



Montenegro

**A DECADE
OF INDEPENDENCE
A MILLENNIUM
OF STATEHOOD
MONTENEGRO
2016**



May Montenegro live forever

MONTENEGRO

National Roadmap on the European Research Area (ERA)

April 2016

LIST OF ABBREVIATIONS

CEI	Central European Initiative
CRDS	Collaborative R&D Subprojects
CoE	Centre of Excellence
EC	European Commission
ERA	European Research Area
ERAC	European Research Area Committee
ESFRI	European Strategy Forum on Research Infrastructures
H2020	Horizon 2020 Programme
HEI	Higher Education Institutions
HERIC	“Higher Education and Research for Innovation and Competitiveness” Project
HR	Human Resources
IAEA	International Atomic Energy Agency
ICGEB	International Centre for Genetic Engineering and Biotechnology
IPA	Instrument for Pre-Accession Assistance
IPR	Intellectual Property Rights
JPI	Joint Programming Initiatives
MoS	Ministry of Science
NGOs	Non Governmental Organisations
R&D	Research and Development
R&I	Research and Innovation
RI	Research Infrastructure
RPO	Research Performing Organisation
RFO	Research Funding Organisation
SFIC	Strategic Forum for International Cooperation
SMEs	Small and Medium-Sized Enterprises
S&T	Science and Technology
STP	Science Technology Park
TAIEX	Technical Assistance and Information Exchange instrument of the EC

INTRODUCTION

The European Commission (*Communication: "A Reinforced European Research Area Partnership for Excellence and Growth" of July 2012*) and the Member States (*Council Conclusions of December 2012*) identified the following individual fields of action for establishing a strong European Research Area – the so-called ERA Priorities:

- 1. *Effective national research systems***
- 2. *Optimal transnational cooperation and competition (planning and implementation of transnational cooperation and research infrastructures)***
- 3. *An open labour market for researchers***
- 4. *Gender equality and gender mainstreaming in research***
- 5. *Optimal circulation, access to and transfer of scientific knowledge***
- 6. *Strengthening the international dimension of the European Research Area***

ERA priority areas and their effective implementation mechanisms will have a significant impact on the European science, research and innovation systems.

National Roadmap on the European Research Area is a document developed to describe current situation in Montenegro in the area in R&D&I, as well as the manner in which Montenegro will contribute to further implementation of individual ERA Priorities, as an EU associate country and an active partner in the European research efforts.

ERA PRIORITY 1: Effective National Research System

Top Action Priority identified through Member State Consultations

Strengthening the evaluation of research and innovation policies and seeking complementarities between, and rationalisation of, instruments at EU and national levels.

Status

Bearing in mind that research is one of the most important elements of any country's development, Montenegro has made certain changes in terms of availability, organization and financing of science and research, with a view to providing greater comparability with the European system.

Moreover, Montenegro has recognized the importance of innovation as one of the bases for its economic reconstruction and modernization. The country has in recent years undertaken a number of activities aimed at establishing a new institutional framework in support of innovation, as well as strengthening the existing potential for innovation through the implementation of various support programmes. This pointed to a need for developing regulatory and policy framework in the field of innovation activities.

Montenegro brought its legal system in line with the Lisbon Treaty (Treaty on the Functioning of the European Union) and accepted the EU *acquis*, goals, guidelines and priorities in the field of science and research, which came into effect on 15 November 2012, whereas in the field of innovation policy it observes the EU strategic course within the framework of the Flagship Initiative Innovation Union.

The priority action of Montenegro within the R&D&I area is focused on the strengthening of national R&I capacities, integration of Montenegrin research community into the European Research Area – ERA, as well as its further involvement in international R&I programmes.

