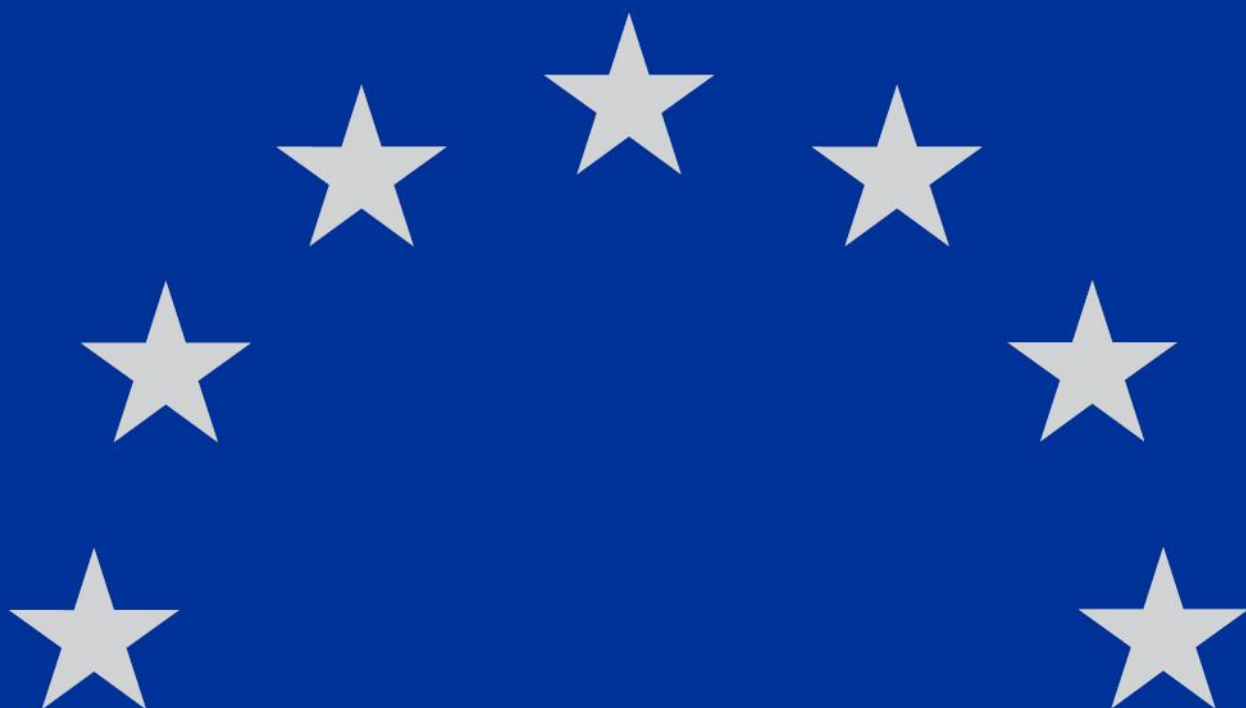


Study on the R&I measures in the Recovery and Resilience Facility

Country fiches



Study on the R&I measures in the Recovery and Resilience Facility — Country Fiches

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EUROPEAN COMMISSION

Study on the R&I measures in the Recovery and Resilience Facility

Country fiches

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List of abbreviations

AI	Artificial Intelligence
CEF	Connecting Europe Facility
CIS	Cloud Infrastructure and Services
CoLAB	Collaborative Laboratories
CP	Cohesion Policy
CTIs	Technology and Innovation Centres
DNSH	Do No Significant Harm
EDIOP	Economic Development and Innovation Operational Programme
ERA	European Research Area
ERC	European Research Council
ERDF	European Regional Development Fund
ESF	European Social Fund
EUTI	Business Finland's National Liaison Office
FCT	Foundation for Science and Technology
FTEs	Full-Time Equivalents
GSRI	General Secretariat for Research and Innovation
GSRT	General Secretariat for Research and Technology
HERC	High Energy Ray Ceramic
Horizon Europe	Horizon Europe Framework Programme
JTF	Just Transition Fund
LPR	Law on the Programming of Research
MSCA	Marie Skłodowska-Curie Individual Fellowships and Postdoctoral Fellowships
NCF	National Challenge Fund
NECP	National Energy and Climate Plan
PEP2040	Energy Policy until 2040
PIA	Programme d'Investissements d'Avenir
PIA4	Investments for the Future Programme

PNCDI IV	National Plan for Research, Development and Innovation 2022–2027
PN RIC	National Research and Competitiveness Programme
PSF	Policy Support Facility
R&D	Research and Development
R&I	Research and Innovation
RDI	Research, Development and Innovation
RMC	Raw Material Consumption
ReZrIS30	Slovenian Scientific Research and Innovation Strategy 2030
RIS3	Smart Specialisation Strategy
S3 2029	Smart Specialisation Strategy 2029
SaS	Slovak Academy of Science
SIPs	Sweden's Strategic Innovation Programmes
SME	Small and Medium-sized Enterprises
SNCISI	National Strategy for Research, Innovation, and Smart Specialisation 2022–2027
SOE	Seal of Excellence
STEM	Science, Technology, Engineering and Mathematics
TAA	Technical Assistance Agreement

Introduction

The country fiches presented in this document are part of the Study on Research and Innovation (R&I) measures under the Recovery and Resilience Facility (RRF). They provide a detailed, country-by-country overview of how 26 EU Member States have implemented R&I measures supported by the RRF. Luxembourg is not included, as its Recovery and Resilience Plan (RRP) does not contain any measures primarily dedicated to R&I and, therefore, was not within the scope of this evaluation study.

To facilitate cross-country comparison and ensure comprehensive coverage of all relevant aspects, each fiche follows a standardised structure comprising the following sections:

- **Introduction:** provides the context by summarising the total RRF allocation for R&I in the country, its share of the national RRP, and how the funding is distributed across different pillars.
- **Interplay of Reforms and Investments:** describes the reforms included in the RRP, or if only investments were involved, and explains how these elements, including interactions among investments themselves, were designed to complement and reinforce each other.
- **Integration into Domestic R&I Policy Mix:** assesses how well RRF-funded initiatives are embedded in or aligned with national and regional strategies, such as Smart Specialisation Strategies or National Energy and Climate Plans, as well as with national funding programmes. Where applicable, it also provides information on whether and how the country plans to sustain RRP-related initiatives beyond 2026.
- **Synergies with Other Funding Programmes:** explores how RRF measures complement or interact with other EU-level instruments, notably Horizon Europe and Cohesion Policy funds.
- **Bottlenecks:** identifies key challenges faced by stakeholders in implementing R&I measures, discusses their impact on progress, and, where applicable, outlines mitigating actions and solutions put in place by the Member State.
- **Results and Achievements:** summarises early outcomes and concrete achievements, providing illustrative examples of impactful initiatives.

