



STRATEGY
OF INNOVATION ACTIVITY (2016–2020)
WITH THE ACTION PLAN

Podgorica, July 2016

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INTRODUCTION

Pursuant to Article 9 of the Law on Innovation Activity (Official Gazette of Montenegro 42/16), the Strategy of Innovation Activity is adopted with a view to establish the priorities and encourage and monitor the development of innovation activity.

The obligation to adopt the Strategy of Innovation Activity with the Action Plan (2016–2020) in the third quarter of 2016 was defined by the Programme of Work of the Government of Montenegro, as well as by the Programme of Accession of Montenegro to the EU (PAM 2015–2018).

On the basis of the proposal by the Council for Scientific and Research Activity, the Ministry of Science has formed, via Decision No. 01-2681 of 11 November 2015, the Working Group for drafting the Strategy of Innovation Activity with the Action Plan (2016–2020), in the following composition:

- Marijeta Barjaktarović Lanzardi, MSc, Ministry of Science, president;
- Prof. Dr. Kemal Delijić, University of Montenegro – Faculty of Metallurgy and Technology, member;
- Prof. Dr. Jovan Mirković, University of Montenegro – Faculty of Natural Science and Mathematics, member;
- Prof. Dr. Janko Jovanović, University of Montenegro – Faculty of Mechanical Engineering, member;
- Dr. Nikola Žarić, Assistant Professor, University of Montenegro – Faculty of Electrical Engineering, member;
- Prof. dr. Mladen Vukčević, *Mediterranean* University, member;
- Sandra Tinaj, MSc, *Donja Gorica* University, member;
- Jelena Zelinčević, University of Montenegro – Centre of Excellence in Bioinformatics, member;
- Nataša Batričević, Ministry of Economy, member; and
- Ljiljana Belada, Directorate for Development of SMEs, member.

Pursuant to Article 9 paragraph 2 of the Law on Innovation Activity, the Council for Scientific Research Activity, at its session held on 25 July 2016, endorsed the Proposal to the Strategy on Innovation Activity (2016-2020) with the Action Plan, for consideration and adoption by the Government of Montenegro.

The Council for Higher Education, at the joint session with the Council for Scientific Research Activity, held on 25 July 2016, considered and supported Proposal to the Strategy on Innovation Activity (2016-2020) with the Action Plan.

The Government of Montenegro, at its session of the 28 July 2016, adopted the Strategy on Innovation Activity (2016-2020) with the Action Plan.

LIST OF ABBREVIATIONS

ADRION	Interreg Adriatic-Ionian Programme
AREA	Consortium for the AREA of Scientific and Technological Research of Trieste
BIO-ICT	Centre of Excellence in Bioinformatics
CG	Montenegro
CIE	Centre for Innovation and Entrepreneurship
CoE	Centre of excellence
CTT	Centre for technology transfer
DTP	Danube Transnational Programme
EC	European Commission
ENEF	Enterprise Expansion Fund
ENIF	Enterprise Innovation Fund
EPO	European Patent Organization
ERA	European Research Area
ERAC	European Research Area and Innovation Committee
ERP	Economic Reform Programme
ESFRI	European Strategy Forum on Research Infrastructures
EU	European Union
EUSAIR	EU Strategy for the Adriatic and Ionian Region
EUSDR	EU Strategy for the Danube Region
H2020	EU Framework Programme for Research and Innovation “Horizon 2020” (2014–2020)
HE	Higher education
HERIC	Higher Education and Research for Innovation and Competitiveness of Montenegro
IA	Innovation activity
ICT	Information and communications technology
IO	Innovative organizations
IP	Intellectual property
IPO	Intellectual Property Office
IU	Innovation Union
JICA	Japan International Cooperation Agency
MARD	Ministry of Agriculture and Rural Development
ME	Ministry of Economy
MEST EN ISO 14000	Environmental Management System
MEST EN ISO 18000	Occupational Health and Safety Management System
MEST EN ISO 22000	Food Safety Management System
MEST EN ISO 9000	Quality Management System
MFAEI	Ministry of Foreign Affairs and European Integration
MLSW	Ministry of Labour and Social Welfare
MoE	Ministry of Education
MONSTAT	Statistical Office of Montenegro
MoS	Ministry of Science
MSDT	Ministry of Sustainable Development and Tourism
NGO	Non-governmental organizations
OIS	Open innovation system
PAM	Programme of Accession of Montenegro to the EU
PWD	Public Works Directorate
R&D	Research and development
SEE	Southeast Europe
SME	Small and medium enterprises
SR	Scientific research
SRA	Scientific-research activity
STP	Science and technology park
TT	Technology transfer
UCG	University of Montenegro
UDG	<i>Donja Gorica</i> University
UECG	Union of Employers of Montenegro
WB	World Bank
WB EDIF	Western Balkans Enterprise Development & Innovation Facility
WISE	Western Balkans Research and Innovation Centre

I EUROPEAN, REGIONAL AND NATIONAL STRATEGIC INNOVATION CONTEXT

In order to determine a single strategic innovation framework in Montenegro, it is necessary to provide a short overview of the strategic context of the EU, the regional context, as well as the current national context, on the basis of which Montenegro has been implementing programmes and projects for several years already, while also planning the future activities related to innovation.

I a. EU Context

As a country that is in the process of European integration, Montenegro has focused its activities in recent years on stimulating innovation, following the **Europe 2020 Strategy**¹, and the **Innovation Union (IU)**, which is one of its key initiatives. Similarly, the future strategic direction will be taken in accordance with the guidelines defined in this Strategy.

The Europe 2020 Strategy is the EU development strategy for a ten-year period (2010–2020), which was created at the time of strong economic and financial crisis, and which aims at the EU economic development based on knowledge, with the preservation of the environment, high levels of employment, productivity and social cohesion. Therefore, the focus was placed on five measurable goals: employment; research and innovation; climate change and energy; education; and poverty reduction.

Europe 2020 sets three priorities:

- Smart growth – developing an economy based on knowledge and innovation;
- Sustainable growth – improving resource-efficient, environmentally sustainable and competitive economy; and
- Inclusive growth – improving the high level of employment that will enable social and territorial cohesion.

Smart growth, the core of which includes research and innovation, requires the improvement of the quality of education, strengthening research capacities, promotion of innovation and knowledge transfer and full utilization of ICT.

In order for the goals within the specific priorities to be met, the EU has identified seven initiatives that provide more detailed guidelines for development in specific areas. One of them is the Innovation Union, aimed at improving the framework conditions and access to finance for research and innovation, in order to enable the transformation of innovative ideas into products and services that will generate economic growth and new jobs. An emphasis is placed on the results of the scientific-research work – scientific discoveries, scientific works, inventions protected by patents, new technologies and so on. One of the main requirements to enable the results of scientific-research work to enter the commercialization process more efficiently is the reorganization of scientific-research systems and innovation systems across Europe in the context of strengthening the connections between and cooperation of all key institutions, actors and resources of the research, academic and economic sectors.

Implementation of the Innovation Union relies on different structures and programmes and Montenegro takes active participation in most of them. One of these structures is the ERA, which presents a single cooperation framework in research, development and innovation in Europe. Montenegro has the status of observer in ERAC, actively participating, through its representative, in the work of this body and following its conclusions, including them in its most important strategic documents. Montenegro also actively participates in the work of ESFRI, with a view to better integration and strengthening the potential for the use of Pan-European research infrastructure, as evidenced by the recent adoption of the Roadmap for Research Infrastructure in Montenegro (2015–2020). One of the most important

¹ <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A52010DC2020>

programmes is the EU Framework Programme for Research and Innovation “Horizon 2020” (2014–2020), to which Montenegro acceded on 01 July 2014 by signing the International Covenant on Accession, which enabled the Montenegrin scientific-research community and SMEs to participate in the projects financed through this instrument as equals.

In the process of accession to the EU, Montenegro receives very important guidelines through the Progress Reports. In the **Montenegro Report 2015**², in the section related to the capacity to assume membership obligations, under Chapter 25: Science and Research, the EC recommended that that Montenegro should:

- Enhance efforts to increase investment in research, in particular through stimulating investment by the private sector; and
- Increase and focus efforts on participation in the EU Programme 'Horizon 2020'.

In the context of innovation, these recommendations are related to adoption of measures to encourage investment by the private sector, as well as to greater participation of SMEs in H2020.

I b. Regional Context

South East Europe (SEE)³ **2020 Strategy**⁴ establishes guidelines for countries in the region to adopt reforms in various policy areas, which will enable the socio-economic growth and prosperity of citizens and contribute to the process of EU integration.

The Strategy⁵ focuses on a set of interrelated pillars of development, of which the most significant in the context of innovation is “Smart Growth”. Within this pillar, Dimension E refers to the research, development and innovation, whose main objective is to increase investment in the region in research and innovation, particularly in the areas of *smart specialization of the region*. Key strategic activities concerning the Dimension E are an integral part of the Regional Strategy for Research and Development for Innovation of the Western Balkans.

The goal of the **Regional Strategy for Research and Development for Innovation of the Western Balkans**⁶ is to strengthen the capacity for research and innovation in the region, promote interregional cooperation and cooperation with the business sector, explore the possibilities of joint use of EU funds for research and development and other international funds, and to improve the integration of the region to ERA and Innovation Union.

In order to properly use the innovative capacity of the region, particularly in the context of the opportunities and requirements in research and development arising from the process of European integration, the Strategy sets four objectives, which constitute the main guidelines of the reform programme:

- Improving the research base and the conditions for excellence in research;
- Improving cooperation and technological transfer between research institutions and economy;
- Creation of business innovation and innovative start-up companies; and
- Strengthening the governance of research and development policies.

² http://ec.europa.eu/enlargement/pdf/key_documents/2015/20151110_report_montenegro.pdf

³ South East Europe (SEE) 2020 Strategy was adopted on 21 November 2013 at the Ministerial conference of the South East Europe Investment Committee (SEEIC) in Sarajevo.

⁴ <http://www.rcc.int/files/user/docs/reports/SEE2020-Strategy.pdf>

⁵ In accordance with the obligations assumed under SEE 2020 Strategy, Montenegro has adopted the National Action Plan (NAP) for the implementation of the Strategy, including individual measures and activities whose implementation is planned in the period of January 2014 to December 2015, with a view to meet the key objectives and performance indicators.

⁶ <http://www.worldbank.org/content/dam/Worldbank/document/eca/WBRIS%20Strategy10-21-13%20web.pdf>

In order to ensure continuity of reforms in the field of research and innovation sectors of the Western Balkans and to facilitate the management of joint programmes, the Strategy provides for the establishment of the Western Balkans Research and Innovation Centre – WISE. The Agreement establishing WISE was signed by ministers of the Western Balkan countries on 18 September 2015. The Parliament of Montenegro adopted the Law on Ratification of the WISE Agreement at its session held on 22 March 2016.

The Centre will coordinate the implementation of four regional programmes, which are part of the Strategy's Action Plan: Research Excellence Fund, Networks of Excellence, Technology Transfer and Early-Stage Start-Up Programme.

The EU Strategy for the Danube Region (EUSDR) (2014–2020)⁷ is one of the EU macro-regional strategies, adopted by the European Council in 2011, which was created with a view to connect existing policies and initiatives in order to achieve the common interests of countries in the region. The participating countries are: Austria, Bulgaria, Croatia, Czech Republic, Germany, Hungary, Romania, Slovakia, Slovenia, Bosnia and Herzegovina, Montenegro, Serbia, Moldova and Ukraine.

The Strategy identifies eleven priority areas, of which the most important one for the innovation context is Priority Area 7: “Knowledge Society”, which focuses on research, education and ICT.

The Danube Transnational Programme (DTP)⁸ is a financial instrument that supports the integration of policies in the Danube region in specific areas.

The Programme identifies the following priorities:

- Innovative and socially responsible Danube region;
- Environment and Culture responsible Danube region;
- Better connected and energy responsible Danube region; and
- Well-governed Danube Region.

The activities supported under the Programme are related to: the development of common orientations, frameworks and strategies in the areas of transnational importance in which it is necessary to develop an early policy; preparation of transnational investments; pilot activities; development and practical implementation of transnational instruments and services; etc.

EU Strategy for the Adriatic and Ionian Region (EUSAIR) (2014–2020)⁹ is a macro-regional strategy aimed at better and stronger integration of existing policies and initiatives with a view to achieve the common interests of the region. The participating countries are: Croatia, Greece, Italy, Slovenia, Albania, Bosnia and Herzegovina, Montenegro and Serbia.

Common challenges and interests have been recognized through four pillars of the Strategy, as follows:

- Blue growth (focus: fisheries, agriculture, maritime governance, sea biology, so-called blue technologies – coordinators of this pillar are Montenegro and Greece);
- Connecting the region (focus: maritime transport and energy);
- Environmental quality (focus: biodiversity, marine environment); and
- Sustainable tourism (focus: tourism management and new products and services).

⁷ <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52010DC0715&from=EN>

⁸ <http://www.interreg-danube.eu/>

⁹ <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52014IR0023&from=EN>

Interreg Adriatic-Ionian Programme (ADRION)¹⁰ is one of the financial instruments for implementation of the goals of this Strategy, as well as for other challenges that the countries of the region intend to jointly face.

The Programme identifies the following priorities:

- Innovative and smart region (focus on innovation and smart specialization strategies);
- Sustainable region; and
- Connected region.

I c. National Context

In recent years, Montenegro has undertaken a number of activities aimed at establishing a new institutional framework for innovation, as well as at strengthening the existing innovation potential in Montenegro, through the implementation of various support programmes, which indicated the need to establish a legal and strategic framework for the field of innovation activity.

The innovation system in Montenegro is regulated by the international legal acts, legislative and strategic framework in this field.

INTERNATIONAL ACTS

International Agreement between the EU and Montenegro on the Participation of Montenegro in the Union Programme “Horizon 2020” – the Framework Programme for Research and Innovation (2014–2020)	2014
International Agreement between the EU and Montenegro on the Participation of Montenegro in the COSME Programme (2014–2020)	2014
Framework Programme for Cooperation of Montenegro with the International Atomic Energy Agency – IAEA (2014–2020)	2014
Memorandum of Accession to EUREKA Programme	2012
Accession to COST Programme	2015
Declaration of Acceptance of the Regional Strategy of Research and Development for Innovation of the Western Balkans	2013

NATIONAL LEGAL FRAMEWORK

Law on Innovation Activity (IA)	2016
Law on Patents	2015
Law on Copyrights and Related Rights	2011
Law on Ratification of the WISE Agreement	2016

The Law on Innovation Activity¹¹ regulates the organization, conditions and manner of funding innovation activity in Montenegro, in a way that allows innovation to become a pillar of the development of a dynamic and relevant environment for the development of science and research. Article 2 of this Law establishes that innovation activity shall include activities undertaken for the purpose of creation and application of new or improvement of existing technologies, procedures, products, services and processes, in accordance with the market needs. Also, the definition of innovation is provided, as the practical application of new or a significant improvement of existing products, goods, services, procedures, processes, organization and marketing, contributing to the creation of new value and quality in their application. In accordance with this Law, innovation activity shall be performed by

¹⁰ <http://www.adrioninterreg.eu/>

¹¹ <http://www.mna.gov.me>

innovation organizations and other entities, such as companies and natural persons or inventors – innovators. The Law also establishes the sources of financing innovation activity, the priorities for co-financing and provides for the possibility of introducing tax exemptions and incentives.