Montenegro has therefore defined three strategic goals in the area of science and research: Development of research community, Strengthening multilateral, regional and bilateral cooperation, and Cooperation of research community with economy. In the field of innovation activities, Montenegro will focus its future efforts on the improvement of innovation capacities within the country (regulatory environment, infrastructure and human resources), strengthening networking instruments and collaboration between all part-takers in the innovation system, and fostering innovation capacities of private sector.

The compliance of national R&I policy with the European policy also implies a further increase in R&D investments and the improvement of R&I infrastructure, in addition to promoting the quality of research activities by establishing the first CoE in Montenegro on one hand, and the

ensuring greater collaboration between the research community and economy by establishing the first STP in Montenegro on the other hand.

CoE represents a key instrument for promoting quality in science, research and innovation. The establishment of CoEs in Montenegro will contribute to the establishment of partnerships at both national and international level, provision of funding for research through cooperation with economy and training of new generations of young talented scientists, researchers and inventors with a view to encouraging a larger degree of creativity, innovation and development of science. CoEs will create long-term focused programmes and provide stable sources of financing. These should combine knowledge, research and innovation, i.e. establish a close link between research and economy.

The first CoE in Montenegro was established on June 1, 2014 with the anticipated a three-year duration. The Centre was set up under the HERIC project. A new call for proposals for awarding the status of the second CoE to an institution for the next three-year cycle will be launched in 2017.

In addition to CoE, a very important instrument developed within the same project is the programme of collaborative R&D grants. The programme was designed with a view to supporting the efforts of exceptional research teams, promoting international cooperation, cooperation of research and industry and developing commercial innovation.

Competitive funding through calls for proposals with the application of core principles of international peer review is implemented for all national programmes.

Apart from the primary focus on research excellence, one of the eligibility criteria applied for the establishment of the CoE and collaborative R&D grants was the cooperation of the research community with economy i.e. involvement of a partner from industry, which would have a strong impact on the commercialization of research funded under these grants.

One of the core instruments for strengthening the cooperation of research community with economy and the promotion of innovative SMEs is the establishment of STP. STPs will encourage the development of entrepreneurship based on the new knowledge resulting from scientific research, encourage the exchange of new technologies between universities, research institutions, companies and markets, and facilitate the establishment and growth of companies based on outstanding scientific results transformed into innovation, through the incubation processes and the establishment of spin-off companies. The STP in Montenegro will have a central unit based in Podgorica, which will be formally connected with three sub-units – impulse centres located in Bar, Nikšić and Pljevlja.

It is particularly important to emphasize that the STP should keep its focus on excellent research results transformed into innovation and new technologies regardless of the multitude of features and instruments of various types of centres, and that it should provide the basis for the improvement of quality of education on all levels. Also, centres for the development of young scientists should be placed in all of the centres in order to attract and educate as many young people as possible.

The first Impulse Centre “Tehnopolis” in Nikšić was established in 2014, whereas the completion of reconstruction and adaptation works on the building where it would be situated is expected until summer 2016. This will be followed by equipping the premises, selection of their occupants on the basis of a public call published beforehand and development of support programmes. Furthermore, the activities on the establishment of the Central STP unit in Podgorica have started by providing premises for this purpose within the university campus and completing the preparation activities concerning the public calls for the Main project design.

Goals

Further improvement of quality of research and innovation activities, cooperation of research community with economy and larger R&I investments through national funding, as well as through private sector.

Actions

- Establishing scientific excellence as a guiding principle in all research activities;
- Improving the statistics on R&D investment;
- Improving the R&I activities further by the adoption of Smart Specialization Strategy;
- Strengthening R&I infrastructure; and
- Fostering R&I programmes.

Time schedule

- 2017 - Activities concerning the establishment of a new CoE;
- 2017 - Activities concerning the establishment of STP in Podgorica;
- 2017 - Improvement of statistics on R&D investment;
- 2017 - Adoption of Strategy of Scientific Research Activities (2017-2021) and Smart Specialization Strategy; and
- 2017 - Programme of innovative projects.

