

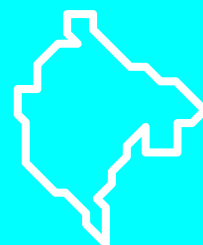
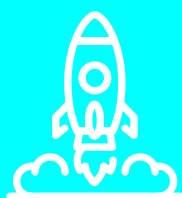


Ministry of  
Education, Science  
and Innovation

# STRATEGY

for Scientific Research Activity  
of Montenegro

2024 - 2028





Ministry of  
Education, Science  
and Innovation

# **STRATEGY FOR SCIENTIFIC RESEARCH ACTIVITY OF MONTENEGRO 2024-2028**

Podgorica, July 2024

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## THE LIST OF ABBREVIATIONS

**AI** - Artificial intelligence

**AR/VR** - Augmented and Virtual reality

**AUF** - Agence universitaire de la Francophonie

**BEST** - "Building an Effective Sustainable and Transformational Public Sector (BEST-Public Sector) in Montenegro" Programme

**CERN** - European Organization for Nuclear Research

**CinMED** - Institute for Medicine and Medical Devices

**CO<sub>2</sub>** - Carbon dioxide

**COST** - European Cooperation in Science and Technology

**COVID** - Coronavirus pandemic

**DG JRC** - Directorate-General Joint Research Centre

**Digital Europe** – Digital Europe Programme

**EC** - European Commission

**EDIH** - European Digital Innovation Hubs

**EIS** - European Innovation Scoreboard

**EMBL** - European Molecular Biology Laboratory

**EMBO** - European Molecular Biology Organization

**ERA** - European Research Area

**EU** - European Union

**ERIC** - European Research Infrastructure Consortium

**EUREKA** - European network for financing market-oriented R&D projects

**EURF** - EU Reform Facility

**EUROSTAT** - Statistical office of the European Union, responsible for publishing high-quality Europe-wide statistics and indicators

**EUSAIR** – EU Strategy for the Adriatic and Ionian Region

**EUSDR** - EU Strategy for Danube Region

**FTE** - Full-time equivalent

**GDP** - Gross domestic product

**GII** - Global Innovation Index

**HE** - Horizon Europe

**HORIZON 2020** - EU Framework Programme for Research and Innovation "Horizon 2020" 2014-2020

**HORIZON EUROPE** - EU Framework Programme for Research and Innovation „Horizon Europe" 2021-2027

**IAEA** - International Atomic Energy Agency

**ICT** - Information and communication technology

**IICGEB** - International Center for Genetic Engineering and Biotechnology

**IoT** - Internet of Things

**IPA** - Instrument for Pre-Accession Assistance

**IPC "Tehnopolis"** - Innovation-entrepreneurial center "Tehnopolis"

**IT** - Information technology

**MED** - Ministry of Economic Development

**MEDT** - Ministry of Economic Development and Tourism

**MESCS** - Ministry of Education, Science, Culture and Sports

**NECP** - National Energy and Climate Plan

**MESI** - Ministry of Education, Science and Innovation

**MF** - Ministry of Finance

**MNE** - Montenegro

**MONSTAT** - Statistical Office of Montenegro

**MPA** - Ministry of Public Administration

**MSTD** - Ministry of Science and Technological Development

**NCP** - National Contact Points

**NGO** - Non-governmental organisation

**OECD** - Organisation for Economic Co-operation and Development

**R&D** - Research and Development

**SCIENTIFIC NETWORK** - Information system of the provision of data on scientists and researchers from Montenegro and Diaspora

**SDS** - Sustainable Development Strategy International Group

**SEEIIST** - Southeast European International Institute for Sustainable Technologies

**SME** - Small and Medium-sized Enterprises

**SOPEES** - Sectoral Operational Programme for Employment, Education and Social policies 2015-2017

**SR** - Scientific Research

**STEM** - Science, Technology, Engineering, Mathematics

**S3** - Smart Specialisation Strategy

**SDG** - Sustainable Development Goals

**STP MNE** - Science and Technology Park of Montenegro

**SWOT** - Analysis of the internal and external factors

**TTO** - Technological Transfer Office

**UA** - University Adriatic

**UoM** - University of Montenegro

**UDG** - University of Donja Gorica

**UM** - University of Mediterranean

**UNESCO** - United Nations Educational, Scientific and Cultural Organization

**VAT** - Value Added Tax

**WB** - Western Balkans

**WIPO** - World Intellectual Property Organisation

# I INTRODUCTION

The Strategy for Scientific Research Activity of Montenegro is the most significant sectoral strategic document in the field of science and research. Its enactment aims to determine priorities, stimulate and track development of the scientific research activities<sup>1</sup>.

The previous cycle of this public policy was concluded in 2021<sup>2</sup>, and the preparation of the new strategic cycle has required in-depth analyses and a new approach. Primarily, in the last four years, Montenegro, as well as the rest of the world, has come face to face with the consequences of numerous subsequent crises and demanded a quick reaction and new plans that will reinforce the entire system, its resilience and adaptability to rapid changes. The scientific research has a specific role in the said context because the economies that are able to capitalise on the knowledge and scientific research and apply them in practice, offering new solutions, are those that show the greatest resilience. Additionally, on the path of numerous scientific research activity systems and searching for development directions for the future period, it has become clear that a comprehensive change of the legal framework organising this activity was necessary, too, which also represents the basis for all the other interventions. The afore mentioned, has impacted the preparation dynamic of the new document, but not the essence of the scientific development quality, because science and innovation have remained on a high position within the Montenegrin governments' agendas.

The purpose of adopting the Strategy for Scientific Research Activity of Montenegro 2024-2028 is to establish clear development priorities and directions of the scientific research activity in Montenegro, which will be one of the key foundations of the state development and progress and enable the continuation of adopting European standards within the area of science and research aiming to fully integrate into the European research area (ERA) to which we strive for as a future European Union (EU) member.

The strategy relies on the key **EU guidelines for the field of research and science**, as follows:

- The timeframe of the strategy follows the **EU Framework Programme for Research and Innovation „Horizon Europe“ 2021-2027**<sup>3</sup>, to which Montenegro acceded in December of 2021, as well as the **new IPA III Financial perspective (2021-2027)**<sup>4</sup>, but also the new instrument **Reform and growth facility for the Western Balkans 2024-2027**, which is a chance for the priorities of this strategy to be integrated into the plans for withdrawing funds from these EU funds, which is reflected through all strategic goals stipulated by this strategy;
- **The New agenda of the European Research Area (ERA) with the 2022-2024 Action plan**<sup>5</sup>, which defines high-priority areas for: Deepening a truly functioning internal market of knowledge, Taking up together the challenges posed by the twin green and digital transition, and increasing society's participation in the ERA, Amplifying access to research and innovation excellence across the Union and Advancing concerted research and innovation investments and reforms, while the ERA actions within the Action plan text are directly tied to the specific operational goals of this strategy.
- The **New European Innovation Agenda**<sup>6</sup>, which recognises the importance of research infrastructure in production, valorisation and widening of knowledge, the importance of trained researchers in testing new technologies and the importance of investing in research for the purpose of developing „deep tech“ innovations, also imbues all the strategic goals of this strategy;

1 Law on Scientific Research Activity (“the Official Gazette of Montenegro”, No 080/10, 040/11, 057/14, 082/20): <https://www.gov.me/dokumenta/1e14d5db-4a2a-4298-9bfc-3c93d771e411>;

2 Strategy for Scientific Research Activity 2017-2021: <https://www.gov.me/dokumenta/e5c94b2c-c038-4003-b719-547317d3198c>;

3 [https://commission.europa.eu/funding-tenders/find-funding/eu-funding-programmes/horizon-europe\\_en](https://commission.europa.eu/funding-tenders/find-funding/eu-funding-programmes/horizon-europe_en);

4 <https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=LEGISSUM:4551156>;  
[https://research-and-innovation.ec.europa.eu/system/files/2021-11/ec\\_rtd\\_era-policy-agenda-2021.pdf](https://research-and-innovation.ec.europa.eu/system/files/2021-11/ec_rtd_era-policy-agenda-2021.pdf);

6 <https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:52022DC0332>

- **The Council Conclusions on Research Infrastructures**<sup>7</sup> establishes the importance of research infrastructure in ERA development, regional and international cooperation, and promotion of the Open access policies, which is connected with the activities within the strategic objective 1 of this strategy, which refers to the preparation of the Roadmap for the research infrastructure of Montenegro (2024-2028), and strengthening capacities for the Open access to research infrastructure and networking and encouraging of the Open access to the research infrastructures on the Western Balkans; and
- **The Montenegro Report 2023 - European Commission**<sup>8</sup>, which emphasises the importance of the following recommendations: Montenegro should continue to implement the smart specialisation strategy; continue to strengthen academia-business cooperation, and further support knowledge transfer between them, also to deliver on green deal priorities; and put in place the new strategy for scientific research activities. The importance of the participation in the Horizon Europe programme is emphasized in the Report, as well.

In line with **the regional context**, the most important strategic guidelines for the preparation of this document are contained in the following strategic documents:

- **Reform and growth facility for the Western Balkans**<sup>9</sup>, best known as the Growth Plan for the Western Balkans, was adopted by the European Commission at the beginning of November 2023; by the European Parliament on April 24<sup>th</sup>, 2024; by the European Council on May 7<sup>th</sup>, 2024. It is a new instrument whose purpose is to support reforms referring to the harmonisation with the EU legislature, policies and standards, as well as the encouragement of the Region's economic growth. The instrument will cover the 2024-2027 period, and the overall amount is € 6 billion, composed of € 2 billion in grants and € 4 billion in highly concessional loans.
- When it comes to providing support to the scientific and research development, the **macro-regional EU Strategy for the Danube Region (EUSDR)**<sup>10</sup> is relevant from the perspective of the Priority Area 7 - Knowledge Society, as well as the Priority Area 8 - Competitiveness of enterprises. The key activities implemented within this strategy are the development of prosperity in the Danube region by developing society through scientific research, education and information technologies, and support to the competitiveness of the enterprises, including development of clusters, but also investment in people and skills.
- The macro-regional **EU Strategy for the Adriatic and Ionian Region (EUSAIR)**<sup>11</sup> defines four pillars: Blue growth, Connecting the region (transport and energy), Environmental quality and Sustainable tourism, while “Research and innovation” is recognised as a horizontal area, that runs through each of the identified pillars and contributes to their growth.
- **The South East Europe – SEE 2030 Strategy**<sup>12</sup> aims to reduce poverty and inequalities, female empowerment, enhancing social inclusion, slowing down regional depopulation through improving the quality of life of its citizens and acceleration of the green and digital transitions, without furthering social and economic inequalities and disturbing competitiveness through an actual regional political process, while the role of research and innovation is recognised in meeting these objectives.
- **Common Regional Market Action Plan 2021-2024**<sup>13</sup>, which establishes intervention in four key areas: Regional trade area, Regional investment area, Regional digital area, and Regional industrial and innovation area, which include connection of the scientific and innovation capacities across the Region.
- **The Green Agenda for the Western Balkans**<sup>14</sup> is a regional strategy focused on the sustainable

7 <https://data.consilium.europa.eu/doc/document/ST-15429-2022-INIT/en/pdf>

8 <https://www.gov.me/dokumenta/4441000a-7e5c-4b2c-b3f3-661bac4e8736>

9 [https://neighbourhood-enlargement.ec.europa.eu/enlargement-policy/new-growth-plan-western-balkans\\_en](https://neighbourhood-enlargement.ec.europa.eu/enlargement-policy/new-growth-plan-western-balkans_en)

10 [https://ec.europa.eu/regional\\_policy/policy/cooperation/macro-regional-strategies/danube\\_en](https://ec.europa.eu/regional_policy/policy/cooperation/macro-regional-strategies/danube_en)

11 <https://www.adriatic-ionian.eu/>;

12 <https://www.rcc.int/see2030/files/SEE-2030-strategy.pdf>

13 <https://www.rcc.int/docs/543/common-regional-market-action-plan>;

14 [https://wbcrti.info/object/document/23350/attach/EC\\_guidelines\\_for\\_the\\_implementation\\_of\\_the\\_green\\_agenda\\_for\\_the\\_western\\_balkans\\_en.pdf](https://wbcrti.info/object/document/23350/attach/EC_guidelines_for_the_implementation_of_the_green_agenda_for_the_western_balkans_en.pdf);

economy in line with the **European Green Deal**<sup>15</sup>, which was approved at the Sofia Summit in 2020. The Action Plan<sup>16</sup> includes 58 actions and 7 road maps for implementation regarding the topics of climate policy, sustainable energy, sustainable mobility, circular economy, decontamination, sustainable agriculture, food provision and protection of nature and biodiversity.

*For the purpose of development of this strategic document, a strategic analysis of the environmental impact has been carried out using the tool for the self-assessment of the drafts of strategic documents.<sup>17</sup> By doing so, it has been determined that the Strategy for Scientific Research Activity addresses all the initiatives significant for the European Green Deal through defined priorities of the scientific and research activity, and that encourages skills development necessary for the green transition.*

- **The Digital Agenda for the Western Balkans**<sup>18</sup> is oriented towards supporting the transition of the Region into the digital economy and using the advantages of digital transformation, such as quicker economic growth, more jobs and better services. Among other things, the Western Balkans' economies have committed to improving research and innovation, paying special attention to the enhancement of the research infrastructure and training of the new generation of researchers and engineers, and promotion of interdisciplinary collaborations across Europe.

According to the Law on Scientific Research Activity, the Council for Scientific Research Activity prepares and proposes the Strategy for the Scientific Research Activity, and a Working Group (WG) consisting of 15 members<sup>19</sup> has been formed to support the Council in these activities and also in consultations with the community. Preparation for this strategic document was followed by the **wide consultations with the interested public**<sup>20</sup>, where they had the opportunity to submit all the proposals and suggestions and, if necessary, schedule the appointments for direct communication with the WG's members for the Strategy preparation. During this time, representatives of the Ministry of Education, Science and Innovation visited Montenegrin universities in order to prepare the Stakeholder Analysis and gather necessary information regarding the definition of the strategic directions and priorities of the scientific activity development in the next five-year period. Additionally, previously, the Ministry representatives had the chance to carry out consultations organised by the NGO sector<sup>21</sup> and exchange opinions on the topic of the current state of the scientific, research and innovation system in the future developmental directions.

Bearing in mind the above mentioned, as well as the analysis of the scientific and research activity in Montenegro, and the needs of the scientific and research community, **the Strategy for the Scientific Research Activity of Montenegro 2024-2028 stipulates the following strategic objectives:**

- **Enhancement of the framework conditions for the functioning of the scientific and research**

15 [https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/european-green-deal\\_en](https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/european-green-deal_en);

16 [https://wbc-rti.info/object/document/23350/attach/Action\\_Plan\\_ENG\\_ver\\_1\\_1\\_.pdf](https://wbc-rti.info/object/document/23350/attach/Action_Plan_ENG_ver_1_1_.pdf);

17 Questionnaire for strategic environmental impact assessment in Annex III of the Methodology for developing policies, drafting and monitoring the implementation of strategic documents: <https://www.gov.me/dokumenta/4d95d6d8-ace1-4338-96ce-0f4de29c36b0>;

18 [https://neighbourhood-enlargement.ec.europa.eu/news/european-commission-launches-digital-agenda-western-balkans-2018-06-25\\_en](https://neighbourhood-enlargement.ec.europa.eu/news/european-commission-launches-digital-agenda-western-balkans-2018-06-25_en);

19 Decision no. 09-082/24-10/1 of January 9, 2024, defined the composition of the Working Group, which consisted of the representatives of the competent ministry as follows: Marijeta Barjaktarović Lanzardi, MSc, president, as well as members: Marica Melović, MSc, Aleksandra Mugoša, Anđela Radulović, Smilja Kazić Vujacić MSc, Zorana Lakićević Milutinović, Jelena Saranović, Nevena Radović, Ivana Lagator, Lidija Vukčević, Milica Lakčević, Martina Lukić, Nevena Đurović, Željka Čupić, Nina Martinović and Jovana Zarubica.

20 <https://www.gov.me/clanak/otvorene-konsultacije-za-pripremu-strategije-ni-djelatnosti-2024-2028-godine>;

21 Representatives of the science and innovation community took part in the conference within the "Scientific Caravan towards the EU - Improvement of the Scientific Legibility of Youth in Montenegro" project, carried out by the Center for Civic Education (CCE), Friedrich-Ebert- Stiftung (FES), Center for protection and examination of birds of Montenegro (CPEM) and Politikon networks, and in cooperations with the Ministry of Public Administration, and the Ministry of Foreign Affairs of the Government of Montenegro, on which occasion, the analysis for the preparation of the national programmes in Montenegro within the field of science and innovation was presented.

**activity in Montenegro;**

- **Strengthening human resources and institutional capacities in science and research; and**
- **Strengthening international cooperation in science and research.**

To meet these objectives, the Strategy has defined 10 operational objectives and 45 activities for the period encompassed by the Action Plan 2024-2025.

## Overview of the positioning of the scientific research activity from 2024 to 2028 within the Montenegrin strategic framework

### Harmonisation with the documents stipulating key priorities:

#### Expose of the Prime Minister of the 44th Government of Montenegro<sup>22</sup>

Recognising the role of science and innovation in the smart and competitive development of Montenegro, this document is focused on the greater investment in science, research and innovation, in that way getting closer to the full integration in the ERA and positioning itself as a credible European partner when it comes to the implementation of the New Agenda of Innovation. The key strategic orientation within the field of science and innovation shall be the EU's innovative approach to strategic planning – smart specialisation, as well as initiatives within the Green and Digital Agendas. The need for the improvement of the legal and strategic framework concerning scientific and research activity has been identified, in this way striving towards a better affirmation of the research profession, inciting and strengthening the scientists' status, creating new opportunities for the support of the science and research development via different programmes and project, better positioning of the research infrastructure and reinforcing the process of internationalisation and participation in the EU framework program for research and innovation, while the strategic and operational objectives of the Strategy for Scientific and Research Activity represent a response to the said intervention areas identified in the Expose.

#### Medium-term Agenda of the Government of Montenegro 2024-2027<sup>23</sup>

Priority 3 of the Medium-term Agenda of the Government refers to *Healthy and educated individuals as a foundation for a prosperous and solidary society*, within which an objective was defined that is relevant from the aspect of improving the scientific and research activity and that is Objective 15 *Science and innovation for smart and competitive Montenegro*. This document recognises the importance of comprehensive social and economic development rooted in innovation, strong scientific and research activity and a high-quality educational system. Key indicators are connected to the programme support of the scientific and research activity development (*The number of programme support lines for science and innovation development*), while the key activities refer to the passing of the new strategic and legal framework for the scientific research activity. Adoption of this strategy prompts the advancement of the support framework of the scientific research activity, thus influencing the increase in the number of support programmes, which directly impacts the indicator in the Medium-Term Agenda of the Government of Montenegro.

#### Agenda of the Government of Montenegro 2024<sup>24</sup>

Within the scientific research reform agenda in 2024, the Strategy for Scientific Research Activity of Montenegro 2024-2028 has a special attention, as well as the improvement of the legal framework for the functioning of the scientific research activity system. This Agenda defines the adoption of the Roadmap

22 <https://www.gov.me/dokumenta/959151c9-edbe-446e-aabb-4e2e41465a46>;

23 <https://www.gov.me/dokumenta/ee885398-748f-48fd-912a-29bbac334bfb>;

24 <https://www.gov.me/dokumenta/ee885398-748f-48fd-912a-29bbac334bfb>;

for the Research Infrastructure in Montenegro 2024-2028, which represents a good basis for the further development of the support to the research and innovation infrastructure as one of the vital components of the scientific research activity system. By working on this strategic document, a contribution is made to the fulfilment of the activities defined in the Government's Agenda.

### Reform Agenda of Montenegro within the Growth Plan for the Western Balkans

Ever since November 2023, Montenegro has been preparing its Reform Agenda, and recently, the final proposal of the reform measures of Montenegro has been defined. The Reform Agenda of Montenegro consists of 4 priority areas: 1 Business environment and development of the private sector, 2 Digital and energy/green transition, 3 Development of human resources and 4 Fundamental rights/the rule of law. Within the Area 1, Subarea 1.2. The Competitiveness of the Business Sector, Reform measure 1.2.2. *Further strengthening of the research and innovation ecosystem for the knowledge-based economy (in line with the Smart Specialization Strategy)* has been identified. One of the main goals of this reform measure is to strengthen the mechanisms for research and innovation development support in Montenegro and to reinforce all the actors of the national ecosystem - researchers, innovators, scientific and research institutions, companies, clusters and non-governmental organisations. For this reason, it is necessary to ensure not only a continuous investment approach through a clearly diversified program foundation which supports different research and innovation developmental phases but also supports international networking of the Montenegrin ecosystem's actors, as well as creates conditions and strengthens the capacities for greater and better absorption of the EU funds through target programs, but also through widening of the array of services and innovation infrastructure roles. The said goals have been harmonised with three strategic objectives of this strategy, where through enhancing the general conditions for carrying out the scientific research activities the conditions for widening the programme support to science and research and thus to the various actors in the system are being created, finally contributing to the increase in research and development investment and achieving key steps/indicators of the Reform Agenda. In other words, the business sector's (business and entrepreneurial) research and innovation expenditures in Montenegro would reach the level of 15% of the EU average, while the state sector's expenditures on research and development in Montenegro would reach 35% of the EU average.

## Harmonisation with the strategic and planning document defining the general directions of the development of Montenegro

### Montenegro's Programme of Accession to the EU (MPAEU) 2024-2027<sup>25</sup>

Negotiation Chapter 25: Science and Research was opened and temporarily closed in December 2012. However, Montenegro is following the EU standards within the field of science and is continually integrating them into its national system. Plans for the said period refer to the passing of the Strategy for Scientific Research Activity 2024-2028, Roadmap for the research infrastructure 2024-2028 and Law on Scientific and Research Activity. Adoption of the Strategy for Scientific Research Activity directly contributes to the achievement of the objectives pursued in the MPAEU.

### Economic Reform Programme for Montenegro 2024-2026 (ERP)<sup>26</sup>:

It is the main document of the medium-term programming of the Montenegrin macro-economic and fiscal policy, which aims to maintain macro-economic stability, strengthen international competitiveness and advancement of the conditions for digitally based, greener, stronger and more resilient economic growth and development. Reform measure 3 *Promotion of Innovation for the Green Agenda and Transfer to Circular Economy* refers to the policy measure analysis which promotes science, innovations and smart specialisation in Montenegro, as well as preparatory activities for defining new key initiatives within the field of science and innovation for the Green Agenda, while the Reform Measure 5 *Promotion of digitalisation and cyber security while strengthening infrastructure for the wide range access to the*

<sup>25</sup> <https://www.gov.me/dokumenta/29349d74-d332-498c-9927-3fac36e454a1>;

<sup>26</sup> <https://www.gov.me/dokumenta/4a9dd1c8-6ec6-4838-95bc-5b05e80f6836> ;

*Internet* refers to improving digital services for citizens within the field of science and innovation.

A new strategic and legal framework for scientific research activity shall support the execution of the activities within these reform measures through the identification of new support programs in the area of scientific and research activity and through the promotion of the services provided to customers via [inovacije.gov.me](http://inovacije.gov.me) and Scientific Network ("Naučna mreža") platforms.

### National Sustainable Development Strategy of Montenegro by 2030<sup>27</sup>

Science policy is encompassed through multiple objectives of sustainable development because for achieving and implementing the 2030 Agenda, engagement of scientific and research potentials is necessary. A more high-quality education (SDG 4) also includes the promotion of the research component, especially in higher education, an innovative approach to employment, entrepreneurship and start-up industry (SDG 8), and the use of science for the purpose of developing industry, technology and competitiveness of the national and global economy (SDG 9, SDG 12). Additionally, the 2030 UN Agenda provides connecting science with the areas where a significant synergy effect can be achieved, such as discovering accessible and healthy energy sources (SDG 7) and marine technology for the preservation of seas and oceans (SDG 14). All of this is included through SDG 17, which is used for promoting cooperation within the area of research and science, transfer of knowledge, mobility of researchers and scientists, and merger of scientific and research institutions. And all of this for the purpose of better worldwide connectivity. Strategic objectives of the Strategy for Scientific Research Activity refer to the *Strengthening human resources and institutional capacities in science and research* as well as the *Strengthening international cooperation in science and research* add contribution to the goals of sustainable development (SDG) 4, 8, 9, 12 and 17, while using the identified priorities in a targeted and topic-appropriate manner a contribution is made to the objectives 7 and 14 within the priorities *Energy and sustainable environment*, through focus area defined by this strategy.

Within the context of funding sustainable development, special attention is drawn to the importance of investing in the area of science, technology, innovation and development, which make the basic premise for the dynamic economic growth in Montenegro in the future. The main goal is to enable economic resource growth, which will not lead to an increase in negative effects on natural resources while respecting natural and already established limits. Through defined operative objectives and activities for achieving them in the Strategy for Scientific Research Activity, the final effect most commonly expected is the increase in investment in research and development as one of the key indicators of the development level of the scientific and research activity system.

On the indicator level, there is a complementarity with the SDG 9 Industry, innovation and infrastructure under task 9.5, which states *To enhance scientific research, promoting technological capabilities of industrial sectors in all states, and especially in the developing countries, including promoting innovations and significant increase in number of employees in the area of research and development per million people as well as public and private spending on research and development by 2030*. Therefore, operational objective 1.2: *Promotion of the monitoring of the research and scientific activity system* within the Strategy for Scientific Research Activity will contribute to the repeated establishment of the continuity of the official research and development statistics and tracking of the indicators which have been determined within the National strategy of the sustainable development of Montenegro by 2030. Activities defined in strategic objective 2: *Strengthening human resources and institutional capacities in science and research* have the increase in the number of scientists and the level of investment in research and development as an ultimate goal, which confirms the harmonisation at the level of established objectives and indicators of these 2 strategies.

