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ERA Country Report 2024

Bosnia and Herzegovina

Independent
Expert
Report

Research and
Innovation

ERA Country Report 2024: Bosnia & Herzegovina

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ERA Country Report 2024

Bosnia and Herzegovina

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as part of the project 'Implementation of the ERA Monitoring Mechanism' for the European Commission, Directorate-General for Research and Innovation (RTD/2023/OP/0017)

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Key takeaways

- Bosnia and Herzegovina (BiH) demonstrates slow progress in aligning with ERA Priorities, hindered by structural and resource limitations.
- BiH lacks a cohesive national science development policy and a smart specialisation strategy (S3), which are essential for prioritising high-impact innovation areas, aligning resources effectively, and enhancing integration into the ERA.
- BiH institutions saw a significant increase in EU funding, receiving EUR 25 million in 2024, with greater engagement in initiatives like Horizon Europe.
- Despite adopting gender action plans (GEP), inclusivity challenges persist, particularly in science, technology, engineering and mathematics (STEM) fields and leadership roles, compounded by political interference affecting academic freedom.
- Gross expenditure on R&D (GERD) as a percentage of gross domestic product (GDP) remains below 0.2 percent, underlining the necessity for increased public and private investment, cohesive national strategies, and enhanced institutional capacity to achieve meaningful ERA integration.

1. National context

Bosnia and Herzegovina (BiH) is categorised as an *Emerging Innovator* with a 36.4 summary innovation index score in the 2024 European Innovation Scoreboard.¹ BiH's share of female researchers is high at 46.56 percent.

Table 1 Structural Key Indicators

Indicator	EU27	Bosnia and Herzegovina		
	2023	2023	Average 2018-2020	Average 2021-2023
GDP in current prices, euro per capita	35 790.00	/	/	/
Gross Domestic Expenditure on R&D (GERD) as a share of GDP	2.27	0.19	0.20	0.19
Size of the population (million)	448.80	3.44	/	/
Researchers (in FTE) per million inhabitants	4 681.34	535.00	450.37	504.28

Source: see Annex 1

BiH's R&I policies are shaped by decentralised governance, with responsibilities divided among state-level and entity-level institutions. The Ministry of Civil Affairs (MoCA) plays a coordinating role, but the cantonal and entity governments maintain primary authority. This fragmentation hinders the development and implementation of cohesive national strategies. At entity level, the Strategy for the Development of Science and Technology, Higher Education and Information Society in the Republic of Srpska (2023–2029) provides a framework for promoting scientific excellence, yet similar comprehensive strategies are lacking at the state level and in other entities.

2. Status of the Implementation of the ERA Policy Agenda

Bosnia and Herzegovina has not identified specific commitments to actions from the ERA Policy Agenda 2022-2024. Despite the absence of commitments to specific priorities, Chapter 2 summarises **new developments in BiH since the publication of the ERA Country Report 2023**. The findings are based on qualitative desk research and interviews.

ERA Priority 1: Deepening a truly functioning internal market for knowledge

Progress has been made in relation to **ERA Action 1**. BiH has 51 journals registered in the Directory of Open Access Journals, out of which only seven charge article processing fees.² Eight new open access journals were established in the past year. However, the absence of a comprehensive national OS policy and limited infrastructure hinder the full adoption of OS practices. Addressing these issues is crucial for BiH to fully realise the benefits of OS and EOSC integration. In December 2024, the DARIAH-EU visited the University of Sarajevo to further collaboration with DARIAH-BiH and promoted the DigiProHUMANE project, showcasing the integration of digital humanities into BiH's research landscape, fostering interoperability and accessibility in research data and cultural heritage within the digital humanities

¹ See <https://projects.research-and-innovation.ec.europa.eu/en/statistics/performance-indicators/european-innovation-scoreboard/eis-2024#/eis/countries/BA>

² The Directory of Open Access Journals, <https://doaj.org/>

across Europe.³ The Data Archive for Social Sciences in Bosnia and Herzegovina (DASS-BiH), has officially become a Regular Member of the World Data System (WDS). This partnership, formalised through a memorandum of understanding, reflects DASS-BiH's commitment to promoting data sharing and long-term preservation of social science research data.⁴ In relation to the legal framework (**ERA Action 2**), Bosnia and Herzegovina's Law on Copyright and Related Rights (LCRR) dates from 2010. It has not been updated to align with recent EU directives such as those addressing digital single market, orphan works, and collective rights management. Moreover, the intellectual property strategy has expired, and a new one is yet to be developed. These gaps hinder full integration into European research initiatives, including EOSC.⁵ As part of its Stabilisation and Association Agreement with the EU, BiH is committed to aligning its copyright laws with EU standards, including adopting measures to ensure open access and effective enforcement of intellectual property rights.

In 2024, BiH exhibited limited progress in reforming its research assessment systems in alignment with **ERA Action 3** with no significant advancements made during the reporting period. The EU funded three-year project "Strengthening Capacities and Mechanisms for Enhancement of Quality Assurance System in Higher Education in Bosnia and Herzegovina" (SMEQA), coordinated by the University of Zenica, commenced in early 2024 to develop a standardised model for programme accreditation aligned with European practices. Additionally, SMEQA will foster collaboration among universities, ministries, and international agencies, aligning with ERA Action 3's emphasis on coalition-building and inclusive consultations. By creating a unified approach to quality assurance, the project enhances institutional credibility, builds trust, and indirectly strengthens the research environment, laying the groundwork for effective evaluation of research quality, performance, and impact.⁶

Although full-fledged national and entity-level policies on sustainable research careers, balanced talent circulation and international, transdisciplinary and inter-sectoral mobility (**ERA Action 4**) are still not in place in BiH, its researchers and institutions increasingly continue to participate in EU funded projects. The Western Balkans Mobility Scheme - a pilot programme launched in March 2024 under the Horizon Europe-funded POLICY ANSWERS project – aims to further enhance regional cooperation and support early-career researchers in the Western Balkans through short-term mobility and access to specialised research infrastructures. This initiative will support talent circulation and mobility within the region, thereby strengthening the interconnectedness of Western Balkan economies and supporting their convergence with the European Union.⁷

BiH has adopted a national Gender Action Plan 2023-2027 (**ERA Action 5**), however measures in the field of scientific research are defined quite generally focusing on awareness raising and statistics. This plan alongside the Antidiscrimination Law needs improvements and a country level harmonisation to ensure fostering inclusive research and innovation

³ McConville, A. (2024). Successful DARIAH-EU visit to University of Sarajevo for future collaboration with DARIAH-BiH. DARIAH-EU. <https://www.dariah.eu/2024/12/17/successful-dariah-eu-visit-to-university-of-sarajevo-for-future-collaboration-with-dariah-bih/>.