Top Action Priority identified through Member State Consultations

Improving alignment within and across the Joint Programming Process and the resulting initiatives (e.g. JPIs) and speeding up their implementation.

Status

Major challenges cannot be addressed without international cooperation and joint coordination of research efforts on a global level. Given that national public funding and capacities of the countries (both EU and non-EU countries) are limited, strategic coordination and synergies between national programmes should be used in order to create a necessary critical mass to enable successful research on complex issues, i.e. climate change, global security challenges, etc.

In support of these efforts, Montenegro participates in the biggest EU Research and Innovation programme 'Horizon 2020' (H2020) as an associated country. The administrative capacities for H2020 are good, with the established network of National Contact Points (NCPs) and appointed representatives in the H2020 Programme Committees.

Regarding the integration into the ERA, Montenegro nominated an observer delegate and regularly attends meetings with the European Research and Innovation Committee (ERAC).

Montenegro is a full member of EUREKA and COST. Moreover, a new Framework Programme for Cooperation with IAEA for period 2014-2020, was signed in October 2015. Montenegro cooperates at a regional level as a co-signatory of the Regional Strategy on Research for Innovation, with CEI and UNESCO. In addition, the country actively participates in other initiatives developed as policy intelligence tools for non-EU-countries playing important roles in EU research initiatives (such as initiatives in the Danube Region and Mediterranean countries).

In order to encourage science, research and innovation, Montenegro will continue to strengthen its institutional, administrative and financial capacities, with a view to reaching higher levels of public and private R&D investment, as well as increasing its participation in EU programmes, particularly in IPA, HORIZON 2020, EUREKA and COST, yet in other international funds as well.

Goals

- Increased participation in H2020 programme, as according to the first statistics and results, the participation is low.
- Greater participation in EUREKA programme.
- Alignment of the Montenegrin strategies, measures and programs with the jointly developed strategies at European level.

Actions

- Increase participation in H2020 by further promotional and networking activities on national level. Efforts will be focused on areas of strategic interest for the country and participation of SMEs in these actions will be further encouraged. In addition to ERAC, participation in other related ERA advisory bodies will also be considered as part of these measures.
- New legislation on research and innovation activities to be adopted in 2016 and 2017 (Research Strategy, Innovation Law and Strategy), in line with EU strategies.

Time schedule

- 2018: Increased participation of Montenegrin institutions in Horizon 2020 / EUREKA programmes by 40%;
- 2017: Legislation related to the R&D and innovation, to be adopted until 2018.

ERA PRIORITY 2(B): Make optimal use of public investments in Research Infrastructures
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Top Action Priority identified through Member State Consultations

Making optimal use of public investments in research infrastructures by setting national priorities compatible with the ESFRI priorities and criteria taking full account of long term sustainability.

Status

Research Infrastructure plays an important role in Montenegrin Research policy. The Government has identified that infrastructure investments which are based on the strategic

assessments and priorities would develop national capacities for the purpose of becoming more competitive and recognized on both regional and international level.

Law on Scientific Research Activities (2011) introduced new instruments for the development of scientific research system, i.e. the establishment of new RI such as CoEs, STPs and centres for innovation and entrepreneurship. One of the long-term objectives in the field of national RI is to create a unique institutional framework in the form of CoE, establishing critical mass for RI and scientific excellence through interdisciplinary research, and involving international research partners and partners from the industry, as required to comply with the EU standards in the RI development.

The establishment of the first STP in Montenegro and Centres for Innovation and Entrepreneurship will create conditions for strengthening cooperation between research institutions and private sector. This should enable public-private partnerships in terms of working on R&D projects as well as enhance innovation activities, resulting in new and innovative products and services.

Montenegrin Research Infrastructures Roadmap (2015-2020) was prepared in accordance with the ESFRI Roadmap and was adopted by Montenegrin Council for Scientific Research Activities in September 2015. It provides an overview of the existing infrastructures and the Montenegrin potential, and relies on national strategic documents related to the infrastructure planning and investment conducted in recent years. The Roadmap underlines the national importance of RIs, but also includes information on the interest for Montenegrin participation in research infrastructures included in the ESFRI Roadmap.

