</p>

Template for the research tool	
10. Do you notice any long-term effects of the research projects on science and research policy in Poland? If so, what are they related to? What factors influence the long-term sustainability of these effects?	
11. In your opinion, did the results of the research conducted within the projects have or could they have an impact on public policies, the technology sector, or the social sector in Poland? If so, in which area? How might their impact be visible? If not, why?	
12. In the context of the implemented program, do you notice any particularly effective solutions (so-called best practices) whose application positively contributed to the implementation process and could potentially be used in the future within a similar support system? If so, what are these solutions?	

6.3.4. Scenario for individual in-depth interviews with program beneficiaries

<p>Template for the research tool</p> <p>Dear Sir/Madam,</p> <p>The consortium of companies Polska Agencja Ewaluacji Sektora Publicznego S.A. and EU-CONSULT sp. z o.o., commissioned by the National Science Centre, is currently conducting an ex post evaluation of the Basic Research Program – Norwegian Financial Mechanism and EEA Financial Mechanism 2014-2021. A part of the study includes in-depth interviews with various groups of entities involved in the implementation of the "Basic Research" program. For this reason, we invite you to participate in the interview, which will last approximately 60 minutes.</p>
<p>1. Did the support program meet all of your expectations? If not, what needs do you have in mind?</p>
<p>2. In your opinion, do the assumptions of the Basic Research program address the priorities in science and innovation that are particularly important in the context of international research cooperation (e.g., climate change, future technologies, sustainable development)? If so, how are these priorities integrated into the scope of the intervention? If not, why?</p>
<p>3. In your opinion, how does the project implementation address the current key research needs of Polish scientific institutions and the identified gaps in the Polish research system? What main needs does the project address? What, if anything, is lacking in the context of current needs?</p>
<p>4. Can you briefly describe specific results that have been achieved within the project (e.g., scientific publications, innovative solutions, development of new technologies)? In your opinion, would it have been possible to achieve similar results without the obtained support? If so, how? Was there anything that was not achieved? If so, what? What is the reason for this situation?</p>
<p>5. From your point of view, how did the collaboration with the entities conducting the research (including between Polish and Norwegian research teams – not applicable to the beneficiaries of the POLS competition) proceed? Were there any difficulties encountered in this regard? If so, what were they related to? How were they addressed?</p>
<p>6. Question for the beneficiaries of the POLS competition:</p> <p>From your perspective, how did the process of assimilation in the host institutions for the beneficiaries of the projects proceed? How do you assess the administrative support and collaboration with other researchers?</p>
<p>7. How do you assess the collaboration with the National Science Centre (program operator)? Did the collaboration positively influence the project implementation process? Were there any difficulties in this area? If so, what were they?</p>
<p>8. Were there any challenges related to project implementation in the context of external factors, such as the COVID-19 pandemic or the war in Ukraine? If so, what were they? Did they have a significant impact on the actions being implemented? How were they addressed?</p>

Template for the research tool	
9.	Do you identify any other difficulties encountered within the project? If so, what were they? What were they related to? What impact did they have on the project implementation? How were they addressed?
10.	Do you identify any "bottlenecks" that occurred within the project implementation process? If so, what factors or procedures hindered the smooth implementation of the project? In your opinion, how can their impact be minimized?
11.	In your opinion, how did the implementation of the project impact the development of science and innovation in Poland? If not, why?
12.	In your opinion, how did the implementation of the project contribute to improving the quality of research in your scientific institution? If not, why?
13.	Do you identify any unintended effects of the project? If so, what are they? Are they positive or negative in nature?
14.	How do you assess the international collaboration, particularly with Norway and other Donor Countries? Did the project contribute to the development of long-term scientific relationships between Poland and Norway, as well as other international partners? If so, how? If not, why?
15.	As a result of the project, did you benefit from international knowledge and experience exchange? If so, what benefits do you see in this area? If not, why?
16.	Do you notice any long-term effects of the implementation of your project on science and research policy in Poland? If so, what are they related to? What factors influence the long-term sustainability of these effects?
17.	In your opinion, did the results of the research conducted within the project have or could they have an impact on public policies, the technology sector, or the social sector in Poland? If so, in which area? How might their impact be visible? If not, why?
18.	Did the project have any impact on your research career (e.g., promotions, new career paths)? If so, how?
19.	What innovations or technologies emerged as a result of the research conducted within the project?

