



Centres of Excellence

Centers of Excellence 2024: Romanian Strategic Investment in Research

"Centers of Excellence 2024" Call is one of the most ambitious public R&D investments, geared on achieving critical mass, excellence, and systemic impact necessary to address major economic and societal challenges.



Strategic research

The centers are focused *on strategic basic research*, essentially linking fundamental scientific research and concrete practical applications.



Synergistic Collaboration

Each Centre brings together min. 4 research organizations, ensuring complementary capabilities through integrated resources and know-how.



Real Impact

Results: groundbreaking discoveries and new knowledge that contribute to major technological and social advancements.



Centers of Excellence 2024: Romanian Strategic Investment in Research



National Strategic Framework

The initiative aligns with Romania's Strategic Research Agenda, pursuing 6 main research domains with 32 identified impact areas, according to the National Strategy for Research, Innovation and Smart Specialization (SNCSI) 2022-2027.



National Operational Framework

Development of a virtual network, distributed nationally and consisting of hubs of excellence/expertise/performance in scientific research, called the [Advanced Studies and Research Platform](#). Funding is granted to research projects, implemented in the medium term, that support the development of nodes of competence in well-defined research areas, formed around personalities with proven experience in the international scientific environment.

Evaluation process: Key Figures

87

Evaluated proposals

2404

Invitations sent to
independent foreign evaluator experts

505

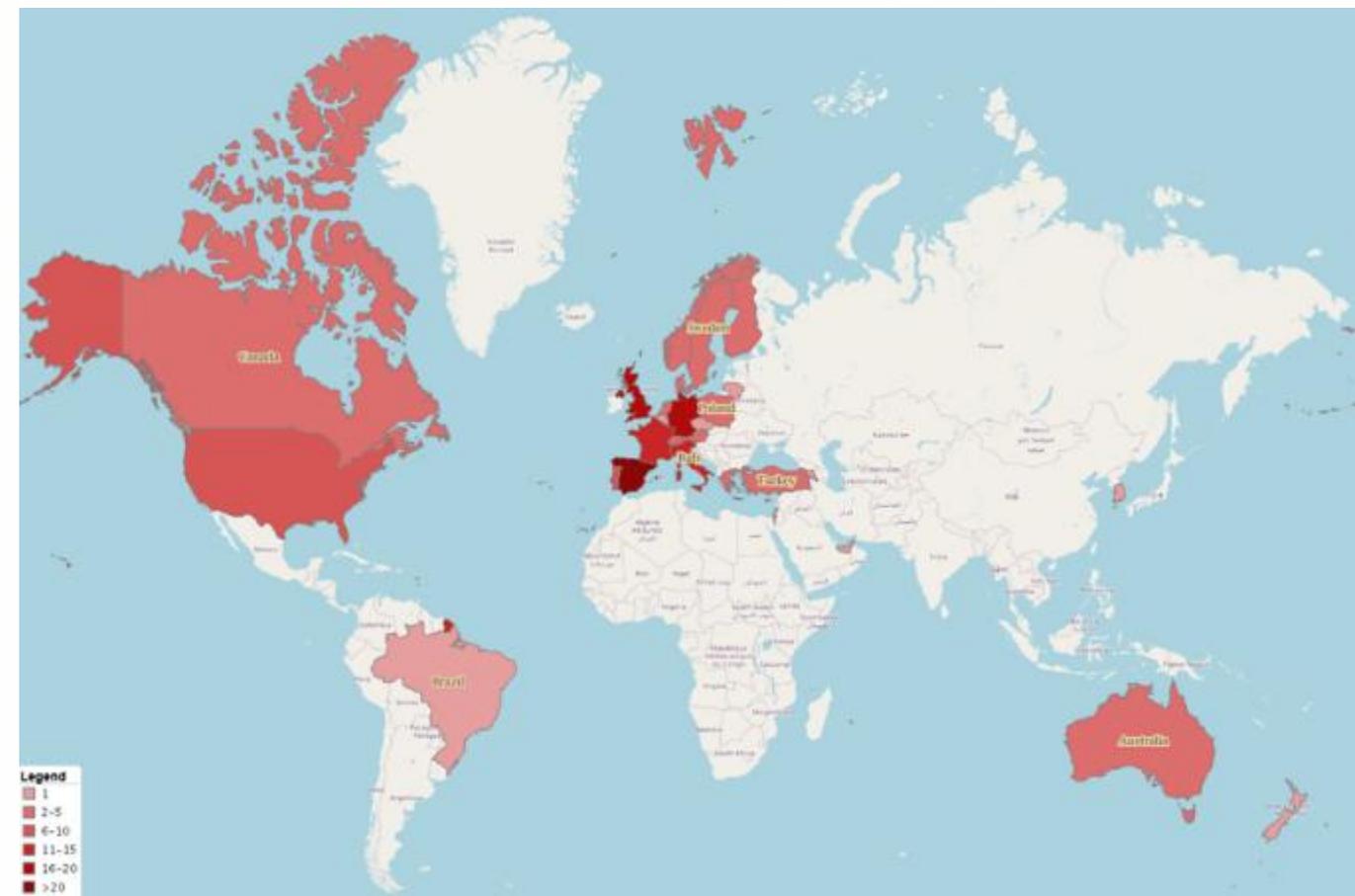
Available experts

167

Unique experts used
From OECD countries

Invited Expert Profiles

- highly cited researchers
- chief editors and editorial board members of Top 10% journals in each field (WoS categories)
- ERC project directors (Advanced Grants or Consolidator Grants)
- expert evaluators used by other funding agencies for the evaluation of Centers of Excellence programs
- experts involved in Deutsche Forschungsgemeinschaft (DFG) panels
- experts used in the evaluation processes I5 - Establishment and operationalization of Competence Centers and I8 - Development of a program for attracting highly specialized human resources from abroad in research, development and innovation activities
- experts used in the evaluation processes of EEA grants.





