



MINISTERUL CERCETĂRII,  
INOVĂRII ȘI DIGITALIZĂRII

*ue-fiscali*  
Unitatea Executivă pentru  
Finanțarea Învățământului Superior,  
a Cercetării, Dezvoltării și Inovării



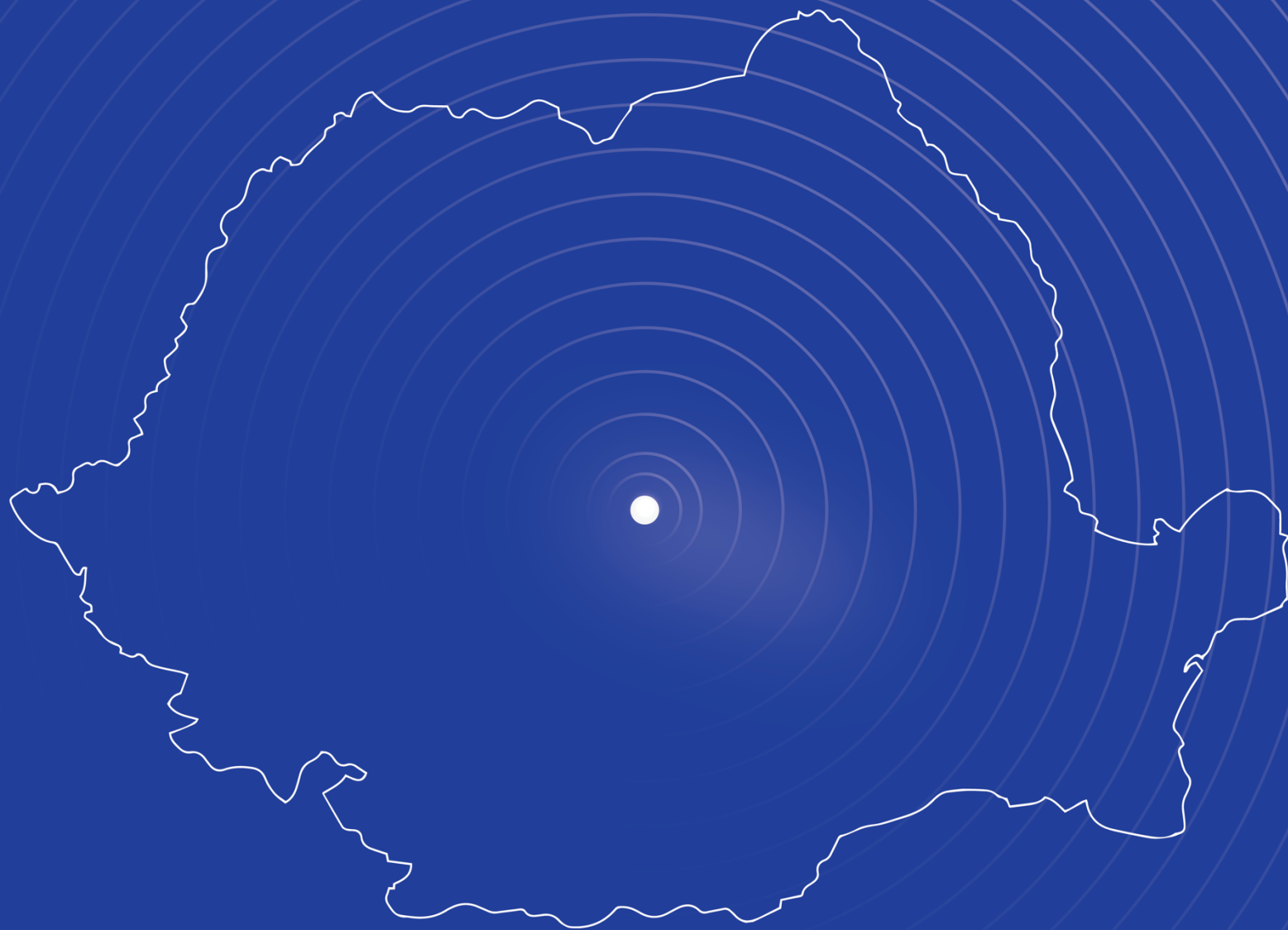
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Programul Operațional Cercetare și Dezvoltare  
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Instrumente Structurale  
2014-2020



# The National Plan for Research, Development and Innovation 2022-2027

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# List of acronyms

AIS	Article Influence Score
ALFRED	Advanced Lead Fast Reactor European Demonstrator
CERN	European Organization for Nuclear Research (Organisation Européenne pour la Recherche Nucléaire)
COST	European Cooperation in Science and Technology (European Cooperation in Science and Technology)
CRIC	Romanian Committee for Research Infrastructures
CRM	Customer Relationship Management: system represents a set of strategies, policies and technologies intended to attract, retain and retain customers
DANUBIUS-RI	International Centre for Advanced Studies for River Sea Systems
DOAJ	Directory of Open Access Journals
DOAJ Seal	Mark assigned to journals with the best practices in the open science publishing
EC	European Commission
EIC	European Innovation Council
EIP	European Innovation Partnership
EIT	European Institute of Innovation and Technology
ELI NP	Extreme Light Infrastructure Nuclear Physics
EOSC	European Open Science Cloud
EPO	European Patent Office
ERA	European Research Area
ERC	European Research Council
ERIC	European Research Infrastructure Consortium
ERIC	The European Research Infrastructure Consortium
ESA	European Space Agency

ESCI	Emerging sources citation index
ESFRI	European Strategy Forum on Research Infrastructures
ESIF	European Structural and Investment Funds (European Structural and Investment Funds)
EU	European Union
EURATOM	European Atomic Energy Community
EUREKA	International network, with the aim of increasing competitiveness, integration and international cooperation in the field of R&D and innovation
F4E	Fusion for Energy
FAIR	Findable, accessible, interoperable, reusable
FAIRRO	Facility for Antiproton and Ion Research, Romania
FTE	Full Time Equivalent
IF	Impact Factor
INCD	National Research and Development Institute
IOSIN	Installations and special objectives of national interest
JCR	Journal Citation Reports Database (Clarivate Analytics)
IPR	Intellectual property rights
JPI	Joint Programming Initiative
JTI	Joint Technology Initiative
LAP	Lead Agency Procedure (Lead Agency Procedure)
MCID	Ministry of Research, Innovation and Digitization
MSCA	Marie Skłodowska Curie Actions (Marie Skłodowska Curie Actions)
MVP	Minimum viable product (the initial version of a product, with limited functionality, used for collecting feedback from users)
OA	Open access

OSIM	State Office for Inventions and Trademarks
PNCDI IV	National Plan for Research, Development and Innovation 2022-2027
PNRR	National Recovery and Resilience Plan
POCIDIF	Operational Programme for Intelligent Growth, Digitization and Financial Instruments
POR	Regional Operational Programme
R&D	Research and development
RDI	Research, Development and Innovation
SNCISI	National Strategy for Research, Innovation and Smart Specialization 2022 – 2027
STEAM	Science, technology, engineering, art and mathematics
TRL	Technology Readiness Level , TRL 1...TRL 9, (from idea to full commercial implementation)
USPTO	United States Patent and Trademark Office
WIPO	World Intellectual Property Organization

# 1

**The aim of the plan**



# Introduction

The National Plan for Research, Development, and Innovation 2022-2027 (hereinafter referred to as PNCDI IV), developed and managed by the State Authority for Research and Development, is the main instrument implementing the National Strategy for Research, Development and Smart Specialization (SNCISI) 2022-2027.

PNCDI IV is multi-annual and ensures transparent and predictable financing of the national Research Development Innovation (RDI) system, with the aim to modernize it, consolidate the excellence and increase its relevance for the economy and society.

The actions of the National RDI Plan 2022-2027 contribute to the achievement of the objectives of the National Strategy for Research, Innovation and Smart Specialization 2022-2027, in accordance with Horizon 2030 vision, through:

- a) concentration the excellence and it connecting to the scientific frontiers, aligned to societal challenges;
- b) the wide mobilization of the business sector towards innovation;
- c) support for the development of local, regional and national innovation ecosystems associated with smart specialization, contributing to the advance in the global added value chains;
- d) European and international cooperation.

PNCDI IV is correlated with Romania's strategy to predictably increase public expenditures for research and development (R&D), to the level of 1% of GDP, as stipulated by the legislation in force. This target will create the premises for the structural convergence of the national RDI system with the other European R&D systems, but also to increasing visibility, sustainability and impact.

The public investment in R&D will also support innovation in the private sector, contributing to Romania's innovation-based competitiveness and social cohesion.

2

**Implementation  
period**

The period in which the PNCDI IV actions, respectively the actions of all its Programmes and sub-programmes, will be launched and contracted, is from the date of entry into force of the government decision for the approval of the National Plan for Research, Development and Innovation 2022 - 2027 until December 31, 2027.

Payments related to the commitments assumed during the implementation of the PNCDI IV Programmes can be deferred after December 31, 2027, until the completion of all the Plan actions, but not later than December 31, 2030.

# 3

## Principles

**Focus on impact and efficient use of funds:** research funding is focused on attaining scientific results with international impact and/or relevant and useful to the economy, and for the whole society.

**Synergy with other Programmes:** the PNCDI IV actions are synergistically and complementary integrated with those financed within the framework of Operational Programmes, sectoral R&D plans, the National Resilience and Recovery Plan of Romania and other policies, as well as with European and international research and innovation Programmes.

**Sustainability of investment in human resources:** the development of research careers will be supported to achieve performance; the excellence will be recognised and rewarded in a modern and predictable science and innovation ecosystem.

**Predictability:** the predictability of the regulatory framework will be ensured; the annual allocation of public funding will be aligned to the provisions of the multiannual planning.

**Multi-actor collaboration:** public-public, public-private, private-private collaborations will be encouraged to ensure a critical mass; This approach promotes inter-, multi-, and trans-disciplinarity, facilitating the transfer of scientific results into the economy. The aim is to enhance competitiveness, address societal challenges, and attract research and development (R&D) investments from the private sector.

**Administrative simplification.** Throughout the implementation of the Plan, efforts will be made to pursue administrative harmonization and simplification. This includes initiatives to reduce the burden on applicants and beneficiaries, with a particular focus on leveraging dedicated online platforms for streamlined processes.

**Open science:** the strategic planning of research aims to support the contribution of scientific results to the development of society. This involves providing free access (open access) to scientific publications and research data derived from public funds. Additionally, it aims to facilitate open processes in knowledge production and accumulation through innovation (open innovation), education (open educational resources), and involving citizens in science through participatory approaches (citizen science). The data and information resulted from the projects will align to FAIR principles (Findable, Accessible, Interoperable, Reusable). The access to research data will be ensured according to the European principle "as open as possible, but as closed as necessary".

**European and international collaboration:** the framework for the implementation of national commitments at European and international level in the field of research, innovation and space is guaranteed. New cooperation agreements will be established with other countries, based on

mutual benefits. Joint, bilateral/multilateral calls within PNCDI IV instruments can be developed with countries with which Romania has signed scientific and technological cooperation agreements, following the Lead Agency model, within the limits of applicable legislation.

**Ethics and responsibility in research:** the Programmes and all funded activities are based on the common values of respect for human dignity, freedom, democracy, equality, the rule of law and respect for human rights, including the minorities' rights. The promotion and implementation of equal opportunities for all participants will be ensured, including the integration of the gender dimension.

The Romanian research organizations will be stimulated to align to internationally recognized standards, principles, code of conduct and values regarding research (e.g. the European Charter of Researchers, the Code of Conduct regarding the recruitment of researchers, the Bonn Declaration on academic freedom, the EC [Recommendation on the guiding principles for knowledge valorisation](#), the European Union framework on research careers, gender equality, and others).

All funded Programmes and activities will be compatible with sustainable development objectives.

Transparency, accessibility of data and information regarding the implementation of PNCDI IV will be ensured. The continuous dialogue between the public authorities and those who implement the RDI activity will be maintained, safeguarding an ongoing process of collective co-creation of the RDI policy.

**Independent evaluation:** The selection of projects to be funded and the evaluation of their implementation will adhere to the following principles:

- a) excellence: the projects selected for funding demonstrate a high scientific quality in the context of the scientific fields and objectives associated with the specific competition;
- b) transparency: the funding decision is based on public procedures and criteria, which are clear and unambiguous; applicants have access to the results of the project proposals evaluation;
- c) fairness and impartiality: all the project proposals submitted in a competition are treated equally, evaluated impartially, based on scientific merit and in accordance with the criteria established for the respective competition (Information Package), regardless of origin and/or identity of persons;

- d) confidentiality: all data related to project proposals and evaluators are considered confidential;
- e) efficiency and effectiveness: the evaluation, the funding decision and the negotiation of financing contracts are carried out timely, ensuring the quality standards for evaluation, in compliance with the applicable legal framework;
- f) ethics: the project proposal/project that contravenes the fundamental principles of ethics or does not fulfil the relevant safety conditions during the implementation, can be excluded from evaluation/financing at any time.

4

**Priority areas**



At national level, SNCISI 2022-2027 identifies two types of thematic priorities:

- a) the Strategic Research Agenda priorities oriented towards societal challenges, with well-defined impact areas, without limiting the type of research that can address them.
- b) the smart specialisation priorities aimed at building a competitive advantage, by developing and correlating the strengths of research and innovation with the needs of the business environment.

Fundamental research is considered a horizontal, priority activity, including for the thematic priorities.

**PNCDI IV supports:**

- a) fundamental and exploratory research. The evaluation criteria are related to scientific excellence, without excluding the possibility of integrating some elements of fundamental research in projects with an applied/thematic character;
- b) research-development focused on the Strategic Research Agenda and synergies with the national fields of smart specialisation, as the case may be;
- c) innovation, innovative entrepreneurship, technological transfer, where the junction with smart specialization areas is an advantage; for the aim of complementarity with the national Programmes dedicated to smart specialization, PNCDI IV allows a wider access, conditioned by the impact on the competitiveness of companies.

PNCDI IV is structured in ten research-development-innovation programmes, several sub-programmes and has various type of funding instruments. To achieve their objectives, "bottom-up" or "top-down" project competitions can be launched. The state authority for research and development can decide to fund new types of projects, depending on the dynamics of the RDI landscape and of the societal challenges that the PNCDI IV will address, but without changing the Programmes of the National Plan.

5

**Programmes**

## 5.1. 'IDEAS' PROGRAMME

**Aim:** The program ensures funding for research teams with proven performance. These teams have the capacity of developing projects that can contribute to the development of new research directions, can lead to significant discoveries. Moreover, they can contribute to new and refined models, theories, and methods, demonstrating a comprehensive approach to solving complex scientific problems.