1. Austria

Introduction

Austria has allocated EUR 400,7 million ⁽¹⁾ from its Recovery and Resilience Plan (RRP) ⁽²⁾ to support R&I initiatives, representing 10% of the total national RRP funding (EUR 3,961 million, as of 02/04/2025) ⁽³⁾. R&I funding has been allocated to two main pillars: Digital transformation (69%) and Green transition (31%).

Figure 1: Funding R&I distribution per RRF Primary Pillar

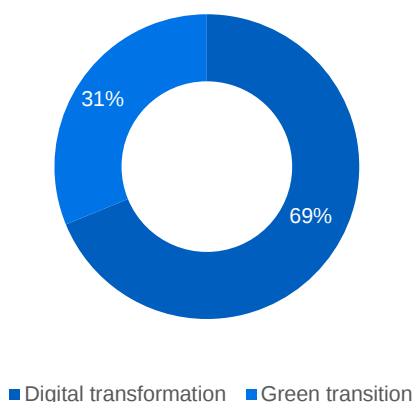
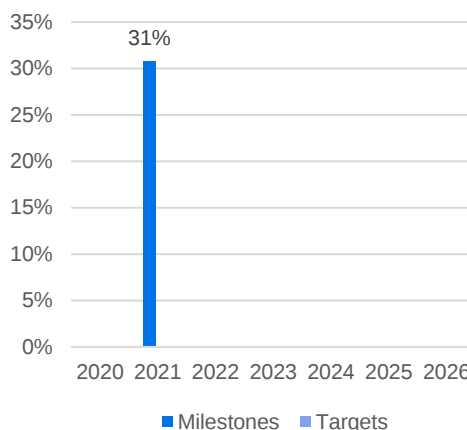


Figure 2: Share of fulfilled R&I M&T out of total R&I M&T



Source: RRF Scoreboard, Fenix database.

Austria has five R&I measures and one sub-measure in its RRP, all of which but one are investment related. Associated with these measures, there are 35 Milestones and Targets (M&Ts). To date ⁽⁴⁾, it has fulfilled 31% of its R&I milestones (4 out of 29) and no R&I targets ⁽⁵⁾. Milestones fulfilled include selecting national projects for the implementation of the IPCEI Hydrogen and IPCEI Microelectronics and Connectivity, with corresponding targets also completed, for which at least six projects have been initiated.

Interplay of Reforms and Investments

Austria's RRP focuses on investments in hydrogen, microelectronics, quantum science, and precision medicine. Central to this is the "Research, Technology and Innovation (RTI) Strategy 2030" (C3.A.1), a structural reform part of the RTI Pact under the Austrian Research Financing Act. The strategy ensures alignment between national priorities and EU-level initiatives like the

⁽¹⁾ Fenix database.

⁽²⁾ European Commission. (2023). *Austria's Updated Recovery and Resilience Plan*, [here](#).

⁽³⁾ European Commission. (2025). *RRF Scoreboard: Country Overview*, [here](#). The total value of Austrian NRRP amounts to EUR 4,187 million, the difference is financed through national resources.

⁽⁴⁾ Fenix database, last extracted on 31/03/2025.

⁽⁵⁾ The number of fulfilled milestones/targets covers only those formally assessed as such. Additional milestones/targets may be completed but not yet assessed.

IPCEIs (C3.D.1/C3.D.2) and digital infrastructure (C3.A.4). In parallel, major RRP investments include EUR 250 million for the “Important Projects of Common European Interest (IPCEI) on Hydrogen” (C3.D.1) and “IPCEI Microelectronics and Connectivity” (C3.D.2), EUR 107 million for “Quantum Austria — Promotion of Quantum Sciences” (C3.A.2), and EUR 75 million for the “Austrian Institute of Precision Medicine” (C3.A.3) with EUR 13.7 million supporting digital R&I infrastructure. The RRP focuses on **sector-specific investments to enhance Austria’s technological resilience and contribute to the green and digital transitions**. These investments align with EU priorities. The RRP has catalysed key projects like “Quantum Austria” (C3.A.2) and the IPCEIs on hydrogen and microelectronics (C3.D.1-D.2), which were already planned but lacked funding. These investments are interlinked, creating synergies: microelectronics and connectivity technologies (C3.D.2) support both C3.A.2 and C3.A.3, and also enhance hydrogen technologies (C3.D.1) through advanced sensors and control systems. These links demonstrate a **synergy where separate investment measures address a common issue**, focusing on technological enablers for Austria’s green and digital innovation. Quantum science (C3.A.2) further supports precision medicine (C3.A.3) by advancing data processing and simulation technologies. In parallel, the IPCEIs (C3.D.1-D.2) promote research-industry collaboration, reinforcing Austria’s role in European value chains.

Integration into Domestic R&I Policy Mix

Austria’s RRP is closely integrated into its national R&I policy framework, aligning both strategically and operationally with existing domestic priorities. This is reflected in core national strategies such as the **National Energy and Climate Plan (NECP)** ⁽⁶⁾, the **Digital Roadmap** ⁽⁷⁾, and the **RTI Pact 2024–2026** ⁽⁸⁾. These documents explicitly reference RRP-backed initiatives, ensuring coherence between EU support and Austria’s long-term R&I goals. The RTI Pact 2024–2026 operationalises the “RTI Strategy 2030” (C3.A.1) by converting strategic objectives into specific funding priorities. Several RRP investments, particularly in digital infrastructure, AI, and green technologies, are incorporated into national funding schemes, reflecting the RRP’s role as an integral part of Austria’s R&I ecosystem rather than a standalone programme. In climate and digital sectors, the RRP enhances Austria’s 2040 climate neutrality target, aligning with the NECP, Climate Change Act ⁽⁹⁾, and Mission2030 ⁽¹⁰⁾. Notable projects include the “Austrian Institute of Precision Medicine” (C3.A.3), receiving EUR 75 million for AI-driven genomic diagnostics linked to national excellence centres such as the Medical University of Vienna. In clean energy, Hy2Tech and Hy2Use, with EUR 500 million in total, support the national hydrogen strategy and contribute to both green and digital transitions. In the digital sphere, the RRP supports the Digital Roadmap, especially in AI, quantum technologies, and infrastructure. The Quantum Austria programme (C3.A.2) supports foundational research and infrastructure, aligned with digital ambitions and co-funded by the Austrian Science Fund (FWF) and the Austrian Research Promotion Agency (FFG). Complementary national programmes like the Klima und Energiefonds support early-stage R&D and green tech pilots. To ensure sustainability post-2026, RRP measures are embedded in long-term frameworks; for instance,

⁽⁶⁾ European Commission. (2024). *Austria - Final updated NECP 2021 - 2030 (submitted 2024)*. Retrieved April 7, 2025, [here](#).