Performance

87

Eligible/evaluated proposals

18

Funded projects

6

Proposals
Reserve list

12

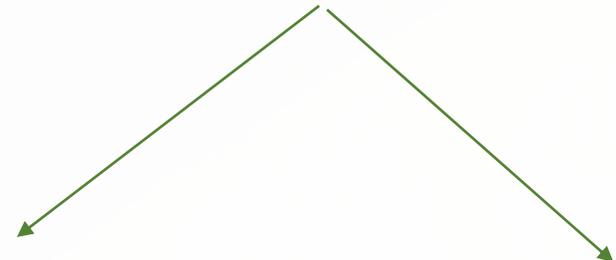
Proposals
Extended reserve list

85

Minimum funding score

300 mil. Eur

Total budget



Breakdown by Research Areas

Digitization, Industry and Space

3 funded projects

Total contracted budget: 241,4 mil. lei

Health

5 funded projects

Total contracted budget : 429,5 mil. lei

Climate, energy and mobility

2 funded projects

Total contracted budget : 171,6 mil. lei

Culture, creativity and inclusive society

1 funded projects

Total contracted budget : 85,9 mil. lei

Food, bioeconomy, natural resources, biodiversity, agriculture and environment

4 funded projects

Total contracted budget : 343 mil. lei

Civil security for society

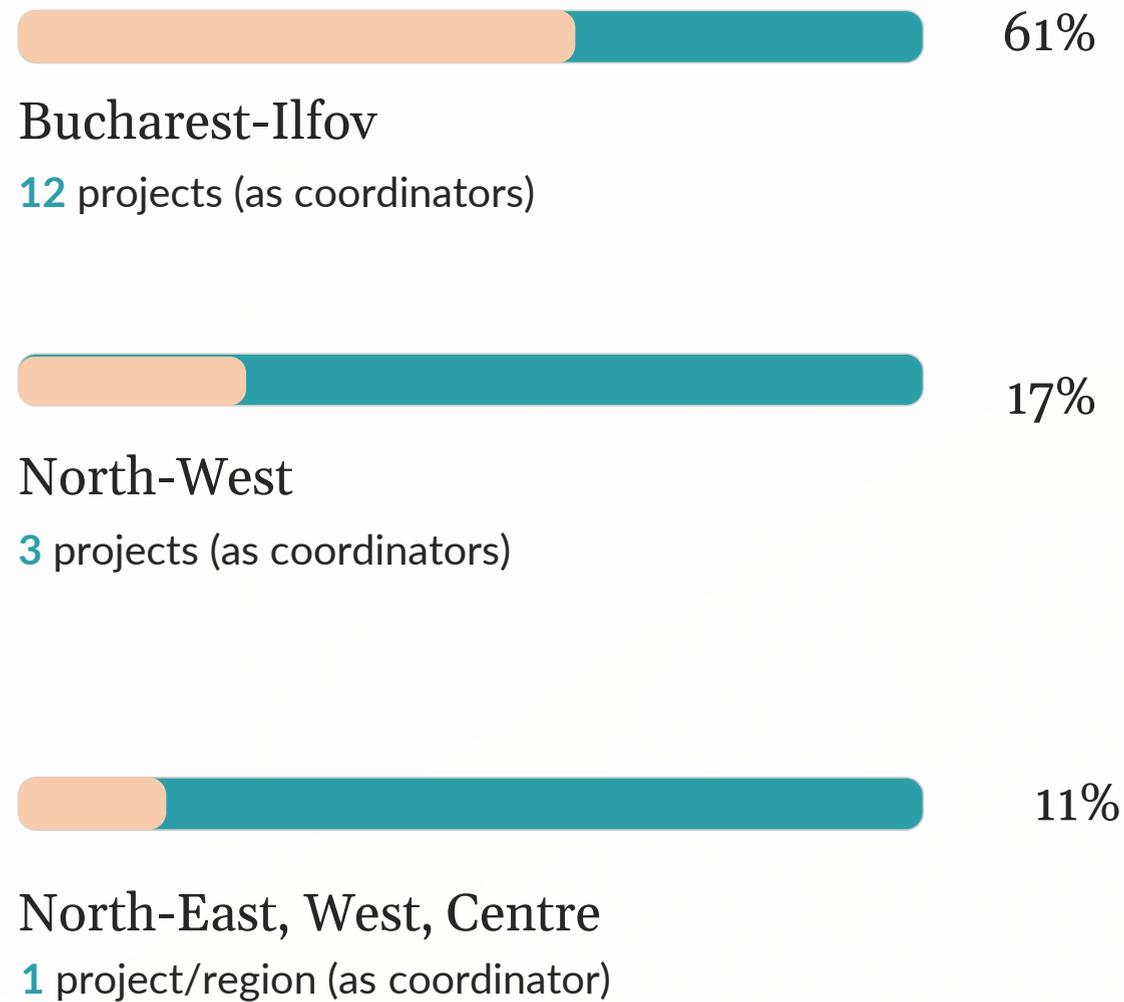
3 funded projects

Total contracted budget : 228,5 mil. lei



National/Regional Distribution and Actors

The projects involve 81 unique institutions across the country, creating a national network of research excellence:



Region	No. unique institutions (CO+P)
Bucharest-Ilfov	46
North-West	10
North-East	8
Centre	5
West	5
South-West	4
South-East	2
South	1

Institution Type	No. unique institutions	No. of involvement
National R&D institutes	27	38
Universities	27	63
Institutes of Romanian Academy	13	18
Public institutions	11	11
NGOs	1	1
SRL	1	1
SNC	1	1

Digitization, industry and space

- *Center of Excellence for Circular Chemistry and Economy - Chemo-catalytic paradigms in multiphase waste valorization (0053)*
- *Center for Emergent and Digital Technologies for Advanced Materials Resilient to Extreme Conditions and Hostile Environments (0162)*
- *Excellence center of advanced responsive materials (0187)*

Climate, energy and mobility

- *Excellence Research Center for High Efficiency in Energy Use (0154)*
- *Centre of Excellence for Climate and Societal Changes (0042)*

Food, bioeconomy, natural resources, biodiversity, agriculture and environment

- *Center of Excellence in water management, materials, by-products and waste valorisation for circular bioeconomy implementation (0056)*
- *Romanian Centre of Excellence on Biodiversity, Ecosystem Services and Society (0124)*
- *Excellence research center fostering climate neutrality and resilience through agriculture (0120)*
- *Nutritional security by innovative strategies for boosting sustainable protein resources exploitation (0025)*