### *Program objectives:*

- a) Develop exploratory advanced trans- and interdisciplinary research and contribute to significant advancements at the forefront of knowledge, introducing globally novel elements.
- b) Enhancing qualitative performance and improving the international visibility of Romanian scientific results.
- c) Attract and retain talented individuals, both domestically and internationally, to strengthen the national Research and Development (R&D) system.
- d) Increasing the utilization of existing national research infrastructures.

Projects can be proposed in all scientific fields and are open to public or private research organizations in Romania.

### *Outcome indicators:*

- a) Number of scientific papers published in Web of Science/Scopus-indexed journals and volumes or in other databases specific to certain research fields.
- b) Number of scientific papers published in Web of Science/Scopus-indexed journals and volumes or in other databases specific to certain research fields, with open access.
- c) Number of scientific papers indexed in Web of Science in the top 10% of the most cited papers in the field.
- d) Number of scientific papers indexed in Web of Science in the top 1% of the most cited papers in the field.

- e) Number of papers published in journals and publishers evaluated and recognized by the National Council of Scientific Research in the field of humanities (Category A).
- f) Number of researchers (full-time equivalent) supported by the programme.
- g) Number of doctoral students supported by the programme.
- h) Books and book chapters published by prestigious foreign publishers in relevant fields.
- i) Number of scientific papers in international co-authorship, indexed in Web of Science.
- j) Patent applications/international patents registered/granted by the European Patent Office and/or USPTO/WIPO.

### ***Types of projects***

#### ***Platform for Advanced Studies and Research***

**Aim:** To develop of a virtual network, named the Platform for Advanced Studies and Research. This will be made up of nodes of excellence/expertise/performance in scientific research, distributed across the country. Funding is granted to research projects, implemented on medium term, that support the development of centres in well-defined research fields, created around personalities with proven experience in the international scientific arena.

The projects are developed by public research-development entities (universities, institutes of the Romanian Academy, National Research-Development Institutes that have at least a partnership agreement with an institution organizing doctoral studies). Around the host institution, one or more competence nodes can be developed, in different thematic areas.

The Platform for Studies and Advanced Research ensures the financing of a number of 30/40 competence nodes, for a period of 48-60 months.

### ***Specific objectives***

- a) development and consolidation of research teams around the project coordinator, who is a scientific personality;

- b) supporting the research and development activities of doctoral students and post-doctoral fellows; at the project level, competitions will be organized, with the aim to award research grants to doctoral students and post-doctoral researchers;
- c) expanding international collaborations and increasing the visibility and competitiveness of the Romanian research system;
- d) capitalizing on the existing research infrastructure, by increasing the degree of utilisation and opening the access to the public and private environment;
- e) increasing the RDI performance of the host institution.

The platform will be coordinated by a project manager. This will ensure the visibility of the activities undertaken by the platform, the integration in RDI international networks, promotion of the exchange of the best practices, as well as the dissemination of the scientific results, in a unitary manner, adapted to the new means of communication.

### ***Exploratory research projects***

**Aim:** To support and stimulate fundamental and exploratory scientific research in Romania. The programme is addressed to researchers with high performance, as proven by the quality and the international recognition of their scientific results.

#### ***Specific objectives:***

- a) Consolidate the prestige of national research, quantified by scientific results at international level;
- b) Identify, support, and encourage research teams, enabling them to attain, sustain, and consolidate the critical mass required for national competitiveness on the international stage.
- c) Attract both national and international human resources in Research and Development (R&D) to strengthen the foundation of national science.

### ***Frontier Research complex projects***

**Aim:** To support and promote the advanced scientific research and the scientific progress at the knowledge frontiers, as well as to encourage the development and use of new methods and

techniques, including unconventional approaches and investigations on some research problems at the interface between well-established scientific areas.

The projects involve research teams from at least two distinct institutions and have an implementation period of at least 36 months.

### ***Specific objectives:***

- a) the development of frontier research in Romania, through the achievement of cutting-edge scientific and technological results;
- b) the development of collaboration between research teams from different national institutions, which have common or complementary research themes and share the complementary research infrastructure, which exist in the partner institutions;
- c) training Romanian researchers to participate and be competitive in the Horizon Europe framework Programme of the European Union.

### ***ERC-like research projects***

**Aim:** Identify and support Romanian researchers with excellent results obtained in the European Research Council (ERC) - Starting Grant, Consolidator Grant, Advanced Grant - competitions, organized starting 2022.

### ***Specific objectives:***

- a) achieve excellent scientific results, reflected in an increase of the number of publications with international impact;
- b) consolidate the capacity of Romanian researchers to successfully apply in the ERC competitions.

The Romanian researcher who participated as project director (principal investigator) in one of the ERC competitions, together with a host institution from Romania, depending on the score obtained in the ERC evaluation, will be awarded either an Excellence Grant (the project proposed in the ERC competition is fully financed), or a Support Grant (the project director proposes a research project, part of the proposal submitted in the ERC competition).

### *Exploratory workshops*

**Aim:** Open new scientific research directions, to explore new emerging research fields, with potential impact on the new science trends.

#### *Specific objectives:*

- a) explore research directions with recognized potential as acknowledged by the international scientific community.
- b) promote scientific collaborations between researchers from different countries and with different professional experiences, facilitating the joint participation in international projects;
- c) use the results and theories from a specific science field to complement and enrich another.

## **5.2.HUMAN RESOURCES PROGRAMME**

**Aim:** Increasing the number of researchers and attracting the young generations to science, by supporting the research careers throughout the professional life, with an emphasis on training and skills development.

#### *Programme objectives:*

- a) increase the attractiveness of the research careers, by creating an institutional framework favourable for the professional development, based on ethics and performance;
- b) strengthen the knowledge and skills transfer, through international exchanges and participation in prestigious scientific events;
- c) reduce the exodus of research human resources and attract researchers from abroad;
- d) increase the visibility of Romanian research and promote the role of science in society.

### **Result indicators:**

- a) number of researchers financed by the programme (full-time-equivalent), of which doctoral students and post-doctoral researchers;
- b) newly created jobs for researchers (full-time-equivalent) and permanent employment contracts (full-time equivalent), and the relevant shares in the government sector, higher education institutions, and private sector;
- c) number of scientific papers published in journals and volumes indexed by Web of Science/Scopus or in other databases specific to certain research fields;
- d) number of open access scientific papers, published in journals and volumes indexed by Web of Science/Scopus or in other databases specific to certain research fields;
- e) number of papers in journals and by publishing houses evaluated and recognized by the National Council of Scientific Research in the field of humanities (category A);
- f) number of open access data sets;
- g) books and book chapters published by prestigious publishing houses from abroad,
- h) number of mobilities/fellowships in prestigious institutions abroad;
- i) number of international co-authored scientific papers, indexed in Web of Science;
- j) international patent/patent applications submitted/granted to/by the European Patent Office and/or USPTO/WIPO;
- k) number of journals (Web of Science) that have adopted and accredited DOAJ SEAL practices, in the Diamond Open Access category.



## **5.2.1 SUBPROGRAMME 'START IN RESEARCH'**

### *Types of projects*

#### *International mobility for PhD students*

**Aim:** Supporting young doctoral students to successfully complete their doctoral thesis, by funding research internships abroad and facilitating their access to research infrastructures/libraries/archives/databases.

Funding is granted to doctoral students in the second year of PhD studies, for a mobility of maximum 9 months.

#### *Postdoctoral research projects*

**Aim:** Support young researchers, PhD holders, to continue the research started during the doctoral studies, to acquire new skills and consolidate a research career.

During the implementation of the project, with a duration between 12-24 months, the project director is supervised by a mentor.

#### *Research projects for young independent teams*

**Aim:** Provide financial support to early-career researchers with Ph.D. credentials, who have demonstrated independence and achieved noteworthy results in their respective research fields. This support aims to enable them to establish or reinforce a research team.

The duration of the project is between 18 and 24 months. The project team consists of minimum 3 persons, including the project director.

#### *"Stefan Odobleja" research grants*

**Aim:** Stimulate the research performance of young Romanian PhD students and post-doctoral researchers. Additional support is provided to increase the number of research grants, boosting the allocation of research grants through competitive processes, leveraging internationally recognized programmes.

This Programme is addressed to national public or private research organizations, with a recognized international visibility. The Programme can be accessed only if the host institution has a scholarship scheme financed by international funds and awarded on a competitive basis.

The maximum number of scholarships that can be awarded through this funding instrument to a certain institution is ten but cannot exceed the number of scholarships already financed by the international programme.

### ***"Simion Mehedinti" research grants***

**Aim:** Stimulating scientific excellence of Romanian research, by ensuring adequate conditions for national researchers, who have benefited from a research fellowship abroad and have under implementation a reintegration grant, awarded by the Alexander von Humboldt Foundation (Germany) or another institution from abroad.

The funding contributes to increasing the number of national researchers who want to continue their research activity in a Romanian institution, following their participation in research fellowships abroad.

### ***"Spiru Haret" research grants***

**Aim:** Stimulating young Romanian PhD students and postdoctoral researchers to perform interdisciplinary research, on topics related to the Romanian diaspora.

The instrument is addressed to public or private national research organizations, which run/develop a scholarship programme dedicated to the 'Romanian diaspora' theme. To be eligible, the programme must be co-funded by both the host institution and this particular funding instrument.

The number of scholarships financed by the host institution must be equal to the number requested through this instrument; the financial value of a scholarship funded by the host institution should be equivalent to the value granted to a scholarship financed by the Programme. This ensures parity and consistency in the support provided by both sources.

### ***Certificates of excellence Marie Skłodowska – Curie Actions (MSCA)***

**Aim:** Consolidate the international prestige of the Romanian scientific research. The scheme offers support to researchers who have had obtained MSCA Certificates of Excellence and have a host institution from Romania.

The research project for which funding is requested is defined in accordance with the objectives, activities and expected results specified in the MSCA project, for which the certificate of excellence was received.

Financing is granted at the level requested in the MSCA project, for a period of up to 36 months, without exceeding the implementation period stipulated in the MSCA project.

### ***First job in the national RDI system***

**Aim:** Support the public research organizations in attracting young master/doctoral graduates to the national research system, by providing funds for their salaries for a maximum period of 24 month.

## **5.2.2 SUBPROGRAMME MOBILITIES**

### ***Types of projects***

#### ***Researchers' mobility***

**Aim:** Development of the national RDI human resources and increase the visibility of Romanian research, by publishing and presenting the most significant results at prestigious international conferences. The funding is provided to a researcher/academic staff (doctor or doctoral student) for one of the following support measures:

- a) cover the cost of the participation in prestigious international conferences, for presenting the most significant results obtained in research activity;
- b) carry out training internships of maximum 30 days;
- c) ensure access to infrastructures / libraries / archives / international databases, which do not exist in Romania.

#### ***Mobility projects for experienced researchers from diaspora***

**Aim:** Capitalize on the expertise and experience gained by Romanian researchers from diaspora, by supporting their participation in meetings, visits and scientific events organized by Romanian R&D entities.

The actions within the projects will facilitate the transfer of competences in both directions, contributing to the creation of a space of dialogue and collaboration between Romanian researchers, regardless the place where they live and work.

## ***Mobility Projects for Young Romanian Researchers from Diaspora***

**Aim:** Development of an environment conducive to the exchange of experience and expertise between young national researchers working in Romania and those working abroad, to strengthen their cooperation.

The funding is provided for a Romanian researcher from diaspora, with international visibility and recognition, and an RDI experience ranging from 2-9 years since the PhD title was awarded by a prestigious foreign institution.

## ***Intersectoral Mobility Projects***

**Aim:** Training of PhD students through the intersectoral knowledge transfer. The PhD student benefits from a mobility of 3 - 6 months, to perform research in a company based in Romania or abroad. PhD students will gain new research, transferable skills, and competences, leading to improved employability and career prospects within and outside academia.

## ***Senior Mobility Projects***

**Aim:** Strengthen the scientific collaborations between researchers from Romania and researchers from abroad, working on common research topics, with the aim to capitalize their expertise and experience, exchange best practices, and identify new research directions.

Researchers with international experience, leaders in their field, will be funded to participate in visits and/or remote activities in an ongoing research project, funded through a national competition (e.g., Exploratory Research Projects, Complex Frontier Research Projects).

The maximum project period is 24 months; the foreign researcher must be at least of 3 months in the Romanian host institution.

## **5.2.3 SUPPORT SUBPROGRAMME**

### ***Types of projects***

#### ***Rewards for the Research Outputs - Web of Science Articles and Patents***

**Aim:** Enhance the quality, impact, and international visibility of Romanian research by rewarding researchers affiliated to a Romanian institution, who are authors of articles published in prestigious journals, in the main international scientific flow, or/and authors of patents granted by national or international patent offices. To be eligible, articles must be published in Web of

Science indexed journals, classified as either "article" or "review". 'Excellence' awards will be granted for articles published in the journals Nature or Science, or in journals ranked in the first quartile in the field. Patents are eligible if the authors are affiliated to a public Romanian institution, and the patent holder is a Romanian public research institution.

### ***Rewarding the Romanian Journals for Open Access Publishing***

**Aim:** Reward the Romanian journals for practicing open access (OA) publication, such as obtaining DOAJ SEAL accreditation in the "Diamond Open Access" category (no charge for processing articles). Being included in DOAJ and having OA publications with the DOAJ Seal signifies recognition of the quality of an Open Access publication ("best practice"). Beneficiaries are publishers who publish Web of Science indexed journals (JCR and ESCI).

### ***Open Access Publishing***

**Aim:** Support and encourage the publication of scientific papers in open access journals, indexed in the Journal Citation Reports (JCR), with an impact factor (IF) or influence score (AIS) above the average in the field, as well as preparing the underlying scientific data for open access publication/repository.

The research work or research data for which funding is being sought cannot be the result of a research project funded by public money, in which the open access publication fees are eligible.

### ***Protection of Intellectual Property Rights***

**Aim:** To provide financial support for the protection of intellectual property rights (international patenting), consultancy services for drafting the application, patent application fees. Requests for financial support for patenting results obtained within a research project funded by public money, and for which funds have been allocated for patenting, are not eligible to apply for additional funding.

## **5.3.ORGANISATIONS OF RESEARCH PERFORMANCE PROGRAMME**

**Aim:** Improve the institutional performance of public and private research organizations by supporting and developing the institutional research competencies and their capacity to transfer scientific results to the economic sector.

