

#### Introduction of the national research landscape

BOSNIA AND HERZEGOVINA HERZEGO

World Fact Book Location: Balkans Population: 633,158 (2023 census)

Capital: Podgorica

Area: 13,812 km<sup>2</sup>

Languages: Montenegrin (Albanian, Bosnian, Croatian, Serbian in use)

Currency: Euro (de facto)

GDP (PPP): US\$28,002 (per capita)

Economy: Largely serviceoriented, late-transition market economy Innovation: 75<sup>th</sup> on Global

Innovation Index (2023)

#### Researchers in Motion is

an initiative of the European Research Area (ERA) that addresses barriers to the mobility of researchers and seeks to enhance their career development. This pan-European effort is currently supported by 43 countries, of which we profile one in each our quarterly enewsletters. Montenegro, a burgeoning EU candidate country situated in the Western Balkans, is making significant strides in developing its academic and research sectors. Despite its size, this small nation has ambitious goals to foster a robust science, technology, and innovation (ST&I) environment, vital for its economic transformation and integration into the European Research Area (ERA).

# Higher education

At the heart of country's academic landscape is the <u>University of Montenegro</u> (*UCG*), the largest and oldest public university in the country. Established on 2 April 1974, UCG serves as the primary hub for higher education, research, and artistic endeavours, enrolling nearly 20,000 students – representing 80% of the nation's student population. With its main campus in the capital city of Podgorica and additional campuses spread across seven other cities, UCG offers a wide array of programmes through its 19 faculties and three scientific institutes. The university's commitment to international cooperation is evident through over 137 bilateral agreements with universities in 41 countries, aligning its curricula with respected European standards as per the Bologna Declaration.

Complementing UCG are three private higher education institutions/universities: Mediterranean University, the University of Donja Gorica, and Adriatic University. Mediterranean University focuses on fields such as tourism, IT, and business, emphasising international collaboration. The University of Donja Gorica stands out for its strong emphasis on innovation and entrepreneurial studies. Adriatic University covers diverse areas including business, law, transport, communications, and maritime studies. Together, these institutions form the core of Montenegro's higher education system, offering accredited programmes that adhere to the Bologna process, including bachelor's, master's, and doctoral degrees. In addition, three independent faculties are accredited: Faculty for Montenegrin language and literature, Faculty of Administrative and European Studies and Faculty of Business Management Bar.

#### Research and development

Montenegro's investment in research and development (R&D) has been gradually increasing, although it remains below the European Union average. The country's R&D expenditure rose from 0.3% of GDP in 2011 to 0.5% in 2018, with a total of approximately EUR 17.98 million spent in 2019. Of this, higher education institutions (HEI) received about EUR 6.56 million. This investment supports around 1,000 researchers, a number that includes a growing contingent of foreign researchers, reflecting the nation's efforts to expand its research capabilities and foster international collaboration.

#### Strategic initiatives and smart specialisation

Central to Montenegro's vision for economic and academic transformation is its <u>Smart Specialisation Strategy</u> (S3), which outlines targeted research priorities in sectors where the country holds a comparative advantage. These priority areas include energy and sustainable environment, sustainable agriculture and food



production, sustainable and health tourism, ICT and digitalisation, and creative industries.

The strategy's overarching goals are to enhance innovation capacity, promote economic growth and diversification, create high-quality jobs, support sustainable development, and boost international cooperation.

- Energy and sustainable environment: Focuses on renewable energy sources like solar, wind, and hydro, alongside energy efficiency technologies and sustainable environmental management practices.
- Sustainable agriculture and food production: Aims to advance organic farming, integrate agro-tech innovations, and enhance food-processing and safety standards.
- Sustainable and health tourism: Develops eco-tourism and health and wellness tourism by leveraging Montenegro's natural resources, such as thermal springs, while preserving cultural heritage.
- ICT and digitalisation: Seeks to improve digital infrastructure and broadband connectivity, enhance e-government services, and support the growth of ICT startups and innovations.
- Creative industries: Encourages the growth of media, film, entertainment, design, fashion, and cultural arts sectors.

# Legislative and policy framework

Montenegro has implemented comprehensive legislative frameworks to support its ST&I ambitions. Laws on the recognition of foreign qualifications and educational credentials facilitate international mobility and cooperation. Other significant legal developments include the Law on National Vocational Qualifications and the Law on National Qualifications Framework, which ensure that all qualifications meet both national and international standards. Additionally, the Law on Innovation Activities and the Law on Incentive Measures for the Development of Research and Innovation provide a robust framework for organising, financing, and stimulating innovation activities, thereby reducing bureaucratic hurdles and promoting economic growth.

# Human resources and research development

Efforts to bolster Montenegro's human resources in research are evident in the increasing number of foreign researchers and the focus on developing a skilled workforce. The country hosts approximately 1,000 researchers, and various programmes aim to attract more international talent to enhance its ST&I capabilities. The strategic partnerships and collaborative projects funded through programmes like Horizon 2020, Horizon Europe, Erasmus+, and bilateral agreements further underpin Montenegro's commitment to advancing its research landscape.