*Using the tool for self-assessment of strategic documents within the context of strategic analysis of the influence on the environment, it has been determined that through the identified priority areas of the Strategy for Scientific Research Activity, a contribution is made to meeting the objectives connected with the ecological issues and the indicator values for improving the environment within the National Strategy of Sustainable Development of Montenegro by 2030.*

*On this occasion, a self-assessment regarding the general issues has been carried out too, and it has*

<sup>27</sup> <https://www.gov.me/en/documents/67dc487e-097d-41d2-8fd5-7827a19a1f5a> ;

been determined that the Strategy for Scientific Research Activity does not have an influence on the objectives, which could have any positive or negative impact on the environment. The purpose of the identified priorities of the scientific and research activity and mechanisms/programmes of support to their development, which have been presented in the Action plan, is the implementation of the research to understand these phenomena and impacts in a better way.

#### Regional Development Strategy of Montenegro 2023-2027<sup>28</sup>

Using this strategic document, a need for a stronger connection of the economy with the scientific and research community has been identified, which also is reflected through Strategic Objective 3 *Increase of the regional competitiveness based on the promotion of infrastructure as well as improvement of the business environment and development of priority areas with the growth potential*. The harmonisation is particularly defined at the level of operational objective 3.1 *Increase in regional competitiveness*, that is, activity of the *Increased innovation activity of enterprises and smart specialisation* and indicator of the *Number of business centres and centers of the collaboration between scientific research institutions and priority economic sectors*, which is connected with the Operational objective 2.3: *Promotion of the cooperation between science and economy* of the Strategy for Science and Research Activity, which promotes programme support to the innovation infrastructure within the context of linking science and economy and defines the promotion of technological transfer in Montenegro together with the University of Montenegro.

#### Smart Specialisation Strategy of Montenegro (S3) 2019-2024<sup>29</sup> and Operational Programme for implementing the Smart Specialisation Strategy (2021-2024)<sup>30</sup>

Montenegro has chosen an innovative approach to strategic planning, which allows the identification and development of comparative advantages of a country by determining the priority development areas which have a strong concentration of research and innovation capacities and great economic potential. This EU "recipe" of strategic planning is called smart specialisation, and it consists of public administration, the academic and business community and civic society working on the implementation of a long-term economic growth strategy based on knowledge and innovation. The strategy defines 4 key priority areas S3: Sustainable agriculture and food value chain, Energy and sustainable environment, Sustainable and healthcare tourism and Information and communication technologies as a horizontal priority in the function of the development of the previous three (vertical priorities). Particularly, sectoral research and innovation policies should be fully in line and in service of the identified priorities because only in this manner is it possible to utilise the competitive advantages of Montenegro and promote knowledge and innovation-based economic growth. Therefore, S3 priorities have been entirely transferred as scientific research activity priorities.

The Government of Montenegro adopted the Roadmap for the preparation of the new Smart Specialisation Strategy<sup>31</sup> when, on the same occasion, a decision was made for this strategy to be considered as an umbrella strategic document until the legal framework for strategic planning in Montenegro is amended.<sup>32</sup> Through the preparation of the new S3 cycle, scientific and research policy instruments, which will be created as a result of the reformed framework for the scientific and research activity in Montenegro, will be timely integrated to achieve the objectives within the identified priority areas of the smart specialisation development.

#### The Draft National Energy and Climate Plan of Montenegro by 2030 (NECP)

The draft plan has been announced for June 2024, and it shall represent an umbrella strategic document, which, regarding renewable energy resources, energy efficiency, and reduction of GHG emissions, defines goals until 2030 and determines operative objectives and activities for meeting them. The integrated NECP

<sup>28</sup> <https://www.gov.me/clanak/javni-poziv-nacrt-strategije-regionalnog-razvoja-crne-gore-za-period-2023-2027-godine-sa-akcionim-planom-za-2023-godinu> ;

<sup>29</sup> <https://s3.me/wp-content/uploads/2022/06/Strategija-pametne-specijalizacije-Crne-Gore-2019-2024-.pdf> ;

<sup>30</sup> <https://s3.me/wp-content/uploads/2022/06/Operativni-pogran-za-implementaciju-strategije-pametne-specijalizacije-2021-2024-s-Akcionim-planom-2021-2022.pdf> ;

<sup>31</sup> <https://www.gov.me/en/documents/ebdccc51c-02f8-496b-9333-e57c9ff76eda>;

<sup>32</sup> <https://www.gov.me/dokumenta/fba19ca7-f08f-46cb-ab25-f1d620348aba>;

consists of national aims and adequate measures and activities which add to the development of the five measures of the energy union in accordance with Regulation 2018/1999<sup>33</sup>, and those are 1) decarbonisation (GHG emissions and renewable energy), 2) energy efficiency, 3) energy security, 4) internal energy market and 5) research, innovations and competitiveness.

## Compliance with the Sectoral Strategic Documents

#### 2019-2023 Draft Industrial Policy of Montenegro<sup>34</sup>

This strategic document identifies cooperation of the academic, research and economic sectors, which enables coordination and establishment of synergy in the transfer of knowledge, skills and intercultural capacities necessary for the science and innovation, as one of the ways for boosting the competitiveness of Montenegrin economy. This document defines the need for a stronger connection between science and industry due to the low usage of scientific and research work for the purpose of promoting innovation in enterprises and a lower level of investment in research and development. Strategic objective 3 refers to the Promotion of innovation-based principles of smart and sustainable industry development, where the introduction of modern technologies through cooperation with scientific and research institutions, aiming to widen present industrial production and creation of innovative products and knowledge-based services, is particularly recognised for the support to the development of the entrepreneurial innovation and modern and competitive industry. In that sense, the Action Plan 2024 identifies activities referring to scientific excellence, linking science and economy, and promoting participation in the EU science and research programmes, which is a link to the activities defined in the Action Plan for the implementation of the Strategy for Scientific Research Activity.

#### Digital Transformation Strategy of Montenegro 2022-2026<sup>35</sup>

This strategy is a tool whose purpose is to advance public services and customer experience, strengthen the digital skills of society as a whole, reduce the digital gap, but also to enable the transformation and its efficient management at the state level. The Strategy identifies the need for stronger cooperation between the scientific and research institutions and the economic sector and highlights the need for a higher level of investment in research and development. Research within the ICT field, their promotion and projects that impact the science and economy cooperation are some of the activities, which are complementary to the Strategy for Scientific Research Activity.

The Action Plan for implementation of the Strategy for the period 2024-2025 identifies two key instruments of support of the Innovation Fund of Montenegro in the domain of connecting science and economy - Collaborative innovation grant programme and Proof of concept programme, which have a great contribution in backing up the priority *Information and Communication Technologies*, thus supporting the execution of the indicators within the Operative objective 2.3. *Promotion and development of the ICT sector* of the Digital Transformation Strategy.

#### National Circular Economy Strategy of Montenegro by 2030<sup>36</sup>

Strategic Objective 5 *Improved Economic Competitiveness through diversification, innovation and increase in resource efficiency* involves greater collaboration between science and the economy to transition more efficiently to the circular business model.

The Strategy for Scientific Research Activity, within the *Energy and Sustainable Environment* priority, the focus area of the *Circular Economy* is determined, where research in this field shall be backed up through different scientific and research programmes.

<sup>33</sup> [https://eur-lex.europa.eu/legal-content/EN/TXT/?toc=OJ%3A2018%3A328%3ATOC&uri=uris-erv%3A0J.L.\\_2018.328.01.0001.01.ENG](https://eur-lex.europa.eu/legal-content/EN/TXT/?toc=OJ%3A2018%3A328%3ATOC&uri=uris-erv%3A0J.L._2018.328.01.0001.01.ENG);

<sup>34</sup> <https://www.gov.me/dokumenta/b6d2c966-ac8b-409a-bcf5-acdce90c36d9>;

<sup>35</sup> <https://wapi.gov.me/download-preview/0c802520-e016-41ee-a6e4-7af6eb66e19d?version=1.0>;

<sup>36</sup> <https://www.gov.me/dokumenta/a2f027ec-d35d-44d2-8ced-3b840ba73c4a>;



### Intellectual Property Strategy of Montenegro 2023-2026<sup>37</sup>

By 2026, as one of the priorities, this strategy defines the establishment of the mechanisms for the interaction between the scientific and research institutions and the economy, as well as mechanisms for facilitation of the contact between the intellectual property right holders and the users of the protected subject-matter, and recognises the importance of the act of establishing the Technological Transfer Office. Additionally, this issue is recognised in the Strategy for Scientific Research Activity of Montenegro through Activity 2.3.3. *Creation of the conditions for the technological transfer activities in Montenegro*

### International Commitments of Montenegro

The progress framework in this area also includes international commitments, which primarily stem from the European integration process. The scientific policy is being continually harmonised with the commitments from the accession to the EU through *the Negotiation Chapter 25: Science and Research* (see: Montenegro's Programme of Accession to the European Union 2024-2027). This Chapter was opened and temporarily closed in 2012 when it was declared that Montenegro has a harmonised legal and strategic framework with the EU, and the present obligations in the Chapter relating to the final integration of the EU standards in this policy area, thus, the adoption of the Strategy for Scientific Research Activity of Montenegro, is recognised as one important step on the path to full integration into the European Research Area (ERA) and it will add to this objective. Commitments referring to the role of science in reinforcing competitiveness and economy relate to *the Negotiation Chapter 20: Entrepreneurship and Industrial Policy*, where the Smart Specialisation Strategy is of particular importance. By adopting the strategic framework for the scientific and research activity, a contribution is made to the promotion of the priorities defined by the S3 Strategy and thus to the fulfilment of the aims of this negotiation Chapter. Due to the role of science in the promotion of competitiveness and its unbreakable connection with intellectual property rights and security, scientific policy is also significant from the perspective of *Negotiation Chapter 7: Intellectual property rights*, where the compliance with the legal framework which covers this area is tracked for the ultimate purpose of organisation of the issues of the technological transfer and intellectual property, which is tightly connected to the results of the scientific and research activities. *Negotiation Chapter 8: Competitiveness* is important when it comes to the issue of the full compliance of the support program to the scientific and research community with the Community Framework for State Aid for Research and Development and Innovation<sup>38</sup>.

On the basis of *the International Agreement, Montenegro accessed the EU Framework for Research and Innovation "Horizon Europe"* in December 2021 as an associated country to this programme. By signing this international agreement, an opportunity was made for Montenegrin scientific research community, enterprises with the innovation capacity, a part of the civil society and local self-government to use the means from the EU Science and Innovation Funds on an equal basis as the EU member states. Participating in this new programme, Montenegrin scientific and research community has the opportunity to update the acquired experiences from the previous Horizon 2020 programme and improve the quality of the scientific and research work and conditions for professional advancement through different cooperation projects. Additionally, in June 2023, Montenegro signed *the International Agreement on the Accession to the EU "Digital Europe" programme*, whose goals refer to accelerated development of digital transformation, improvement of electronic services, advancement in the manner of cyber attack prevention and promotion of digital education, in order to provide modern technologies to both citizens and economy. In addition to that, in 2012, by signing the Memorandum of Understanding between the EUREKA Secretariat and member states of the EUREKA initiative, Montenegro became a member of the European EUREKA network for funding of the market-oriented research and development projects, and since May 2015, it has been a full member of the COST association, which supports networking of the researchers through scientific and technological actions.

Strategic objective 3 *Strengthening international cooperation in science and research*, i.e., the Operative

<sup>37</sup> <https://www.gov.me/dokumenta/d8e61ee3-f669-41b7-b168-4b1c0846dd8f>;

<sup>38</sup> <https://eur-lex.europa.eu/legal-content/HR/TXT/?uri=celex%3A52014XC0627%2801%29>;

objective 3.2. *To increase participation in European programmes for science, research, and technological Development*, as well as the activities which have been defined within them are fully oriented towards meeting the obligations which Montenegro has taken over by acceding to the abovementioned EU Programmes.

### Overview of making the strategic document gender-sensitive

In the process of the preparation of this document, special attention was paid to the following in terms of gender-sensitive issues:

- Gender-sensitive language has been used throughout the entire text of the strategic document.
- In the Situation Analysis, in line with the available data of the official research and development statistics, the gender-sensitive data has been presented. Also, when it comes to the staff, Montenegro has not recorded a case of gender inequality within this area. The only noticeable difference is in the field of the technical and technological sciences, which raised the need for the target activities for the promotion of the STEM field among girls and women and the promotion of women into leading positions in science, which has been included through the activity 2.4.3 within the Operative objective 2.4. Promotion of science in the society.
- To track the gender-sensitive data within this field in a better manner, the Activity 1.2.3. *Monitoring the gender sensitive statistics for the Ministry's support programmes* has been proposed as an analysis of the effects of different support measures related to gender. This type of gender-sensitive data tracking will particularly refer to the research managers, who will point out whether there is a need for additional reinforcement of the leading positions using gender-sensitive measures. Ultimately, this shall enable an adequate foundation for the identification of the potential obstacles and risks stemming from the affiliation to a specific gender.
- In the places where it was applicable, activities from the Action Plan contain a presentation of the result indicators, which are divided according to gender.

## II SITUATION ANALYSIS

The starting point for further system analysis has been the results and recommendations from the previous strategic document.<sup>39</sup>

The abovementioned recommendations have been included in the text of the new Strategy:

- Recommendation *Necessity of strengthening the research profession*: harmonization with the legal framework for higher education, improvement of the status and working conditions for the researchers, upgrading researchers' skills and their employability, support to the young talents, promotion of the researchers' mobility and general promotion of the research work, *has been included through the activities of the Operative objective 1.1 Upgrading of the legal framework for the scientific research activity*;
- Recommendation *Reinforcement of the cooperation with Diaspora*: stronger and systemic connection of the scientific Diaspora with the local scientific research community through, for example, the inclusion of the Diaspora in the national scientific research activities and joint international programmes has been included through *Activity 2.1.4 Preparation of the programme for the cooperation with the scientific Diaspora within the Operative objective 2 Support to the young researchers*;
- Recommendation *Support to development of the research infrastructure and promotion of access to the international research infrastructure* was considered and included while defining the *Operative objective 1.3: Strengthening the research infrastructure and Operative objective 3.1: Achieving sustainable results by reinforcing international cooperation and networking*;
- Recommendation *Upgrading of the cooperation model between science and economy and creation of the optimal environment for the technological transfer*: creation of the conditions where the scientific research results will find their way towards the market more quickly with clearly defined rules in which the private sector shall become one of the key investors into research and development is the subject of interventions within the *Operative objective 2.3: Promotion of the cooperation between science and economy*;
- Recommendation *Stronger integration into the European research area (ERA) and the increase of participation in the EU programmes for science and research* have been addressed by connecting the operative objectives of this Strategy within the Action Plan directly with the specific ERA actions, while the *Operative objective 3.2. Completely refers to increasing participation in the European programmes for science, research and technological development*; and
- Recommendation: *Continuous promotion of science in society*: the continuation of the activities directed towards stronger result promotion, keeping in mind the irreplaceable role of scientists and researchers in confrontations with global challenges such as the fight against climate change, digitalisation, coronavirus pandemic, etc, are the subject of the *Operative objective 2.4: Promotion of science in the society*.

To adequately integrate the key guidelines into the new policy cycle, the need for improvement of the standards for defining activities and their promoters has been determined, and their implementation in an easier manner in a certain time frame so that timely and rational planned human and financial resources for their successful implementation. Such an approach will contribute to a long-term goal to which we are striving, and that is the increase of science and research investment. In the Action Plan for the implementation of the Strategy for Scientific Research Activity of Montenegro 2024-2028, these suggestions have also been included for the period from 2024 to 2025.

<sup>39</sup> Final Report on Implementation of the Action Plan of the Strategy for Scientific Research Activity (2017-2021):

<https://www.gov.me/dokumenta/b3c17538-7a35-47b3-885b-40431083046a>;

## 2.1 Legal Framework

**The Constitution of Montenegro** ("The Official Gazette of Montenegro" No 01/07)<sup>40</sup> in Articles 75 and 76 guarantees the autonomy of scientific institutions and the freedom of scientific creativity.

The legal framework for implementing scientific research in Montenegro has been mostly defined by the parent **Law on Scientific Research ("Official Gazette of Montenegro" No 80/10, 40/11, 57/14 i 82/20)**<sup>41</sup>, which determines the organisation, conditions, and manner of financing of scientific research activities and other issues of importance for their execution.

The Law was adopted in 2010, and its amendments took place in 2011, 2014, and 2020. They were primarily concerned with the composition and competencies of the Council for Scientific Research Activity, the operation of the Centre for Excellence, and awards for scientific achievements.

Due to the accelerated development of science and research and their close link with innovation and technological development, we have identified the need for amending the national regulation in this area as an obligation to harmonise with European regulations and better position within the ERA.

In the previously mentioned Final report on the Implementation of the Action Plan of the Strategy for Scientific Research Activity (2017-2021), one recommendation refers solely to this segment: "The enhancement of the legal framework that defines the area of scientific research activity, which is necessary to be based on the Strategy and enable its full application is highly recommended. Enactment of the new Law on the Scientific Research Activity and its bylaws is the key precondition for a faster development of the scientific research activity in Montenegro".

Therefore, in the previous period, the Ministry has adopted a series of bylaws which shall more closely regulate specific legal issues:

- Rulebook on more detailed requirements for the establishment and licensing of the scientific research institution ("Official Gazette of Montenegro", No 145/22 od 27.12.2022)<sup>42</sup>;
- Rulebook on requirements and more detailed criteria for awarding prizes for scientific achievements, and prize amounts ("Official Gazette of Montenegro", no. 124/22 od 11.11.2022)<sup>43</sup>, and
- Rulebook on conditions for approval and the manner of using funds from the state budget for national scientific research projects ("Official Gazette of Montenegro", No 42/23 od 19.04.2023)<sup>44</sup>.

In addition to the mentioned interventions, the Ministry has identified the need for more considerable legal amendments, especially regarding the enhancement of definitions within the scientific research activity area, improving funding of science and research, the establishment of the mechanisms for sustainable operation of the centres of excellence in Montenegro, and enhancement of the framework for monitoring and evaluation of the scientific research projects and programmes.

**The Law on Innovation Activities** ("Official Gazette of Montenegro, No. 82/2020)<sup>45</sup> identifies scientific research institutions, centres of excellence and higher education institutions as actors of innovative activity in the event of them carrying out innovation activities. The Law clearly defines that innovation activities include all scientific, technological, organisational, financial and commercial processes which lead to or are provided to lead towards innovation development or implementation, and thus, makes a distinction between innovation activities of research and development from those that are not.

**The Law On Incentives For Research And Innovation Development** ("Official Gazette of Montenegro, No. 82/2020)<sup>46</sup> defined six incentives. Incentives for research development defined by this Law refer to

<sup>40</sup> <https://www.gov.me/dokumenta/8001ff01-60bd-451a-be3f-83e7b71e112a>,

<sup>41</sup> <https://me.propisi.net/zakon-o-naucnoistrzivackoj-djelatnosti>,

<sup>42</sup> <https://www.gov.me/dokumenta/a2939b9c-1ec5-4230-95c2-cf115d8debf4> ;

<sup>43</sup> <https://www.gov.me/dokumenta/334c6941-39b7-4c43-977d-0167ad3d1fed>,

<sup>44</sup> <https://www.gov.me/dokumenta/66b5e3ca-8a2c-4a8f-b97b-e45c7c913106> ;

<sup>45</sup> <https://www.gov.me/dokumenta/e4de3d3b-flcf-4a14-9bd8-20c39b570536>;

<sup>46</sup> <https://www.gov.me/dokumenta/3a639a2d-b37c-4ffd-89c6-9776a055dd22> ;

*reduction, exemption from or relief in relation to contributions for compulsory social insurance, for the persons employed in the scientific research institutions and entities which perform scientific research or innovation activity, and who are additionally employed on scientific research or innovation programmes and projects, as well as for the persons employed or hired in the scientific research institutions and research or innovation activity, and entities performing innovation activity, working on scientific research or innovative programmes or projects, who do not exercise the right to social insurance with another legal entity; and income tax of legal entities who donates funds to scientific research institutions.*

**The Law on Montenegrin Academy of Sciences and Arts** ("Official Gazette of Montenegro, No.14/2012)<sup>47</sup> and the **Law on Higher Education** ("Official Gazette of Montenegro, No. 44/2014, 52/2014, 47/2015, 40/2016, 42/2017, 71/2017, 55/2018, 3/2019, 17/2019 - other law 47/2019, 72/2019, 74/2020, 104/2021, 86/2022, 86/2022-I and 125/2023)<sup>48</sup> are of special importance for the scientific research activity. During the consultations with the interested parties, special attention was drawn to the issues of selection for academic ranks, which were particularly highlighted due to the comparability with scientific posts, as scientific research work is not adequately acknowledged when selecting for these posts.

## 2.2 National institutional framework

The institutional framework of the scientific research activity consists of:

- **The Parliament of Montenegro** is the legislative body responsible for the adoption of laws related to scientific research activities and the ratification of international agreements on scientific and technological cooperation. **The Parliamentary Committee on Education, Science, Culture and Sports** considers the drafts of laws, other regulations and general acts, and other issues related to science and scientific research activity and is competent to monitor and evaluate the compliance of Montenegro's laws with the EU acquis communautaire, and based on the Government's report, monitors and evaluates the implementation of the law, especially those stemming from the duties that are in compliance with the EU law. Also, the Legal Committee plays an important role, which, within their competencies, considers the drafts, other regulations and general acts adopted by the parliament from the perspective of their compliance with the Constitution and legal system of Montenegro, as well as the Committee for Economy, Finance and Budget, which, among other things, considers draft budget for innovation and science.
- **The Government of Montenegro**, as an executive body which manages internal and foreign policy, proposes laws in the scientific research area to the Parliament, adopts the Strategy for the Scientific Research Activity and other strategic documents important for the functioning of the scientific research activity system and inciting the science and research development in Montenegro, and concludes and signs bilateral and multilateral agreements on scientific and technological cooperation.
- **The Ministry of Education, Science and Innovation** is a competent governmental department for the area of scientific research activity. The Ministry prepares the draft laws, other regulations and general acts from the area of scientific research activity and participates in the preparation of the draft regulation, which refers to the encouragement of the development of science and research and upgrading the status of these activities through other legal solutions; it deals with writing, monitoring and evaluation of strategic documents that are important for the development and improvement of the scientific research activity. Additionally, the Ministry is competent in the process of licensing scientific research institutions, promoting scientific research cooperation through the organisation of open calls for the implementation of programmes of general interest, as well as promoting international cooperation in science and research and harmonisation with the EU standards in this field.
- **The Council for the Scientific Research Activity** is an advisory body of the Government of Montenegro for the field of scientific research activity, made of nine members who the Government appoints on the proposal of the responsible Minister for science and research. The main role of

<sup>47</sup> [https://canu.me/files/opsta-akta/ZAKON-O-CANU-Slubeni\\_list\\_Crne\\_Gore\\_broj\\_14\\_2012.pdf](https://canu.me/files/opsta-akta/ZAKON-O-CANU-Slubeni_list_Crne_Gore_broj_14_2012.pdf);

<sup>48</sup> <https://www.gov.me/dokumenta/90b68b9a-4265-45e7-bbc8-44f1e3fdb7c7>;

the Council is to analyse the situation and accomplishments in the scientific research activity and offer expert recommendations, especially referring to the priorities of scientific research activity and the Strategy for Scientific Research Activity.

The scientific research activity is performed by **the Montenegrin Academy of Sciences and Arts, scientific research institutions, institutions of higher education and other legal and physical entities in accordance with the law.**

**The Montenegrin Academy of Sciences and Arts** is an institution of particular national and social importance. It unites scientific potential and organises, promotes, and develops scientific, artistic, and cultural creations.

Scientific research activity is dominantly performed within the **licensed scientific research institutions**, which, before starting their operation, submit the request for issuing the license to the Ministry responsible for science and research. The Ministry of Education, Science and Innovation, in accordance with the Law on Scientific Research Activity and the Rulebook on more detailed requirements for the establishment and licensing of a scientific research institution, continually performs licensing procedures for scientific research institutions. There are currently 46 in the Register of licensed scientific research institutions. When it comes to the leading positions in these institutions, the final data are encouraging regarding the gender-sensitive structure, which shows that the ratio of male to female managers is 26:20. However, the promotion of women to leading positions remains one of the priorities within the area of promotion of the scientific research work.

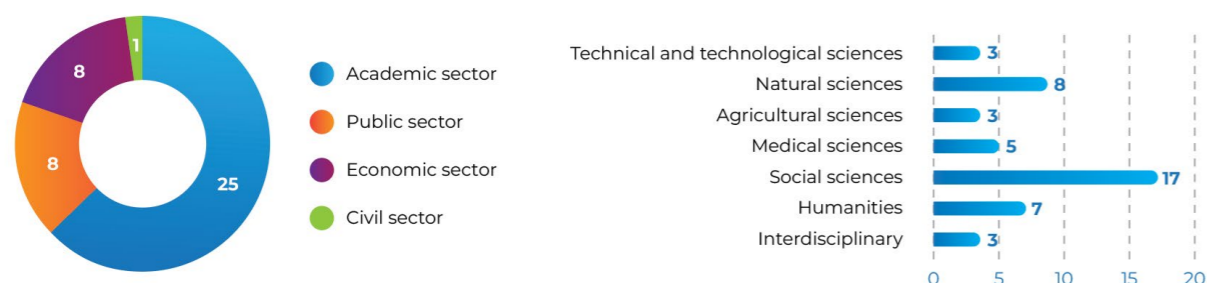


Chart 1: Licensed scientific research institutions according to sectors/areas of science on 31 May 2024

From the diagram in question, we may see that scientific research activity is dominantly performed in the academic field (sector of higher education), followed by the public and private sectors, and only one institution from the civil sector performs scientific research activity. The presented indicates three future trends that one should pay attention to: the first one is that in the next period, research and innovation should be incentivised, especially in the private sector, because without a strong scientific research foundation, there is no competitiveness of the enterprises; second is that scientific research potential of the academic field should be better connected with the enterprises and place them in the service of stronger impact on economic growth parameters; the third is that civil sector should be motivated for the participation in the system of the scientific research activity.