⁴ Centre for Development Evaluation and Social Science Research (CREDI), (2025). DASS-BiH becomes a regular member of the World Data System (WDS). <https://credi.ba/dass-bih-postao-redovni-clan-svjetskog-sistema-podataka-wds/>

⁵ European Commission (2024). Commission Staff Working Document: Bosnia and Herzegovina 2024 Report. Accompanying the Communication on EU Enlargement Policy. Brussels: European Commission. SWD(2024) 691 final. https://neighbourhood-enlargement.ec.europa.eu/document/download/451db011-6779-40ea-b34b-a0eeda451746_en?filename=Bosnia%20and%20Herzegovina%20Report%202024.pdf

⁶ <https://www.smeqa.ba/>

⁷ Western Balkans Info Hub (2024). Western Balkans Mobility Scheme. <https://westernbalkans-info-hub.eu/calls/western-balkans-mobility-scheme/>.

environments. Segregation persists in STEM fields, where women remain underrepresented⁸. While there is a positive trend in the proportion of women in education and research roles, women remain significantly underrepresented in leadership roles across sectors, including academia and innovation-driven industries. This lack of representation underscores the need for targeted interventions to promote gender balance in decision-making positions. In addition, there is a need to address intersecting inequalities, particularly for marginalized groups like Roma women and women with disabilities.⁹

BiH continues to face challenges concerning the protection of academic freedom (**ERA Action 6**). The Freedom House report for BiH for 2024 states that the education system is suffers from corruption and clientelism, and the curriculum is politicised at all levels of education. While freedom of expression for individuals is generally protected, in practice, the peer pressure and the risk of an adverse public reaction remain significant curbs on the discussion of sensitive topics.¹⁰ For example, in December 2024 proposed changes to the Higher Education Law in the Zenica-Doboj Canton, which grants the University of Zenica's Board of Directors the authority to dismiss the rector if the Senate fails to do so within 15 days of a proposal, have raised concerns among the university's management, the president of the University of Zenica's Trade Union, the Senate, and the University of Zenica Student Union regarding potential violations of university autonomy and academic freedom.¹¹

Concerning knowledge valorisation (**ERA Action 7**), the absence of a S3 hampers the country's ability to effectively channel resources into areas with the highest potential for innovation and economic impact. A project supporting the development of R&D strategies and centres in Bosnia and Herzegovina, led by University of Novi Sad with participation of 11 universities and ministries in BiH, commenced in November 2024 and will run for four years. This project aims to enhance cooperation between HEIs and companies through the R&D network.¹² In addition, the Canton of Sarajevo is adopting its Strategy for Scientific Development 2025–2028, which aims to establish a framework for collaboration between academia and industry.¹³

At the national level, the Institute for Intellectual Property of Bosnia and Herzegovina (IIP BiH) collaborated with the European Union Intellectual Property Office (EUIPO) in addressing the use of trademarks in forms differing from their registered versions.¹⁴ Additionally, IIP BiH, in partnership with the 'EU Support to Intellectual Property Rights in Bosnia and Herzegovina'

⁸ European Institute for Gender Equality (2023). Gender Equality Index for Bosnia and Herzegovina 2023. <https://eige.europa.eu/about/eu-candidate-countries-and-potential-candidates/bosnia-and-herzegovina>

⁹ USAID MEASURE II (2024). Country Gender Analysis: Bosnia and Herzegovina. United States Agency for International Development. <https://www.usaid.gov/bosnia-and-herzegovina/key-documents/nov-22-2024-country-gender-analysis-bosnia-and-herzegovina>

¹⁰ Freedom House (2024). Freedom in the World 2024: Bosnia and Herzegovina. <https://freedom-house.org/country/bosnia-and-herzegovina/freedom-world/2024>; Turčalo, S. (2024). Naši univerziteti nisu prostori za razvoj kritičkog mišljenja, često su pod političkom kontrolom [Our universities are not spaces for the development of critical thinking, they are often under political control]. 6yka, <https://6yka.com/intervju/turcalo-nasi-univerziteti-nisu-prostori-za-razvoj-kritickog-misljenja-cesto-su-pod-politickom-kontrolom>

¹¹ E. M. (2024). Skupština ZDK podržala izmjene Zakona o visokom obrazovanju i stavila ga u redovnu proceduru. Klix.ba <https://www.klix.ba/vijesti/bih/skupstina-zdk-podrzala-izmjene-zakona-o-visokom-obrazovanju-i-stavila-ga-u-redovnu-proceduru/241223108>

¹² <https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/projects-deals/43353764/101177753/ERASMUS2027?order=DESC&pageNumber=1&pageSize=50&sortBy=title&key-words=Bosnia&isExactMatch=true>

¹³ Sarajevo Canton Government, Draft "Strategy for Scientific Development 2025–2028", Dec 2024

¹⁴ Institute for Intellectual Property of Bosnia and Herzegovina. (2024). Implementation of CP8: Common Practice on the Use of Trademarks in Forms Differing from Their Registered Versions. <https://www.ipr.gov.ba/en/news/10751/institute-for-intellectual-property-of-bosnia-and-herzegovina-imple-ments-cp8>.

project, organised a two-day seminar on Intellectual Property for Business Entities in June 2024, aimed at educating businesses on effective IP management, underscoring the importance of protecting and leveraging IP assets for economic growth.¹⁵

The National Research Infrastructure Roadmap although approved has not been implemented (**ERA Action 8**). BiH actively participates in two ESFRI projects: Digital Research Infrastructure for the Arts and Humanities (DARIAH ERIC) and Research Infrastructure for Religious Studies (RESILIENCE).¹⁶

Efforts concerning international collaboration (**ERA Action 9**) saw the second meeting of the EU-BiH Joint Research and Innovation Committee under Horizon Europe in May 2024, focusing on enhancing BiH's participation in Horizon Europe and discussing strategies to strengthen international cooperation in R&I.¹⁷ Representatives from BiH attended the inaugural Conference on Science Diplomacy in Central, Eastern, and South-Eastern Europe, held in November 2024, at the Central European Initiative (CEI).¹⁸

ERA Priority 2: Taking up together the green transition and digital transformation and other challenges with impact on society and increasing society's participation in the ERA

By the end of 2024, BiH organisations have participated in 14 joint calls, resulting in 35 funded projects in the scope of EU partnerships (**ERA Action 10**). However, all projects involving BiH were successfully concluded, with no ongoing initiatives remaining. Overall, EU funding to BiH participants increased to EUR 25 million in 2024, with EUR 3.63 million being awarded up to 2023.¹⁹ BiH's association with the EU4Health Programme in July 2024 marked a pivotal step. This agreement, provisionally applicable from August 2024 with retroactive effect from 1 January 2024, enables BiH to participate in calls launched from January 2024. University of Sarajevo joined an EU mission project on soil, the SUS-SOIL: fighting against soil degradation in Europe.²⁰

In 2024, BiH made some strides toward the goals of **ERA Action 11**. On 1 January 2024, BiH assumed the rotating Presidency of the Energy Community. In this role, the country aimed to strengthen energy sector reforms, with a particular focus on energy and climate policy.²¹ A five-year strategic Green Transition Programme in collaboration with the United Nations Development Programme (UNDP) was launched as well, promoting sustainable industrial practices and reduce environmental impact with a budget of approximately EUR 1.84

¹⁵ Institute for Intellectual Property of Bosnia and Herzegovina (2024). Seminar on Intellectual Property for Business Entities in Banja Luka. <https://www.ipr.gov.ba/en/news>.