Health

- *Integrated multidisciplinary platform for accelerated and innovative therapeutic discovery (0088)*
- *Mental health in a rapidly changing society: A multi-level approach, from genes and molecules to neural networks and psychosocial systems (0139)*
- *Center of Excellence for Advanced Translational reSEARCH in CardioVASCular and CerebroVASCular Diseases (0029)*
- *Establishing the Romanian Center of Excellence in Clinical Neuroscience (NeuRoX) (0141)*
- *National Multidisciplinary Research Centre of Excellence for Drug-Resistant Infections (0196)*

Culture, creativity and inclusive society

- *Centre of Excellence in Digital Cultural Heritage: Innovation in Digitization and Digital Investigation based on Cutting-Edge Technologies (0206)*

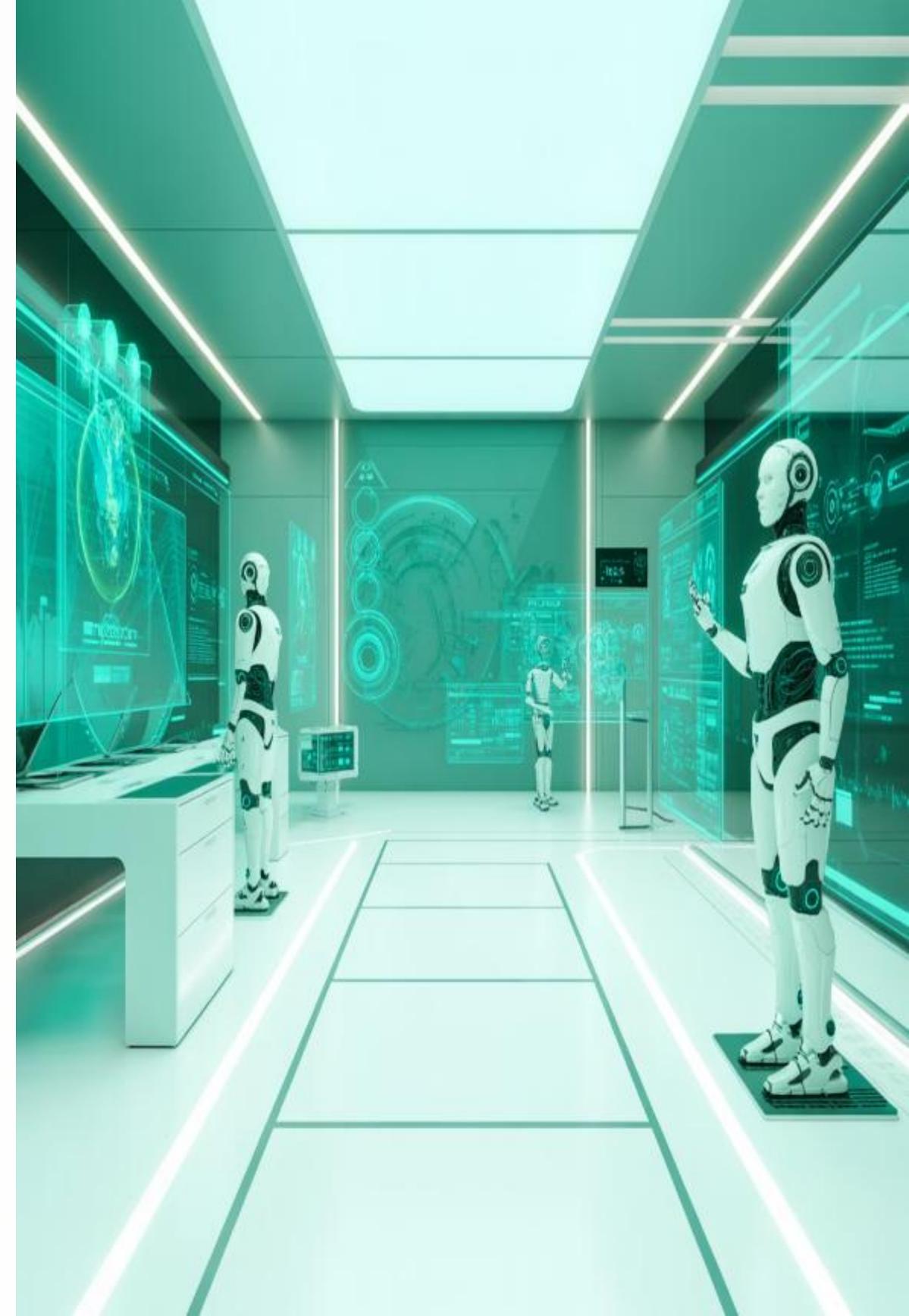
Civil security for society

- *Romanian Excellence in Quantum Technologies enhancing Cybersecurity (0214)*
- *Enhancing Security and Societal Resilience through Excellence in Research (0084)*
- *Proactive Resilience and Emergency Preparedness for Adaptive Response and Efficiency (0102)*



Digitization, industry and space

3 centers of excellence dedicated to: emerging technologies, advanced materials and circular economy, with a cumulative budget of 241.4 mil. lei



Center of Excellence for Circular Chemistry and Economy - Chemo-catalytic paradigms in multiphase waste valorization (0053)

The goal of the project is to implement the Circular Economy concept in recycling industrial waste and reducing energy consumption, by recycling waste, reducing the depletion of natural resources, minimizing the impact on the environment and ensuring a green circular economy.

Coordinator: Prof. Vasile PÂRVULESCU – University of Bucharest

Partners:

- UBB – Babeş-Bolyai University
- INCDTIM – National Institute of Isotopic and Molecular Technologies
- INCDFM – National Institute of Materials Physics
- ICOSCDN – Costin D. Nenişescu Institute of Organic and Supramolecular Chemistry
- ASE – Academy of Economic Studies

Mentor: Hermenegildo Garcia

Institution: Polytechnic University of Valencia, Spain



Region: Bucharest - Ilfov

Performance:

Final Score: **85.5** points

Center for Emergent and Digital Technologies for Advanced Materials Resilient to Extreme Conditions and Hostile Environments (0162)

The aim of the project is to carry out an innovative research program to support 3D printing of metallic materials and surface coatings, as a sustainable and value-added manufacturing process, applicable in various industrial sectors exposed to extreme or hostile environments (high temperatures, variable and dynamic stresses, oxidative and/or corrosive conditions).