**The Centers of Excellence** are a special category recognised by the Law on scientific research activity. It is a scientific research institution or a group of researchers in an institution which, due to its originality, significance and relevance of the results attained in scientific research activity, achieved superior and internationally recognised results in its scientific field of research within a period of five years, and meets the condition that, at the proposal of the Council for Scientific Research Activity, it acquires the status of a centre of excellence, which is assigned by the Ministry. At the moment, one Centre of Excellence (CoE) - "FoodHab"<sup>49</sup> at the University of Donja Gorica is active and fully operational.

49 <https://foodhub.udg.edu.me/aktuelnosti>;

Considering the operative problems, concerning the CoE's legal status, and the numerous challenges of their sustainability, CoEs should be the subject of a detailed analysis and new solutions, as well as support models, so that they truly take root in Montenegro.

### 2.3 Research Infrastructure in Montenegro

The comprehensive definition of the research infrastructure is harmonised with the definition determined in the EU Framework for Research and Innovation (2021-2027)<sup>50</sup>.

Regulation 2021/695<sup>51</sup> means facilities that provide resources and services for the research communities to conduct research and foster innovation in their fields, including the associated human resources, major equipment or sets of instruments; knowledge-related facilities such as collections, archives or scientific data infrastructures; computing systems, communication networks and any other infrastructure of a unique nature and open to external users, essential to achieve excellence in R&I; they may, where relevant, be used beyond research, for example for education or public services and they may be 'single sited', 'virtual' or 'distributed'.

The process of mapping the research infrastructure is performed to determine the status of the research infrastructure in a specific country. This includes identifying and categorising the current and planned research infrastructure. This process is implemented methodologically by filling out questionnaires and includes all social segments: decision makers, researchers, representatives of the economic and civil sectors, and other interested audiences are in line with the so-called *quadruple helix model*.

Montenegro has already completed two cycles of research infrastructure mapping in 2015 and 2019, and the Ministry of Education, Science and Innovation has initiated the third process of research infrastructure mapping for the preparation of the Roadmap for the research infrastructure of Montenegro (2024-2028). This Roadmap is the most important document for the field of research infrastructure, whose goal is the identification of the research infrastructure and potential for new investments, presentation of the best examples and successful projects and identification of the potential for the use of Pan-European infrastructure.

The results of the last mapping process from 2019 have indicated a good state of the current research infrastructure and a high level of readiness of institutions for joint use of the equipment and access to the equipment. However, there is still the phenomenon of doubling of certain scientific research equipment, although less than in 2013, and the presence of the fragmentation of the research infrastructure is also recorded. Between February and April of 2024, Montenegro sent the questionnaire to 70 addresses, to which 43 institutions provided their responses, 22 did not respond, and 5 responded that they did not possess the research infrastructure. The situation analysis and the preparation of the Roadmap which are being prepared with the support of the World Bank within the BEST programme ("*Building an Effective Sustainable and Transformational Public Sector (BEST-Public Sector) in Montenegro*"), which is being implemented with the financial support of the EU Reform Facility (EURF), and the adoption of this document is planned by the end of the third quarter of 2024.

Considering that there is no overview of the available research infrastructure in Montenegro, nor is there a systemic model for its developmental support, and bearing in mind that a minimum of standards should be harmonised for open access and to ensure that the development of research infrastructures is aligned with the EU's strategic direction, interventions in this area are a key challenge. Competitive research infrastructure is the centre of excellent professionals and a key motivation for young researchers to stay in the country, so this should be taken into account when planning the future development of the infrastructure.

50 <https://research-and-innovation.ec.europa.eu/system/files/2022-06/rtd-2021-00013-03-00-hr-tra-01.pdf>;

51 [Regulation - 2021/695 - EN - EUR-Lex \(europa.eu\)](https://eur-lex.europa.eu/eli/reg/2021/695/oj);

## 2.4 Human resources in science and research

The latest official data regarding research and development (R&D) statistics validated by EUROSTAT are from 2018.<sup>52</sup>

According to this data, in 2018, 2382 people were engaged in research and development jobs: 1596 researchers, 501 associates, and 285 assistant staff, or 682 full-time equivalents.

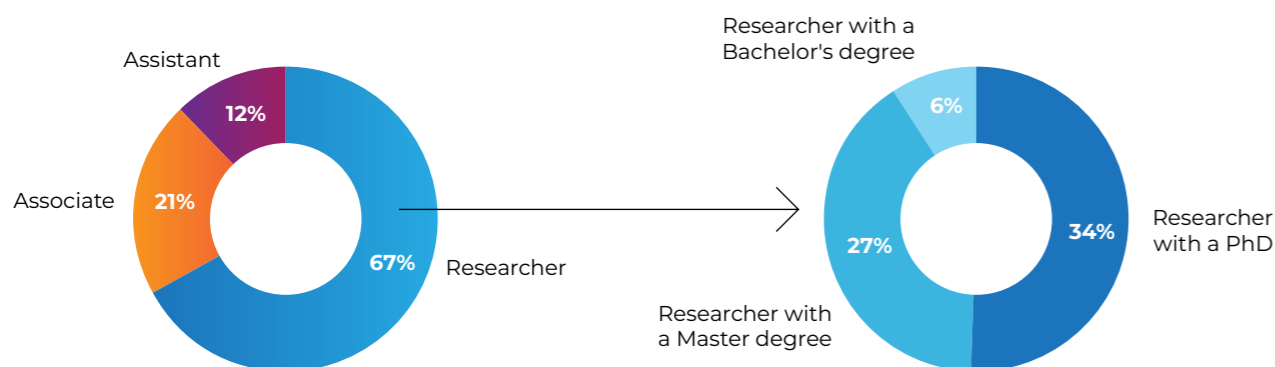


Chart 2: Structure of the persons hired on the research jobs (2018)

As chart 2 shows, of the 1596 researchers in 2018, 809 PhD holders, 632 Master holders, and 155 with bachelor degree in higher education.

Of the 1596 researchers in all scientific fields, 236 are from natural sciences, 410 from technical-technological sciences, 286 from medical sciences, 54 from agricultural sciences, 415 from social sciences, and 195 from humanities.

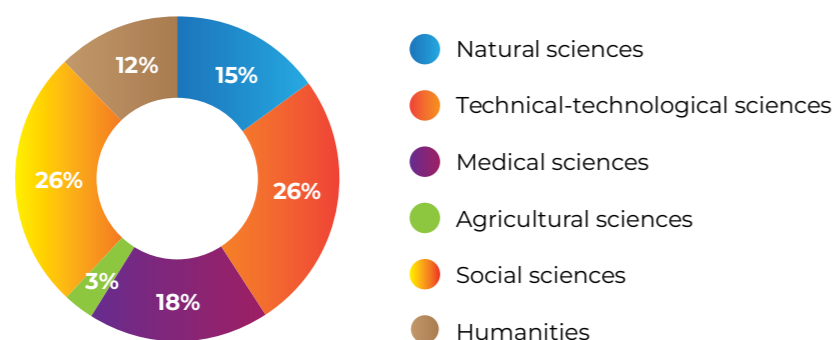


Chart 3: The total number of researchers (2018), presented according to the scientific areas

The competent Ministry is continually developing the “Scientific Network” platform, which represents an information system for providing data on scientists and researchers from Montenegro and the diaspora, as well as data on scientific projects and publications.

<sup>52</sup> <https://www.gov.me/en/documents/fcecb5e9-4573-439b-af57-c982f9adff06>

Right now, “Scientific Network” has data on 2405 researchers from Montenegro and 294 researchers from the Diaspora.

The scholarship mechanism for excellent doctoral research is a special incentive for the development of young researchers in Montenegro. The goals of this instrument are the strengthening of human resources for research innovation and competitiveness, the increase in the number of young researchers from the Montenegrin Universities and the internationalisation of the research work and the exchange of knowledge between the academic and economic sectors. Together with the mandatory mobility of at least three months in the international scientific institutions or in the private sector, and dedication to the doctoral research during three years of the support to PhD students, with exemption from the tuition on the doctoral studies, this programme has ensured significant funds for research and knowledge acquisition and exchange of experiences to young researchers.

Within this programme, three open calls were completed in 2018, 2019, and 2020, which supported 50 PhD students – 27 women and 23 men. Within the said open calls for awarding scholarships for doctoral research at the universities in Montenegro, 72 candidates (41 women and 31 men) received a positive assessment.

In the following part, a comparative representation of all positively assessed and supported PhD students according to their research areas is given to better identify the research areas of interest.

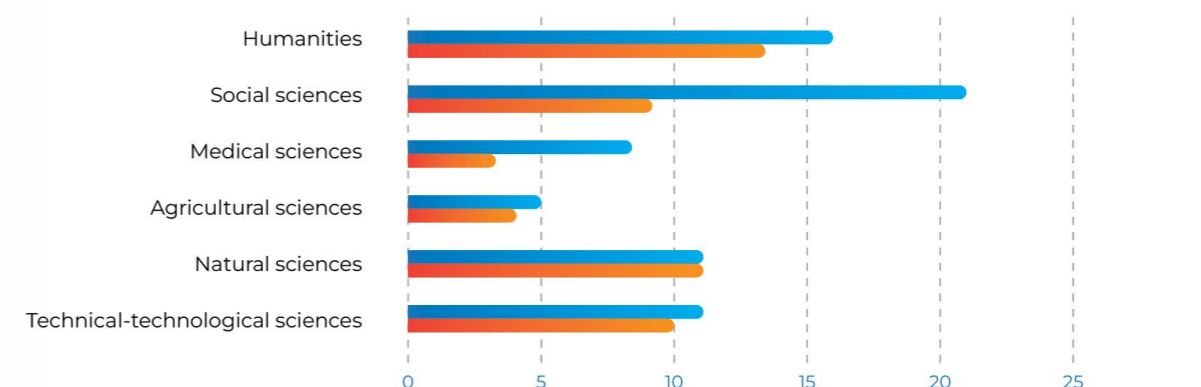


Chart 4: Comparison chart of all positively graded and supported PhD students according to the research areas on the completed open calls (2018,2019,2020)

The conditions for performing scientific research work, encouragement of young researchers, and enabling career promotion are the foundations for motivating researchers to stay in the research profession, but in Montenegro.

One of the key aspects of ERA is promoting gender equality and enhancing inclusion, especially considering the Ljubljana declaration on gender equality in research and innovation<sup>53</sup>. According to the results of the last official statistics for the field of research and development, from 2018, 50,44% of Montenegro’s total number of researchers are men, and 49,56% are women. Thus, in the area of staff structure, Montenegro does not have gender inequality.

<sup>53</sup> <https://www.genderportal.eu/resources/ljubljana-declaration-gender-equality-research-and-innovation>

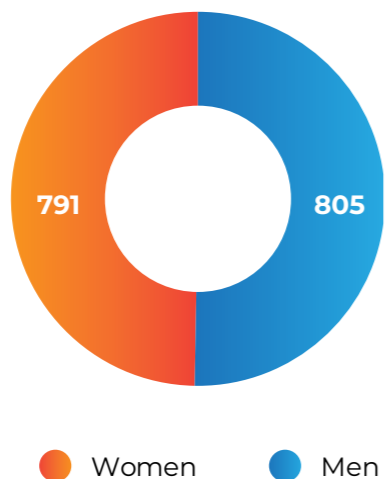


Chart 5: Total number of researchers, divided according to gender (2018)

If we consider the gender structure according to the science fields, the only significant difference is in the field of technical and technological sciences, which indicates the need for target activities towards the promotion of the STEM field among girls and women and the promotion of women towards leading positions. The Strategy for Scientific Research Activity, though places the focus on the quality and excellence of the scientific research work as a key principle, is still not gender-neutral, and Montenegro shall keep track of the gender-sensitive dimension and monitor future development through various activities defined by this strategy, but also in cooperation with scientific research institutions, all of this in order to timely take adequate measures.

## 2.5 Investment in research and development

According to the last official statistical R&D data, validated by the EUROSTAT from 2018, the total national spending on R&D in Montenegro amounted to 0,50% of GDP, what is, the gross R&D expenditure amounted to €23,490,044.00.

Chart 6 shows the R&D spending according to sectors of implementation, which shows that the most funds for research and development in 2018 were spent in the business-entrepreneurial sector (38%). The higher education sector is next (33%), then the state sector (27%) and the private non-profit sector (2%).

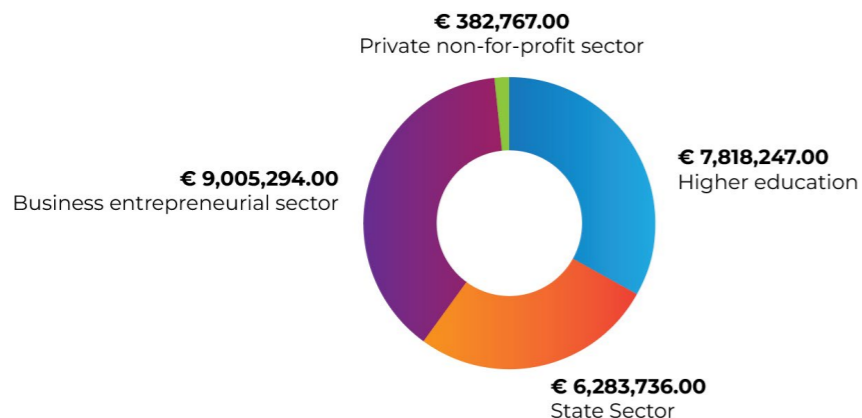


Chart 6: Spending on research and development by implementation sectors (2018)

The next chart represents the R&D expenditure depending on the source of funding.

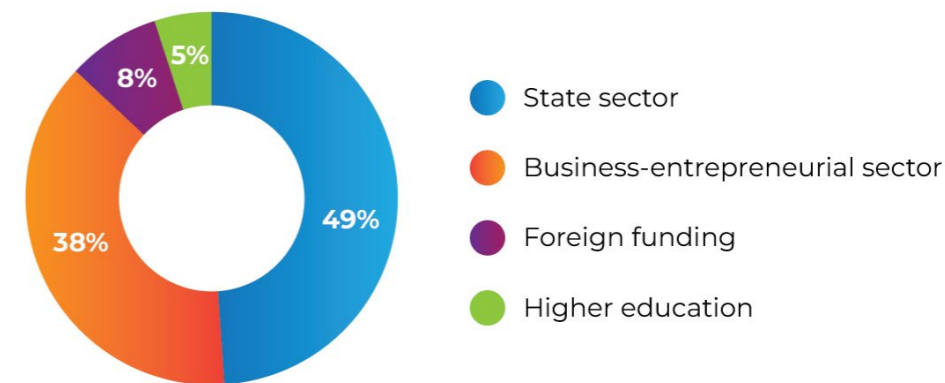


Chart 7: Source of financing for research and development (2018)

Investing in research and development while tracking the number of researchers represents the most relevant indicator of the development level of the national scientific research activity system. Thus, improving the methodology of the research and development statistics and implementing research are among the system's most urgent needs, which are placed high among the intervention priorities.

The last data indicate the lower level of investments in research and development, especially when compared with the EU member states, as evidenced by the data of the European Innovation Scoreboards (EIS)<sup>54</sup>. Specifically, research and development expenses in the public sector amounted to 28,1% in comparison to the EU average from 2023, while in the same year, the research and development expenses in the private sector amounted to 9,7% of the European average. Despite the fact that the national R&D statistics should be regularly produced that the EIS data would also reflect a real situation, these data indicate the need for the continuous increase of investment in science and innovation in the public sector and prompting of the investment of the private sector in research and development through different policy mechanism.

Below is a comparison of Montenegro's investment in research and development compared to the EU from 2011 to 2018 (UNESCO via WB).

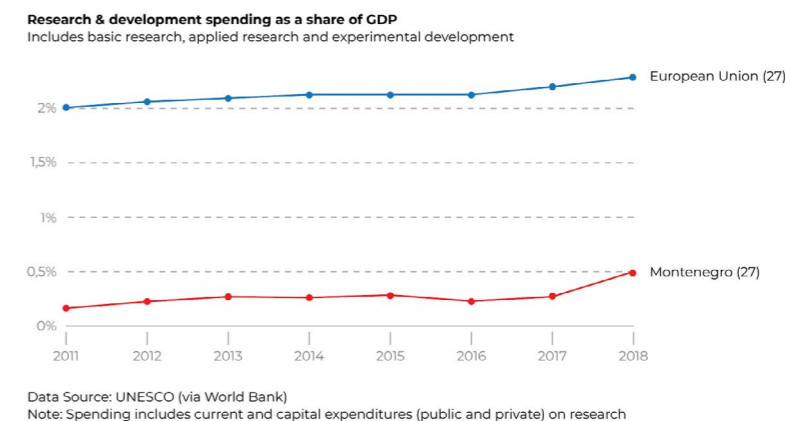


Image 1: Investment in research and development of Montenegro compared to the EU (2011-2018)

Due to the lack of valid statistical data regarding Montenegro's investments in research and development, funds approved according to the laws on the budget of Montenegro can be taken into account for the purpose of this analysis. These funds had recorded continuous growth in recent years and can be clearly followed since 2021, when a programme budget was introduced in Montenegro.

<sup>54</sup> [https://ec.europa.eu/assets/rtd/eis/2023/ec\\_rtd\\_eis-country-profile-me.pdf](https://ec.europa.eu/assets/rtd/eis/2023/ec_rtd_eis-country-profile-me.pdf)

Table 1: Overview of the State investment through funds defined by the laws on budget and through the mechanism of incentives

Year	Annual Budget Law of Montenegro	Capital Budget	Amount of the revenue scrapped by the state for the purpose of encouraging R&I	Total
2021	4.442.322,27 € Line ministry Programme „Development of Science and Technology“ 2.998.000,00 €	570.100,00 € (STP MNE)	-	5.012.422,27 €
	Line ministry Subprogramme „Innovation and Technological Development“ 1.444.322,27 €			
2022	4.793.493,00 € Line ministry Programme „Development of Science and Technology“ 2.174.635,62 €	2,923,638.84 € (NTP CG)	-	7.717.132,78 €
	MER/MNTR Potprogram „Inovacije i tehnološki razvoj“ 2.618.858,32 €			
2023	9.786.247,49 € Line ministry Programme „Development of Science and Technology“ 4.411.346,52 €	876.300,00 € 690.000,00 € (STP MNE)	1.900.000,00 €	12.562.547,49 €
	Programme „Innovation and Technological Development“ 4.081.964,89 €			
	Subprogramme „Programme framework for improvement of the industry competitiveness and overall regional“ 1.000.000,00 €			
	Budget reserve for contribution needs for participation in the HE program 292.936,08 €			
State R&I funding 2024	11.112.035,29 € Budget of the Ministry of Education, Science and Innovation Programme „Development of Science and Technology“ 5.358.847,51 €	1.335.890,00 € 890.000,00 € (Science and Technology Park MNE)	2.550.000,00 € Incentive measures for R&I according to the law – investments in start-ups	14.997.925,29 €
	Budget of the Ministry of Education, Science and Innovation Programme „Innovation and Technological Development“ 4,553,187.78 €			
	Budget of the Ministry of Economic development Subprogramme „Programme framework for improvement of the industry competitiveness and overall regional development“ 1.200.000,00 €			

The national scientific research projects are one of the most important instruments in the system of scientific research activity, whose goal is strengthening and raising the capacities of research teams in Montenegro in order to promote excellence, which would contribute to the development of a society based on knowledge and competitiveness at the international level. Therefore, the line ministry has completed two open calls in 2018 and 2023. Interest in both open calls was extremely high, as proved by the number of submitted project applications on the basis of both open calls.

From the perspective of the size of funds (2.300.000,00 €) and the overview of the current interest of the scientific research community for the specific research areas, the analysis of the results of the Call for co-financing of the scientific research projects from 2023 is relevant, according to which, the 93 project applications passed the evaluation process, while 24 projects were accepted for co-financing. The following diagram shows the accepted projects for financing, classified by the scientific fields.

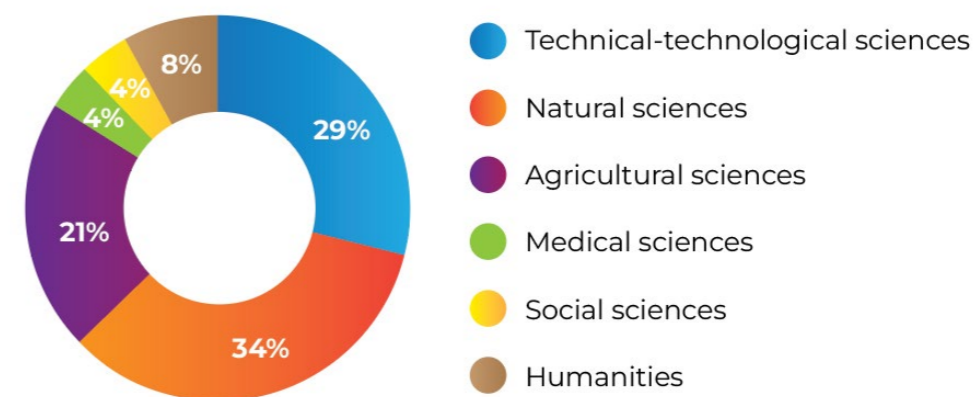


Chart 8: Scientific research projects accepted for financing, classified by the scientific fields (2023/2024)

In accordance with the said open call, aside from the abovementioned projects, which were accepted by the Ministry for co-financing, 65 project applications were positively evaluated. The overview of the positively evaluated project applications by scientific fields is given in the diagram below.

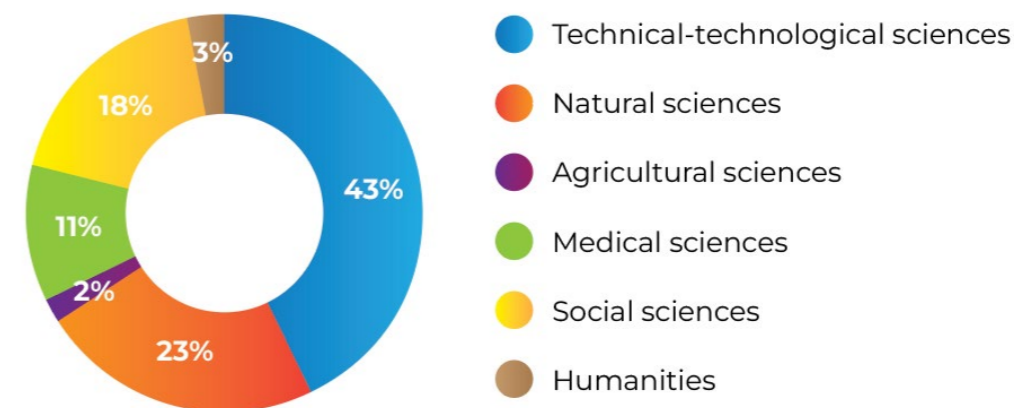


Chart 9: Positively evaluated scientific research projects by scientific fields (2023)

Although scientific research projects are the most important instrument in the promotion of scientific and research development, and they try to provide comprehensive support, the system has shown that the support to the development of scientific research activity has to be diversified and clearly program-wise broken down. Only in that way will it be possible to meet the various needs of the scientific research community at the same time respecting a different level of experience and professional needs of scientists, as well as for different scientific areas, and considering the importance of the national inter-institutional and interdepartmental networking, but also international connection and involvement of the scientific diaspora.

## 2.6 international cooperation

International cooperation in science and research is one of the key elements of a country's scientific research activity system because it enables the circulation of knowledge and technologies and a joint approach to various priorities and challenges, such as green and digital transition. It is recognised as one of the crucial ERA dimension.

International cooperation occurs on multiple levels, through: bilateral and multilateral cooperation, collaboration with the large research infrastructure, and connecting with and participation in EU programmes such as Horizon Europe, Digital Europe, COST, EUREKA, and Instrument for Pre-accession Assistance (IPA).

Montenegro has a very rich bilateral cooperation which is implemented within scientific and technological cooperation (S&T) agreements. Montenegro has signed eighteen (18) S&T agreements, namely with: the Republic of Albania, the Republic of Austria, Bosnia and Herzegovina, the Republic of Bulgaria, the Hellenic Republic, the Republic of Croatia, the Republic of Italy, the People's Republic of China, the Republic of Malta, Hungary, the Republic of North Macedonia, the Republic of Poland, the Slovak Republic, the Republic of Slovenia, the Republic of Serbia, the Republic of Turkey, the United Arab Emirates and the Czech Republic, which have resulted in numerous joint projects. Via the Call for co-financing of the bilateral scientific and technological cooperation right now, 5 bilateral projects of scientific and technological cooperation with the Republic of Italy are being implemented (projects of great importance) and 30 bilateral projects of scientific and technological cooperation with the Republic of Slovenia.