¹⁶ ESFRI (2024). 2024 First Edition Research Infrastructure Portfolio. European Strategy Forum on Research Infrastructures. <https://ri-portfolio.esfri.eu/ri-portfolio/portfolio-editions/2024-first-edition/catalogue/?Countries=BOSNIA+AND+HERZEGOVINA>.

¹⁷ European Commission (2024). Second EU-Bosnia and Herzegovina Horizon Europe Joint R&I Committee Meeting. https://research-and-innovation.ec.europa.eu/news/all-research-and-innovation-news/second-eu-bosnia-and-herzegovina-horizon-europe-joint-ri-committee-meeting-2024-05-17_en.

¹⁸ Central European Initiative (CEI). (2024). Conference on Science Diplomacy in Central, Eastern, and South-Eastern Europe. <https://www.cei.int/categories/science-diplomacy>.

¹⁹ European Commission Dashboard https://dashboard.tech.ec.europa.eu/gis_digit_dashboard_mt/public/sense/app/1213b8cd-3ebe-4730-b0f5-fa4e326df2e2/sheet/0c8af38b-b73c-4da2-ba41-73ea34ab7ac4/state/analysis

²⁰ Faculty of Agriculture and Food Sciences, University of Sarajevo (2024). Participation in the SUS-SOIL Project. <https://ppf.unsa.ba/clanak.php?ID=1962&lang=en>.

²¹ Energy Community (2024). Bosnia and Herzegovina Assumes Presidency of the Energy Community. <https://www.energy-community.org/news/Energy-Community-News/2024/02/14.html>.

million. An energy sector transition strategy, focusing on decarbonization and the adoption of renewable energy sources, has been initialised.²²

In April 2024, the Mostar Hydrogen Forum was held at the INTERA Technology Park in Mostar.²³ In November 2024, the World Bank released the Country Climate and Development Report for BiH, emphasising the need for USD 6.8 billion in investments to mitigate climate-related damages and to transition to renewable energy sources and improving energy efficiency to protect the nation's economy and environment.²⁴ In December 2024 and recently re-approved in May 2025, USAID launched a new Energy Policy Activity (EPA) project in BiH. This five-year, USD 9.9 million project aims to advance BiH's energy security and transition to clean energy, building upon previous efforts to integrate the country into broader European and global energy frameworks.²⁵

Concerning the twin transition (**ERA Action 12**) the Economic Reform Programme 2024-2026, outlines reforms aimed at enhancing sustainable economic growth and integrating into the EU's single market.²⁶ In May 2024, BiH signed an association agreement with the European Commission to participate in the Digital Europe Programme, allowing access to funding and support for digital transformation initiatives.²⁷ The European Bank for Reconstruction and Development (EBRD), in partnership with the EU, launched the SME Go Green Programme in BiH and provides financing, investment incentives, and technical assistance to SMEs to adopt sustainable practices and technologies.²⁸

Some progress can be reported for higher education institutions (**ERA Action 13**). In 2024, the University of Banja Luka commenced participation in the Erasmus+ project Digital Education Readiness in the field of Higher Education (DERHE) which aims to equip HEIs in Bosnia and Herzegovina, Montenegro, and Albania with tools and infrastructure for digital education. Notably, a Distance Learning and LEAN Production Centre is being established at the University of Banja Luka.²⁹ Four Bosnian universities are partners in European Universities Initiative projects.³⁰

²² Balkan Green Energy News (2024). Federation of BiH Preparing Energy Sector Transition Strategy. <https://balkangreenenergynews.com/federation-of-bih-preparing-energy-sector-transition-strategy/>.

²³ Energy News (2024). From Innovation to Production: Pioneering Hydrogen in Bosnia and Herzegovina. Retrieved from <https://energynews.biz/from-innovation-to-production-pioneering-hydrogen-in-bosnia-and-herzegovina/>.

²⁴ World Bank (2024). Investments in Resilience Can Help Protect Bosnia and Herzegovina from Climate Shocks. <https://www.worldbank.org/en/news/press-release/2024/11/20/investments-in-resilience-can-help-protect-bosnia-and-herzegovina-from-climate-shocks>.

²⁵ USAID Bosnia and Herzegovina (2024). USAID Launches New Energy Sector Assistance Project in Bosnia and Herzegovina. <https://www.usaid.gov/bosnia-and-herzegovina/press-releases/dec-19-2024-usaid-launches-new-energy-sector-assistance-project-bosnia-and-herzegovina>.

²⁶ Directorate for Economic Planning (2024). Economic Reform Programme 2024-2026. <https://www.dep.gov.ba/naslovna/?id=2854>.

²⁷ Western Balkans Info Hub (2024). Digital Europe Programme Open to Bosnia and Herzegovina. <https://www.westernbalkans-infohub.eu/news/digital-europe-programme-open-to-bosnia-and-herzegovina/>.

²⁸ European Bank for Reconstruction and Development (EBRD) (2024). EBRD and EU Support Green and Sustainable Transition in Bosnia and Herzegovina. <https://www.ebrd.com/news/2024/ebrd-and-eu-support-green-and-sustainable-transition-in-bosnia-and-herzegovina.html>.

²⁹ Western Balkans Info Hub (2024). University of Banja Luka Participates in Erasmus+ Project "Digital Education Readiness in the Field of Higher Education (DERHE)". <https://www.westernbalkans-infohub.eu/news/university-of-banja-luka-participates-in-the-recently-launched-erasmus-project-derhe-digital-education-readiness-in-the-field-of-higher-education/>.

³⁰ Western Balkans Info Hub (2024). 2024 Enlargement Package: Key Findings on Bosnia and Herzegovina Related to the Knowledge Economy. <https://www.westernbalkans-infohub.eu/documents/2024-enlargement-package-key-findings-on-bosnia-and-herzegovina-related-to-the-knowledge-economy/>.

