



European  
Commission

# ERA Country Report 2024

## Slovenia

Independent  
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Report

Research and  
Innovation

## **ERA Country Report 2024: Slovenia**

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# **ERA Country Report 2024**

## **Slovenia**

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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

- Slovenia is in a phase of R&I transition from 2021, as a new Scientific Research and Innovation Activities Act (ZZrID) was adopted in 2021, followed by the Resolution on the Slovenian Scientific Research and Innovation Strategy 2030 (ReZrIS30) in 2022. Both documents reflect ERA priorities, so the normative alignment and practical adjustment of the national R&I system with the ZZrID and ReZrIS30 encompasses also all ERA priorities to which Slovenia has committed itself.
- As ERA Actions under ERA Priority 1 are by nature designed as long-term policy initiatives focusing on structural reforms and system improvements. It is expected that compliance with ERA Actions will become even more visible in the coming years due to the fulfilment of the transition processes related to ZZrID and ReZrIS30.
- Slovenia performs well in ERA Priority 2, but there is still room for improvement, especially in Action 12, where measures have been adopted but the results will only be visible in the following years.
- Slovenia performs well in ERA priority 4. This is due to a number of well-developed ex-ante and ex-post evaluations in the past and the commitment of various Slovenian ministries and agencies to use evaluations as a possible benchmark for future systemic upgrades.
- The ERA as a whole has two important effects on the Slovenian R&I system: (1) it influenced the framework for the preparation and development of national legislation since it was prepared in parallel with the ZZrID and ReZrIS30, and (2) it provides a platform for the exchange of ideas and knowledge (also knowledge transfer possibilities), and the possibility to enrol in new networks.

## 1. National context

Slovenia is one of the smallest EU Member States. While GDP has grown in recent years, the country has some structural imbalances. The GERD has fluctuated over the last 10 years from 2.39 percent of GDP in 2014, to 1.88 percent in 2017 and again 2.1 percent of GDP in 2022. In nominal terms, however, GERD has increased over the last decade. The government's commitments to future investment in R&I are described in the **Resolution on the Slovenian Scientific Research and Innovation Strategy 2030**, which states that by 2030 “[p]ublic investment in R&I will reach 1.25 percent of GDP, with public investment already at 1 percent of GDP by 2027, and total investment in R&I will reach 3.5 percent of GDP by 2030.

According to the European Innovation Scoreboard 2024 (EIS), Slovenia is a *Moderate Innovator* with a performance at 91 percent of the EU average in 2024. The EIS 2024 emphasises that Slovenia's performance is “above the average of Moderate Innovators” although it grows “less strongly than that of the EU”<sup>1</sup>. Strengths of the Slovenian innovation system include public-private co-publication and the high participation of people in lifelong learning. On the other hand, the EIS also enumerates weaknesses such as a low level of innovation expenditure outside R&D and venture capital expenditure.

The number of researchers has increased from 14,079 persons in 2017 to 17,015 (11,347 in FTE) in 2022.<sup>2</sup> The business sector employed 58 percent, the government sector 19 percent and the higher education sector 23 percent of all employed researchers by FTE. At 35 percent (in 2022), the proportion of female researchers is above the EU-27 average and has remained stable over the last ten years.<sup>3</sup>

Slovenia has been going through an R&I transition phase over the past five years, as new policies have been prepared to better adapt the Slovenian NRIS to the requirements of the ERA and improve the competitiveness of the Slovenian economy. In 2021, the **Scientific Research and Innovation Activities Act (ZZrID)**<sup>4</sup> was adopted and in 2022 the **Resolution on the Slovenian Scientific Research and Innovation Strategy 2030 (ReZrIS30)** was adopted.<sup>5</sup> Both documents, together with the **Research Infrastructure Roadmap 2030 (NRRI 2030)**<sup>6</sup> represent a three-pillar systemic-structure of Slovenia's national research and innovation system (NRIS).

Due to the adoption of ZZrID, ReZrIS30 and NRRI2030, the Slovenian R&I system has been confronted with many changes in the last two years, e.g. new regulations, methodologies, rules, etc. have been adopted to fulfil the legal requirements of ZZrID and the guidelines in ReZrIS30 and NRRI2030. The Slovenian Research and Innovation Agency (ARIS),<sup>7</sup> the main research-funding organisation, revised its entire methodology for the evaluation of

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<sup>1</sup> European Innovation Scoreboard (2024), p. 2.

<sup>2</sup> [https://ec.europa.eu/eurostat/databrowser/view/tsc00003/default/table?lang=en&category=t\\_scitech.t\\_rd](https://ec.europa.eu/eurostat/databrowser/view/tsc00003/default/table?lang=en&category=t_scitech.t_rd)

<sup>3</sup> [https://ec.europa.eu/eurostat/databrowser/view/tsc00004/default/table?lang=en&category=t\\_scitech.t\\_rd](https://ec.europa.eu/eurostat/databrowser/view/tsc00004/default/table?lang=en&category=t_scitech.t_rd)

<sup>4</sup> Zakon o znanstvenoraziskovalni in inovacijski dejavnosti; OG 186/21, <https://www.uradni-list.si/glasilo-uradni-list-rs/vsebina/2021-01-3695>

<sup>5</sup> Resolucija o znanstvenoraziskovalni in inovacijski strategiji Slovenije 2030; OG 49/22 <https://www.gov.si/assets/ministrstva/MVZI/Znanost/Nacionalne-strategije-in-dokumenti/Resolution-on-the-Slovenian-Scientific-Research-and-Innovation-Strategy-2030.pdf>

<sup>6</sup> Načrt razvoja raziskovalne infrastrukture 2030; [https://www.gov.si/assets/ministrstva/MIZS/Dokumenti/ZNANOST/Novice/NRRI-2030/NRRI-2030\\_SLO](https://www.gov.si/assets/ministrstva/MIZS/Dokumenti/ZNANOST/Novice/NRRI-2030/NRRI-2030_SLO)

<sup>7</sup> <https://www.aris-rs.si/si/akti/index.asp>

competitive projects as well as its key regulations (e.g., the General Act on Research Titles) to better reflect the provisions of ZZrID, ReZrIS30 and NRRI2030.

