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BABEŞ-BOLYAI TUDOMÁNYEGYETEM
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Addendum to Senate Decision no. 2/20.01.2025

RDI STRATEGY 2025-2029

Excellence in RDI

Preamble

Scientific research is the pursuit, generation, advancement, and implementation of knowledge to solve theoretical problems and address practical challenges.

Scientific research is differentiated from other forms of knowledge generation in that its mission is to advance our understanding of the world (through concepts and theories) by using (and further developing) experimental, verifiable and replicable methods. In this sense, scientific research relies on a rigorous theoretical, conceptual and methodological framework, which every scientist follows. But beyond its overall mission and procedural aspects, scientific research also relies on collaborations and constant exchange, both between scientists and between scientists and non-scientists (societal actors, practitioners, end-users or policy makers). This two-way exchange is essential both for the development and validation of theories and for science to fully meet current and future societal needs. Collaboration and dialogue are fundamental both for framing theories in practice and for bringing them to maturity or developing new knowledge tailored to the real needs of society. Human interactions and collaborations are hence essential both for scientific development and for the transfer and implementation of scientific knowledge to address and overcome various societal challenges. These interactions call for the development of a culture of collaboration and mutual respect, fostering a space conducive to the exchange of ideas, co-creation and continuous learning. By doing so, science not only generates knowledge, but becomes an essential tool for shaping a more informed, and thus more resilient and sustainable, society. Among the challenges requiring the contribution of science to address societal responses are issues such as sustainability, biodiversity loss, climate change, energy transition, digital transformations, exploring the fundamental laws of nature, the complexity of language and communication, ethics and governance, public health, social cohesion, the development of innovative materials and the valorisation of natural and cultural heritage.

Scientific research can be divided into basic, applied and technology transfer and/or cognitive research.

Basic research, whether exploratory or strategically oriented, aims to advance knowledge by formulating and testing (scientific validation-rejection) or adjusting theories,

hypotheses or models of fundamental phenomena and processes, providing the theoretical basis for applied research and the development of innovations. Fundamental research draws on a broad spectrum of approaches, from classical disciplinary and interdisciplinary to trans-disciplinary, emphasizing collaborative interactions across academic disciplines, involving societal actors beyond academia, to generate scientifically sound knowledge that is both relevant and operational in practice. Basic research generates essential knowledge, translated into rules and principles, which are debated and validated mainly through scientific publications.

Applied scientific research draws on the empirical knowledge and data generated by basic research to develop products, practices or services with pragmatic or market value, translating theoretical discovery into practical solutions adapted to specific settings. This can range from the development of procedures, technologies or tools used directly by society (such as policy documents, digital platforms, applications for natural resource management, public health technologies or educational innovations), to connecting fundamental discoveries to highly complex societal challenges. In such contexts, applied research can use trans-disciplinary approaches to create innovative solutions that are relevant to society or stakeholders as well as to basic research, such as generating systemic and holistic knowledge to underpin new models and theories, leading to new procedures. The output of applied research is disseminated through publications (not always scientific), technologies, artistic performance, patents and knowledge transfer, with a direct impact on the society and the economy. Knowledge and technology transfer plays a key role in facilitating the implementation and usability of applied research.

The scientific research activity at Babeş-Bolyai University (UBB) covers three fundamental components of the Research-Development-Innovation (RDI) activity: Basic research, aimed at advancing theoretical knowledge and understanding complex phenomena, forms the basis for applied research. The latter harnesses fundamental results to develop concrete products, procedures and services adapted to societal contexts, addressing areas such as public health, education, energy transition and biodiversity conservation. Development plays a key role in turning knowledge into innovative prototypes, technologies and services, validated through publications, patents and technology transfer. Innovation not only facilitates the integration of research results into society, but also connects theoretical findings with practical solutions, helping to address local and global challenges. UBB promotes a culture of

interdisciplinary and trans-disciplinary collaboration, fostering interaction between researchers and societal actors.

This strategy builds on the UBB Strategic Plan for 2025-2029.

Context

European context

Scientific research, development and innovation are undergoing continuous growth both globally and in the European Union, with a decisive impact on economic and social development. European Commission regulations and initiatives are designed to strengthen the EU's position on the global map of innovation and scientific research. Research and innovation have proven over time to be among the most powerful European policies for boosting the Union's economy and competitiveness on a global scale. Research and innovation policy seeks to reinforce the science and technology base, promote innovation and help turn societal challenges into innovation opportunities. [1]

At the level of the European Union, through its policies,[2] initiatives and recommendations,[3][4] particular attention is given to the following issues: boosting investment in research and innovation; boosting the EU's competitiveness in the global market; cooperation, both at the macro level, between different countries/regions of Europe, and at the micro level, between research institutions, researchers, higher education institutions and industry and society; creating an innovation-friendly regulatory framework and promoting education and training of new talent. One of the EU instruments supporting collaboration between higher education institutions, research institutes and industry is the European Institute of Innovation and Technology (EIT).[5] It plays a significant role in supporting strategic partnerships to address the most pressing global challenges.