On the basis of the Programme for the financing of multilateral scientific and technological cooperation in the Danube Region, currently, scientific research institutions from Montenegro are participating in two projects. Also, Montenegro is active within the Union for the Mediterranean, whose goal is to improve scientific cooperation in the area of climate change, sustainable energy, health, food safety and blue economy, with a special focus on offering support to youth. In 2022, Montenegro signed a Manifesto for a Francophone Scientific Diplomacy, whose main aim is to improve cooperation within the AUF (Agence Universitaire de la Francophonie).

Aside from the already mentioned, Montenegro has enabled access to the larger research infrastructures for scientists and researchers, such as the European Organization for Nuclear Research (CERN), the European Molecular Biology Laboratory (EMBL), European Molecular Biology Organization (EMBO), the International Atomic Energy Agency (IAEA), International Center for Genetic Engineering and Biotechnology (ICGEB) and others. This is of particular importance when we talk about young researchers who have been recognised as a target group of special significance, even in other national policies from the area of science and innovation. Such actions contribute not only to the strengthening of the research community but also to the prevention of the brain drain and promotion of brain gain. Taking into account the orientation towards the internationalisation of the research, Montenegro has improved its cooperation with renowned international institutions and great research infrastructures through accession to the European Social Survey (ESS).

The accession of Montenegro to the "Horizon Europe" (2021-2027) Programme<sup>55</sup> was highlighted as an important milestone in the cooperation between Montenegro and EU in the field of research and

55 [https://commission.europa.eu/funding-tenders/find-funding/eu-funding-programmes/horizon-europe\\_en](https://commission.europa.eu/funding-tenders/find-funding/eu-funding-programmes/horizon-europe_en)

innovation and as a key factor for accelerated integration into the ERA. For the 2021-2023 period, through this programme, Montenegro was allocated funds in the total amount of €3.996.013,30<sup>56</sup>. However, the participation of small and medium-sized enterprises (SME) is still low, i.e. there are currently three SMEs participating in the projects, for which a total of €279,691.25 has been allocated under this programme. Due to this, the promotion of the programmes has to be continuous with a particular focus on the SME sector, but activities should also be strengthened in the direction of upgrading the NCP network capacities and participation in the Programme Committees.

In the role of an Associated country, Montenegro has participated in the framework programmes since 2008, when it acceded to the FP7 Programme, and through its participation in the Horizon Europe Programme, records the best absorption of EU funds yet. For comparison purposes, for the duration of the previous "Horizon 2020" Programme (2014-2020), Montenegrin scientific research teams were allocated funds that amounted to 4.621.760,30 €, out of which 204.325,00 € for two SMEs, which clearly indicates that after the first three years of participation in the new programme, 86% of the total EU funds from the previous programme have been withdrawn, as well as the increase in the SME participation.

Table 2: Table overview of participation in the EU framework programmes for research and innovation.

Framework programmes for research and innovation	EU contribution
FP7	4.180.075,99 €
Horizon 2020	4.621.760,30 €
Horizon Europe	3.996.013,30 €

Montenegro actively participates in the European Cooperation in Science and Technology (COST) Programme<sup>57</sup>, which represents one of the ERA pillars in the aspect of networking of research teams in related research fields. COST enables research financed at a national level to get a European framework via networking and cooperation. From 2017 to 2023, funds in the total amount of 637.050,05 € were awarded to Montenegrin research teams, of which 155.435,83 € in 2023 through short-term scientific visits, research meetings, workshops, conferences, inter-laboratory exchanges, seminars and activities concerning management and dissemination.

By signing the Memorandum of Understanding between the EUREKA Secretariat and member states of the EUREKA initiative in 2012, Montenegro became a member of the European EUREKA network<sup>58</sup> for the financing of the market-oriented projects of R&D. National support for the participation of Montenegrin institutions in the EUREKA is provided through a special open call for the promotion of participation in this network. Montenegro is extremely proactive and participates in different regionally oriented initiatives within this programme, such as the Multilateral public call for the financing of the EUREKA projects for the Danube region in 2022 and the Multilateral EUREKA call for the Western Balkans in 2024. However, the number of approved projects with the EUREKA label still is not at the desirable level. Thus, it is necessary to continue strengthening the promotion and available support for participation in the EUREKA projects.

Promotion of international cooperation is realised through the Pre-accession assistance of the European Union to Montenegro (IPA), which, as an added value, has the process of promoting cooperation between the academic community and economy (commercialisation of the research), which also represents one of the EU priorities in the field of science and research. From 2017 to 2021, from IPA funds, 13 programmes have been completed within the Sector operational program for employment, education and social policy

56 [https://dashboard.tech.ec.europa.eu/qs\\_digit\\_dashboard\\_mt/public/sense/app/1213b8cd-3ebe-4730-b0f5-fa4e326df2e2/sheet/d23bba31-e385-4cc0-975e-a67059972142/state/analysis](https://dashboard.tech.ec.europa.eu/qs_digit_dashboard_mt/public/sense/app/1213b8cd-3ebe-4730-b0f5-fa4e326df2e2/sheet/d23bba31-e385-4cc0-975e-a67059972142/state/analysis)

57 [www.cost.eu/about/about-cost](http://www.cost.eu/about/about-cost)

58 <https://eurekanetwork.org/>



2015-2017 (SOPEES) in the total amount of €952,669.46, while 8 projects from the Grant scheme “Scientific potential in the service of innovation” are currently being implemented, as well as 8 projects from the Grant scheme “Support implementation of the Smart Specialization Strategy”. The IPA III action programming is currently focused on strengthening the skills of young researchers in the context of the Green Agenda, but the huge potential lies in the reform measure relating to research and innovation under the Western Balkans Growth Plan agenda of Montenegro.

## 2.7 Presentation of the connection of causes and problems with strategic and operational objectives

<b>Key problem 1: Adverse conditions for the functioning of the scientific research activity</b>	<b>STRATEGIC OBJECTIVE 1: Enhancement of the framework conditions for functioning of the scientific and research activity in Montenegro</b>
Cause 1. Obsolescence of the legal framework	Operative objective 1.1: Enhancement of the legal framework for the scientific and research activity
Cause 2: Lack of data transparency of the performance of the system of scientific research activity and prevention of making important strategic decisions	Operative Objective 1.2: Enhancement of the scientific and research monitoring system
Cause 3: Inadequate research infrastructure (lack of modern equipment, laboratories and other resources) and non-existence of updated data on research infrastructure	Operative Objective 1.3: Strengthening the research infrastructure
Cause 4: Limited access to scientific publications, research data and results	Operative Objective 1.4: Promotion of the implementation of the Open Science concept
<b>Key Problem 2: Lack of appealing work conditions for researchers and scientists</b>	<b>STRATEGIC OBJECTIVE 2: Strengthening human resources and institutional capacities in science and research</b>
Cause 1: Insufficient hiring of young researchers	Operative Objective 2.1: Support to the young researchers
Cause 2: Lower level of support to scientific research work in the aspect of financing for the projects, upgrading of the scientific research equipment and mobility of researchers	Operative Objective 2.2: Support to the promotion of the scientific research work
Cause 3: Weak cooperation between science and economy and a low level of connection between the academic and private sector	Operative Objective 2.3: Promotion of the cooperation between science and economy
Cause 4: Weaker understanding of the importance of science and research in the public	Operative Objective 2.4: Promotion of the Science in Society
<b>Key problem 3:</b> Insufficient capacities for the utilisation of strategic international partnerships, which would enable the exchange of knowledge, resources and cooperation with leading research institutions in the world	<b>STRATEGIC OBJECTIVE 3: Strengthening international cooperation in science and research</b>
Cause 3: Insufficiently used possibilities for cooperation with renowned scientific teams and institutions in the world.	Operative Objective 3.1: Achieving the sustainable results by reinforcing international cooperation and networking
Cause 2: Lower level of participation in the EU programs for science and research	Operative Objective 3.2: Increasing participation in the European programmes for science, research and technological development

## 2.8 SWOT analysis

Examining the current situation, aiming to analyse the state of scientific research activity in Montenegro in a deeper manner, and examining external and internal factors that impact the implementation of the results of this Strategy the SWOT analysis has been prepared, in order to accurately identify potential problems and solutions in the scientific research activity system.



## III STRATEGIC OBJECTIVES, OPERATIVE OBJECTIVES AND ACTIVITIES

### VISION

Montenegro is a model of successful integration of science, technology and innovation into social and economic development, an inspiring and supportive environment for scientific research.

### MISSION

Improvement of the sustainable environment for the scientific research activity through enhancement of the legal framework, strengthening of human resources and research infrastructure, promotion of Open Science, and support to young researchers, and cooperation between science and economy, with active participation in international research programmes and projects. These activities shall enable creation of the stimulating and sustainable research environment which encourages innovation, supports young researchers and promotes synergy between science and economy.

Montenegro's final goal for the scientific research activity area 2024-2028 is to greatly improve the efficiency and effectiveness of the scientific research activity and contribute to the state development via enhancement of the quality of science and research and further integration in the ERA. Within this integral goal, objectives which will lead to the desired situation are defined as well. This state includes the high quality of the scientific research staff, infrastructure and scientific results, focused on strengthening competitiveness by defining the objectives and priorities of this Strategy. By defining the goals and priorities of this Strategy, an institutional framework is defined that aims to encourage excellence in science and research, through communication of scientific knowledge, and thus contribute to the continuous economic development and competitiveness of the economy, and especially to the development of society as a whole, with the ultimate goal of Montenegro's transition from the developing economy into developed economy.

Therefore, the Strategy for Scientific Research Activity of Montenegro 2024-2028 defines three strategic objectives and connected 10 operative objectives:

<p><b>Strategic objective 1:</b> Enhancement of the framework conditions for functioning of the scientific and research activity in Montenegro</p>	<ul style="list-style-type: none"> <li>• Operative objective 1.1: Enhancement of the legal framework for the scientific and research activity</li> <li>• Operative objective 1.2: Enhancement of the scientific and research monitoring system</li> <li>• Operative objective 1.3: Strengthening the research infrastructure</li> <li>• Operative objective 1.4: Promotion of the implementation of the Open Science concept</li> </ul>
<p><b>Strategic objective 2:</b> Strengthening the human resources and institutional capacities in science and research</p>	<ul style="list-style-type: none"> <li>• Operative objective 2.1: Support to the young researchers</li> <li>• Operative objective 2.2: Support to the promotion of the scientific research work</li> <li>• Operative objective 2.3: Promotion of the cooperation between science and economy</li> <li>• Operative objective 2.4: Promotion of Science in the Society</li> </ul>
<p><b>Strategic objective 3:</b> Strengthening international cooperation in science and research</p>	<ul style="list-style-type: none"> <li>• Operative objective 3.1: Achieving sustainable results by reinforcing international cooperation and networking</li> <li>• Operative objective 3.2: Increasing the participation in the European programmes for science, research and technological development</li> </ul>

## Strategic Objective 1: Enhancement of the framework conditions for functioning of the scientific and research activity in Montenegro

Science and innovation are drivers of the sustainable and competitive growth and development of the economy and society as a whole. Thus, ensuring favourable environment for research and innovation development are the full focus of Montenegro's strategic vision for the next five years.

A prerequisite for the scientific and research activity development in Montenegro refers to the general conditions of the scientific and research development, primarily through enhancement of the legal framework aimed at the additional harmonisation of the terminology with the EU standards, strengthening of the institutional framework as well as reinforcement of the monitoring and evaluation system, all of this in order to create a more optimal surrounding for the works of researchers and scientific research institutions. These changes shall include the creation of a new programme framework for the area of scientific research activity, which shall unite programme paths of support to science and innovation, thus, in a stronger way, binding support mechanisms and improving the basis for the increase in investment in this area. On the other hand, there is no modern research without an up-to-date infrastructure, which includes laboratories, equipment and excellent teams which work on the said infrastructures. This will significantly be aided by the process of mapping research infrastructure and defining an adequate model for its further development in Montenegro. The Open Science concept rests upon the above-mentioned, which strengthens transparency of the research process and availability of the research data, results and publications in order to create conditions for involving the wider community in research activities and to make results of the research work available to them. At the same time, it is particularly important to track the scientific research activity system's effects, to clearly assess their impact, and to react to all the identified issues in a more efficient manner through better planning, management and resource allocation, and identification of the key areas for the enhancement. Additionally, such an approach allows a more accurate reporting on the research results and their influences on society and the economy.

### Operative objective 1.1: Enhancement of the legal framework for the scientific and research activity

Clearly defined and inciting regulatory basis is one of the crucial prerequisites for the implementation of the scientific research activity. This framework defines in which way scientific research is implemented, how they are financed and valued, and which actors are part of the science and research system. Compliance of this framework with the laws in the field of higher education, intellectual property, tax laws or specific laws which, for example, define environmental protection, is one of the key elements of the seamless development of the determined manner of scientific research activity system's functioning. This framework in Montenegro is harmonised with the EU legislation, but demands continuous additional upgrading in line with the new EU initiatives and standards. This enables the Montenegrin scientific research community to collaborate and exchange knowledge and resources in an easier manner, bearing in mind the mutual understanding of the basic principles and values of this cooperation.

#### Activity 1.1.1 Drafting of the Law on Scientific and Research Activity

*Activity Description:* This activity refers to the establishment of the Working group for the preparation of the Draft Law on the Scientific Research Activity, which will work on the aspect of basic definitions, funding model, enhancement of the role and model of the centres of excellence and monitoring and evaluation systems.

*Activity promoter:* MESI

*Partners:* Scientific research community

#### Activity 1.1.2 Drafting the Rulebook on closer conditions for establishment and licensing of the scientific and research institution

*Activity Description:* In order to improve the licensing process of the scientific research institutions, in accordance with the new Law on scientific and research activity, a new Rulebooks shall be adopted.

*Activity Promoter:* MESI

*Partners:* Scientific research community

#### Activity 1.1.3 Drafting the Rulebook on the closer conditions, approval procedures and manner of use of the funding for scientific and research programmes and projects

*Activity Description:* In order to improve the conditions for scientific research work within the national scientific research programmes and projects, a new Rulebook shall be adopted in line with the Law on Scientific Research Activity.

*Activity Promoter:* MESI

*Partners:* Scientific research community

#### Activity 1.1.4 Drafting the Rulebook on the criteria for appointment of the independent experts and the evaluation procedure for scientific research programmes and projects

*Activity Description:* A new Rulebook shall be adopted in order to define clear criteria for the selection of the independent experts and to ensure a high-quality evaluation process of the scientific programmes and projects.

*Activity Promoter:* MESI

*Partners:* Scientific research community

#### Activity 1.1.5 Drafting the Rulebook on the conditions and closer criteria for Scientific Achievements Awards

*Activity Description:* Activities refer to the upgrading the text of the Rulebook on Scientific Achievements Awards.

*Activity Promoter:* MESI

*Partners:* Scientific research community

#### Activity 1.1.6 Science and Innovation Programme

*Activity Description:* A comprehensive Science and Innovation Programme shall be prepared to clearly present the support package for the science and innovation development by the State to the scientific research and innovation community, following each segment of the development in the research and innovation system with an adequate programme line, and better interconnect scientific and innovation programmes.

*Activity Promoter:* MESI

*Partners:* Scientific research community and the World Bank through the BEST programme

## Operative objective 1.2: Enhancement of the scientific and research monitoring system

The establishment and maintenance of the strong scientific research monitoring system primarily provides a clear picture of the system's performances through the identification of the open issues and weaknesses, but also its strengths, which may be an important element of competitiveness if they are encouraged in a correct way. The system review generated in this manner is an important input for the creation of the development directions of science and research policy, which should lead to optimisation and more efficient planning and utilisation of the available resources, as well as attracting additional investments for the development of this sector. Regular monitoring allows for transparency, which shall lead to a greater trust in science and research, but also guarantees quality, as it is followed by compliance with laws and standards.

### Activity 1.2.1 Develop an innovative methodology in accordance with EUROSTAT regulations and the OECD Manual

*Activity Description:* Development of the national methodology, in line with Eurostat's methodology and regulations and OECD Manual, which includes defining the concepts and indicators, and instruments for the collection of data on R&D expenditures and human resources.

*Activity Promoter:* MESI

*Partners:* Licensed scientific research institutions

### Activity 1.2.2 Establish inter-institutional cooperation to efficiently collect and process data for R&D statistics

*Activity Description:* This activity refers to the amendment to the five-year Programme of Official Statistics, as well as the Annual plan of the Official Statistics, in order to change the official provider on R&D statistics from the Statistical Office to MESI.

*Activity Promoter:* MESI

*Partners:* Statistical Office (coordinator of the official statistical system)

### Activity 1.2.3 Monitoring of the gender-sensitive statistics for the Ministry's support programmes

*Activity Description:* To promote gender equality in research, regular monitoring of gender-sensitive statistics shall be established for the Ministry's support programmes.

*Activity Promoter:* MESI

*Partners:* /

## Operative objective 1.3: Strengthening the research infrastructure

The research component is one of the crucial ones in the scientific research activity system and includes physical infrastructure, organisational and human resources, which enable the implementation of competitive research. It has a very important role in the development of innovation and new technologies; thus, investing in the modernisation of this infrastructure leads towards the creation of new products

and services and, therefore, a stronger connection with the market. Research infrastructure is one of the motivational factors for young people, who, by working on it, acquire education and skills and conditions for professional development. Competitive and developed research infrastructure facilitates cooperation among different research teams at the national and international levels and prompts the development of interdepartmental cooperation, especially if open access to it is enabled. Digital infrastructure and data access are the prerequisites for all modern research. As a result, key directions of the future development of the research infrastructure include modernisation, greater access to financing, and promotion of networking, so that effort is not doubled at the national level and so that interdisciplinarity is encouraged but also opening access to promote utilisation and connectivity with the public, private and civil sector.

### Activity 1.3.1 Mapping of research infrastructure

*Activity Description:* In order to prepare the most important document in the area of research infrastructure, i.e. the Roadmap for Research Infrastructure in Montenegro (2024-2028), it is necessary to perform the research infrastructure mapping.

*Activity Promoter:* MESI

*Partners:* Licensed Scientific, Research and Innovation Institutions, Universities

### Activity 1.3.2 Preparation of the Roadmap for Research Infrastructure in Montenegro (2024-2028)

*Activity Description:* The Roadmap for Research Infrastructure is the key strategic document in the area of research infrastructure. Its aim is to identify strategic development directions in this field, identify current instruments of financing research infrastructure and potential for new investments, represent the best examples of successful projects, and identify the potential for the use of pan-European infrastructure.

*Activity Promoter:* MESI

*Partners:* The World Bank within the BEST programme

### Activity 1.3.3 Strengthening capacities for Open access to research infrastructure

*Activity Description:* Training and workshops shall be provided so that the interested public, especially researchers, can best use the research infrastructure, familiarise themselves with its access conditions, and strengthen their research capacities.

*Activity Promoter:* MESI

*Partners:* UoM, UDG, University Mediteran, University Adriatik

### Activity 1.3.4 Networking and promotion of Open access to Research Infrastructure Policy in the Western Balkans

*Activity Description:* As one of the Western Balkan countries, Montenegro shall sign the Western Balkans Declaration on Research and Innovation Infrastructure Access and Collaboration with the aim to cooperate, exchange expertise, and use research infrastructure efficiently.

*Activity Promoter:* MESI

*Partners:* Western Balkans Countries

### Activity 1.3.5 Support to the upgrading of infrastructure for the scientific research work - Purchasing of equipment, tools and consumables

*Activity Description:* To create conditions for high-quality scientific research work, support shall be provided towards the improvement of infrastructure necessary for the scientific research work through the purchase and/or servicing of equipment and tools and the acquisition of consumables.

*Activity Promoter:* MESI

*Partners:* Licensed scientific research institutions

## Operative objective 1.4: Promotion of the implementation of the Open Science concept

Open Science concept has become a widely accepted research implementation principle in ERA, particularly on the projects funded by EU. Open scientific knowledge is the most significant aspect of Open Science, and it refers to open and free access to scientific publications, research data, metadata, open educational resources, software, source code and hardware, which are available in the public sphere or under the author's rights and licensed with an open license which enable the access, reuse, repurpose, adaptation and distribution under certain terms. Additionally, it is understood that open access is available to all actors, not only for the research community. Open scientific knowledge also refers to the opportunity to open new research methodologies and evaluation processes. In that sense, Open Science brings benefits for everyone:

- researchers (e.g. greater visibility and citing of scientific publications, free access to the research results of other research teams, greater possibility of participating in interdisciplinary research, and collaboration projects with economy, easier reproduction of research results which increases academic integrity, etc.);
- research financiers (e.g. insight into how the funds invested into science are spent, faster application of research results in practice, an increase of trust in scientific research, improvement of the excellence and relevance of the research, etc);
- entire society (e.g. larger scientific efficacy, better cooperation between the economy and science, participation of the wider community in certain types of research, solution of the local issues through collaboration with the research groups, etc.).

Due to all the benefits that Open Science may provide, and in accordance with the EU practice of research funding, key lines of action in Montenegro should be oriented towards the support of the implementation of the Open Science principles by continuing the aid in publishing scientific papers in open access journals, definition of the guidelines for Open Science during funding of the national scientific research projects, raising awareness on the importance of Open Science and community network in this field, all of this, so that, ultimately, a solution is found for an appropriate infrastructure mechanism.

### Activity 1.4.1 Support to the Open Access

*Activity Description:* It is necessary to allow the public insight into research via open-access publications, research data and research infrastructure in order for research activity to be established on the Open Science principles.

*Activity Promoter:* MESI

*Partners:* UoM, UDG, UM, UA

### Activity 1.4.2 Raising awareness of the importance of Open Access

*Activity Description:* This activity aims to raise awareness and strengthen skills through workshops and thematic meetings in the Open Science area for all Montenegrin actors in the scientific process.

*Activity Promoter:* MESI

*Partners:* UoM, UDG, UM, UA, licensed SR institutions

### Activity 1.4.3 Upgrading of the Scientific Network ("Naučna mreža") platform

*Activity Description:* The *Scientific Network* platform represents an information system administrated by the Ministry, where information on researchers in Montenegro and the Diaspora and licensed scientific research institutions are available, which opens the opportunity for networking of the Montenegrin scientific research community and for cooperation between Montenegrin scientists and scientific Diaspora and international researchers. The Platform shall be upgraded functionally and visually, which shall enable easier use of the available data within the system, facilitate the collaboration between the scientists and achieve greater promotion of science.

*Activity Promoter:* MESI

*Partners:* /

## Strategic Objective 2: Strengthening human resources and institutional capacities in science and research

The long-term development of scientific research activity is primarily dependent on the basis and quality of human resources, which is why investing in their excellence is one of the crucial strategic trends. To create adequate conditions and enable the development of scientific research activity, it is necessary to provide attractive and favourable work conditions and appropriate instruments for supporting the research and scientific career development. Specifically, strengthening the scientific research careers is accomplished by developing and promoting attractive and sustainable work conditions, which further contributes to the implementation of a powerful cycle of knowledge in Montenegro's scientific research system, which shall additionally increase its appeal on the European scene. The creation of such conditions ensures representative research and acceptance of innovative European challenges, that is, the creation of inviting research surroundings for young researchers and talents and the scientific research community and represents the basic requirement for long-term sustainable competitiveness and motivation for keeping the talents in the country. Therefore, the said objective is obtainable through programme support for involving young researchers/talents in scientific research work and special programmes for postdoctoral studies, as well as strengthening cooperation with the scientific diaspora and supporting the researchers' mobility.

The institutional capacities development in science and research is especially significant in order to reinforce the quality of the scientific research work and their readiness for generating innovations and collaboration with the economy. In this area, policy intervention primarily refers to the formulation of the sustainable support system through national scientific research projects and large-scale grant support systems, but also creating opportunities for different forms of support, which shall be defined on a programme basis. Finding the systemic manner and way in which scientific research results are transformed in commercial products and services and are finding their way to the market, as well as determining the institutional mechanism of the technological transfer and cooperation with the economy, shall significantly contribute to the establishment of the sustainable science-economy partnerships but also placing specific long-term products on the market. Finally, bearing in mind the wider social context, visibility and promotion of policy and results of the scientific research work must be reinforced among all relevant targeted audiences in order to motivate younger generations and make the results available to the public, with a particular focus on the promotion of researchers' and scientists' work.

## Operative objective 2.1: Support to the young researchers

The widening of the researchers' basis through the creation of the optimal environment for new generations of researchers is at the centre of human resources development policy in research and innovation. In order to adequately encourage both motivation and development of young researchers who, at the beginning of their careers, are faced with numerous challenges, it is necessary to encourage them to work in research in that early stage because they will be liberated from all the financial burdens through the programme of scholarships or grants which promote the involvement of young researchers. In this sense, scholarships refer to doctoral and postdoctoral research. Having said that, a mentor's support is extremely important, as it will systematically direct a young researcher towards not only an approach to scientific research but also to the acquisition of skills necessary for the carer's advancement. Access to different resources, infrastructure, equipment, digital tools and bases is an important factor in motivating young researchers to do science and research. The third segment is concerned with networking through different forms of short-term and long-term mobility, participation in scientific meetings and different projects. The goal is that during the entire development process of a young researcher, they are ready for the labour market, whether it's an academic field or the economic one. For that purpose, programmes such as the pre-acceleration programme, led by IEC "Tehnopolis", are particularly important because they motivate young people from academic backgrounds to creativity and innovation, which with mentoring and training support, can find their way to the market or innovation vouchers or collaborative innovation grants, where a young researcher can gain knowledge on how to apply their research on the market.

### Activity 2.1.1 Scholarship programme for the excellent PhD research

*Activity Description:* By motivating young researchers to do research by awarding scholarships for doctoral research, reinforcement of human resources for research, innovation, and competitiveness will occur. The number of young researchers in the universities in Montenegro will increase, and the exchange of knowledge between the academic and economic sectors will strengthen, as will the internationalisation of the research work.