The Law on Patents (Official Gazette of Montenegro 42/15)¹² defines the terms of legal protection of the patents. In accordance with this Law, patent is a legally protected invention in any field of technology, provided that it is new, that it involves an inventive component and that it is applicable in industry. The Law also defines the conditions for patent protection, the right to acquire a patent, the procedure for acknowledging a patent, content, scope and limitation of the rights of the patent holder, duration and termination of patent, trade in rights, special provisions on confidential inventions and inventions arising from employment, as well as provisions relating to the European Patent Application and European Patent, and an international application under the agreements on cooperation in the field of patents.

The Law on Copyrights and Related Rights (Official Gazette of Montenegro 37/11)¹³ governs the right of authors of literary, scientific and artistic works (copyrights), rights of performers, phonogram producers, film producers, broadcasting organizations, publishers and producers of databases (related rights), copyright contract law, collective exercise of copyrights and related rights and their protection.

On the other hand, the growing importance of innovation has had an increasing influence on the direction of policy formulation in Montenegro, so this segment is included in all major national strategies.

POLICY FRAMEWORK

Amendments to the Strategy of Scientific-Research Activity of Montenegro (2012–2016)	2012
Roadmap for Research Infrastructure in Montenegro by 2020	2015
National Roadmap for European Research Area (ERA)	2016
Program of Accession of Montenegro to the European Union (PAM) (2015–2018)	2015
Development Directions of Montenegro (2015–2018)	2016
Economic Reform Programme (ERP) (2015–2017)	2015
Regional Development Strategy of Montenegro for the period of 2014–2020	2014
Industrial Policy of Montenegro by 2020	2016
Feasibility Study for Establishing Centres of Excellence in Montenegro (2012–2017)	2011
Feasibility Study for Establishing Science and Technology Parks in Montenegro (2012–2018)	2011
Strategic Plan for Establishing Science and Technology Parks (2013–2018)	2012
Study on Scientific-Research Equipment and Establishment of Common Research Area (2013–2017)	2013
Study on Scientific Diaspora of Montenegro	2014

In the **Amendments to the Strategy of Scientific-Research Activity of Montenegro (2012–2016)**¹⁴, innovation has been identified as the factor for increasing the competitiveness and technological development of the country and there are a number of

¹² <http://www.ziscg.me/content/zakonpatent.pdf>

¹³ <http://www.ziscg.me/content/zakonautpravo.pdf>

¹⁴ <http://www.mna.gov.me/biblioteka/strategije>

activities identified that are related to better connection between and strengthening scientific-research institutions and industry through various institutional projects and support programmes, provision of consultancy services to all stakeholders in the scientific-research and innovation system, with special emphasis placed on technical assistance in the field of intellectual property.

The Council for Scientific-Research Activity adopted the **Roadmap for Research Infrastructure in Montenegro** in September 2015, providing an overview of the existing research infrastructure and analyzing the potential of new infrastructural projects in the field of research and innovation in Montenegro, while presenting the possibilities of using the Pan-European Research Infrastructure.

The Council for Scientific-Research Activity adopted the **National Roadmap for European Research Area (ERA)** in April 2016. In this document, the manner is defined in which Montenegro is going to implement the activities within the areas identified (ERA priorities), which will contribute to establishing a strong research area.

Acquiring the status of a EU membership candidate, Montenegro has committed to prepare the document entitled **Program of Accession of Montenegro to the European Union – PAM (2015–2018)**¹⁵, presenting, inter alia, the state of play in Chapter 25: Science and Research and determining the time-schedule for the activities on the implementation of future plans in relation to the legislative, strategic and administrative framework for this Chapter.

One of the most important policy documents that came after Montenegro gained candidate status for membership in the EU is entitled **Development Directions of Montenegro (2015–2018)**¹⁶. This document determines the vision of socio-economic development of the country, defining the different priorities and measures within the following development directions: *smart growth, sustainable growth and inclusive growth*. The Development Directions have identified four priority sectors of development: tourism, energy, agriculture and rural development, and industry. Special attention in this paper is focused on innovation and technological readiness as factors of competitiveness.

A very important source of guidance and measures is the **Economic Reform Programme – ERP (2015–2017)**¹⁷, which is aimed at removing obstacles to economic growth and development with a view to strengthening the country's competitiveness, creating new jobs and increasing the standard of living of the population. In the area of structural reforms, under the reform area of "technology absorption and innovation", the main obstacles to development are identified, along with assessment of the current situation and review of future directions.

The Regional Development Strategy of Montenegro (2014–2020)¹⁸ establishes a number of mechanisms and measures, whose implementation is aimed at achieving a balanced socio-economic development of all local self-government units and regions, based on competitiveness, innovation and employment. The Strategy identifies eight priority areas of regional development, one of which is "competitiveness and innovation", including entrepreneurship, science, promotion of the business environment, quality infrastructure and other elements of the internal market, business infrastructure and financial services.

¹⁵ [file:///C:/Users/ranko/Downloads/13%20II%2015%20PPCG%202015-2018%20finalni%20\(1\).pdf](file:///C:/Users/ranko/Downloads/13%20II%2015%20PPCG%202015-2018%20finalni%20(1).pdf)

¹⁶ <http://www.mf.gov.me/rubrike/prezentacije/151039/Pravci-razvoja-Crne-Gore.html>

¹⁷ <http://www.gov.me/vijesti/146546/Program-ekonomskih-reformi-2015-2017.html>

¹⁸ <http://www.mek.gov.me/biblioteka/strategije>

The proposal for **Industrial Policy of Montenegro by 2020**¹⁹ defines the strategic framework and the priorities of industrial development, which should result in overall economic growth, increase in employment and accelerated innovative development of all regions. The aim is to create conditions for modernizing industry based on knowledge and innovation, enabling greater integration in the international market. The document deems innovations very important in the context of the strategic objectives, and the intention is to achieve growth and development based on innovation, with a focus on identified priorities of the country's development.

Bearing in mind that the legal framework for innovation activity is established, as well as that there is a number of policy documents in Montenegro already significantly defining directions and objectives in the field of innovation for the future period, the priorities and strategic goals of the Innovation Strategy are aligned with existing national framework.

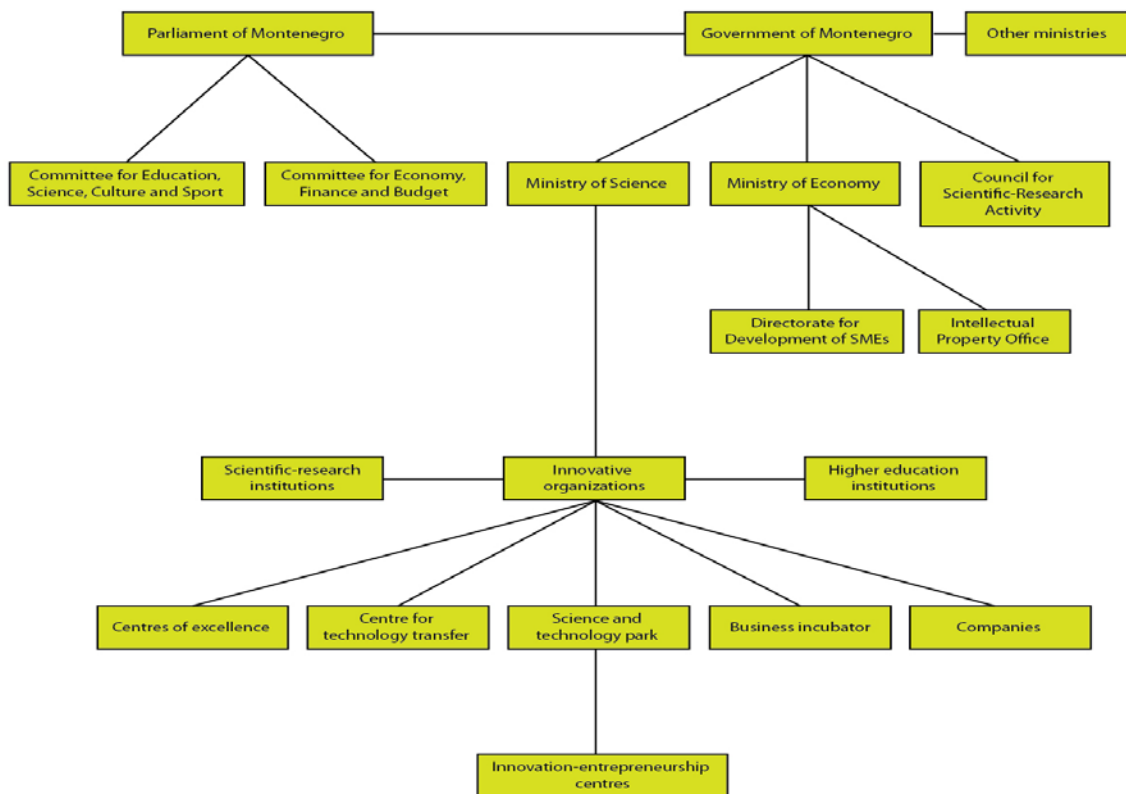
Finally, especially significant position within the national context of innovation belongs to **HERIC project**, implemented by the Government of Montenegro through the Ministry of Science (MoS) and the Ministry of Education, with support by a loan from the World Bank (WB). HERIC project supports initiatives that will enable innovations to become a pillar of the development of a dynamic and relevant environment for the development of higher education, and will make provisions for universities and public and private companies to use their more active role in research and development and the opportunities for technology transfer. Within the third project component, "Establishment of a competitive environment for research", the programme of establishing the first Center of Excellence in Montenegro and the programme of collaborative grants for research and development projects are being implemented.

II OVERVIEW OF THE EXISTING INNOVATION SYSTEM OF MONTENEGRO

II a. Institutional Framework

Until the adoption of the Law on Scientific-Research Activity, the **institutional framework for innovation system in Montenegro** has not been fully defined. Namely, apart from the competent authorities of the state administration, before the adoption of the Law the innovation system included scientific-research institutions, higher education institutions, SMEs and newly created infrastructure, such as centres of excellence and science and technology parks, or centres for innovation and entrepreneurship. Now, however, the structure of the competent institutions is clearly defined, as well as relations within it, so the process of innovation in the country can be managed more effectively.

¹⁹ <http://www.mek.gov.me/biblioteka/strategije>



Schematic overview of the innovation system institutional framework in Montenegro

The Parliament of Montenegro is a legislative body responsible for the adoption of the Constitution and laws, as well as for the ratification of international agreements on scientific and technological cooperation. At present, within the Parliament, separate authority for the field of innovation belongs to the Committee for Education, Science, Culture and Sport, as well as to the Committee for Economy, Finance and Budget.

The Government of Montenegro is the executive body which manages internal and foreign policy, proposes laws to the Parliament, adopts strategies, concludes and signs bilateral agreements on scientific and technological cooperation and memoranda of understanding with foreign governments in the field of science, research and innovation.

The Ministry of Science is a state administration body implementing the policy of research, development and innovation through national and international programmes of general interest. It also negotiates and implements bilateral agreements on scientific and technological cooperation, concludes memoranda, protocols and programmes of cooperation with ministries and foreign organizations.

The Ministry of Economy is the state administration body that proposes and implements the development strategy of Montenegro, creates conditions for sustainable and balanced growth and development of Montenegrin economy and its competitiveness, implements a policy aimed at supporting economic development, entrepreneurship and SMEs, and is responsible for new production and business technologies.

Other ministries of the Government of Montenegro, such as the Ministry of Agriculture and Rural Development, the Ministry for Information Society and Telecommunications (MIST), the Ministry of Sustainable Development and Tourism (MSDT)

and the Ministry of Education (MoE) provide a significant contribution to improving the capacity for innovation within the scope of their jurisdiction.

The Council for Scientific-Research Activity is appointed by the Government and is tasked with monitoring the implementation of strategies and laws in the field of research and development, providing expert suggestions in terms of improving research and innovation activities and having an advisory role.

The Directorate for Development of Small and Medium Enterprises is a body within the Ministry of Economy, which defines the strategy for the development of SMEs and proposes and ensures the implementation of special programmes to encourage the development of SMEs (incentives to franchising, leasing, technology parks, incubators, etc.).

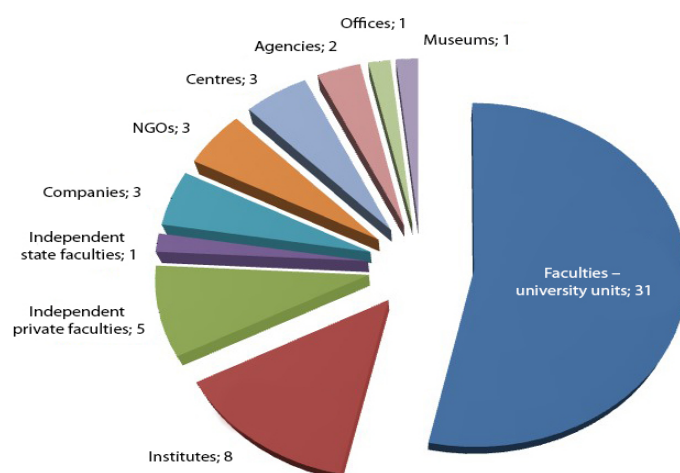
The Intellectual Property Office is an independent administration body that is supervised by the Ministry of Economy and is responsible for examining complaints, checking compliance with the conditions for the recognition and decision-making on industrial property rights (patent, trademark, design, topography of integrated circuits and geographical origin designations), determining expiry of industrial property rights, keeping a register of industrial property rights and the establishment and implementation of international cooperation in the field of intellectual property.

Innovative organizations that carry out innovation activity are: scientific research institutions, centres of excellence, higher education institutions, centres for technology transfer, science and technology parks, centres for innovation and entrepreneurship, business incubators and companies or parts of companies.

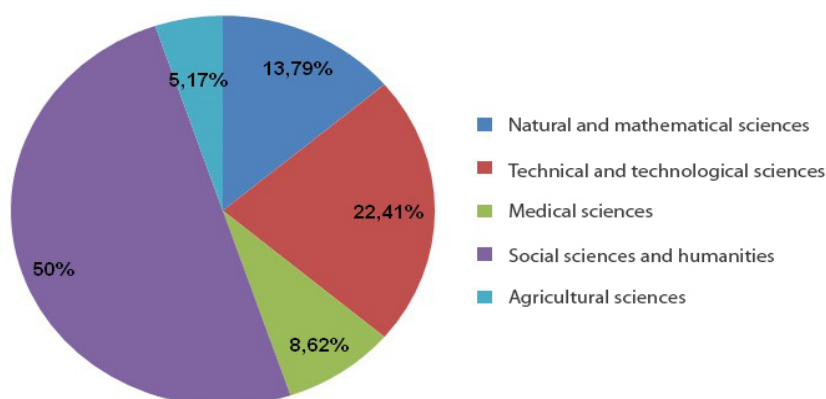
SR institutions, centres of excellence and higher education institutions are innovative organizations if they perform innovative activity by implementing development research based on results of applied research, which relate to the creation and application of new or the improvement of existing technologies, procedures, products, services and processes, in accordance with the market needs.