The European Union is also prioritizing the implementation of research results through start-ups and by accelerating technology transfer from universities and research centres to industry.

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[1] https://commission.europa.eu/document/download/5ac1ff20-d41e-4c10-9a05-048b7339292e_en;
[2] https://european-research-area.ec.europa.eu/policy-agenda-2022-2024;
[3] https://commission.europa.eu/document/download/97e481fd-2dc3-412d-be4c-f152a8232961_en?filename=The%20future%20of%20European%20competitiveness%20_%20A%20competitiveness%20strategy%20for%20Europe.pdf,
[4] https://op.europa.eu/en/publication-detail/-/publication/2f9fc221-86bb-11ef-a67d-01aa75ed71a1/language-en;
[5] https://eit.europa.eu/;

European policies encourage this type of transfer through innovation platforms and public-private partnerships.[6]

The Strategic Agenda for 2024-2029[7] sets out priorities for a free and democratic, strong and secure, thriving and competitive Europe, underpinning the EU's commitment to become the first climate-neutral continent, a global leader in innovation, sustainability and technology in order to respond to global challenges and create opportunities for economic and social development.

Through its *Digital Agenda,*[8] the European Union intends to become a global leader in digital transformation. The Strategy includes specific measures to support research in artificial intelligence, the Internet of Things (IoT), high-performance computing and cybersecurity, to address global challenges and support the global competitiveness of Europe.

Implementation of European policies on scientific research, development and innovation is actively supported through targeted funding programmes. Currently, the main funding programme for scientific research and innovation is Horizon Europe 2021-2027.[9] It addresses climate change, helps achieve the UN's sustainable development goals and boosts EU competitiveness and growth. The programme facilitates collaboration and reinforces the impact of research and innovation in developing, supporting and implementing EU policies while addressing global challenges. It supports the generation and wider dissemination of world-class knowledge and technologies. The programme supports: (1) excellence in scientific research, by funding cutting-edge research and investing in research infrastructure; (2) research tackling societal challenges, reinforcing technological and industrial capability through clusters (health; culture, creativity and inclusive society; civil security for society; digital development, industry and space; climate, energy, mobility; food, bio-economy, natural resources, agriculture and environment); (3) developing the European innovation landscape through the European Institute of Innovation and Technology - EIT.

[6] https://eit.europa.eu/news-events/news/eit-knowledge-and-innovation-communities-kics-receive-positive-reviews;
[7] https://www.consilium.europa.eu/media/yxrc05pz/sn02167en24_web.pdf,
[8] https://commission.europa.eu/document/download/70703206-2592-4175-b10d-12f97382094a_en?filename=C_2022_4388_1_EN_ACT;
[9] https://research-and-innovation.ec.europa.eu/funding/funding-opportunities/funding-programmes-and-open-calls/horizon-europe_en;

National context

Research, development and innovation activities are crucial for Romania, being an engine of economic, social and cultural development as well as a driver of Romania's integration into international knowledge networks.

For Horizon 2030, the Ministry of Research, Innovation and Digitalization, as the coordinator of the research-innovation and smart specialisation policy in Romania, has formulated its vision regarding the research-innovation system: "Romania develops, harnesses and connects excellence to the scientific frontier and societal challenges."[10] The strategic objectives undertaken by the National Strategy for Research, Innovation and Smart Specialisation 2022-2027 (SNCISI), are in line with European policies, recommendations and initiatives, as Romania has expressed its commitment to acknowledge and support excellence, to reward performance, to stimulate the public-private collaboration. Thus, at national level, two types of topical priorities have been outlined within the Strategic Research Agenda: one oriented towards societal challenges and the other towards national areas of smart specialisation - aimed at establishing a competitive advantage. The aim is thus - on the one hand - to connect research and innovation activities with major societal challenges: demographic change, climate change, social well-being and inclusion, health, food security, green energy, digitalization, technological change, etc., and on the other hand - to develop and connect research and innovation core strengths with business sector demands, generating a competitive advantage. The areas that reflect the national potential in terms of resources, infrastructure, scientific expertise and innovation capacity are grouped into the following 7 areas of smart specialisation: bio-economy; digital economy and space technologies; energy and mobility; advanced manufacture; advanced functional materials; environment and eco-technologies and, last but not least, health - prevention, advanced diagnostics and treatment. The main instrument for the implementation of SNCISI is the National Plan for Research, Development and Innovation 2022-2027 (PNCDI IV). It is organised into ten programmes and several sub-programmes.