*Activity Promoter:* MESI

*Partners:* UoM, UDG, UM, UA

### Activity 2.1.2 Scholarship programme for excellent post-doctoral research

*Activity Description:* To acquire international experience and access to the modern research infrastructure, which is not available in Montenegro, the specialisation of young PhDs who want to continue their research careers and additionally improve their scientific research work shall be promoted.

*Activity Promoter:* MESI

*Partners:* /

### Activity 2.1.3 Support for the engagement of the young researchers through national scientific research projects

*Activity Description:* Specialisation of young researchers contributed through the national projects, which are aimed at strengthening the capacities of the research teams in Montenegro and inciting excellence, which also contributes to social development based on knowledge and competitiveness at the international level.

*Activity Promoter:* MESI

*Partners:* Licensed scientific research institutions, private and public sectors

### Activity 2.1.4 Preparatory activities on the Programme for cooperation with scientific Diaspora

*Activity Description:* Reinforcing the connection with the scientific diaspora shall enable a higher quality of research and interconnection with international partners and encourage our diaspora to be a more active participant in the research in Montenegro.

*Activity Promoter:* MESI

*Partners:* /

### Activity 2.1.5 Co-funding the completed PhD studies

*Activity Description:* The Ministry constantly provides support to young researchers after the defence of their PhD theses to stimulate further research work.

*Activity Promoter:* MESI

*Partners:* /

### Activity 2.1.6 Co-funding the short-term mobility of young researchers

*Activity Description:* Providing support to young researchers for short-term research visits abroad for the purpose of their admission to research teams from renowned scientific institutions abroad through networking with researchers from similar research areas. Short-term scientific mobility should provide knowledge of new techniques/technologies and access to specific data, instruments and methods which are not available in the native countries.

*Activity Promoter:* MESI

*Partners:* Scientific Research Community, International Scientific Research Institutions

### Activity 2.1.7 Support for cofinancing the tuition fees for the national and international MA and PhD studies

*Activity Description:* Cofinancing the tuition fees for Master and PhD studies offers support to talented students and enables them to improve their knowledge and skills. This initiative contributes to the development of the system of education and increases the competitiveness of the workforce.

*Activity Promoter:* MESI

*Partners:* Scientific research community, International scientific research institutions

## Operative objective 2.2: Support to the promotion of the scientific research work

To improve both the individual capacity of the researchers and scientists and institutional capacities, continued work on the enhancement of the support to the scientific research work is necessary, which primarily includes greater investments in science and research, but also a clearly defined support framework which meets the needs of the scientific research community in different developmental phases of their career, and especially in the aspects of the scientific research work. This support consists of different interventions in various aspects: promotion of the implementation of as many scientific research projects as possible, improvement of the research infrastructure, purchase of equipment, promotion of excellence and aid to excellent research teams, institutional support to publishing scientific results in scientific journals and in conferences, promotion of interdisciplinarity and interdepartmental networking,

etc. Planning of such support shall be significantly improved through a planned development of the detailed programme foundation as well, which shall make the available support in the system of science and research visible to the community too.

#### **Activity 2.2.1 Supporting scientific research work via national projects**

*Activity Description:* Through cofinancing of the national scientific research projects, it shall be ensured the strengthening of human resources and creation of the new jobs for researchers, promotion of cooperation with the economic sector, promotion of the interdisciplinarity of the researchers, encouragement for young researchers engagement, promotion of gender equality in research; promotion of collaboration with esteemed international research teams and stimulation of the cooperation with the Montenegrin scientific diaspora.

*Activity Promoter:* MESI

*Partners:* Licensed SR Institutions, economy, public sector

#### **Activity 2.2.2 Research excellence grant support programme for strengthening of human and institutional capacities**

*Activity Description:* Research grants for excellence shall be awarded to research teams in Montenegro that have accomplished international scientific cooperation or collaboration with the economic sector, which may contribute to the creation of commercial innovations and the strengthening of the Montenegrin economy.

*Activity Promoter:* MESI

*Partners:* Licensed SR Institutions, international scientific institutions, economy, public sector

#### **Activity 2.2.3 Co-funding of the researchers' participation in the scientific conferences**

*Activity Description:* The Ministry provides support for researchers' participation in scientific meetings and conferences, where they are supposed to present their work, in order to enable researchers to exchange acquired experiences and improve their knowledge.

*Activity Promoter:* MESI

*Partners:* /

#### **Activity 2.2.4 Co-funding the organization of the scientific conferences in Montenegro**

*Activity Description:* Scientific conferences provide opportunities for the exchange of knowledge and experience, further networking of the researchers and create new possibilities for collaboration.

*Activity Promoter:* MESI

*Partners:* /

### **Operative objective 2.3: Promotion of the cooperation between science and economy**

Cooperation between science and economy plays a vital role when it comes to the promotion of economic growth and exchange of knowledge, resources and skills, which are of essential importance for the progress of society as a whole. It contributes to the development of new products, improvement of the current technologies and creation of new markets. Through joint projects and appropriate research/innovative infrastructure, academic and private sectors can work on solving complex issues and challenges together.

Structurally established cooperation between academic and private sectors enables quicker transformation of the scientific findings into commercially applicable products and services. The academic sector is very often the source of fundamental research and innovative ideas, while the private sector offers financial means, technological expertise and market knowledge so that those ideas have a future on the market. Aside from that, the cooperation between academic and private sectors also contributes to the human resources development. Through different cooperation programmes, such as internship, mentorship and working on common research projects, young people have the opportunity to acquire practical experience and skills necessary for a successful career in the economy itself. This very important collaboration helps in closing the gap between theory and practice, but also enables the workforce to be adequately prepared for the requests of the modern labour market.

The role of the State in promoting this cooperation in these two sectors is of crucial significance. Through financial aid, the creation of an incentivised framework, support for education and research and active participation in public-private partnerships, the state sector creates an optimal environment for innovations and technological development, which shall be of use to the entire society. Therefore, this operative objective is concerned with targeted support through the mechanism of collaborative projects, where through supporting applied and developmental research, scientific research activity for the market needs is incentivised. Additionally, innovative infrastructures play an important role, primarily the Science and Technology Park of Montenegro and the Innovation and Entrepreneurship Centre „Tecnopolis“ Nikšić, as well as the positioning of the Technological Transfer Office (TTO), which aims to facilitate the commercialisation of the scientific results and economic cooperation. This framework includes tax exemptions for research and innovation, protection of intellectual property, as well as relevant regulations which make the founding of the startups and development of innovative products/services easier.

#### **Activity 2.3.1 Collaborative Innovation Grant Programme**

*Activity Description:* This activity refers to the implementation of the collaborative innovation grants. The subject of the Programme is the allocation of grants to the micro, small and medium enterprises, which are carrying out research and development projects aimed to create new products, services, technologies or processes in collaboration with “the organisation for research and knowledge dissemination”.

*Activity Promoter:* Innovation Fund of Montenegro

*Partners:* MESI

#### **Activity 2.3.2 Proof-of-Concept Programme**

*Activity Description:* Using the innovative Proof of Concept Programme (PoC), the need for supporting innovation from the earliest research phases is recognised in order to provide evidence that new processes or technologies are attainable and that they potentially can have commercial application. The main goal of this programme is to support innovation in the early stages of research to ensure pre-commercial capital for technical and commercial check of the innovative concept and strengthening of the capacities and capabilities of the of the private sector and scientific research institutions for research, development and innovation.

*Activity Promoter:* Innovation Fund of Montenegro

*Partners:* MESI

**Activity 2.3.3 Creation of conditions for technology transfer activities in Montenegro**

*Activity Description:* This activity refers to the creation of conditions for the establishment of the Technological Transfer Office in cooperation between the Government of Montenegro and the University of Montenegro and to the promotion of strengthening the capacities in this area.

*Activity Promoter:* MESI, UoM, STP MNE

*Partners:* Scientific Research and Innovation Community

**Activity 2.3.4 Strengthening programme and project activities of the innovation infrastructures**

*Activity Description:* This activity refers to the support provided by the innovation infrastructures through a clearly defined series of services to the scientific research and innovation community. The accent is on initiating full functionality of STP MNE, which shall position itself as a centre of infrastructural support for the development of innovation and technology in Montenegro within the planned period, and on connecting the scientific research community with the economy. In this role organisation, already fully operative IEC "Tehnopolis" shall strengthen its support to the scientific research and innovation community through the improved offer of the specialized services.

*Activity Promoter:* STP MNE, Tehnopolis

*Partners:* MESI

**Operative objective 2.4: Promotion of Science in Society**

In order to strengthen the role of science in solving the societal challenges, it is necessary to actively promote its role and importance and integrate it into different social segments.

Integrating science into society is a holistic approach that includes education, research, public policy, and support for researchers.

One of the key aspects of the promotion of science and innovation as an additional element is education. Education plays a crucial role in the creation of a scientifically literate society. Promotion of scientific disciplines in schools, universities and through continuous education of adults is enabling the acquisition of the basic understanding of scientific methodology critical thinking and importance of empirical evidence. Through education, people become aware of how science and technological development impact their everyday lives, encourage them to ask questions and search for the answers, and empower them to make decisions based on facts. Apart from education, media also play a key role in the promotion of these areas. Science can be available to the wider public through popular scientific shows, articles, documentaries, and social media. A high-quality media content can demystify complex scientific concepts, inspire people of different ages to become interested in science and innovation, and encourage them to do more research. Additionally, promotions of these contents in media allow scientists to share their research results with a wider public, thus building a bridge between the academic community and broader society. A special emphasis in this part shall be placed on the promotion of STEM fields among girls and women and on the promotion of women in leading scientific positions.

Public and state institutions should primarily, actively support and organise events which promote science and innovation. That includes science fairs, exhibitions, lectures and workshops that are open to the public. Such events enable direct interaction between the researchers and citizens, which strengthens the trust in science and incites the interest in it. In addition to this, young people are encouraged to think about their careers in all scientific disciplines and contribute to the diversity and strengthening of the scientific community. The promotion of science is not only a matter of the scientific community, as it demands the involvement of all social segments. Through joint efforts of educational institutions, media and state institutions, the private sector and citizens, we shall build a society which values and supports science as a

key for the sustainable development, innovation and tackling global challenges. The promotion of science is not just an investment in the future, but also an investment in a better and more prosperous world for all of us.

**Activity 2.4.1 Co-funding the science and research promotion projects**

*Activity Description:* Science promotion requires engagement of all social elements. Through joint efforts of educational institutions, media, state institutions, the private sector, and citizens, we build a society that values and supports science as a key for sustainable development, innovation, and resolving global challenges. The Ministry is co-financing project activities that promote science and research to bring scientific issues and methods closer to young people and wider audiences.

*Activity Promoter:* MESI

*Partners:* Licensed SR Institutions, legal entities performing scientific research and/or educational activity, public sector

**Activity 2.4.2 Scientific Achievements Awards**

*Activity Description:* Scientific Achievements Awards are an yearly placed mechanism with the aim to promote research and innovation work and to ensure that the results of these activities gain recognition and visibility in the public.

*Activity Promoter:* MESI

*Partners:* Scientific research community

**Activity 2.4.3 Implementation of the promotional activities for reinforcing the visibility of the scientific and research activity**

*Activity Description:* Promotion through the organisation of training and workshops shall enable better transparency and visibility. Additionally, this activity shall include increasing the visibility of women in leading scientific positions and promoting STEM fields among girls and women.

*Activity Promoter:* MESI

*Partners:* Scientific research and economic community and civil sector

**Activity 2.4.4 Organisation of the "Science and Innovation Days 2024" Festival**

*Activity Description:* "Science and Innovation Days" festival is held annually, traditionally in September. The Festival is for all ages and has diverse content. Visitors have the opportunity to learn more about scientific concepts and processes and how they are used in practice by participating in different interactive activities and becoming interested in working in science.

*Activity Promoter:* MESI

*Partners:* Licensed scientific and research institutions, legal entities performing scientific research and/or educational activity, public sector, economy



## Strategic Objective 3: Strengthening international cooperation in science and research

International cooperation in science and research is a third key strategic orientation of Montenegro, and it contributes to the strengthening of researchers' education and training, interconnection and building of sustainable international partnerships, opens the possibilities for joint projects, transfer of knowledge and technology, but primarily, enables joint action as a response to global challenges. The purpose of the international cooperation is to improve the quality and optimisation of the impact of scientific research work through development of the mutual trust and understanding of the foundational principles upon which this cooperation should take place. For this very reason, Montenegro is a part of the multilateral dialogue on the principles and values of international cooperation in science and research, all of which are in the context of the Global approach<sup>59</sup>.

Strengthening of the international cooperation in Montenegro includes several key directions:

- Widening already extensive bilateral scientific and technological cooperation through the signing of new agreements and continuous support of bilateral projects;
- Cultivation of the multilateral dialogue and programmes of scientific and technological cooperation;
- Strengthening of the access to the large international infrastructures;
- Cooperation with international organisations within the area of science and research;
- Planning of the support within the Instrument for Pre-accession Assistance (IPA) and
- Strengthen participation in EU science and research programmes.

To attain this, two operative objectives have been defined:

### Operative objective 3.1: Achieving sustainable results by reinforcing international cooperation and networking

The focus of this operative objective is on further promotion of bilateral and multilateral cooperation and enabling further access to the large research infrastructures, to exchange knowledge, experiences and technologies, and access to the resources which are not available in their home institutions. Through targeted common programmes and projects, the enhancement of the research quality is promoted, and the integration of potential for solving common and global challenges is integrated. Such a type of networking creates an environment where greater access to financial support is obtained through joint funding of the projects, and new possibilities are open for the use of different other funds out of the limits of this cooperation. International cooperation promotes mobility and plays a crucial role in inciting the development of the researcher's career and their interconnection with the wider scientific research community. By strengthening the capacities through international projects, the positioning of the research institutions is improved, and they are more ready to attract new talents, projects, and every form of new cooperation.

#### Activity 3.1.1 Implementation of the bilateral scientific and technological (S&T) cooperation

*Activity Description:* This activity is focused on the support to improving the bilateral scientific and technological cooperation through co-funding of the mutual visits (travel and accommodation expenses) of the researchers in order to implement research projects. Such projects are crucial for establishing and

<sup>59</sup> <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=COM%3A2021%3A252%3AFIN> and <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52022IP0112>;

improving the cooperation between Montenegrin and foreign research institutions, their networking, and thus, joint participation in the international and European programmes for science and research and better positioning in the international and European research space.

*Activity Promoter:* MESI

*Partners:* Licensed scientific research institutions and international scientific research institutions

#### Activity 3.1.2 Enhancement of the access to international and European research infrastructures

*Activity Description:* Increase the access to international and European research infrastructures for Montenegrin researchers through research visits, training and realisation of projects in cooperation with or within the mentioned institutions.

*Activity Promoter:* MESI

*Partners:* Universities, the scientific research community, international research infrastructures

#### Activity 3.1.3 Implementation of the joint projects of the multilateral scientific and technological cooperation in the Danube region

*Activity Description:* Assistance to implementation of the joint projects within the Danube region based on the Programme for Funding Multilateral Scientific and Technological Cooperation Projects in the Danube Region to which Montenegro acceded on 2<sup>nd</sup> November 2022, in order to improve scientific research activity in the member state through researchers' mobility within joint research projects, development of research capacities in the Danube region, development of the interborder cooperation, provision of the opportunities to young researchers for international cooperation and enabling of the joint participation in the European research projects.

*Activity Promoter:* MESI

*Partners:* Scientific research community

#### Activity 3.1.4 Implementation of the collaboration projects with the International Atomic Energy Agency (IAEA)

*Activity Description:* The IAEA Technical Collaboration (TC) projects involve acquisition of the adequate scientific research equipment for Montenegrin institutions, staff training, expert support, and organisation of conferences, workshops, training and seminars. The goal is to improve Montenegrin research capacities through international cooperation.

*Activity Promoter:* MESI

*Partners:* IAEA, competent institutions from Montenegro

#### Activity 3.1.5 IPA 2020 Grant scheme „Scientific potential in the service of innovation“

*Activity Description:* The grant scheme “Scientific potential in the service of innovation” is aimed at enhancing the cooperation between the academic and business fields in line with the priorities of the Smart Specialisation Strategy of Montenegro. The implementation of 8 projects, approved for financing, have started on 1 January 2023.

*Activity Promoter:* Ministry of Finance

*Partners:* MESI, scientific research community, private sector, NGO sector

### **Operative objective 3.2: Increasing participation in the European programmes for science, research and technology**

Access to and participation in EU programmes for science, research, and technological development is one of the greatest chances for the system of scientific research activity in Montenegro. Bearing in mind the numerous challenges of the system, among which the lower level of investment in research and development particularly stands out, the use of opportunities within the EU programme primarily enables access to considerable funds for science and research and allows implementation of excellent, competitive and ambitious research. Participation in the EU projects enables the creation of a partnership network with renowned scientific research teams and institutions, and a more comprehensive approach to solving certain problems is encouraged through the promotion of interdisciplinarity. Access to competitive scientific research infrastructure and equipment is also one of the key benefits, as well as the training of young staff and strengthening of institutional capacities. EU programmes particularly promote the innovation and technological transfer development by encouraging intellectual property protection policies, ethics in research and Open Science, which is an excellent opportunity for studying and harmonisation with high standards in science and research. The added value of the EU programmes is their continuity and a wide array of programme content, which encourages both individuals and institutions to network in a targeted manner and make significant changes by better positioning themselves within the ERA.

#### **Activity 3.2.1 Promotion of the participation in the EU Framework Programme for Research and Innovation “Horizon Europe” 2021-2027**

*Activity Description:* This activity refers to the enhancement of the success rate of the project proposals in which, within the “Horizon Europe” programme, applicants from Montenegro take part, which includes, primarily, the increase in the number of agreed projects in this programme. The focus is on raising awareness of the Montenegrin scientific research and innovation community on the importance of this programme and its opportunities, which shall be implemented via the organisation of different trainings, info days, study visits and meetings on this subject, as well as by publishing open calls which will encourage Montenegrin community to meet potential partners with whom they could cooperate in one of the HE calls.

*Activity Promoter:* MESI

*Partners:* Universities, licensed scientific research institutions, economic subjects, NGOs, public institutions

#### **Activity 3.2.2 Promotion of the participation in COST actions**

*Activity Description:* The activity refers to improving the efficacy of the representatives of Montenegrin scientific research and innovation community in projects financed within this programme, i.e. COST actions. This shall be accomplished by organising info days, consultations, meetings, and training.

*Activity promoter:* MESI

*Partners:* Public administration, academic community, economy and NGO

#### **Activity 3.2.3 Supporting the establishment of the European Digital Innovation Hub (EDIH) in Montenegro**

*Activity Description:* This activity relates to the publication of the Open Call for the pre-selection of candidates from Montenegro for participation in the Call within the “Digital Europe” - *Network of European Digital Innovation Hubs – Associated Countries DIGITAL-2023-EDIH-04-ASSOCIATED* Programme, completion of the national application evaluation process and submission of the List of the national candidates from

Montenegro for EDIH to the European Commission, which shall, after their application to the EU call, pass the evaluation at the European level. In case the evaluation project of one of the Montenegrin candidates is positively evaluated and agreed upon by the EU through the “Digital Europe” programme, the state will, in line with the provisions of the national call, ensure the co-financing of the project.

*Activity promoter:* MESI

*Partners:* Scientific research and innovation community

#### **Activity 3.2.4 Promotion of participation in EUREKA**

*Activity Description:* The activity refers to the cofinancing of the cooperation/networking projects between the scientific research institutions and companies from Montenegro, which is concerned with their participation in the coordinator or partner role in the EUREKA projects.

*Activity promoter:* MESI

*Partners:* Scientific research and innovation community

## IV PRIORITIES OF THE SCIENTIFIC RESEARCH ACTIVITY OF MONTENEGRO

In accordance with its legal jurisdiction, the Council for Scientific Research Activity adopted nine priorities of scientific research activity for the 2024-2028 period and following the completion of the consulting process between the Council's members and the scientific research community, as well as the public consultations on the Draft Strategy for Scientific Research Activity of Montenegro 2024-2028<sup>60</sup>, which was carried out by the Ministry of Education, Science and Innovation.

Montenegro's smart specialisation priorities (S3) are transferred into the Strategy for Scientific Research Activity in their entirety because the main goal is to build competitive advantages of the country by connecting its own strengths in innovation and research, with the needs of the economy. The instruments of scientific research activity should be placed in service of the priorities recognised by the S3. As a result of the complete consultations, these priorities have been broadened with the additional focus areas.

Montenegro started a new process of S3 planning in February 2024, and bearing in mind that by applying the methodological approach in consultations with all four sectors (state, academic, economic and civil) as well the identification of the new S3 priorities can take place and/or modification of the current ones; this means that the Strategy for Scientific Research Activity shall build on the new S3, in the aspect of priorities, and after its official passing by the Government of Montenegro and evaluation of the European Commission.

### Scientific research activity priorities by 2028 are:

- I. **Sustainable agriculture and food value chain**
- II. **Energy and sustainable environment**
- III. **Sustainable and health tourism**
- IV. **Science, education and culture**
- V. **Medicine and health**
- VI. **Socio-political and socio-economic challenges of the Montenegrin society**
- VII. **New materials, technologies, products and services**
- VIII. **Natural disaster risk management**
- IX. **Informational-communicational technologies**

<sup>60</sup> In the process of defining priorities, proposals of the previous Councils for the Scientific Research Activity, as well as the comments and suggestions of the Innovation working groups of the Council for Innovation and Smart Specialisation.

## I Sustainable agriculture and food value chain

One of the priorities recognised by the Smart Specialisation Strategy (S3) is strengthening the value chains of organic production and developing new agricultural products.

S3 Priority I: Sustainable Agriculture and Food Value Chain		
Current focus areas	Focus areas with potential	Additional focus areas <sup>61</sup>
<ul style="list-style-type: none"> <li>Meat and meat preparations (traditional and new products)</li> <li>Wine (native and introduced kinds of vines, new types of wine, aromatic wines, grapeseed oil, raisins) and beer</li> <li>Dairy Traditional and new (including native culture for dairy production)</li> <li>Fishery and aquaculture products</li> </ul>	<ul style="list-style-type: none"> <li>Development of the organic production value chains;</li> <li>Innovation, creation of new products, and use of new technologies for food production, including production of green and smart packaging</li> <li>Sustainable use of sea resources for innovative products in biomedicine and pharmacology</li> <li>Creation of new fruit and vegetable products</li> <li>Innovative products from medicinal and aromatic herbs (oil production, beauty, pharmaceutical and spa products; spices; drinks, etc.)</li> <li>Olive oil and other olive products</li> </ul>	<ul style="list-style-type: none"> <li>Preservation of the biodiversity and resources for sustainable food systems</li> </ul>

An additional focus area, the **preservation of the biodiversity and resources for sustainable food systems**<sup>62</sup>, represents a comprehensive and integrated approach to the food system transformation, making it more sustainable, resilient and ready to meet the demands for the production of nutritionally rich and health-safe food. Subsequently, it is focused on the preservation of agro-biodiversity and the application of innovative digital tools and modern technologies. Within this area, two key directions have been identified:

<sup>61</sup> During the identification process of the focus areas for the purpose of the scientific research activity, special emphasis is placed on the additional focus areas.

<sup>62</sup> United Nations Food and Agriculture Organization (FAO) [FAO - Sustainable Food Systems] (<http://www.fao.org/sustainable-food-value-chains/what-sfvc/en/>). United Nations Sustainable Development Goals (SDGs): Goal 2 (Zero Hunger) emphasises the importance of the transformation of food systems to ensure the safety and security of food and nutrition, highlighting the significance of sustainability in reaching these goals by 2030. [United Nations - Sustainable Development Goal 2] (<https://sdgs.un.org/goals/goal2>). World Health Organization (WHO) emphasises the importance of sustainable food systems in the promotion of health and wellbeing, linking sustainable agriculture with better nutrition and reduced health risks. [WHO - Sustainable Healthy Diets] (<https://www.who.int/publications/item/9789241516648>). European Commission has numerous initiatives and strategies oriented towards the promotion of sustainable food systems as a part of a wider green and healthcare policy. [European Commission - the Farm to Fork Strategy] ([https://ec.europa.eu/food/horizontal-topics/farm-fork-strategy\\_en](https://ec.europa.eu/food/horizontal-topics/farm-fork-strategy_en))

- Sustainable development and strengthening of the food system resilience (agro-biodiversity and green health of the agricultural production);
- With a more high-quality and safer food towards the healthy citizens.

## II Energy and sustainable environment

This priority's focus within S3 is on a higher level of utilization of sustainable energy and mineral resources based on the principles of a circular economy and a sustainable environment. This should be attained through two defined goals: increasing the innovative use of sustainable energy sources and increasing the innovative activities in recycling and waste valorisation.

S3 Priority II: Energy and Sustainable Environment		
Current focus areas (S3)	Focus areas with a potential	Additional focus areas <sup>63</sup>
<ul style="list-style-type: none"> <li>Hydro-energy</li> <li>Wind energy</li> <li>Regional centre for recycling metal waste</li> <li>Production of energy-generating products from wood waste</li> <li>Energy efficiency and enhancement of the energy balance</li> <li>Processing and use of eco materials (wood, stone, aluminium, etc)</li> </ul>	<ul style="list-style-type: none"> <li>Solar energy</li> <li>Smart networks and towns</li> <li>Development of the energy storage system</li> <li>Development of the energy consumer/producer ("prosumer")</li> <li>Transport electrification</li> <li>Technologies for the valorisation of the technogenic mineral resources</li> <li>Reduction of CO2 consumption and emission (eco-active/passive objects)</li> <li>Circular economy</li> </ul>	<ul style="list-style-type: none"> <li>Blue growth</li> <li>Forestry</li> </ul>

**Blue growth** is of particular importance for Montenegro as an additional focus area oriented towards improving the international framework for sea and ocean management, reducing "human pressure" on oceans, creating the conditions for a sustainable blue economy, and strengthening the international research on seas and oceans, together with research from the field of marine sciences.