In Montenegro, the scientific-research and innovation activity is carried out by 58 licensed SR institutions²⁰, which are registered in the Registry of the MoS. The structure of the licensed SR institutions is composed of the following: 33 faculties – organizational units of three Montenegrin universities, 8 institutes (2 of which function within the universities), 5 independent private faculties, 1 independent state faculty, 3 companies, 3 non-governmental organizations, 3 centres, 2 agencies, 1 office and 1 museum. Although a number of these institutions conduct research in several different fields of science, if we classify them based on the dominant field of research, 50% of licensed institutions belong to the field of social sciences and humanities, 22.41% to technical and technological sciences, 13.79% to the field of natural and mathematical sciences, 8.62% to the field of medical and 5.17% to the field of agricultural sciences.

²⁰ Compared to 2010, the number of licensed SR institutions increased from 22 to 58, which is an increase of 163.63 %.

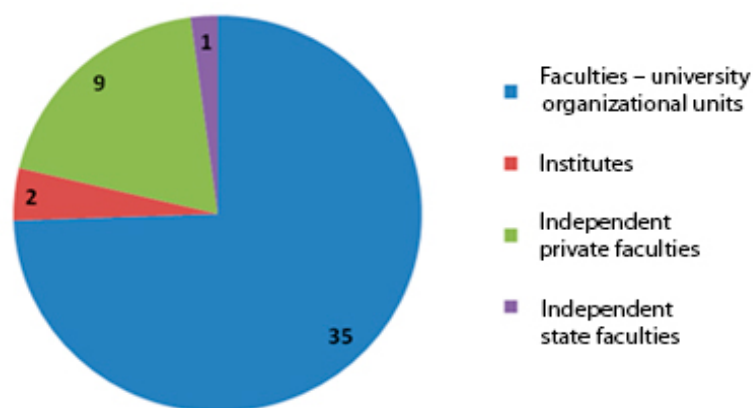


Structure of licensed SR institutions

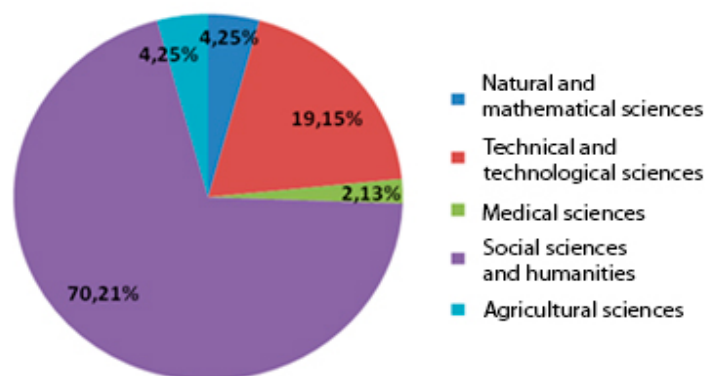


Licensed SR institutions classified per fields of science

The Registry of the Ministry of Education includes 47 licensed higher education institutions and 178 accredited study programmes. The structure of the licensed higher education institutions is the following: 35 faculties – organizational units of three Montenegrin universities, 2 institutes (functioning within the universities), 9 independent private faculties and 1 independent state faculty. Although a number of these institutions conduct research in several different fields of science, if we classify them based on the dominant field of research, 70.21% of licensed institutions belong to the field of social sciences and humanities, 19.15% to technical and technological sciences, 4.25% to the field of natural and mathematical sciences, 4.25% to the field of agricultural and 2.13% to the field of medical sciences.



Structure of licensed higher education institutions



Licensed higher education institutions classified per field of science

For the time being, Montenegro has one CoE (centre of excellence), which has started its operation on 01 June 2014. Namely, the MoS has awarded the status of the first CoE in Montenegro to the University of Montenegro – Faculty of Electrical Engineering in Podgorica, for the implementation of the SR project “*Centre of Excellence in Bioinformatics – BIO-ICT*”²¹.

CTTs (centres for technology transfer) may be formed by universities, CoE and STP (science and technology parks), for performing the transfer of new technologies to companies, use of new or improvement of existing technologies, procedures, products, services and processes; encouraging the realization and commercialization of technology transfers, consulting services and assistance in the protection and use of intellectual property rights. For the time being, there are no such centres in Montenegro, but there are plans to establish one such centre in the coming period, at the University of Montenegro.

STP is an innovative organization that provides specialized infrastructure and services, information systems, professional and consulting services in several areas of science. These services are provided to SR institutions, higher education institutions and other innovative organizations and companies, in order to connect them, and for the needs of economic development of several regions or the country.

²¹ “BIO-ICT” is implemented within the project of “Higher Education and Research for Innovation and Competitiveness of Montenegro” (HERIC) (2012–2017).

Based on the “Strategic Plan for the Establishment of STP in Montenegro” (2012), the science and technology park in Montenegro was conceived as a networked structure with a seat in Podgorica and three decentralized units – impulse centres, constituting an integral part of the STP and located in Nikšić, Bar and Pljevlja.

In 2014, the work has commenced on the establishment of the first CIE (centre for innovation and entrepreneurship) “Tehnopolis” in Nikšić, as one of the impulse centres of STP, while the preparatory activities for the establishment of the central STP unit in Podgorica will be commenced in 2016.

Centre for innovation and entrepreneurship is an innovative organization that provides specialized infrastructure and services, information infrastructure, professional and consulting services, support for establishing cooperation with potential partners for participation in national and international programmes, projects and funds, from various fields of science. The services above are provided to the users of services of SR institutions, higher education institutions and other innovative organizations and companies, for the purpose of economic development at the local or regional level.

CIE “Tehnopolis” in Nikšić is the only CIE in Montenegro for the time being. It has commenced its work upon registration in the Central Registry of Companies, in September 2014.

Business Incubator is an innovative organization that provides administrative, technical, consulting and other services to users of start-up and spin-off companies in the first years of their operation, with a view to support their development.

At present, Montenegro has three business incubators.

Business Incubator “Inventivnost” from Podgorica started operating in 2008. Its founders were the capital city of Podgorica and the Government of Montenegro – Directorate for Development of SMEs. The incubator provides support to young and talented people from the sphere of ICT and services in launching new businesses, by enabling them to use office space at favourable conditions, equipment, legal and consulting services, as well as the possibility to attend various courses and other forms of professional development led by recognized experts from home and abroad. In addition, the incubator provides the services of constant mentoring and networking of companies with the private sector, both in our country and in the region.

Incubator BSC Bar began operating in 2010, with the primary mission to support the promotion of entrepreneurship through a comprehensive and integrated support to SMEs. BSC Bar is a general-type incubator, carrying out a series of activities with special emphasis on the development of SMEs through trainings in business skills, consulting services, mentoring, financing through the competition of the best business plans, and the assignment of office space in the business incubator on favourable terms. 40 companies operate within it.

“Regional Business Centre” Berane LLC²² has been established by the Municipalities of Andrijevica, Berane, Plav, Rožaje, Bijelo Polje and the Regional Development Agency for Bjelasica, Komovi and Prokletije. In “Rudeš” business zone, a building was reconstructed and equipped for needs of the regional business centre and business incubator. A 1000 m² building is intended for beginners in business and is production-service in type. The project also implements training of employees in the incubator, in order to create preconditions for beginners in business to realize their business ideas. The centre was opened in February 2016.

²² Activity within the project of “Establishing a regional business centre with a business incubator in the north-east of Montenegro”, which is financed from EU IPA funds.

Innovation activity may be performed by *companies* or parts of companies, if, in the course of their activities, they implement and apply innovations resulting from their own development research or from the research of other innovative organizations.

The exact number of companies engaged in R&D has not yet been precisely determined. When collecting data on expenditures on R&D from the private sector, MONSTAT's directory of statistical units includes those companies that reported such expenditures in the Statistical Annex of the final accounts, which are submitted to the Tax Administration. One of the main disadvantages of this method of identifying companies to be included in the statistics directory for research and development survey is that this system does not recognize companies that list the salaries of employees who work in these jobs as a major expenditure in R&D activities, because it does not exist as a special account in the accounting standard, which is why the existing list of the companies that have R&D expenditures is still imprecise. The optimal method to resolve this issue is still searched for.

In addition to the above, the following actors have also been identified as significant in the innovation system:

Chamber of Economy of Montenegro, which, as an association that brings together and represents the interests of business entities in Montenegro, takes part in adoption of economic-systemic measures and measures of economic policy by giving proposals and recommendations concerning the interests of business operations and the development of market economy, while also participating in numerous projects aimed at improving innovative capacity of business entities.

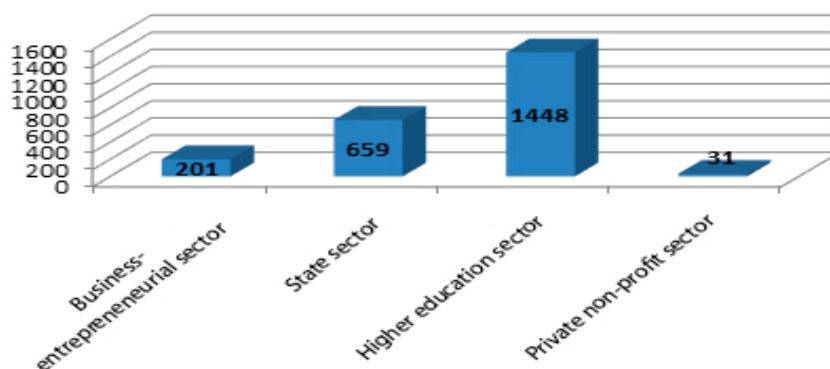
*Trade associations play a unique role in social and economic governance. Especially recognizable among them are the **Union of Employers of Montenegro, the Association of Managers of Montenegro, the American Chamber of Commerce and Montenegro Business Alliance**, which provide continuous support to companies in the form of advisory services and educational programmes in the field of importance for their business operation, growth and development.*

As a special form of citizens' organizations, **non-governmental organizations** develop a variety of projects and activities of importance to the context of innovation and are an important stakeholder in shaping the directions of policies.

II b. Human Resources

According to the latest official data by MONSTAT from 2014²³, 2339 persons were engaged on R&D positions that year, of which: 1,708 researchers, 299 expert and technical associates and 332 auxiliary staff members. Of the total number of persons engaged on R&D, 2,089 were engaged full-time, while 250 of them worked part time.

²³[http://www.monstat.org/userfiles/file/NAUKA/2014/Saopstenje%20IR%202014%20za%20sajt%20\(2\).pdf](http://www.monstat.org/userfiles/file/NAUKA/2014/Saopstenje%20IR%202014%20za%20sajt%20(2).pdf)



Employees in R&D per sector in 2014

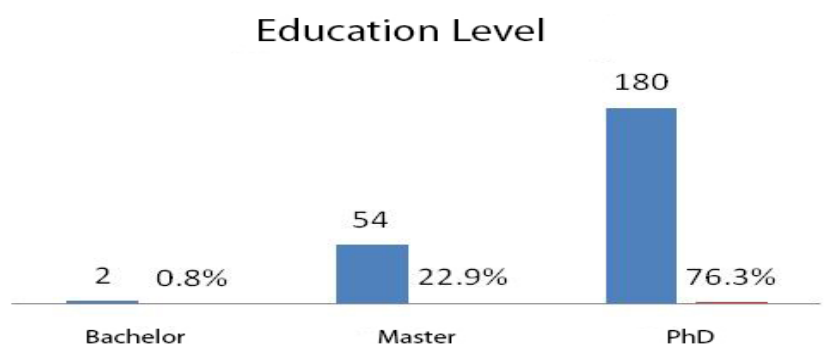
Given that the activities of R&D conducted by some employees constitute only a part of their working hours, the equivalent of full employment is calculated, so that there were 600 persons working full-time on R&D.

Of the total of 1,708 researchers, 839 or 49.12% are women.

Persons working on R&D in 2013 accounted for 1.3% of the total number of employees in Montenegro.²⁴

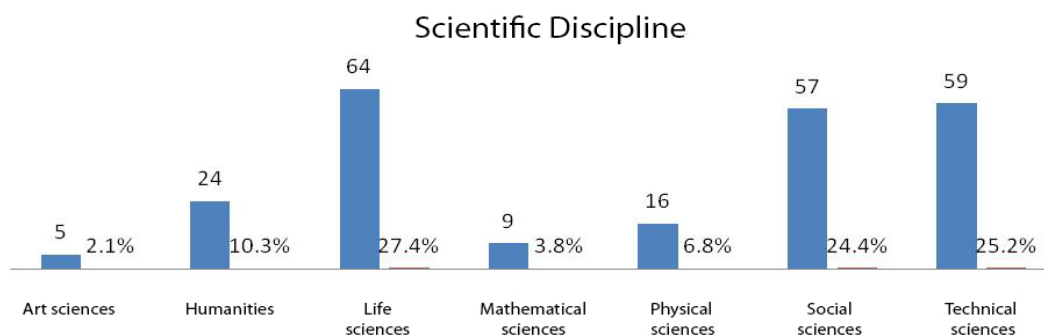
Furthermore, the MoS has established a special information system called “Scientific Network”, keeping record of all relevant information concerning scientists, researchers and innovators from Montenegro and diaspora, as well as concerning the SR institutions and innovative organizations. Currently, the system has 1,396 registered researchers.

In addition to the staff engaged on R&D, another indicator of the research capacity of a country is the number of scientists from the diaspora. Currently, there are no precise data on the scientists from the Montenegrin diaspora, but one of the most important sources of information in the last period is the “Study on co-operation with scientists from the diaspora”²⁵ (November 2014). This study includes 236 Montenegrin scientists, of whom 180 with a PhD degree. The tables below provide information on the scientific diaspora classified by the level of education and scientific disciplines.



²⁴ Persons engaged on R&D in 2013 accounted for 1.1% of the total number of employees in EU-28 (Source: EUROSTAT)

²⁵ Preparation of the Study was financed within the HERIC project.



Although in Montenegro there is no specific programme that would include cooperation of Montenegrin scientists, researchers and innovators with the diaspora, the importance of the diaspora for the development of the country has been recognized. First of all, scientists immigrants identified in the preparation of the Study will be invited to fill their respective profiles in the system of “Scientific network”, which will significantly expand the base. The process will be accompanied by a questionnaire to provide information on the willingness of researchers in immigration to cooperate with the country of origin. In addition, the plan is to hold a conference with scientists from the diaspora²⁶, which should become the initial impulse of future plans and activities in this regard.

A very important indicator of a country’s potential for R&D is also the number of students in doctoral studies. Thus, in the past three years, in Montenegro²⁷, 169 students enrolled as doctoral students, of which 4.73% in natural and mathematical sciences, 13.61% in technical-technological, 21.89% in medical and 59.76% in the social sciences and humanities. Data suggest that additional measures should focus on the motivation of postgraduate students to orient themselves toward natural and mathematical and technical and technological sciences, which have great potential in the innovation activity system, and for which there is sufficient demand in the labour market.

Based on the data presented in the Report on the implementation of the programme of vocational training of persons with acquired higher education degree for 2014/2015, in the context of supply and demand for jobs on the basis of individual study programmes, there were requests for 1,549 university graduates in relation to 36 study programmes that have the potential for innovation and technological development, while 654 university graduates applied. Based on this data, it can be concluded that about 58% of positions remained vacant, which indicates that the labour market needs for the university graduates who have acquired education and skills to deal with areas that can potentially create innovation and contribute to technological progress are greater than the number of such graduates.

