



COUNTRY PROFILE: The spirit of research and innovation in Bulgaria

In this edition of *EURAXESS Worldwide* newsletter, we take readers on a tour of the Bulgarian research and innovation (R&I) and development landscape; the main players, priorities, strategies and mechanisms driving this Balkan nation's efforts to modernise and boost its competitive edge.

Fast facts on Bulgaria

Capital: Sofia

Government: Parliamentary Republic

Population: 7 million

Language: Bulgarian (Cyrillic script)

Motto: Unity makes strength

Size: 110,993.6km² (16th largest in Europe)

Strategy and key agencies

Starting with the strategy first, Bulgaria has devised its National Development Programme, or 'BULGARIA 2030', as its main strategic document in the hierarchy of national programming documents. This strategy determines the vision and overall goals of development policies in all sectors of government, including territorial dimensions. The document sets out three strategic goals, five development areas (axes) and 13 national priorities.

"The Government's intentions in each policy area will be detailed in the full version [of] the National Development Programme BULGARIA 2030, due by the end of 2020, which will include a detailed indicative financial framework, a preliminary impact assessment and a mechanism for controlling and monitoring the implementation of the strategic document," according to the [Ministry of Finance website](#).

Funding tools

Research and innovation funding is concentrated mostly through the [Bulgaria National Science Fund](#) at the Ministry of Education and Science and through the European structural and investment funds.

S&T international cooperation

The most helpful way to find your orientation in the S&T international cooperation priorities and aspects in Bulgaria is to take a look at the lists of agreements and collaborative projects on the [Bulgarian Academy of Sciences \(BAS\)](#) website, as well as on the similar pages of each Bulgarian university, for example [Sofia University](#).

Introducing the national research landscape

- In the following paragraphs, we provide an outline of the main science, technology and innovation (ST&I) framework, including the ministries involved, funding agencies, and so on.

On the [website of the Bulgarian Ministry of the Education and Science](#) there is a helpful page with all important links to the ministries and funding agencies that support research and innovation.

In terms of the academic system, there are some **50 accredited institutions** including universities, academies, colleges, etc. (September 2019). In the past, research in Bulgaria was concentrated around the institutes of the Bulgarian Academy of Sciences. Higher education institutions (HEIs) began to participate actively in scientific research and projects only after 1989. Currently, there are several recognised universities that develop scientific and applied research. **Sofia University 'St. Kliment ohridski'** (see photo) is the largest and most prestigious educational and scientific centre in the country.



The **Bulgarian Academy of Sciences** is the leading scientific centre and spiritual leader in this field. It conducts research, training and activities of national and international importance and solves problems related to the development of Bulgarian society and state.

The Academy has a consistent policy for the development of science and innovation as a condition for economic progress in the country. It is an active participant in the European Research Area.

Today, BAS comprises **42 autonomous scientific units** and is governed in accordance with democratic principles. The Academy employs about 3,000 scientists, accounting for about 15% of those engaged in science in Bulgaria. The Academy produces about half of the scientific output in the country.

Research priorities

National priorities in research are incorporated through the funding programmes of the Bulgarian National Science Fund and the operational programme (OP) 'Science and education for smart growth' (2014-2020), which support the development and modernisation of two types of research centres - Centers of Excellence and Centres of Competence.

The centers seek to create the necessary conditions to attract highly qualified scientists to conduct research at the highest European level, thus significantly improving the potential for applied research, experimental development and innovation in the region, and within the thematic areas of the Bulgarian Innovation Strategy for Smart Specialisation. This strategy covers mechatronics and clean technologies, informatics and ICT, industry and healthcare and biotechnologies, as well as the creative and recreative industries. All projects are prepared and implemented in partnership between different scientific organisations, including universities, academic institutes, structures of national institutions, etc.), and they aim to improve the existing scientific infrastructure to facilitate the implementation of research and development, transfer of knowledge and technology, dissemination of research results, and provision of research business services.

Special features of R&D strategy

The OP 'Innovation and competitiveness' (2014-2020) outlines procedures for the creation and development of Regional Innovation Centres and the development of Innovation Clusters.

Innovation Clusters support innovation by sharing facilities, knowledge and experience, contributing effectively to knowledge transfer, building concrete networks of interdependent actors, often competing in the open market, disseminating information between enterprises and other organisations in the cluster.

The idea behind Regional Innovation Centres is to build and develop modern research and innovation infrastructure for conducting open, applied research, thus contributing to the accelerated socio-economic development in Bulgaria's regions. The focus of the procedure is on creating a working partnership between business and science for the benefit of the regional economy. Businesses have a leading role in creating the conditions for optimising use of Regional Innovation Centres, by introducing and commercialising new technologies created in them. Another important aspect is the creation of a culture of innovation and technology that underpins the success of this partnership.