Also, **forestry**, which is identified as an additional priority, underlines the importance of forests as one of the greatest natural resources and huge economic potential of Montenegro, which is among the top European countries, with forest land covering 69% of its area (data from the National forest inventory). Research from the forestry field will contribute to the preservation and rational consumption, together with the continuous improvement of the state of forests.

## III Sustainable and health tourism

This priority, which focuses on areas and technologies identified in the S3 strategy, is based on two goals: the introduction of innovative business models and services in sustainable and health tourism and the application and strengthening of international quality standards for medical services.

<sup>63</sup> During the identification process of the focus areas for the purpose of the scientific research activity, special emphasis is placed on the additional focus areas.

S3 priority III: Sustainable and health tourism		
Current focus areas (S3)	Focus areas with a potential	Additional focus areas <sup>64</sup>
<ul style="list-style-type: none"> <li>Application of green and smart technologies in sustainable nautical tourism in Montenegro</li> <li>Standards and innovative therapeutic programs for patients: suffering from chronic non-contagious diseases, addicts of psychoactive substances</li> <li>Advanced medical services: multidisciplinary diagnostics and dentistry</li> <li>Standard and innovative rehabilitation programs for: convalescents after orthopaedic Interventions, neurological patients and athletes (balneotherapy, wave-therapy, heliotherapy, salt therapy, psamotherapy, aerotherapy and mineral water therapy)</li> </ul>	<ul style="list-style-type: none"> <li>The use of the research results from the area of sports on the offer in sport, recreational and wellness tourism</li> <li>Application of advanced technologies in oncology within the regional project of founding the Institute for Sustainable Technologies in Southeast Europe (SEEIIST) – ‘Hadron cancer therapy and research in biomedicine using protons and heavier ions’</li> <li>Production of pharmaceutical products, development of pharmacotherapy, using Montenegro’s comparative advantages (medical and aromatic herbs, medical mud, sea fauna)</li> <li>Use of nanomaterials in medicine</li> <li>Nutrition: programs and supplements (use of food products which contribute to the improvement of health)</li> </ul>	<ul style="list-style-type: none"> <li>Research of natural resources (peloid, water, air etc.)</li> <li>Research of the specific forms of tourism (e.g. cultural tourism, eco-rural tourism, aroma tourism, etc.)</li> </ul>

Additionally, the highlighted focus area, **research of natural resources (peloid, water, air etc.)**, shall represent a foundation for the creation of plans for their valorisation, aiming to further develop medical tourism.

Additionally, **research on specific forms of tourism (e.g., cultural tourism, eco-rural tourism, aroma tourism, etc.)** and additional pointed-out areas have been identified to reduce seasonality, spatial concentration, and/or tourism domination in the coastal region.

#### IV Science, education, culture

For the development of science and the entire Montenegrin society, it is extremely important to recognise the significance of fundamental research in the natural mathematical and social sciences as well as in humanities. The basic (fundamental) research largely contributes to the strengthening and development of the scientific research capacities of Montenegro and leads to research networking at both national and international levels. Thus, conditions are created for high-quality applied and developmental research,

<sup>64</sup> During the identification process of the focus areas for the purpose of the scientific research activity, special emphasis is placed on the additional focus areas.

and inter- and multidisciplinary, comparative experiences of the SR work, i.e., synergy and networking between different scientific areas, which is a contemporary scientific trend.

Considering that a process of overall reform in the educational system is planned in Montenegro, which will be implemented throughout one decade (2025-2035), research processes in the sphere of education, which lead to its upgrade and implementation of good practices (digitalisation, life-long learning, bilingual education, dual education, etc.), have been identified as priorities.

Research on cultural traditions, languages, art, and modern social practices aimed at preserving cultural heritage, improving cultural identity, and promoting intercultural understanding and dialogue encompasses all aspects of Montenegro’s cultural life, from traditional to modern.

Focus areas within this priority are:

Focus area	Description
<i>Fundamental Research</i>	Are viewed as the basis for the entire SR activity.
<i>Language And Literature</i>	Research in language and literature aids in better understanding native and foreign languages as means of communication, on the one hand, and literature as the expression of cultural and social values, on the other.
<i>Intercultural Dialogue</i>	Intercultural dialogue is of utmost importance in the research on the traditions of diverse cultures in Montenegro, as it promotes understanding and respect for cultural diversity.
<i>Research Of Cultural Heritage</i>	The importance of this focus area is reflected in the preservation of cultural heritage for future generations and the enabling of its integration into the contemporary social context.
<i>Art</i>	This research area is focused on the development of efficient methods and new technologies for studying and teaching art, which is a means for the betterment of physical, mental, and emotional health (art therapy, music therapy, painting, sculpture, photography, dance therapy, theatre therapy, etc.) and a vital factor in the formation of the individual and collective identity.
<i>Digital Humanities</i>	A young multidisciplinary branch of science emphasises contemporary, digital methods and techniques of research in the humanities, which is particularly important for research in media materials and audiovisual content.

#### V Medicine and health

Scientific research, which has to obey the tenets of bioethics and often involves an intensive interdisciplinary and multidisciplinary approach, greatly contributes to the resolution of the current challenges of health care protection (accessibility of health care for all regardless of the socio-economic conditions or geo-location; disease prevention; mental health care; ageing of the population; pandemics and spreading of the contagious diseases; technological innovations; climate change; lack of professional staff, etc.).

Focus areas within this priority are:

Focus area	Description
<i>“One Health Approach”</i>	Includes human health through the perspective of its connection with the health of the animals and natural environment, and mutual connection and dependability due to the existence of the need for maintaining the dynamic balance in a complex ecosystem.
<i>Personalised medicine</i>	The current approach involves adapting medical treatments, as well as diagnostics, disease prediction and patient monitoring, to each patient’s individual characteristics based on their genetic data and medical information.
<i>Telemedicine</i>	Enables a more efficient allocation of limited health care resources, i.e., a more streamlined provision of health care, through a more efficient availability of the professionals to the patients, as well as better, quicker, and more efficient communication, i.e., exchange of experiences between the professionals in the health care systems.
<i>Screening programs and early detection of the most frequently occurring diseases</i>	They are of vital importance in the good treatment of cardiovascular and malignant illnesses.
<i>Research in the area of chronic non-contagious diseases (cardiovascular diseases, malignant neoplasms, chronic pulmonary diseases, diabetes, etc.)</i>	These illnesses are the leading cause of death in the world, and for the purpose of determining the risk factors for the occurrence of these diseases, as well as reinforcing the supervision over the morbidity and mortality of the population of Montenegro.
<i>Vaccination</i>	Modern society's epidemics indicate the need for prioritising the prevention of contagious diseases through the immunisation system as the most effective and safest preventative method.
<i>Mental health</i>	The significance of research in this focus area is reflected in the establishment of the improved diagnostic tools, more effective treatments, and creation of the prevention and intervention programme based on scientific proof.
<i>Oral health care</i>	Oral health is a key indicator of overall health, well-being, and quality of life. Research should be based on this, with the goal of improving prevention and prophylaxis using an integrated approach to these diseases.
<i>Development of new biomarkers</i>	Represents indicators of normal biological and pathological processes or measurable responses to the therapy. In combination with the present screening methods, new, safe, non-invasive, highly specific and sensitive biomarkers can increase diagnostic accuracy, thus enabling early detection of illnesses and aiding in the reduction of the healthcare system’s workload.
<i>Rational pharmacotherapy and pharmacology</i>	Research on drug consumption and safety aims to rationalise pharmacological therapy, at both national and individual levels. It is particularly important to research the detection of falsified and substandard medicines and the development of innovative formulations.

## VI Socio-political and socio-economic challenges of Montenegrin society

As modern Montenegrin society faces even more global issues that affect all aspects of the life of individuals and groups, the social sciences research priorities reflect the need for a deeper understanding of these challenges at the local level in their key dimensions: social, economic, political, and cultural.

Focus areas within this priority are:

Focus area	Description
<i>The public sphere and active citizenship</i>	To understand the form and nature of the collective civic activism and individual engagement of citizens in the public space, research should be directed towards social movements, protest policy and other forms of unconventional political participation and civil resistance. Special attention should be drawn to the digital public sphere, and dominant values, political ideas, ideological narratives, behavioural patterns, and civil engagement models in the digital era.
<i>Collective memory and remembrance policies</i>	By studying collective memories and policies of remembrance - i.e. relations between the politics and power which are shaping these processes. In this way, it is possible to identify manners of memory manipulation and develop strategies for overcoming the abuse of the past and for daily political purposes, and prompt a high-quality public discourse on the past, which would have a significant impact on the adequate preservation of the diverse types of cultural heritage which make modern Montenegro.
<i>Inequality, marginalisation and discrimination</i>	To build a fair and inclusive society and create appropriate public policies, we need science-based interdisciplinary analyses that would contribute to alleviating current and preventing future forms of inequality, marginalisation, and discrimination.

## VII New materials, technologies, products and services

The priority research areas within the technical and technological sciences, whose results have applications in all aspects of life, educational and economic activities: new and existing materials development, technologies, products and services. The Montenegrin SR sector and economy have their developmental opportunity in these areas, which are completely in line with the S3 priorities and are characterised by a visible multi- and interdisciplinarity.

New, improved multiuse materials, technologies, products and services with a high added value are following the global objectives of sustainable development, and principles of circular economy (*recycle-reuse-reduce*), are constantly developing and represent an always open chance for competitiveness, as well as a contribution to the research achievements. Research in this area is not limited to the needs and usability within a specific industry, and so they can be developed in an unlimited number of directions. Besides, successful products of research often have multiple uses, which multiplies their usefulness and commercial potential. The need for research and development of more functional, ecologically improved, energy-efficient materials, technologies, products and services that have better characteristics compared to their traditional counterparts is recognised in the fields of civil engineering, transport, maritime, mechanical and chemical engineering, medicine, pharmacy, agriculture, ecology, environmental protection, etc.

Focus areas within this priority are:

Focus area	Description
<i>Materials</i>	By giving a new value to the waste, with the possibility of changing its use, that is, a new application of the conventional materials and creating new materials (e.g. composite materials), thanks to the development and use of modern technologies of production, adaptation and processing, upgrade of the material properties is achieved, as well as broadening of the array of possibilities for their application, with a periodic rationalisation of the use of natural resources.
<i>New products and services</i>	The new and improved materials and technologies, directed towards a more rational production and use, availability to the widest possible population, and resolution of the needs and challenges of modern life, represent the peak of scientific research.
<i>Space exploration and development of the related technologies</i>	Current human needs and global research trends refer to this focus area, which is still taking its baby steps in Montenegro. However, it seems that there is an interest and capacity for it. Thus, efficient direction and development in a systemic and careful manner is necessary Montenegro can keep pace with the rest of the world.

### VIII Natural disaster risk management

Modern living conditions, characterised by evident climate change, the fact that Montenegro is a seismically active area on one side, and the proven capacities of the Montenegrin SR community in this field on the other hand, mean that research attention must and can be focused on the management of natural disaster risks, a wide field, including a synergy between various activities and research fields.

Focus areas within this priority are:

Focus area	Description
<i>Climate change</i>	Today, climate change imposes the need for research that will give answers to open questions about humankind's adaptation to new circumstances.
<i>Earthquakes</i>	Considering that Montenegro is an area of extremely high seismicity, research in this field is progressively current: both the analysis of the seismicity itself (prediction and tracking of the seismic activity) and seismically resistant construction work.
<i>Floods</i>	Scientific research should inform a systematic approach that includes risk assessment, upgrading and maintenance of flood control infrastructure, and integrated soil utilisation planning.
<i>Landslides</i>	The focus is on identifying and assessing the risk areas, implementing preventative infrastructural measures, and efficiently planning the soil utilisation and monitoring of unstable areas based on scientific research.
<i>Social response</i>	Considering that natural disasters are inevitable and that preventative limitation of their consequences is rational only up to a certain point, research that contributes to an appropriate social response is vital. This response should involve acting in emergency situations of all social sectors, minimising the damage, protecting lives and property, and enabling a quicker recovery of the community.

### IX Information and communication technologies

Information and communication technologies (ICT) represent the foundation of the modern scientific and economic transformation of Montenegro, and their further development plays a key role in achieving the S3-defined objectives. Improvement of the ICT sector competitiveness using innovative activities and Strengthening of the digital economy.

S3 Priority IV: Information and communication technologies		
Current focus areas (S3)	Focus areas with a potential (S3)	Additional focus areas
<ul style="list-style-type: none"> <li>Telecommunication</li> <li>Software engineering</li> </ul>	<ul style="list-style-type: none"> <li>New generation of communication technologies (5G, SDN, NFV, GNSS, etc.)</li> <li>IoT (Internet of Things)</li> <li>Virtual reality, augmented reality (VR/AR), 3D</li> <li>Digital transformation (ERP systems, e-business, finance technologies etc.)</li> <li>Blockchain technology and cryptocurrencies</li> <li>Big Data, Cloud – services</li> <li>Video games</li> <li>Information system security</li> <li>Smart technologies (cities, buildings etc.)</li> <li>Green ICT (reduction of emissions, energy saving, etc.);</li> <li>Machine learning and artificial intelligence</li> </ul>	<ul style="list-style-type: none"> <li>High-performance computing (HPC)</li> <li>Mobile technology</li> <li>Cyber security</li> </ul>

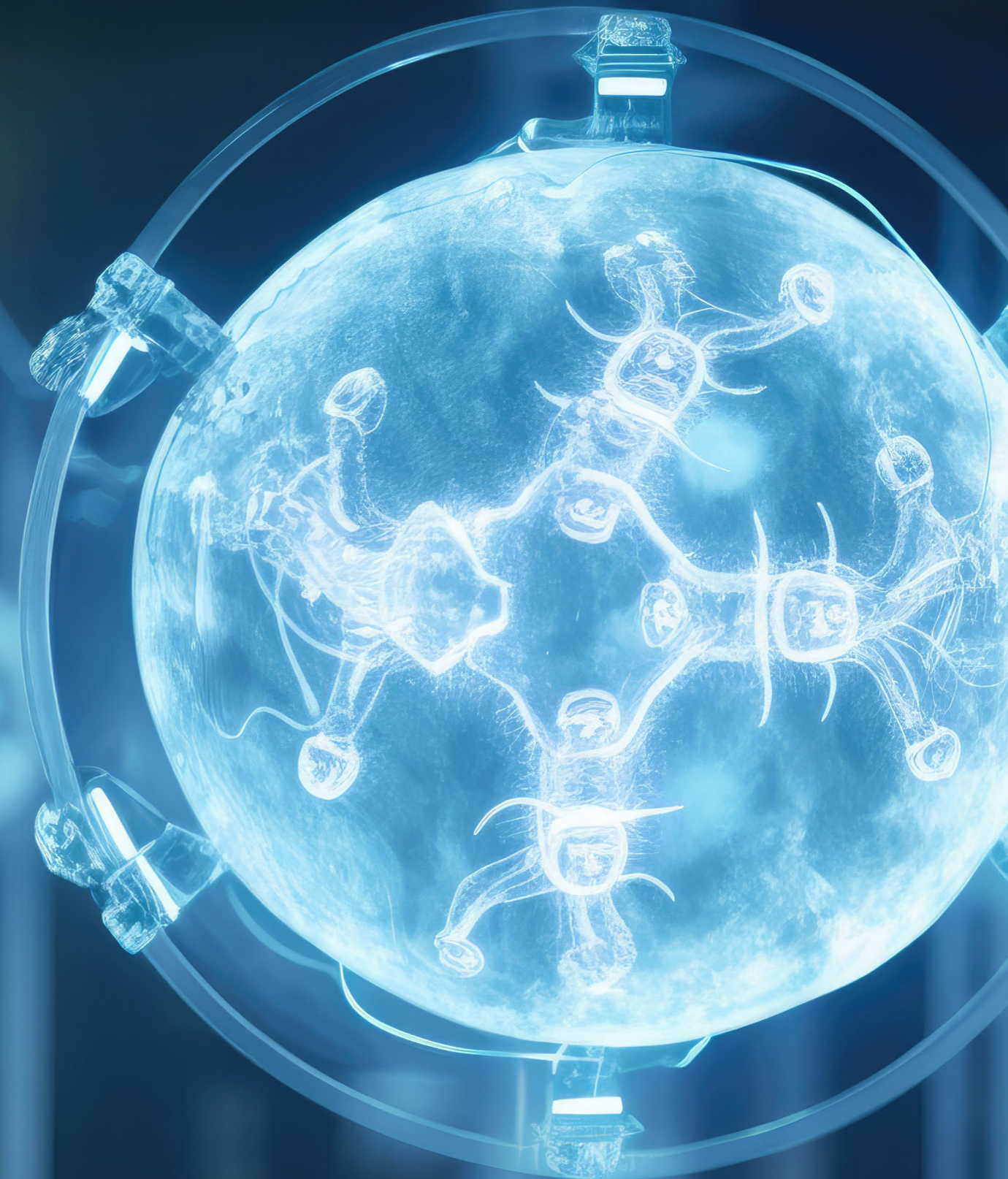
During the identification process of the focus areas for the Strategy for Scientific Research Activity, due to its horizontal component, a special emphasis is placed on the following focus areas within this priority:

- **Artificial Intelligence (AI)** – Including computing visions, machine learning, natural language processing and big language models (NLP, LLM), and Human-machine interaction, AI opens new possibilities for enhancing sectors such as health care, agriculture, energy, education, etc.
- **Augmented and virtual reality (AR and VR technologies)** – Will revolutionise the entertainment and gaming industry, and fields such as tourism and education, offering customers unique experiences and training that simulate real-life situations.
- **Blockchain technologies** – offer transparency, security, and efficiency in digital transactions and data management, which is vitally important in the financial sector, food safety, healthcare system, and digital identity management.
- **Cloud computing** – represents a foundation for the system integration and implementation of different solutions based on digital innovation.
- **Data science and big data** – are convenient for developing business intelligence and different systems that assist in decision-making.
- **High-performance computing (HPC)** – offers powerful resources for processing large amounts of data, which is necessary for AI research, machine learning, and research in areas such as climate change, biotechnology, energetics, etc.
- **Internet of Things (IoT)** – plays a significant role in digitalisation and automation, providing

more efficient resource and infrastructure management. By applying IoT, environments can be efficiently supervised and managed, from smart cities to industrial complexes.

- **Mobile technology** – is crucial for scientific research because the “technological landscape” is constantly changing. Some of the current technologies are: mobile applications, mobile operating systems, mobile Internet access, sensors and GPS technology, etc.
- **Cyber security** – A sudden increase follows different areas of ICT use in the number of connected devices. Therefore, it is necessary to study and upgrade the security aspects of information systems and networks. Some of them are: identifying and analysing vulnerabilities in computing systems, applications, networks and devices, developing methods and techniques for data protection from unauthorised access, theft and abuse, preventing and detecting attacks, etc.

Due to its horizontal component, scientific research work in the ICT area may include combinations of the mentioned or other technologies and their integration and networking in order to create innovative solutions and systems in the realms such as medicine, health, agro-food sector, tourism, preservation of the cultural heritage, energetics, climate change and ecology. The very digital innovation and transformation represent key factors for improving the quality of life in Montenegro, but they also play the role of a driver of interdisciplinarity, innovation and economic development, while creating home-based knowledge and products and promoting Montenegro as a centre of high technological excellence.





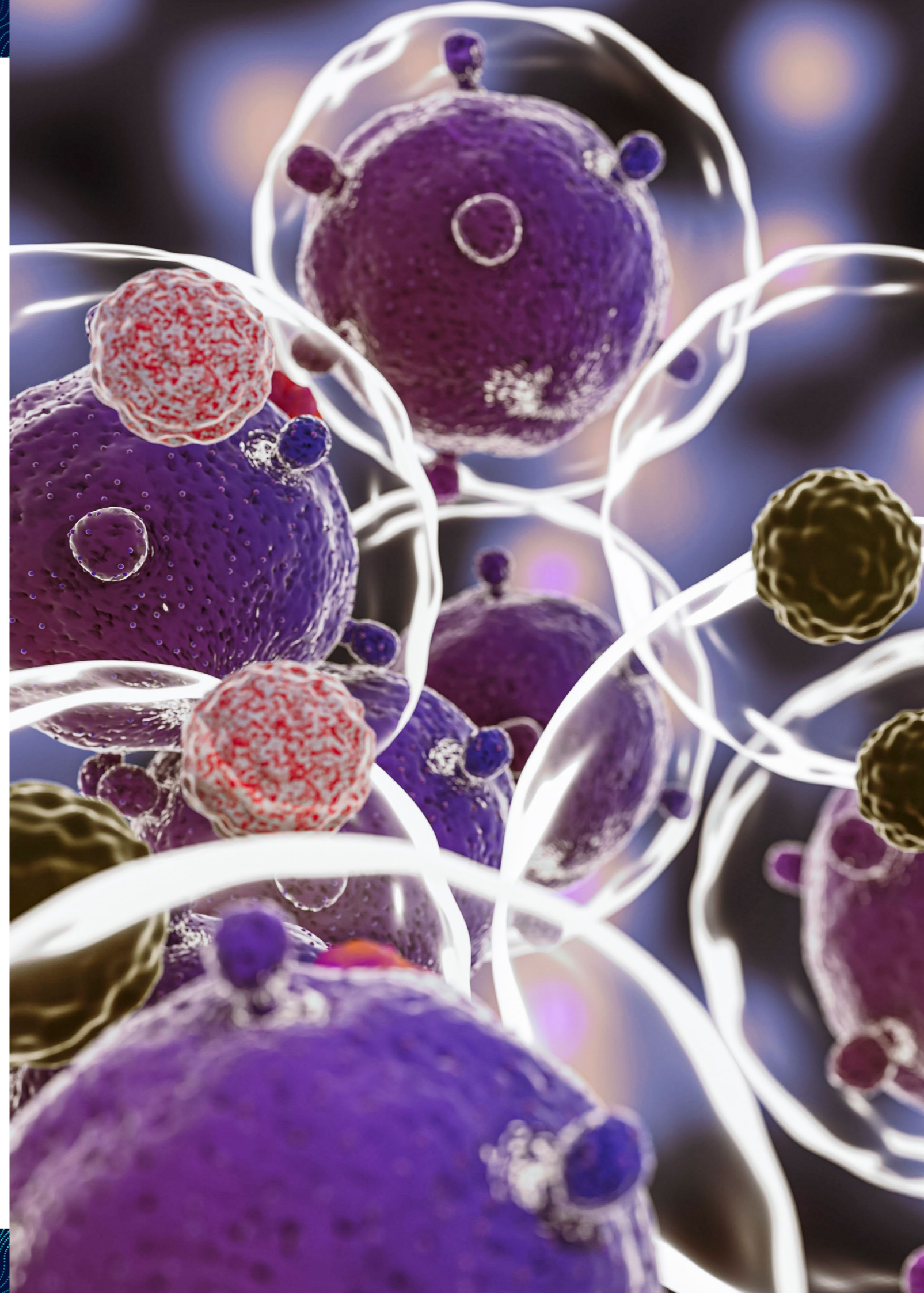
## V REPORTING AND EVALUATION

Following the implementation of the Strategy for Scientific Research Activity of Montenegro 2024-2028, which involves data collection on regular basis and analysis regarding the achievements of the strategic and operative objectives of the Strategy, through monitoring the completion of the activities defined by the action plans and organisation of the evaluation process, will be carried out by the Ministry responsible for science and research (the Ministry of Education, Science and Innovation).