Regarding equal opportunities in science: in 2023, the new Commission for Equal Opportunities in Science was established at the level of the Ministry of Higher Education, Science and Innovation (hereinafter: Ministry) with a mandate of three years.

**Table 1 Structural Key Indicators**

| Indicator   | EU27      | Slovenia  |                   |                   |
|---|-----------|-----------|-------------------|-------------------|
|   | 2023      | 2023      | Average 2018-2020 | Average 2021-2023 |
| GDP per capita, in current prices                               | 35 790.00 | 26 980.00 | 21 873.33         | 24 630.00         |
| Gross Domestic Expenditure on R&D (GERD) as a share of GDP      | 2.27      | 2.10      | 2.04              | 2.11              |
| Government Budget Allocations for R&D (GBARD) as share of GDP   | 0.73      | 0.63      | 0.46              | 0.56              |
| Business Enterprise expenditure on R&D (BERD) as a share of GDP | 1.52      | 1.47      | 1.51              | 1.50              |
| Expenditure on R&D procurement as a percentage of GDP           | 0.06      | 0.03      | /                 | 0.03              |
| Size of the population (million)                                | 448.80    | 2.12      | 2.08              | 2.11              |
| Researchers (in FTE) per million inhabitants                    | 4 681.34  | 5 384.92  | 5 031.47          | 5 339.25          |
| Share of female researchers, all sectors of performance (%)     | 33.71     | /         | 33.16             | /                 |

Source: Annex 1

## 2. Status of the Implementation of the ERA Policy Agenda

Chapter 2 briefly summarises **new developments in Slovenia since the publication of the ERA Country Report 2023**, based on the commitments to ERA Actions. The findings are based on qualitative desk research and interviews.

Slovenia has committed to thirteen of the twenty ERA Actions, which cover all four priority areas (see Table 2). Slovenia also participated in Action 16 activities, raising the number to effectively 14 Actions. The national implementation of the ERA is supervised by the national delegate in the ERA Forum. The individual ERA actions are coordinated by the authorised persons, the so-called Action holders, at the Ministry and external experts (from institutes and agencies).

After 2020 (when the last national ERA Roadmap expired), Slovenia has not adopted a new strategy or roadmap to pursue new ERA priorities, but it has incorporated the ERA priorities in the ReZrIS30 which was created during the formation of the new ERA. According to the official data and the interviews conducted, the ERA activities in the country go hand in hand with implementation of ZZrID, ReZrIS30 and NRRI 2030.

The November 2024 **Report on the implementation of activities, indicators, milestones in monitoring the implementation of the ReZrIS30<sup>8</sup>** contains an analysis of the implementation of the activities in the ReZrIS30. Most of the activities carried out in 2022 and 2023 are described in detail in the report, which among others highlights the action “Strengthening the

<sup>8</sup> [https://www.gov.si/assets/ministrstva/MVZI/Znanost/Strategije-predpisi-in-drugi-dokumenti/ReZrIS30\\_-\\_porocilo\\_22\\_23\\_051124\\_Final\\_v1\\_1\\_podpisan.pdf](https://www.gov.si/assets/ministrstva/MVZI/Znanost/Strategije-predpisi-in-drugi-dokumenti/ReZrIS30_-_porocilo_22_23_051124_Final_v1_1_podpisan.pdf)

support environment for National Contact Points (NCPs) in ministries and agencies for ERA participation" funded under the Recovery and Resilience Facility (RRF) and states that "activities have started in 2023 and will be finalised by 2026"<sup>9</sup>.

Table 2 Commitment to ERA Actions

| 1: Deepening a truly functioning internal market for knowledge   |  |   |   |   |  |  |  |                                      |
|--|--|---|---|---|--|--|--|--------------------------------------|
| 1. Enable Open Science, including through EOSC   | 2. Propose an EU copyright and data legislative framework for research | 3. Reform the Assessment System for research, researchers and institutions          | 4. Promote attractive research careers, talent circulation and mobility | 5. Promote gender equality and foster inclusiveness | 6. Protect academic freedom in Europe                | 7. Upgrade EU guidance for a better knowledge valorisation   | 8. Strengthen research infrastructures                                 | 9. Promote international cooperation |
| 2: Taking up together the challenges posed by the twin green and digital transition, and increasing society's participation in the ERA |  |   |   |   | 3: Amplifying access R&I excellence across the Union |  | 4: Advancing concerted research and innovation investments and reforms |                                      |
| 10. Make EU R&I missions and partnerships key contributors to the ERA  | 11. An ERA for green transformation                                    | 12. Accelerate the green & digital transition of Europe's key industrial ecosystems | 13. Empower Higher Education Institutions                               | 14. Bring Science closer to citizens                | 16. Improve EU-wide access to excellence             | 17. Enhance public research institutions' strategic capacity | 19. Establish an ERA monitoring system                                 |                                      |

Source: European Commission (Note: Actions 15, 18 and 20 were not implemented)

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

ERA Action 1) Enable the open sharing of knowledge and the re-use of research outputs, including through the development of the European Open Science Cloud (EOSC)

Articles 40 and 41 of ZZrID provide the legal basis for the promotion of open science. Based on this the Government of the Republic of Slovenia in May 2023 issued a *Decree on the implementation of scientific research work in accordance with the principles of open science*<sup>10</sup> and the *Action Plan for Open Science*<sup>11</sup>, both of which represent Slovenia's strong commitment to the concept of open science. Following the ERA priorities and these two documents, numerous actions have been initiated, such as the establishment of the data repository (e.g., a genomic data repository and a national service centre for processing these data was financed in 2023; the establishment process will be completed in 2026; within the National Recovery and Resilience Plan (NOO), the contract with the Arnes Public Institute for the establishment of the data centre in Maribor was established, etc.). In 2024, ARIS began adapting its calls for proposals to the principle of open science (a Call for proposals for the reimbursement of the costs of open access scientific publications; four openings, duration: March 2024–January 2025). In December 2024, ARIS adopted the guidelines for the "trusted repositories", which are intended to help develop the open sharing of knowledge in Slovenia.<sup>12</sup>

<sup>9</sup> See [https://www.gov.si/assets/ministrstva/MVZI/Znanost/Strategije-predpisi-in-drugi-dokumenti/ReZrIS30\\_-\\_porocilo\\_22\\_23\\_051124\\_Final\\_v1\\_1\\_podpisan.pdf](https://www.gov.si/assets/ministrstva/MVZI/Znanost/Strategije-predpisi-in-drugi-dokumenti/ReZrIS30_-_porocilo_22_23_051124_Final_v1_1_podpisan.pdf), p. 18.