## ***Programme objectives***

a) support institutional development plans to consolidate the performances in the field of activity, at the level of departments and research groups;

b) reduce the degree of fragmentation of the national R&D system, by stimulating the establishment of RDI consortia, the voluntary merger of research organizations and the

voluntary transition of the National R&D Institutes under the coordination of public higher education institutions;

c) create consortia between similar or complementary research infrastructures, capable to offer integrated packages of research services;

d) Support the development of competences of the research institutes in the smart specialisation areas;

e) develop the capacity of the research organizations in the following directions: capitalization and dissemination of research knowledge and results; the provision of technical and scientific assistance and services and high-level technologies in priority areas; initiation and development of viable collaborations with public and private partners from the economic environment; increase the international involvement and visibility; adoption of open science specific practices;

f) bring added value to the national RDI system and integrate the Romanian research organizations in the European Research Area (ERA) and/or the European Higher Education Area (EHEA);

g) concentration and common use of RDI resources (infrastructure, human resources).

## ***Result indicators***

a) number of international consolidated/developed partnerships;

b) number of funded mechanisms which were developed (grants, student competitions and other similar);

c) number of living room lab/fab lab type laboratories created;

- d) number of students/PhD students financially supported;
- e) number of communication and popularisation of science events organised;
- f) number of institutions funded, with strategic plans revised improved/more competitive.
- g) number of funded institutions, following the establishment of RDI consortia, the merging of research organizations or the transition of national research and development institutes under the coordination of public universities, in the accordance with the Law no. 25/2023 regarding the voluntary integration of Romanian RDI organisations in the European Research Area.

### ***Types of projects***

#### ***Institutional Development Projects***

**Aim:** Fund institutional development projects for public Higher Education Institutions, the National Research and Development Institutes (INCD), the institutes of the Romanian Academy, with the aim to increase their capacity and institutional performance.

#### ***Specific objectives:***

- a) implementation of the strategic institutional development plan to increase the RDI performance, in the field of activity;
- b) capitalisation of the research infrastructures, by increasing the degree of utilisation and opening the access to public and private operators;
- c) support research activities performed by students;
- d) development of the innovation and entrepreneurship institutional and individual capacity;
- e) consolidation of international Partnerships, aligned to the strategic priorities of the institution;
- f) increase the national and international visibility;
- g) promote the interest in science and innovation;

h) development of institutional capacity for the implementation of open science practices, to ensure alignment with the recommendations and European Union policies regarding open science.

### ***Directions of action (intervention) and types of eligible activities:***

- a) valorisation of existing research infrastructures: its operationalisation and use, but also the employment of new researchers for the operationalisation of the infrastructure;
- b) development of the innovation and entrepreneurship infrastructure (including social entrepreneurship): creation of living lab/fab lab type laboratories, entrepreneurship competitions, entrepreneurship, and acceleration programmes; awards for creativity, innovation and entrepreneurship; development of STEAM platforms in partnership with schools and high schools;
- c) co-financing mechanisms: grant schemes of institutional interest (e.g. diaspora study, big data for social science, data science & engineering, agriculture 4.0, public health and the like); grants for the development of competencies in strategic fields; grants for the development of skills necessary for implementation open science (research data management, development and integration of infrastructure, digital services and repositories, grants for the students. For this activity, the institution implements or develops programmes funded at least 50% from own funds;
- d) strategic preparation and communication, international collaborations: strategic positioning studies, exploratory workshops; summer school/advanced studies; foresight studies, mobilities for the development of international collaborations at the institutional level; communication strategies.

A project proposal may address one or many directions of action (interventions).

### ***Complementary Institutional funding***

**Aim:** Support the consolidation of the institutional capacity of public research organizations to respond to economic and societal challenges; the funding will be provided based on the institutional performance, the results obtained in the knowledge production and the economic and societal impact of research and technological transfer activities performed by the institutions.



The methodology for evaluation is established by order of the Head of the State Authority for Research and Development.

### ***Projects for the stimulation of the voluntary integration of research organizations***

**Aim:** Increase the performance and the institutional capacity of public and private research organizations, by funding the organizations resulted from the process of voluntary integration, in accordance with Law no. 25/2023 regarding the voluntary integration of Romanian RDI organizations in the European Research Area.

#### ***Specific objectives:***

- a) implement the strategic institutional development plan to improve the RDI performance, in the field of activity;
- b) capitalization of the research infrastructure, by increasing the degree of its utilisation and opening the access to public and private operators;
- c) Capitalization of the RDI human resource resulted from the merger, through the development of international partnerships and participation in European framework programmes, (inter-)regional development programmes, European and international initiatives, national operational programmes;
- d) increase the socio-economic impact of RDI results;
- e) promote cooperation between research and innovation actors around common research themes;
- f) create and support new jobs in the RDI national system;
- g) increase the institutional capacity by developing new strategies in specific fields: staff recruitment research through the ERA Talent Platform, promote open science, marketing, innovation, intellectual property, technological transfer, commercialization, support of innovative enterprises (start-up and spin-off type), digitalisation;
- h) Support the professional development of researchers and support staff through short-term training, experience exchange with innovative companies, contribution to the development of undergraduate and postgraduate programmes; training and specialisation programmes;

- i) Adoption and implementation of Charter and Code of Researchers and the logo of "Human Resources Excellence in Research".

Methodological norms regarding evaluation, contracting, financing, and monitoring of these projects are elaborated by the state authority for research and development and are approved according to the legislation in force.

### ***Programme Objectives:***

- a) Support institutional development plans aimed to consolidate scientific performance at the department and research team levels;
- b) Support the development of scientific competencies in national research institutions in smart specialization areas;
- c) Support the public research organizations in the following directions: consolidation of the knowledge valorisations and dissemination; provision of high-level technical, scientific assistance and services in priority RDI areas; initiating and developing viable collaborations with partners from the public and private economic sectors; increasing international involvement and visibility; adopting specific open science practices.

### ***Output Indicators***

- a) Number of consolidated/developed international partnerships;
- b) Number of implemented funding mechanisms at the level of institution (internal grants, students' competitions, etc.);
- c) Number of newly created living lab/fab lab-type laboratories;
- d) Number of funded students/PhD students;
- e) Number of science communications and popularization events organized;
- f) Institutions which have been funded and developed/improved strategic competitive plans.

## ***Types of Projects***

### ***Institutional Development Projects***

**Aim:** The programme involves funding institutional development projects for public universities, National Research and Development Institutes (INCDs), and institutes of the Romanian Academy. The goal is to enhance their institutional capacity and scientific performance.

#### ***Specific Objectives:***

- a) implementation of the strategic plans for institutional development, with the aim to improve the institutional RDI performance;
- b) capitalizing on the existing research infrastructure, by increasing the degree of use and opening the access to operators from the public and private environment;
- c) support for R&D activities performed by students;
- d) development of innovation and entrepreneurship capacity at both institutional and individual level;
- e) strengthening international partnerships aligned to the institution's strategic priorities;
- f) increasing national and international visibility;
- g) promoting science and innovation;
- h) development of institutional capacity for implementing open science practices, ensuring alignment with European Union recommendations and policies on open science.

#### ***Directions of action (intervention) and eligible types of activities:***

- a) utilization of existing research infrastructure: exploitation and usage, as well as engagement of new researchers to operate the infrastructure.
- b) development of innovation and entrepreneurship infrastructure (including social entrepreneurship): creation of living lab/fab lab-type laboratories; entrepreneurship competitions, programmes, and accelerators; innovation,

creativity, and entrepreneurship awards; development of STEAM platforms in partnership with schools and high schools.

c) co-financing mechanisms: institutional grant schemes (e.g., diaspora studies, big data for social sciences, data science & engineering, agriculture 4.0, public health, and others); grants for developing competencies in strategic areas; grants for developing competencies required for implementing open science (research data management, development and integration of infrastructure, digital services, and repositories, etc.); internal grants for students. For this activity, the institution carries out or plans to develop Programmes funded at a minimum of 50% from its own sources. d) Strategic preparation and communication, international collaborations: strategic positioning studies, exploratory workshops; summer schools/advanced studies; foresight studies; mobilities for developing international collaborations at an institutional level; communication strategies.

A project proposal can address one or more directions of action (interventions).

### ***Complementary institutional funding***

**Aim:** To consolidate the institutional capacity of public research organizations to respond to economic and societal challenges. The funding selection criteria are based on the knowledge production performance of the organisation, and the economic&societal impact of research and technology transfer activities.

The methodology for evaluation is established by official order of the Head of the State Authority for Research and Development.

## **5.4. 'NUCLEU' (CORE) PROGRAMME**

**Aim:** Increase the institutional capacity of the National Research and Development Institutes, as defined in Article 17 of Government Ordinance No. 57/2002 on Scientific Research and Technological Development, approved with modifications and amendments by Law No. 324/2003, with subsequent modifications and amendments. This enhancement aims to address the specific economic and societal challenges within the research unit's operating field.

### ***Objectives of the Programme:***

- a) Attract and retain qualified and specialised human resources for research and development;
- b) Ensure that the existing research infrastructure in the National R&D Institutes is operational and accessible;
- c) Develop and strengthen scientific and technical competencies relevant for the national economic and social development;
- d) Update the strategic plans of National R&D Institutes to have a rapid response to the socio-economic problems of the society.

### ***Outcome indicators:***

- a) Number of solutions proposed by National Research and Development Institutes and addressing the societal challenges;
- b) Number of funded researchers;
- c) Number of funded R&D projects;
- d) Number of patent applications/granted patents.

National R&D Institutes develop Nucleu projects, with clear objectives and thematic orientations. Research and development projects are funded to achieve the established objectives. Methodological norms regarding the evaluation, contracting, financing, and monitoring of Nucleu R&D projects are developed by the State Authority for Research and Development and approved in accordance with the current legislation. The annual budget allocation will be at least at the level of the allocation for the Nucleu Programme in 2022. The Nucleu (Core) Programme is administered by the State Authority for Research and Development.

## **5.5.RESEARCH INFRASTRUCTURE PROGRAMME**

**Aim:** Ensure the integrated development and efficient utilization of public research infrastructures.

## ***Objectives of the Programme:***

- a) Increase the access to existing research infrastructure, by stimulating the demand and increasing the utilization, as well as the diversification of the supply of scientific and technological services open to the business environment;
- b) Support the national participation in European Research Infrastructures Consortia (ERIC) and ESFRI projects;
- c) Support the national participation in the development of the European Open Science Cloud;
- d) Accreditation/certification of testing and certification laboratories, in priority areas of the economy and society;
- e) Funding the operationalisation of the Special Installations and Objectives of National Interest (IOSIN);
- f) Ensure the efficient use of IOSIN facilities through open access and sustainability;
- g) Update, develop, and utilize optimally the existing research infrastructures;
- h) Invest in new research infrastructures according to the national roadmap.

## ***Outcome indicators:***

- a) Value of services associated with the use of research infrastructures, and the share of private funding;
- b) Utilization rate of public research infrastructures by research teams from abroad and/or for experiments requested by the business environment;
- c) Usage rate of IOSIN by national or foreign research teams and/or for experiments requested by the business environment;
- d) Number of domestic/international partnerships involving the use of IOSINs;
- e) Number of certified laboratories;
- f) Number of research infrastructures with publicly available open access policies, including on the platform <https://eertis.eu>;

- g) Number of research infrastructures with publicly available Data Management Plans;
- h) Number of research infrastructures, services, and digital repositories integrated into the European Open Science Cloud (EOSC).

### ***Types of projects***

#### ***Experiment Vouchers***

**Aim:** Support the beneficiaries of services related to the use of research infrastructure. The beneficiaries can be either businesses or research organizations (other than the service provider). Vouchers can function as independent instruments or as part of larger R&D projects, but in all cases, they must be registered in the research infrastructure registry (<https://eertis.eu/>). The cost of the experiment must be justified based on the access policy of the service provider. Businesses will provide co-financing, as indicated in the Information Package.

#### ***Services Provided by Research Infrastructures***

**Aim:** Stimulate the supply of R&D services by public research infrastructures, by ensuring a funding proportional to the value of the scientific and technological services provided. The services will be delivered through "contracts" with the business environment and will be available on the platform [www.eertis.eu](http://www.eertis.eu).

#### ***Special Installations and Objectives of National Interest (IOSIN)***

**Aim:** Maintain and develop the supply of R&D services, the research infrastructure, and its capability to efficiently respond to the strategic and critical needs of the RDI system, as well as of society and economy. This will be supported by the maintenance, operation, exploitation, decommissioning when necessary, and security of IOSIN, on one hand, and updating of the IOSIN list, based on evaluation according to legislation in force, on the other hand.

The list of national interest installations and special objectives for which funds are allocated from the state budget is established and updated at the proposal of the State Authority for Research and Development, in accordance with the legislation in force. All specific activities, including evaluation, funding, and monitoring of IOSIN, are carried out and managed by the State Authority for Research and Development.

#### ***Updating, Development, and Utilization of Existing Research Infrastructures***

**Aim:** Guarantee the functionality of operational research infrastructures, facilitate their ongoing development to address the evolving challenges in science and technology, and ensure they complement existing infrastructures.

### ***Investments in New Research Infrastructures According to the National Roadmap***

**Aim:** Guarantee the necessary public resources for funding the RDI infrastructures decided in the national Roadmap. The national public funding will be complementary and/or synergic with European structural and investment funds.

### ***Support Romania's participation in consortia for European Research Infrastructures (ERIC) and ESFRI projects***

**Aim:** Contribute to the activities of consortia in European research infrastructures (ERIC); fulfil Romania's assumed obligations as a host state, member, or observer in an ERIC, according to the provisions of the statute; support the European and international cooperation of research infrastructures based in Romania, which are part of the ESFRI Roadmap infrastructures.

### ***Support Romania's participation in the development of the European Open Science Cloud (EOSC)***

**Aim:** Develop and integrate national open science infrastructures, services, and digital repositories in EOSC (European Open Science Cloud), in accordance with the policies of the European Commission.

### ***Accreditation of testing and certification laboratories, specific for priority areas of the economy and society***

**Aim:** Establish and develop certified testing centres for new and innovative products, in priority areas of the economy and society. Support can be provided throughout the whole cycle, from training human resources to the establishment and accreditation of these centres. The aim is to create certified testing centres, with a balanced geographical and thematic distribution, that can meet current requirements and address future challenges.