Universities do not have structured citizen science outreach mechanisms in place (**ERA Action 14**). Despite the absence of a general policy, Sarajevo hosted the 15th annual Days of the Bosnian-Herzegovinian American Academy of Arts and Sciences (BHAAAS) in June 2024, providing a platform for both young and experienced professionals to engage in scientific discourse.³¹

ERA Priority 3: Enhancing access to research and innovation excellence across the Union and enhancing interconnections between innovation ecosystems across the Union

The legislative framework on R&I policy in BiH remains fragmented and requires improvement. The country has yet to develop and adopt a comprehensive strategy and action plan for scientific development (**ERA Action 16**). Additionally, the estimated total R&D expenditure remains below 0.3 percent of GDP, which is significantly lower than the target set at EU level. The development and adoption of a S3 are also pending.³² At the entity level, the Republika Srpska adopted a 2024-2027 action plan for SME innovation in January 2024 and established a new SME development council, expected to coordinate the implementation of the action plan, supporting alignment with ERA Action 4 by fostering a more strategic and coordinated approach to research and innovation policies at the entity level. However, BiH has not adopted countrywide guidelines for harmonising SME support in line with the Small Business Act, leading to inconsistencies in legislation alignment with EU standards.³³

A Training School for Research Management Administrators (RMAs) was held in May 2024 at the University of Banja Luka organized by the HETFA Research Institute, as part of programme for Visegrad Group and Western Balkan countries (**ERA Action 17**). The training aimed to enhance the skills of RMAs in organising and leading research support services, thereby strengthening the management capacities of research institutions.³⁴

ERA Priority 4: Advancing concerted research and innovation investments and reforms

BiH has made initial progress in aligning its research and innovation (R&I) policies with ERA priorities. As part of EU accession process, BiH works on Chapter 25: Science and research. For 2024, the EU progress report indicates that BiH did not make progress in this area. The recommendations from last year were not implemented and therefore remain valid. For the coming year, EC's priorities for BiH are the development of a new strategy and action plan for scientific development, development and adoption of a smart specialisation strategy, and

³¹ Bosnian-Herzegovinian American Academy of Arts and Sciences (BHAAAS) (2024). Sarajevo 2024 – Days of BHAAAS. <https://sarajevo2024.bhaaas.org/>.

³² Western Balkans Info Hub (2024). 2024 Enlargement Package: Key Findings on Bosnia and Herzegovina Related to the Knowledge Economy. <https://www.westernbalkans-infohub.eu/documents/2024-enlargement-package-key-findings-on-bosnia-and-herzegovina-related-to-the-knowledge-economy/>.

³³ Western Balkans Info Hub (2024). Republika Srpska 2024-2027 Action Plan for SME Innovation. <https://www.westernbalkans-infohub.eu/documents/2024-enlargement-package-key-findings-on-bosnia-and-herzegovina-related-to-the-knowledge-economy/>.

³⁴ HETFA Research Institute (2024). Training School in Banja Luka on Organizing and Leading Research Support Services. <https://hetfa.eu/2024/03/training-school-in-bajna-luka-on-organizing-and-leading-research-support-services/>.

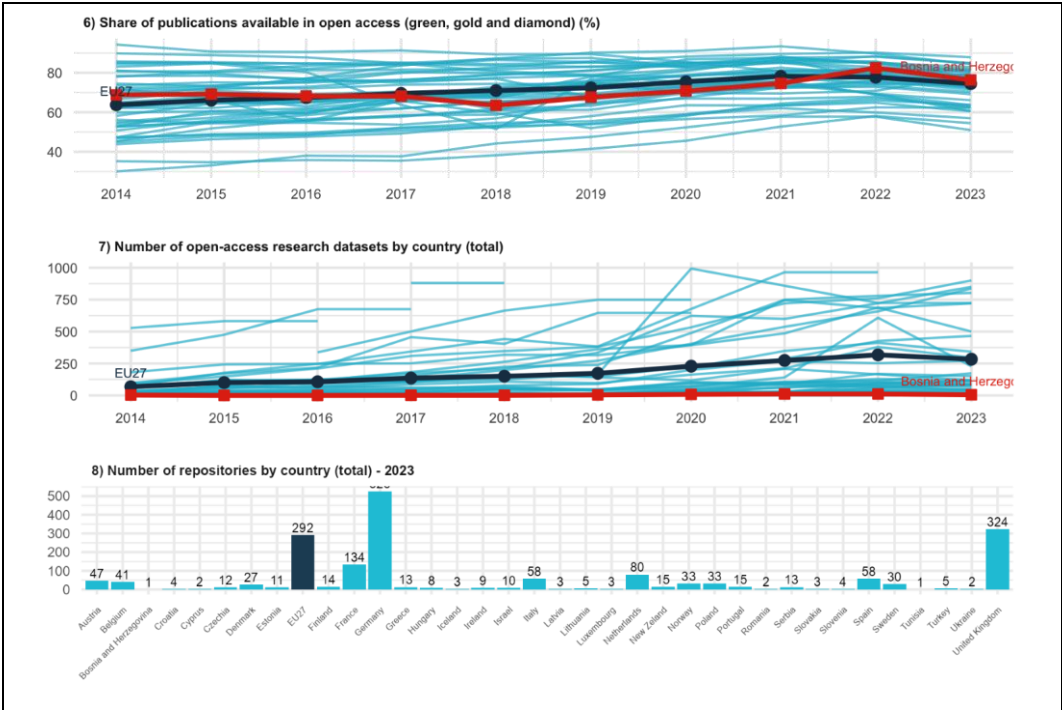
improving reporting on R&I statistics by reporting on at least 24 European Innovation Scoreboard indicators.³⁵

3. Contribution of ERA Actions to national performance in reaching ERA objectives

This chapter provides a qualitative assessment of how the joint ERA Actions contributed to Bosnia & Herzegovina’s performance in achieving the ERA objectives as defined in the Pact for R&I during the period 2022-2024.

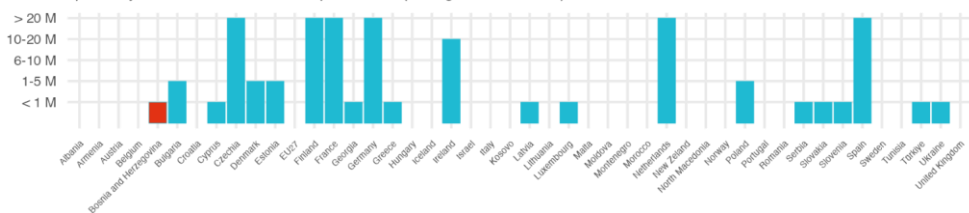
ERA Priority 1 is addressed through a range of initiatives focussing on **ERA Actions 1 - 9** which aim to create structural reforms and other interventions. Although BiH has not committed to ERA Actions, the country is committed to EU integration and designing its policies and aligning infrastructure to integrate into the EU R&I framework. Although BiH scores well in terms of open access publication rates, only repository has been identified. BiH takes part only in two ESFRI landmark research infrastructures and has low investments in EOSC and **open science**. Another important topic in ERA is **gender equality** in R&I. The related ERA Dashboard Indicators 12-14 show BiH above the EU average regarding the proportion of mixed-gender teams or women of Grade A among academic staff/researchers.

Figure 3-1 Indicators for ERA Priority 1

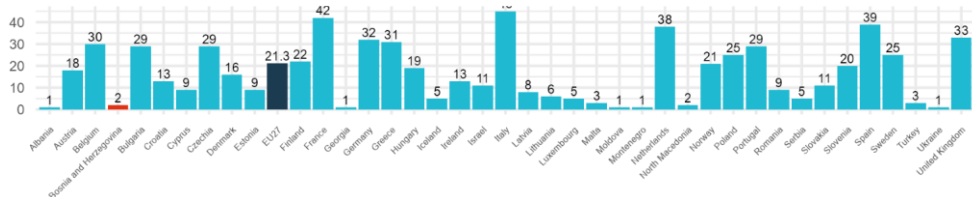


³⁵ European Commission (2024). Commission Staff Working Document: Bosnia and Herzegovina 2024 Report. Accompanying the Communication on EU Enlargement Policy. Brussels: European Commission. SWD(2024) 691 final. https://neighbourhood-enlargement.ec.europa.eu/document/download/451db011-6779-40ea-b34b-a0eeda451746_en?filename=Bosnia%20and%20Herzegovina%20Report%202024.pdf.