II c. Situation Analysis, Key Obstacles and Challenges

Previous surveys of MONSTAT on investment in R&D were not comprehensive as they did not include the investment of all the institutions that have expenses concerning R&D in Montenegro. For example, an increase in investment within the budget of the MoS, which grew from EUR 1.6 million in 2011 to a level of almost EUR 7 million in 2016 (an increase of 300%) is not adequately reflected in this survey, and neither are the investments of institutions conducting SR activity or the investments by entities from the business sector,

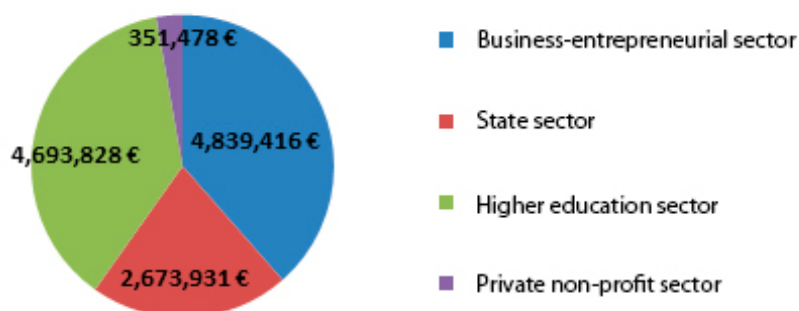
²⁶ Organization of a conference with Montenegrin scientific diaspora will be financed from the HERIC project funds. Some local actors are also interested in participation in this event.

²⁷ Data taken from the University of Montenegro, University of Mediteran and Donja Gorica University, for academic years of 2013/14, 2014/15 and 2015/16, with a view to prepare the scholarship program for doctoral studies, as part of the National program of scholarships for excellence, published in March 2016 (<http://www.mna.gov.me/vijesti/159273/Vlada-Crne-Gore-Ministarstvo-prosvjete-i-Ministarstvo-nauke-objavljuje-Konkurs-za-dodjelu-nacionalnih-stipendija-za-izvrsnost.html>)

which pointed to the need to improve the quality of statistical data processing in accordance with EU methodology, in order to enable a more realistic view of investment in R&D.

Based on the latest official data of MONSTAT for 2014, the **total national spending on R&D** in 2014 amounted to 0.36% of GDP, which is significantly below the EU-28 average, which amounts to 2.01%.

Although the data indicate that in 2014 the biggest expenditure on R&D was realized in the business-entrepreneurship sector – amounting to about 39% of the total investment in R&D – the general overview shows that this sector is still not a key factor in the innovation system of Montenegro and that there is only a few companies involved in R&D projects.



National spending on R&D for 2014 (Source: MONSTAT)

The methodology of EUROSTAT in this area has been introduced in the statistical system of Montenegro only recently, so it is yet to fully come to life and is constantly further improved, especially when it comes to identifying the precise number of reporting units and raising awareness about the category of R&D expenses, as well as the importance of providing such data by reporting units. In order to allow for a better response of the reporting units and to motivate them to regularly keep records of R&D costs, the Rulebook on detailed conditions for the establishment and licensing of SR institutions (Official Gazette of Montenegro 40/15) prescribes the obligation of licensed SR institutions to properly keep their statistical records, which will significantly improve the availability and reliability of data on R&D in the statistical reporting.

With a view to further improve the quality of statistical data in line with EU methodology, expert support has been ensured through a planned project under IPA 2013 programme (*Enhanced statistical capacity and provision of economic and social statistics*). Through this project, the MoS has been approved expert support in the field of R&D and innovation statistics. The aim of the component relating to science and innovation within the project is to ensure the quality of the administrative registry (information system) for collection and production of statistics on R&D, as well as the preparation of a Plan for the development of national innovation statistics for the period up to 2020.

The MoS upgrades its information system “Scientific Network”, striving to make it an administrative registry for the collection and processing of data coming from the research units on investment in R&D in 2015 and beyond. Based on data for 2015, the actual level of investment in R&D will be considered, and the plan of allocations for R&D will be defined accordingly in the new Strategy of SR Activity (2017–2021). Statistical data for 2015 will be published by the end of 2016.

In addition to the above new conditions for licensing SR institutions, the Rulebook on detailed conditions for registration in the registry of innovative organizations is expected to be

adopted by the end of 2016. This document will also include a condition relating to keeping the orderly records in the field of R&D.

It is only on the basis of such properly collected and processed data that Montenegro will be able to realistically plan the growth rate of investment in R&D and to enable optimal allocation of funds for these purposes.

The level of investment in R&D can also be increased by further strengthening of the links between all the actors of the innovation system in Montenegro, additionally stimulating the level of private sector investment and its potential for innovation, as well as stimulating an environment in which SR work in the field of applied and development research will serve the real needs of companies, which would have a positive impact on increasing investment in R&D and visibility of these investments in the context of improving the country's competitiveness.

SMEs in Montenegro²⁸, as well as at the EU level²⁹, make up 99.8% of the total number of business entities and employ more than two-thirds of the active population, which makes them a key driver of economic growth, employment and development activities. SMEs are characterized by a tendency towards innovative and risky ventures and flexibility, and they can thus more easily adapt to business conditions and market requirements. Therefore, SMEs operations and business success in the market are largely related to innovation, as one of the key factors of competitiveness. However, although a significant number of SMEs (about 37%) is concentrated in the so-called knowledge intensive activities, or activities in which knowledge is the basic prerequisite for development and progress, SMEs are not a key factor in the innovation system of Montenegro, and very few of them are involved in development activities.

In order for SMEs to improve their competitiveness by introducing innovation, it is necessary for them to be aware of and have access to different types of funding for the various stages of the innovation cycle, from "seed", through "start-up", to early growth stage and expansion. In this regard, especially important for success of SMEs which commence an innovative project is the availability of specialized financial mechanisms of "venture capital" and "business angels", which invest in "start-up" and innovative SME businesses with growth potential. In addition, it is necessary to strengthen the innovation potential of SMEs through enhancing investment in human resources dealing with R&D.

On the other hand, improvement of business environment and innovation infrastructure greatly facilitates the development of innovation activities in SMEs. The Law on Innovation Activity identifies the possibility for the state to encourage, through tax breaks and other incentives, the legal entities and individuals to invest funds in the implementation of innovation activities, whereas the innovation infrastructure, existing and planned, should improve connectivity between the business sector and SR institutions – in order to improve implementation of research and commercialization of innovations.

Clusters also play a very important role in innovation, because they have the ability to increase the capacity of innovation, diffusion of technologies and technological knowledge, as well as to improve technological processes, link professionals and ultimately increase productivity. In Montenegro, according to data from 2016, there were 17 clusters in the activities of wood processing, food production and tourism. The existing support to cluster development has been aimed at resolving the bottlenecks in production through the purchase of equipment, so ten clusters were supported through grants in the period of 2012–

²⁸http://www.monstat.org/userfiles/file/registri/ANALIZA%20II%20KVARTAL%202012%20god%20_MNE_Final%20PDF.pdf

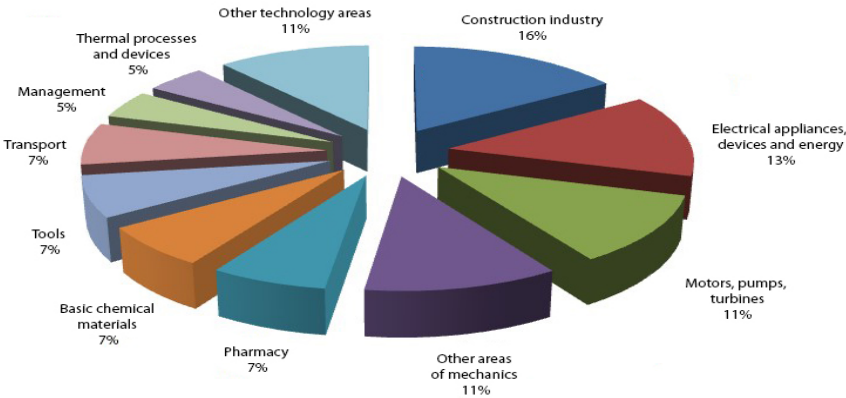
²⁹ <http://ec.europa.eu/eurostat/documents/3930297/5967534/KS-ET-11-001-EN.PDF/81dfdd85-c028-41f9-bbf0-a9d8ef5134c5>

2016. In addition, four clusters were provided technical support in the formulation, implementation and monitoring of action plans and creating market linkages.

Patents are also an indicator of a country’s capacities in the field of commercialization of scientific knowledge. In the period from 2010 to 2014, the Intellectual Property Office received 134 patent applications³⁰, filed by local applicants. In the same period, 116 patents filed by local applicants were registered. The reason for the lack of a more significant discrepancy between the number of requested and registered patents – which is not common in the system of patent protection process – is the fact that, for the time being, only compliance with the formal requirements is checked. If these are met, a decision is made on acknowledgment and publication of a patent, without the substantive examination of a patent application.

In the period from 2010 to 2014, five international applications were filed by local applicants under the PCT system. The big difference between the number of domestic and international patent applications may be caused by far more expensive procedure of international patent protection compared to the domestic one, and is probably also partly influenced by the quality of innovation, given that the PCT system conducts a substantive examination of the application, checking whether the invention meets the requirements for patent recognition.

The structure of patent applications in the period from 2000 to 2014, broken down by areas of technology, is shown in the graph below, as follows: 15.91% of applications were in the construction industry, 13.64% in the field of electrical machines, devices and energy, 11.36% in the field of motors, pumps, turbines, 11.36% in other fields of mechanical engineering, 6.82% in the pharmaceutical sector, 6.82% in basic chemical materials, 6.82% in the field of tools, 6.82% in transport, 4.55% in the field of management, 4.55% in the field of thermal processes and devices and 11.35% in other fields of technology.



Source: World Intellectual Property Organization – WIPO

In the last two years, there has been a trend of a smaller number of applications for patent registration, which points to the need to strengthen awareness of the importance of commercialization of research and innovation.

An important role in the inability to accurately estimate the extent of commercialization of innovations and their impact on competitiveness is played by the fact that some innovative solutions (computer programmes) cannot be registered through a

³⁰ http://www.wipo.int/ipstats/en/statistics/country_profile/profile.jsp?code=ME

patent or do not have to be registered (know-how) to be used commercially in the market and to make significant impact on increasing the level of innovation in scientific research activity.

Therefore, the emphasis in the future should be placed on identifying the research potential within the SR institutions by businesses operating in Montenegro, which will be achieved through sustainability of networking programmes and targeted research in the early stages in order to increase the probability for the solutions to be commercialized.

When it comes to **research infrastructure**, an important source of information, above all, is the “Study on scientific-research equipment and the establishment of a common research area”³¹ (July 2013), which found that the condition of capital equipment and mean-value equipment was good, and that the biggest challenge was to ensure joint use of this infrastructure. Bearing in mind the findings presented in this study, the cooperation of local SR institutions has become one of the conditions within the programme of collaborative grants for R&D, implemented in the period from 2014 to 2017, which should provide for, among other things, the joint use of infrastructure by local partners in the project. On the other hand, in the “Roadmap for Research Infrastructure of Montenegro (2014–2020)”, in addition to the review of infrastructure at the disposal of SR institutions, all the major infrastructural projects are presented, as well as the potential for the use of Pan-European infrastructure, which opens up new possibilities in this area, strengthening the capacity for the innovation activity.

When it comes to the establishment of infrastructure to stimulate innovation and facilitate the absorption of technology, Montenegro has made a significant step forward, implying, on the one hand, the incitement of scientific excellence in those areas in which the scientific and economic potential of Montenegro is the greatest by establishing the first CoE, and encouraging, on the other hand, entrepreneurial resources founded on innovation, which can directly affect the competitiveness of the economy, through the establishment of the first STP. Also, collaborative grants allow the purchase of equipment, which is used for the development of research in projects whose main result is innovation.

However, it is necessary to continue work on improving infrastructure in order to achieve a satisfactory level of technology, which will enable the implementation of innovation activity in both, scientific and private sector.

Also, through the aforementioned new institutional mechanisms and grant programmes, great attention is focused on **supporting the establishment of connections of SR institutions with the business sector**, but given that these are the first systematic steps forward in this regard, it is necessary for mechanisms set up to fully come to life. It is also necessary for sustainable partnerships to be created and complemented by new programmes, so that the links between these two sectors are not established sporadically or for the implementation of a particular programme or project, but rather that they are set up in a planned manner, in order to transfer knowledge and technology and provide for the commercialization of scientific research.

Finally, participation in **EU programmes** can facilitate access to financing and enable easier and more efficient dealing with identified problems through joint activities within the framework of partnerships at different levels, which is why it is necessary to focus national efforts to promote these programmes as much as possible and to familiarize the potential candidates with procedures, which will positively affect the level of success of projects involving partners from Montenegro.

³¹ The Study was prepared within the HERIC project.

Based on the analysis of the situation, the key challenges in innovation activity of Montenegro have been identified for the coming period:

- Strengthening the institutional capacities, with a special focus on the new infrastructure, which should become fully operational and sustainable;
- Strengthening human resources for R&D through the continuous increase in the number of researchers and innovators, the organization of trainings necessary for the acquisition of skills in the field of research commercialization, as well as stimulating the selection of study programmes and research areas with potential to place the idea to the market, by PhD students;
- Increasing investment in R&D, particularly by the business sector;
- Strengthening the innovative potential of SMEs and their recognition in the system of innovation;
- Support for cluster formation and strengthening their role in the innovation chain;
- Raising awareness about the importance of protecting inventions by patent and increasing the number of patents that have found application in business;
- Further strengthening ties of SR institutions with the business sector;
- Increasing participation in EU programmes that encourage innovation and technological development;
- Directing SR work in the field of applied and development research on the real needs of enterprises; and
- Providing adequate technology in SR institutions and enterprises, that is necessary for creating innovation.

III VISION, MISSION, STRATEGIC GOALS AND PRIORITIES OF THE STRATEGY OF INNOVATION ACTIVITY

Vision

By 2020, Montenegro will have in place a sustainable and efficient innovation system, aimed at solving social challenges of the future. The system will be a key driver of the Montenegrin economy and improvement of development, as a result of technological and non-technological innovation, increased investment in R&D and encouraging private sector investment and its potential for innovation, which will increase the competitiveness of the economy, encourage investment and development with the improvement of economic conditions and standard of living in the country.

Mission

Creating a favourable environment for the development of innovation and innovative culture, systemic planning of instruments to support innovation activity, directing SR and development activities towards innovation and implementation of new technologies and building the country's capacity for development through strengthening the innovation potential of SMEs, linking SR community with the business sector, stimulating SR work in the field of applied and development research in the service of the real needs of enterprises and strengthening the capacity to participate in EU programmes for innovation, which will enhance economic growth and improve the social environment.

Thematic Priorities of the Strategy

Based on recommendations of the Council for Scientific-Research Activity, in 2011, the MoS identified ten research priorities, as follows: Energy; Identity; Information-communication technology; National economy competitiveness; Medicine and health of people; Science and education; New materials, products and services; Sustainable development and tourism; Agriculture and food; and Transport.

On the other hand, the Government of Montenegro has identified four priority sectors of development of Montenegro in the coming period, as follows: Tourism, Energy, Agriculture and rural development, and Industry.