[10] https://www.mcid.gov.ro/programe-nationale/strategia-nationala-de-cercetare-inovare-si-specializare-inteligenta-2022-2027/;

Through SNCISI and PNCDI IV, core research is also being supported, as it is regarded as a "horizontal, priority activity of interest, including for the topical priorities."

In order to support research, education and innovation in the field of AI, the *National Strategy on Artificial Intelligence 2024-2027*[11] was adopted, with the main objective to "contribute to adopting digital technologies in the economy and society in a manner that supports human rights and promotes excellence and confidence in AI." The general objectives set by the SNAI are as follows: supporting education for RDI and the training of AI-specific skills; developing and effectively deploying infrastructure and datasets; developing the national system of Research - Development - Innovation in the field of AI; ensuring technology transfer through partnerships; facilitating the adoption of AI throughout society; developing a system for the governance and regulation of AI.

In order to develop and implement advanced quantum technologies to support national innovation, economic competitiveness and scientific advancement, the *National Quantum Communications Strategy*[12] was adopted. It states that "Romania seeks to become a regional hub of excellence in the development of applications for quantum technologies." The four quantum technology areas are: quantum computing, quantum communications, quantum sensing and metrology and quantum cryptography.

Finally, we note that from 2025, according to the new structure of the Romanian Government, the Ministry of Research falls under the Ministry of Education (in the newly established Ministry of Education and Research) and this merger presents new opportunities/advantages through the integrated management of the two sectors.

[11] https://www.mcid.gov.ro/programe-nationale/strategia-nationala-in-domeniul-inteligentei-artificiale-2024-2027/#;
[12] https://www.mcid.gov.ro/programe-nationale/strategia-nationala-in-domeniul-tehnologiilor-cuantice-2024-2029-2/;

SWOT analysis

Strengths	Weaknesses
• World-class university according to the QS STAR international audit: it centres its academic activity around knowledge generation through RDI that supports a collaborative education with students and society and maintains a high-quality and innovative relationship with the environment; • The multicultural profile of the university secures the development of scientific connections with the scientific community in countries such as Hungary, Austria, Germany • Membership in international networks/associations (most relevant are The Guild consortium and the European Eutopia alliance); • The *HR Excellence in Research* award validating the commitment to high standards in research; • UBB's commitment to excellence, reflected in the top-notch academic infrastructure, which has been further developed through new investments (buildings and equipment); • The trans-disciplinary approach is developing, with initiatives integrating perspectives from different fields to	• The inter- and trans-disciplinary cooperation between UBB's constituent units is low, limiting integrative research. • The relatively small number of researchers and research assistants employed on permanent contracts; • A lack of effective promotion of research results to the general public, public administration and stakeholders; • The transition to Open Science (OS) is slow. The *Open Data, Open Science, Citizen Science* concepts are not very present, known, understood in the UBB scientific community; • Low number of European doctorates; • Low involvement of citizens in science; • The number of socio-cultural programmes/projects for or in collaboration with the public is still quite low; • Technology and knowledge transfer is insufficiently developed, which limits the impact of research on society and economy; • Research infrastructure maintenance staff (support staff: engineers, technicians) is still understaffed and requires updated professional training;

understand and address complex challenges in society and the environment; • It preserves the vocational character of the study of performing and audiovisual arts that combines artistic practice with fundamental research, inclusive of the professional doctoral level; • The existence of an excellent infrastructure for facilitating science on the cultural and social axis, which UBB offers to the general public (Museums, Botanical Garden, Iuliu Haţieganu Sports Park, etc.) • A well-trained human resource, which is reflected in the outputs of the members of the academic community (e.g. researchers who are in the top 2% of the world's researchers in all fields of science or in their sub-field of expertise); • It hosts the National Office of the European Institute of Innovation and Technology (EIT) and the UNESCO Chair on Climate Change Resilience and Sustainability; • University-run programmes fostering excellence; • 85 research units, of which 24 are units of excellence; • The first Romanian science-with-citizens platform fostering public involvement in research;	• Overly bureaucratic national administrative system in terms of the operational readiness of the administration and/or implementation of scientific research projects; support personnel for the administrative implementation of research projects is understaffed;