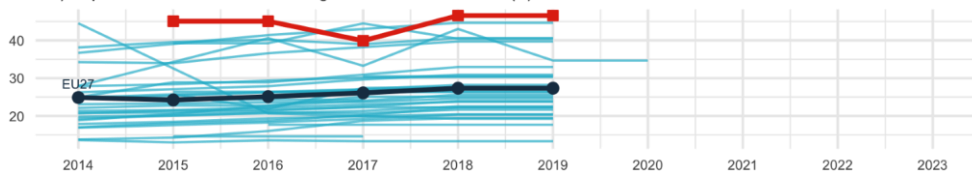
9) Country investments in EOSC and Open Science (in ranges of investment)



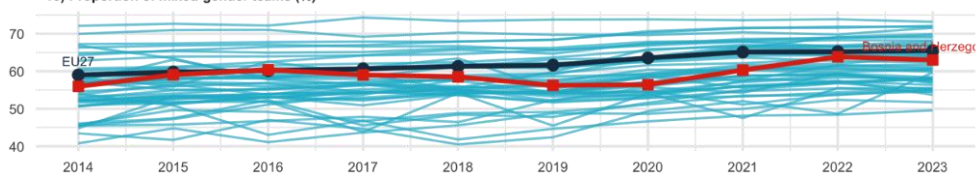
11) Number of European RIs in which a Member State or an Associated Country participates (total) - 2023



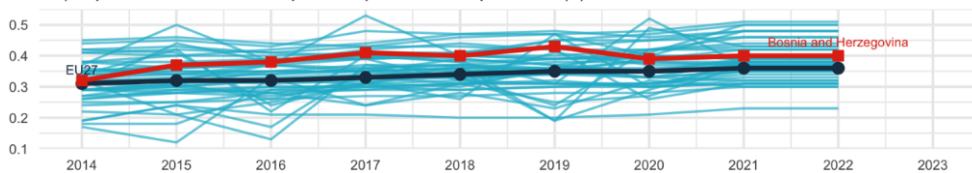
12) Proportion of women of Grade A among academic staff/researchers (%)



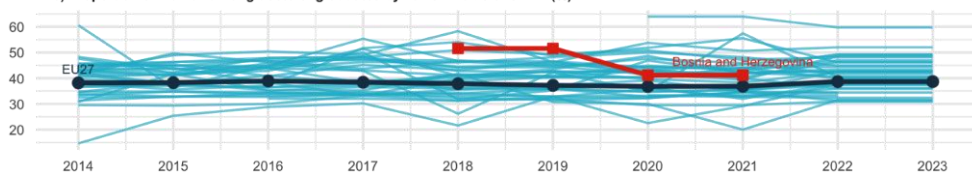
13) Proportion of mixed-gender teams (%)



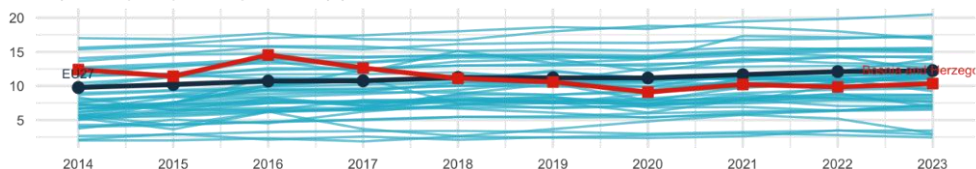
14) Proportion of women in authorships of the top 10% most cited publications (%)



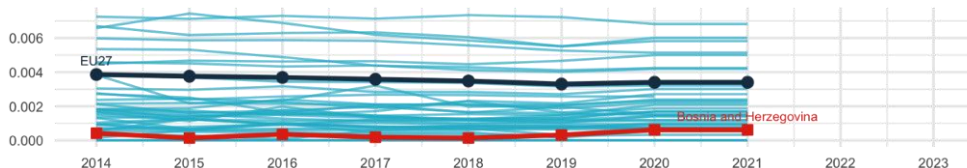
16) Proportion of women among doctoral graduates by narrow fields of STEM (%)



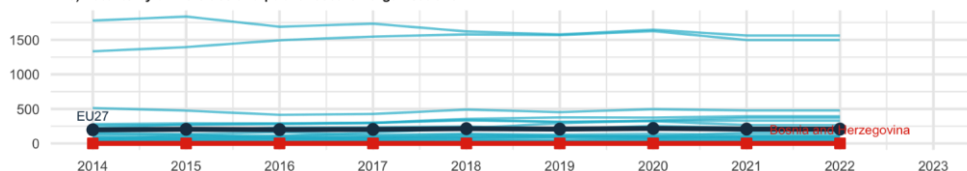
19) Share of public-private co-publications (%)



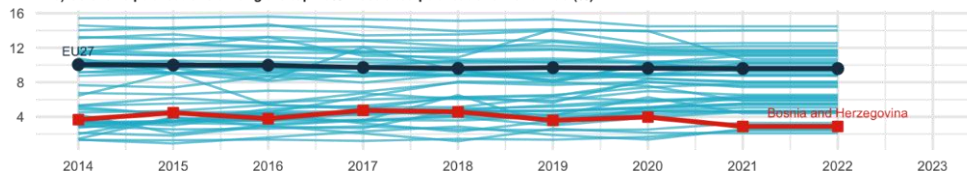
21) Number of PCT patent applications divided by GDP in million Euros/Dollars



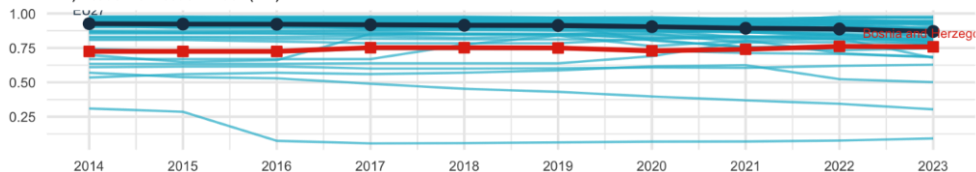
25) Patents by universities and public research organisations



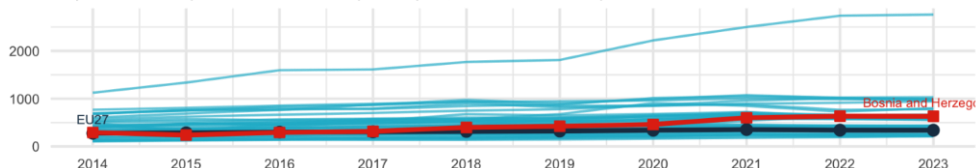
26) Scientific publications among the top-10% most cited publications worldwide (%)