<sup>10</sup> <https://www.uradni-list.si/glasilo-uradni-list-rs/vsebina/2023-01-1828/uredba-o-izvajanju-znanstvenoraziskovalnega-dela-v-skladu-z-naceli-odprte-znanosti>. Unofficial English translation is available here: <https://www.gov.si/assets/ministrstva/MVZI/Znanost/Obzorje-Evropa/Novice/2023-Open-Science/Decree-on-the-implementation-of-scientific-research-work-open-science.pdf>

<sup>11</sup> <https://www.gov.si/assets/ministrstva/MVZI/Znanost/Nacionalne-strategije-in-dokumenti/2023-Action-Plan-Open-Science-Slovenia.pdf>

<sup>12</sup> <https://www.aris-rs.si/sl/akti/24/merila-repozitoriji-dec24.asp>



**ERA Action 2)** Propose an EU copyright and data legislative and regulatory framework fit for research

The Government adopted a new *National Intellectual Property Strategy 2030 (NIPS)*<sup>13</sup> in June 2024, in which Open Science is listed as one of the strategic objectives of the NIPS and the promotion of intellectual property management in line with the principles of open science and open innovation as a key activity. In 2024, the Ministry proposed a new amendment to the ZZrID (OG 186/21)<sup>14</sup>, which aims to introduce the secondary publication right. The amendment has not yet been adopted. In December 2024, the Open Data and Intellectual Property Institute (ODIPI) organised the ERA KnowledgeRights21 conference Slovenia with Ministry's support with a focus on regulation of copyright in the field of science and open science in copyright law with emphasis on barriers and incentives for open science in copyright law.<sup>15</sup>

**ERA Action 3)** Advance towards the reform of the Assessment System for research, researchers and institutions to improve their quality, performance and impact

The ARIS *General Legal Act on Stable Funding of Scientific Research Activities* adopted in 2022 was revised in October 2024.<sup>16</sup> In October 2024, ARIS adopted a *General act on the Research Titles*<sup>17</sup>, defining stages in researchers' careers.

ARIS in 2024 adopted *Changes to the Methodology for the evaluation of applications in procedures for the (co-)funding of scientific research activities* and *Methodology for quantitative evaluation and assessment of scientific research work*, both of which prioritise the qualitative evaluation of projects over the quantitative.<sup>18</sup>

**ERA Action 4)** Promote attractive and sustainable research careers, balanced talent circulation and international, transdisciplinary and intersectoral mobility across the ERA

Over the past two years, the Ministry has been a key stakeholder in the negotiations on the new public sector pay system. The agreement was reached in October 2024 and introduced 'higher' salaries for researchers, and a way to reward the best researchers with special financial incentives.<sup>19</sup> The Ministry in December 2023 prepared a regulation on salaries for those researchers that obtain projects important for "special national character" (see more in ZZrID, art. 64) that can affect the increase of their salaries.

ARIS and the Ministry in last two years have been financing two Targeted Research Programmes related to the topic of attractive and sustainable research careers which aim to identify the challenges, threats and opportunities of the Slovenian research career system.<sup>20</sup> In 2023 ARIS published a research scheme for Slovenian researchers abroad who would like to conduct research in Slovenia on different topics, known as the Aleš Debeljak scheme (it is published on a yearly basis).<sup>21</sup>

**ERA Action 5)** Promote gender equality and foster

Slovenia has been committed to gender equality in R&I since the early 2000s. At that time, the Commission for Equal Opportunities in Science was founded, which is still active. The Commission's main priorities for

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<sup>13</sup> [https://www.gov.si/assets/organi-v-sestavi/URSIL/Dokumenti/NACIONALNA-STRATEGIJA\\_IL\\_SI\\_ebook.pdf](https://www.gov.si/assets/organi-v-sestavi/URSIL/Dokumenti/NACIONALNA-STRATEGIJA_IL_SI_ebook.pdf)

<sup>14</sup> <https://www.uradni-list.si/glasilo-uradni-list-rs/vsebina/2021-01-3695>

<sup>15</sup> <https://www.odipi.si/en/era-kr21-conference-barriers-and-incentives-for-open-science-in-copyright/>

<sup>16</sup> <https://www.arrs.si/sl/akti/24/splosni-akt-aris-okt24-sprem.asp>

<sup>17</sup> <https://www.uradni-list.si/glasilo-uradni-list-rs/vsebina/2024-01-2763>

<sup>18</sup> <https://www.aris-rs.si/sl/obvestila/24/objava-sprememb-metodologij-nov24.asp>

<sup>19</sup> <https://www.gov.si/zbirke/projekti-in-programi/prenova-placnega-sistema-v-javnem-sektorju/>

<sup>20</sup> (1) *Učinkovita mobilnost za znanstveno odličnost Evropskega raziskovalnega prostora: primer Slovenije (2022–2024)* and (2) *Stanje in razvoj kariernega sistema raziskovalk in raziskovalcev v Sloveniji glede na priporočila Sveta Evropske unije in OECD (2024–2026)*.