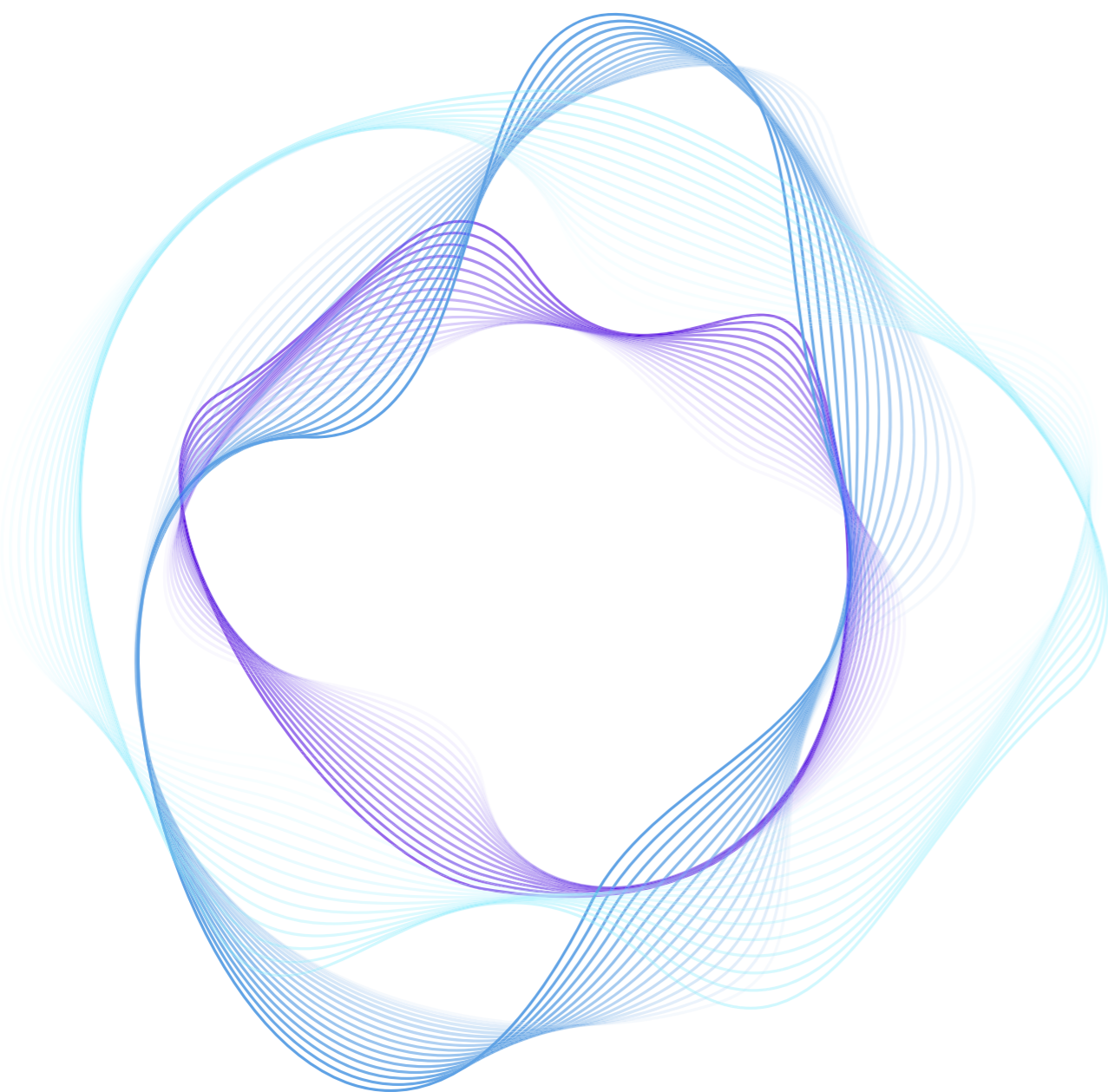
The Department for national Support programmes of for Scientific Research Community within the Directorate for Scientific and Research Activity of the Ministry of Education, Science and Innovation is responsible for collecting the data during monitoring and reporting, and referring it to opinions, examination, and adoption by the relevant institutions. The reporting will be implemented on the annual basis, through the Annual Report on the realization of the Action Plan for the implementation of the Strategy for Scientific Research Activity of Montenegro 2024-2028, which will be referred to the Government of Montenegro on consideration and adoption, following the harmonisation with the responsible institutions for the implementation of the activities defined in the Action Plan and upon the positive assessment of the General Secretariat of the Government. After the completion of the implementation period of the Strategy, the Ministry's competent organisational unit shall prepare the Final report on the implementation of the Strategy for Scientific Research Activity of Montenegro 2024-2028. The annual and final reports will be available to the public on the official website of the Ministry in charge of monitoring of the implementation of this strategic document.

Following the end of the period for which the Strategy has been adopted, the competent organisational unit in the Ministry<sup>65</sup> will arrange the ex-post evaluation process, for which an external evaluator will be engaged. Throughout the organisation of this process, the special attention shall be dedicated to the planning of the new strategic cycle, while the preparatory activities shall start during the last quarter of the Strategy's implementation. The external evaluation recommendations will be a key component of the Final report on the implementation of the findings of this evaluation and shall be publicly accessible on the Ministry's website, which is responsible for the implementation of this strategic document and the organisation of the evaluation process. The funding of the external evaluation will be provided timely within the national budget and will be determined at up to € 10.000,00.

<sup>65</sup> Department for National Support Programmes for the Scientific Research Community within the Directorate for the Scientific and Research Activity of the Ministry of Education, Science and Innovation.



# VI THE ACTION PLAN FOR THE IMPLEMENTATION OF THE STRATEGY FOR SCIENTIFIC RESEARCH ACTIVITY (2024-2025)



STRATEGIC OBJECTIVE 1		Enhancement of the framework conditions for functioning of the scientific and research activity in Montenegro				
Operative objective 1.1		Enhancement of the legal framework for the scientific and research activity				
Performance indicator	Baseline - 2023	Intermediate value - 2024	Intermediate value - 2025	Target value - 2028		
Upgraded legal framework for the scientific and research activity Verification Source: Annual Report of MESI	A working group on the drafting of the law is formed	A Proposal of the law is adopted	By-laws are Adopted	Upgraded by-laws are in line with the ERA guidelines		
Activities	Result Indicator	Competence	Planned date of the Start of Execution	Planned End of the Activities	Budget	Funding Source
1.1.1 Drafting of the Law on Scientific and Research Activity	2023 A working group for the drafting of the Law is formed  2024 A working group for the Drafting of the Law in Altered Composition is Formed  The Government of Montenegro adopts the Draft Law	Promoter: Ministry of Education, Science and Innovation  Partners: Scientific and research community	II quarter 2024	IV Quarter 2024	10.000,00 € (2024)	Total: 10.000,00 € National Budget 10.000,00 € (2024) IPA III EURF (programme BEST)
1.1.2 Drafting the Rulebook on closer conditions for establishment and licensing of the scientific and research institution	2025: Working group for the drafting of the series of Rulebooks in accordance with the new Law on Scientific and Research Activity  The Rulebook is Adopted	Promoter: Ministry of Education, Science and Innovation  Partners: Scientific and research community	I Quarter 2025	II Quarter 2025	5.000,00 € (2025)	Total: 5.000,00 € National budget 5.000,00 € (2025)
1.1.3 Drafting the Rulebook on the closer conditions, approval procedures and manner of use of the funding for scientific and research programmes and projects	2025: Rulebook is Adopted	Promoter: Ministry of Education, Science and Innovation  Partners: Scientific and research community	I Quarter 2025	II Quarter 2025	5.000,00 € (2025)	Total: 5.000,00 € National budget 5.000,00 € (2025)
1.1.4 Drafting the Rulebook on the criteria for appointment of the independent experts and the evaluation procedure for scientific research programmes and projects	2025: Rulebook is Adopted	Promoter: Ministry of Education, Science and Innovation  Partners: Scientific and research community	I Quarter 2025	II Quarter 2025	5.000,00 € (2025)	Total: 5.000,00 € National budget 5.000,00 € (2025)
1.1.5 Drafting the Rulebook on the conditions and closer criteria for Scientific Achievements Awards	2025: Rulebook is Adopted	Promoter: Ministry of Education, Science and Innovation  Partners: Scientific and research community	I Quarter 2025	II Quarter 2025	5.000,00 € (2025)	Total: 5.000,00 € National budget 5.000,00 € (2025)
1.1.6 Science and Innovation Programme	2025: The Programme is Adopted	Promoter: Ministry of Education, Science and Innovation  Partners: Scientific and research community	I Quarter 2025	III Quarter 2025	Funding is not needed	National Budget Donations EURF (BEST programme) – the amount of finances is the matter of the contractual relationship between the EUD and World Bank

Operative objective 1.2		Enhancement of the scientific and research monitoring system <sup>66</sup>					
Performance Indicator		Baseline - 2023	Intermediate value 2024	Intermediate Value - 2025		Target Value - 2028	
The continuity in monitoring the R&D statistics is Established Verification source: Statement on the Research and Development Statistics MPNI/MONSTAT)		Work on improving the R&D statistic methodology has begun	Methodology developed for R&D statistics and re-search conducted for the period 2021-2023	Published notice for 2021-2023 R&D statistics		Established continuity through a regular, annual data collection mechanism for R&D statistics	
Activities		Result Indicator	Competence	Planned start date of implementation	The planned end of the activities	Budget	Funding source
1.2.1.	Develop an innovative methodology in accordance with EUROSTAT regulations and the OECD Manual	2023: Contracted cooperation with a renowned licensed scientific and research institution for the area of statistics 2024: Developed innovative methodology Created a Questionnaire in line with the Methodology A written report on trial research Reinforced interdepartmental cooperation with MONSTAT	Promoter: Ministry of Education, Science and Innovation Partners: Licensed scientific and research institutions	I Quarter 2024	I Quarter 2024	7.900,00 € (2024)	Total: 7.900,00 € National Budget 7.900,00 € (2024)
1.2.2	Establish inter-institutional cooperation to efficiently collect and process data for R&D statistics	2023: - 2024: Amended five-year Programme of the official statistics and Annual plan of the official statistics for the purpose of replacing the producer of the official scientific and research statistics from the Statistical office to the MESI	Promoter: Ministry of Education, Science and Innovation Partner: Statistical Office (coordinator of the official statistical system)	III Quarter 2024	II Quarter 2025	5.000,00 € (2024)	Total: 7.900,00 € National Budget 7.900,00 € (2024)
1.2.3	Monitoring of the gender-sensitive statistics for the Ministry's support programmes	2023: - 2024: Established regular monitoring of the gender-sensitive statistics for the Ministry's support programme 2025: Published the first annual report on the Ministry's activity, which includes gender-sensitive statistics for the Ministry's support programmes	Promoter: Ministry of Education, Science and Innovation	I quarter 2024	IV Quarter 2025	Funding is not needed	-

66 Implementation of this operative objective shall contribute to the ERA Action 19, i.e. The establishment of the effective ERA monitoring system.

Operative objective 1.3		Strengthening the research infrastructure					
Performance Indicator		Baseline - 2023	Intermediate Value - 2024	Intermediate Value - 2025		Target Value - 2028	
Global Innovation Index (GII) Verification Source: GIIP Publication of the World Intellectual Property Organisation (WIPO)		75	75	73		70	
Activities		Result Indicator	Competence	Planned start date of implementation	The planned end of the activities	Budget	Izvor finansiranja
1.3.1	Mapping of the research infrastructure	2023: - 2024: Executed the process of research infrastructure mapping	Promoter: Ministry of Education, Science and Innovation Partners: Licensed Scientific, Research and Innovation Institutions, Universities	I Quarter 2024	II Quarter 2024	Funding is not needed	-
1.3.2	Preparation of the Roadmap for Research Infrastructure in Montenegro (2024-2028)	2023: - 2024: Formed Work Group for the Roadmap for the Research Infrastructure Adopted the Roadmap for the Montenegro's Research Infrastructure (2024-2028)	Promoter: Ministry of Education, Science and Innovation Partner: World Bank within the BEST Programme	I Quarter 2024	III Quarter 2024	5.000,00 € (2024)	Total: 5.000,00 € National Budget 5.000,00 € (2024) Donations: IPA III EURF (programme BEST) The amount of funding is the subject of the contractual relation between the EUD and the World Bank
1.3.3	Strengthening capacities for Open access to research infrastructure	2023: - 2024: Completed training entitled: Open Access to the Research Infrastructure	Promoters: Ministry of Education, Science and Innovation, DG JRC Partners: Universities	II Quarter 2024	III Quarter 2024	Funding is not needed	No allocation from the national budget required DG JRC
1.3.4	Networking and promotion of Open access to Research Infrastructure Policy in the Western Balkans	2023: Realized the participation in the RCC Work Group for Research and Innovation and Open Science Meeting on the subject of Regional Networking of the Research Infrastructures 2024: Signed Declaration of the Western Balkans on Access and Cooperation in the Field of Research Infrastructures	Promoter: Ministry of Education, Science and Innovation Partners: Western Balkans Countries	I Quarter 2024	III Quarter 2024	-	National Budget Donations RCC Supports the Participation of the Representatives of Montenegro in the Meetings of the Working Group for Research, Innovation and Open Science
1.3.5	Support to the upgrading of infrastructure for the scientific research work - Purchasing of equipment, tools and consumables	Number of Approved Requests 2023: 24 2024: 25 2025: 26	Promoter: Ministry of Education, Science and Innovation Partners: Licensed Scientific Research Institutions	I Quarter 2024	IV Quarter 2025	270.000,00 € 120.000,00 € (2024) 150.000,00 € (2025)	Total: 270.000,00 € National Budget 120.000,00 € (2024) 150.000,00 € (2025)

Operative Objective 1.4.		Promotion of the Implementation of the Open Science concept <sup>67</sup>				
Performance Indicator	Baseline - 2023	Intermediate Value - 2024	Intermediate Value - 2025	Target Value - 2028		
Number of Supported Scientific Papers and Open-Source Journals Verification Source: Annual Report of MESI	24	5% increase compared to 2023	10% increase compared to 2023	15% increase compared to 2023		
Activities	Result Indicator	Competence	Planned start date of implementation	The planned end of the activities	Budget	Funding source
1.4.1. Support to the Open Access	Number of Supported Open Access Journals 2023: 6 2024: 7 2025: 8 Number of Supported Scientific Papers in the Open Access Journals 2023: 18 2024: 19 2025: 20	Promoter: Ministry of Education, Science and Innovation Partners: Universities	I Quarter 2024	IV Quarter 2025	80.000,00 € 40.000,00 € (2024) 40.000,00 € (2025)	Ukupno: 80.000,00 € National Budget 40.000,00 € (2024) 40.000,00 € (2025)
1.4.2. Raising awareness of the importance of Open Access	Number of realized Workshops 2023: - 2024: 5 Number of Participants: 2024: 50	Promoter: Ministry of Education, Science and Innovation Partners: Universities, Licensed Scientific Research Institutions	II Quarter 2024	III Quarter 2024	Funding not Needed	-
1.4.3. Upgrading of the Scientific Network ("Naučna mreža") platform	2023: Preserved Inner Functionality of the Platform 2024: Improved Functionality of the Science Network Platform and Enhanced Customer Experience	Promoter: Ministry of Education, Science and Innovation	III Quarter 2024	IV Quarter 2024	Donations	Donations IPA III EURF (programme BEST) Fundings for the Activity in Question are a part of the contractual relation between EUD and the World Bank

67 Contribution to the ERA Action1 (Enable the open sharing of knowledge and the re-use of research outputs, including through the development of the European Open Science Cloud (EOSC))

STRATEGIC OBJECTIVE 2		Strengthening human resources and institutional capacities in science and research				
Operative Objective 2.1		Support to the young researchers <sup>68</sup>				
Performance Indicator	Baseline - 2023	Intermediate Value - 2024	Intermediate Value - 2025	Target Value - 2028		
Number of Young Researchers Supported Through Different Support Programmes Verification Source: Annual Report of MESI	118	50% increase compared to 2023	60% increase compared to 2023	70% increase compared to 2023		
Activities	Result Indicator	Competence	Planned start date of implementation	The planned end of the activities	Budget	Funding source
2.1.1. Scholarship programme for the excellent PhD research	Number of Sponsored PhD Students 2023: 34 (M:18; F:16) 2024: 42 (M:20; F:22) 2025: 37 (M:15; F:22) 2024: Adopted Scholarship Programme for the Excellent PhD Research Published Open Call for the Implementation of the Programme	Promoter: Ministry of Education, Science and Innovation Partners: Universities	III Quarter 2024	IV Quarter 2025	1.500.000,00 € 500.000,00 € (2024) 1.000.000,00 € (2025)	Total: 1.500.000,00€ National Budget 500.000,00 € (2024) 1.000.000,00 € (2025)
2.1.2. Scholarship programme for excellent post-doctoral research	Number of Sponsored Postdoctoral Researchers 2023: - 2024: - 2025: 15 2025: Adopted the Scholarship Programme for the Excellent Post-Doctoral Research Published Open Call for the Implementation of the Programme	Promoter: Ministry of Education, Science and Innovation	I Quarter 2025	IV Quarter 2025	520.000,00 € (2025)	Total: 520.000,00 € National Budget 520.000,00 € (2025)
2.1.3. Support for the engagement of the young researchers through national scientific research projects	Number of engaged Young Researchers through National Scientific Research Projects 2023: - 2024: 39 (M:23; F:16) 2025: 36 (M:19; F:17)	Promoter: Ministry of Education, Science and Innovation Partners: Licensed Scientific Research Institutions	I Quarter 2024	IV Quarter 2025	403.510,00 € 202.400,00 € (2024) 201.110,00 € (2025)	Total: 403.510,00 € National Budget 202.400,00 € (2024) 201.110,00 € (2025)
2.1.4. Preparatory activities on the Programme for cooperation with scientific Diaspora	The number of Sponsored Projects 2023: - 2024: - 2025: 10 2025: Adopted the Cooperation with the Scientific Diaspora Programme Published Open Call for the Implementation of the Programme	Promoter: Ministry of Education, Science and Innovation	I Quarter 2025	IV Quarter 2025	520.000,00 € (2025)	Total: 520.000,00 € National Budget 520.000,00 € (2025)

68 Contribution to the ERA Action 4 (Promote attractive research career, talent circulation and mobility).

2.1.5	Co-funding the completed PhD studies	Number of Sponsored Researchers 2023: 41 2024: 20 2025: 20	Promoter: Ministry of Education, Science and Innovation	I Quarter 2024	IV Quarter 2025	80.000,00 € 40.000,00 € (2024) 40.000,00 € (2025)	Total: 80.000,00 € National Budget 40.000,00 € (2024) 40.000,00 € (2025)
2.1.6	Co-funding the short-term mobility of young researchers	Number of Sponsored Young Researchers 2023: 16 (M: 9; F: 7) 2024: 25 2025: 27	Promoter: Ministry of Education, Science and Innovation Partners: Scientific Research Community, International Scientific Research Institutions	I Quarter 2024	IV Quarter 2025	100.000,00 € 50.000,00 € (2024) 50.000,00 € (2025)	National Budget 100.000,00 € 50.000,00 € (2024) 50.000,00 € (2025)
2.1.7	Support for cofinancing the tuition fees for the national and international MA and PhD studies	Number of Sponsored Master and PhD Students 2023: 27 (Master: 6; PhD: 21) 2024: 74 (Master: 40; Doktorske: 34) 2025: 74 (Master: 40; PhD: 34)	Promoter: Ministry of Education, Science and Innovation Partners: Scientific Research Community, International Scientific Research Institutions	II Quarter 2024	IV Quarter 2025	162.000,00 € 81.000,00 € (2024) 81.000,00 € (2025)	Total: 162.000,00 € National Budget 81.000,00 € (2024) 81.000,00 € (2025)

Operative objective 2.2		Support to the promotion of the scientific research work <sup>69</sup>				
Performance Indicator	Baseline - 2023	Intermediate Value - 2024	Intermediate Value - 2025	Target Value - 2028		
Improved Scientific Research Work Quality Verification Source: Annual Report of MESI	3 Support Programmes	4 Support Programmes	4 Support Programmes	5 Support Programmes		
Activities	Result Indicator	Competence	Planned start date of implementation	The planned end of the activities	Budget	Funding source
2.2.1 Supporting scientific research work via national projects	Number of Sponsored projects 2023: - 2024: 24 (M: 12; F: 12) 2025: 24 (M:12; F: 12)	Promoter: Ministry of Education, Science and Innovation Partners: Licensed Scientific Research Institutions, economy, public sector	II Quarter 2024	IV Quarter 2025	1.757.084,61 € 2024: 1.264.231,44 € (Paid in by the end of 2023: 1.161.743,33 €, a 2024: 102.488,11 €) 2025: 492.853,17 €	1.757.084,61 € National Budget 1.161.743,33 € (2023) 102.488,11 € (2024) 492.853,17 € (2025)

69 Contribution to the ERA Action15 (Build up research and innovation to improve excellence and competitiveness)

2.2.2	Research excellence grant support programme for strengthening of human and institutional capacities	2024: Adopted the Programme for Research Grant for Excellence to Support the Strengthening of the Human and Institutional Capacities Number of Allocated Grants 2023: - 2024: 5 2025: - Number of engaged Researchers 2023: - 2024: 50 2025: 50 Number of Established Science-Economy partnerships 2023: - 2024: 5 2025: 5	Promoter: Ministry of Education, Science and Innovation Partners: Licensed Scientific Research Institutions, international scientific institutions, economy, public sector	III Quarter 2024	IV kvartal 2025	1.400.000,00 € 700.000,00 € (2024) 700.000,00 € (2025)	Total: 1.400.000,00 € National Budget 700.000,00 € (2024) 700.000,00 € (2025)
2.2.3	Co-funding of the researchers' participation in the scientific conferences	Number of Sponsored Researchers 2023: 53 2024: 55 2025: 58	Promoter: Ministry of Education, Science and Innovation	I Quarter 2024	IV Quarter 2025	80.000,00 € 40.000,00 € (2024) 40.000,00 € (2025)	Total: 80.000,00 € National Budget 40.000,00 € (2024) 40.000,00 € (2025)
2.2.4	Co-funding the organization of the scientific conferences in Montenegro	Number of Sponsored Scientific conferences in Montenegro 2023: 6 2024: 7 2025: 8	Promoter: Ministry of Education, Science and Innovation	I Quarter 2024	IV Quarter 2025	80.000,00 € 40.000,00 € (2024) 40.000,00 € (2025)	Total: 80.000,00 € Nacionalni budžet 40.000,00 € (2024) 40.000,00 € (2025)

Operative Objective 2.3		Promotion of the cooperation between science and economy				
Performance Indicator	Baseline - 2023	Intermediate Value - 2024	Intermediate Value - 2025	Target Value - 2028		
Number of Established Science-Economy Partnerships  Verification Source: Annual Report of MESI and Annual Report of Innovation Fund of Montenegro	5	20% increase compared to 2023	20% increase compared to 2023	30% increase compared to 2023		
Activities	Result Indicator	Competence	Planned start date of implementation	The planned end of the activities	Budget	Funding source
2.3.1 Collaborative Innovation Grant Programme	The Number of Present Collaborative Grants 2023: 7 2024: 14 2025: 7*	Promoter: Innovation Fund of Montenegro  Partner: Ministry of Education, Science and Innovation	II Quarter 2024	IV Quarter 2025	1.150.000,00 € (2024)	Total: 1.150.000,00 € National Budget 900.000,00 € (2024) Private Sector 250.000,00 € (2024)
	Number of Established Science-Economy Partnerships 2023: 5 2024: 12 2025: 7*					
2.3.2 Proof-of-Concept Programme	Number of engaged Economic Entities on Projects 2023: 9 2024: 16 2025: 5*	Promoter: Innovation Fund of Montenegro  Partner: Ministry of Education, Science and Innovation	III Quarter 2024	IV Quarter 2025	750.000,00 € (2024) 375.000,00 € (2024) 375.000,00 € (2025)	Total: 750.000,00 € National Funds 600.000,00 € 300.000,00 € (2024) 300.000,00 € (2025) Private Sector 150.000,00 € 75.000,00 € (2024) 75.000,00 € (2025)
	Number of Approved Projects 2023: 7 2024: 8 2025: 8					

2.3.3	Creation of conditions for technology transfer activities in Montenegro	2023: Completed and presented the Pre-feasibility Study  Completed National TTO Handbook & Guidelines and three additional documents for the potential users Offices  Organised panel discussion entitled: "Importance and Role of the Technology Transfer Office in Development of the Innovative and Entrepreneurial Ecosystem in Montenegro"	Promoters: Ministry of Education, Science and Innovation, University of Montenegro, Scientific and Technological Park of Montenegro  Partners: Scientific Research and Innovation Community	II Quarter 2024	IV Quarter 2025	40.000,00 €  20.000,00 € (2024) 20.000,00 € (2025)	Total: 40.000,00 € National Budget 20.000,00 € (2024) 20.000,00 € (2025) WIPO Support framework to be Determined IPA III EURF (programme BEST) Fundings for the Activity in Question are a part of the contractual relation between EUD and the World Bank
		2024: Concluded the memorandum of Understanding between MESI and UoM  Adopted STP MNE Systematization  Established Technological Transfer Office  Adopted the Intellectual Property Strategy of UoM  2025: Completed Training Plan for the Office Employees					
2.3.4	Strengthening programme and project activities of the innovation infrastructures	2023: Upgraded Infrastructural segment of the Innovation infrastructures: 9  Number of Organized Events: 253  Number of Developed Support Programmes: 15	Promoters: STP MNE, Tehnopolis  Partner: Ministry of Education, Science and Innovation	I Quarter 2024	IV kvartal 2025	1.327.200,00 € (2024) tbc (2025)	Total: 1.327.200,00 € National Budget 1.150.000,00 € (2024) EU 177.200,00 € (2024)
		2024: Number of upgraded or newly-developed Infrastructural Segments: 15  Number of Implemented Support Programmes: 318  Number of Developed Support Programmes: 23					

Operative Objective 2.4		Promotion of Science in Society <sup>70</sup>				
Performance Indicator	Baseline - 2023	Intermediate Value - 2024	Intermediate Value - 2025	Target Value - 2028		
Number of Programmes and Projects for the Promotion of Science in Society Verification Source: Annual Report of MESI	103	11% increase compared to 2023	11% increase compared to 2023	15% increase compared to 2023		
Activities	Result Indicator	Competence	Planned start date of implementation	Planned end of the activities	Budget	Funding source
2.4.1	Co-funding the science and research promotion projects	Promoter: Ministry of Education, Science and Innovation  Partners: Licensed scientific research institutions, legal entities performing scientific research and/or educational activity, public sector	I Quarter 2024	IV Quarter 2025	60.000,00 € 20.000,00 € (2024) 40.000,00 € (2025)	Total: 60.000,00 € National Budget 20.000,00 € (2024) 40.000,00 € (2025)
2.4.2	Scientific Achievements Awards	Promoter: Ministry of Education, Science and Innovation  Partners: Scientific research community	III Quarter 2024	IV Quarter 2025	22.000,00 € 14.000,00 € (2024) 8.000,00 € (2025)	Total: 22.000,00 € National Budget 14.000,00 € (2024) 8.000,00 € (2025)
2.4.3	Implementation of the promotional activities for reinforcing the visibility of the scientific and research activity	Promoter: Ministry of Education, Science and Innovation  Partners: Scientific research and economic community and civil sector	I Quarter 2024	IV Quarter 2025	10.000,00 € 5.000,00 € (2024) 5.000,00 € (2025)	Total: 10.000,00 € National Budget 5.000,00 € (2024) 5.000,00 € (2025)
2.4.4	Organisation of the "Science and Innovation Days 2024" Festival	Promoter: Ministry of Education, Science and Innovation  Partners: Licensed scientific research institutions, legal entities performing scientific research and/or educational activity, public sector, economy	II Quarter 2024	IV Quarter 2025	200.000,00 € 100.000,00 € (2024) 100.000,00 € (2025)	Total: 200.000,00 € National Budget 100.000,00 € (2024) 100.000,00 € (2025) Sponsorships Donations A fundraising campaign based on this is in progress, and a clear projection can be given only after the financial framework for the festival's organisation is completed.