Coordinator: Prof. Tudor SIRETEANU - Solid Mechanics Institute

Partners:

- RATEN - Technologies for Nuclear Energy State Owned Company
- COMOTI - Romanian R&D Institute for Gas Turbines
- INCAS - National Institute for Aerospace Research "Elie Carafoli"
- IMNR - National R&D Institute for Non-ferrous and Rare Metals

Mentor: CATALIN R. PICU

Institution: Rensselaer Polytechnic Institute, USA



Region: **Bucharest - Ilfov**

Performance:

Final Score: **89.5** points

Excellence center of advanced responsive materials (0187)

Purpose: a leading European center for academic research, industrial collaboration and training in the field of advanced responsive materials. The center will strongly influence the development of a clean industry through the use of new materials, composites and devices based on them, which will enable a wide range of applications with features such as low environmental impact, high energy efficiency, waste reduction, streamlining manufacturing processes, enabling smart packaging, improving environmental monitoring and developing green energy solutions.

Coordinator: Ionuț - Marius ENCULESCU – National Institute of Materials Physics

Partners:

- INFLPR – National Institute for Laser, Plasma and Radiation Physics
- IMT - The National Institute for R&D in Microtechnologies
- IFIN-HH – Horia Hulubei National Institute for R&D
in Physics and Nuclear Engineering
- INCDMTM – The National Institute of R&D in Mechatronics
and Measurement Technique
- IFT – National Institute for Technical Physics
- UNSTPB – University Politehnica of Bucharest
- UVT – West University of Timisoara

Mentor: Magdalena Titirici

Instituion: Imperial College London, UK



Region: **Bucharest - Ilfov**

Performance :

Final Score: **89.5** points



Climate, energy and mobility

2 centers of excellence dedicated to energy efficiency and climate change, with a total budget of 171.6 mil. lei

Excellence Research Center for High Efficiency in Energy Use (0154)

***The goal:** the project is to create a National Center of Excellence (HEfEU) that offers solutions that increase the efficiency of energy use across the entire chain of components of an energy system: from basic materials to increase the efficiency of lighting and energy storage, to energy production to improve the efficiency of photovoltaic systems and the exploitation of the energy system through smart grid management and efficient energy use in buildings and urban communities.*

Coordinator: **Prof. Daniel VIZMAN** – West University of Timisoara

Partners:

- INFLPR – National Institute for Laser, Plasma and Radiation Physics
- INCDFM – National Institute of Materials Physics
- UTBv - Transilvania University of Braşov
- INCEMC Timișoara – National Institute for R&D in Electrochemistry and Condensed Matter

Mentor: Remus TEODORESCU

Institution: Aalborg University, Denmark



Region: **West**

Performance:

Final Score: **90 points**

Centre of Excellence for Climate and Societal Changes (0042)

Goal: *Unraveling the complex relationship between climate change and human behavior. To support its research, CECSC is establishing a state-of-the-art isotope and geochemistry laboratory and developing an artificial intelligence tool that determines the determinants of climate-related behavioral changes in individuals.*

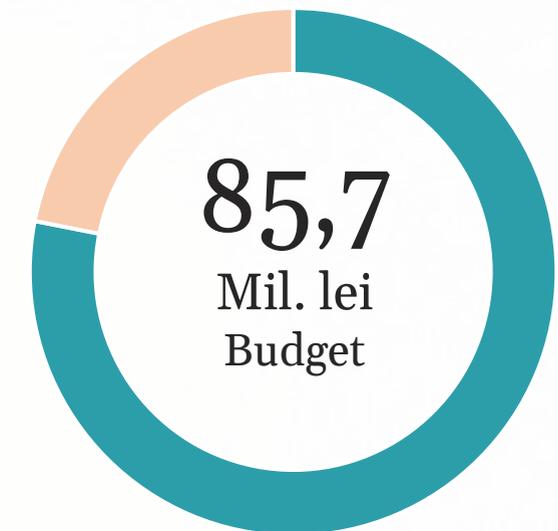
Coordinator: Prof. Bogdan ANTONESCU – University of Bucharest

Partners:

- IFIN-HH – Horia Hulubei National Institute for R&D in Physics and Nuclear Engineering
- "Vasile Pârvan" Institute of Archaeology
- INCDFP – National Institute for Earth Physics
- UBB – Babeş-Bolyai University
- Romanian Academy – Cluj Branch

Mentor: Gerrit Lohmann

Instituție: University of Bremen, Germany



Region: **Bucharest - Ilfov**

Performance:

Final Score: **85.5** points



Food, bioeconomy, natural resources, biodiversity, agriculture and environment

4 centres of excellence covering circular bioeconomy, biodiversity, resilient agriculture and food security, with a budget of 343 mil. lei

Center of Excellence in water management, materials, by-products and waste valorization for circular bioeconomy implementation (0056)

Purpose: *creating a Center of Excellence to provide the necessary support for the implementation of the circular bioeconomy, with impact in various branches, namely: research (new research lines), industry (technology transfer), environment (nutrient/energy recovery, wastewater recycling, waste valorization), social orientation (end-user involvement).*

Coordinator: Prof. Carmen TEODOSIU – Gheorghe Asachi Technical University of Iași

Partners:

- UPT - Politehnical University Timisoara
- ICMPP - Petru Poni Institute of Macromolecular Chemistry
- UTBv - Transilvania University of Brașov
- UAIC - Alexandru Ioan Cuza University of Iași
- University of Agronomic Sciences and Veterinary Medicine
- Institute of Chemistry "Coriolan Drăgulescu" - Romanian Academy
- ECOIND – National Institute for R&D for Industrial Ecology