<sup>21</sup> <https://www.aris-rs.si/sl/progproj/rproj/razpisi/23/1/razp-proj-24.asp>

inclusiveness, taking note of the Ljubljana declaration

**ERA Action 7)** Upgrade EU guidance for better knowledge valorisation

**ERA Action 8)** Strengthen sustainability, accessibility and resilience of research infrastructures in the ERA

**ERA Action 9)** Promote a positive environment and level playing field for international

the period 2023-2027 are: (1) equal representation of women and men in governing bodies and institutions at all levels, (2) systematic monitoring and elimination of all forms of discrimination in the design and implementation of science policy and working conditions, (3) raising awareness of language and developing responsibility in the use of language: gender-sensitive language, (4) reducing administrative burdens and simplifying procedures and working towards greater transparency in selection criteria.<sup>22</sup>

In April 2024, the Ministry disbursed EUR 4.3 million for support offices for knowledge transfer (JR KTO).<sup>23</sup>

In June 2024 a new *National Intellectual Property Strategy 2030* was adopted that will strengthen the environment, awareness and role of intellectual property for economy and society at large.<sup>24</sup>

In June 2024 the Venture capital fund VESNA was presented to the interested public, which would improve the access to the risk capital in the country, especially in the fields of technological innovation, robotics, energy biomaterials, AI, etc.<sup>25</sup>

In October 2023 a call for (co-)financing the strategic partnership (SRIPs) was launched (period 2023-2026).<sup>26</sup> SRIPs serve as a sort of intermediaries that support knowledge valorisation.

In September 2023 four projects (two from the area of "green transition" and two from the area of "digitalisation") valued EUR 14.7 million were selected for (co-)financing longer-term large collaborative research and innovation programmes on the TRL 3-6.<sup>27</sup> These projects present direct support to R&D cooperation between academia and industry.<sup>28</sup>

Slovenia is strongly committed to establish relevant criteria and supportive actions to develop and enhance the use of the research infrastructures. In July 2023 Slovenia became member of Instruct ERIC. In September 2023 the project *Research infrastructure of UM* ended. In this project EUR 28.9 million were invested.

In September 2024 a Targeted Research programme financed by ARIS and the Ministry on research infrastructure ended (started in 2022). The researchers investigated the role of the research infrastructure in Slovenia. Some of their results were published in a book issued at the end of December 2024.<sup>29</sup>

In March 2023 a *Strategy for the internationalisation of higher education and science in the Republic of Slovenia by 2030* was launched; ARIS published a *Call for (co-)funding of projects and programmes to enhance the international mobility of Slovenian researchers and research organisations*. In November 2023, the Ministry published a call for Slovenian researchers who work abroad to return as guest

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<sup>22</sup> See <https://www.gov.si/assets/ministrstva/MVZI/Znanost/Komisija-za-enake-moznosti/Program-Komisije-za-enake-moznosti-na-podrocju-znanosti-2023-do-2027.pdf>

<sup>23</sup> [https://www.gov.si/assets/ministrstva/MVZI/Znanost/KTO/Rezultati-JR-KTO\\_18.4.24.pdf](https://www.gov.si/assets/ministrstva/MVZI/Znanost/KTO/Rezultati-JR-KTO_18.4.24.pdf)

<sup>24</sup> <https://www.gov.si/en/news/2024-06-19-slovenia-adopts-overarching-strategy-document-on-intellectual-property/>

<sup>25</sup> <https://www.startup.si/sl-si/dogodek/predstavitev-prvega-deep-tech-sklada-vesna>

<sup>26</sup> <https://www.gov.si/zbirke/javne-objave/javni-razpisi-za-izbor-operacij-podpora-strateskim-razvojno-inovacijskim-partnerstvom-srip-za-obdobje-2023-2026/>

<sup>27</sup> <https://www.aris-rs.si/sl/NOO/razpisi/23/razpis-TRL-3-6-23.asp>

<sup>28</sup> <https://www.aris-rs.si/sl/obvestila/24/sodelovalni-RRi-programi-jun24.asp>

<sup>29</sup> [https://www.fdv.uni-lj.si/docs/default-source/zalozba/raziskovalne-infrastrukture-v-lu%C4%8Di-so-delovanja-z-gospodarstvom\\_e-publikacija.pdf?sfvrsn=0](https://www.fdv.uni-lj.si/docs/default-source/zalozba/raziskovalne-infrastrukture-v-lu%C4%8Di-so-delovanja-z-gospodarstvom_e-publikacija.pdf?sfvrsn=0)

cooperation based  
on reciprocity

researcher/professor at the Slovenian universities<sup>30</sup>. The Ministry strongly collaborates also with the association VTIS (a Slovenian association with Slovenian research diaspora). The Ministry and the Ministry of Foreign and European Affairs (MFEA) in December 2024 signed an *Agreement for the promotion of Slovenian science abroad*<sup>31</sup>. Slovenia became also full member of ESA (European Space Agency)<sup>32</sup> and is expected to become a full member of CERN in 2025.

## 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

**ERA Action 10)**  
Make EU R&I missions (10.1) and partnerships (10.2) key contributors to the ERA

Contribution to ERA Action 10.2 is observed through active involvement in the *Partnership Knowledge Hub* (PKH), and additionally in its *Working Group that prepared a PKH opinion* on the partnerships in the next Framework Programme (FP10). In 2024, a national coordination/recruitment process took place for the second wave of partnerships resulting in Slovenia's intent to participate in five new European partnerships, among those, three will be coordinate at other ministries and the agency.

The national R&I community and other relevant actors have responded well to the EU Missions, implementing important projects within all five EU R&I Missions.

**ERA Action 12)**  
Accelerate the green/digital transition of Europe's key industrial ecosystems

In August 2023 the Government adopted the strategy and the action plan for the greening of the public education and research infrastructures<sup>33</sup> with the intention to establish "more economical, low-carbon, energy-efficient and modern building stock". At the end of 2023 the Government confirmed the establishment of the Centre for *Development, Demonstration and Training for Carbon-Free Technologies* at the National Institute of Chemistry (KI). In 2024 the Slovenian Centre for Circular Economy – for Green, Creative and Smart Development was established.

Slovenia has actively contributed to the European Union's efforts in advancing technologies for the decarbonisation of industry with the following initiatives: (1) Under the NOO/RFF, 42 percent of its EUR 2.5 billion budget are allocated to green transition efforts; (2) On 13 December 2023, Slovenia received an advance of EUR 24 million under the RRF for initiatives designed to reduce dependence on Russian energy products and accelerate the green transition; (3) the funds from the Cohesion Policy Funding for the green transition are directed towards fostering research and innovation projects for renewable energy development, energy efficiency improvements, and the decarbonisation of various sectors.