# **Boosting innovation and international collaboration**

Montenegro fosters innovation through several dedicated entities and initiatives. The main institution boosting innovation is the <u>Science and Technology Park</u> <u>Montenegro</u> (NTP), which supports startups and growing companies to accelerate their growth and development, conquer new markets and attract



investments.In addition, the newly established <u>Innovation Fund of Montenegro</u> supports startups and SMEs with funding and mentoring, while the Innovation and Technology Hub – <u>Tehnopolis</u> in Nikšić provides incubation and acceleration services for startups. The Council for Innovation and Smart Specialisation oversees the implementation of S3, functioning as a strategic advisory body comprising members from state administration, local governments, businesses, and other stakeholders.

Montenegro's participation in international research projects and its strategic alliances with global partners underscore its commitment towards greater ERA integration. By focusing on its comparative advantages and fostering a collaborative research environment, Montenegro aims to drive sustainable economic growth, create high-quality jobs, and establish itself as an innovation-driven economy.

#### **Digitalisation policies and ecosystem**

Montenegro's <u>Digital Transformation Strategy 2022-2026</u> is a pivotal initiative aimed at enhancing its digital infrastructure and services, bolstered by an Action Plan for 2022-2023 that promotes swift adaptation to the digital environment and the proactive development of a digital society. Key policies supporting this transformation include a Programme for Improving the Competitiveness of the Economy, the Industrial Policy of Montenegro 2019-2023, and the Smart Specialisation Strategy (S3) 2019-2024, which particularly fosters greater innovation and ICT growth. The Ministry of Public Administration spearheads these digitalisation efforts, prioritising human-centred services and public-sector improvements through collaboration with the private sector, academia, and civil society to bridge the digital divide and enhance digital skills.

Montenegro's innovation ecosystem is underpinned by robust programmes and legislation, notably the Law on Innovation Activities and the Law on Incentive Measures for the Development of Research and Innovation (Official Gazette of Montenegro 82/20). These acts provide a framework for organising, financing, and stimulating innovation, reducing bureaucratic obstacles, facilitating access to financing, and promoting economic growth. Complementary programmes, such as the Economic Reform Programme for Montenegro 2020-2022 and the Programme for Encouraging Innovative Startups 2019-2021, aim to stimulate the entrepreneurial ecosystem and promote digital solutions. The Programme of Measures Promoting Innovative Startups in Montenegro includes actions to remove statutory barriers, develop financial schemes, and attract talent to foster an entrepreneurial culture. Supporting institutions like the Montenegro Innovation Programme 2023-2027, which covers the entire innovation cycle from idea generation to commercialisation, and the Innovation Fund, a crucial financial instrument, are designed to bolster innovative entrepreneurship and enhance Montenegro's capacity to secure EU funds.

#### S&T international cooperation

Montenegro has established a national network of National Contact Points (NCP) to align with the European Research, Economic, and Green Agenda. In addition, the University of Montenegro is an active participant in various prestigious

8

networks, enhancing its academic and research capabilities. These include the Ulysseus Network of European Universities, the European University Association (EUA), the Francophone University Association (AUF), the University Network of the Adriatic Ionian Initiative (Uniadrion), the Network of Universities of Small Countries and Territories (NUSCT), the Association of Balkan Universities (BUA), and the Inter-University Centre Dubrovnik. Furthermore, it collaborates with the European Security and Defense College (ESDC) and is a signatory of the Magna Charta Universitatum, underscoring its commitment to academic excellence and international cooperation.

# Examples of successful collaborations

- 1. As mentioned, the University of Montenegro is a full member of the Ulysseus network of European universities, which aims to connect Europe's most prestigious HEIs to tackle today's major challenges by fostering innovation and creating territorial and digital innovation ecosystems. By participating in this network, which includes nearly 164,000 students, 20,000 academic and administrative staff, 87 faculties, 1,035 research groups, and 54 research centres, UCG enhances its networking opportunities within Europe and its ability to engage in interdisciplinary research projects. Ulysseus, led by the University of Seville and including universities from Italy, France, Slovakia, Austria, and Finland, strives to become the European university for future citizenship by promoting mobility, joint degrees, corporate internships, and impactful international research and innovation projects. The network, comprising 95 associated partners ranging from long-established educational institutions to specialised business-technical universities, also focuses on entrepreneurship and academic innovation. Within the network, UCG coordinates the Cybersecurity Innovation HUB, further solidifying its role in cutting-edge research and innovation.
- Regional Cooperation Council (RCC): With the support of RCC, UCG has developed a significant document underpinning the <u>Policy for Open Access</u> <u>to Research Infrastrcurure</u>. It was adopted in October 2020.

# Researcher diaspora and alumni

In 2024, the University of Montenegro has established a dedicated <u>platform</u> to boost cooperation and better capitalise on the country's extensive (~90,000 from 1974 to 2024) researcher diaspora and alumni.

Co-funded by the European Union, this is a valuable part of UCG's broader <u>Internationalisation Strategy 2021-2026</u>, as well as its <u>Development Strategy</u> 2019-2024.

# Contact details

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