The intervention targets public research organizations that have infrastructures which are used or can be used for testing activities. The funding can be provided for various types of activities:

- a) Training of human resources: grants will be provided to ensure participation in training and specialised courses in the area of the future centre; the duration of the grant is maximum 12 months.



b) The functioning of the testing centre: this can be supported by a one-time grant, for a maximum period of 9 months. The grant can be used to improve processes associated with testing activities and interaction with potential clients, especially those related to data storage, organization, and transmission. The grant can be used for the acquisition of computing equipment and CRM software (Customer Relationship Management), the development of reporting methodologies, data storage and analysis, international standard acquisition, and others.

c) Provide grants to assist centres that meet the formal prerequisites for accreditation in obtaining accreditation. The grants are capped at 80% of the costs associated with the accreditation process.

All investments in research infrastructures will be associated with measures for the development and implementation of access policies and Research Data Management Plans (in accordance with FAIR principles). The platform [www.eertis.eu](http://www.eertis.eu) will provide one-stop-shop facility for accessing research and technological services and equipment.

## 5.6. CHALLENGES PROGRAMME

**Aim:** Increase the contribution of R&D activities in addressing the societal challenges defined by the Strategic Research Agenda.

### *Programme objectives:*

- a) Increase the impact of R&D activities in addressing societal challenges;
- b) Develop a critical R&D mass, able to address the societal challenges;
- c) Develop a critical mass to support the increased participation in European partnerships and missions;
- d) Obtain innovative solutions in the form of goods (product/service/manufacturing process) in response to the needs identified by the public sector;
- e) Increase the number of international patents;
- f) Consolidate public-public and public-private partnerships;

- g) Increase the contribution of science to the design of public policies, related to societal challenges;
- h) Open research and innovation to society through citizen involvement (citizen science) during various stages of research.

### **Outcome indicators:**

- a) Value-added products/technologies/methods/services developed and transferred to the economic environment;
- b) Tested/approved products/technologies;
- c) Innovative solutions identified in response to needs identified by public institutions;
- d) Innovative solutions validated with end users (target groups related to specific societal challenges);
- e) Patent applications/ patents awarded at/by European Patent Office and/or USPTO/WIPO;
- f) Scientific papers published in Web of Science/Scopus indexed journals and volumes;
- g) Specific indicators for national missions;
- h) Proposals for public policies;
- i) Number of research projects involving citizen participation.

## **5.6.1 Strategic Agenda Partnerships Subprogramme**

### **Types of projects**

#### **Challenges - Agile**

**Aim:** Develop partnerships between research organizations that propose either solutions to specific challenges within the Strategic Research Agenda or substantial progress in

understanding the phenomena associated with these challenges. The partnership can include both enterprises and end beneficiaries of the results. The implementation period is of maximum 24 months.

### ***Challenges - Change***

**Aim:** Address the societal challenges defined in the Strategic Research Agenda through multi-, inter-, and transdisciplinary research. This is achieved by establishing consortia comprising at least three different research organizations. The partnership can include both enterprises and end beneficiaries of the results, and the project implementation is set to span up to 48 months.

### ***Centres of Excellence***

**Aim:** Forge collaborations between a minimum of four research organizations, with demonstrated scientific excellence in a specific area. The objective is to build critical mass and foster an interdisciplinary approach, enabling the collective addressing of challenges outlined in the Strategic Research Agenda. Partnerships are built on a common research and innovation agenda that can cover a wide range of topics of interest. The primary focus is on funding human resources, with a particular emphasis on interdisciplinary collaboration and achieving critical mass. Centres of Excellence act as institutional hubs, playing a role in attracting and retaining researchers from abroad. The implementation period for these initiatives spans 5-7 years.

### ***RDI for cybersecurity***

**Aim:** Enhance Romania's capacity to address cybersecurity challenges through RDI and digitalisation initiatives, including the assimilation of emerging technologies. The aim is to contribute to the establishment of a secure and open cyberspace, enhancing citizens' confidence in digital instruments and services.

The program seeks to develop partnerships between public or private research organizations and companies specialised in R&D solutions within the "Civil Security for Society" area, as outlined in the Strategic Research Agenda. Specifically, the focus is on the societal impact area of "Increasing cybersecurity security and maintaining a safer online environment."

## **5.6.2 National Missions Subprogramme**

**Aim:** A national mission represents a clearly defined societal challenge, for which a relatively large number of R&D projects are expected to contribute to achieving specific target indicators. National missions must be correlated with the Strategic Research Agenda and/or European missions, always aiming for complementarity/synergy with other funding mechanisms

associated with these themes. The identification of national missions is carried out through dedicated consultations organized by the research authority and/or feasibility studies.

The typical budget for a national mission is in the range of tens of millions of euros, for a period of 5-7 years. The budget for a mission is distributed through periodic, open project competitions. Funding for a mission will be provided through open competitions for PNCDI IV types of projects, as appropriate. Missions have a "Programme manager" whose Aim is to guide the research teams and ensure Programme results.

### **5.6.3 Solutions Subprogramme**

**Aim:** Provide innovative solutions in the form of products/services/manufacturing processes, in response to specific challenge themes identified by the public sector (public procurement for innovation). It is expected that the public institutions formulating the need to finance the project through the Solutions Programme will provide full support in organizing the competition, as well as co-funding the activities carried out by the consortium that proposed the winning project. The contribution of the private sector to co-funding is also encouraged, to the extent that the theme is of interest to companies. The competitions organized under this instrument are "top-down" type, restricted bidding.

## **5.7 INNOVATION PARTNERSHIPS PROGRAMME**

**Aim:** The Programme aims to achieve joint research and innovation projects based on partnerships between the business and the public sector, to support the access of economic actors to innovation services and to consolidate the innovation ecosystems.

### **Objectives of the Programme:**

- a) Implement projects through public-private collaboration that aim to design, develop, and test (in laboratories and/or operational/industrial environments) demonstrative models for new/significantly improved products, technologies, methods, systems, or services;
- b) Develop innovative enterprises, by supporting innovation-related activities within the companies, by funding the procurement of RDI services from public/private;

- c) Support R&D public/private sector initiatives that aim to explore and develop/validate an idea with commercial potential;
- d) Support SMEs by funding projects with a high degree of innovation that have the potential for real market impact;
- e) Support SMEs to internationally patent the results of research and development activities.

### ***Outcome indicators:***

- f) Number of patent applications filed at EPO and/or USTPO/WIPO.
- g) Number of patents granted by EPO/USTPO/WIPO.
- h) SMEs introducing innovative products and/or processes.
- i) SMEs introducing innovations at the international level.
- j) Private investments complementing public support (grants, financial instruments).
- k) Number of newly created spin-offs
- l) Number of transferred technologies/products.
- m) Number of scientific papers published in Web of Science/Scopus indexed journals and volumes.
- n) Number of scientific papers published in Web of Science/Scopus indexed journals and volumes with open access.
- o) Number of public-private co-publications, including those in Web of Science/Scopus.

### **5.7.1 Partnerships for Competitiveness' Subprogramme**

**Aim:** Support the access to R&D services, based on joint research-innovation projects, between business and the public/private R&D sector.

## ***Types of projects***

### ***Demonstrative Experimental Project***

**Aim:** Support for the design and testing demonstrative models (functional, experimental) for new products, technologies, methods, systems, or significantly improved ones in national smart specialization areas or those addressing challenges from the Strategic Research Agenda. The project can be proposed by a research organization (public or private) together with an enterprise involved in R&D activities. The projects start at a technological maturity level (TRL) of 2 or 3 (technology concept/formulated laboratory experimental demonstrator) and reach a technological maturity level of TRL 3 or 4 (laboratory experimental demonstrator/technology validated in the laboratory). The implementation duration is between 12 and 24 months.

### ***Transfer to the Economic Operator Project***

**Aim:** Increase the economic competitiveness by adapting R&D results obtained by public research organizations and transferring these results to the market. The project is coordinated by an enterprise involved in the partnership, with at least one research organization (public or private). The instrument supports projects that start from a technology validated in laboratory/operational conditions (TRL 4 or 5 technological maturity level) and leads to a technology demonstrated in terms of functionality in the industrial environment (TRL 6 technological maturity level). The duration of a project is between 12 and 24 months. For projects that reach a higher maturity level, namely TRL 7 or 8 (demonstrated prototype in operational environment/pre-commercial demonstration), the funding can be higher, and the project duration can be extended by up to 6 months.

### ***Knowledge and Expertise Transfer from Universities to the Business Environment - Bridge Grant***

**Aim:** Increase the performance and competitiveness of the business sector by using the expertise of university staff to assimilate, improve, and optimize modern technologies, recently acquired. The project is proposed by a public university and an enterprise. A research institute can also be part of the partnership. The project's implementation is set to last a maximum of 24 months.

### ***Innovation Voucher***

**Aim:** Facilitate the acquisition of R&D services from research organizations by enterprises. The value of the innovation voucher is covered by joint funding: public and co-financed by the enterprise.

## ***Organization and Development of Innovative Clusters***

**Aim:** Increase the competitiveness of enterprises belonging to a cluster, in priority area, by concentrating resources and developing the production of innovative goods (technologies, products, services) resulted from planned and implemented RDI activities within the cluster. Funding is provided to cluster management units for a period of maximum 36 months.

### ***From Idea to Market***

**Aim:** Address identified problems and challenges within the public sector through dedicated competitions designed to incentivize researchers, research organizations, and private entities to discover and develop innovative and sustainable solutions. The program follows a phased funding approach with three stages, spanning from the initial idea (Technological Maturity Level - TRL 1) to market transfer (TRL 9 - full commercial implementation). Each stage has the aim to filter the proposed solutions, based on the degree of innovation, development stage, implementation risk, and market proximity. Typically, each identified need goes through all 3 stages, but funding in 2 stages is not excluded if the entry into the process is at a higher TRL.

#### ***Stages:***

1. Selection of ideas that can solve the specific challenge and their initial funding to reach the functional concept phase (TRL 4 technological maturity level). In the first stage, up to 10 projects will be selected and funded, with an implementation duration of up to 9 months. Teams from public and private research organizations can participate.
2. Selection and funding of initiatives with the potential to reach the minimum viable product stage (TRL 7 technological maturity level). In stage 2, projects can benefit from private co-financing and the involvement of private beneficiaries. This stage supports private organizations willing to open internal innovation processes to support the flow of ideas and the creation of new technologies and products. Up to 5 projects will be selected in stage 2, with public funding that can be up to 10 times the funding received in the previous stage and an implementation duration of up to 18 months.
3. Selection and funding of the solutions having the highest chance of reaching the market (TRL 9 technological maturity level). In stage 3, the technology or product should be finalised and launched on the market. In this stage, only one or two projects will be selected and funded. The funding will be up to 10 times the funding received in the previous stage and the implementation period is

maximum 18 months. The projects will be monitored by a Programme manager throughout all stages, to guide the research teams and ensure the Programme results. The Programme manager will be responsible for coordinating multiple competitions within the funding scheme.

### ***5.7.2 Innovative Entrepreneurship and Open Innovation Subprogramme***

**Aim:** Foster the growth of the innovative entrepreneurship system and promote the establishment of a substantial number of innovative start-ups, aiming to contribute to the development of a mature and functional entrepreneurial ecosystem. This involves facilitating access to venture capital for innovative start-ups, enhancing incubation and acceleration capacities, and cultivating an entrepreneurial culture with a specific emphasis on innovation.

#### ***Types of Projects***

##### ***Innovative Business Matching Fund***

**Aim:** Provide financial support to innovative start-ups that successfully validate the technology concept with a private investor.

Funding is provided in the form of a grant, covering up to a maximum of 50% of the investment value. The rest of the contribution is provided by the private investor.

##### ***Seed Capital Matching Fund***

**Aim:** Support the funding of innovative start-ups and continue previous investments, by co-financing national venture capital investment portfolio.

The funding is provided in the form of an investment and covers up to 30% of the funding provided by the venture capital fund.

##### ***High Tech University Competitions***

**Aim:** Develop a culture of innovative entrepreneurship, by bridging the gap between the private sector and universities.

The scheme funds the organization of university competitions by public-private consortia, on defined themes, aligned with national/regional smart specialization areas or relevant to the Strategic Research Agenda. The research team for the competition is proposed and co-



financed by a company. Maximum 10 teams per competitions can receive funding for exploring and solving the competition theme. The state budget covers up to 80% of the costs.

### ***Incubator Grant***

**Aim:** Provide financial support for Incubation Programmes, designed to promote innovative entrepreneurship, and aimed to foster a critical mass of innovative start-ups in Romania.

This scheme entails co-financing for workspace, training, support services, assistance in transforming concepts into market-adapted products, and participation in networking events and opportunities. The incubation cycle spans 36 months, with an emphasis on achieving balanced geographical distribution across regions. Co-financing requirements include a minimum of 15%, and investment in equipment should not exceed 10% of the budget. Additionally, research organizations are eligible to access this instrument.

### ***Accelerator Grant***

**Aim:** Provide financial support for the acceleration process of high-growth innovative start-ups, that have the potential to grow. The aim of the scheme is to enhance the survival rate of national start-ups by offering co-financing for their access to specialized consulting and mentoring services, thematically organized events to accelerate business ideas, and subsistence costs for accepted start-up teams. The scheme is committed to achieving a balanced geographical distribution across regions. The minimum co-financing requirement is set at 15%, and investment in equipment should not surpass 10% of the budget. This instrument is open for access by research organizations.

## **5.7.3 Innovative Enterprises Subprogramme**

**Aim:** Promote and facilitate collaboration between the public and private sectors to engage in innovation projects and effectively exploit their outcome

### ***Types of projects***

#### ***Pre-spin-off***

**Aim:** Validate the commercial potential of R&D results and stimulate research organisation to create spin-offs. The scheme provides support to public research organizations and private companies that have research-innovation results with potential for commercial exploitation. The support encompasses activities such as technological adaptation and market exploration.

## ***Go to market***

**Aim:** Support the innovative start-ups and small and medium-sized enterprises (SMEs) to develop high-tech products or innovative services. The intervention is organized into three phases, with gradual increase of the funding, based on the stage of development and achievement of objectives.

Only R&D activities in the following development stages are supported:

- a) Preparation for launching a minimum viable product (MVP) for market validation. Projects with a minimum Technology Readiness Level (TRL) of 5 (technology validated in relevant operating conditions) are accepted.
- b) "Go to market" phase.
- c) Support for continuous development (product/service development/improvement).

The funding instrument can be used in synergy with other instruments (e.g., incubation-acceleration Programmes, experimentation vouchers, patent vouchers, and similar).

## ***Stimulation of high-tech export***

**Aim:** Development of high-tech products, technologies, and the export of technology incorporated into patented Romanian products. The Programme targets enterprises with significant revenues from the export of high-tech products and technologies through the exploitation of patent rights.