6.3.5. CAWI/CATI survey questionnaire

<p>Template for the research tool</p> <p>Dear Sir/Madam,</p> <p>The consortium of companies Polska Agencja Ewaluacji Sektora Publicznego S.A. and EU-CONSULT sp. z o.o., commissioned by the National Science Centre, is currently conducting an ex post evaluation of the Basic Research Program – Norwegian Financial Mechanism and EEA Financial Mechanism 2014-2021. A component of the study is the survey of representatives of the awardees of the completed competitions and additional activities implemented within the program.</p> <p>For this reason, we invite you to participate in the survey – it will take approximately 10 minutes. The survey results are anonymous, will be used solely for collective analysis, and will help in drawing conclusions useful for planning future forms of support.</p>
<p>1. How do you assess the degree of achievement of the intended effects (results) of the support?</p>
<p>a) All intended results were achieved</p> <p>b) Most of the intended results were achieved (Why were all the results not achieved?)</p> <p>c) Most of the intended results were not achieved (Why were all the results not achieved?)</p> <p>d) None of the intended results were achieved (Why?)... Proceed to question 3</p>
<p>2. What are the main results that were achieved through the project? You may provide more than one answer.</p>
<p>a) New publications (what topics did they cover?)</p> <p>b) Development of innovative solutions (what kind?)</p> <p>c) Other results, including the development of new technologies (what kind?)</p>
<p>3. What, in your opinion, indicates the achievement of the results you mentioned? You may provide more than one answer.</p>
<p>a) Improvement in the quality of research</p> <p>b) Development of international collaboration</p> <p>c) Knowledge transfer</p> <p>d) Other factors (what are they?)</p>
<p>4. In your opinion, what changes have occurred in the area of international collaboration as a result of the implementation of your project?</p>
<p>a) Definitely positive (why?)</p> <p>b) Rather positive (why?)</p> <p>c) Neither positive nor negative (why?)</p> <p>d) Rather negative (why?)</p> <p>e) Definitely negative (why?)</p> <p>f) Hard to say</p>
<p>5. Have you identified any long-term effects of the implementation of research projects on science and research policy in Poland?</p>
<p>a) Yes (what are these effects related to?)</p> <p>b) No (why?)</p>

Template for the research tool						
c) Hard to say						
6. In your opinion, were any innovative solutions/technologies developed within the framework of the implemented project?						
a) Yes (what kind of innovations?) b) No c) Hard to say						
7. How do you assess the collaboration with the program operator (National Science Centre)?						
a) Definitely positive b) Rather positive c) Neutral d) Rather negative (Why?) e) Definitely negative (Why?)						
8. In your opinion, how did the collaboration between project leaders and the entities conducting the research proceed?						
a) Definitely positive b) Rather positive c) Neutral d) Rather negative (Why?) e) Definitely negative (Why?) f) Not applicable – the project did not foresee this type of collaboration						
9. In your opinion, how did the collaboration between the Polish and Norwegian research teams proceed?						
a) Definitely positive b) Rather positive c) Neutral d) Rather negative (Why?) e) Definitely negative (Why?) f) Not applicable – the project did not foresee this type of collaboration						
10. Did the following external factors have an impact on the implementation of the project?						
Factor	Definitely yes	Rather yes	Rather no	Definitely no	Hard to say	How was this impact manifested?
COVID-19 pandemic						...
War in Ukraine						...
High inflation rate						...
11. What challenges have you identified related to the implementation of the project, as a result of the factors mentioned earlier?						

Template for the research tool	
(The respondent will only see the factors marked as "definitely yes" or "rather yes" in the previous question.)	
Factor	Challenges
COVID-19 pandemic	...
War in Ukraine	...
High inflation rate	...
What actions did you take to minimize the negative impact of the identified factors? (The respondent will only see the factors marked as "definitely yes" or "rather yes" in question 6.)	
Factor	Actions taken
COVID-19 pandemic	...
War in Ukraine	...
High inflation rate	...
12. Apart from the above-mentioned issues, did you encounter any additional difficulties in the implementation of the project?	
a) Yes (what difficulties do you have in mind?)... (What actions did you take to minimize the negative impact of the identified factors?) b) No c) Hard to say	
13. Did you identify any factors or procedures that hindered the implementation of the projects?	
a) Yes (what difficulties do you have in mind?)... (In your opinion, how can they be mitigated?) b) No c) Hard to say	
14. What were your expectations regarding the program (what goals did you want to achieve by participating in the program)? Open question.	
.....	
15. To what extent did the support received meet your expectations?	
a) To a very large extent b) To a large extent c) To a moderate extent d) To a small extent (What is the reason for this assessment?) e) Not at all (What is the reason for this assessment?)	