Given the strategic importance of the topic, all EU Member States, including Bulgaria, signed the Declaration of Cooperation on Artificial Intelligence (AI) on Digital Day 2018. According to the Coordinated Plan on Artificial Intelligence, “By mid-2019 all Member States are encouraged to put in place – and share with other Member States and the Commission – national AI strategies or programmes or add AI dimensions in other relevant strategies and programmes outlining investment levels and implementation measures.”

The Coordinated Plan is quite ambitious as it envisions many initiatives, funded by the EU, including through Horizon 2020 and likely its successor next year Horizon Europe. In the Bulgarian context, the relevant national institution is the Ministry of Economy (ME), which is also responsible for the Industry 4.0 Strategy. The ME intends to include an AI pillar in the Industry 4.0 Strategy, and afterwards it will develop a standalone AI Strategy.

The Ministry of Education and Science (MES) is also in the process of developing a document on AI in education and science. When the process is finalised, it can and should be used as input in the ME's strategies. The timeline of this process, however, is unclear as the topic is quite complex and sensitive, especially when it comes to education. The MES stands ready to support the ME in this exercise of common interest. The draft Strategy for Bulgaria's participation in the Fourth Industrial Revolution, or 'Industry 4.0', identifies the creation of conditions to deploy the AI technologies in industry as one of the main priorities. Accompanying measures have been planned for this priority, and they will be included in the Action Plan for the Strategy.

Innovation aspects (funding, companies, startups, Global Innovation Index)

Among the Bulgarian government's key objectives for the period up to 2030 are the technological transformation of the economy, green growth and resource efficiency, and aligning with European digitalisation policies. This will be done through targeted and focused government support, while increasing specialisation in products and industries characterised by a higher intensity in R&D and innovation (and therefore higher added value). This should allow Bulgaria to **boost its competitiveness** globally and involves:

- Improving state-level international collaboration (bilateral and multilateral)
- Encouraging research organisations (ROs) and HEIs to internationalise
- Implementing National Research Programmes to solve social and policy issues
- Encouraging better communication strategies by ROs, HEIs, research infrastructures (RIs), centres of excellence (CoEs), and competence centres (CCs) public funding bodies, research programmes, etc.
- Significant increase in support for R&I in the field of ICT (incl. RIs, CoEs, etc.)
- Improving the legal framework to promote R&I, public-private partnership and intellectual property management (a new Research and Innovation Act)



Business Enterprise Sector

The most helpful connections could be made through the Enterprise Europe Network Bulgaria:

<https://een.ec.europa.eu/about/branches/bulgaria>

EURAXESS – 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 40 countries, of which we will profile one in our quarterly e-newsletter.

Important links:

<https://www.uni-sofia.bg/>

<http://www.bas.bg/en/about-us/>

<https://www.euraxess.bg/>

<https://naukamon.eu/en/home-en/>

<https://www.fni.bg/>

<https://www.minfin.bg/en/869>

<https://een.ec.europa.eu/about/branches/bulgaria>

<http://sf.mon.bg/?go=page&pagelid=401>

<http://www.bas.bg/en/international-cooperation/>

https://www.uni-sofia.bg/index.php/eng/the_university/international_relations

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- Developing and widening the capacity and increasing the expertise of administrative and expert staff working in the field of research, innovation, technological transformation and coordination with Horizon Europe
- Promoting technology readiness level from applied research achievements to their transformation into innovative products, services or processes, and their market launch
- Fostering joint strategic innovation programmes between industry and the research capital in the country for accelerating the transfer of knowledge and research results, commercialisation and generating disruptive innovations

Academy-industry relations

The government has opened a [national science portal](#) with information about its research programmes, research infrastructures, and researchers. Furthermore, in early 2019, the government has started to put together a National Open Science Portal and national repository.

Key to promoting the commercialisation of research results and fostering collaboration between academia and business are CCs and CoEs, which are also currently being created.

The Decree of the Council of Ministers on the establishment and functioning of a mechanism for the awarding and implementation of scientific consultations by the Bulgarian Academy of Sciences has been adopted. The main objective of the mechanism is to provide timely, high-quality and independent scientific expertise for the benefit of Bulgaria's executive authorities on issues of strategic importance in formulating policies and instruments for the implementation of state policy, as well as in the transposition of EU directives into the Bulgarian legislation. The mechanism underwrites evidence-based policy-making in view of the new challenges connected with increasingly interdisciplinary policies (such as in the spheres of climate, energy, transport, artificial intelligence, bioeconomy, etc.).

The Council of Ministers adopted a report, submitted by the Vice-Prime Minister in November 2019, calling for higher quality in the policies and management of the R&I system. The report proposes the establishment of a State agency for research and innovation. An inter-institutional core team was established and held its first meeting in mid-December 2019. In the course of 2020, the team is drafting the preparing the ground for the Agency, which will incorporate an integrated approach to R&I policy and development, and will establish long-term planning and sustainable financing for policy-making in this area.

[Visuals]

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