• Innovation units co-created with major socio-economic actors; • Structures and regulations are in place to ensure transparency in the implementation of ethical principles, public accountability and responsibility, and academic integrity; • Developing investments and stimulating research in the Bio-Medical area (through the UBB Med-School of Health); • Connecting the University to international structures and alliances;	
Opportunities	**Limitations**
• Having a joint ministry (for education and research) • Trans-disciplinarity as an emerging opportunity for integrating knowledge from different fields; • Ability to recruit international talent; • Having a network of researchers (employees, associates, collaborators) within the STAR UBB Institute network is as much an opportunity to develop collaborations with international institutions as to recruit highly qualified human resources from abroad; • To support strategic partnerships at EU level through the European Institute of Innovation and Technology in order to address the most pressing global challenges;	• Unfavourable developments in the legislative framework; • International geopolitical situation; • Foreign actions targeting cyber security; • Economic imbalance driven by political instability; • Chronic under-funding of research in Romania; • The persisting weak culture of collaboration within the UBB community, which may translate into difficulties in aligning with the overall UBB vision or even in the inability to develop a vision at faculty and department level. • Potential imbalances of power which may hinder the expression and reinforcement of academic excellence at the level of local working groups (departments,

• Availability of innovation platforms and public-private partnerships to generate start-ups and accelerate technology transfer from universities and research centres to industry; • Availability of international and national funding schemes; • EU-wide support for cutting-edge research and investment in research infrastructure; • EU-wide technological and industrial upgrading through clusters; • Public policies to encourage technology transfer; • Encouraging investment in digital platforms; • IT and AI sector development;	faculties) and may generate tensions or individual demotivation.

Vision. Mission

RDI vision for UBB in 2030

As a world-class university, UBB is a European hub for research-development-innovation, promoting the development and advancement of science and culture, as well as its transfer to society.

As a world-class university, UBB has established itself as a European and global hub for Research, Development and Innovation (RDI), integrating academic excellence and addressing the ever more complex societal challenges through innovative collaborations that connect science, culture and society. Moreover, in the face of the present climate where pseudo-scientific and non-scientific approaches have increasingly gained a foothold in society, and the degree of uncertainty and confusion remains high, universities (and UBB should champion such actions) must offer an alternative vision, based on reliable knowledge, hard evidence, logical thinking, rational debate and good faith to address complex societal problems.

Mission

Through its RDI activity (permanently in touch with the major international issues/challenges and with local/regional/national priorities), UBB generates knowledge and excellence, thereby contributing to scientific progress, offering innovative solutions to scientific/technical/social challenges and delivering outstanding cultural and artistic approaches/achievements or sports performances.

Values

- Tradition
- Excellence
- Freedom of thought
- Accountability
- Cooperation
- Trust
- Openness
- Diversity

Strategic priorities

1. Maintaining and increasing UBB's competitive advantage at the national level, in the broadest possible range of fields; Strengthening UBB's international competitiveness in areas where UBB has top research outputs

UBB seeks to gain a competitive advantage at a regional and international level, focusing on a few key sectors where it already holds a strong reputation in international scientific research (researchers in the top 2% of the world's most cited scientists), as well as on opening up to multi- and multidisciplinary topics and fields of current and future-oriented interest, such as bio-medical, bio-informatics, cybersecurity, quantum technologies, climate change, renewable energies, digital humanities, data science, among others. The objective is for UBB to consolidate its position as the leading university in Romania in terms of educational and research excellence, and the services offered to the academic community and society in general, while securing its attractiveness and competitiveness at European and international level. Building on a tradition of excellence in research, UBB consistently ranks first in national rankings and seeks to build on this experience to develop and expand its scientific and cultural-artistic achievements in new directions, such as innovation and technology transfer, as well as service for the community and society. These initiatives will be tried out and endorsed in international competitions, taking advantage of the multidisciplinary framework created by the establishment of UBB's academic schools and by applying development models in the STEM+/STEAM paradigm.

2. UBB-500

It is an important pillar in realizing the vision adopted at the university level, that UBB is establishing and developing in the world-class league as a European research-intensive university, which will contribute to attracting (national and international) students, valuable human resources and additional financial resources.

3. Turning UBB into a platform for attracting high profile Romanian and international academics and researchers, either from the country, or from abroad.