⁽⁷⁾ Federal Ministry of Finance, Austria. (2023). *National strategic roadmap for the Austrian Digital Decade*. Retrieved April 7, 2025, [here](#).

⁽⁸⁾ Federal Government of the Republic of Austria. (2022). RTI Pact 2024–2026. Retrieved April 8, 2025, [here](#).

⁽⁹⁾ European Parliament. (2024). *Austria’s climate action strategy*. Retrieved [here](#).

⁽¹⁰⁾ Mission2030: Austria’s Climate Strategy. (2020). *Mission2030: Österreichs Klimastrategie*. Retrieved April 8, 2025, [here](#).

Quantum Austria is integrated into multi-annual university contracts. Discussions are also ongoing to sustain RRP-launched initiatives via domestic funding.

Synergies with Other Funding Programmes

Austria has actively created synergies between its R&I measures under the RRF and other EU funding programmes, achieving **strong thematic and operational alignment**, particularly in the business innovation and scientific excellence areas ⁽¹¹⁾. While clear synergies exist through co-funding and complementary investments, these remain primarily thematic rather than instrumental, as Austria has not explicitly used the RRP to support certain instruments such as the Seal of Excellence or European Partnerships. Horizon Europe (HE) plays a central role in Austria's R&I strategy, contributing EUR 1,39 billion to Austrian projects via 1,876 signed grants, with a focus on ecosystems, sustainability, climate, governance, and AI as displayed in **Error! Reference source not found.** Synergies are evident in co-funded projects such as the IPCEIs in hydrogen and microelectronics (C3.D.1/D.2), Quantum Austria (C3.A.2), and the Austrian Institute of Precision Medicine (C3.A.3), where RRF and HE investments complement each other without overlap. HE supports upstream research through projects like OpenSuperQPlus100 and PASQuanS2.1, while RRF focuses on applied development like Quantum Austria. Similarly, flagship projects like AUGMENTED CCAM and HI2 Valley build on HE's challenge-driven programmes and align with Austria's decarbonisation and next-generation infrastructure goals. The RTI Strategy 2030 reform (C3.A.1) strengthens these synergies by enhancing access to HE funding via agencies like the FWF and the FFG, including support for instruments like the EIC Accelerator.

Table 1: Horizon Europe funding (2021-2027)

Horizon Europe	
Net EU contribution ⁽¹²⁾	EUR 1,39 billion (3,26% of the HE total)
Signed grants	1876 (11,74% of the HE total)
Number of organisations involved in HE projects	2902 (2,92% of the total)
Rank HE contribution per inhabitant	20
Top three types of supported organisations	Higher or Secondary Education Establishments (41,2%), Research Organisations (25,8%), Private for-profit entities (25,2%)
Top 5 keywords	ecosystems; sustainable economy; climatic changes; governance; artificial intelligence

⁽¹¹⁾ Based on R&I measures categorisation developed by the Study Team.

⁽¹²⁾ Please note that the data on Horizon Europe presented in the country fiches differ from those in the case studies due to methodological differences. In the country fiches, Horizon Europe data refer to the total net EU contribution. In the case studies, by contrast, the figures reflect the sum of allocations by investment area (an approach necessary to establish correspondences with Cohesion Policy and RRF support for the coherence analysis). Annex V in the main report defines each investment area. Discrepancies arise from the impossibility of assigning certain Horizon Europe calls to the investment areas used in this analysis.

Source: [HE dashboard](#), Country profiles (mid-March 2025).

Downstream synergies are mostly supported by Cohesion Policy (CP) funds, particularly the European Regional Development Fund (ERDF) ⁽¹³⁾ and the Just Transition Fund (JTF) ⁽¹⁴⁾, which allocate approximately EUR 189,7 million to research and innovation, as part of Austria’s broader Cohesion financing of EUR 1,06 billion for 2021–2027 as shown in Table 2. These funds prioritise infrastructure development, regional innovation ecosystems, and digital capacity building, targeting transition regions like Styria and Upper Austria, and enabling the deployment, scaling, and practical application of RRF-supported research outcomes. RRF investments in microelectronics (C3.D.1), hydrogen technologies (C3.D.2), and quantum technologies (C3.A.2) benefit from ERDF and JTF support for infrastructure upgrades and regional economic transitions. Capacity-building efforts funded by CP enhance the ability of regional authorities and stakeholders to effectively implement and benefit from RRF initiatives.

Table 2: Cohesion Policy funding (2021-2027)

Cohesion Policy	
Overall EU financing	EUR 1,06 billion
Total EU payments	EUR 65,3 million (6,12%)
R&I EU contribution ⁽¹⁵⁾	EUR 189,7 million for SO 1.1 “Enhancing research and innovation”
Researchers with improved infrastructure (planned)	741 annual FTEs

Source: [Cohesion data](#) (mid-March 2025).

Bottlenecks

Austria’s implementation of R&I measures under the RRF has focused on **strong coordination** and **adaptive planning**. Initially ambitious milestones, developed with line ministries, were revised to be more practical. Key hurdles identified by the interviewees during the RRP implementation include **infrastructure gaps** such as outdated or insufficient research facilities and digital infrastructure, **administrative complexity** related to burdensome redrafting and approval processes involving coordination with different actors, and **workforce shortages** affecting project execution. Effective coordination, especially among key ministries, has supported alignment with RRF goals. While the RRF framework is considered more flexible than other EU programmes like Horizon Europe, the 2026 deadline and the complexity of modifying measures remain significant constraints on progress toward climate and innovation goals.