## ***Patenting voucher***

**Aim:** Subsidizing international patenting costs for public and private enterprises and research organizations.

## ***300+ Innovators and Entrepreneurs Programme***

**Aim:** Development of a community of professionals from public and private R&D organizations, who are directly involved in innovation activities. This involves connecting these professionals and providing them with the opportunity to immerse themselves in high-performing international innovation ecosystems. Additionally, the program aims to offer entrepreneurial training through partnerships with leading universities and research systems globally. The goal is to engage a minimum of 300 participants, with an anticipated 100 participants annually,

beginning from the second year of the strategic cycle. The education cycles are estimated to occur five times per year, each lasting for nine weeks.

#### **5.7.4 Technology Transfer in support of competitiveness - for the creation and development of R&D services Subprogramme**

**Aim:** Advance national technology transfer to enhance the visibility of research outcomes and their impact on the economy. This involves strengthening collaboration among the research, academic, and business sectors, developing the expertise of personnel in technology transfer centres, increasing the visibility of research results in the market, and facilitating the commercial exploitation of these results. The management and implementation of the technology transfer process will be overseen by a dedicated executive body.

##### ***Types of projects***

##### ***Training of technology transfer experts***

**Aim:** Intervention aimed at consolidating and developing expertise in technology transfer, training and supporting a specialized body of experts. The beneficiaries of this Programme are experts from technology transfer centres in universities and research organizations, that demonstrate innovation capacity and/or potential. The selected entities will receive financial support in the form of salaries for these experts, who will undergo specialized training. The support will be institutionally conditioned by pre-established performance indicators. The aim is to train 220 experts through 22 professional training cycles during the implementation of the National Plan. The training courses are organized by the institution administering the Programme.

##### ***Twinning Programme***

**Aim:** Promote professional networking and the introduction of new ideas, knowledge, methods, initiatives, and procedures related to technology transfer in universities through a twinning program for research institutions and universities. The initiative will offer grants to Romanian universities and research institutes to fund the exchange of experiences with counterparts in European countries with a strong innovation track record. The program's goal is to establish 16 twinning partnerships between universities and institutes in Romania and their counterparts in Europe.

##### ***Technology Transfer Festival***

**Aim:** To encourage technology transfer activities by developing the networking between the research and business sectors. The beneficiaries of this Programme are all entities involved in

research and innovation activities, both from the private and public sectors, representatives of the business environment (SMEs, corporations, professional associations), public authorities, and non-governmental organizations. The scheme will fund Science Fest-type events, in which research organizations (universities, institutes) will participate with the aim to promote innovation activities and find collaboration partners. The Programme aims to organize 45 events over a period of 5 years.

### ***Tech Transfer Fund***

**Aim:** Financial participation in technology transfer funds established by financial institutions/private investors groups, preferably in complementarity with the participation of universities, national research institutes, or consortia created between them.

Financial support will be provided to innovative enterprises with up to 7 years of existence, by co-financing the fund with a maximum of 50% public funding.

## **5.8 EUROPEAN AND INTERNATIONAL COOPERATION PROGRAMME**

**Aim:** To consolidate the European and international integration of the national research, development, and innovation system, as well as its competitiveness internationally, by stimulating participation in the European Union's Framework Programme for Research and Innovation, European cooperation frameworks and initiatives, and bilateral/multilateral cooperation in research and innovation.

### ***Specific Objectives:***

- a) Strengthen the national RDI system by increasing participation in the European Union's Framework Research Programme, European cooperation initiatives and frameworks, and bilateral and multilateral cooperation Programmes.
- b) Support Romania's participation in European partnerships and missions within the Horizon Europe Programme, including partnerships that continue ERA-NET collaborations, joint Programming initiatives (JPI), European innovation partnerships (EIP), and other initiatives within the Horizon Europe Programme.

- c) Support Romania's participation in European and international Programmes, organizations, and conventions, bilateral/multilateral.
- d) Fund projects that have received the "Seal of Excellence" in Horizon Europe actions.
- e) Stimulate participation and support Romania's representation in international research organizations, Programmes, and initiatives. It includes support for the national contact points network for the Horizon Europe Programme.
- f) Increase the national awareness regarding the international RDI orientations and policies;
- g) Improve the quality of project proposals of the Romanian participants in the European Union's Framework Research and Innovation Programme, as well as their role in future Horizon Europe projects.

### ***Outcome Indicators:***

- a) Number of projects funded in Horizon Europe with participation from Romania, including the number of projects coordinated by Romanian organizations.
- b) Number of Romanian participants in successful Horizon Europe projects;
- c) Number of funded projects/ funding amount/ Number of Seal of Excellence beneficiaries;
- d) Funds attracted from Horizon Europe Framework Programme;
- e) Value of co-financing granted by the European Commission for the implementation of European projects;
- f) Value of complementary funding for participation in Horizon Europe;
- g) Value of private funds invested in European and international collaborations;
- h) Number of researchers/individual organizations involved in transnational collaborations;

- i) Number of collaborations established in international projects in which Romania is involved;
- j) Number of projects funded in bilateral/multilateral collaborations, including complex research projects.
- k) Number of internationally co-authored scientific papers indexed in Web of Science/Scopus or other databases specific to certain research fields; number of open access scientific papers.
- l) Books and book chapters published by prestigious foreign publishers, in relevant fields.
- m) Patent applications/international patents filed/granted by the European Patent Office and/or USPTO/WIPO.
- n) Number of products/technologies/services/solutions/public policies developed.

### **5.8.1 Horizon Europe Subprogramme**

**Aim:** Increase the capacity of national research organisations to successfully apply for competitions in the European Commission's Framework Programme for Research and Innovation, through stimulating participation and rewarding performance.

#### ***Types of projects***

##### ***European partnerships and missions***

**Aim:** Participation in and financial contribution to Research and Development (R&D) Programs organized within the framework of European partnerships, which are co-financed, institutionalized, and jointly scheduled. This also includes missions associated with the Horizon Europe Programme. Furthermore, support is offered for participation in other initiatives developed during the implementation of the Horizon Europe Programme. This is governed by a mechanism that oversees the selection, decision-making, implementation, monitoring, and evaluation of Romania's involvement in European partnerships and missions.

Joint Programming Initiatives (JPIs) are also considered, which represent a standalone instrument established in Horizon 2020, and continue to operate with new calls for transnational

projects with national, and Horizon Europe funding, not falling under the category of European Partnerships or European Missions. The instrument can be synergistically/complementarily funded with PNRR/POCIDIF/POR, as well as with budgets from other ministries or public institutions in Romania.

### ***Seal of Excellence***

**Aim:** To fund projects that have received the Seal of Excellence label, following their participation in competitions within the Horizon Europe Framework Programme (e.g., Teaming for Excellence competitions, European Innovation Council Accelerator, European Research Council Proof of Concept, and other Programmes that may be developed), but have not received European funding due to budget limitations. This action will be implemented in complementarity with POCIDIF/PNRR.

### ***Other co-financing or complementary funding actions***

**Aim:** Support participation and provide national financial contribution to winning projects in Horizon Europe Framework competitions, that require complementary or co-financing. The scheme will provide funding to projects which win competitions such as Teaming for Excellence, MSCA Cofound, and similar ones that require complementary or co-financing. This action will be implemented in complementarity with POCIDIF/PNRR.

### ***Horizon Europe Awards – Institutions***

**Aim:** Offer institutional awards granted to research organizations implementing projects funded by Horizon Europe Framework Programme. The awards are given to support activities related to scientific research activities within the organization. The awards will be given based on the type of project and the role of Romanian organizations in the project.

### ***Horizon Europe Awards - Research Teams***

**Aim:** Recognize researchers affiliated with a research organization in Romania, members of research teams nominated in project proposals from Horizon Europe competitions and accepted for funding, if the respective organization is the project coordinator or responsible for a work package.

## ***5.8.2 European and International Initiatives Subprogramme***

**Aim:** Support participation in European and international initiatives in which Romania is involved, other than the Horizon Europe Programme.

### ***Types of projects***

#### ***EUREKA***

**Aim:** Provide support to Romanian enterprises to participate in partnerships with research organizations, in international Eureka competitions.

#### ***NATO***

**Aim:** Provide co-financing for the involvement of Romanian research organizations in international projects that have secured funding in NATO competitions.

### ***Digital Europe***

**Aim:** Acceleration of the digital transformation of the economy, by co-financing the participation of national public and private research organisations and companies in the Digital Europe Programme.

### ***Synergies with other European and international research and innovation Programmes***

**Aim:** Encouraging, supporting, and rewarding the participation of Romanian research organizations in European Programmes with RDI component: EU4Health 2021-2027, InterReg - Component 5, Danube Transnational Programme, including those within the United Nations and other similar Programmes.

### ***European Defence Fund***

**Aim:** Support national entities under the coordination/subordination of the Ministry of Research, Innovation, and Digitalization participating in the "European Defence Fund" Programme.



### **5.8.3 Bilateral/Multilateral Subprogramme**

**Aim:** Support R&D collaborations between national organizations and from countries with which Romania has signed scientific and technological cooperation agreements, by launching joint thematic calls.

#### ***Types of projects***

##### ***Mobility projects***

**Aim:** Strengthening scientific cooperation between Romania and partner countries through bilateral funding for the mobility of researchers from these countries. Proposals for joint projects are evaluated by each country involved in the protocol (funding agency), and the funding decision will be determined through the evaluation processes and negotiations within the joint committee.

##### ***Complex bilateral/multilateral projects***

**Aim:** Funding complex bilateral/multilateral joint research projects carried out by researchers from Romania in partnership with researchers from other countries, focusing on a common research topic, and enhancing collaborations and research networks. In this regard, within the limits of applicable legislation, the implementation of the Lead Agency Procedure (LAP) will be pursued. LAP is widely used at the European level and involves the signing of memoranda of understanding between partner funding agencies, regarding unilateral administration and mutual recognition of evaluation procedures and evaluation outcomes. Each funding agency involved will provide financial support for the participation of research teams from their respective countries.

##### ***Collaboration projects with the Republic of Moldova***

**Aim:** Funding projects that ensure access to and utilization of research infrastructures in Romania by researchers from the Republic of Moldova in joint research initiatives. Bilateral collaboration will be expanded, including mobility of researchers, as well as in research, development, and innovation projects. A collaboration Programme will be established to facilitate knowledge transfer and capacity development in research, innovation, and knowledge transfer management, both at the university level and at the system level, including the development of supporting IT infrastructure.

### ***Other types of international collaborations***

**Aim:** Implement joint research agendas with countries participating in the European Union Strategy for the Danube Region and the European Union Strategy for the Black Sea, as well as with third countries participating in the European Union's neighbourhood policy, including the Republic of Moldova, countries in the Western Balkans, and other countries with which cooperation agreements exist or are concluded.

### **5.8.4 Cooperation Support Subprogramme**

**Aim:** Support Romania's representation in European and international research organizations, bodies, and initiatives as a member, associate member, observer. Additionally, focus on strengthening and professionalising the national network of contact points for the Horizon Europe Framework Programme.

#### ***Types of projects***

##### ***Support for representation***

**Aim:** Cover the costs associated with the participation of Romanian representatives in meetings held by European and international organizations, cooperation frameworks, and ad-hoc groups. Financial support is extended to international standardization and regulatory bodies, particularly where Romania holds membership, associate membership, or observer status. This funding is allocated to Romanian experts appointed by the state authority for Research and Development, following a selection process. These experts represent Romania at meetings organized abroad by European Union institutions (such as the European Commission, European Research Council, European Innovation Council) or international organizations, pan-European initiatives, or international cooperation frameworks, where Romania participates as a member state, associate member, or observer.

##### ***International event organization support project***

**Aim:** Cover the cost associated to organisation of meetings in Romania for European and international organizations/bodies, pan-European cooperation frameworks, where Romania is represented by the State Authority for R&D.

##### ***National Contact Point support project***

**Aim:** Fund the activities of the Horizon Europe National Contact Points, nominated by the state authority for R&D. The activities carried out will mainly involve information and assistance

activities to promote and support the participation of national research organisations in the Horizon Europe Framework Programme.

## **5.9 RESEARCH IN AREAS OF STRATEGIC INTEREST**

**Aim:** Support the participation of Romanian research organizations in scientific international Programmes in areas of strategic interest, identified as such in normative acts. The funding will be provided with the aim to support international cooperation, consolidate the scientific visibility, the technological potential, and the competitiveness of the national economy. Additionally, it aims to facilitate the valorisation and communication of research results to society.

### **5.9.1 Technologies in the field of ultra-high power lasers ELI-RO Subprogramme**

**Aim:** Support the development of RDI activities in fields related to nuclear physics, high power lasers and very intense gamma rays, in correlation with ELI NP scientific Programme. The scheme will fund RDI projects, experiments, modelling, specific analyses, support projects for research and management.

### **5.9.2 Participation in international research bodies and Programmes in atomic and sub-atomic research area Subprogramme**

**Aim:** Support the national participation in international Programmes of research in the nuclear field take him elementary particles, through the following modules: EURATOM-RO, CERN-RO, FAIR RO, CEA-RO, F4E-RO.

Types of projects: RDI projects co-financed from the state and by partner organizations at international level (by e.g. CEA), support projects of management.

### **5.9.3 Subprogramme Space Technology and advanced research – STAR**

**Aim:** Facilitate the advancement of space research by promoting a high technological standard with a focus on applications, systems, and emerging technologies. This support aims to

enhance the capacity for providing services based on space technologies across various fields, ultimately impacting society and citizens in areas such as security, health, agriculture, transport, and more. Additionally, the initiative aims to attract and retain highly qualified human resources within the space research system.

The Programme also ensures national support for the implementation of the Agreement between Romania and the European Space Agency (ESA), with the aim to consolidate the national capabilities to participate in the European Space Programmes and the specific components of the Horizon Europe Programme.

Types of projects: RDI projects; Centres of Competence in Space Technologies (CCTS) type projects; infrastructure type projects; strategic type projects, other types of projects.

#### **5.9.4 Subprogramme River systems, Deltas, Seas – Danubius**

**Aim:** Support the implementation of RDI activities defined in the strategic research-innovation agenda of the DANUBIUS-RI European infrastructure.

Types of projects: RDI projects, experiments, modelling, measurements, specific analyses, support for preparation of infrastructure operationalisation, support projects for research and management.