To this end, UBB will strongly encourage both the reintegration of top Romanian researchers from abroad (through national programmes or through its own programmes and initiatives, e.g. the STAR-UBB Institute, the associate researchers programme, the visiting

fellows programme) and a policy of recruiting/employing the best researchers from Romania and abroad through national and/or international programmes or through its own programmes and initiatives, e.g. STAR-UBB Institute, the C9-I8 programme of the PNRR or the collaborating researchers programme.

4. UBB as a benchmark of excellence for international research projects

UBB seeks to establish itself as a leading academic benchmark for attracting and implementing research projects funded by national and international programmes of excellence, such as those managed by the Ministry of Education and Research, UEFISCDI at national level or prestigious international initiatives such as ERC and other projects within the Horizon Europe programme, EEA & Norway Grants etc., reinforcing its position as a reliable academic partner at global level. In this respect, UBB already features a developed institutional framework, which facilitates the drafting and submission of applications, the organisation of workshops with international experts and the establishment of an in-house fund to cover the initial application costs.

5. To provide the framework in which the UBB's RDI activity, following the example of the world's competitive research-oriented universities, can underpin all other core academic activities: innovative teaching and specialist services to society and the community.

As a world-class university, UBB pursues not to limit itself to simply passing on and applying the knowledge produced by other researchers, but will continue to place emphasis on the creation or co-creation of knowledge through academic action, subject to circumstances and possibilities. This approach turns UBB education into an interactive and open process and develops an innovative relationship with society. UBB will continue to promote and encourage innovative methods, platforms and initiatives that support both the educational process and applied scientific research, technology transfer and the provision of innovative services to society. These initiatives comprise among others UBB's new higher education pedagogy, the UBB-EON XR platform, involvement in European networks such as the European Institute of Innovation and Technology (EIT Digital and EIT Health), the InfoBioNano4Health platform, the INSPIRE platform, and other strategic projects.

6. Raise UBB's profile as an active player in national and European culture and civilisation, through valuable scientific, cultural and artistic contributions.

To this end, efforts at institutional level will focus on supporting teachers and researchers in getting their scientific, cultural and artistic outputs/creations started and exploited on a competitive international market and to further implement the principles of the Humanist Manifesto.

7. UBB's contribution to the overall European effort towards: (a) a smarter Europe (through research and innovation for its citizens - Citizen Engagement); (b) a greener Europe (renewable energies, combating climate change, public health); (c) a more connected Europe (through strategic secure digital networks - Cloud, Quantum Computing & Communication); (d) a more united Europe (development of scientific actions and activities within the EUTOPIA European Alliance, The Guild consortium, the Danube Universities Network DRC, 3SeasUniversitiesNetwork 3-SUN, etc.)

From this point of view, the development and strengthening of prestigious international scientific collaborations (partner universities in alliances and consortia where UBB is a member, top 500 universities, top research institutes in Europe, America or Asia, other partners from the socio-economic/ cultural-artistic/ sports environment) are strategic approaches for the forthcoming period.

Strategic objectives

Strategic Objective 1 - To support and develop RDI activity in both traditional subject areas and inter/trans-disciplinary ones

Specific objective 1.1 - Boosting the scientific performance of the academic community

Establishing strategic research areas, involving multi-, inter- and trans-disciplinary components, that can provide a competitive advantage to UBB (including the recruitment of international students and top national and international teaching/research staff), at home and abroad, and publications of high impact, such as Nature and Science or Q1 WoS or Scopus publications. Continuity and reinforcement of the priority areas identified in previous periods, with emphasis on underpinning the InfoBioNano4Health concept, as well as other smart specialisation directions (e.g. Bioeconomy, Health, Bioconservation, Information and Communication Technology, Energy Resources, Climate Change Solutions), resulting from the National Strategy for Research, Innovation and Smart Specialisation 2022-2027 (including the

Smart Specialisation Strategy N-W 2021-2027), including both fundamental and applied research:

- Natural and engineered nanostructured systems; processes and (bio)technologies at different scales from molecular to macro level (including advanced materials); bioinformatics; health (in a comprehensive sense: public, mental, environmental, etc.);
- Virtual/augmented reality, artificial intelligence, cybersecurity, blockchain, quantum technologies and communications, high performance computing, data science;
- Bio-medical field: high field magnetic resonance spectroscopy and imaging, cognitive neurosciences, including brain studies with major clinical and preclinical theoretical and applied implications, using the INSPIRE infrastructure, innovative chemical and biological products, concepts, methods and technologies with applications in health sciences, lifestyle medicine, in close alignment with the development of the recently established National Competence Centre for Healthy Lifestyle, the development of personalised targeted therapies for oncological and other chronic non-communicable diseases and molecular diagnostic services for rare genetic diseases, viral diseases and various chronic diseases, in close alignment with the development of UBBMed.
- Sustainable development: natural resources, economic, social and ecological development, development and implementation of technologies and methods for decarbonisation of polluting industrial processes in order to reduce greenhouse gas emissions and achieve climate neutrality;
- Quality of life and environment; climate change, using ACTRIS infrastructure;
- Social human values and behaviours by applying the principles of the Humanist Manifesto;
- Integration through a humanist culture and valorisation of the religious tradition;
- Overall, the research directions of the research units internally accredited for excellence at UBB.