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<sup>30</sup> <https://www.srips-rs.si/vsi-razpisi/razpis/sofinanciranje-gostovanj-slovenskih-strokovnjakov-iz-tujine-na-slovenskih-visokosolskih-zavodih-raziskovalnih-organizacijah-ter-studijskega-oziroma-znanstvenega-obiska-studentov-v-tujini-349-javni-razpis>

<sup>31</sup> <https://www.gov.si/novice/2024-12-19-ministrice-fajon-in-minister-papic-podpisala-dogovor-za-promocijo-slovenske-znanosti-v-tujini/>

<sup>32</sup> <https://www.gov.si/novice/2025-01-10-generalni-direktor-evropske-vesoljske-agencije-slovenija-prinasa-esi-izjemne-sposobnosti/>

<sup>33</sup> <https://www.gov.si/novice/2023-08-23-sprejeta-strategija-in-akcijski-nactr-za-ozelenitev-izobrazevalne-in-raziskovalne-infrastrukture/>

**ERA Action 13)**  
Empower Higher Education Institutions to develop in line with the ERA, and in synergy with the European Education Area

In 2022 the Ministry set-up the “Knowledge platform” to respond to the “need for regular dialogue with stakeholders in the fields of higher education, research and innovation, and to strengthen synergies between them.” The Knowledge Platform includes: (1) Regular meetings/consultations (online or face-to-face); (2) a digital platform providing relevant information (EU acts in the fields of higher education, research and innovation, recordings of meetings, a space for sharing good practices) and (3) direct communication with stakeholders, as well as connectivity to similar sectoral portals. Eleven events with stakeholders were organised since 2022, including on ERA, Innovation Ecosystem, Research Assessment, the Greening of Higher Education, FP10 and the future of the Erasmus+ Programme. The latest event, held on November 2024, focused on the European Degree.

**ERA Action 14)**  
Bring Science closer to citizens

A number of activities in the field of Citizen Science were taken, including the set-up of a national network, a project repository, the first public call for Citizen Science, etc. The NPRR (NOO) from 2022 co-finances the activities of the promotion of science.

In 2023 the Ministry organised 18 events with more than 2,000 participants<sup>34</sup> under the umbrella of the so-called “Science month” and established a national observatory of citizen science (CTK). In November 2024 the Ministry published a Policy Brief on Science Communication, which includes many non-binding recommendations.<sup>35</sup> In December 2024 ARIS published the first call for citizens science projects.<sup>36</sup>

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

While Slovenia was not formally committed to an ERA Action under this Priority, Slovenia participated (Ministry of Cohesion and Regional Development) in the ERA sub-group RIMA that implemented **ERA Action 16**.

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

**ERA Action 19)**  
Establish an efficient and effective ERA monitoring mechanism

ERA is a priority in the Slovenian NRIS, so a lot of effort is invested into its monitoring. One such task is the permanent monitoring of ReZrIS30. The evaluation report for 2022 and 2023 was published in November 2024.<sup>37</sup>

In 2023 and 2024, monitoring activities were also carried out in other ways, through consortia of the KRPAN, ROAD3P, SKUPP and 5XPRO projects (funded by the NOO), with the aim of strengthening support for researchers in research institutions and improving the quality of project applications to Horizon Europe and other centralised European

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<sup>34</sup> [https://www.gov.si/assets/ministrstva/MVZI/Znanost/Mesec-znanosti-2023/Porocila/Mesec-znanosti-2023\\_porocilo\\_13.2.2024.pdf](https://www.gov.si/assets/ministrstva/MVZI/Znanost/Mesec-znanosti-2023/Porocila/Mesec-znanosti-2023_porocilo_13.2.2024.pdf)

<sup>35</sup> <https://www.gov.si/assets/ministrstva/MVZI/Znanost/Mesec-znanosti/2024-Mesec-znanosti/1KomuniciranjeZnanostiVSloveniji-210x260mm.pdf>

<sup>36</sup> <https://www.aris-rs.si/si/dostop/razpisi/24/razpis-obcanska-znanost-24.asp>

<sup>37</sup> [https://www.gov.si/assets/ministrstva/MVZI/Znanost/Strategije-predpisi-in-drugi-dokumenti/ReZrIS30\\_-\\_porocilo\\_22\\_23\\_051124\\_Final\\_v1\\_1\\_podpisan.pdf](https://www.gov.si/assets/ministrstva/MVZI/Znanost/Strategije-predpisi-in-drugi-dokumenti/ReZrIS30_-_porocilo_22_23_051124_Final_v1_1_podpisan.pdf)

programmes. In 2023, 49 events were organised under the umbrella of these four projects to improve the quality and efficiency of work and increase the proportion of successful applications to EU calls for proposals.

### 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 Slovenia's performance in achieving the ERA objectives as defined in the Pact for R&I during the period 2022-2024.

**ERA Priority 1** is being addressed through a series of initiatives focussing on ERA Actions 1-5 and 7-9. The implementation of these activities is largely on track and is supported by the activities of Ministry and the executive agencies (such as ARIS, NAKVIS, etc.). The most important step in the pursuit of ERA Priority 1 was the establishment of the “three-pillar structure” (the ZZrID, ReZrIS30, NRR12030) of the Slovenian NRIS, which was established through 2021 and 2022. From this point on, the entire NRIS has been evolving, as all regulations, methodologies and other relevant documents need to be adapted to the new requirements. In recent years, many changes have been made in all the areas mentioned above.

Slovenia lags behind the EU-27 in some categories. One of these categories is “number of repositories per country”, but this is quite logical as larger countries have more repositories than smaller ones. This gap has already been closing by various measures under ReZrIS30; the data presented (Figure 3-1) shows that many measures have been taken to increase the number of repositories in the country. The second topic where Slovenia lags behind the EU-27 is the “number of patent applications”, which is already presented as a challenge in the EIS (2024). In this area, Slovenia is still below the EU average, but the instrument of strategic partnership between public research organisations and the business sector as part of smart specialisation (known in Slovenia as SRIP) and Support offices for knowledge transfer (JR KTO) can also help to close this gap in the future.