#### **5.9.5 Subprogramme Generation IV Reactors – ALFRED**

**Aim:** Support the development of RDI activities correlated with the requirements of the future ALFRED infrastructure.

Types of projects: RDI projects, experiments, modelling, measurements or specific analyses, support projects for preparation of infrastructure implementation, development of experimental and demonstrator support installations, management support projects, training, promotion

#### **5.9.6 The Blue Economic Growth at the Black Sea Subprogramme**

**Aim:** Support the participation of Romanian organizations in actions necessary for the implementation of the Common Strategic Black Sea Research Agenda, which is an integral part of the Common Black Sea Maritime Agenda. The actions can be organized independently or

jointly with other similar/complementary actions organized by countries bordering the Black Sea or by other states with a scientific interest in the Black Sea.

Types of projects: RD/RDI projects, experiments, modelling, specific analyses, support projects for research and management, RD/RDI projects jointly financed by the state budget and international organizations, support projects for promoting to the society the RD/RDI activities carried out within the subprogramme.

### **5.9.7 Quantic Technologies Subprogramme**

**Aim:** Develop innovative solutions applicable across various sectors of the economy and society by establishing an integrated RDI system in the field of quantum technologies.

Types of projects: RDI projects; advanced research centre in quantum technology; development of quantum applications, testing platforms and validation; projects for research support and management; support for participation in global initiatives and projects in the field; public - private RDI partnerships; support projects for the promotion of quantum technologies in society.

### **5.9.8 The artificial Intelligence (AI) subprogramme**

**Aim:** Support RDI in AI, to foster the development of innovative solutions with broad applicability across various social sectors. The goal is to promote the widespread use of new technologies, generating added value at economic, social, cultural, and administrative levels.

Types of projects: RDI projects; advanced research centres in the field of artificial intelligence; development of applications; management applications of industrial activity based on artificial intelligence, testing platforms and validation; support projects for research and management; participation projects in the global initiatives and projects in the field; public-private RDI partnerships; data management and processing platforms; information processing hardware platforms; support projects for the promotion of artificial intelligence in society; applications and pilot projects in the field developed through partnerships between Romanian experts from the diaspora and experts from national organisations; projects for strategic development strategic; projects for strategic development of the national artificial intelligence ecosystem.

### **5.9.9 Autonomous Systems Subprogramme**

**Aim:** Create autonomous technology and solutions, resulting in innovations with a significant impact in various fields such as transport, industry, national security, health, or space technology.

Types of projects: RDI projects aiming to improve the efficiency, safety, and autonomy of systems, such as autonomous cars, unmanned aerial platforms, robots, or other intelligent devices; advanced research centres in the field of autonomous systems; development of platforms of testing and project validation; other types of initiatives in the field of autonomous systems.

### **5.10 Science and Society Program**

**Aim:** Enhance the dialogue between science and society, by opening the research and innovation system to citizens, civil society, and end users, as well as by involving students and young people in innovative STEAM actions.

Objectives of the program:

- a) development of researchers' communication skills;
- b) bringing young people closer to scientific experiments;
- c) innovative approaches to consolidate the involvement of citizens in science;
- d) organization of science communication and promotion events (including festivals);
- e) supporting international scientific events (MCID programme);
- f) supporting the publication of scientific works (MCID programme);
- g) supporting innovation in STEAM programmes and bringing students and young people closer to experimental science;
- h) organizing science and technology summer schools for students and young people.

### **Result indicators:**

- a) number of projects funding training in science communication;
- b) number of researchers trained in science communication;
- c) number of organized science communication and promotion events;
- d) number of students supported for participation in international technical-scientific competitions for high schools' pupils;
- e) number of students supported for participation in international technical-scientific competitions for students;
- f) number of awarded pupils;
- g) number of awarded students;
- h) number of funded international scientific events;
- i) number of supported scientific works;
- j) number of science and technology summer schools for students and young people organized;
- k) number of science festivals;
- l) number of innovative projects regarding the involvement of citizens in science (citizen science) financed;
- m) number of supported fab-/abs.

### **Types of projects**

#### ***Projects for training researchers in science communication***

**Aim:** The mass media training courses are intended for researchers who want to improve their mass media and public communication skills. The objective is to cultivate an ability to convey information in a simple and concise language, capable of making a significant impact on society, generating interest, and effectively highlighting the value of research results.

## ***Science in schools***

**Aim:** Foster innovation in STEAM (Science, Technology, Engineering, Arts, and Mathematics) programs and bridge the gap between school students and scientific experiments. This involves providing learning experiences, facilitating teamwork projects, organizing visits to laboratories, arranging lectures by researchers in schools and high schools, promoting debates, conducting contests, and hosting events associated with "Science Week in schools." Additionally, there is support for students' activities in Fab-Lab platforms.

### ***"Henri Coanda" projects***

**Aim:** Increase the RDI attractiveness among high school and university students and foster the formation and development of new talents in scientific research. This is achieved by supporting the participation of students in international technical-scientific competitions and recognizing their achievements and performance.

Funding is granted for: 1) the participation of Romanian high school and/or university students' teams, under the coordination of a mentor, in technical-scientific competitions dedicated to pupils or students; 2) award pupils and students with results (1st, 2nd, 3rd prize) obtained in recognised technical-scientific competitions intended for pupils or students.

## ***Festival of science, creativity, and innovation***

**Aim:** Organize events dedicated to raising the visibility of research among citizens, bridging the gap between scientific research and the public. The goal is to attract students and young people to science and innovation, fostering a better understanding and adoption of innovative technologies and solutions. The concept involves organising a Summer Week of Science festival that provides funding for a series of regional events to be held annually.

## ***National Technical Museum***

**Aim:** Promote the scientific and technical culture in society, through the modernization and expansion of the National Technical Museum, an interactive museum addressed to the public of all ages.

## ***Science and technology summer schools***

**Aim:** Organization of summer schools that offer applied research programs for school students and young people, as well as interdisciplinary professional development programs for teachers.



### ***Innovation in the involvement of citizens in science***

**Aim:** Provide support for exploratory activities aimed at designing and developing innovative methods and methodologies specifically geared toward involving citizens in scientific endeavours. This includes recognizing and rewarding successful projects incorporating "citizen science" components. The initiative seeks to acknowledge and incentivize the active participation of citizens, local communities, small associations, civil society organizations, social enterprises, small enterprises, and research and innovation actors. The overarching goal is to enhance citizens' trust in science and facilitate the adoption of science, technology, and innovation.

### ***Good practices exchange projects, for the development of the capabilities for the implementation of open science***

**Aim:** Provide support for the exchange of best practices and encourage the development of the institutional culture necessary for open science. This involves fostering professional networking and introducing new ideas, knowledge, methods, and practices related to the implementation of open science in research organizations.

The funding will support Romanian universities/research institutes to participate in exchange of experience/good practices with universities/research institutes from European countries.

### ***Access to scientific literature***

**Aim:** Ensure the access to specialized scientific literature from the main flow of knowledge necessary for the adequate performance in scientific research and technological development. The access to specialized scientific literature from the main flow of knowledge will be attained through "synergies" type funding mechanisms.

### ***Support of national and international 'scientific' events***

**Aim:** Support the organization of national and international scientific conferences, and associated events by R&D organisations.

### ***Subsidizing technical-scientific literature***

**Aim:** Finance the publication, preferably in the open access regime, of technical-scientific literature for the presentation, dissemination, and promotion of technical-scientific news.

# 6

## **Funding of PNCDI IV and it's programmes**

## 6.1 PNCDI IV budget

The PNCDI IV budget can be a maximum of 60 billion RON, in accordance with the National Strategy for Research, Innovation and Smart Specialization, approved by Government Decision no. 933/2022. The funds are provided from the state budget, within the limits approved by the annual state budget law for the period 2022 - 2030, from external non-refundable funds and contributions from partners in projects, in compliance with all legal regulations in force.

**When estimating the indicative budget of PNCDI IV, the following are considered:**

- a) the provisions of the 2022 State Budget Law, no. 317/2021, with subsequent amendments and additions.
- b) the provisions of art. 49 para. (3) from Government Ordinance no. 57/2002, approved with changes and additions by Law no. 324/2003, with subsequent amendments and additions, combined with the provisions of art. XI paragraph (2) from the Government's Emergency Ordinance no. 130/2021 regarding some fiscal-budgetary measures, the extension of some deadlines, modification, and completion of some normative acts, with subsequent modifications and additions;
- c) the provisions of art. 8 of the National Education Law no. 1/2011, with subsequent amendments and additions, corroborated with the provisions of article XI paragraph (1) of the Government's Emergency Ordinance no. 130/2021;
- d) the provisions of the Government Program 2021 - 2024, which mentions the strategic objectives and the Structural Reform of the national RDI system, the strategic objective of "increasing the value and efficiency of R&D funding and reaching the target of 2% of GDP by 2024 (1% public funding + 1% private funding), with a balanced budget distribution, aimed to support with priority applied research and innovation, but also fundamental and frontier research, with focus on smart specialization/growth potential areas.

The total budget related to PNCDI IV will be correlated with the regulations of the relevant legislation in force during the period 2022 - 2030, without exceeding the maximum estimated ceiling.

The distribution of the PNCDI IV budget by Program is provided in annex no. 1, which is an integral part of this decision.

## ***6.2 The allocation mechanism of national public funds for PNCDI IV***

The management of the state authority for research and development establishes the multi-year ceilings for the state budget funds dedicated to PNCDI IV programmes and subprogrammes.

The public funds allocation for PNCDI IV is done in compliance with the following provisions:

- a) the provisions established by Government Ordinance no. 57/2002, approved with changes and additions by Law no. 324/2003, with subsequent amendments and additions;
- b) the amounts allocated from the state budget for the financing of PNCDI IV and the component programmes are distributed as follows: (i) at least 95% of the funds for RDI projects and other actions included in PNCDI IV. The funding of the RDI projects and actions is realised through financing contracts;
- c) maximum 5% for the management of PNCDI IV and its Programmes.

For the management of PNCDI IV, the State Authority for R&D spends funds for:

- a) promotion at national and regional levels of PNCDI IV and its programmes, by publishing promotional materials, advertising, organization and/or participation in dedicated seminars, training sessions for evaluators and the like;
- b) specific services necessary for the management of the component programmes and Subprogrammes;
- c) participation in actions and activities organized by the European Commission and the member states, as well as by the countries/organizations with which cooperation/association treaties exist/are concluded, which are in

accordance with the purpose and objectives of PNCDI IV and the component programmes, in accordance with the legal regulations in force;

d) consulting services, expertise, technical assistance, and independent facilities necessary for the coordination and control of the implementation and the evaluation of PNCDI IV.

The State Authority for R&D establishes the payment methods and the amounts for allowances, daily expenses and transport, and other expenses related to the independent evaluation carried out by individual experts, including those from abroad. The experts are selected by the State Authority for R&D or by the entities that ensure the management of PNCDI IV programmes, in accordance with the prevailing legal provisions.

The selection of expert evaluators is made according to the procedures established by the Information package of the specific competition, based on the principles and procedures of good practice used at international level. The experts are selected from the list of expert evaluators drawn for the competition, according to the Methodological Norms regarding contracting, financing, monitoring, and evaluation of RDI programmes, projects and of the actions included in the National Research, Development and Innovation Plan, approved by Government Decision no. 1.265/2004, with subsequent amendments and additions.

The expenses eligible from the budget allocated to the projects funded within the frame of the PNCDI IV programmes comply with the regulations in force regarding the expenditure RDI categories, stimulation activities, financed from the state budget.

## ***6.3 Provisions regarding salary ceilings within PNCDI IV***

The calculation of the salary costs included in the project financing contracts will be done within the limits of the ceilings established by annex no. 2, which is part of this government decision.

The calculation of the salary costs for the staff employed for the realization of the financing contracts will be done considering their assignment to activities and functions within the project or program, based on the level of education and professional degree obtained.

The filling of vacant positions within a project is done in compliance with the provisions of the project financing contract and the legislation in force.

# 7

## **PNC DI IV Management**

The management of PNCDI IV is the responsibility of the State Authority for R&D and consists of activities related to the RDI programmes:

- a) planning - the development and entry into force of PNCDI IV as a multi-year plan;
- b) programming - the development of annual plans for outsourcing activities related to the management of PNCDI IV programmes. This includes developing normative acts and institutional RDI frameworks, as well as promoting PNCDI IV through various means such as promotional materials, advertising, and organizing/participating in dedicated seminars and training sessions for evaluators.
- c) monitoring - Encompasses the ongoing tracking and assessment of performance according to planned stages. This includes the implementation of corrective measures as needed to achieve the objectives and performance indicators. Regular monitoring reports, whether periodic, annual, or half-yearly, inform this process.
- d) evaluation - periodic, every two years, respectively final evaluation, carried out by independent experts (consulting services, expertise, technical assistance); the final evaluation report of PNCDI IV will be submitted to the Government, the latest on December 30, 2031.

The PNCDI IV management is carried out in compliance with the provisions of this plan, completed with the specific provisions of the Methodological Norms regarding the contracting, financing, monitoring and evaluation of RDI programmes, projects and the actions included in the National Research-Development and Innovation Plan 1, approved by Government Decision no. 1.265/2004, with subsequent amendments and additions.

The management of the PNCDI IV programmes is performed directly by the State Authority for R&D or can be assigned by it to other organizations, on a contractual basis, under the conditions of the law.

The responsibilities of managers of the PNCDI IV programmes are the following:

- a) the planning and programming: this involves creating a structured timeline for the implementation of programmes, outlining specific activities, deadlines, and required resources. Documents to be developed include Strategic Plan;

Annual Plans; Operational Plans; Work Programmes. All these documents are subject to approval by the state authority for research and development.

b) Programme implementation: organization of project competitions, negotiation and contracting winning projects, funding, and managing contracts. Monitoring and internal evaluation will be conducted at three levels: projects, programme components (subprogrammes, project types), and overall programmes. Programme managers will establish and take corrective measures necessary to achieve the specific objectives and performance indicators set in this plan, including reports from independent experts.

c) Reporting to the State Authority for R&D on programme implementation, by preparing interim (semi-annual, annual) implementation reports during programme execution, and final reports upon completion. The categories of reports that programme managers are obliged to submit to the State Authority for R&D are specified in the contract or through specific requests made by the authority.

d) Developing and updating databases, in accordance with SNCISI requirements, regarding: (i) the body of national and foreign evaluators; (ii) implemented projects, classified by programmes, scientific and/or technical domains, and types of funding instruments; (iii) research personnel and financial resources used for project implementation; (iv) research infrastructure utilized and developed within the projects; (v) achieved results, classified by scientific and/or technical domains and categories of results, monitoring program indicators.

e) public dissemination of the information regarding programmes content and implementation, as well as the main results obtained from their execution, through programmes coordinators websites and other forms and means of communication, including organization of dedicated scientific events.