Through this Roadmap, as well as through some international initiatives (WBC-INCO.NET project, WBC-INNO project), an inventory of large and medium-scale research infrastructure was created.

Goals

MoS conducted a ***Study of the existing research capacities and capabilities for creating a common research area***, in order to map the existing infrastructure and the requirements of Montenegrin research community. This study has shown that the research equipment and data infrastructure in Montenegro is dispersed. At a national level, the overview of interconnection of this equipment, which would attain the critical mass of the medium-sized or large research infrastructure centres, is not appropriate. Some particular equipment and data infrastructure among institutions are duplicated, and in some cases, even within the same institution.

Optimal use and sharing of research equipment and infrastructure between research institutions represent some of the biggest challenges faced by national research teams.

In order to overcome fragmentation, poor transparency and inadequate utilization of current capacities, the main objectives include:

- increasing visibility and promoting the existing RI;
- creating the rules for joint use and sharing the RI; and
- establishing a virtual infrastructure node.

Actions

Funding is provided for RI of national importance, and it is planned for the participation in international cooperation concerning RIs, including the participation in joint international infrastructures, such as projects in the ESFRI Roadmap, during their implementation phase. The European potential of major on-going ESFRI projects will be considered (i.e. eLIXIr, eMBrc - European Marine Biological Resource Centre, EURO-BIOIMAGING - European Research Infrastructure for biomedical imaging, etc.).

- Optimization and effective management of research resources will be implemented in order to contribute to the increased productivity and more effective expenditure of funds.
- Regarding the establishment of the virtual infrastructure node, MoS has already undertaken activities of upgrading the national research information system (Science Network of Montenegro), with integrated data about research infrastructure. The platform will be available till the end of 2016, and presented in an easily reviewable manner. It will present data on available equipment within the scientific research institutions, including those offered for collaboration purposes (for each interested scientific research unit / lab / department / institute / faculty), with the relevant contacts of persons responsible for the listed equipment.
- Active contribution of Montenegro to the implementation of the ESFRI Roadmap through participation in ESFRI, ESFRI Board and ESFRI implementation group.

Time schedule

- 2017 - National research information system "Science Network" upgraded;
- 2017-2020 – Active participation in ESFRI committees.

Top Action Priority identified through Member State Consultation

Using open, transparent and merit-based recruitment practices with regard to research positions.

Status

The main challenge for establishing a more dynamic and open labour market for researchers in Montenegro rests in financial circumstances of HEIs, given that they are the main research institutions in the country, and consequently offering a very limited number of academic positions. The existing positions are usually only sufficient for a researcher hired as a young person, a teaching assistant engaged for one course, aiming to get tenure and obtain the status of full professor. The recruitment practices are to a large extent aligned with the best EU practice, yet they function within a narrow and rigid labour market.

The recruitment of a larger number of researchers usually occurs in research groups that obtained external project funding. This is the area which bears potential for a larger degree of dynamics and openness in recruitment, which can influence the culture at an institution. There are several barriers to it, which our Roadmap aims to help remove. The barriers were identified during a TAIEX expert mission held in March 2015 at MoS, which involved the participation of all stakeholders (Universities, Ministries, civil society and Trade Unions) as well as an HR expert in the field of research from the Ministry of Higher Education and Research of France. The main barriers that were identified include:

- Lack of long-term strategy and policy in the affirmation of research personnel and valorisation of research work;
- Lack of legislative acts at universities regulating the area of employment of young researchers, and the acquisition of research titles that lead to career progression (“research assistant”). There is no comparability of titles at the first level (teaching assistant vs. research assistant);
- Too rigid financial and HR management: lack of clear and stimulating rules for dealing with external finances; hiring relates to a specific, narrow field;
- Rigid conditions for longer-term mobility due to the lack of personnel (one subject : one lecturer : one teaching assistant);

- Low salaries of academic staff resulting in lack of competitiveness in terms of internationalization (attracting foreign researchers to vacant positions, or Montenegrins from abroad);
- Difficult to retain the position of teaching assistant / researcher if there are no vacant positions in academic ranks (now up to 5 years from gaining doctorate degree).