Given the aforementioned priorities, ***the thematic priorities for the field of innovation activity*** for the period by 2020 are the following:

- Energy;
- Agriculture and food;
- Sustainable development and tourism;
- Information-communication technologies;
- Medicine and health of people; and
- New materials, products and services.

III a. Strategic Goal No. I: Increasing the Capacities for Innovation and Technological Development of Montenegro

In recent years, innovation and innovation activities have been placed at the top of the agenda for the development of the competitiveness of Montenegro, which has pointed to the need for a clear definition of the legislative and policy framework, which will bring together all relevant actors in the system of innovation, establish a uniform way of functioning of this system, and open up the possibility for systemic planning of instruments that will support innovation activity in all sectors and at all levels, enabling better positioning of Montenegro in the innovation context of the EU and beyond.

Until the adoption of the Law on Innovation Activity and efforts to establish a single policy focused solely on innovation, there were a number of initiatives and instruments that were focused on innovation and that indisputably showed good results. However, these were separate programmes that relied on legal framework governing the SR activity and the field of business entities, following the current needs of stakeholders and EU trends. Still, the practice has shown that regardless of the highly advanced instruments and substantial resources provided by the state, support to innovation ought to be followed by the systemic creation of innovative culture at all appropriate levels of society, which will be followed by the regulation of innovation system, and which will altogether primarily enable the relevant actors to better understand their role, needs and opportunities in this system.

Previous national programmes directed even the most successful teams in a completely new direction and brought them to a situation where they, having met the formal conditions for the formation of project teams and having received a positive assessment of their advanced research plans, had to face (for the first time during the implementation of projects) the issues of establishing inter-sectoral cooperation, positioning within the consortium, resolving the issue of intellectual property, commercialization of scientific research and sustainability of partnerships. All these challenges and obstacles faced by the teams represent a very important source of information, which directs the policy-makers in the new directions as to the additional support needed and the manner of directing that support on the country's smart growth in an organized way.

Therefore, the first objective of this strategy is focused on creating a sustainable and effective national framework, which will, in legal and institutional terms, but also in terms of human resources, enable the SR and development activities to be directed at innovation and application of new technologies, thereby raising the capacity of Montenegro to develop and grow in these areas.

Priorities within Strategic Goal No. I

- Establishing a legal framework for carrying out innovation activity in Montenegro;
- Improving infrastructure to support innovation and technological development;
- Strengthening human resources for innovation and technological development; and
- Monitoring the success of implementation of measures encouraging innovation.

Priority No. 1: Establishing a legal framework for carrying out innovation activity in Montenegro

The legal framework is a very important factor in the innovation system, because the main objective of its adoption is creating a favourable and supportive environment for innovation and shaping the foundations for and directions of innovation activity (IA).

The Law on Innovation Activity defines the organization, conditions and method of financing IA in Montenegro, thus creating the legal conditions for the actors in the innovation system, i.e. innovative organizations (IO), to freely engage in innovation activity. The Law has also established the obligation to adopt a set of by-laws, which detail the manner of registration in the Registry of IO, as well as of the funding of innovative programmes and projects, and which will significantly enhance the national capacity for innovation.

Furthermore, the legal framework for intellectual property (IP) is also of great importance for the innovation system. This is especially the case with the Law on Patents, which sets conditions for the legal protection of patents and which opens up further possibilities for the commercialization of inventions protected by patent.

Measure No. 1: Regulating the conditions for introduction of IO in the innovation system of Montenegro

Activity 1.1: Adopting the Rulebook on detailed conditions for registration in the Registry of IO

On the basis of the Law on Innovation Activity, it is provided that the IA can be performed by a legal entity that was established in accordance with a separate law and is registered in the Registry of IO. This Law stipulates conditions that legal entity must meet for registration, as follows: that it is registered in the Central Registry of Business Entities; that it implements a programme of IA; that it has provided personnel, facilities and equipment to perform IA; that it has provided funds for the work; and that it has provided sanitary and technical requirements, in accordance with a separate law. In addition, it is envisaged that the MoS would, through a Rulebook, prescribe the detailed requirements relating to the provided personnel, facilities and equipment for conducting IA and means for work. Legal entity which was issued a decision to carry out IA is entered in the Registry.

Activity 1.2: Adopting the Rulebook on the content of the Registry, manner of registration and removal from the Registry of a legal entity engaged in IA

This Rulebook shall prescribe the content of the Registry, manner of registration and removal from the Registry of the legal entity which was issued a decision to carry out innovation activity.

Activity 1.3: Registration in the Registry of IO

Following the adoption of the Rulebook on detailed conditions for registration in the Registry of IO, the interested legal entities will submit to the MoS a request to carry out IA.

The Ministry will form a commission whose task will be to check compliance with the conditions for registration and if these are fulfilled, it will issue a decision to carry out IA. This process will begin in early 2017 and will be carried out continuously in order to better regulate and improve the institutional framework and the use of the funding opportunities by innovative programmes and projects.

Measure No. 2: Regulating the legal framework for funding innovative programmes and projects

Activity 2.1: Adopting the Rulebook on detailed conditions and procedure for granting and usage of funds for innovative programmes and projects

The Law on IA stipulates that the MoS will announce a competition for funding innovative programmes and projects from the state budget, as well as that the detailed conditions and procedure for granting and usage of funds for innovative programmes and projects of public interest that are financed from the state budget will be determined by the same Ministry, via a Rulebook. The Law also defines that the mutual rights and obligations between the Ministry and the beneficiaries of the funds approved for innovative programmes and projects would be governed by an agreement, and that the use of IP rights, arising from the results of research on an innovative programme or project, shall be governed in accordance with the regulations governing the field of IP rights. The adoption of this Rulebook will create conditions for the development of programmes aimed at supporting IA.

Measure No. 3: Improving the legal framework for patents

Activity 3.1: Adopting the Law on Amendments to the Law on Patents, with the Rulebook on the content of registries, applications and other files submitted, manner of filing applications and publishing of data in the procedures of legal protection of inventions

The Agreement between the Government of Montenegro and the EPO concerning the extension of European patents (Extension Agreement) was signed in Munich on 13 February 2009 and entered into force on 01 March 2010, which created the conditions for the European patent to extend to Montenegro, including a series of educational, informative and expert activities. The aim is for Montenegro to become a full member of the Convention on the Grant of European Patents (1973), with modifications made in the Act on Amendments to the Convention (2000). After the ratification of the European Patent Convention, due to the need for harmonization of national legislation in the field of patents with the European legislation, the Law on Patents and the associated Rulebook will be amended.

With membership in EPO³², one of the largest patent offices worldwide, Montenegro will get access to one of the most effective systems for technology transfer (TT), especially given that patents constitute an important distribution network for new technologies. Given the right of vote in the Administrative Council of the organization, possibility will be obtained to actively participate in shaping the future of the European patent system. Likewise, the condition for harmonization of the national legislation with EU standards regulating this area will be met.

Priority No. 2: Improving infrastructure to support innovation and technological development

Human resources capable of using their knowledge and skills to create innovative ideas and concepts are not able to test, check or implement them without adequate infrastructure. Infrastructure is one of the basic conditions for enriching the fund of

³² The European Patent Office is the executive body of the European Patent Organisation, whose work is supervised by the Administrative Body.

knowledge, promoting the development of all scientific disciplines and accelerating the dynamics of technological progress.

“Study on scientific-research equipment and the establishment of a common research area” (2013) is a good starting point for formulating future directions and policies in this area. Namely, the study provides an overview of the capital and mean-value equipment of SR institutions in Montenegro, pointing to the good condition of the existing infrastructural capacities, while giving recommendations for defining the cooperation model that involves the joint use of infrastructural capacities (premises and equipment, including relevant knowledge and resources) with a view to optimal and efficient use of existing infrastructure and planning procurement of new equipment. Taking into account the findings of this Study, the obligation of local SR institutions to mutually cooperate and carefully plan the procurement of equipment are the main conditions when approving national funds for research and development projects.

Following the objectives of the Europe 2020 Strategy, especially the Innovation Union, as well as the introduction of innovation in all major national strategic documents, focused the efforts of Montenegro since 2013 on improving the infrastructure that will enable the innovation to be stimulated and that will facilitate the absorption of technology. Thus, the projects of establishment of CoE and STP, covering the period by 2020, will enable Montenegro to become a relevant partner to EU Member States in ERA.

Innovations are inseparably related to IP and their commercialization depends on organization of the system of IP protection. Therefore, activities to strengthen the information infrastructure in this area and the capacity of the Intellectual Property Office will significantly contribute to improving the quality of services provided to customers through easier and faster access to professional and technical information and data in the field of IP. Also, the information infrastructure will enable better and more accurate overview of the situation, which will be one of the main guidelines for the design of future activities and projects.

Enhancing infrastructural capacities will enable the planned establishment of the first Centre for Technology Transfer (CTT) at the University of Montenegro, which will use the scientific potential of the University in addressing the development, production and technological problems, by encouraging the creation of teams to develop ideas that can be commercialized, providing specialized training programme and facilitating connections with the business sector. After completion of implementation of the project of establishing a STP, the possibility will open for state support to the projects of establishing CTT.

The necessary infrastructure for the development of innovative activities can be achieved through the business zones development. Business zone is a unique local government entity, which provides beneficiaries with a common area and infrastructure, in enabling them to use additional tax and administrative incentives at the state and local level. Therefore, there is the possibility of creating technology parks and business incubators within the established zones that will serve as innovation generators which will, in addition to facilitating business activities, empower human resources who, in turn, may be employed in companies that operate in and out of a business zone. In addition, beside the skilled employees, the scientific and technological institutions may take part in the network of companies that operate in the business zone thus outsourcing some of the activities in the production process.

Finally, especially significant in the context of strengthening the infrastructure to support innovation and technological development are international cooperation and international projects, given that they enable Montenegro to connect to the broader context. Sharing experiences and common challenges with other countries through these projects, Montenegro gets an opportunity to strengthen its infrastructural capacities and to more easily overcome, through joint programmes, the obstacles in the way of further development.

Measure No. 4: Establishing CoE in Montenegro

Establishing a CoE presents the key instrument for development of the SR and innovation system Montenegro, and was first defined in the Law on Scientific-Research Activity (Official Gazette of Montenegro 80/10 and 57/14), while the Law on Innovation Activity recognizes CoE as one of the innovative organizations.

CoE is defined as a scientific-research institution or a group of researchers within an institution, which, in terms of originality, significance and contemporary nature of the results achieved in scientific research activity, in a five-year period, achieved supreme results and internationally recognized results in its scientific field of research.

The status of CoE is awarded by the MoS, based on an application which contains an elaborated programme and project, to be implemented for up to three years.

Activities to establish this type of infrastructure have commenced in 2013, and will cover the period to 2020.

Activity 4.1: Establishing and implementation of the first CoE in Montenegro

Within the HERIC project, and following a two-stage process of evaluation of applications to the competition for awarding grants, the MoS awarded the status of CoE to the University of Montenegro (UCG) – Faculty of Electrical Engineering in Podgorica, for implementation of the SR project entitled: “Centre of Excellence in Bioinformatics (BIO-ICT)”, for a period of three years (2014–2017). The “BIO-ICT” project is interdisciplinary in nature and encompasses the following fields of research: ICT, agriculture and food, medicine and health of people, and sustainable development and tourism.

The consortium of the project includes:

- Faculty of Electrical Engineering, UCG, national SR institution, project coordinator;
- Biotechnical Faculty, UCG, national SR institution, project partner;
- Institute of Marine Biology, UCG, national SR institution, project partner;
- Public Health Institute, national SR institution, project partner;
- Centre for Tele-infrastructure, Aalborg University, Denmark, international SR institution, project partner;
- Scientific Research Center for Ecological Safety of St. Petersburg, Russian Academy of Sciences, international SR institution, project partner;
- “Green House Jovovic”, national company (LLC), project partner; and
- “Cogi” from Kotor, national company (LLC), project partner.

The main objective of the “BIO-ICT” project is to increase the application and use of the latest ICT in the areas of sustainable agriculture, crop monitoring, water/sea and forest ecosystems, development of techniques to control and reduce air pollution, analysis and standardization of food products, soil quality control and improvement of public health system.

The project will significantly improve the infrastructural capacities of the CoE, through establishment and procurement of equipment for two new laboratories, purchase of equipment to improve the four existing laboratories and upgrading ICT equipment. Special emphasis is placed on strengthening young scientists through the involvement of at least fifteen young researchers (doctoral students) and at least five postdoctoral researchers. The project plans for recruitment of 82 researchers in total, of which 62 were involved in 2016.

As the CoE started its operation in mid-2014, activities conducted so far related to the establishment of the structure for management and administration of the project, staffing, public procurement procedures for laboratory equipment and adaptation of new laboratories.

Therefore, 2016 and 2017 will be marked by the most important activities on the project, which will, in cooperation with the business sector, result in the commercialization of scientific results obtained.

Activity 4.2: Activities on the establishment of the second CoE in Montenegro

The second CoE should, by connecting multiple SR institutions and businesses in our country and abroad and by researching current scientific topics of importance for Montenegro, raise the quality of research and innovation, achieving results that are internationally measurable and applicable in practice.

The centre will contribute to the growth of employment by employing 15 persons. Also, the conditions will be determined for employment of young researchers – doctoral students and people with doctoral and postdoctoral degrees, from several areas of science.

In addition to improving the quality of the scientific system, application of the results of research of CoE, transfer of knowledge and new technologies and innovations to businesses will contribute to improving the quality of new products and services, as well as to the commercialization of innovations, which will affect the economic development of the country and the quality of life of the citizens of Montenegro.

Activities on the implementation of this activity will commence in 2017, through the establishment of procedures, publication of the competition, two-stage evaluation process, selection of the most successful project and awarding the status of CoE, whereas the implementation of the project should begin in 2018, for a period up to three years.

Measure No. 5: The project of establishing the first STP in Montenegro

The need for the establishment of STP in Montenegro occurred due to insufficiently developed cooperation of companies with SR institutions, a small number of companies whose activities are based on innovation, knowledge and modern technologies, and inadequate model of business support to companies.

The project is implemented on the basis of the Feasibility study for establishment of STP in Montenegro³³ and the Strategic plan for the establishment of STP in Montenegro³⁴.

The proponent of the project is the MoS, while the project partners are the Ministry for Information Society and Telecommunications, Ministry of Agriculture and Rural Development, Public Works Directorate, Investment Development Fund, local self-governments (municipalities of Podgorica, Nikšić, Bar and Pljevlja), UCG and science park AREA from Trieste. Given that the project will have several phases, there is possibility for other partners to be engaged on the project as well.

The duration of the project is roughly planned for the period of 2014–2020. The reason for establishing the rough duration period is the dynamics of administrative procedures and public procurement procedures, which is difficult to plan with precision, as well as the outcome of various negotiations and project proposals at the international level, which open new financial perspectives.

The study proposes the thematic focus of the STP to be on the following areas:

- Energy efficiency and renewable energy;
- Agricultural-food technology;
- Information-communication technologies;
- Health-medical technologies;

³³ The Government adopted the Study at its session held on 29 September 2011.

³⁴ The Government adopted the Strategic plan at its session held on 27 December 2012.

- Wood processing; and
- Interdisciplinary research.