Template for the research tool
16. From your perspective, does the support program you benefited from address the current research needs of scientists/research institutions and the gaps identified in the Polish research system?
a) To a very large extent b) To a large extent c) To a moderate extent d) To a small extent (What is the reason for this assessment?) e) Not at all (What is the reason for this assessment?)
17. In your opinion, does the support received through the program have a positive impact on the development of science and innovation in Poland (including the improvement of research quality in Polish scientific institutions)?
a) Definitely yes (How do you think this impact is manifested?) b) Rather yes (How do you think this impact is manifested?) c) Rather no (Why?) d) Definitely no (Why?) e) Hard to say
18. To what extent, in your opinion, does the support program you benefited from address the priorities in science and innovation that are particularly important in the context of international research cooperation (e.g., climate change, future technologies, sustainable development)?
a) To a very large extent b) To a large extent c) To a moderate extent d) To a small extent (What is the reason for this assessment?) e) Not at all (What is the reason for this assessment?)
19. In your opinion, did the program contribute to the improvement of research quality in Polish scientific institutions?
a) Definitely yes (how?) b) Rather yes (how?) c) Rather no (Why?) d) Definitely no (Why?) e) Hard to say
20. As a result of the support received, were you able to benefit from international knowledge and experience exchange?
a) Definitely yes (how?) b) Rather yes (how?) c) Rather no (Why?) d) Definitely no (Why?) e) Hard to say
21. In your opinion, has the implementation of the program influenced long-term scientific relationships between Poland and Norway, as well as other Donor Countries?
a) Definitely yes (how?)

Template for the research tool
<p>b) Rather yes (how?)</p> <p>c) Rather no (Why?)</p> <p>d) Definitely no (Why?)</p> <p>e) Hard to say</p> <p>f) Not applicable – the project did not foresee this type of collaboration.</p>
22. Do you plan to continue the established international collaboration?
<p>a) Definitely yes (how?)</p> <p>b) Rather yes (how?)</p> <p>c) Rather no (Why?)</p> <p>d) Definitely no (Why?)</p> <p>e) Hard to say</p>
23. Do you believe that, as a result of participating in the program, any changes occurred in your research career (e.g., promotions, new career paths)?
<p>a) Yes, positive (please elaborate on your answer)...</p> <p>b) Yes, negative (please elaborate on your answer)...</p> <p>c) No, participation in the program had no impact on my professional situation</p> <p>d) Hard to say</p>
24. Do you notice any unintended effects of the support? You may provide more than one answer.
<p>a) Yes, positive (please elaborate on your answer)...</p> <p>b) Yes, negative (please elaborate on your answer)...</p> <p>c) No</p> <p>d) Hard to say</p>
25. In your opinion, can the effects of the research project potentially be used on a broader scale, e.g., in public policies or in any sector of the economy?
<p>a) Yes (how?)</p> <p>b) No</p> <p>c) Hard to say</p>
26. Do you notice any particularly effective solutions (so-called best practices) within the project implementation that positively contributed to the effectiveness of the project and could potentially be used in the future in similar actions?
<p>a) Yes (how?)</p> <p>b) No</p> <p>c) Hard to say</p>
27. In hindsight, do you notice any methods/actions/project solutions that proved to be ineffective?
<p>a) Yes (how?)</p> <p>b) No</p> <p>c) Hard to say</p>
28. Do you believe that any changes should be made in future, comparable support programs?
<p>a) Yes (how?)</p>

Template for the research tool
<p>b) No</p> <p>c) Hard to say</p>
Questionnaire metadata
M.1. Gender
<p>Female</p> <p>Male</p>
M.2. Please indicate your title/academic degree.
<p>a) Master's degree</p> <p>b) PhD</p> <p>c) Habilitated Doctor</p> <p>d) Professor</p>
M.3. Please indicate your position at the university/research institution.
<p>a) Professor</p> <p>b) Associate Professor</p> <p>c) Assistant Professor</p> <p>d) Research Assistant</p> <p>e) Other (please specify)...</p>
M.4. Place of residence (province)
<p>a) Dolnośląskie</p> <p>b) Kujawsko-Pomorskie</p> <p>c) Lubelskie</p> <p>d) Lubuskie</p> <p>e) Łódzkie</p> <p>f) Małopolskie</p> <p>g) Mazowieckie</p> <p>h) Opolskie</p> <p>i) Podkarpackie</p> <p>j) Podlaskie</p> <p>k) Pomorskie</p> <p>l) Śląskie</p> <p>m) Świętokrzyskie</p> <p>n) Warmińsko-Mazurskie</p> <p>o) Wielkopolskie</p> <p>p) Zachodniopomorskie</p>
<i>Thank you for participating in the survey.</i>

6.4. Interim Report

Attachment provided in a separate file.

6.5. Survey Results Database with Awardees

Attachment provided in a separate file.

6.6. Transcripts of in-depth interviews

Attachment provided in a separate file.