Region: North - East

Mentor: Despo Fatta Kassinos

Institution: University of Cyprus

Performance:

Final Score: **88** points

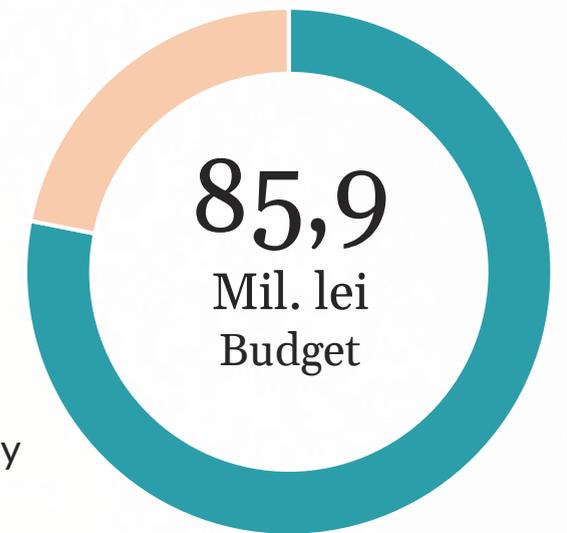
Romanian Centre of Excellence on Biodiversity, Ecosystem Services and Society (0124)

Purpose: targets biodiversity, ecosystem restoration and ecosystem services, through its four research objectives, focused on: *theoretical understanding of ecosystems, applied ecology, pathways for co-production of ecosystem services and governance structures for human-nature reconnection.*

Coordinator: Prof. Tiberiu HARTEL– Babeş Bolyai University

Partners:

- University of Bucharest
- INCDDPM – The National Institute for R&D in Environmental Protection
- GEOECOMAR – National Institute for R&D in Marine Geology and Geoecology
- Institute of Biological Research Cluj - Branch
- Ovidius University of Constanța
- Institute of Biology Bucharest - Romanian Academy



Region: **North - West**

Mentor: Berta Martin-Lopez

Institution: Leuphana University, Germany

Performance:

Final Score: **87** points

Excellence research center fostering climate neutrality and resilience through agriculture (0120)

Purpose: to drive transformative progress in Romanian agriculture to mitigate greenhouse gas emissions across the entire agricultural system. Being at the intersection of education, research, innovation and societal services, AgroCln is dedicated to **reshaping agriculture into a resilient and climate-neutral sector.**

Coordinator: Prof. Sorin-Mihai CÎMPEANU – University of Agronomic Sciences and Veterinary Medicine

Partners:

- University of Agricultural Sciences And Veterinary Medicine of Cluj-Napoca
- ICECHIM – National Institute for Research and Development in Chemistry and Petrochemistry
- University of Bucharest
- ICPA Bucharest – National R&D Institute for Soil Science, Agrochemistry and Environmental Protection
- INCDFM – National Institute of Materials Physics

Mentor: Kenneth G. Cassman

Institution: University of Nebraska, USA



Region: Bucharest - Ilfov

Performance:
Final Score: **85.5** points

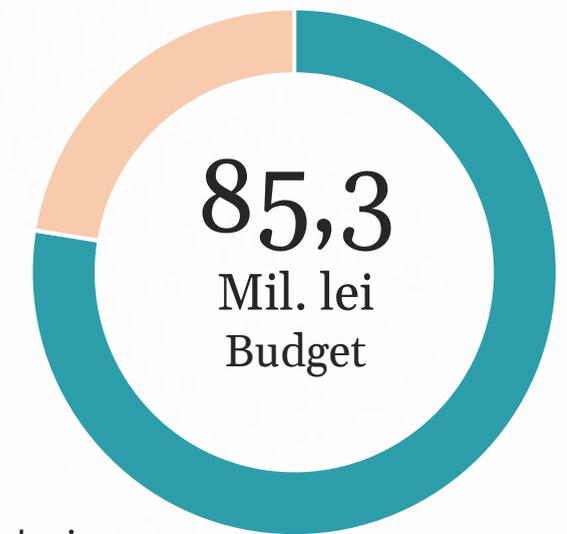
Nutritional security by innovative strategies for boosting sustainable protein resources exploitation (0025)

Purpose: *Center of Excellence in Nutrition Security, facilitating the transition to sustainable food systems globally. The project aims to identify diverse protein sources, identify and optimize agricultural/aquaculture practices and food processing technologies, explore innovative protein production technologies, establish the relationship between the quality of sustainable food production and health, and establish sustainable and traceable supply chains.*

Coordinator: **Nastasia BELC- IBA - National Institute for Research and Development in Food Bioresources**

Partners:

- "Dunărea de Jos" University of Galați
- University of Agronomic Sciences and Veterinary Medicine
- INCDTIM - National Institute for R&D of Isotopic and Molecular Technologies
- INOE 2000 - National Institute for R&D in Optoelectronics
- INCDSB - National Institute of R&D for Biological Sciences Bucharest
- UNSTPB - University Politehnica of Bucharest
- IVB - Victor Babeș National Institute of Pathology and Biomedical Sciences
- ICSI - National R&D Institute for Cryogenic and Isotopic Technologies
- INMA - National Institute Of R&d For Machines and Installations Designed for Agriculture and Food Industry