Given the organizational structure, STP services will be offered at two levels – at the central level and at the level of impulse centres, so-called innovation-entrepreneurship centres. The central unit will offer institutions shared services that will facilitate their activity and help them in their technological development and growth, while the innovation-entrepreneurship centres will provide the same services for the needs of economic development at the local or regional level.

Activity 5.1: Establishing CIE “Tehnopolis” in Nikšić and support programmes

In line with the dynamics of implementation of the Strategic plan for establishing STP in Montenegro, in 2013 work commenced on the establishment of the first centre for innovation and entrepreneurship (CIE) “Tehnopolis” in Nikšić, which will contribute to: linking science with business sector; improving competitiveness of SMEs and promotion of entrepreneurship; as well as supporting new companies.

The Ministry of Science implements the project of establishing “Tehnopolis” in Nikšić in cooperation with: Municipality of Nikšić, Ministry for Information Society and Telecommunications, Ministry of Agriculture and Rural Development, Public Works Directorate, Investment Development Fund.

The activity of “Tehnopolis” defined in the main design will be carried out in the premises of the reconstructed building of the old Military Club in Nikšić. In this building, “Tehnopolis” will have space for the development of SMEs and new companies, and will also contain a laboratory for biochemistry, laboratory for industrial design, data centre, meeting rooms, a multimedia room and internet cafe.

With the support of AREA Science Park, specific support programmes of “Tehnopolis” will be created, modelled on the most successful AREA programmes but adapted to Montenegrin conditions and needs of future users of services of “Tehnopolis”.

After the opening of the “Tehnopolis” building in September 2016, this CIE will be the first new scientific-innovation facility in Montenegro after 30 years.

Activity 5.2: Establishing a central STP unit in Podgorica and support programmes

Coordination and administration of STP will be located in the central unit, which will allow infrastructure and a wide range of services to institutions, primarily SMEs, located in this area. In addition to SMEs, services of the STP will also be used by SR institutions, higher education institutions, CoE, CTT, and other innovative organizations. STP will thus create a creative environment that will nurture and encourage the commercialization of research and provide support for technology-oriented companies, systematically attracting new research capacities from universities and companies.

The MoS implements the project of establishing the central STP unit in Podgorica in cooperation with: Ministry of Economy, Ministry for Information Society and Telecommunications, UCG, Public Works Directorate, the capital city of Podgorica and the AREA Science Park from Trieste.

Preparatory activities on the establishment of STP in Podgorica have started in 2015, by: providing funds for preparation of the final design of STP and conceptual design, within HERIC project; providing premises in which the central unit is to be located; and other preparatory activities, primarily related to the establishment of contacts and cooperation with international partners.

Public invitation for preparation of the final design will be announced in the course of 2016, and it will define the details concerning the reconstruction and renovation of STP building and its equipment, with an estimate of the funds required for this purpose.

The negotiations with the WB have commenced in relation to HERIC project extension, which would include funding the establishment of STP in Montenegro, in the period of 2017–2020.

After the completion of construction work on the reconstruction and adaptation, the building will be equipped and the STP members will move in, based on previously established and implemented procedures. Also, support programmes will be defined. Cooperation with the AREA Science Park will be of great importance in the creation of adequate support programmes.

Activity 5.3: Establishing CIE in Bar

In accordance with the recommendations of the Feasibility Study, the impulse centre in Bar will primarily provide infrastructure and support services in the form of a business park, while also focusing on innovation and research. The proposed thematic focus is on the agriculture-food technology and ICT.

The project proponent will be the MoS, while the potential partners are the following: Municipality of Bar, the Port of Bar, Centre for Subtropical Cultures in Bar, as well as the Business Start-up Centre Bar. Special consideration will be given to connecting services and capacities with the latest potential partner, which carries out, for many years now, activities and programmes to support the creation of a favourable environment to encourage the development of entrepreneurship and SMEs in the region, especially in the Municipality of Bar. This cooperation would open up the possibility of optimal use of synergy potentials and would significantly facilitate the launch of the activities of the impulse centre in Bar.

Activities on the establishment of this CIE will begin in 2020.

Activity 5.4: Establishing CIE in Pljevlja

The third impulse centre will be located in Pljevlja and will focus primarily on the business aspect, as well as on innovation and research. The reason for locating this impulse centre in the northern region is the insufficient development of the SME sector in the region, as well as the great potential of the region to use its natural resources to improve employment opportunities and create added value, particularly in the finalization of wood processing. The equipment of the centre and trained staff could also be used for other production purposes, such as metal processing.

The MoS will implement this project in cooperation with the Municipality of Pljevlja, while the other partners in the project will be subsequently involved, after the start of preparatory work and consultations with potentially interested parties.

Activities on the establishment of this CIE will cover the period after 2020.

Measure No. 6: Activities on setting up incubator

Business incubators are instruments of local economic development to support the newly established small businesses in the first years of their growth and development when they are most vulnerable. As is stated in all policy documents, incubators are considered especially attractive in countries in transition, as they may help to reduce barriers by pooling know-how and reducing fixed costs.

The experience gained in the functioning of the three existing incubators in Montenegro indicates that wider community partnership with the private sector (public-private

partnership) is especially important for successful operation of incubators. Particularly successful are business incubators that support small enterprises created on the basis of knowledge and technology transfer from the research sector. In all studies of business incubators, the need of their connectedness with SR organizations is stated, and the target groups (as potential entrepreneurs) are not just researchers but also students in the final years of their study. It is on these grounds that future activities to improve the existing and establish new incubators are based.

The most important services provided by incubators include organized access to expertise, experiences, advisory services, advice and mentoring in key early stages of life of companies. Access to other business networks and groups is also an important element of these capacities. The offer of physical premises and these services to entrepreneurs increases the likelihood of success of the companies compared to the companies that operate independently.

Measure No. 7: Improving information infrastructure for the field of IP

Activity 7.1: Establishing a Registry of Patents

Within the Bilateral Cooperation Plan between Montenegrin IPO and EPO, the completion of an IT project is planned in 2016–2017, which includes the set up of a Registry of Patents.

This cooperation includes the organization of a promotional event during 2016, which will be intended for the EU Delegation to Montenegro and institutions in the system of protection and enforcement of IP rights. The event will include the presentation of specifically created Registry of Patent Applications, Registry of Patents and the Registry of Certificates on Supplementary Protection, with supporting IT infrastructure.

Activity 7.2: Development and installation of software for trademarks in IPO

Within the IPA II 2014–2020 financial perspective, the Action Plan for IPA II 2014 for the sector of Competitiveness and Innovation, Montenegro has planned to complete the IT infrastructure in the IPO through the procurement and installation of software for trademarks. This is an activity that is actually an upgrade of previous IPA activities, such as those from the IPA 2007 Regional Programme on Intellectual and Industrial Property Rights in the Western Balkans and Turkey and IPA 2009 (Component III – Market Access), Strengthening the Policy of Intellectual and Industrial Property Rights in Montenegro. The purchase of the software will improve the efficiency of work of the employees in the Office, facilitating the access of users and filing trademark applications and thus allowing users to contribute to strengthening the competitiveness of their companies. Also, this activity will enable the improvement of capacities of IPO employees through organization of various seminars, training on site and study visits. Finally, support will be provided to IPO in the implementation of campaigns to raise awareness of the importance of this issue, and further activities on harmonization of legislation in the field of IP will be promoted.

Activity 7.3: Establishment of the Information Centre for IP

Strengthening the infrastructure in IPO is planned through the establishment of the Information Centre for IP. The opening of the Centre aims at extending the activities of the Office, by including the provision of professional-information assistance and support to users who want to protect, use, and manage IP.

Being a single place for all kinds of public services through a proactive approach to responding to user needs, the Centre will allow raising awareness among the users about the importance of timely protection of industrial property rights. Professional services to be provided by the Centre will relate to providing information and advice on the way in which own IP may be protected, as well as on the manner in which other person's IP may be

lawfully used, in the country and abroad. Also, the Centre should perform a number of other services, such as searching the funds of registered IP and conducting educational activities in this field.

Measure No. 8: Establishing CTT

Activity 8.1: Establishing the Centre for Technology Transfer and Professional Services at the University of Montenegro

The Strategy of Development of UCG plans for establishment of the Centre for Technology Transfer and Professional Services by 2020.

The Centre will be formed with a view to:

- Enhance opportunities for the efficient and effective implementation of SR results of UCG, for the purpose of further development of economy and society;
- Encourage the transfer of knowledge between the University and businesses; and
- Support marketing of new technologies and innovations, linking the relevant actors in the innovation chain and establishing cooperation networks that will enable more intensive technology transfer.

In the initial phase of establishing and putting into operation, the Centre will be financed from the Development Fund of the University. After that, applications for national and EU funds will be prepared for staff training and development of professional and infrastructural capacity of the Centre.

Measure No. 9: Strengthening the international activities relating to the infrastructure to support innovation

Activity 9.1: Establishing Adriatic Open Innovation System (OIS) and Innovation Centre in Montenegro

OIS implies transnational strategic partnership and cooperation of the countries of the Adriatic-Ionian region (Italy, Croatia, Montenegro, Slovenia, Serbia and Albania) in the field of research, development and innovation, with a view to create the preconditions for *smart specialization* and sustainable growth of the region. Within this system, the process of harmonization and integration of areas of specialization of the participating countries will be carried out, through the exchange of knowledge, methods and infrastructure. In Montenegro, Serbia and Albania, innovation centres will be formed that will become part of the single structure of networking within the region and which will be connected through the transnational Adriatic Innovation Centre.

OIS will be established through the ADRION programme.

In this way, Montenegro will strengthen its infrastructural capacity through the establishment of the Innovation Centre, and will become part of a larger regional innovation system in the framework of which the missing knowledge and skills will be improved and through which experiences on current challenges in the areas of common interest will be exchanged and which will facilitate the process of defining and devising support for national areas of *smart specialization*.

Priority No. 3: Strengthening human resources for innovation and technological development

The legal and institutional framework for innovation would not mean much in itself without the individuals and teams standing behind every innovation process and representing its key driver. It is therefore a great challenge to formulate policies and directions that are focused on the promotion and nurturing of the human factor in innovation. Despite current

efforts to increase the number of scientists and innovators, as well as to improve their skills and environment in which they work, the greatest talents still tend to relate themselves to the latest and most advanced infrastructures, usually located outside the country.

University graduates with degrees in areas that have great potential for the creation of innovation are the main target group. Although their knowledge in the field in which they received education, combined with the lack of a satisfactory practical experience, does not in itself guarantee the possibility of scientific, technical or technological breakthrough and contributions in the future work, the fact that they are open and motivated for new approaches, that they have creative and critical thinking and that they are willing to take risks makes a very good starting point in the context of innovation. In this regard, one of the biggest challenges that Montenegro is currently facing is the effort to position this human potential in the right environment, which will nurture and promote it, making it capable of IA. The same applies to the staff already in an early or advanced stage of scientific research and working career.

In this regard, an environment that provides adequate education, training and skills formation, providing facilitated flow of knowledge through fostering a positive climate of establishing partnerships within the sector and between sectors actually allows the release of all the potential of the human factor in innovation and constitutes a good basis for directing state policies towards growth and development. In addition, international partnerships are an important component, as they provide a kind of “import” and exchange of new knowledge and skills, and are also an ideal opportunity for Montenegro to attract talents from other parts of the world, who could become a significant factor in the national IA.

Measure No. 10: Linking higher education and business, establishment of lifelong learning model and enhancing entrepreneurial-innovative character of education

Activity 10.1: Aligning the education system with the labour market needs

In order to overcome the structural mismatch between supply and demand for knowledge and skills, one of the key activities is the implementation of the education system reform, which should provide for the harmonization of the education system with the requirements of the economic development of the country. Implementation of this activity entails the further development of the national framework of qualifications, i.e. career orientation, with simultaneous development and implementation of the concept of lifelong learning. The process of education system reform requires the involvement of key partners in order for the measures taken to give their full effect to be reflected in the creation of conditions in which the knowledge and skills will be acquired that are better matched to the needs of the economy.

Measure No. 11: Organisation of training, training courses, workshops, seminars and conferences on the topic of innovation, technological development, intellectual property rights, innovative “start-up” and entrepreneurship

Activity 11.1: Organisation of promotional events and trainings on the topic of innovation and cooperation of actors in the innovation system

One of the basic missions of this Strategy is to create an innovative environment in Montenegro, so that the period of 2016–2020 is marked by a series of promotional events and trainings on the importance of innovation and cooperation between actors in the innovation system. These will primarily relate to the presentation of the innovation system, cooperation of SR institutions with the business sector, the presentation of IO and the importance of their partnership for the commercialization of innovation, as well as the role of state institutions and the NGO sector in this system.

Activity 11.2: Organizing a conference with Montenegrin diaspora

Montenegro has recognized the importance of involving diaspora in the national scientific system and innovation activity system. Given that Montenegrin scientific diaspora is still not utilized in the right way, the need for coordinated planning of activities towards this community has emerged, so that this potential could be used in an optimal way and that future directions of cooperation could be planned. The first step towards that goal is organizing a conference that will bring together the part of the scientific community from diaspora on the one hand and representatives of the Montenegrin state authorities, SR community, business community and innovators on the other hand. The aim is to link prominent scientists and businessmen from diaspora with representatives of local SR institutions and companies in order to set the basis and determine the modalities of future cooperation. The organization of the conference will be financed from the funds of HERIC project and the conference will be held in late 2016.

Activity 11.3: Trainings on the topic of IP

As part of the Bilateral Cooperation Plan between the IPO and EPO (2016–2017), a seminar was envisaged to be held on the topic of patents. By the end of 2020, IPO plans to implement a programme of seminars on IP in cooperation with the EPO and the WIPO. Also, the IPO will continuously make efforts on additional education and improving the skills of employees, in order to better follow the new EU and world trends in the development of IP and to adequately prepare the putting into operation and use of the new infrastructure for IP.

CoE BIO-ICT, whose team includes an expert in the field of IP, has also planned the organization of trainings on IP and the related topic of commercialization of research.

Activity 11.4: Trainings, seminars, workshops, schools and promotional events on the topic of innovative “start-ups” and entrepreneurship

The topics of entrepreneurship, entrepreneurial skills, trends in the development of entrepreneurship, the creation of innovative “start-ups”, which are closely related to the field of innovative activities, present the backbone of the various events to be organized in the period from 2016 to 2020 by: CIE “Tehnopolis”, which has already launched a series of educational programmes in the form of training and seminars; BSC Bar and other incubators in Montenegro; Directorate for Development of SMEs; Chamber of Economy; Union of Employers, and others.

Furthermore, the academic and SR sector develop their training programmes on these topics. One of the positive examples is the “School of entrepreneurship and innovation for young people”, which is organized every year by UDG, i.e. the first generation of graduates of the Faculty of International Economics, Finance and Business at this University, which aims to develop entrepreneurial ideas and spirit among young people in Montenegro. The target groups are high school students, who have the opportunity to get acquainted with lectures by eminent professors and hear the experiences of successful entrepreneurs. UCG – Faculty of Economics also conducts training on these topics, such as the “Winter school of entrepreneurship and innovation”, targeting young people from different educational backgrounds and organized within the PACINNO³⁵ project (platform for trans-academic cooperation in innovation).

³⁵ An international project funded by the IPA Adriatic CBC program, with Faculty of Economics from Podgorica (UCG) as one of the partners. The project has eight partners from the academic sector, which, in addition to Montenegro, come from Serbia, Italy, Slovenia, Croatia, Albania, Bosnia and Herzegovina and Greece.