Goals

Starting from identified barriers create a specific policy related to HR in research_at national level in order to systematically improve the field. Align it with the ERA Roadmap, particularly with its Top Action Priority of using open, transparent and merit-based recruitment practices with regard to research positions.

Actions

- Create a multi-actor Workgroup for HR in research (Ministries, Universities, Trade Unions, Associations) which will report to the Council for Scientific Research Activity;
- Obtain EU assistance in policy planning;
- Systematically implement the policy at all levels and ensure its monitoring and evaluation.

Time schedule

- 2016 –Workgroup Created
- 2017 – Policy planning process
- 2017 onwards – Implementation
- Annual monitoring
- End of 2018 – Interim Evaluation
- End of 2020 – Beginning of final evaluation

Top Action Priority identified through Member State Consultations

Translating national equality legislation into effective action to address gender imbalances in research institutions and decision making bodies and integrating the gender dimension better into R&D policies, programmes and projects.

Status

Montenegro has recognized the importance of gender equality in R&D because of the great benefits of balance between highly skilled women and men for the future development of research and innovation programmes and projects, in a sense of strengthening scientific excellence and relevance of research.

Since 1950s, Montenegro has been recording equal number of men and women in higher education and R&D. This is supported by the fact that, according to the latest official statistical data¹, the number of R&D personnel in Montenegro in 2014 equals to 2,339 persons, out of which 1,231 are women, or 52.63%. Women researchers account for around 50% of the total number of researchers in Montenegro. The number of doctoral students as one of the indicators of country's potential research capability also goes in favour of female population, i.e. 60% of PhD graduates in 2014 are women². On the other hand, female PhD students who started their PhD studies in the academic 2015/2016 account for 52.5% out of total number of students who started PhD studies this year, which is a good indicator that the future potential R&D capacity will be well balanced between genders. Finally, the statistical survey on the number of postgraduates in 2014 showed similar results, i.e. female postgraduates account for 59.8% out of the total number of graduates in this year. Bearing in mind the abovementioned data, the main goal regarding gender equality in R&D is to monitor the future developments and to maintain the positive state.

Taking into account the decision making positions in licensed scientific research institutions (current number 58 – faculties, independent public and private faculties, institutes, companies, agencies, NGOs), women account for 27.58% out of the total number of deans and directors. In accordance with Article 4 of Law on Higher Education, a higher education institution is autonomous, thus the only possible positive action of the country directed towards the improvement of gender balance in decision-making positions within the higher education area is to promote the importance of female participation in decision-making processes. An interesting fact is that one of three rectors of Montenegrin universities is a woman, i.e. for the first time in

¹ Source: Statistical Office of Montenegro (MONSTAT), <http://www.monstat.org/cg/page.php?id=1093&pageid=77>

² <http://www.monstat.org/cg/page.php?id=437&pageid=76>

the history of Montenegrin universities a woman holds the highest position. This represents an important step in affirming the importance of female role at the highest decision-making level in higher education.

Legal framework related to gender equality in R&D in Montenegro does not imply any barriers in terms of gender. In general, Law on Gender Equality regulates and guarantees equal participation of women and men in every sphere of public and private sectors, equal opportunities in exercising their rights and freedoms, and equal benefits from the work results for both. More specifically, Article 3, paragraph 2 of Law on Scientific Research Activities states that: "The performance of research activity shall be free and accessible to all domestic and foreign natural persons and legal entities.", which implies that it is free and equally accessible to both men and women. On the other hand, statutes of all three universities in Montenegro guarantee equal rules for the recruitment and career progression of both female and male researchers. Moreover, all three universities are the signatories to the European Charter for Researchers and a Code of Conduct for the Recruitment of Researchers which implies the application of the EU rules in this field.