⁽¹³⁾ European Commission. (n.d.). *European Regional Development Fund (ERDF)*. Retrieved April 8, 2025, [here](#).

⁽¹⁴⁾ European Commission. (n.d.). *Just Transition Fund*. Retrieved April 8, 2025, [here](#).

⁽¹⁵⁾ Cohesion Policy support to R&I is derived from the [Cohesion Open Data Platform](#), based on EU amounts under Specific Objective (SO) 1.1 (“Enhancing research and innovation”) within the “Intervention Field” dimension. Data are based on the version of the platform as of 14 March 2025. Please note that the data on Cohesion Policy support to R&I in the country fiches differ from those in the case studies due to methodological differences: the fiches report the total amounts planned under SO 1.1, whereas in the case studies support is calculated as the sum of the amounts for each investment area, since focusing solely on the overall SO 1.1 allocation would have prevented an analysis by investment area (instrumental in establishing correspondences with Horizon Europe and RRF support for the coherence analysis). Annex V in the main report sets out the definition of each area.

Results and Achievements

Several R&I investments under the RRF have demonstrated **encouraging initial progress**, advancing Austria's position in critical technology. In microelectronics, over two-thirds of IPCEI Microelectronics projects (C3.D.1) had been launched by Q2 2024, with 80% of the EUR 125 million disbursed to companies including Infineon Austria ⁽¹⁶⁾, NXP Semiconductors ⁽¹⁷⁾, and AT&S Austria ⁽¹⁸⁾. These projects focus on power electronics, semiconductors, and high-end printed circuit boards, boosting Austria's role within the European microelectronics ecosystem. The "IPCEI Hydrogen" initiative (C3.D.2) has moved into early-stage implementation, with firms like AVL, Borealis, and Verbund ⁽¹⁹⁾ piloting hydrogen production and storage projects. The Quantum Austria initiative (C3.A.2) launched the Austrian Quantum Fiber Network, laying the groundwork for quantum computing, communication, and simulation technologies, with strong interest in initial project calls. Meanwhile, construction of the "Austrian Institute of Precision Medicine" (C3.A.3) is underway, with advanced digital research tools being installed at the Eric Kandel Institute near Vienna's General Hospital. This centre is expected to foster collaboration between clinicians and researchers, advancing patient-centred healthcare innovation.

⁽¹⁶⁾ Infineon Technologies Austria AG. (2023). *Infineon Austria welcomes approval for important innovation projects to advance decarbonization and digitalization*. Retrieved April 8, 2025, [here](#).

⁽¹⁷⁾ NXP Semiconductors. (2023). *NXP in Austria Embraces IPCEI ME/CT Funding to Expand Research and Development*. Retrieved April 8, 2025, [here](#).

⁽¹⁸⁾ European Investment Bank (EIB). (2023). *Austria: EIB grants EUR 250 million loan to ATS*. Retrieved April 8, 2025, [here](#).

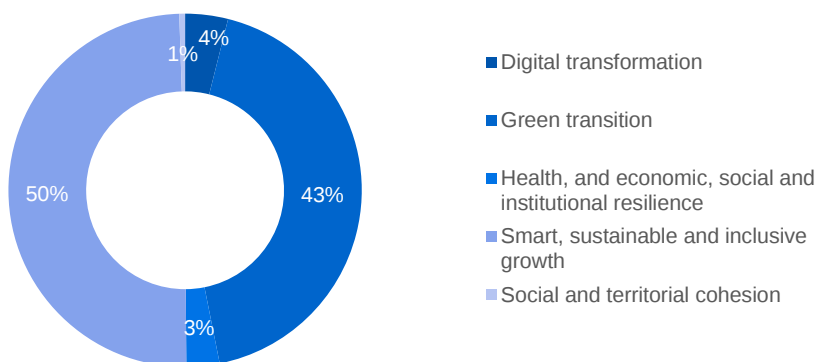
⁽¹⁹⁾ Federal Ministry for Climate Action, Environment, Energy, Mobility, Innovation and Technology (BMK). (n.d.). *IPCEI - Hydrogen*. Retrieved April 8, 2025, [here](#).

2. Belgium

Introduction

Belgium has allocated EUR 548.2 million ⁽²⁰⁾ from the Recovery and Resilience Plan (RRP) ⁽²¹⁾ to support R&I initiatives, representing 10% of the total national RRP funding (EUR 5,299 million, as of 02/04/2025) ⁽²²⁾. Half of the fund has been allocated to the Smart, sustainable and inclusive growth primary pillar, and 43% to the Green transition primary pillar.

Figure 3: Funding R&I distribution per RRF Primary Pillar



Source: Fenix database.

Belgium has 16 R&I-related measures in its RRP, all of which are investment-related and associated with 33 milestones and targets (M&Ts), specifically 29 milestones and 4 targets. To date ⁽²³⁾, Belgium has not yet fulfilled any R&I milestones or targets ⁽²⁴⁾.

Interplay of Reforms and Investments

Belgium's RRP includes only sectoral and thematic investments related to research and innovation, while adjustments to some R&I reforms take place outside the RRP. Within this framework, notable synergies emerge among specific measures that reinforce Belgium's green, digital, and social transition objectives. For example, the **"Industrial Value Chain for Hydrogen Transition"** (C12 I-1.16) and the **Flemish "Blue Deal - Research and innovation"** (C13 I-1.24) both support environmental sustainability but focus on different aspects, green hydrogen development and climate resilience through water management, respectively, together underpinning a comprehensive climate strategy. The **"AI for the Common Good Institute"** (C23 I-2.14) enhances cross-sectoral complementarity by developing AI applications that

⁽²⁰⁾ Fenix database.

⁽²¹⁾ European Commission. (2021). Belgium's Recovery and Resilience Plan. Retrieved April , 2025, [here](#).

⁽²²⁾ European Commission. (2025). *RRF Scoreboard: Country Overview*, [here](#).

⁽²³⁾ Fenix database, last extracted on 31/03/2025.

⁽²⁴⁾ The number of fulfilled milestones/targets covers only those formally assessed as such. Additional milestones/targets may be completed but not yet assessed.

optimise resource management across sectors, including hydrogen and water systems, linking digital innovation with environmental goals. Additionally, the investment in “**Gender and work**” (C42 I-4.10) promotes inclusivity in field projects particularly in innovation, by supporting vulnerable groups, especially women impacted by the COVID-19 crisis, ensuring social equity is integrated within Belgium’s green and digital transitions.