Activity 11.5: Organization of trainings, workshops, competitions and other events by NGO

NGO activities and projects aimed at promoting inventive activity among the younger generations are an especially stimulating measure for its innovative approach, high attendance and the interest of the public.

A positive example from the NGO practice is the Foundation “Young Inventors of Montenegro”, which annually organizes the national competition FIRST LEGO League – a robotics programme for children, aged 9 to 16, which is designed to encourage children’s interest in science and technology. The Foundation also implements a Fair of Young Inventors, where, within the competitive part, high school teams present their innovative solutions. Due to their success, these activities receive the continued support of the state sector. Also, other NGOs, such as the Foundation for the Promotion of Science PRONA, Digitalizuj.me, Domen.me, and many others have already established cooperation with the MoS and undertake activities of interest to the context of innovation.

Measure No. 12: Stimulating inventors and authors of innovative solutions

Activity 12.1: Awarding the inventors / innovators for the most successful innovative solution

Since 2011, the Ministry of Science has awarded annual prizes for scientific achievements, with a view to promote and stimulate the most successful researchers and innovators and to improve the level of SR and inventive activities in Montenegro.

The Law on Scientific-Research Activity provides for a special prize category for inventors / innovators for the most successful innovative solution, which encourages IA by acknowledging individuals who invested serious and dedicated research work to come to inventions, which are important for the economic and technological development of Montenegro.

So far, five prizes have been awarded in this category. The prizes will be awarded to the most deserving individuals by 2020.

Activity 12.2: Promotion of international instruments to stimulate innovators

International instruments to stimulate innovators in which Montenegrin candidates can take active participation are very important in the context of pointing to the importance of transferring innovative ideas to the market and recognizing the most successful in this category. Participation in the competition for these prestigious awards is a great incentive for improving IA individuals, but is also important in the wider context, as it can enable Montenegro to slowly position itself in the international arena by offering its innovative products and services.

One of these instruments is the EU Prize for Women Innovators whose goal is to give recognition to the most successful female entrepreneurs who have managed, through their innovative ideas, to make changes in the marketplace. Recognizing the importance of this award, Montenegro regularly informs its target groups and encourages them to participate.

Also, one of the positive experiences from the previous period is the award of WIPO medal for inventors to a Montenegrin group of inventors in 2015, which Montenegro could implement in the following period as well.

Priority No. 4: Monitoring the success of implementation of measures encouraging innovation

There is a wide range of indicators that can measure the level of innovativeness of companies and the economy as a whole. On the one hand, these include the efforts being made in the creation of innovations, which are measured through investment of resources for

innovation. On the other hand, they include concrete results of innovative processes, which are measured through new or improved products and processes, protected patents, new “start-up” companies, etc.

IA surveys entail all scientific, technological, organizational, financial, and market steps that enable the creation of innovations and their placement to the market. The survey is designed to provide information about the innovativeness of a sector in relation to the types of businesses, different types of innovation and different aspects of innovation development.

Measure No. 13: Improving the system of statistics in the field of innovation

Activity 13.1: Drafting a Plan for the development of national innovation statistics

In the context of monitoring the success of implementation of measures encouraging innovation, i.e. achievements of the Innovation Strategy, of crucial importance is the preparation of the Plan for the development of national innovation statistics, which will be supported within the project of “Strengthening the statistical capacity and the provisions of economic and social statistics”, which will be financed from IPA 2013 funds. The Plan will allow monitoring of the implementation of measures through the establishment of an organizational structure and identification of the methodology for monitoring innovation statistics. As part of the project, the statistics in R&D will also be improved, as a valuable source of data that indicate the trend of investment and the direction of policies of R&D, assisting decision-makers when determining future directions in this area.

Strategic Goal No. II: Strengthening the Instruments for Networking and Cooperation of Actors in the Innovation System

The cooperation of all actors in the innovation system – state institutions, universities, SR institutions, companies and NGOs, with R&D, adequate programme of training, infrastructure, market and various financial support instruments, represents a key factor in the design and organization of the innovation system of a country.

As creators of legal and strategic framework for innovation, the state institutions are required to define, in cooperation with all other subjects, the main obstacles to development and their causes, as well as to identify the current needs of users and to consider the recommendations, in order to establish a comprehensive, effective and sustainable innovation system. As generators of scientific research, universities and SR institutions should direct the results of research to the specific application, which inevitably leads them to connect with the business sector, as well as to a dialogue with the state institutions, in the search for an optimal model of commercialization of innovation, which depends on the organization of the IP system, the level of development of the SME sector and national programmes of research, development and innovation. By moving the focus of the majority of their activities from service activities to production and development, the companies should focus themselves to research institutions, which will compensate for the lack of development or underdevelopment of the companies’ development sectors by hiring research staff, coming up with innovative solutions that respond to the real needs of companies. Due to their inclination to innovative approaches and projects, NGOs that articulate interests of certain groups of individuals by working in specific areas, need to use all means of communication with other actors as much as possible, especially when it comes to state institutions.

In the context of concrete creation of innovation, networking and establishing cooperation of academic, scientific and business sectors is of outmost importance, which is why the greatest attention should be focused on devising adequate national support programmes – which will certainly be open to the inclusion of other subjects in the innovation system, but also on using the opportunities arising from various EU and international programmes for research and innovation in the most optimal manner possible.

Priorities within Strategic Goal No. II

- Financing grant schemes for collaborative projects of academic, scientific and business sectors;
- Financing innovative programmes and projects; and
- Strengthening the capacity to participate in international programmes for science and innovation.

Priority No. 5: Financing grant schemes for collaborative projects of academic, scientific and business sectors

Cooperation between academic, research and business sectors enables coordination of development agendas within these sectors and helps avoid overlap of activities and establish synergies in facing common challenges through the sharing of knowledge, skills and infrastructural capacity. With this in mind, collaborative projects enhance the relevance of scientific research on the one hand and reduce the financial risk of a company on the other, opening the way for commercialization of innovations.

There are a number of identified barriers to this cooperation, which relate to: the different research orientations of SR institutions (greater focus on basic research) and companies (focus on applied research and development); perception of companies that such cooperation would not bring them any significant benefits; the views of researchers that due to the application of scientific approach their solutions are the only right ones; insufficient understanding of the issues of protection of intellectual property rights, etc. These barriers present the grounds of justification of the chosen approach to improve their cooperation by funding collaborative projects.

Montenegro has chosen a model of funding that entails funding the research, development and innovative projects for a certain period of time (no longer than three years), provided that there is collaboration within the sector, between sectors, as well as international cooperation. In this way, the creation of sustainable partnerships is encouraged, whose main objective is the creation of commercial innovation in sectors that are a priority for the development of the country.

Measure No. 14: Collaborative grants for R&D projects within the HERIC project

The programme of awarding collaborative grants for R&D projects (2014–2017) aims to integrate scientific and professional potential in Montenegro in order to contribute to the development of the knowledge society and to create the foundations for the formation of future centres of excellence. Grants will improve Montenegro's science and technology infrastructure in areas with the greatest scientific and economic potential, increasing the quality and relevance of research and development, as well as cooperation with the private sector and foreign research institutions.

Within the HERIC project, following a two-stage evaluation process, the MoS has approved funding for eight R&D projects and signed eight grant agreements totalling EUR 2.6 million. Grants are implemented in pre-defined priority research areas: Energy; ICT; Medicine and health of people; Sustainable development and tourism; Agriculture and food; and New materials, products and services.

The MoS regularly monitors the implementation of activities within grants, through a special team formed to monitor the activities of HERIC project for research component.

Measure No. 15: Grant scheme “Transfer of knowledge between the sectors of higher education, research and economy”

Grant scheme “Transfer of knowledge between the sectors of higher education, research and economy” is financed from IPA IV funds under the Operational Programme for Human Resources Development (2012–2013), i.e. measure 2.2 “Improving innovative capacity of higher education, research and economy”.

The following entities were eligible to apply for the grant: SR institutions; CoE; CIE “Tehnopolis”, micro and SMEs; higher education institutions; NGOs; social partners: the Union of Employers and associations of employees and trade unions. Projects will last up to 12 months.

Funds are allocated for the following activities:

- Market-oriented research and innovation;
- Improvement and / or innovation of existing technological processes, products and / or services;
- Design and dissemination of innovative forms of work organization;
- Increasing the capacities in technological development and innovation;
- Transfer of knowledge and innovative skills between the academic sector and companies.

Priority No. 6: Financing innovative programmes and projects

An instrument to finance innovative programmes and projects is a response by the state to the insufficiently developed cooperation of research and economic sectors – which contributes to the modest results in the field of innovation and technological development, as well as to a small number of SMEs whose business is based on innovation, and the inadequacy of the existing model of financial support to companies, which largely does not meet the development needs of companies.

Establishing and improving the use of the support programmes for the development of innovation strengthens the link between SMEs and organizations for support to innovation, which is currently underdeveloped. SMEs have ideas that they want to turn into innovation, but along the way they often do not have enough own potential and expertise to improve or create new products or services, processes, concepts of organization, etc. Therefore, turning ideas into innovation often requires services of “external knowledge”, providing know-how, laboratories, equipment, TT, etc.

Innovative projects and programmes will include activities relating to the creation and implementation of new or improvement of existing technologies, procedures, products, services and processes, in accordance with market needs and set priorities for economic development of Montenegro. These activities may include the preparation of technical documents and studies, drawings, design, prototypes, testing, demonstration, piloting, validation of products on a larger scale and market replication of products, etc.

Given that the Law on Innovation Activity introduces IO in the innovation system, the basis for the use of infrastructure for innovation has been determined through networking and cooperation as well as the modalities of providing professional services and consulting, all in the direction of greater efficiency in various stages of innovation development.

Measure No. 16: The programme of co-financing innovative projects

The adoption of the Rulebook on detailed conditions and procedure for granting and use of funds for innovative programmes and projects will create conditions for the publication of the first competition for co-financing innovative projects, which will be announced in 2017 by the MoS.

After the completion of the implementation of all the projects that will be co-financed under this cycle, an evaluation of the programme will be made, which will provide guidance for planning future activities.

Measure No. 17: Grants for innovation

The programme of awarding grants for innovation should integrate scientific and innovative potential in Montenegro, SR institutions, IO and SMEs, with the aim of improving Montenegrin science and technology infrastructure in areas with the greatest scientific and economic potential, which increases the quality and relevance of research results and innovation, as well as cooperation with the business sector.

This programme should result in the practical implementation of new or significant improvement of existing products, goods, services, procedures, processes, organization and marketing, contributing to the creation of new value and quality in their application and protected patents, and will be implemented in the period from 2018 to 2020.

Measure No. 18: Financial support for encouraging the innovativeness of SMEs

In order to develop a culture of investment in innovations among SMEs, as well as to build and strengthen the innovative potential of SMEs, there are plans for implementation of the project of financial support in the form of grants for the development of competitive and innovative SMEs through the “Programme for the improvement of innovativeness of SMEs”. The project is a form of state aid, entailing subsidies for part of the cost of hiring external consultants (consulting firms, SR institutions, STP, CoE, CIE and business incubators) for the implementation of innovation activities of companies – the introduction of innovations of products, business processes, organization and marketing. Implementation of the programme will enable increase in efficiency through improvements in the business processes, methods, techniques and strategies, changes in business habits, improving innovation qualifications and potential of employees, increasing market share and ultimately increasing sales and revenue of the company.

Priority No. 7: Strengthening capacities for participation in EU innovation programmes

EU and international programmes can contribute to improving the capacity for innovation and new technologies of a country by enabling it to: provide funds for this purpose that were not provided, in whole or in part, from the national budget; adopt adequate progress benchmarks; and establish partnerships that will enable easier coping with common challenges.

For this reason, Montenegro directs its efforts towards strengthening, above all, the capacity of state institutions responsible for the coordination of these programmes in Montenegro through the establishment of appropriate structures for administration and their continuous training, as well as the capacity of the academic community, SR community, businesses and other potential beneficiaries through the promotion of these funds and incentives for their use.

One of the most significant is the H2020 (2014–2020) programme. It is a financial instrument through which the Innovation Union is implemented, which strives to enable Europe to conduct globally recognized research, to remove barriers to innovative activities and to connect public and private sectors in creating innovation. With a view to better and higher-quality coordination of activities and organization of promotion of the programme, Montenegro has appointed its representatives in the programme committees and a network of national focal points for all thematic areas of H2020. The competent authority for coordination of activities under this programme for Montenegro is the MoS.

Participation in the EUREKA programme allows member states to specifically direct their budgetary resources to support the international market-oriented projects (applied research) with good prospects for the market realization. In this way, national support becomes a mechanism for starting private investment in applied research and technological development. By joining the EUREKA programme, on 22 June 2012, Montenegro has provided its business sector with an opportunity to get actively involved in development research and to, in cooperation with the academic sector, gain experience in the preparation and implementation of joint projects. Montenegro has appointed its representative in the EUREKA High-Level Group, as well as the National Project Coordinator. The competent authority for coordination of activities under this programme for Montenegro is the MoS.

DTP opens up new possibilities for stimulating innovation through the first priority “Innovative and Socially Responsible Danube Region”, whose main objective is to contribute to the implementation of the Innovation Union initiative in the region, focusing on a wide range of topics such as eco-innovation, technology transfer, cluster policy, social innovation, and entrepreneurial skills including various aspects of innovation.

As a financial instrument for the Adriatic-Ionian region, through its first priority axis “Innovative and Smart Region”, ADRION supports the strengthening of research, technological development and innovation. Priority in investment in this part is on promoting business investment in R&I, developing links and synergies between enterprises, research and development centres and the higher education sector; promotion of investment in technology transfer, eco-innovation, social innovation and clusters, etc.

The competent authority for coordination of activities in both programmes for Montenegro is MFAEI.

With a view to optimal use of funds from the above programmes, which can significantly improve the capacity for innovation of a country, Montenegro has undertaken a series of activities to stimulate the greatest possible participation in these programmes.

Measure No. 19: Stimulating participation in EU and international programmes for support to innovation

Activity 19.1: Organization of trainings, workshops and conferences to promote EU programmes

Organization of different promotional events is the best mechanism to inform target groups about EU programmes, opportunities provided within them, conditions for participation, manners of connecting with potential partners and the services provided by the competent institutions for their coordination. Also, they are an ideal opportunity for domestic institutions to connect and to exchange experiences on best practices of participation in various programmes, as well as use joint capacities in relation to the external partners.

A network of high representatives and contact persons in Montenegro is responsible to continuously provide and spread relevant information about EU programmes, to provide support in direct meetings with target groups and to coordinate the organization of promotional events, independently or in cooperation with the EC.

One positive example is the “Open Day for Horizon 2020”, which takes place on a regular basis for certain areas of this programme, but there is also a series of thematic workshops, conferences and trainings that will be organized in the period up to 2020.

Activity 19.2: Stimulating participation in H2020 and EUREKA programmes

Through special support in the form of a competition for co-financing scientific-research activity, which is published annually, the MoS places a special focus on stimulating participation in H2020 and EUREKA programmes.