UBB is a comprehensive university, rewarding academic contributions at all levels - research, education, service to society/community, administration - through annual awards (e.g. prizes for scientific excellence, teaching excellence, relationship with society, excellence in administration) and public endorsement of its outstanding personnel. In this line, another measure aimed at boosting scientific performance is the implementation of a start-up grant

scheme, modelled on SEED grants, for new employees with outstanding results - possibly starting with a 2-3-year trial period (e.g. for the head-hunting category), while for tenured employees, SEED grants should remain a general, but more administratively efficient funding instrument.

A key component of the academic community are students, at all levels of study, and postdoctoral fellows. In their training towards research performance, mentorship programmes may be established within research units and faculties, and their inclusion in research unit projects and research teams is strongly encouraged. Special scholarships granted to university students for research activity should also be continued.

Directions for action:

- Facilitating the research activity of teachers with outstanding/exceptional performance in research-innovation, e.g. by keeping teaching hours to a minimum;
- Providing grants, awards for outstanding RDI activity;
- Providing unrestricted online access to specialised literature
- Organising workshops around academic writing, grant/project writing;
- Recruiting leading national and international scientists in parallel with increasing the number and securing the tenure/retention of RDI staff, including experts and research project managers;
- Confirmation of the European Commission's *Human Resources Award for Excellence*.
- Development of a teaching/learning system based on research-based learning and guided research in all academic sectors of UBB (including distance education and continuing education by employing modern teaching/learning technologies, e.g. EON-XR); UBB should actively support the inclusion in the university curriculum of courses based on recent/ongoing RDI projects. (Faculties may follow this up, through their curriculum/research vice-deans, on an annual basis). Rewarding teachers who develop such "research training" courses.
- Implementation of modern administrative systems within UBB in order to position it as a world-class university; Redesigning the UBB administration accordingly, using institutional and national expertise in the field, so that academic performance is stimulated by the administrative component;

- Identifying multi-, inter- and cross-disciplinary fields with significant potential

contributions to enhancing UBB's international/national competitiveness, using the collaborative framework provided by the UBB Academic Schools.

- Continuation and improvement of the in-house award scheme for internationally and nationally acknowledged results through publication in scientific journals or reputable publishers. Establishing awards (on a competitive basis) for artistic and cultural creation and outstanding sports achievements.
- Encouraging UBB scientific publications that contribute to internationalisation and to the emergence/development of internationally competitive schools of science, by maintaining the UBB programme of supporting its own WoS indexed or listed publications.
- Further developing the Presa Universitară Clujeană (PUC) publishing house to become a leading publishing house for Romanian academic publications, following the western model of university publishing (with titles accessible in national/international book stores and libraries, in relevant online systems, etc.).
- Further encouraging the employment of researchers on a fixed-term basis, funded by extra-budgetary resources obtained from own grants or other sources;
- Implementation of the Code of Ethics and monitoring mechanisms in the RDI activity;
- Reducing bureaucracy and streamlining the administration through continuous upgrading and further training of administrative staff and by extending the criteria of assessment in terms of efficiency and professionalism of administrative staff supporting the RDI activity.
- Ensuring the quality of research activity by specialist technical staff: laboratory technicians, research engineers. Selection and development of human resources in the technical field or outsourcing to technical firms.

Specific objective 1.2 - Developing infrastructure to support scientific performance

Providing a high-performance research infrastructure at international level, enabling cutting-edge research with outputs that can be disseminated in high-impact contexts (e.g. Nature, Science etc.) are a priority at institutional level. It is also important to organise the RDI units within the University as high-performance research environments (including the development of start-ups, spin-offs, business incubators, etc.) or as development-innovation centres through technology transfer or services to

the community/society, while avoiding excessive bureaucracy and the overlapping of responsibilities. The scientific programmes of UBB RDI units will be promoted in the STEM+ paradigm *(Science, Technology, Engineering, Mathematics*, with a cross-cutting social humanistic dimension) together with other disciplinary, multi/inter/trans-disciplinary developments, with an influence on the educational components as well as on the relationship with society. In order to support the rUBB platform, a key role will be played by projects at institutional level submitted to national/European RDI calls for proposals for the funding of research infrastructures. The strategic research infrastructure will also be supported from budgetary/extra-budgetary funds, by setting up a dedicated fund at institutional level (institute/faculty/academic school/university). In addition, strategic research units, services and infrastructure will be enrolled and permanently updated in the EERTIS - Engage in the European Research and Technology Infrastructures System - European platform, which allows for a better alignment of research infrastructures with the organisational structure and an increased international visibility.