70 Contribution to the ERA Actions 14 (Bring science closer to citizens) and 5 (Gender equality and foster inclusiveness).

STRATEGIC OBJECTIVE 3		Strengthening international cooperation in science and research				
Operative objective 3.1		Achieving sustainable results by reinforcing international cooperation and networking <sup>71</sup>				
Performance Indicator	Baseline - 2023	Intermediate Value - 2024	Intermediate Value - 2025	Target Value - 2028		
Number of Current Collaborative Research projects and partnerships Verification Source: Annual Report of MESI	85	5% increase compared to 2023	10% increase compared to 2023	20% increase compared to 2023		
Activities	Result Indicator	Competence	Planned start date of implementation	The planned end of the activities	Budget	Funding source
3.1.1	Implementation of the bilateral scientific and technological (S&T) cooperation	Promoter: Ministry of Education, Science and Innovation  Partners: Licensed scientific research institutions and international scientific research institutions	I Quarter 2024	IV Quarter 2025	430.000,00 € 80.000,00 € (2024) 350.000,00 € (2025)	Total: 430.000,00 € National Budget 80.000,00 € (2024) 350.000,00 € (2025)
3.1.2	Enhancement of the access to international and European research infrastructures	Promoter: Ministry of Education, Science and Innovation  Partners: Universities, the scientific research community, international research infrastructures	I Quarter 2024	IV Quarter 2025	347.930,00 € 177.930,00 € (2024) ESS ERIC 32.930,00 € (contribution + payment to the expert) ICGEB 7.000,00 € (contribution + participation of the delegates in the meeting of the ICEGEB Governor's Board) EMBO   EMBL – 55.000,00 € (contribution) CERN – 70.000,00 € (contribution) IPPOG – 3.000,00 € (contribution) Open Call (10.000,00 €) 170.000,00 € (2025)	Total: 347.930,00 € National Budget 177.930,00 € (2024) 170.000,00 € (2025)
3.1.3	Implementation of the joint projects of the multilateral scientific and technological cooperation in the Danube region	Promoter: Ministry of Education, Science and Innovation  Partners: Scientific research community	I Quarter 2024	IV Quarter 2025	37.650,00 € 7.650,00 € (2024) 30.000,00 € (2025)	Total: 37.650,00 € National Budget 7.650,00 € (2024) 30.000,00 € (2025)

71 Contribution to the ERA Action 9 (Promote international cooperation)

3.1.4	Implementation of the collaboration projects with the International Atomic Energy Agency (IAEA)	<p>The number of the Current National projects</p> <p>2023: 7</p> <p>2024: 2</p> <p>2025: 2</p> <p>Number of Montenegrin institutions involved in the regional projects</p> <p>2023: 13</p> <p>2024: 13</p> <p>2025: 13</p>	<p>Promoter:</p> <p>Ministry of Education, Science and Innovation</p> <p>Partners: IAEA, competent institutions from Montenegro</p>	I Quarter 2024	IV Quarter 2025	<p>30.000,00 €</p> <p>15.000,00 € (2024) (contribution, open call)</p> <p>15.000,00 € (2025) (contribution, open call)</p>	<p>Total: 30.000,00 €</p> <p>National Budget</p> <p>15.000,00 € (2024)</p> <p>15.000,00 € (2025)</p>
3.1.5	IPA 2020 Grant scheme „Scientific potential in the service of innovation“	<p>Number of approved projects</p> <p>2023: 8 (Male Managers: 2; Female Managers: 6)</p> <p>2024: 8 (Male Managers: 2; Female Managers: 6)</p>	<p>Promoter:</p> <p>Ministry of Finance</p> <p>Partners:</p> <p>Ministry of Education, Science and Innovation, the scientific research community, economy and NGO</p>	I Quarter 2024	IV Quarter 2024	<p>1.006.349,07 € (2024)</p>	<p>Total: 1.006.349,07 €</p> <p>EU funds</p> <p>882.243,69 € (2024)</p> <p>Private sector</p> <p>124.105,38 € (2024)</p>

Operative objective 3.2		Increasing participation in the European programmes for science, research and technology					
Performance Indicator	Baseline - 2023	Intermediate Value - 2024	Intermediate Value - 2025	Target Value - 2028			
Number of supported projects/applications for EU science and research programs from national sources	5	100% increase compared to 2023	100% increase compared to 2023	130% increase compared to 2023			
Verification Source: Annual Report of MESI							
Activities	Result Indicator	Competence	Planned start date of implementation	The planned end of the activities	Budget	Funding source	
3.2.1	Promotion of the participation in the EU Framework Programme for Research and Innovation "Horizon Europe" 2021-2027	<p>Number of contracted projects</p> <p>2023: 10</p> <p>2024: 12</p> <p>2025: 15</p> <p>Number of completed info days, trainings, meetings and study visits</p> <p>2023: 9</p> <p>2024: 15</p> <p>2025: 18</p> <p>Number of published public calls</p> <p>2023: 2</p> <p>2024: 7</p> <p>2025: 8</p>	<p>Promoter:</p> <p>Ministry of Education, Science and Innovation</p> <p>Partners:</p> <p>Universities, Licensed scientific research institutions, economic subjects, NGOs, public institutions</p>	I Quarter 2024	IV Quarter 2025	<p>3.629.740,00€</p> <p>2024:</p> <p>1.544.740,00 €</p> <p>1.400.000,00 € (contribution); 80.000,00 € (support to MESI); 64.740,00 € (EU Widera project)</p> <p>2025:</p> <p>2.085.000,00 €</p> <p>2.000.000,00 € contribution; 80.000,00 € open calls; 5.000,00 € organization of info days and calls</p>	<p>Total: 3.565.000,00 €</p> <p>National Budget</p> <p>1.480.000,00 € (2024)</p> <p>2.085.000,00 € (2025)</p> <p>EU funds</p> <p>64.740,00 € (2024)</p>

3.2.2	Promotion of the participation in COST actions	<p>Number of actions in which users from Montenegro participated</p> <p>2023: 152</p> <p>2024: 160</p> <p>2025: 170</p> <p>Number of completed info days, consultations, meetings, trainings</p> <p>2023: 1</p> <p>2024: 2</p> <p>2025: 3</p>	<p>Promoter:</p> <p>Ministry of Education, Science and Innovation</p> <p>Partners:</p> <p>Public administration, academic community, economy and NGO</p>	I Quarter 2024	IV Quarter 2025	<p>20.798,92 €</p> <p>2024:</p> <p>15.399,46 €</p> <p>Contribution</p> <p>399,46 €;</p> <p>organisation of info days in Montenegro: 12.000,00 €; trainings: 3.000,00 €</p> <p>2025:</p> <p>5.399,46 €</p> <p>Contribution</p> <p>399,46 €;</p> <p>organisation of info days in Montenegro: 2.000,00 €; trainings: 3.000,00 €</p>	<p>Total: 20.798,92 €</p> <p>National Budget</p> <p>15.399,46 € (2024)</p> <p>5.399,46 € (2025)</p>
3.2.3	Supporting the establishment of the European Digital Innovation Hub (EDIH) in Montenegro	<p>Completed preconditions for the establishment of the EDIH in Montenegro</p> <p>2023: Adopted information for the Government on the preparatory activities of Montenegro for the "European Digital Innovation Hub" call within the EU programme "Digital Europe"</p> <p>2024:</p> <p>Published public call for the pre-selection of the candidates for the participation in the "Network of European Digital Innovation Hubs" (DIGITAL-2023-EDIH-04-ASSOCIATED) within the EU "Digital Europe" Programme</p> <p>Created prerequisites for the co-financing from the national budget</p> <p>The list of preselected candidates from Montenegro is submitted to the EC</p> <p>2025:</p> <p>Depending on the outcome of the European evaluation - supported establishment of the EDIH in Montenegro</p>	<p>Promoter:</p> <p>Ministry of Education, Science and Innovation,</p> <p>Ministry of Public Administration</p> <p>Partners: Scientific research and innovation community</p>	I Quarter 2024	IV Quarter 2025	<p>1.100.000,00 €</p> <p>2024:</p> <p>845.000,00 €</p> <p>195.000,00 € (MESI 105.000,00 € + MPA 90.000,00 €) i 650.000,00 € (EU pre-financing)</p> <p>2025:</p> <p>255.000,00 € (MESI 125.000,00 € + MPA 130.000,00 €)</p>	<p>Total: 1.100.000,00 €</p> <p>National Budget</p> <p>450.000,00 €</p> <p>195.000,00 € (2024)</p> <p>255.000,00 € (2025)</p> <p>EU</p> <p>650.000,00 € (2024)</p>
3.2.4	Promotion of participation in EUREKA	<p>Number of supported EUREKA projects</p> <p>2023: 1</p> <p>2024: 5</p> <p>2025: 7</p>	<p>Promoter:</p> <p>Ministry of Education, Science and Innovation</p> <p>Partners: Scientific research and innovation community</p>	I Quarter 2024	IV Quarter 2025	<p>480.000,00 €</p> <p>240.000,00 € (2024)</p> <p>240.000,00 € (2025)</p>	<p>Total: 480.000,00 €</p> <p>National Budget</p> <p>240.000,00 € (2024)</p> <p>240.000,00 € (2025)</p>

The Action Plan for implementing the Strategy for Scientific Research Activity (2024-2028) 2024-2025 includes 3 strategic objectives, 10 operative objectives, and 45 activities. 16.480.419,27 € has been allocated for implementing the Action Plan 2024-2025.



# VII FINANCIAL ASSESSMENT FOR THE PERIOD OF THE IMPLEMENTATION OF THE ACTION PLAN (2024-2025)

The overview of the financing planned under the Action Plan according to the funding sources:

- **National Budget: 14.182.130,20 €.**
- **EU programmes: 1.774.183,69 €; and**
- **Private Sector: 524.105,38 €.**

**2024.** Implementation of the planned activities in 2024 does not require the provision of additional budgetary means, as they are defined by the Law on Budget for 2024. For the implementation of the Action Plan of the Strategy for Scientific Research Activity 2024-2028 for 2024, 8.887.056,64 € is needed. The overview of the budget plan 2024 according to the funding sources:

- National Budget: 6.663.767,57 €.
- EU Programmes: 1.774.183,69 €; and
- Private Sector: 449.105,38 €.

**2025.** Implementing the Action Plan 2025 requires financial resources amounting €7,593,362.63, which shall be planned in the Proposal of the Law on a Budget of Montenegro for 2025. The overview of the planned financing for the implementation of the Action Plan in 2025, according to the funding sources, as follows:

- National Budget 7.518.362,63 €; and
- Private Sector: 75.000,00€

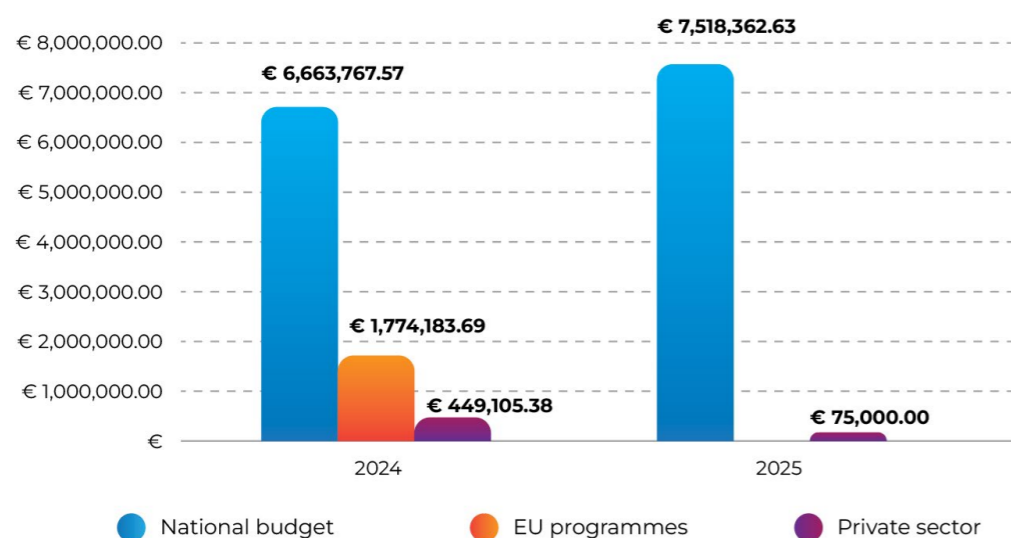


Chart 10: Financial assessment for the Action plan (2024-2025)

Table 3: Financial assessment according to strategic and operative objectives and funding sources

STRATEGIC OBJECTIVE	Description	2024			2025			Budget Total
		National budget	EU Programmes	Private Sector	National budget	EU Programmes	Private Sector	
STRATEGIC OBJECTIVE 1	Enhancement of the framework conditions for functioning of the scientific and research activity in Montenegro							
Operative objective 1.1	Enhancement of the legal framework for the scientific and research activity	10,000.00 €			20,000.00 €			30,000.00 €
Operative objective 1.2	Enhancement of the scientific and research monitoring system	12,900.00 €						12,900.00 €
Operative objective 1.3	Strengthening the research infrastructure	125,000.00 €			150,000.00 €			275,000.00 €
Operative Objective 1.4	Promotion of the implementation of the Open Science concept	40,000.00 €			40,000.00 €			80,000.00 €
<b>TOTAL:</b>		<b>187,900.00 €</b>	<b>0.00 €</b>	<b>0.00 €</b>	<b>210,000.00 €</b>	<b>0.00 €</b>	<b>0.00 €</b>	<b>397,900.00 €</b>
STRATEGIC OBJECTIVE 2	Strengthening human resources and institutional capacities in science and research							
Operative objective 2.1	Support to the young researchers	873,400.00 €			2,412,110.00 €			3,285,510.00 €
Operative objective 2.2	Support to the promotion of the scientific research work	882,488.11 €			1,272,853.17 €			2,155,341.28 €
Operative objective 2.3	Promotion of the cooperation between science and economy	2,370,000.00 €	177,200.00 €	325,000.00 €	320,000.00 €		75,000.00 €	3,267,200.00 €
Operative objective 2.4	Promotion of Science in Society	139,000.00 €			53,000.00 €			192,000.00 €
<b>TOTAL:</b>		<b>4,264,888.11 €</b>	<b>177,200.00 €</b>	<b>325,000.00 €</b>	<b>4,057,963.17 €</b>	<b>0.00 €</b>	<b>75,000.00 €</b>	<b>8,900,051.28 €</b>
STRATEGIC OBJECTIVE 3	Strengthening international cooperation in science and research							
Operative objective 3.1	Achieving sustainable results by reinforcing international cooperation and networking	280,580.00 €	882,243.69 €	124,105.38 €	565,000.00 €			1,851,929.07 €
Operative objective 3.2	Increasing participation in the European programmes for science, research and technology	1,930,399.46 €	714,740.00 €		2,585,399.46 €			5,230,538.92 €
<b>TOTAL:</b>		<b>2,210,979.46 €</b>	<b>1,596,983.69 €</b>	<b>124,105.38 €</b>	<b>3,150,399.46 €</b>	<b>0.00 €</b>	<b>0.00 €</b>	<b>7,082,467.99 €</b>
<b>IN TOTAL, FOR ALL STRATEGIC OBJECTIVES:</b>		<b>8,887,056.64 €</b>			<b>7,493,362.63 €</b>			<b>16,380,419.27 €</b>

## VIII COMMUNICATION AND INFORMING THE PUBLIC ON THE STRATEGY FOR SCIENTIFIC RESEARCH ACTIVITY

### Introduction

The Strategy for Scientific Research Activity of Montenegro aims to improve scientific and research activities in Montenegro, which requires the establishment of the communication system both internally, within the scientific research community, and externally with the media, interested parties, and the general public.

Therefore, in this chapter of the Strategy, it is necessary to focus on the key messages, target groups to whom those messages are intended, and communication tools, all in order to achieve the full effect of the planned activities. Communication has to be clear and information concise, and benefits for all the interested parties and the general public focused on the specific benefits of this document.

### Key messages:

#### Scientific Excellence

The Strategy promotes scientific excellence. The key message is that **Montenegro has the potential for achieving the high scientific standards**. This message shall be directed towards scientist, universities and research institutions.

#### Importance of Science for the Society

We shall convey the importance of science to general public. This includes informing the public on solutions that science offers and education on scientific topics: **Science is a part of everyday life**. The message shall be distributed via social media, website and media campaigns.

#### Support to Young Scientists

**Young scientists are the future of the scientific research community**. The message shall be directed towards students, scholarship holders and young researchers. We shall inform them on the opportunities for training, mentorship and financial support.

### Dissemination of the key messages – public information

Considering that the basic strategic objectives of this document are:

- ▣ *Enhancement of the framework conditions for functioning of the scientific and research activity in Montenegro;*
- ▣ *Strengthening human resources and institutional capacities in science and research; and*
- ▣ *Strengthening international cooperation in science and research;*

the messages for the public have to rest on these three communicative pillars.

**The first communicative pillar - Promotion of the frameworks scientific research conditions**, has to include not only financial support but also the creation of a collaborative atmosphere with state bodies and within the community:

- **Investing in the science and technology:** "Science is the foundation of progress. We invest in research and development to improve society and economy."
- **Support the young researchers:** "Young researchers are the future. We provide scholarships, mentorships and training to support their development."
- **Transparency:** "We share research results and provide free access to the scientific data."
- **Cooperation with the private sector:** "Partnership between science and economy brings innovations and competitive advantages."
- **Strengthening of the scientific infrastructure:** "We improve laboratories, libraries and research centres to enable superb research conditions."
- **Promotion of scientific achievements:** "We proudly highlight the success of scientists and their contribution to society."
- **Education on scientific methodology:** "We broaden knowledge on scientific methodology and the importance of critical thinking."

**The second communicative pillar, strengthening human resources and institutional capacities**, should help raise awareness about realistic investments in human and institutional capacities, which are not often visible due to, among other things, the lack of vision in communication and clear communicative messages:

- **Development of scientific talents:** "We invest in the training and development of young researchers. We promote scholarships, mentorships and experience exchange to build up a new generation of researchers."
- **Strengthening of the institutional capacities:** "We enhance the infrastructure of research institutions. Modernisation of laboratories, libraries, and technological equipment is of key importance for technological research."
- **Supporting interdisciplinary projects:** "We promote cooperation between different scientific disciplines. Interdisciplinary projects bring innovations and solutions for complex challenges."
- **Transparency and measurable criteria:** "We measure the performance of the scientific research institutions in a transparent manner. Criteria for the evaluation should be clear and objective."
- **Cooperation with the private sector:** "Partnership with economy enables knowledge transfer and the application of the research results in practice."
- **Promotion of scientific careers:** "Scientists are vital for social progress. We promote popular careers in science and research."

**The third communicative pillar - strengthening of international cooperation**, must be focused on cooperation, mobility, but also the return of talents to Montenegro:

- **International cooperation:** "Science does not have borders. We actively collaborate with scientists from other countries to exchange knowledge, resources, and best practices." "Partnerships with international institutions enable joint projects, the mobility of scientists, and the access to the global network of experts."
- **Cooperation with the diaspora:** "Diaspora is a valuable resource. We promote cooperation with scientists living abroad to utilise their knowledge and connections." "The diaspora can contribute to the development of scientific projects, mentoring young scientists and promotion of scientific achievements."
- **Mobility of scientists:** "We encourage the exchange of scientists between institutions and countries. This allows for the exchange of ideas, technologies and experiences." "Mobility scholarships facilitate scientists to travel, study and work in different environments."
- **Promotion of scientific events and conferences:** "We organise international conferences and symposiums. This is an opportunity for connecting with colleagues from other countries."

"Through media campaigns, we promote scientific events and invite scientists from the diaspora to take part."

- **Return of the talents to Montenegro:** "We provide support to the scientists from the diaspora who wish to come back and contribute to the development of Montenegro." "Initiatives for the return of talents include scholarships, research positions and support for developing setups."

## Distribution of messages to target groups

### Scientists and researchers:

- Social media: Sharing of scientific achievements, research projects and training.
- Scientific conferences: Presentation of the research results and interaction with colleagues.
- Newsletter: Specific information on scholarships, grants and mentoring.

### Students:

- University channels: Information via university websites, student organisations and e-mail.
- Training and workshops: Organisation of the training on communication, academic writing and presentations.
- Social media: Sharing inspirational stories about young scientists.

### Public:

- Social media: Campaigns on social media using simple language and visually appealing content.
- Website and blog: Regular updating of the website with popular topics and success stories.
- Media campaigns: Airing of TV and radio commercials and articles in the newspapers and journals.

### Media:

- Organise workshops for journalists in order to educate them about scientific topics and terminology. These workshops will enable a better understanding of the concept of science and facilitate reporting on research projects. The focus should be directed on the following aspects:
  - Scientific terminology: Journalists will be introduced to specific terms from different scientific areas. This will aid them in reporting the information precisely.
  - Communication with the scientists: Workshops will include interviewing and communication skills with scientists. Journalists will learn how to ask relevant questions and get clear answers.
  - Challenges in reporting scientific topics: Discuss the challenges that journalists face when reporting scientific content. This involves comprehension of statistics, interpretation of results, and identification of sensationalism.
- Interviews and press conferences:
  - Organise regular interviews and press conferences in order to inform the public about the newest scientific accomplishments.
  - Interviews with scientists to share their scientific results.
  - Press conference: Organise conferences where scientists present their work. This will allow journalists to obtain fresh and relevant information.
  - Event promotion: Promote scientific events, such as conferences, symposiums and workshops via media.
  - Campaigns, training and PR activities: Develop a series of campaigns that shall include different subjects from the scientific research field. Campaigns shall be carried out through social media, web portals, and traditional media. Organise training and workshops for scientists, students and the public. The focus shall be on communicative skills, scientific writing and presentations. Additionally, regularly give statements for media, organise conferences for journalists and interviews with scientists.

## Communication tools

- **Social media:** Actively use social media (Twitter, LinkedIn, Facebook, Instagram) for information sharing, event announcements, and interaction with the public.

- **Website and blog:** Regular updating of the website and potential creation of the blog with relevant information, scientific results and success stories.
- **Newsletter:** Periodically send a newsletter to the scientists, students and interested public.
- **YouTube:** Upload video content to the YouTube channel. Video material may consist of interviews with scientists, presentations of the research results, and animations.
- **Webinars:** Organisation of webinars for interactive communication with the public.
- **Conferences, symposiums and workshops** for the interactions with the scientists and wider audience. This is an opportunity for presenting research results and exchanging experiences.
- **Press releases:** Regularly give press releases about scientific achievements and events.
- **Interviews and conferences for journalists:** Organisation of interviews and conferences for media to inform them of current affairs.
- **Video materials:** The format and content of the video materials should be professionally produced, with high audio and video quality. Include animations, charts, and interviews with scientists. Focus on key messages and scientific topics from the Strategy. Consider different formats: short video clips, documentaries, and guides.

## Measurable success indicators

Measurable success indicators are vital for monitoring and evaluation of the efficiency of the scientific research activity communication. The most important indicators are as follows:

- **Number of website visits:** Tracking the website visits (of the Ministry in the section dedicated to science and research, Fund, STP MNE, Tehnopolis, etc.) will help assess the public interest in scientific topics and website efficiency.
- **Number of social media followers:** This is the tracking of the increase in the number of followers on social media (*Twitter, LinkedIn, Facebook, Instagram*). A greater number of followers indicates a wider reach of the posts and greater engagement of the public.
- **Media reach:** Tracking the number of posts on scientific topics in media (newspapers, television, radio). Analyse the tone of the said posts (positive, negative, neutral).
- **Number of participants in training and workshops:** Tracking the number of participants in training and workshops will help assess the efficiency of educational programmes.
- **Number of publications and material downloads:** If the publications are issued, the number of downloads (digital or physical copies) is an important indicator. This helps assess interest in scientific content.
- **Feedback and surveys:** Conducting surveys and collecting feedback from the public. Questions may include comprehension of the information, content satisfaction, and usefulness of the material.
- **Impact on policies and decisions:** Track whether communicative activities have contributed to changes in policies, laws, or decisions supporting the scientific research community. By closely monitoring these indicators, we can better grasp the efficiency of communication and adapt the strategy to achieve the desirable results.

## Conclusion and recommendations

Efficient communication is a key to the success of the scientific research activity. Therefore, continuous monitoring and assessment of media activities are recommended to adapt the Strategy and achieve the desired results. Additionally, it is of great importance to maintain open cooperation with journalists and media to jointly contribute to the popularisation of science.

It is particularly significant to maintain clarity and precision of communication, avoiding technical terms.

Scientists often work in the “quietness” of their laboratories, but their results have a great impact on society. Using the correct communication, that influence can be structurally communicated to the target groups, and science can be open to the widest audience. Inspirational stories about research can be particularly appealing to the public and increase the popularity of science.

Along with constantly informing the public about the opportunities in the scientific field and communicating the promotion of the conditions for science and research through investments, it is possible to create a new environment where science and research are open to the public. Thus, science and research will become an area that is interesting to new generations, which will bring it to the next level of development.



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