Integration into Domestic R&I Policy Mix

Belgium’s RRP funding is well integrated into its domestic R&I policy mix, aligning closely with national and regional strategies such as the **National Energy and Climate Plan (NECP)** ⁽²⁵⁾, **Flanders’ Moonshot 2030**, and **Wallonia’s Green Deal**. The NECP explicitly references the RRP, noting that best practices developed and related climate initiatives will be scaled up in federal policy frameworks. One institutional outcome of this alignment is the establishment of the Study Committee on Public Investment, which monitors funding needs for the green transition. Several RRP measures clearly reflect national R&I priorities. Examples include Investment I-1.16 and I-1.17, which support the development of an industrial hydrogen value chain in Flanders and Wallonia; Investment I-1.19, establishing a research platform for the energy transition; and Investment I-1.20, promoting renewable heat networks. These measures contribute directly to Belgium’s 2030 and 2050 climate goals through innovation, carbon reduction, and system integration. Implementation is closely coordinated with regional actors like VLAIO in Flanders and SPW Économie in Wallonia, and leverages synergies with innovation hubs such as **KU Leuven’s EnergyVille** ⁽²⁶⁾ and **ULiège’s GreenMat Lab** ⁽²⁷⁾. Initiatives like Flanders’ Moonshot Innovation Strategy and Wallonia’s Green Hub further promote breakthrough technologies, supported by regional co-financing mechanisms such as the Relance Plan (Flanders) and Plan de Relance (Wallonia). However, the continuation of RRP-supported investments beyond 2026 remains uncertain, as no formal national funding commitments have been made. While R&D funding is expected to grow, the challenge lies in maintaining the momentum and long-term impact of RRF-driven initiatives through sustainable domestic financing.

Synergies with Other Funding Programmes

Belgium has leveraged synergies between its R&I measures under the RRF and key EU funding programmes, particularly **Horizon Europe** (HE) and **Cohesion Policy** (CP) funds, including the **European Regional Development Fund** (ERDF) and the **Just Transition Fund** (JTF). While no direct synergy instruments were included in its RRP, operational links exist with EU-level industrial initiatives like the Important Projects of Common European Interest (IPCEI). For instance, the measure “An industrial value chain for hydrogen transition of the Flemish Region” (C12 I-1.16) directly funds Belgian participation in projects under the EU IPCEI Hy2Use initiative, establishing a concrete connection between national investments and EU-level industrial hydrogen projects. Thematic synergies also emerge with the above-mentioned EU programmes, as they collectively support Belgium’s strategic priorities in industrial decarbonisation, clean energy deployment, and digital innovation by providing a coordinated framework across the entire R&I cycle. These synergies are especially visible in areas such as

⁽²⁵⁾ Federal Public Service (FPS) Health, Food Chain Safety and Environment. (2023). *National Energy and Climate Plan 2021-2030*. Retrieved April 7, 2025, [here](#).

⁽²⁶⁾ EnergyVille. (2025). *Renewable energy and intelligent energy systems*. Retrieved April 7, 2025, [here](#).

⁽²⁷⁾ GREENMat (ULiège). (2023). *GREENMat Research Laboratory*. Retrieved April 7, 2025, [here](#).

scientific excellence, business innovation, and to a lesser extent, **R&D ecosystems** ⁽²⁸⁾. For instance, scientific excellence projects receive the largest funding share from Horizon Europe, followed by the RRF and Cohesion Policy funds. Business innovation initiatives, such as the Flemish Region’s hydrogen transition (C12 I-1.16), low-carbon industry development (C12 I-1.18), and strengthening R&D-intensive businesses (C5.2 I-5.11), primarily benefit from co-funding by the RRF and Cohesion Policy, with smaller contributions from Horizon Europe. Meanwhile, regarding the R&D ecosystems area, the investment addressing gender and work (C42 I-4.10) is co-financed by Horizon Europe, which provides the largest share, alongside Cohesion Policy and the RRF. Belgium has also capitalised on cumulative synergies following sequential and expansion logics. For example, the RRP project “An industrial value chain for hydrogen transition of the Federal State” (C12 I-1.15) scales up renewable hydrogen production technologies developed through Horizon Europe’s ALCHEMY project, ensuring smooth translation of research into industrial deployment. Upstream/downstream synergies are evident in digital skills development, where the RRP’s AI Institute (C23 I-2.14) aligns with Horizon Europe’s Social Economy Transition Skills project (STS) through coordinated objectives and complementary activities. This alignment fosters a seamless pipeline of skilled professionals essential to Belgium’s green and digital transitions. Belgium’s robust participation in Horizon Europe, with EUR 3,3 billion allocated, 3,254 signed grants, and 15,457 participating organisations, including key institutions like KU Leuven, ULiège, imec, and VITO, further anchors these synergies, as shown in **Error! Reference source not found..**

Table 3: Horizon Europe funding (2021-2027)

Horizon Europe	
Net EU contribution ⁽²⁹⁾	EUR 3,3 billion (7,71% of the HE total)
Signed grants	3254 (20,36% of the HE total)
Number of organisations involved in HE projects	15457 (5,50% of the total)
Rank HE contribution per inhabitant	26
Top three types of supported organisations	Research Organisation (29,7%), Higher or Secondary Education Establishments (26,8%), Other (26,6%)
Top 5 keywords	ecosystems; sustainable economy; climatic changes; governance; sensors

Source: [HE dashboard](#), Country profiles (mid-March 2025).

Complementing these efforts, the ERDF supports the RRP by scaling up measures such as hydrogen infrastructure and smart energy grids in Brussels, exemplified by the “RESA Electricity Network Upgrade”. With EUR 243,8 million allocated under ERDF and JTF programmes across

⁽²⁸⁾ Based on R&I measures categorisation developed by the Study Team.

⁽²⁹⁾ Please note that the data on Horizon Europe presented in the country fiches differ from those in the case studies due to methodological differences. In the country fiches, Horizon Europe data refer to the total net EU contribution. In the case studies, by contrast, the figures reflect the sum of allocations by investment area (an approach necessary to establish correspondences with Cohesion Policy and RRF support for the coherence analysis). Annex V in the main report defines each investment area. Discrepancies arise from the impossibility of assigning certain Horizon Europe calls to the investment areas used in this analysis.