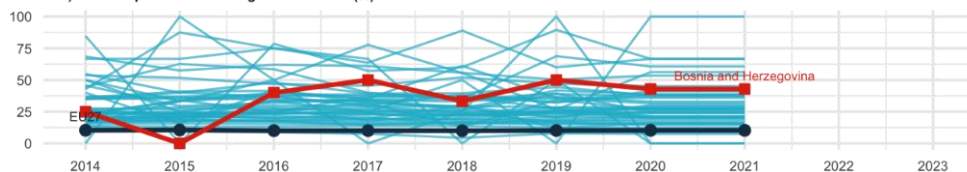
27) Academic Freedom Index (AFI)

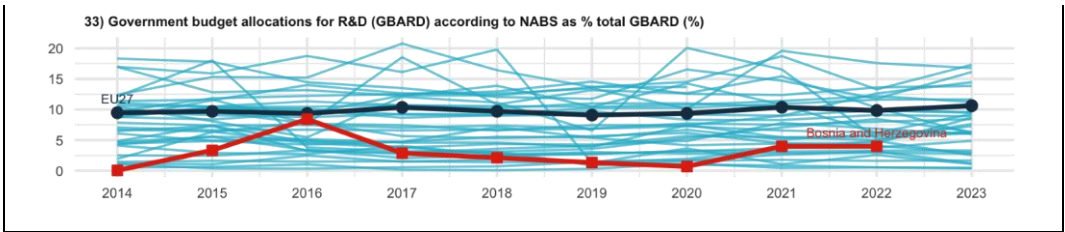


30) International co-publications with non-EU partners per 1,000 researchers in the public sector



31) Share of patents with foreign co-inventors (%)

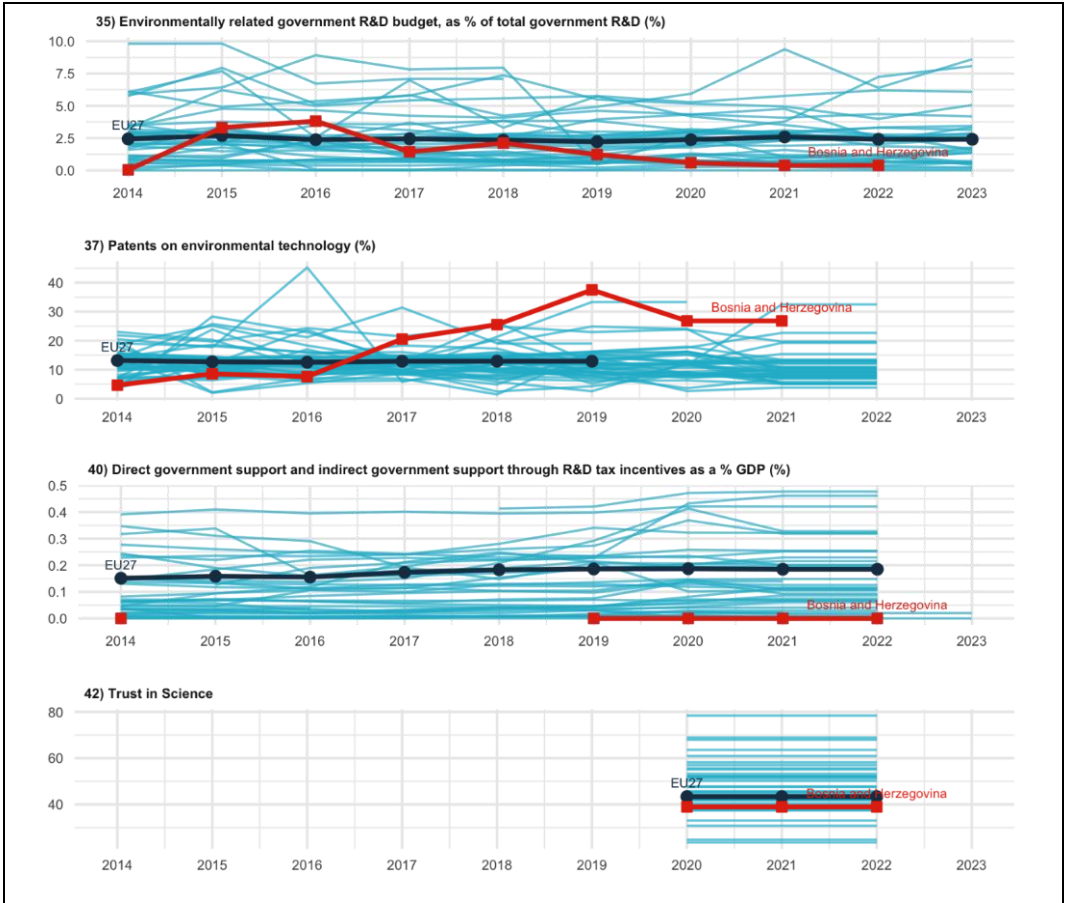


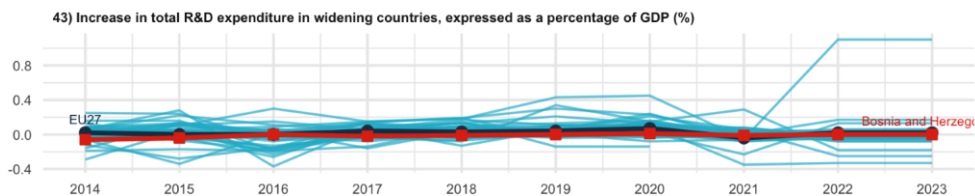


Source: see Annex 1

ERA Priority 2 is addressed through various activities and measures through national initiatives on all ERA Actions (missions, partnerships, green transformation, green/digital transition of industrial ecosystems, and citizen science). Regarding challenge-based ERA Actions, the related ERA Dashboard Indicators 35-37 show a mixed picture, partly also because data points for more recent years are missing. It seems that overall, BiH is mostly performing below the EU27 average, with the overall trend not changing much.