Mentor: Alessio Fasano

Instituție: Harvard Medical School, USA

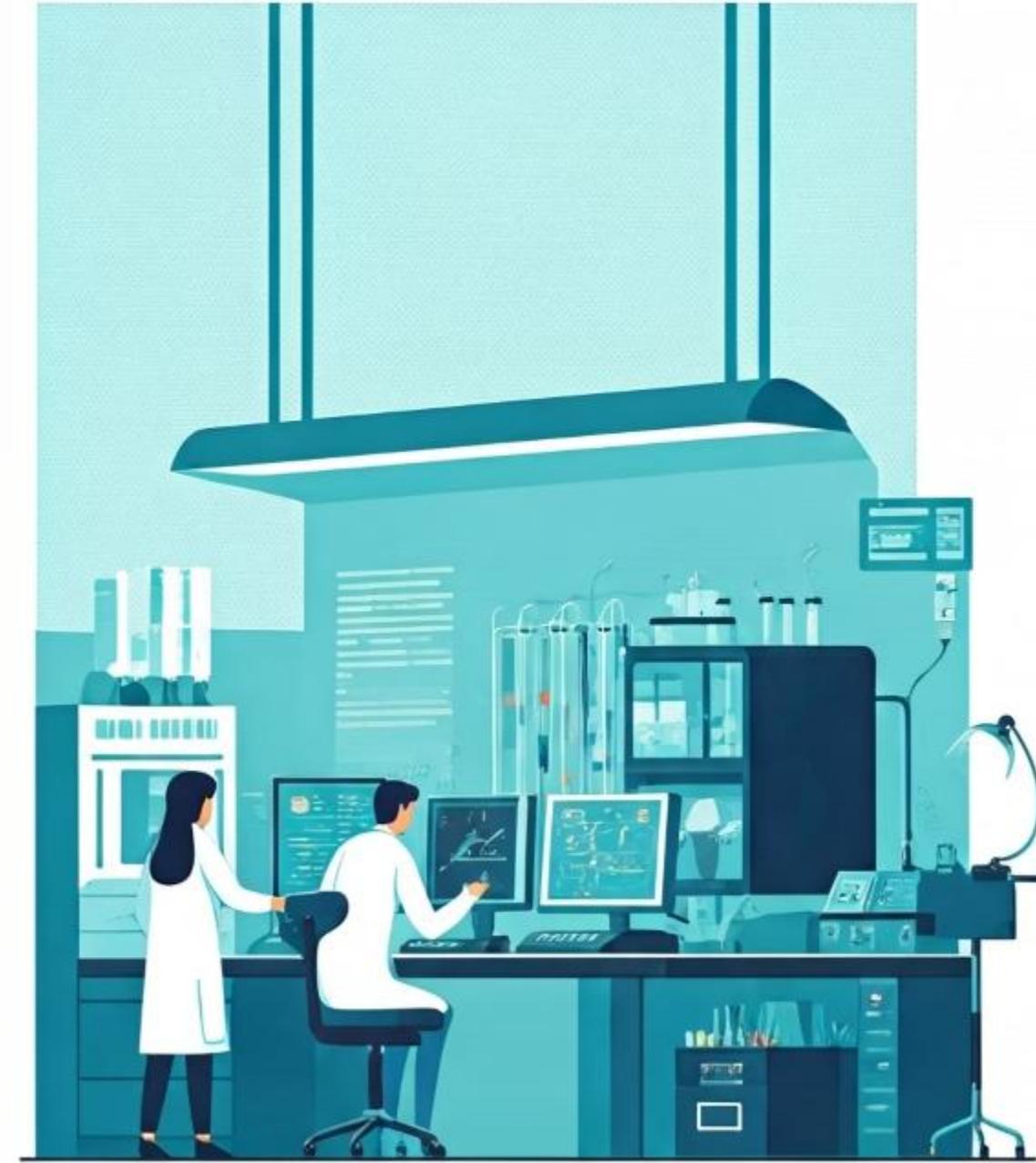
Region: **Bucharest - Ilfov**

Performance:

Final Score: **85** points

Health

5 centres of excellence in the field of health, covering drug discovery, mental health, cardiovascular diseases, neurosciences and antimicrobial resistance. The largest budget by domain – 429.5 mil. lei



Integrated multidisciplinary platform for accelerated and innovative therapeutic discovery (0088)

Purpose: *developing state-of-the-art technological platforms for two key components of modern pharmacology: immune therapies and small molecules; accelerating and optimizing drug discovery in the preclinical stage, with a transformative impact on a large number of laboratories in Romania, largely catalyzing the translation of fundamental research results into innovative chemical and biological therapies.*

Coordinator: Prof. Adrian SALIC – University of Bucharest

Partners:

- UBB - Babeş Bolyai University
- Institute of Biochemistry - Romanian Academy
- Costin D. Nenişescu Institute of Organic and Supramolecular Chemistry
- Timișoara County Emergency Clinical Hospital

Mentor: Dario Neri

Institution: Swiss Federal Institute of Technology Zurich, Switzerland



Region: **Bucharest - Ilfov**

Performance:

Final Score: **98** points

Mental health in a rapidly changing society: A multi-level approach, from genes and molecules to neural networks and psychosocial systems (0139)

Purpose: *establishing the first Romanian Mental Health Biobank, conducting large-scale multicenter studies to analyze risk factors and pathogenetic mechanisms in mental disorders at multiple levels, from genes to psychosocial systems, developing new big data analysis frameworks, and contributing to international consortia in psychiatric genetics and neuroimaging.*

Coordinator: Prof. Andrei MIU – Babeş Bolyai University

Partners:

- Transylvanian Institute of Neuroscience
- Technical University of Cluj-Napoca
- UVT - West University of Timisoara
- Costin D. Nenişescu Institute of Organic and Supramolecular Chemistry
- "Prof. Dr. Alexandru Obregia" Psychiatric Hospital
- Institute of Philosophy And Psychology "Constantin Rădulescu-Motru"
- University of Medicine and Pharmacy of Iaşi-Grigore T. Popa
- Socola Clinical Psychiatric Hospital, Iaşi



Mentor: Pim Cuijpers

Institution: University of Amsterdam, Netherlands

Region: **North - West**

Performance:

Final Score: **90** points

Center of Excellence for Advanced Translational reSEARCH in CardioVASCular and CerebroVASCular Diseases (0029)

Goal: *to increase translational research capacity in the field of cardio- and cerebrovascular diseases (CCVD), with major potential for innovation, by addressing major challenges in accurate diagnosis and therapy of CCVD and by better stratifying patients for personalized medicine.*

Coordinator: Prof. Dragoş VINEREANU – University of Medicine and Pharmacy "Carol Davila"

Partners:

- University Emergency Hospital Bucharest
- INBP - Institute of Cellular Biology and Pathology - Nicolae Simionescu
- INCDPSB - Victor Babeş National Institute of Pathology and Biomedical Sciences
- Iuliu Haţieganu University of Medicine and Pharmacy
- Institute of Mathematical Statistics and Applied Mathematics of the Romanian Academy-Gheorghe Mihoc-Caius Iacob

Mentor: Lars Wallentin

Instituție: Uppsala University Hospital, Sweden



Region: **Bucharest - Ilfov**

Performance:

Final Score: **86.5** points

Establishing the Romanian Center of Excellence in Clinical Neuroscience (0141)

Purpose: harnessing the advanced fields of neurotechnology, artificial intelligence and transcriptomics to revolutionize the management of neurological diseases, for: the discovery of specific biomarkers and effective and novel therapeutic approaches; the development of state-of-the-art models and organoids that allow understanding the dynamics and causality of regulatory interactions; the development of hardware in a biology-focused approach; the identification of the dynamics and causality of gene regulatory networks, supporting clinical, biological and engineering objectives.