Two other indicators should be taken into account when assessing ERA Priority 1 in Slovenia, but this time from a positive perspective: one is the share of open access publications, which has decreased over the last ten years, but is still above the EU-27 average. This issue has been addressed by the *Decree on the implementation of scientific research work in accordance with the principles of open science*,<sup>38</sup> the *Action Plan for Open Science*,<sup>39</sup> and the SPOZNAJ project,<sup>40</sup> and should lead to a higher number of open access publications in the coming years. The other indicator relates to the share of women in R&I and their authorship in the top-10 most cited publications. Slovenia performs well here, but due to the activities of the Ministry it is expected that its performance will be even better compared to the EU-27 in the coming years. The GBARD allocations also show that Slovenia compares favourably with

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<sup>38</sup> <https://www.uradni-list.si/glasilo-uradni-list-rs/vsebina/2023-01-1828/uredba-o-izvajanju-znanstvenoraziskovalnega-dela-v-skladu-z-naceli-odprte-znanosti>. Unofficial English translation is available here: <https://www.gov.si/assets/ministrstva/MVZI/Znanost/Obzorje-Evropa/Novice/2023-Open-Science/Decree-on-the-implementation-of-scientific-research-work-open-science.pdf>

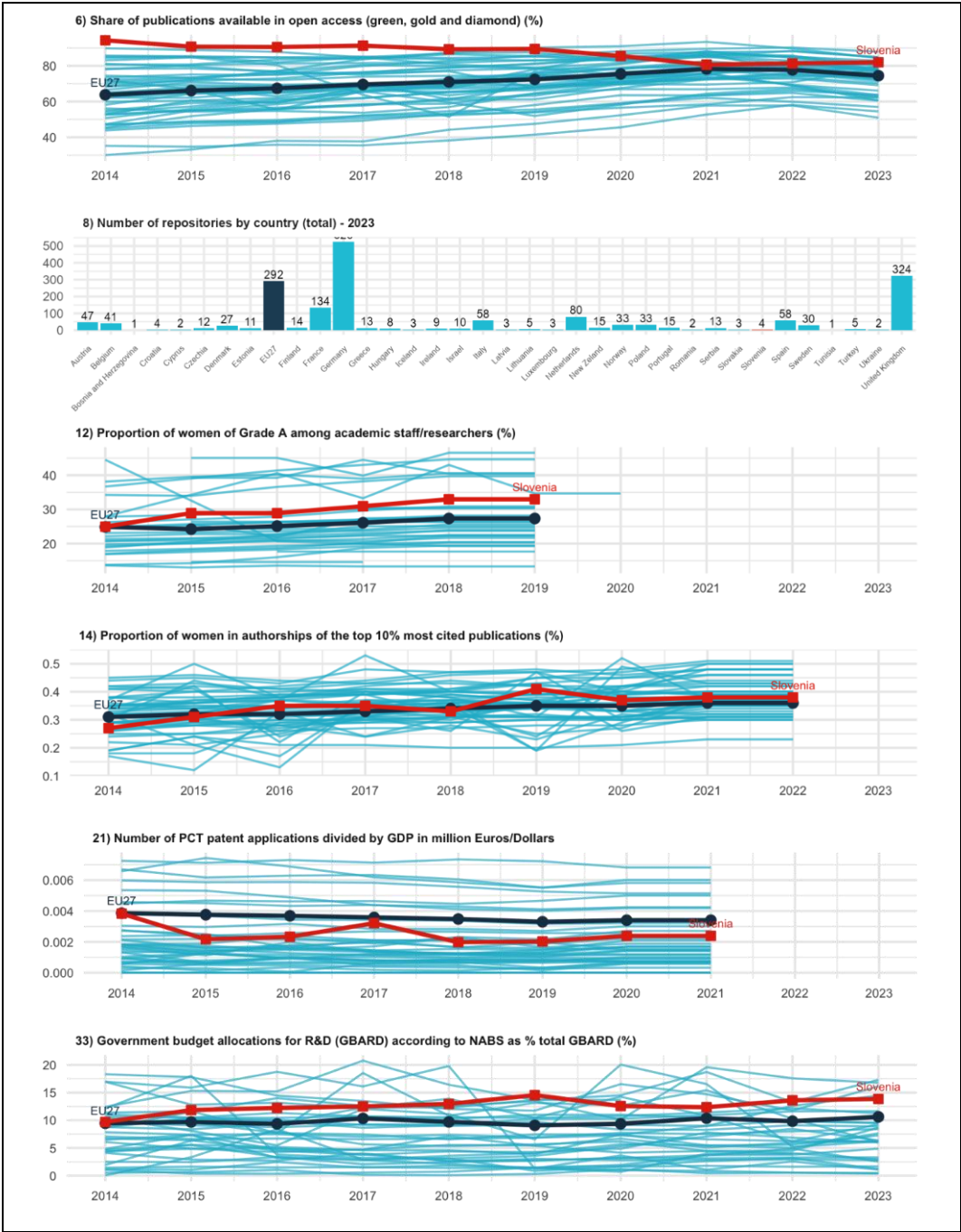
<sup>39</sup> <https://www.gov.si/assets/ministrstva/MVZI/Znanost/Nacionalne-strategije-in-dokumenti/2023-Action-Plan-Open-Science-Slovenia.pdf>

<sup>40</sup> <https://odprtaznanost.si/obvestila/spoznaj-licenciranje-in-avtorska-pravica-v-odprti-znanosti/>



the EU-27. Nevertheless, due to the commitments in the ReZrIS30, the results in this field for Slovenia are expected to improve in the following years.