Brussels, Flanders, and Wallonia, Cohesion Policy funding advances projects including cross-regional hydrogen corridors and sustainable industry initiatives like carbon capture in the Port of Antwerp. Total EU financing for Cohesion Policy 2021–2027 amounts to EUR 2,5 billion, focusing on regional economic transformation and climate resilience, as shown in Table 4. Through this integrated approach, the ERDF financing strengthens the RRP’s objectives of carbon neutrality by 2050 and supports climate-resilient urban innovation.

Table 4: Cohesion Policy funding (2021-2027)

Cohesion Policy	
Overall EU financing	EUR 2,5 billion
Total EU payments	EUR 103 million (4,13%)
R&I EU contribution ⁽³⁰⁾	EUR 243,8 million for SO 1.1 “Enhancing research and innovation”
Researchers with improved infrastructure (planned)	18 annual FTEs

Source: [Cohesion data](#) (mid-March 2025).

Bottlenecks

The implementation of R&I measures under Belgium’s RRP has faced a range of systemic challenges, primarily due to **administrative complexity** and a rule-bound, performance-based framework. Early issues stemmed from a novel milestone design approach, which initially produced unrealistic targets but was later refined to be more practical. Tight deadlines, evolving rules, and cost increases, especially in sectors like hydrogen development (C12 I-1.16), strained implementation capacity, despite strong commitment from project teams. According to stakeholders interviewed, coordination with other EU funding instruments, particularly Horizon Europe, posed risks of **double funding**, though agencies like VLAIO helped streamline oversight.

Belgium’s decentralised governance led to occasional inefficiencies, particularly in cross-cutting areas like the circular economy, but efforts to clarify indicators and responsibilities mitigated misalignment. The complexity of communication and reporting added further administrative load. Moreover, measuring the impact of R&I investments proved difficult within the short RRF timeframe, given the long-term nature of innovation. Nevertheless, adaptive adjustments have been made, and further revisions are anticipated to better reflect the specificities of R&D and ease administrative burdens going forward.

⁽³⁰⁾ Cohesion Policy support to R&I is derived from the [Cohesion Open Data Platform](#), based on EU amounts under SO 1.1 (“Enhancing research and innovation”) within the “Intervention Field” dimension. Data are based on the version of the platform as of 14 March 2025. Please note that the data on CP support to R&I in the country fiches differ from those in the case studies due to methodological differences: the fiches report the total amounts planned under SO 1.1, whereas in the case studies support is calculated as the sum of the amounts for each investment area, since focusing solely on the overall SO 1.1 allocation would have prevented an analysis by investment area (instrumental in establishing correspondences with HE and RRF support for the coherence analysis). Annex V in the main report sets out the definition of each area.

Results and Achievements

While no R&I measures under Belgium's RRP have been fulfilled, several initiatives have completed (not yet assessed) some milestones and targets and made some progress with early results emerging. In clean energy, the “hydrogen value chain” investment (I-1.16) has launched multiple projects under the **IPCEI Hy2Use** initiative, marking a significant step toward industrial decarbonisation. The “**Blue Deal**” (I-1.24) has advanced Belgium's climate resilience agenda, with 41 projects, primarily focused on drought and flood mitigation, launched by early 2023 and supported by a legislative framework adopted in 2024. In the digital sphere, the “AI Institute” (I-2.14) has established **FARI**, a research hub that has already delivered pilot projects applying AI to public services in health, education, and employment. The “**Gender and Work**” initiative (I-4.10) also stands out, having funded 18 innovative projects promoting gender equality and inclusive employment. These early achievements signal key advancements in Belgium's green, digital, and inclusive transitions, though sustaining their impact beyond 2026 will require continued investment and strategic follow-up.

3. Bulgaria

Introduction

The budget for R&I measures under the Bulgarian Recovery and Resilience Plan (RRP) ⁽³¹⁾ is EUR 166.8 million ⁽³²⁾, representing about 3% of the total national RRP funding (EUR 5.7 billion, as of 02/04/25) ⁽³³⁾. The majority of R&I funding is allocated to the Smart, sustainable and inclusive growth primary pillar (more than 90%), with Green and Digital transformation having much smaller shares (see Figure 4).

Figure 4: Funding R&I distribution per primary RRF Pillar

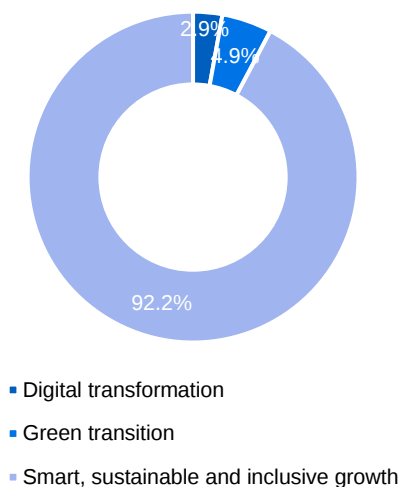
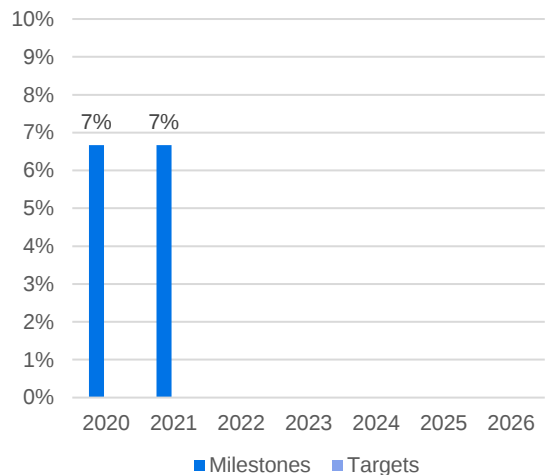


Figure 5: Share of fulfilled R&I M&T out of total R&I M&T



Source: RRF Scoreboard, Fenix database.

Bulgaria has 5 R&I measures (10, if the sub-measures are counted separately) in the RRP, which are both reforms and investments. Associated with these measures are 20 milestones and targets. To date ⁽³⁴⁾, it has fulfilled 14% of its R&I milestones (2 out of 15) and no R&I targets (out of 5) ⁽³⁵⁾. Milestones fulfilled are related to the Higher Education Reform (Entry into force of the amendments to the Higher Education Act and National Map of Higher Education).