Within the item relating to participation in H2020 programme, the MoS supports the project teams from Montenegro whose project was positively evaluated in the course of a given year but was not accepted for funding by the EU, motivating them to improve their project proposal and re-apply for some of the future calls. On the other hand, supports the institution – proponent of the project in Montenegro is also supported if the grant agreement for the project implementation comes into effect in a given year.

Through this competition in a given year, co-financing is provided to projects of cooperation between research institutions and companies from Montenegro, related to the participation of these institutions / companies in EUREKA projects as coordinators or partners.

Strategic Goal No. III: Strengthening Potential for Innovation in the Business Sector

SMEs are the driving force of modern economies because of the contribution which is reflected in employment, increased exports, determining dynamics of the competition, etc. The ability of SMEs to innovate is of great importance because innovation enables competitive advantage to companies, the branch in which they operate, and to the economy as a whole. Innovation is a powerful tool for new small companies to successfully enter the market and change the current situation, but also allows existing businesses to maintain or improve their market position through innovation.

In a modern economy based on knowledge and innovation, an important place belongs to innovative SMEs, which are the most dynamic, most flexible and most efficient part of the economy and the most important potential for development of modern economy.

In order for SMEs to be able to innovate their business, which would cause the increase in the number of SMEs in Montenegro to be accompanied by the growth of innovation that would provide a sustainable competitive position of the sector, it is necessary for SMEs to recognize the importance of innovation development and to invest in the development of their own human and technological capacity for innovation, which would create the necessary conditions for them to improve their innovative potential.

Although the implementation is currently underway of several state programmes of financial support aimed at increasing the volume of investment in R&D and strengthening the innovation capacity of SMEs, it is necessary to make further efforts to promote and use the instruments in the framework of EU programmes, primarily the financial instrument for SMEs within the H2020 and financial and other instruments for developing innovativeness under the COSME programme. In order to get the most results and implement as many programmes and initiatives as possible, it is necessary to use these programmes to strengthen the administrative capacity of the institutions coordinating the programmes and to provide for their training, as well as the capacity of SR institutions, SMEs, women empowerment in entrepreneurship and science, and other potential users. In addition, SMEs have the ability to use programmes of support to the development of innovation through training and work in the company with the management and employees within the mentoring programme. In this way, above all, the awareness will increase of the necessity and importance of investment in innovation, but also the number will grow of SMEs founding their business and competitive advantage on innovation and continuous improvement of business efficiency through innovation.

Priorities within Strategic Goal No. III

- Strengthening the innovation potential of SMEs and their recognition in the innovation system;
- Strengthening support for participation in international programmes for SMEs.

Priority No. 8: Strengthening the innovation potential of SMEs and their recognition in the innovation system

Innovations are of great importance to SMEs, as their business operations and success in the market are related to continuous progress and innovation. The development of new and improved products, the introduction of new and improved technologies, processes, organization, quality of products and services – are all the elements that entail innovation in the company and which undoubtedly contribute to the achievement of profit.

It is exactly for reasons of survival in the market and strengthening the competitive advantage resulting in profit that SMEs and clusters in Montenegro should improve their research-development and innovative capacities, using different models of financial support. In this regard, it is necessary that SMEs increase their investment in strengthening the innovation capacity through investment in human capacity to create and develop knowledge on R&D in order to improve the system of management, organization and technological processes. It is also necessary to invest in the purchase of equipment needed to test and develop innovative ideas and to place improved products and services to the market. Of particular importance for the success of innovative ideas and their commercialization is their financing through the instruments of investing into capital, especially for “start-up” and fast-growing SMEs.

As for the “start-up”, SMEs and clusters, instruments of financial support are available in the form of grants and loans whose use will enhance their innovative potential and improve their position as important actors in the system that provide overall contribution to innovation.

Measure No. 20: Strengthening the innovativeness of companies by complying with the requirements of international standards

The programme of increasing regional and local competitiveness through compliance with the requirements of international business standards for the period from 2014 to 2016 aims to provide financial support to SMEs and clusters to increase their competitiveness as much as possible, primarily by complying with the requirements of international standards relating to products, management systems, staffing, testing, inspection and certification (MEST EN ISO 9001, MEST EN ISO 14001, MEST OHSAS 18000, HACCP or MEST EN 22000) and support for the accreditation for conformity assessment. In this regard, one of the key factors for improving competitiveness is innovation based on harmonization of business with international standards, which should result in expansion of activities of SMEs, improved product and service quality and strengthening market position for successful business operation in the domestic and international markets.

Measure No. 21: Stimulating development of IA clusters

Innovative clusters are structures or organized groups of independent parties, such as: the newly established innovative SMEs, organizations for research and dissemination of knowledge, non-profit organizations, and other related business entities. The functioning of clusters and their promotion aimed at achieving a better competitive position of SMEs in the national and international market will be supported through the Programme of encouraging cluster development in Montenegro for 2016, with priority given to those clusters that identify activities that encourage the development of innovative methods of business operations of cluster members and functioning of the cluster. Financial support in the form of subsidies to clusters is intended as reimbursement of eligible costs of investment in tangible and intangible assets, as well as operating costs (including administrative costs). The introduction of innovative processes in the operation of clusters and technological processes of cluster members represents the introduction of a new and significantly improved production method or delivery method (including significant changes in techniques, equipment or software), as

well as the introduction of a new organizational method in the work of the cluster and its members and the organization of work environment.

Measure No. 22: Improving the use of instruments for financing innovation and strengthening innovation activity through credit support

In the access to sources of financing for the improvement of innovative potential, of particular importance is that the SME involved in the innovation development process recognizes and uses the funding instruments for certain phases of innovation. In this regard, SMEs that base their innovation on investments in equipment and technical resources for the improvement of ICT infrastructure, development of new products and services, business models based on information technology, patents, licenses, copyrights and franchises have the opportunity to take advantage of favourable credit lines of Investment Development Fund for ICT field. By improving this segment of innovation, business efficiency is enhanced, which is how a company strengthens its competitiveness, profitability and market success.

Measure No. 23: Improving the use of instruments for financing innovation and strengthening innovative activities through credit and grant support model

Thanks to the Programme for industry modernization, SMEs in the field of industry are able to innovate their business model by purchasing production equipment through a combination of credit support under favourable conditions and grant support. In this way, technological processes, products and services, organization and processes are modernized and promoted, which indirectly develops innovation, without which the development and market survival are not possible in the long term.

Measure No. 24: Improving the use of instruments for financing venture capital to encourage innovation

For strengthening the capacity of SMEs in transforming ideas or research results in a product intended for the market, it is important to facilitate access to programmes used to finance the development and commercialization of innovations, especially for innovative “start-up” companies and companies with growth potential in the form of venture capital.

Although this is a new funding instrument for the market of Montenegro and the region, the instrument of investing in risk (equity) capital is available for funding innovative SMEs within the WB EDIF, through instruments of ENIF and ENEF fund. As an investor within the ENIF fund for innovative companies, Investment Development Fund enables “start-ups” and SMEs to access funds from the ENIF fund that are planned in the amount of EUR 40 million and to exercise the opportunity for funding via the instrument of equity through the purchase of securities. In this way, financing is enabled already in the “seed” and early stage of development, in order to test the feasibility, development, possibilities of placement and final commercialization of innovative products and services to the market.

Priority No. 9: Strengthening support for participation in international programmes for SMEs

EU programmes present one of the instruments of support to and strengthening cooperation between EU Member States on the one hand, and potential and candidate countries, on the other hand, in various areas of implementation of European policies.

It is very important for the representatives of the SME sector in Montenegro to have the opportunity to familiarize themselves with the values of the EU, EU policies in different areas, legislation and ways of its implementation, successful solutions and experiences from other countries within the EU, as well as with the methods and rules based on which the EU functions. In this regard, the current Montenegro’s participation in EU programmes has

contributed to deepening of knowledge and capacity-building of different actors when it comes to European standards and projects.

There are numerous programmes whose final beneficiaries are SMEs, but there are also programmes in which SMEs can participate independently and directly. One of these programmes is H2020 programme within which SMEs can participate in projects as part of a consortium, while on the other hand they can also use its special mechanism, i.e. SME instrument, to exercise independent and direct participation. SME instrument is open to individual companies or groups of highly innovative companies with international ambitions, ready to position their innovative business idea in a high position in the market.

The second programme of importance is the EU programme for the Competitiveness of Enterprises and Small and Medium-sized Enterprises – COSME (2014–2020), which Montenegro acceded on 25 June 2014 by signing the Agreement on the participation. The Programme is focused on SME support in the following areas: better access to finance for SMEs, access to markets for SMEs, entrepreneurship, more favourable conditions for business creation and growth. Potential beneficiaries of COSME programme are: business support organizations, associations of entrepreneurs operating in the field of encouraging and promoting entrepreneurship, national, regional and local organizations / institutions, financial intermediaries and SMEs through them. The competent authority for coordination of activities under this programme for Montenegro is the ME.

Measure No. 25: Stimulating participation in programmes of support to SMEs

Activity 25.1: Stimulating participation in a free mentoring programme with Japan

Based on the Memorandum of Cooperation signed, the Directorate for Development of SMEs implements, together with JICA, the project “Establishment and promotion of mentoring services to SMEs in the Western Balkans – Serbia, Bosnia and Herzegovina and Montenegro”. The implementation of the project is a joint work of mentors and companies / entrepreneurs to overcome the current situation and find the most suitable solutions for future business. Mentors undergo trainings defined through the so-called mentoring scheme by certified mentors and JICA consultants in the areas of financial management, marketing, business plan writing, production management and companies’ diagnostics. A total of 28 companies from the municipalities of Podgorica, Bar, Nikšić, Bijelo Polje and Cetinje have so far been using the mentoring services. In 2016, a new memorandum for the next three years is expected to be signed, so the activities and support to SME sector through the provision of mentoring services is expected to continue.

Activity 25.2: Stimulating participation in ERASMUS programme for young entrepreneurs

The trainings within the programme of Erasmus for Young Entrepreneurs are also especially important. This is an exchange programme that allows the acquisition of new knowledge and skills through trainings that are implemented during the stay with experienced entrepreneurs who run successful SMEs in countries participating in the programme. On the other hand, the host gets the opportunity to become better acquainted with the market of another country and make contacts that can be a driver of future cooperation. When applying, new entrepreneurs / entrepreneurs beginners are required to present their innovative business ideas and the plan of activities / training during their stay with the experienced entrepreneur – host. One of the goals of the programme is that they acquire and develop, among other things, skills in project writing and development and knowledge in the field of innovation and R&D during their stay. On the other hand, host entrepreneurs, i.e. individuals who run their own business for more than three years are required to propose a high quality programme of training and working environment for new entrepreneurs. A very important role in the implementation of the programme is played by the so-called mediation organizations, and the Montenegrin Chamber of Economy is one of these organizations,

which performs the evaluation and selection of the best business plans submitted by applicants in Montenegro under this programme.

Measure No. 26: Stimulating participation in EU programmes for SMEs

Activity 26.1: Organization of trainings, workshops and conferences to promote EU programmes for SMEs

With a view to quality promotion of EU programmes and improving the capacity of entrepreneurs to participate in them, a number of institutions organize different educational events (training courses, trainings, workshops), info-days and conferences. Thanks to these developments, the knowledge of SMEs in a number of areas necessary for business has been significantly improved and the access to information has been facilitated on available EU programmes and funds for SMEs.

However, as the harmonization with EU directives in the EU accession process is very demanding, there is a need for constant monitoring of current events, the promotion of EU legislation, as well as all the opportunities offered to SMEs. Therefore, no matter how many such events, it is always necessary to organize additional ones, in order for the SME sector to get thoroughly acquainted with the new possibilities and procedures for participation in these programmes.

Some of the institutions that organize these types of events are: MFAEI, ME, MoS, MARD, Directorate for SME Development, Chamber of Economy of Montenegro, Union of Employers, UCG, European Movement in Montenegro, etc.

Activity 26.2: Strengthening capacity within EEN project implementation

EEN is part of the largest entrepreneurial network in the world that brings together over 600 institutions to support businesses from 54 countries in order to use equal opportunities provided by the European single market.

EEN project started to be implemented in November 2008, when the European Centre for Information and Innovation of Montenegro was established, as part of the EEN network. The project is implemented by a consortium consisting of: the Directorate for Development of SMEs, which coordinates the project; Faculty of Mechanical Engineering – University of Montenegro; Chamber of Economy of Montenegro; and Business Start-up Centre Bar.

EEN Montenegro provides services relating to the provision of practical advice and support to entrepreneurs in easier finding business partners, establishing business cooperation, access to information on the legal aspects of the EU in this area, information on support programmes, technology transfer and innovation.

As members of EEN network, Montenegrin partners are connected to the system database, where they share their knowledge and experience with all partner countries. They are also connected to the EC, through which they affect the process of defining the directions of the EU SME policies, informing it about the opinions and the current problems of SMEs.

The main activity and role of EEN in the future will be to provide practical business information and assistance in establishing international cooperation, in terms of seeking foreign partners, assistance in business missions and meetings, fairs, as well as numerous educational events (seminars, workshops, info-days, etc.) on current EU issues. The emphasis will be placed on supporting innovative enterprises and those that have the potential for further growth and development.

IV MONITORING THE IMPLEMENTATION OF THE STRATEGY OF INNOVATION ACTIVITY

In order to successfully implement the strategic goals and priorities of the Strategy of Innovation Activity, it is necessary to establish a system for monitoring the implementation of the proposed measures and activities.

The main monitoring mechanism will be the annual reports on the implementation of the Strategy and the Action Plan, to be adopted by the Government of Montenegro. However, bearing in mind the fact that important negotiations are underway at the international level, the outcome of which is still unknown and which may significantly affect the further implementation of certain measures from the Strategy and the dynamics of financial framework planning, as well as that the preparatory activities are underway for establishing strategic directions for the SME sector by 2020, which may affect the direction of the activities envisaged in this Strategy, the evaluation of achieved objectives set out in this Strategy will be carried out in 2019. This is also when the decision will be made as to whether it is necessary to revise the Strategy and the Action plan.

Key Performance Indicators for Implementation of Strategic Goals by 2020

The percentage of investment in R&D

The total national spending on R&D amounting to 0.36% of GDP in 2014 should reach 0.6% of GDP in 2020.

The percentage of private sector investment

Investment by business and entrepreneurial sector in research and development, which amounted to around 0.14% of GDP in 2014, should reach about 0.3% of GDP by 2020.

The number of staff engaged on R&D

In 2014, the number of persons engaged on research and development was 2,339. That number is expected to grow to 2,600 people in 2020.

The number of inventors

According to official IPO data, there are currently 56 registered inventors who have protected their inventions by patents. In 2020, the number is expected to grow to about 70 innovators.

The number of registered patents

According to official IPO data, there are currently 2,383 patents registered with the Office. In 2020, that number is expected to grow by 1,200 patents.

The number of "start-up" companies created in the framework of implementation of support programmes: 10.

Global Innovation Index ranking

As one of the international indicators of performance of countries in the field of innovation, but also a guide for policy makers in planning future activities, Global Innovation Index is of particular importance in determining the performance of national innovation policies. Montenegro has been recognized as a country that achieves innovation (innovation achiever) and in 2015 it was ranked 41st (out of 141), which is an excellent result, which certainly needs to be improved in the period by 2020.

V ACTION PLAN FOR IMPLEMENTATION OF THE STRATEGY OF INNOVATION ACTIVITY (2016–2020)