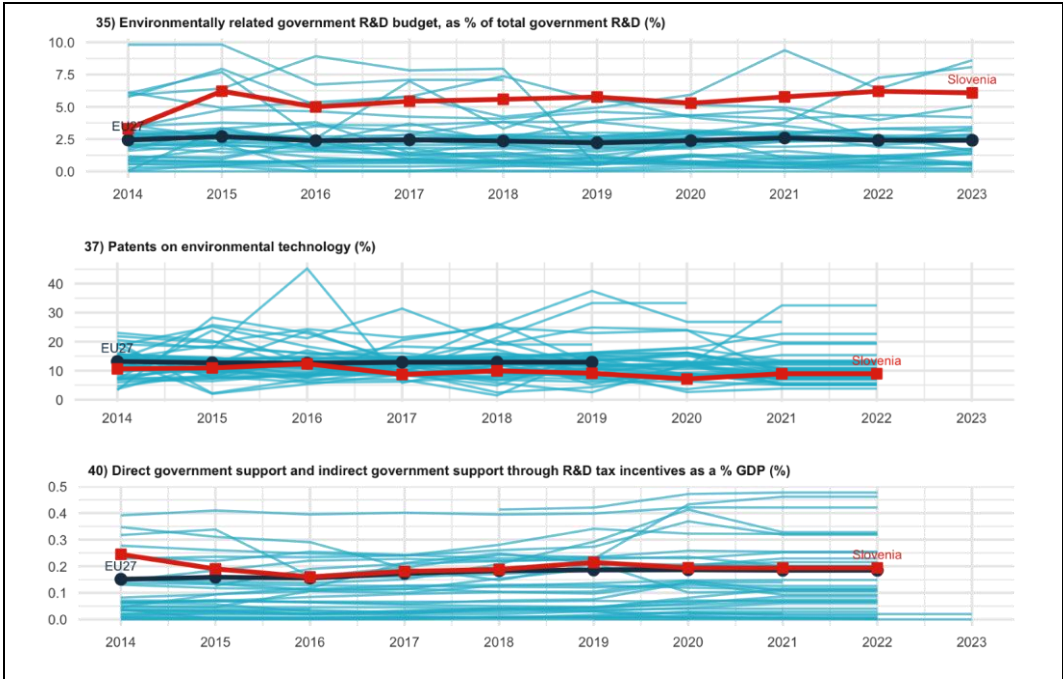
Figure 3-1 Indicators for ERA Priority 1



Source: Annex 1

**ERA Priority 2** is addressed by ERA Actions 10, 12, 13 and 14. ERA Dashboard Indicators show that Slovenia is at least at the level of the EU-27 or slightly above in progressing this Priority. In recent years, various measures have been taken to improve Slovenia's performance in ERA Priority 2 and some results are already visible. The figures below show that the Slovenian government's spending on "greening" has increased over the last ten years. A similar result is expected from the introduction of the measures that will be adopted in 2024 to encourage researchers to return or come in Slovenia. However, the process of "greening" takes time, and the results of the newly adopted measures and activities of the states are expected to become visible in the following years.

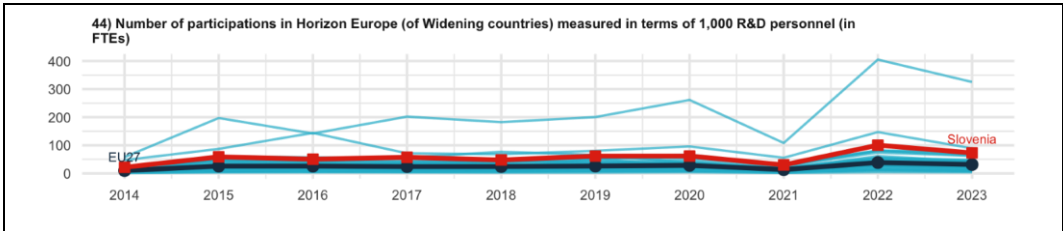
**Figure 3-2 Indicators for ERA Priority 2**

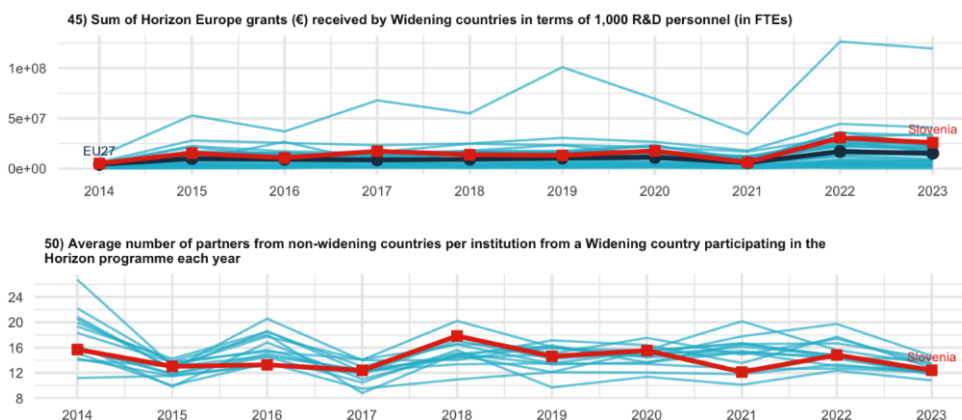


Source: Annex 1

As far as **ERA Priority 3** is concerned, there is still room for improvement in both the implementation of Action 16 at the EU-level and at the Slovenian level.

**Figure 3-3 Indicators for ERA Priority 3**





Source: Annex 1

**ERA Priority 4** is addressed by Actions 18 to 20. Action 18 has been merged with Action 16 at EU level, while Action 20 has not been implemented, which left the focus on Action 19 – Monitoring. Slovenia has included the monitoring process in all its strategic documents.

ReZrIS30 introduced the monitoring system and targets/aims that should be achieved by 2030. ReZrIS30 envisages two bodies that are relevant for monitoring and achieving the set goals: the Development Council of the Republic of Slovenia (formerly the Council for Science and Technology) and the Ministry itself, with the help of international experts. The process of monitoring should be permanent, and the realisation of the set goals is evaluated annually or semi-annually. The (first) self-evaluation report for years 2022 and 2023 on the implementation of the activities of ReZrIS30 was published in November 2024.<sup>41</sup> In June 2024, the public tender for the selection of an external contractor for the evaluation of the implementation of ReZrIS30 was opened,<sup>42</sup> the contractor was selected in early autumn 2024 and the results are expected in autumn 2025.