The core policy document on gender equality, Action Plan for Achieving Gender Equality in Montenegro (2013-2017), provides a set of important measures regarding gender equality in R&D field, such as: promotion of the most successful women in science and research in the media and promotion by presenting the most successful women in science with awards; financing gender research under the Call for co-financing of national scientific research projects (2012-2015), within the research priority area "Identity"; and conducting research on possibilities and interests for establishing gender studies on faculties³. Amendments to the Strategy for Scientific Research Activities also treat this issue under the strategic goal "Development of scientific research community".

In order to strengthen the gender aspect in research programmes, MoS included this matter in the most important programmes, one of them being the CRDS Programme (2014-2017). This Programme implies particular support to the applications and partnerships seeking to appoint women on the senior research positions within the CRDS. This practice has been implemented within the Programme for establishing the first CoE and will be continued within the future programmes financed by the Ministry.

Montenegro promotes international instruments for fostering women in R&I area, such as EU Prize for the Women Innovators and L'Oréal-UNESCO Awards for Women in Science. Also, as a country associated to the EU Framework Programme for Research and Innovation "Horizon

³ University Donja Gorica, Faculty of Humanities, is the only one that has a study programme "Female studies" at the level of Master studies.

2020", Montenegro devoted special attention to the gender issues within the promotional campaign related to this programme.

At the governmental level, institutional mechanism for the development and monitoring of gender issues in different fields has been established through a network of coordinators. The coordinator for gender equality in science and research is a part of the network with the following tasks: to participate in general and thematic meetings of the network; to follow activities related to the R&D field; to promote and disseminate R&D gender equality related information and events; and to report regularly on the state of gender equality in R&D.

Goals

Legal, strategic and institutional framework in Montenegro goes in favour of the gender balance in R&D, therefore the future plans and activities are oriented towards maintaining these positive framework conditions, following the best EU practices in this field and monitoring the state in R&D on a regular basis.

Actions

- Regular reporting on the development of the measures related to the R&D in the Action Plan for Achieving Gender Equality in Montenegro (2013-2017).
- Ensuring the involvement of the gender issues related to the R&D by participation in the WG for preparation of the forthcoming Plan on Action for Achieving Gender Equality in Montenegro (2017-2022).
- Monitoring the R&D related gender issues through official country's statistics and reports on different R&D programmes.
- Promoting the importance of gender balance in R&D.

Time schedule

- Annual reporting and monitoring
- 2016/2017 – Creating a Workgroup and conducting policy planning process

Top Action Priorities identified through Member State Consultations

- a) Fully implementing knowledge transfer policies at national level in order to maximize the dissemination, uptake and exploitation of scientific results. Research performing organizations (RPOs) and Research funding organizations (RFOs) should make knowledge transfer second nature by integrating it in their everyday work
- b) Promoting Open access to scientific publications

Status

The need for better cooperation of various research institutions in Montenegro, as well as their cooperation with industry in order to achieve broader knowledge circulation and technology transfer, has been recognized by MoS. As a result, the Ministry has undertaken several activities and has made project plans aimed at improving the results in these fields.

One of the major steps undertaken for strengthening inter-sectoral researches and links, and improving knowledge transfer between RPOs and industry, is the establishment of the first CoE in Bio-informatics (BIO-ICT) in Montenegro which gathered 4 leading research institutions from Montenegro, 2 SMEs, and 2 research institutions from abroad. BIO-ICT is funded by MoS through HERIC, as a three-year project. The same practice has been implemented within the CRDS Programme as well.