⁽³¹⁾ European Commission. (2021). Bulgaria's Recovery and Resilience Plan. Retrieved April , 2025, [here](#).

⁽³²⁾ FENIX database

⁽³³⁾ European Commission. (2025). *RRF Scoreboard: Country Overview*, [here](#).

⁽³⁴⁾ Fenix database, last extracted on 31/03/2025.

⁽³⁵⁾ The number of fulfilled milestones/targets covers only those formally assessed as such. Additional milestones/targets may be completed but not yet assessed.

Interplay of Reforms and Investments

The RRP in Bulgaria aims to contribute to **reforming** of the R&D system, via the implementation of a reform (BG-C[C2]-R[R1]) called Common policy for the development of research and innovation ⁽³⁶⁾, led by the Ministry of Education and Science and the Ministry of Innovation and Growth. This exemplifies a **new strategic approach**, also supported via the RRF, which addresses the whole R&D system when defining investment decisions, as underlined by the Policy Support Facility's (PSF) recent analysis ⁽³⁷⁾.

The legal support for research, innovation, and technology policy is intended to be ensured through the development and adoption of a new Research and Innovation Act, which replaces the existing legislation on the Promotion of Scientific Research. The Act was adopted by the Parliament on 24 April 2024 and enforced starting 1 May 2024, marking a major overhaul of the country's R&I framework ⁽³⁸⁾. Another step in the reform is the creation of an Innovation Board, which will be an advisory body to the Ministers of Education, Science and Innovation and Growth. The milestone associated with the establishment of the Board has not been considered completed, meaning that the Board is not operational yet.

Bulgaria RRP has some levels of links between reforms and investments, although the degree of integration varies across measures. A specific example of clear interplay includes the entry into force of the amendments to the Higher Education Act (fulfilled in Q1 2020)³⁹, including a revised system of accreditation of higher education institutions and introducing the status of 'Research University'. These are universities that conduct research and investigation activities contributing to significant development of important public areas, based on several objective indicators such as published and referenced articles, applications for patents, and the number of citations. This **reform BG-C[C1]-R[R2]** is linked to the signature of contracts with research higher education institutions (target completed in Q4 2022) ⁽⁴⁰⁾, an **investment** under Measure BG-C[C2]-I[I1]-T[T29]. The investment contracts outline the conditions for the activities to be carried out with the funds, based on the innovation programmes submitted by higher education institutions. The aim is to establish a network among research higher education institutions.

Integration into Domestic R&I Policy Mix

The **RRF funding aligns well with Bulgaria's overall R&I policy, largely due** to the interplay of reforms and investments described in the previous section. The Research and Innovation Act under BG-C[C2]-R[R1] establishes a legal framework for innovation and technology transfer, which aims to secure the coherence and synergy of strategic and operational documents, such as the National Strategy for the Development of Scientific Research, the Innovation Strategy for Smart Specialisation, the National Development Programme Bulgaria 2030, and the National Roadmap for Research Infrastructures. Moreover, the reviewed investments in 'Research Universities' under the Bulgarian RRP fit very well into the established legal framework. According to the interviews performed, the reform is key for innovation and its financing by the state, and it would not have taken place without the RRP underpinning. The Research and

⁽³⁶⁾ The reform is associated with three milestones (BG-C[C2]-R[R1]-M[M24], [M25], M[M26]).

⁽³⁷⁾ European Commission: Directorate-General for Research and Innovation, *Unlocking Bulgaria's research and innovation potential – A roadmap for the system's consolidation – Final report*, Publications Office of the European Union, 2025, [here](#).

⁽³⁸⁾ European Research Area Platform news, [here](#).

⁽³⁹⁾ BG, First payment request: [here](#), reform BG-C[C1]-R[R2].

⁽⁴⁰⁾ Measure BG-C[C2]-I[I1]-T[T29].

Innovation Act strengthened oversight of R&I funding and established key funds, but resources remain limited and fragmented across many institutions. RRF support complements structural efforts by providing greater scale and strategic focus, particularly on legal frameworks and scientific excellence, without duplicating national financing. While national programmes typically fund horizontal or sectoral priorities with modest budgets (EUR 2–9 million annually) ⁽⁴¹⁾, the RRF enables broader and larger-scale investments, such as the pilot scheme for creating a network of ‘Research Universities’. Another example of RRP investments measure Programme to accelerate economic recovery and transformation through research and innovation (C2.I1) aimed at improving the country’s R&I performance and the effectiveness of technology transfer and foster information-sharing among Research Universities. With a total budget of EUR 187 million, it aims to support 13 SME projects awarded the Horizon Europe ‘Seal of Excellence,’ 3 highly evaluated but unfunded higher education projects, and innovation programmes of 10 Research Universities ⁽⁴²⁾.

While these investments mark a significant step forward, the recent PSF Country Review ⁽⁴³⁾ highlights that Bulgaria’s R&I system continues to face persistent structural challenges. These include underinvestment, institutional inefficiencies, and fragmented governance, which collectively hinder the country’s ability to fully realise its research and innovation potential and integrate effectively into the European Research Area.

Synergies with Other Funding Programmes

A key feature of the RRP is its strategic approach, as it is not merely an investment tool but also a trigger for reforms. This has allowed the achievement of synergies between the RRF and other EU and domestic funding programmes in strengthening Bulgaria’s R&I landscape. These synergies are particularly evident in two thematic areas: **scientific excellence** (R&D projects and research infrastructure) and **R&D ecosystems** (strategic instruments).

Concerning EU financing, in terms of size, the **Horizon Europe (HE)** net contribution (EUR 164 m) for Bulgaria is very similar to that of the R&I measures under the Bulgarian RRP (EUR 167 m), as shown in

Table 5. However, the RRP allowed projects to be implemented directly by the beneficiaries (e.g. Research Universities), rather than large consortia, which are typical for the Framework Programmes. The RRP enables financing for science and research, which may not have been accessible to Bulgaria under the Horizon Europe programme due to the significant competition for HE grants.