The coordination responsibilities for programmes, including the development of specific documents for planning, scheduling, monitoring, evaluation, and reporting on programme implementation, shall be carried out in accordance with the provisions of this plan, supplemented by specific provisions contained in the Methodological Norms on contracting, funding, monitoring, and evaluation of RDI programs and projects, as well as the actions included in the National Research, Development, and Innovation Plan approved by Government Decision No. 1.265/2004, with subsequent modifications and completions. The



standard format for planning and reporting instruments at the PNCDI IV level, for its programmes/subprogrammes and projects, shall be approved by order of the leader of the state authority for research and development, within a maximum of 90 days from the date of approval of the government decision for the approval of the PNCDI IV.

Within the programme, the project types are designed based on target groups and types of activities. The programme manager develops specific information packages for individual competitions. These must be approved by the advisory body designated for scientific support for the specific programme, and must be submitted for public debate by publishing them on own website at least one month before the competition is launched. After the public debate is closed, the package is approved by the leader of the State Authority for R&D.

# 8

## **Monitoring and evaluation of the PNCDI IV Programmes**

## **8.1 MONITORING AND EVALUATION OF THE PLAN**

Each programme manager is responsible for using/adopting/developing an electronic project management system that spans the entire project lifecycle, from the initial stages of project submission, evaluation, and contracting to those of interim, final, and post-implementation evaluation.

The electronic project management systems, considered primary data collection systems, will be interconnected and interoperable with the National R&D Repositories System. This system, coordinated by the state authority for research and development, includes, but is not limited to: the Results Repository, the R&D Organizations Repository, the Researchers, Innovators, and Entrepreneurs Repository (components of the [www.brainmap.ro](http://www.brainmap.ro) platform), and the Research Infrastructure Repository (<https://eertis.eu>).

The primary data collection systems will be designed to integrate at least the reporting of PNCDI IV output/outcome indicators, as well as relevant indicators from the SNCISI 2022-2027 indicators nomenclature.

The mid-term evaluation of PNCDI IV will be carried out in 2025, and the final evaluation after the completion of the implementation period in 2030. The evaluation will be conducted independently, based on the self-evaluation and evaluation reports undertaken by the coordinator of the programme.

## **8.2 PROGRAMMES MONITORING AND EVALUATION**

*The evaluation of each PNCDI IV programmes is carried out in two ways:*

- a) Annual and final internal evaluation, conducted by the Programme coordinator, aligned with the annual project monitoring procedures;
- b) Annual and final evaluation conducted by the state authority for research and development, with independent experts contracted through bidding.

## The evaluation reports of the programmes aim to:

- a) Evaluate the degree of effective accomplishment of proposed goals and objectives. Assess outcome and performance indicators compared to the planned provisions.
- b) Assess the results obtained and the scientific, economic, and social impact produced by the implementation of the programme.
- c) Evaluate the correctness and efficiency of the allocation of the programme resources.

The evaluation of Programmes and Subprogrammes is done in correlation with SNCISI evaluation, following the evaluation phases of PNCDI IV according to the calendar (annual, mid-term, final). The evaluation should assess the programmes contributions to SNCISI targets.

The Programme coordinator develops specific procedures for the monitoring processes of the projects, Subprogrammes, and Programmes. These procedures must be approved by the state authority for R&D.

**The procedures are developed in compliance with the provisions established in this Plan, complemented by:**

- p) the provisions established in the approved information packages;
- q) the provisions of the Methodological Norms on contracting, funding, monitoring, and evaluation of RDI Programmes, projects, and actions included in the National Research, Development, and Innovation Plan approved by Government Decision No. 1.265/2004, with subsequent modifications and completions.
- r) Piloting, validation, and adoption, as appropriate, of the best practices at international level regarding new methods, approaches, metrics, and evaluation tools for research, at the Programme/Subprogramme and project type level.

## 8.3 PROJECT MONITORING AND EVALUATION

### 8.3.1 Evaluation of the project proposals

The evaluation of project proposals is carried out according to the evaluation procedures described in the competition information package and follows the following stages:

- a) Each eligible project proposal is usually evaluated for quality by at least three independent evaluators who form the evaluation committee/panel. The evaluation is performed online.
- b) The selection criteria for evaluators are established in consultation with the advisory council of the state authority for R&D, responsible for the scientific coordination of the Programme or competition and can be found in the competition information package.
- c) The list of evaluators to be selected in competitions is prepared by the Programme coordinator, based on the BRAINMAP expert database, and is submitted for approval to the state authority for R&D, after being reviewed by the advisory council responsible for the scientific coordination of the Programme or competition.
- d) Each evaluator will declare in writing their impartiality, confidentiality, and competence in the scientific field of the project proposals. The evaluators will commit to notify the Programme coordinator if any of these conditions are not met or if they have a conflict of interest during the evaluation process.
- e) The evaluation procedure, selection criteria, scoring grid, and funding thresholds are established in the competition information package.
- f) The evaluation procedure includes the following stages: eligibility check, individual evaluation, consensus, panel evaluation, reply to the applicants. The competition information package defines the stages of the evaluation process.
- g) Project proposals are evaluated scientifically and technically according to the evaluation criteria established in the competition information package. The evaluation criteria, without being limited to these, focus on the scientific/technical quality of the proposal, relevance of the research topic to the

competition objectives, implementation approach, and the potential impact of the development, dissemination, and utilization of project results.

h) The evaluation of the proposals will necessarily include the possibility for applicants to provide comments on the evaluators' assessments. These comments will be reviewed by the evaluators and may be taken into consideration in the final scoring, if necessary.

i) If there is a difference of minimum 10% of the maximum score that can be given to a project proposal, between the scores provided by two evaluators, after reviewing the applicant's response, and if the consensus cannot be reached, additional evaluators will be involved. Certain evaluation reports may be eliminated, as described in the competition information package.

j) The final evaluation report, prepared for each project proposal, will contain justifications for the scores for each evaluation criterion and, if applicable, recommendations regarding adjustments of the funding that is requested.

k) The evaluation process results in a preliminary ranking of project proposals in descending order of the obtained scores. The results are published on the programme website, along with the announcement of the deadline for appeals.

l) Appeals regarding the evaluation results usually concern procedural irregularities that applicants consider non-compliant with the provisions of the competition information package. Appeals may also concern the conformity of the justifications of the scores, in situations explicitly mentioned in the competition information package.

m) The final list of projects proposed for funding and the reserve list, drawn after the appeals' resolution, having the advisory council's consent, will be submitted for approval to the state authority for research and development by the Programme leader.

n) To allow the funding of additional projects, the Programme coordinator, subject to the approval by the scientific council, has the authority to propose an adjustment of up to 10% of the requested budget for each project from the final and reserve lists.

- o) Annually, each Programme coordinator makes public, on the relevant programme website, the list of experts involved in the evaluation of previous year's project competitions, without indicating the evaluated projects.

### **8.3.2 Negotiation and contracting of winning projects**

The funding of research projects is based on a contract concluded between the Programme manager and the institution implementing the project.

Following the approval by the State Authority for Research and Development of the list of projects proposed for funding, the Programme coordinator takes responsibility for the negotiation and finalization of contracts for the selected projects. This process is conducted within the budget constraints approved for the respective competition, ensuring the smooth implementation of the funded projects.

The Programme coordinator can suspend the negotiation if the applicant proposes changes regarding the objectives, scientific/technological content, partnership structure, and other aspects that result in a major modification of the initial proposal, evaluated and accepted for funding.

Negotiation and contracting take place within the timeframe established in the competition information package. Subsequently, the Programme coordinator may decide to exclude from funding projects that do not comply with the established negotiation and contracting deadlines.

In case that there are still funds available, as result of contracting or a decrease of the budget proposed in the projects, or as a result of an increase of the budget allocated to the competition, with the prior approval of the state authority for research and development, the Programme manager will initiate the negotiation and contracting procedure for the projects from the reserve list, in descending order of the scores, until reaching the budget approved. for the respective competition.

### **8.3.3 Monitoring and evaluation of project implementation**

The monitoring consists of information and data collection related to project implementation, assessment of the achievement of objectives and the attainment of assumed indicators/results, identification, evaluation, and adoption of measures to mitigate risks, and drawing decisions regarding corrective actions (if necessary).

The monitoring process begins on the date of signing the project funding contract and continues throughout the entire project implementation period.

For each project, the Programme coordinator designates a technical project officer who ensures the smooth progress of the project throughout its implementation.

The technical project officer ensures the monitoring of activities performed within the project.

The project monitoring involves analysing scientific/technical activities and expenses incurred within the project, based on scientific and financial reports sent by the project coordinator to the Programme manager.

During the project, scientific/technical monitoring of ongoing RDI projects also involves periodic evaluations of the progress towards the assumed objectives and results.

The result of the periodic evaluation may lead to the continuation, cessation of funding with total or partial recovery of the allocated funds, or cessation of funding without fund recovery in the case of projects where research failure has been identified, in accordance with Article 87 of Government Ordinance no. 57/2002, approved with amendments and supplements by Law no. 324/2003, with subsequent amendments and supplements.

The periodic evaluation calendar is established in the information package and considers the competition's objectives, implementation period, and allocated budget.

Financial monitoring is performed annually, by the project technical officer, based on financial reports sent by the project coordinator. The process monitors how the incurred expenses align with the eligible expenditure categories, the contract implementation period, and if they are carried out for the purpose of the project.

At the end of the project, both financial and scientific/technical final evaluations are conducted, based on the final report submitted by the contractor. Depending on the evaluation result, the Programme manager ensures the payment of the final instalment of the project budget.

For the periodic and final evaluations, the Programme manager appoints independent expert evaluators who are specialists in the field of the project.

If the funding for contracted projects cannot be maintained at the initially planned level due to a reduction in the budget allocated to PNCD IV by the State Authority for Research and Development compared to the level set at the time of project contracting, the selection of projects to be funded and the resizing of budgets are carried out according to an approved methodology. This methodology, developed by the Programme manager and reviewed by the



advisory council for scientific coordination of the specific Programme, incorporates one or more of the following criteria: (i) the score obtained in the initial evaluation within the project competition, and (ii) the results achieved within the project as per the annual evaluation report.

The developed methodology for the evaluation of projects/project results for the purpose of budget resizing is then submitted for approval to the state authority for research and development.

If during the final evaluation, partial fulfilment or non-fulfilment of the objectives specified in the contract is identified, the Programme manager will analyse the achievement of the objectives, in accordance with the provisions of Government Ordinance no. 57/2002, approved with modifications and completions by Law no. 324/2003, with subsequent modifications and completions. Based on the findings, the Programme manager will assess the extent to which the responsibility belongs to the project implementation team, and will make, as appropriate, specific proposals regarding the obligation and method of partial or full recovery of the funds spent from the Programme budget.

The ex-post monitoring period will be longer for the project funding research infrastructures, spanning the entire duration of infrastructure exploitation. If full recovery of the funds allocated to a project is decided, the applicant no longer has the right to request funding in a new PNCDI IV competition, for a period of 3 years from the moment of such finding.

The contractors are obliged to publish online summaries of the accepted proposals, reference data, references to the main published or patented projects results, along with general information on the project status, the main results obtained, and socio-economic impact.

### **8.3.4 Evaluation of the project impact**

Ex-post evaluation can be carried out after a maximum period of 3 years from the moment of finalisation of the project or at the end of the monitoring period (if a different period is specified in the contracts). The funding contracts will include obligations regarding post-implementation reporting.

9

**Increased allocations  
and positive budget  
adjustments**

In the case of increased allocations or positive budget adjustments, the State Authority for R&D may decide to increase the funding of Programmes/Subprogrammes and, respectively of projects, according to the criteria established by the manager of the State Authority for R&D. This can include the increase of the initially approved budget, as stipulated in the information package.

# 10

**Decreased annual  
allocations and  
negative budget  
adjustments**

In the case of decreased annual allocations compared to the multi-year provisions or negative budget adjustments, the State Authority for R&D may decide to decrease the amounts for funding PNCDI IV, its Programmes, within the established limits.

If the decrease results in budget reductions for ongoing R&D projects, within 30 days from the entry into force of the decrease or negative adjustment, the negotiation procedure will be resumed for each ongoing project. The decision will fall into one of the following situations:

the project will continue with a reduced budget and the objectives and implementation plan will be adjusted accordingly, through an additional agreement to the funding contract.

If, under the conditions of a reduced budget, the project cannot be continued and completed, the project funding will be suspended. The way the results obtained until that date will be used will be clearly stipulated and the funding contract will be terminated amicably, without the obligation to recover the funds spent from the budget until the renegotiation.

The budget decrease will be included as a mandatory clause in the funding contract under the contractual liability section.

11

**Failure in research**

The state acknowledges the existence of the failure in research, and it assumes the risk that this may occur within the projects funded by PNCDI IV, as provided by law.

The criteria by which the state accepts the failure in research, for which there is no obligation to recover the funds spent from the budget, are specified in the information packages for each type of project. Failure in research is identified in the project evaluation and monitoring process within each Programme or Subprogramme. The causes and responsibility for the occurrence of research risk, and where applicable, the obligation to recover funds, are determined by evaluation committees established for this purpose by the programme managers.

12

**Regime of scientific  
research results**



For the purposes of this plan, the results of scientific research and experimental development, obtained within a project financed from public funds, hereinafter referred to as research results, shall be understood as:

- a) documentation, studies, papers, plans, diagrams, and similar materials;
- b) intellectual and industrial property rights confirmed by patents, licenses, certificates of registration for industrial designs, and similar documents;
- c) technologies, processes, computer products, recipes, formulas, methods, and similar items;
- d) physical objects created within the framework of the respective contract;
- e) collections and databases containing analog or digital records, historical sources, specimens, photographs, observations, rocks, fossils, and similar items, together with the necessary information for archiving, retrieval, and clarification of the context in which they were obtained;
- f) new biological products in the field of plant and animal production - varieties, hybrids, lines, populations, with superior performance and resistance to climatic conditions and diseases.

The acquisitions made for the execution of a research contract are not considered part of research results, except for acquisitions that are incorporated into one of the results categories mentioned above.

**The ownership regime of research results in scientific research and experimental development activities is as follows:**

- a) Research results belong to the executing legal entities; the ownership regime is determined by the agreement concluded between them prior to project contracting, unless otherwise provided in the financing contract;
- b) Research results belong to ministries or other specialized bodies of central public administration or local public authorities when they are partners in an R&D project directly addressing a public policy problem within their competence. This situation is stipulated in a special clause in the project financing contract.

c) Research results belong to or are considered to belong to the legal entity that takes over, in whole or in part, the assets and liabilities of the executing entity or the legal entity carrying out the research, if they are dissolved or reorganized through division, merger, or similar actions.