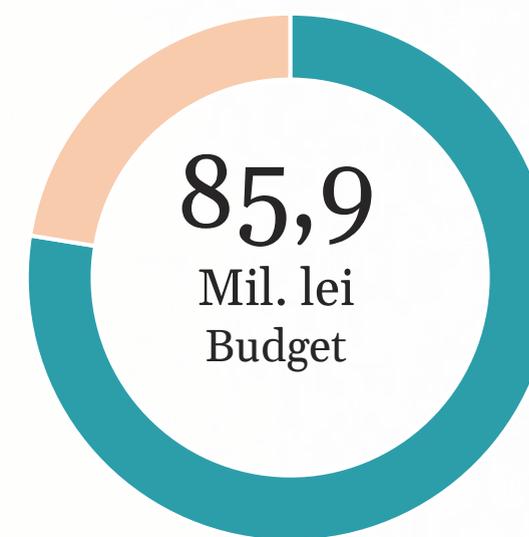
Coordinator: Prof. Roxana CĂRARE – George Emil Palade University of Medicine, Pharmacy, Science and Technology of Târgu Mureș

Partners:

- UTBv - Transilvania University of Brașov
- IVB - Victor Babeș National Institute of Pathology and Biomedical Sciences
- Iuliu Hațieganu University of Medicine and Pharmacy
- University of Medicine and Pharmacy of Iași - Grigore T. Popa
- Târgu Mureș County Emergency Clinical Hospital

Mentor: Stefano Pluchino

Institution: University of Cambridge, UK



Region: **Center**

Performance:

Final Score: **86,5** points

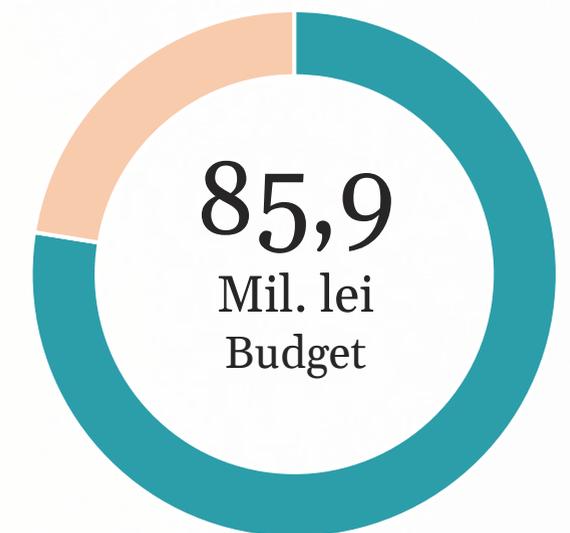
National Multidisciplinary Research Centre of Excellence for Drug-Resistant Infections (0196)

Goal: to create a dynamic platform that integrates multiple functions to address one of the top ten global health challenges: antimicrobial resistance (AMR). The Centre will introduce new antimicrobial drugs and innovative tools for rapid diagnosis of drug-resistant pathogens and antibiotic susceptibility, as well as innovative therapeutic strategies that could be adopted globally and that align with European and global research networks.

Coordinator: Prof. Mariana Carmen CHIFIRIUC – University of Bucharest

Partners:

- National Institute for Infectious Diseases “Prof. Dr. Matei Balş”
- University of Medicine and Pharmacy "Carol Davila"
- Iuliu Hațieganu University of Medicine And Pharmacy
- University of Medicine and Pharmacy of Craiova
- UBB - Babeş Bolyai University
- ICMPP - Petru Poni Institute of Macromolecular Chemistry
- Institute of Chemistry "Coriolan Drăgulescu"
- Molecular Genomics S.R.L.



Region: Bucharest - Ilfov

Mentor: Claudiu Supuran

Institution: University of Florence, Italy

Performance:

Final Score: **86,5** points

Culture, creativity and inclusive society



1 centre of excellence dedicated to digital excellence for cultural heritage, with a budget of 85.9 mil. lei

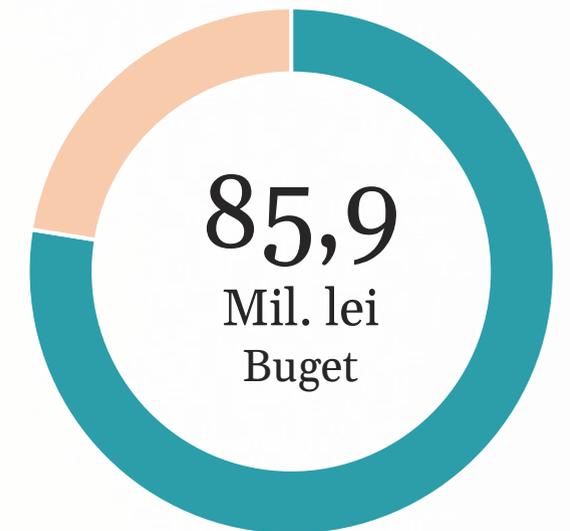
Centre of Excellence in Digital Cultural Heritage: Innovation in Digitization and Digital Investigation based on Cutting-Edge Technologies (0206)

Purpose: to investigate, preserve and promote the Romanian cultural heritage (CH) using state-of-the-art technologies. Therefore, CulTech will design and implement innovative approaches based on a revolutionary interaction between the material components of CH and their digital replicas, or Digital Twins (DT).