Slovenia actively participates in all ERA activities at EU level through the Horizon Europe Policy Support Facility (PSF) Mutual Learning Exercises (MLEs). Slovenia has participated in seven MLEs (out of 10 launched so far). Five of them have already had an impact on domestic activities, including the two most visible ones: (1) MLE Action 14 (citizen science): in 2023 the Ministry organised 18 events with more than 2000 participants under the umbrella of the so-called 'Science month', established a national observatory of citizen science (CTK).<sup>43</sup> In November 2024 the Ministry published a Policy Brief on Science Communication, which includes many non-binding recommendations, and in December 2024 ARIS published the first call for citizens science projects; (b) MLE Action 7 (knowledge valorisation) – an international technology transfer conference was organised at the Jožef Štefan Institute in October 2023 and 2024.

<sup>41</sup> [https://www.gov.si/assets/ministrstva/MVZI/Znanost/Strategije-predpisi-in-drugi-dokumenti/ReZrIS30\\_-\\_porocilo\\_22\\_23\\_051124\\_Final\\_v1\\_1\\_podpisan.pdf](https://www.gov.si/assets/ministrstva/MVZI/Znanost/Strategije-predpisi-in-drugi-dokumenti/ReZrIS30_-_porocilo_22_23_051124_Final_v1_1_podpisan.pdf)

<sup>42</sup> <https://www.gov.si/novice/2024-06-27-javno-narocilo-za-izbiro-izvajalca-evalvacije-uresnicevanja-resolucije-rezris30/>

<sup>43</sup> <https://citizenscience.si/aktivnosti/katalog-projektov/?q=&cf%5B667%5D=2024&cf%5B1728%5D=>



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

In the case of Slovenia, the ERA priorities were developed parallel to the ZZrID and ReZrIS30 in 2021 and 2022. ZZrID and ReZrIS30 represent the framework of the Slovenian R&I system, which complement the priorities and measures of the ERA. As the analysis shows, Slovenia performs quite well in **ERA Priority 1**. This can be attributed to the fact that Slovenia has been strongly committed to ERA from the very beginning, but also to the fact that the latest Slovenian R&I documents are in line with ERA priorities. Slovenia is investing heavily to fulfil the guidelines and requirements of the various ERA actions under ERA Priority 1. In areas where Slovenia is lagging behind (see supra), measures have been taken that are already having some impact. As the ERA Actions under ERA Priority 1 are by nature designed as long-term policy initiatives focussing on structural reforms and systemic improvements, it can be expected that in the coming years some ERA Actions will lead to domestic legislation, and measures will become even more prevalent due to the fulfilment of the transition processes related to ZZrID and ReZrIS30.

Regarding **ERA Priority 2**, there are measures where Slovenia strives to follow the guidelines of Actions as well as measures where the country is lagging behind. Actions 10 and 14 are well implemented, with the engagement of citizens in building cooperation between science and the population and with the PKH activities. MLEs provide a solid basis for the transfer of knowledge from the EU level to the national level. Although the evaluation of the ERA Priority 2 is positive, there are two actions that can still be improved. One is Action 13, which according to the information available lacks better EU governance or a clear focus on its objectives. Action 12 is still a challenge not because of the domestic procedures, but due to the fact that the “greening” requires time. Nevertheless, enhanced cooperation between public institutions and the private sector (cf. EIS, 2024, 2 and 3) could have a boosting effect towards a more “greening-approach”.

Under **ERA Priority 4**, Slovenia performs well as regards monitoring requirements. This is due to the well-developed practices of various ex-ante and ex-post evaluations, but also to the commitment of the Ministry (visible in the ReZrIS30) to monitor developments in practice and revise the action plans where necessary. We expect even more activities in this area in the coming years.

Overall, it can be said that the new ERA with its Pact for Research and Innovation and the ERA Policy Agenda has two direct effects on the Slovenian R&I system. The first is that it sets the framework for national legislation, which – when renewed – is much more in line with ERA Actions and priorities. Secondly, the three main priorities of Slovenian co-operation in the ERA system are networking, acquiring new knowledge and developing new ideas on how to make the Slovenian R&I system more competitive and efficient. This is in addition to the coordination of Slovenian R&I activities with those of the EU-27.

## 5. Conclusions

Slovenia is strongly involved in the ERA and is also investing heavily to ensure that its NRIS is characterised by ERA priorities. The years 2021 and 2022 were a turning point for Slovenia's NRIS with the adoption of key strategic documents – the *Act on Scientific Research and Innovation Activities* (ZZrID; OG 186/21) and the *Resolution on the Slovenian Scientific Research and Innovation Strategy 2030* (ReZrIS30; OG 49/22), and the *Research Infrastructure Roadmap* (Research Infrastructure Development Plan 2030 (NRRI 2030)) – that represent a three-pillar system structure of the national research and innovation system in Slovenia.

In recent years, Slovenian investment in R&I has increased in nominal terms, as has the number of researchers. Their number has increased from 9,381 (in FTE) in 2017 to 11,347 (in FTE) in 2022. Most of them are employed in the business sector, followed by the higher education sector and the government sector.

When analysing the ERA priorities, Slovenia performs well, with some gaps. Nevertheless, these gaps are being addressed through policy reforms, also under the influence of the ERA. Overall, the ERA has a positive impact on the Slovenian NIS as it helps to shape and develop national legislation, better networking, the acquisition of new knowledge and the development of new ideas altogether making the Slovenian R&I system more competitive and efficient.

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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<br><a href="https://doi.org/10.2908/TEC00001">https://doi.org/10.2908/TEC00001</a>  |
| 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,<br><a href="https://doi.org/10.2908/TPS00001">https://doi.org/10.2908/TPS00001</a> |
| 3                | Researchers (in FTE) per million inhabitants                    | Eurostat   |
| /                | Share of female researchers, all sectors of performance (%)     | Eurostat,<br><a href="https://doi.org/10.2908/TSC00005">https://doi.org/10.2908/TSC00005</a> |

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

**Figure 3.4 Indicators for ERA Priority 4**

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

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