Directions for action:

- Level and matrix based organisation of the UBB RDI units; by *level based organisation* we refer to organisation in: (1) research laboratories/collectives; (2) research centres (which must include one or more laboratories); and (3) research institutes (which incorporate one or more research centres); by *matrix based organisation* we refer to the establishment of strategic research institutes at UBB level, which will integrate across disciplines several research centres and the resources of the 23 faculties within UBB;
- Internal, national and/or international accreditation of the RDI units within UBB;
- Emphasising in EERTIS the strategic infrastructure of UBB;
- Establishment of strategic RDI units for UBB, to be funded directly from UBB extra-budgetary resources (e.g. through sponsorships);
- Development, with the support of CMTTC, of start-ups, spin-offs and business incubators, including their internal regulations (e.g. ownership), which can creatively and efficiently use UBB's innovative ideas from a financial perspective;
- Implementation of innovative projects;

- Accessing non-refundable funds to develop infrastructure and support scientific performance;
- Supporting, through maintenance services, RDI units and strategic research infrastructure: dedicated maintenance staff and maintenance protocols;
- Training of experts/managers in research and in writing major institutional projects in the EU research funding framework programmes, but also in structural funds by using the framework provided by the Support Centre 2020 - UBB;

Specific objective 1.3 - Research evaluation guided by CoARA principles

The general principles underlying any research assessment process are: the principle of relevance to science and society; principle of competitiveness and principle of transparency. In the process of scientific research, development and innovation and in any academic evaluation conducted at UBB, the emphasis on endorsing and prioritising scientific research results (verifiable, publicly accessible and applicable to society) from the main stream of scientific information available at international level. The specificity of the publications will be differentiated according to the field, respecting the nationally specific fields as defined in several normative acts. The UBB Scientific Council is responsible for the analysis of the differentiations, so as to preserve the international criteria specific to each field, with the adaptation of the indicators to the UBB potential and specificity. 'Predatory' and 'vanity' publication in journals, publishing houses and conferences will be discouraged. UBB teachers and researchers will be advised to refer to lists of publishers and/or journals with potential ethical issues (as reviewed by the UBB Scientific Council drawing on international practice), as these will not be considered in internal evaluation proceedings. Setting research performance indicators, criteria and evaluation tools broken down by stages of development in line with the best set of international standards is also required. Closely related to the quality and number of scientific publications, participation in scientific events (organised in the country and abroad) is encouraged and actively supported as they are included in the evaluation criteria. The specificity of the publications will be differentiated according to the field, respecting the nationally specific fields as defined in several normative acts. The UBB Scientific Council is responsible for the analysis of the differentiations, so as to preserve the international criteria specific to each field, with the adaptation of the indicators to the UBB potential and specificity. Regular

performance evaluation of teaching and research staff is carried out within the framework of the Individual Academic Career Plan every three years, and for the existing research units - every 4 years. The consolidation of UBB's research units of excellence is also monitored, according to performance indicators established in consultation with specialists in the main research fields pursued at UBB. The impact of the RDI activity outputs will be analysed on a multilevel, comprehensive approach, operationalised in terms of: research impact, educational impact and practical impact, respectively.

Directions for action:

- Analysis of the evaluation criteria/tools/processes in use at UBB;
- Development of new criteria/tools/processes/methods for research evaluation in line with CoARA principles and commitments (or revise/improve existing ones);
- Develop tools and services for the transparent collection and processing of data on research evaluation practices;
- Develop a guide on the new criteria/indicators/processes and how to implement them and disseminate it to the academic community;
- Implementation of new research evaluation processes, criteria and tools.

Specific objective 1.4 - Development of doctoral schools and post-doctoral studies

At Babeș-Bolyai University, the European Doctorate is both encouraged and supported as a mechanism for internationalisation and quality assurance of doctoral studies, which integrates research more strongly into doctoral studies.

Developing post-doctoral programmes for young researchers in order to identify top human resources for research and artistic work.