Figure 3-2 Indicators for ERA Priority 2

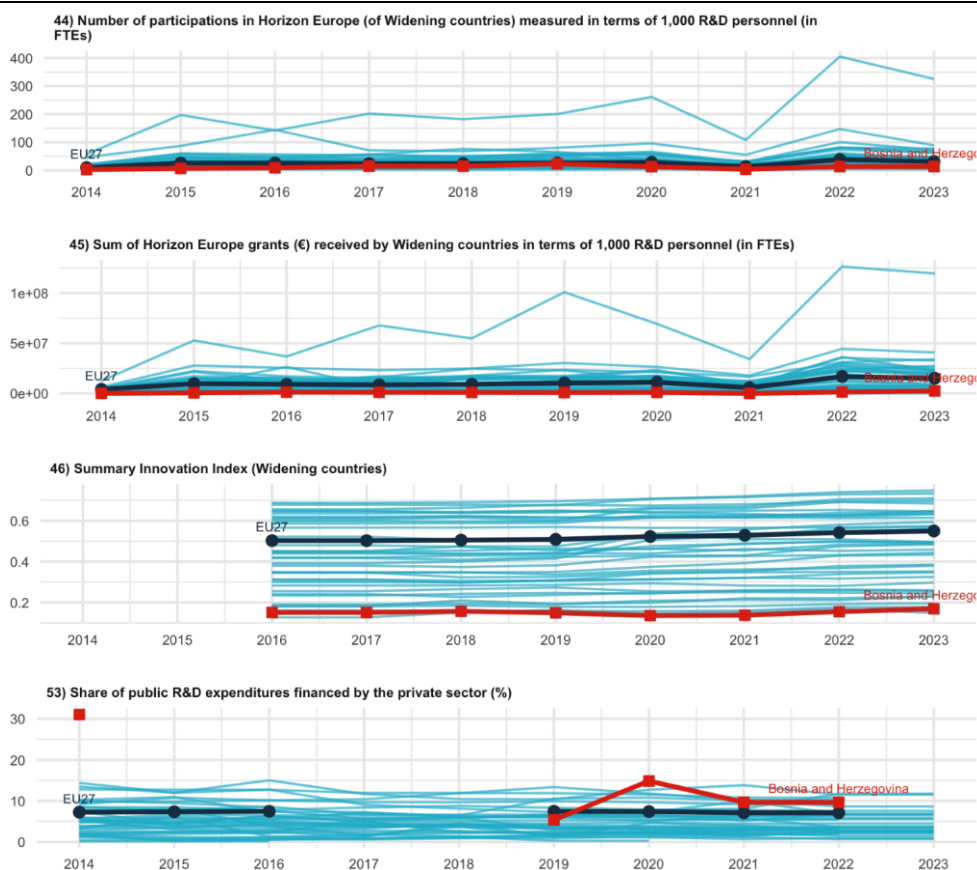




Source: see Annex 1

ERA Priority 3 is addressed through a commitment to enhancing the strategic capacity of Europe's public research-performing organisations. The available ERA Dashboard Indicators address the interface between industry, business and academia. BiH is performing below the EU average.

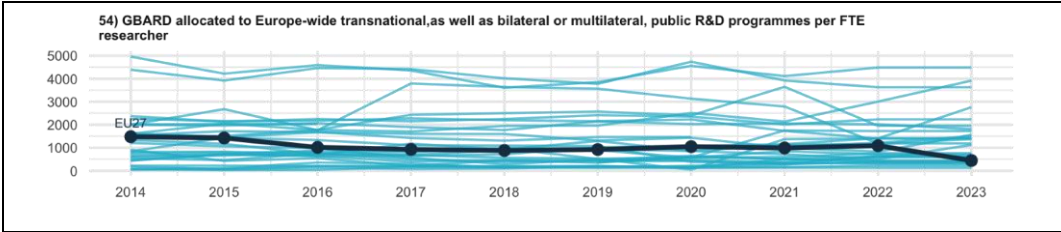
Figure 3-3 Indicators for ERA Priority 3



Source: see Annex 1

ERA Priority 4 consists of Action 19 on implementing an efficient and effective ERA monitoring mechanism. As of 2024, BiH has not formally committed to specific European ERA Actions, including Action 19. However, BiH has made a political commitment to integrate into EU R&I framework.

Figure 3-4 Indicators for ERA Priority 4 with comparison across MS/AC



Source: see Annex 1

4. Effects of ERA Action implementation on the national R&I system

This chapter presents a qualitative assessment of the ERA Action commitments of Bosnia and Herzegovina (BiH) and their effects on the national R&I system, including the quantitative performance in the ERA Dashboard.

BiH has made incremental progress in aligning its R&I framework with the ERA priorities. Despite structural and resource-related challenges, BiH's participation in initiatives such as Horizon Europe demonstrates its commitment to integration into the ERA framework. Key areas of focus include OS, gender equality, and international cooperation.

ERA actions align with BiH's national priorities, albeit in a fragmented manner. BiH's advancements in Open Access are evident, with 59.9 percent of published articles in OA formats. However, the progress appears based on earlier developments and not recent policy reforms. In terms of legislative alignment, the outdated copyright framework requires harmonisation with current EU directives to support open knowledge sharing and intellectual property rights. The absence of a comprehensive OS policy and infrastructure limits full alignment with ERA priorities.

Related to ERA Action 5, the adoption of the GEP (2023–2027) marks progress, but systemic inclusivity challenges persist, particularly in STEM fields and leadership roles. Broader reforms to the career and research assessment system and improvement to research infrastructures remain slow. On academic freedom, concerns over political interference underscore barriers to creating a conducive research environment.

Initiatives like Horizon Europe, Erasmus+, and the Western Balkans Mobility Scheme have bolstered international and regional mobility, fostering talent circulation and collaboration. EU funding to BiH participants in Horizon Europe increased to EUR 25 million in 2024, compared to EUR 3.63 million awarded up to 2023. Moreover, BiH researchers started to actively engage in regional mobility and cooperation programmes primarily through the Western Balkans Mobility Scheme, promoting talent circulation.

BiH's R&I system continues to face challenges in achieving ERA objectives, as reflected in its performance on key indicators, such as GERD remaining significantly lower than ERA targets. The number of researchers (504.28 FTE in 2021–2023) indicates modest growth but remain an insufficiently developed researcher community.

While BiH has demonstrated willingness to align with ERA priorities, structural inefficiencies, limited financial resources, and insufficient coordination among governing bodies impede significant progress. Notable successes include increasing participation in Horizon Europe, the

establishment of Digital Innovation Hubs, and growing involvement in regional and international collaborations.

To further improve the potential and address gaps, enhanced investments in R&D expenditure and strategic frameworks, such as a national science policy and a smart specialisation strategy, are essential. Strengthening institutional capacity and stakeholder collaboration remains pivotal for BiH's effective integration into the ERA framework and realisation of its objectives. Despite the challenges, BiH's gradual progress in adopting ERA priorities underscores its potential for deeper integration, contingent on targeted reforms and strategic investments.

5. Conclusions

Bosnia and Herzegovina faces significant structural and resource challenges in aligning with the ERA priorities. Its research ecosystem is dominated by the public sector, especially universities, and maintains a high proportion of female researchers. Although categorized as an Emerging Innovator with a European Innovation Scoreboard score of 36.4 in 2024, BiH's performance reflects incremental progress rather than substantial reforms. Key developments in Open Science, such as 59.9 percent of scientific articles published in open access formats, demonstrate early achievements but are hindered by the lack of comprehensive Open Science policies and national infrastructure. Additionally, outdated copyright laws and insufficient reforms to research assessment systems highlight the need for policy alignment with current EU directives.

BiH has shown improvements in participation in EU-funded initiatives like Horizon Europe and regional mobility programmes, including the Western Balkans Mobility Scheme, which enhance talent circulation and collaboration. In 2024, BiH institutions received EUR 25 million in EU funding, marking a significant increase from prior years. Despite adopting a Gender Action Plan (2023-2027), systemic challenges remain in achieving inclusivity in STEM fields and leadership roles. Furthermore, academic freedom is impacted by political interference, undermining efforts to create a conducive research environment.