This represent one of the examples of good practice, yet much more efforts have to be made in order to further strengthen the cooperation between RPOs and industry in Montenegro in general, as it is currently on a very low level. In that manner, MoS is working on realization of the first Entrepreneurial-innovation centre “Tehnopolis”, in the town of Nikšić, which is expected to start in autumn 2016. Tehnopolis is as the initial step towards establishing the first STP in Podgorica, within the campus of the University of Montenegro.

When the protection of IPR in Montenegro is concerned, the number of patents and other forms of IPR protection, applied from research institutions in Montenegro is rather small. It is certainly far below their research and innovative capacity, when compared to the number of scientific publications, research and technical projects implemented, etc. National legislation regarding IPR protection has been adopted, and it is fully in line with the corresponding EU legislation. However, there is no regulation on IPR policy regulated at the level public RPOs yet.

Some pioneering work in this regard is underway within HERIC and at the University of Montenegro, through FP7 “Fore-Mont” project.

In the area of promoting Open Access to scientific publications and data obtained through publicly funded research, so far none of activities have been defined at national level, nor at the level of public research institutions. Only those institutions participating in H2020 projects will use Horizon 2020 as an instrument for publishing their research according to Open Access Principles, this being a mandatory requirement. Namely, all projects receiving Horizon 2020 funding will have the obligation to ensure that any peer-reviewed journal article they publish is openly accessible, free of charge.

Goals

Strengthened collaborative research between public and private sectors, better knowledge exchange between science, industry and society, promotion of education and training in entrepreneurship, increased number of Montenegrin patent applications to the European Patent Office, most of the scientific results published in scientific articles, and obtained through publicly funded research, to be freely available.

Actions

- **Intensify networking and improve the exchange between science, industry and society.** In addition to the described ongoing measures related to this goal, MoS is working on the realization of the first Entrepreneurial-innovation centre “Tehnopolis” in Nikšić, which will directly contribute to placing science and innovations in the function of economic development. This will result in the establishment of innovative SMEs and the reduction of unemployment. In the following period, the first STP in Montenegro will be created within the campus of University of Montenegro, in Podgorica. Its main goals will be to link science and business sectors, improve the competitiveness of SMEs and promote entrepreneurship, and provide support for start-up companies.
- **Improve and promote education and training in entrepreneurship.** Law on Higher Education defines the obligation of each study program to organize practical teaching. This can be organized in laboratories of the institution, but it also allows to be organized in cooperation with business sector, which should be initiated wherever it is possible.
- **Strengthen collaborative research through existing and new tools.** MoS will continue to support collaborative research through the HERIC project, through calls for implementing national research projects, and jointly with Ministry of Economy, using IPA funds.
- **Increase the creation of start-ups.** Creation of start-ups will be boosted through the support provided by Entrepreneurial-innovation centre “Tehnopolis” in Nikšić, as well as by the planned first STP in Podgorica and additional two impulse centres in Bar and

Pljevlja. It is expected that in the following years entrepreneurship will be much more promoted at the universities through their education programs. Good incentive along these lines is provided by Investment and Development Fund (IDF) of Montenegro, which supports graduate students in creating their own companies through offering very cheap loans, assuming 0% interest and a 4-year grace period. Besides this, IDF also offers another line of cheap loans for creating start-ups for all citizens.

- **Professionalized IP management.** IP management that will be provided in S&T Park in Podgorica will be fully professionalized and trained, which is expected to result in far more IP rights protection. Moreover, professionalized IP management will support the creation of contracts between RPOs and business sector.
- **Increase number of IPR protection.** A new Law on innovative activities is expected to be adopted in 2016 by the Government of Montenegro. Simultaneously, the work on the development of Strategy for Innovations with Action Plan 2016-2020 is underway. Among other things, these documents will define the instruments for stimulating innovations, which will certainly increase the number of IPR protections. Researchers and institutions should also be encouraged to participate in Public Procurement of Innovation Solutions (PPI) and Pre-Commercial Procurement (PCP) instruments within H2020.
- **Promotion of Open Access.** Neither public research institutions, nor MoS have specified strategies for transition to Open Access Principles. As an EU candidate country, Montenegro will follow the Commission's Recommendation regarding access to and preservation of scientific information. For this purpose, a Workgroup for creating national guidelines for Open Access will be established.