Coordinator: Prof. Călin NEAMȚU – Technical University of Cluj-Napoca

Partners:

- Ovidius University of Constanta
- Romanian Academy – Cluj Branch
- “Stefan Cel Mare” University of Suceava
- “Gheorghe Dima” National University of Music, Cluj-Napoca
- INCDTIM - National Institute for R&D of Isotopic and Molecular Technologies
- National History Museum of Romania
- National Museum of Transylvanian History
- Romanian Academy – Iași Branch
- Astra National Museum Complex
- National Institute of Heritage



Region: North - West

Performance:

Final Score: 89,5 points

Mentor: Martin Millett

Instituție: University of Cambridge, USA



Civil security for society

3 centres of excellence dedicated to excellence in quantum technologies, in cybersecurity and social/proactive resilience, with a total budget of almost 228.5 mil. lei

Romanian Excellence in Quantum Technologies enhancing Cybersecurity (0214)

Purpose: to advance the state of quantum computing through frontier research in classical and post-quantum cryptography and quantum technologies applied to cybersecurity. In addition, the center will implement high-impact solutions for a more secure online environment in Romania, develop protocols for the future quantum internet, create and run educational programs to reach a critical mass of researchers in the field, establish collaborations with industry, public administrations and the general population and disseminate them to them.

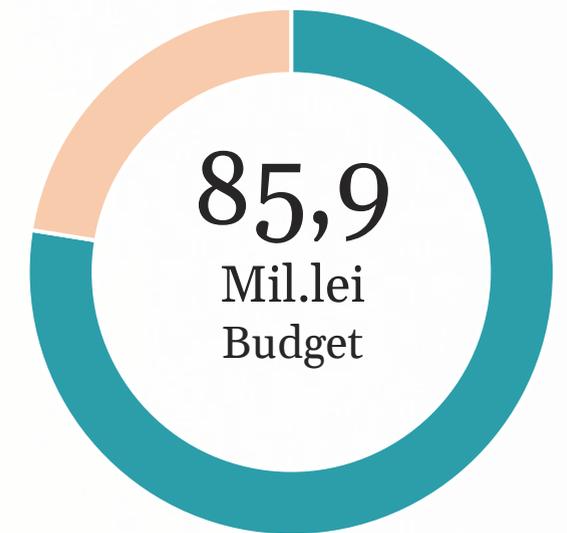
Coordinator: **Prof. Florin POP** – University Politehnica of Bucharest

Partners:

- Politehnical University Timisoara
- Gheorghe Asachi Technical University of Iași
- UTCN - Technical University of Cluj-Napoca
- UVT - West University of Timisoara
- UAIC - Alexandru Ioan Cuza University of Iasi
- University of Craiova

Mentor: Virgil D. Gligor

Institution: Carnegie Mellon University, USA



Region: **Bucharest - Ilfov**

Performance:

Final Score: **88,5** points

Enhancing Security and Societal Resilience through Excellence in Research (0084)

Purpose: *to encourage national research on terrorist threats, both non-lethal and lethal, as well as modus operandi, the link between crime and terrorism, and will promote a whole-of-society approach to developing an approach to strengthening societal resilience, which exploits the intersectionalities between the fields of expertise of the contributing universities in Romania.*

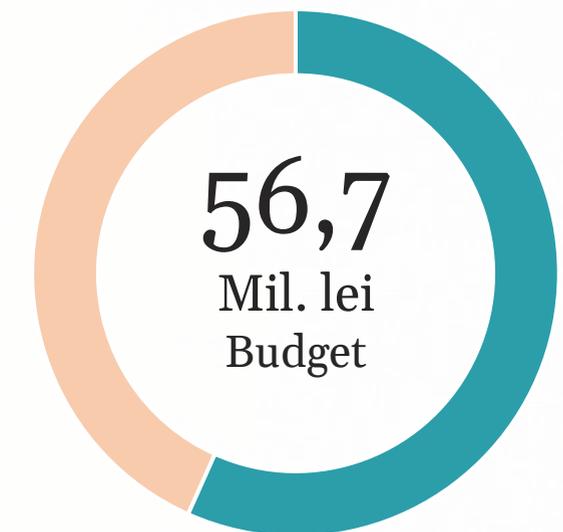
Coordinator: Prof. Irina CHIRU – “Mihai Viteazul” National Intelligence Academy

Partners:

- UBB - Babeş Bolyai University
- University of Bucharest
- “Carol I” National Defense University

Mentor: Mark Phythian

Instituție: University of Leicester, UK



Region: **Bucharest - Ilfov**

Performance:

Final Score: **87** points

Enhancing Security and Societal Resilience through Excellence in Research (0102)

Purpose: *targeting critical areas with societal impact, highlighting the complex relationship between natural and anthropogenic disasters and societal dynamics in Romania, as well as the broader implications for the European and Euro-Atlantic regions. This project will provide an avenue for in-depth actions to address the complex interplay between the evolving effects of natural and anthropogenic hazards and the subsequent increase in risks to the environment, biodiversity and communities.*

Coordinator: **Prof. Radu VĂCĂREANU** – Technical University of Civil Engineering Bucharest

Partners:

- UPT - Politehnical University Timisoara
- “Gheorghe Asachi” Technical University of Iași
- UTCN - Technical University of Cluj-Napoca
- Lucian Blaga University of Sibiu
- INCDFP – National Institute for Earth Physics
- Institute of Geography
- “Marin Drăcea” National Institute for R&D in Forestry
- INSEMEX - National Institute for R&D in Mine Safety and Protection to Explosion
- URBAN-INCERC - National Research and Development Institute for Construction, Urban Planning and Sustainable Territorial Development
- Ferdinand I Military Technical Academy
- Academy of Economic Studies
- UTBv - Transilvania University of Brașov
- INCDFM - National Institute of Materials Physics
- Emergency Clinical Hospital



Region: **Bucharest - Ilfov**

Mentor: Kyriazis Pitilakis

Institution: Aristotle University, Thessaloniki, Greece

Performance:
Final Score: **87** points