Directions for action:

- Development of the European Doctorate - through more effective outreach, recruitment and sourcing of funding/support;
- Increasing the number of joint doctorates (both within EUTOPIA and with other high-profile academic partners);
- Increasing the number of Postdoctoral Programmes and postdoctoral researchers, through externally funded programmes and in-house resources;

– Increasing the number of doctoral supervisors/teachers or researchers holding the habilitation certificate.

Strategic objective 2 - Making the Transition to Open Science

Specific objective 2.1 - Organisation of administrative resources for the transition to Open Science (OS)

Advocating and implementing the *Open Science* concept, focusing on its two main components: unrestricted access to publications and to scientific information (open data/data management). Involving UBB researchers in the Open Science Approach holds significant prospects for boosting the research output impact along three dimensions: many of the recently developed (and highly topical/impact) research areas/topics use Open Science, Open Data, Citizen Science; the transparent character can provide an additional incentive for competitiveness against the background of easier/direct/effective engagement with competitors in the field; access to research output is easier for the specialist as well as the general public where applicable. Open Data, Open Science, Citizen Science concepts are unfortunately very little present, known or understood in the UBB scientific community. A dedicated information and consultancy campaign could be beneficial. The expertise acquired by the CMCȘ will be used as a reference point for consultancy, coordination/logistical support of information campaigns or other related activities. A multi-level network is planned in order to streamline the dissemination of Open Science information, including both the 23 faculties and the research institutes/centres. Also, in order to manage open research data, UBB repositories will be implemented, handled through the Open Science Office (established in 2024). To engage citizens in science, the Science with Citizens Platform was launched in 2024 which will be promoted and developed to bring together more projects conducted by both the UBB academic community and researchers from other higher education institutions/research centres in the country.

Directions for action:

- Establishment of a multi-level network within UBB;
- Implementation of UBB repositories, handled through the Open Science Office;
- Stocking the new UBB repositories with publications and datasets;

- Promotion and development of the Science with Citizens Platform;
- Holding awareness, training, and debate events.

Specific objective 2.2 - Dissemination of science within the UBB community and beyond

There is growing discussion on the extent to which the interests of universities and society remain similar in areas such as funding, curriculum structure or research priorities. UBB focuses on offering innovative and cultural services to society and the community, so that it can be the first to benefit from scientific knowledge, thus generating a knowledge-based society, an advanced civilization with a high standard of living. These services should not be perfunctory or commonplace, but innovative, advanced, based on the latest scientific research and/or cultural/artistic creation in the field, so as to be consistent with our medium- and long-term vision of UBB: a world-class, research-intensive university with sustained entrepreneurial developments, generating economic growth and technological innovation. The service units in the UBB departments and RDI units (1) connect UBB with the community, the latter having access to cutting-edge cultural services and creations at affordable prices; (2) attract financial resources; and (3) provide UBB students with research- and creation-oriented traineeship arrangements and opportunities. Last but not least, services can be provided as part of lifelong learning and continuing education through postgraduate or open courses. The UBB Centre for Technology and Cognitive Management and Transfer is responsible for the effective implementation of innovative services to society and the community.

Directions for action:

- Dissemination of scientific events organised by UBB;
- Conducting science popularization activities.

Monitoring and assessment

The monitoring and assessment of progress towards the objectives set out in this strategy will be based on the responsibilities and deadlines set out in Addendum 1. The monitoring and assessment activity will be carried out by the Directorate for Scientific

Research Management (DMCȘ) with the support of the Scientific Council (SC) supervised by the line vice-rector.

Funding

The implementation of this strategy will be funded from domestic budgetary sources, external non-refundable funding (EU instruments and other programmes/instruments), private national or international funds, services for the community, extra-budgetary resources of the University, as well as other sources of funding identified during the implementation of the strategy, in compliance with the legal regulations in force.

In order to ensure the equipment operation and the continuity of research undertaken through grants, according to the current UBB provisions 40% of the value of these grants is returned to the research groups directly or indirectly through the administrative units they belong to. These provisions are not only further underpinned by the present strategy, but are also being extended to contracts with the socio-economic environment.

In accordance with the provisions of the UBB Charter, funding will be allocated as a priority to the top-performing departments and structures of UBB, in relation to their contribution to obtaining these funds. These allocations aim to improve the academic quality of teaching, learning and research. The allocation of budget funding is based on the quality criteria and standards used in the ranking of universities and the ranking of degree programmes established by the CNFIS and approved by the line ministry as well as those set out in the university's institutional budget funding contract.