**The above provisions apply in accordance with the current legislation in the field of intellectual property, including:**

- a) Law no. 64/1991 on patents, republished;
- b) Law no. 129/1992 on the protection of designs and models, republished;
- c) Law no. 16/1995 on the protection of topographies of semiconductor products, republished;
- d) Law no. 8/1996 on copyright and related rights, republished, with subsequent amendments and supplements;
- e) Law no. 84/1998 on trademarks and geographical indications, republished, with subsequent amendments and supplements;
- f) Law no. 350/2007 on utility models, with subsequent amendments and supplements; g) Law 83/2014 on service inventions;
- h) Fiscal Code, approved by Law no. 227/2015, with subsequent amendments and supplements.

Research results are recorded in the accounting records of the executing legal entity to which they belong or, where applicable, to the legal entity considered, according to this Plan, to be the owner of the results.

# 13

**Glossary**

The following definitions are in accordance with the Commission Regulation (EU) No 651/2014 of 17 June 2014 declaring certain categories of aid compatible with the internal market in application of Articles 107 and 108 of the Treaty Text with EEA relevance, with its subsequent amendments and supplements, and with Government Ordinance No 57/2002, approved with amendments and supplements by Law No 324/2003, with its subsequent amendments and supplements. For the purposes of this plan, the following terms and expressions are defined as follows:

- *Applicant* - an individual or legal entity proposing a research project in a competition;
- *Bottom-up competition* - project proposals are submitted within general themes, in line with the objectives of the Programme/Subprogramme/type of project; individual applicants can choose the topics they wish to investigate;
- *capitalization* - the process by which research results end up being used in social, economic, and cultural life, according to the requirements of industrial or commercial activity;
- *Certificate of excellence* - label awarded to project proposals evaluated in Horizon Europe call, recognizing the scientific value of the proposal that could not be funded due to budget limits. The proposals with the certificate for excellence are eligible for PNCDI IV funding, based on the criteria established in the Information Package;
- *Complementary institutional funding* - annual institutional funding provided on a competitive basis, for the duration of an accreditation cycle, based on the results of knowledge creation, technology transfer activities and the economic and social impact of research, development, innovation;
- *consulting services in the field of innovation* - consulting, assistance, and professional training services regarding knowledge transfer, acquisition, protection, and exploitation of intangible assets, as well as the use of standards and regulations containing them;
- *Contracting authority* - the state authority for research and development in the case of programme led by it or the legal entities to which it has been entrusted the management of programmes on a contractual basis, in accordance with the applicable legislation;

- *Contractor* - an institution within the national R&D system, which signs a funding contract with a contracting authority for the implementation of a project;
- *Data management plan* - a document that highlights from the beginning of the project the main aspects of the life cycle of the research data. It includes data origin, organization, and preparation (data curation), as well as conditions regarding access, archiving/preservation, sharing, and eventual deletion, both during and after the project's completion;
- *Dissemination* - the communication of information, experiences, and best practices, as well as cooperation to promote innovation, to support innovative projects and innovative enterprises;
- *Effective collaboration* - two or more independent parties coming together to exchange knowledge or technology, or to work towards a shared objective by dividing the tasks among themselves. In this collaborative project, the parties work together to define the project's scope, contribute to its implementation, and share both the risks and the results. It is possible for one or more parties to bear the entire cost of the project, thereby relieving the other parties of any financial risks. Contract research and the provision of research services are not considered forms of collaboration in this context.
- *Evaluation panel* - group, usually consisting of a minimum of 3 expert evaluators, formed by the contracting authority based on the experts' specialized fields, for the evaluation of one or more project proposals;
- *experiment voucher* - funding instrument supporting SMEs to modernize technology and increase the degree of innovation, by facilitating the access to the RDI infrastructure;
- *Experimental development* - the acquisition, combination, modelling, and use of relevant scientific, technological, business, and other knowledge and skills with the aim of developing new or improved products, processes, or services. This may include activities such as defining, planning, and conceptually documenting new products, processes, or services. Experimental development may involve the creation of prototypes, demonstration, pilot projects, testing, and validation of new or improved

products, processes, or services in environments representative for real operating conditions where the primary objective is to make technical improvements to the products, processes or services that are not finalized. This may include developing a commercially usable prototype or pilot, which is necessarily the final commercial product and for which the production is too expensive. Experimental development does not include routine or periodic modifications to existing products, production lines, manufacturing processes, services, or ongoing operations, even if such modifications may represent improvements;

- *Exploratory research* - preliminary research that explores research subjects to clarify the exact nature of the problem to be solved. Exploratory research is not intended to provide conclusive evidence but rather to provide a better understanding of the problem;
- *Fab-lab* - a fabrication laboratory at a small-scale, that provides access to manufacturing equipment, as well as digital modelling, prototyping, and small-scale production services;
- *Failure in research* - the failure to achieve the research objectives specified in the funding contract for the R&D projects, due to the risky nature of research activities. In the case of research failure, the causes and responsibility for the occurrence of the failure, as well as the obligation to recover the funds spent from the budget, are determined by evaluation committees established for this purpose by the Programme managers;
- *Feasibility study* - the evaluation and analysis of a project's potential, aimed at supporting the decision-making process by objectively and rationally highlighting its strengths and weaknesses, opportunities and threats and identifying the resources necessary for implementation and, in ultimately, its prospects for success;
- *Fundamental (basic) research* - experimental or theoretical activity undertaken primarily to acquire new knowledge of the underlying foundations of phenomena and observable facts, without any application or use in view. (Frascatti Manual, 2015)
- *Funding contract* - the contract concluded between the contracting authority and the contractor, with the aim to achieve the objectives for which funding

is provided and to establish the conditions under which the funding is provided;

- *Industrial research (applied research)* – original investigation directed primarily towards a specific, practical aim or objective. It aims to acquire knowledge and skills for the development of new products, processes, or services, or for significant improvement of existing products, processes, or services. This includes the creation of component parts for complex systems and may involve the construction of prototypes in the laboratory or in an environment with simulated interfaces of existing systems, as well as pilot lines necessary for industrial research, particularly for the validation of generic technologies;
- *Innovation* - the activity that results in the implementation of a new or substantially improved product, service, process, or a new marketing or business method in practical activities, workplace organization, or external relations. Whether it is the development of new products, processes, or organizational techniques, innovation is provides economic actors with a competitive advantage;
- *Innovation cluster* - a structured or organized group of independent partners (enterprises, research organizations, universities, public authorities, non-profit organizations, consulting firms, chambers of commerce, vocational training centres) aimed at increasing the competitiveness of the group through the development of innovative goods (technologies, products, services), based on joint innovation activities within the group, including sharing of facilities and exchange of knowledge and expertise in the cluster (EU Regulation No 651/2014);
- *innovation voucher* - funding instrument supporting the access to research organizations knowledge and expertise by enterprises.
- *Innovative enterprise* - an enterprise that has launched new or significantly improved products (goods or services) or business processes on the market. The term covers both types of innovation, product innovation, and business process innovation, as well as enterprises with unfinished or abandoned innovations, and refers to active enterprises;

- *Innovative product/process* - the result of innovation process; a new or improved product or process (or a combination thereof) that significantly differs from the previous products or processes and is made available to potential users as a product or used by the enterprise as a process;
- *Institutional funding* - funding provided to public R&D entities, based on evaluations of previous results and annual reports. The institutional funding aims to ensure predictability, continuity, and to stimulate competitiveness and performance;
- *Living lab* - a research concept that integrates innovation processes within a public-private partnership, alongside society. The concept can be defined as a user-centred ecosystem based on open innovation, typically operating in a territorial context (city, region, or campus)
- *Mobility* - the circulation of researchers for defined periods (short, medium, and long) to carry out activities in other institutions than the one of affiliation, on a contractual basis;
- *National research, development, and innovation plan* - the main instrument through which the state implements the policy in the field of research, development, and innovation;
- *One-stop-shop* - a set of facilities, services, and/or products offered in one place;
- *open access* - the practice of providing online access to research results in an open, non-discriminatory, and cost-free manner, allowing their reuse with minimal restrictions (EU Recommendation 790/2018);
- *Open innovation* - represents a complex innovation model, which requires all interested parties (stakeholders) to be involved, collaborate synergistically, and contribute within innovation ecosystems to obtain the greatest possible advantages from the interdisciplinary approach, which leads to experimentation and prototyping under real conditions (real systems/operational environment). It is based on the quadruple helix approach;
- *open science* - a new approach to scientific processes, based on cooperation and new ways of disseminating knowledge, improving accessibility and



reuse of research results with the help of digital technologies and new open collaboration tools. (Recommendation (EU) 790/2018);

- *patenting voucher* - funding instrument supporting the patent applications costs;
- *Programme manager/coordinator* - the State Authority for R&D, in the case of Programmes led by it, or the contractor, in a funding contract aimed at providing Programme leadership services;
- *Project competition information package* - a document prepared by the Programme manager and approved by the state authority for research and development, detailing the conditions for conducting competitions within the programme/subprogramme, respectively the purpose, objectives, thematic content, calendar of actions, public funds allocated, eligibility conditions, template documents for contracting and reporting, selection criteria for evaluators; the categories of eligible expenses, the evaluation, negotiation, contracting, reporting and payment calendar, if known, the evaluation and monitoring criteria and indicators;
- *Recurring character of a contract* - the nature of a contract to provide certain rights and obligations based on and after those contained in another contract previously concluded;
- *Research and development project* - a project that aims to achieve certain objectives through research and development activities carried out in a determined period, using allocated resources, and governed by a set of rules, objectives, and activities included in a funding contract;
- *Research data* - data resulting from research; these refers to digital documents that are not scientific publications and are collected or produced during scientific research activities. They are used as evidence in the research process or are widely accepted in the research community as necessary for validating research conclusions and results. Research data includes statistics, experimental results, measurements, fieldwork observations, survey results, interview recordings, and images. It also includes metadata, specifications, and other digital objects. Research data is distinct from scientific articles that report and comment on research findings. (DIRECTIVE (EU) 2019/1024);

- *Research infrastructure* - facilities, resources, and related services used by the scientific community to carry out research activities in their respective fields. It includes the main scientific equipment or sets of instruments, knowledge resources such as collections, archives, or structured scientific information, generic infrastructures based on information and communication technology, such as networks, computing material, software programs, and communication tools, as well as any other means necessary for research activities. Such infrastructures can be "localized" in a single location or "distributed" (an organized network of resources);
- *Research, development, and innovation programme* - a component of the National Research, Development, and Innovation Plan, consisting of a set of interconnected objectives that can correspond to subprograms. Through programmes, the implementation of a specific policy in a particular domain is pursued. The implementation of the programme is carried out through funded projects;
- *Spin-off* - a new organization formed by separating from another public or private entity;
- *Start-up* - a newly established organization in the development phase, aiming to seek and implement a repeatable and scalable business model;
- *State aid scheme* - the system based on which specific allocations can be granted to economic agents. It is authorized by the Competition Council.
- *technological transfer* - represents the process of introducing research results (technologies, products, know-how, recipes and other specific results) into the economic circuit, with a view to increasing the efficiency and quality of some products (goods and services), processes, or obtaining new others, which are demanded on the market; it includes the dissemination of relevant information, explanations, knowledge transfer, consulting, and transfer of intellectual property rights from the author to the beneficiary;
- *Top-down competition* - project proposals are submitted within specific and well-defined themes, with detailed objectives, outcomes, and requirements, provided in the information package, to meet the objectives of the Programme/Subprogramme/type of project;

## **Annex 1 - Distribution of the PNCDI IV budget by programmes**

The Annexes 1 and 2 are an integral part of this plan.

In defining the PNCDI IV budget allocation by Programmes, the following elements of convergence with the European Union average shares in the total research and development expenditures are pursued:

- a) R&D expenditures are balanced between fundamental research, applied research, and experimental development;
- b) Expenditures on R&D equipment should not exceed 25% of the total R&D expenditures.

Based on these principles, considering:

- a) the current legislation regarding budget allocations for research and development;
- b) the types of PNCDI IV projects;
- c) complementarities and synergies with other plans funding programs.

The indicative distribution of the National R&D Plan budget is by Programmes, is as follows:

- Programme 1: IDEAS, 10%- 20%;
- Programme 2: HUMAN RESOURCES, 5%- 10%;
- Programme 3: ORGANISATIONS OF RESEARCH PERFORMANCE, 5%- 19%;
- Programme 4: NUCLEU, 20%- 30%; the annual budget allocation will be at least at the level of the budget allocated to Core programme in 2022;
- Programme 5: RESEARCH INFRASTRUCTURES, 10%- 15%;
- Programme 6: CHALLENGES, 15%- 25%;
- Programme 7: PARTNERSHIPS FOR INNOVATION, 10%- 20%;
- Programme 8: EUROPEAN AND INTERNATIONAL COOPERATION, 5%- 15%;
- Programme 9: RESEARCH IN AREAS OF STRATEGIC INTEREST, 5%- 15%;
- Programme 10: SCIENCE AND SOCIETY, 3%- 5%.

## Annex 2 – Ceilings for direct salary costs financed from PNCDI IV projects

Category of activity	Level of studies	Professional degree/ Function within the project or program	Maximum limit in euros/hour
Activities that require a high level of creativity and/ or experience and leadership /management skills	HIGHER	Scientific Researcher (CS) I, CS II, technological development engineer (IDT) I, IDT 11, professor, reader, director/responsible/project/programme manager	50
Activities that require in-depth knowledge of the analysis methods and synthesis, and the ability to use them	HIGHER	CS III, IDT III, CS, IDT, junior, senior lecturer, legal /technical/acquisitions/financial project manager, specialised staff (biologist, chemist, architect, medical doctor, and others depending on the specifics programme/project)	35
Activities that require knowledge of the methods of analysis and synthesis and the ability to use them	HIGHER	Research, PhD student, master student	25
Support activities	upper or middle	TI, TII, TIII, student, other	15

The maximum limit includes all taxes and fees owed by the employee and applies to all income earned by a person for participating in one or more projects under PNCDI IV, in compliance with labour law provisions. The equivalent in RON (representing direct salary costs) are determined on the date of contract completion, based on the latest exchange rate euro to RON, communicated by the National Bank of Romania.

# The National Plan for Research, Development and Innovation 2022-2027