Time schedule

- 2016: Strategy for Innovation with Action Plan 2016-2020 completed and adopted
- 2016: Entrepreneurial-innovation centre "Tehnopolis" in Nikšić
- 2016: Workgroup for creating national guidelines for Open Access established
- 2017: Funds dedicated at MoS and/or RPOs for supporting Gold Open Access
- 2017: Work on establishment of STP in Podgorica

Top Action Priority identified through Member State Consultations

Develop and implement appropriate joint strategic approaches and actions for international STI cooperation on the basis of Member States' national priorities.

Status

Bearing in mind that the research activity is one of the most important elements of the development of each country, Montenegro gives priority to international cooperation in the field of science and research.

Strengthening International bilateral, regional and multilateral cooperation is one of the three priorities in the Strategy for Scientific Research Activity of Montenegro 2012-2016.

Key activities of Montenegro within this priority relate to the integration of Montenegro into the European research community and research facilities - ERA, and further integration into the international scientific programs. Compliance of scientific policy and legislation in the field of science and research in Montenegro with the Lisbon Treaty and the objectives, policies and priorities of the EU in this area relates to: EU Framework Programmes, mainly Horizon 2020, ERA participation in committees and bodies, participation in COST, EUREKA, CERN Programmes and other international programmes such as: IAEA, ICGEB, NATO and others.

Montenegro has already signed 14 bilateral agreements with following countries: Republic of Albania, Republic of Croatia, Republic of Slovenia, Republic of Serbia, Republic of Macedonia, PR China, Republic of Austria, Bosnia and Herzegovina, Republic of Bulgaria, Republic of Hungary, Republic of Poland, Republic of Turkey, Republic of Greece and Republic of Italy.

Goals

- Strengthening international cooperation through European R&I programmes and activities in priority areas of cooperation - medicine, ICT and agriculture/food safety.
- Strengthening international cooperation through mobility of researchers and conducting joint activities.
- Further alignment of policy dialogue and implementation of international cooperation at European and Montenegrin level.

Actions

- On national level:
 - Montenegro will focus on the implementation activities concerning the strengthening of participation in EU Framework Programme “Horizon 2020” in cooperation with the EU, in priority areas of cooperation;
 - Montenegro will focus on the implementation activities concerning the strengthening of participation in bilateral/regional and multilateral cooperation;
 - Montenegro will focus on the implementation activities for strengthening linkage between science and industry with the aim of developing economy and its greater competitiveness on the open market;
 - Mentioned activities will be based on new national legislation - Strategy of Scientific Research Activity of Montenegro 2017-2021, as well as on other relevant legislation (Innovation Law, Smart Specialization Strategy, etc).
- On the European Level:
 - Montenegro will continue to contribute to better coordination of objectives and priority setting for international cooperation and to join activities towards EU priorities in the field of science and research through active participation of scientific research community and officials into all ERA Bodies and into Joint Initiatives, as well as other EU relevant strategic events.
Responsible part-takers: MoS, licensed scientific-research institutions;
 - Montenegro will contribute to a better use of S&T agreements on a bilateral level, cooperation with regional and international organizations and other EU Programme and initiatives such EUREKA, COST, CERN are.

Time schedule

- 2016-2020- Active participation in Horizon 2020;
- 2016-2020- Strengthening activities on bilateral, regional and multilateral cooperation;
- 2017-2020 Continuation activities on strengthening linkage between science and industry with the aim of developing economy and competitiveness;
- 2016-2020 Active participation in ERA committees.