To bridge the gaps, BiH requires increased public and private investment in research and innovation, with GERD as a percentage of GDP remaining below 0.2 percent. The fragmented governance structure hinders cohesive national strategies, though entity-level frameworks like the Republic of Srpska's "Strategy for Scientific Development" provide localised guidance. To integrate more effectively into the ERA, BiH must focus on scientific development and smart specialization strategies, strengthen institutional capacity, and improve stakeholder collaboration, ensuring targeted reforms and strategic investments to capitalise on its gradual progress.

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Annex 1 – Full list of ERA Dashboard Indicators

The indicators used in the report are taken from the ERA Dashboard 2024. The full ERA Dashboard Report and the supporting Data Replication Package can be downloaded at <https://european-research-area.ec.europa.eu/era-monitoring-reports>. However, *GDP (in million €)*, *Size of the population (million)*, and *Share of female researchers, all sectors of performance (%)* were added to provide additional context and directly retrieved from the Eurostat website. EU and country averages are for 2023, except *Share of female researchers, all sectors of performance (%)* (2021).

Table 1 Structural Key Indicators:

Indicator number	Indicator	Source
/	GDP in euro per capita, current prices	Eurostat https://doi.org/10.2908/TEC00001
1	Gross Domestic Expenditure on R&D (GERD) as a share of GDP	Eurostat
2	Government Budget Allocations for R&D (GBARD) as share of GDP	Eurostat
4	Business Enterprise Expenditure on R&D (BERD) as a share of GDP	Eurostat
5.2	Expenditure on R&D procurement as a percentage of GDP	EC/European Innovation Procurement Observatory
/	Size of the population (million)	Eurostat, https://doi.org/10.2908/TPS00001
3	Researchers (in FTE) per million inhabitants	Eurostat
/	Share of female researchers, all sectors of performance (%)	Eurostat, https://doi.org/10.2908/TSC00005

Figure 3.1 Indicators for ERA Priority 1

Indicator number	Indicator	Source
6	Share of publications available in open access (green, gold, and diamond)	OpenAIRE
7	Number of open-access research datasets by country	OpenAIRE
8	Number of repositories by country	EOSC - Re3data
9	Country investments in EOSC and Open Science (in ranges of investment)	EOSC Observatory
10	Share of national public R&D expenditure committed to European research infrastructures	ESFRI
11	Number of European RIs in which a Member State or an Associated Country participates	ESFRI
12	Proportion of women of Grade A among academic staff/researchers	Women in Science - She Figures
13	(Corrected) Proportion of mixed-gender teams	EC_Scopus
14	(Corrected) Proportion of women in authorships of the top 10% most cited publications	EC_Scopus
15	Women in Digital index (0-100)	EC-Women in Digital Scoreboard
16	Proportion of women among doctoral graduates by narrow fields of STEM	Eurostat

17	Share of foreign doctorate students as a percentage of all doctorate students	Eurostat
18	New doctorate graduates per 1,000 inhabitants aged 25-34	Eurostat
19	Share of public-private co-publications	EC_Scopus
20	(Cumulative number of) Best practice examples and methodologies for knowledge valorisation	Knowledge Valorisation Platform
21	Number of PCT patent applications divided by GDP in million Euros/Dollars	OECD, Eurostat & World Bank
22	Share of innovating firms collaborating with HEI/PRO out of all innovative firms	Eurostat CIS (own calculations)
23	Business enterprise researchers as % of total researchers	OECD
24	Business enterprise researchers in full-time equivalent per thousand employment in industry	OECD
25	Patents by universities and public research organisations	EPO PATSTAT - Fraunhofer ISI calculations
26	% of scientific publications among the top-10% most cited publications worldwide	EC_Scopus
27	Academic Freedom Index (AFi)	V-Dem Varieties of Democracy
28	Average ranking score of top 10 universities by country and year	QS World University Ranking
29	Sum of ERC grants received by country in a given year per 1,000 R&D personnel (in FTEs)	EC-ERC
30	International co-publications with non-EU partners per 1,000 researchers in the public sector	EC_ScienceMetrix and Eurostat/OECD
31	Share of patents with foreign co-inventors	OECD
32	European and international co-patenting in EPO applications at national and EU level	Eurostat
33	Government budget allocations for R&D (GBARD) according to NABS as % total GBARD	Eurostat

Figure 3.2 Indicators for ERA Priority 2

Indicator number	Indicator	Source
34	Note: The ERA Dashboard Indicator 34 was removed from the Dashboard in January 2025. As a consequence, the indicator has also been omitted from the Country Report, while, however, keeping the original numbering of the indicators.	
35	Environmentally related government R&D budget, as % of total government R&D	Eurostat
36	National public and private investments as suggested in the SET Plan progress report 2021 (EUR million)	SETIS R&I data
37	% Patents on environmental technology	OECD
38	Share of innovative firms cooperating with higher education institutions or public/private research institutions	Eurostat CIS
39	Enterprises that purchased or licensed-in patents or other IPRs from public research organisations, universities or higher education institutions	Eurostat CIS
40	Direct government support and indirect government support through R&D tax incentives as a % GDP	OECD

41	Green bond issuance as a percentage of total bond issuance	Eurostat - EEA
42	Trust in Science	Eurobarometer 95.2
43	Increase in total R&D expenditure in widening countries, expressed as a percentage of GDP	Eurostat, OECD, UNESCO

Figure 3.3 Indicators for ERA Priority 3

Indicator number	Indicator	Source
44	<i>Number of participations in Horizon Europe (of Widening countries) measured in terms of 1,000 R&D personnel (in FTEs)</i>	Cordis - Eurostat
45	<i>Sum of Horizon Europe grants (€) received by Widening countries in terms of 1,000 R&D personnel (in FTEs)</i>	Cordis - Eurostat
46	<i>Summary Innovation Index (Widening countries)</i>	EC_EIS
47	<i>Share of enterprises using public funds from different governance levels (local or regional, national, and EU) for R&I activities</i>	Eurostat CIS
48	<i>Number of Seal of Excellence projects on the InvestEU Portal per 1,000 R&D personnel (in FTEs)</i>	EC - Invest EU
49	<i>Number of collaboration networks of RPOs in Widening countries with other EU countries</i>	Cordis - Horizon Dashboard
50	<i>Average number of partners from non-widening countries per institution from a Widening country participating in the Horizon programme each year</i>	Cordis - Eurostat
51	<i>Share of patents registered by a Widening country together with partners from other EU countries</i>	OECD
52	<i>Share of innovative enterprises that cooperated with RPOs located in other countries</i>	Eurostat CIS
53	<i>Share of public R&D expenditures financed by the private sector</i>	Eurostat

Figure 3.4 Indicators for ERA Priority 4

Indicator number	Indicator	Source
54	<i>GBARD allocated to Europe-wide transnational, as well as bilateral or multilateral, public R&D programmes per FTE researcher</i>	Eurostat

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