Similar to HE, the RRP reforms/investments also target the R&D ecosystems and governance. Synergies are evident in the measure for the Implementation of project proposals of innovative small and medium-sized enterprises (SMEs) awarded the Seal of Excellence quality label in European Innovation Council competitions (BG-C[C2]-I[I1]). The RRP measure will finance projects that have received the quality label “Seal of Excellence” under the Horizon 2020 Framework Programme (2014-2020) and the Horizon Europe FP (2021-2027).

⁽⁴¹⁾ For more information, [here](#).

⁽⁴²⁾ Source: Annex to the CID of Bulgarian NRRP, 24 November 2023.

⁽⁴³⁾ European Commission: Directorate-General for Research and Innovation, *Unlocking Bulgaria's research and innovation potential – A roadmap for the system's consolidation – Final report*, Publications Office of the European Union, 2025, [here](#)

Table 5: Horizon Europe funding (2021-2027)

Horizon Europe	
Net EU contribution ⁽⁴⁴⁾	EUR 163,9 million (0.38% of the HE total)
Signed grants	415 (2.6% of the HE total)
Number of organisations involved in HE projects	621 (0.63% of the total)
Rank HE contribution per inhabitant	5
Top three types of supported organisations	Private for-profit entities (42.2%), Higher or Secondary Education Establishments (28.0%), Research Organisations (13.7%)
Top 5 keywords	ecosystems; climatic changes; sustainable economy; governance; business models

Source: [HE dashboard](#), Country profiles (mid-March 2025).

There is **good complementarity with the Cohesion Policy Funding** in terms of R&D investments. In addition, the recent launch of programmes under the European Structural and Investment Funds (ESIF), specifically the Programme for Competitiveness and Innovations in Enterprises in 2023, complements the RRF in mobilising substantial private investment in innovation and technology transfer, thereby strengthening Bulgaria's overall R&D landscape.

The **timing** of the RRF has also supported complementarity with the CPF, as the RRF financing was available earlier and served as a form of bridge financing between the two programming periods (2014-2020 and 2021-2027). At the end of 2024, the overall level of disbursement under the RRF was 24% ⁽⁴⁵⁾, while for the CPF it was 8.4%. In terms of **size**, the RRF financing for R&D is lower than the CPF in absolute terms — EUR 167 million under the RRF compared to EUR 918.5 million under the CPF, as shown in Table 6 — but also in relative terms (8.4% for CPF and 2.9% for the RRF). Consequently, the expected achievements are also lower for the RRF when compared to the CPF (see further below, e.g. in terms of supported researchers). No duplications of the RRF financing with other EU financing were identified by the interviewees of this case study.

⁽⁴⁴⁾ Please note that the data on Horizon Europe presented in the country fiches differ from those in the case studies due to methodological differences. In the country fiches, Horizon Europe data refer to the total net EU contribution. In the case studies, by contrast, the figures reflect the sum of allocations by investment area (an approach necessary to establish correspondences with Cohesion Policy and RRF support for the coherence analysis). Annex V in the main report defines each investment area. Discrepancies arise from the impossibility of assigning certain Horizon Europe calls to the investment areas used in this analysis.

⁽⁴⁵⁾ European Commission. (2025). *RRF Scoreboard: Country Overview*, [here](#).

Table 6: Cohesion Policy funding (2021-2027)

Cohesion Policy	
Overall EU financing	EUR 10,7 billion
Total EU payments	EUR 903,4 million (8.4%)
R&I EU contribution ⁽⁴⁶⁾	EUR 918,5 million for SO 1.1 “Enhancing research and innovation”
Researchers with improved infrastructure (planned)	300 annual FTEs

Source: [Cohesion data](#) (mid-March 2025).

Bottlenecks

There were issues initially with **the lack of flexibility** in RRP amendments and with an overly rigorous approach to documentation. While the programming was done in 2020, amendments due to changing circumstances have been difficult. Also, the payments in packages (once all reforms/investments are performed), as perceived at the beginning of the process, were not very helpful. In recent years, however, the RRF flexibility is deemed to be improving.

Coordination between the R&D national authorities is good, but a challenge at the beginning of the RRP implementation was that there was too much freedom given to different ministries/institutions to suggest measures for inclusion in the plan. On the one hand, such freedom is beneficial as it allows customised measures. On the other hand, this led to some measures ending in institutions that do not have the **administrative capacity** to manage/implement them, as they did not have experience with the Cohesion Policy funds.

When the RRF was adopted, there was an expectation that the RRP would be managed and monitored more lightly than the Cohesion Policy Funds. However, in practice, they are essentially very similar, and they largely utilise the same systems in Bulgaria. The burden in terms of **auditing** is considered to be very heavy by the interviewed stakeholders. Also, the rules for **public procurement are stricter when the EU funds are used**, which leads to delays and complications, which can hinder the innovation process and speed.

Results and Achievements

Bulgaria has **progressed reasonably well in terms of R&D-related legislative measures**, such as the entry into force of the amendments to the Higher Education Act, the National Map of Higher Education and the new Research and Innovation Act. The “Programme to accelerate

⁽⁴⁶⁾ Cohesion Policy support to R&I is derived from the [Cohesion Open Data Platform](#), based on EU amounts under SO 1.1 (“Enhancing research and innovation”) within the “Intervention Field” dimension. Data are based on the version of the platform as of 14 March 2025. Please note that the data on CP support to R&I in the country fiches differ from those in the case studies due to methodological differences: the fiches report the total amounts planned under SO 1.1, whereas in the case studies support is calculated as the sum of the amounts for each investment area, since focusing solely on the overall SO 1.1 allocation would have prevented an analysis by investment area (instrumental in establishing correspondences with HE and RRF support for the coherence analysis). Annex V in the main report sets out the definition of each area.

economic recovery and transformation through research and innovation” has also progressed with contracts with research higher education institutions already signed. Some **milestones related to innovative businesses**, however, such as the number of notifications awarding projects by innovative SMEs and the Bankruptcy law, **have been delayed** ⁽⁴⁷⁾.

Under the performance-based approach, the RRF target for ‘Research Universities’ was limited to the signature of contracts with nine institutions, with payments made once this was achieved. While the universities are expected to deliver on the KPIs in their innovation programmes, these are not monitored within the RRF framework. Examples of KPI achievement are provided below, based on the latest report from the Ministry of Education and Science ⁽⁴⁸⁾:

- Number of articles referenced in the Web of Science – delayed
- Attracting young scientists and improving their qualifications for conducting applied scientific research – achieved

The RRF measure sets targets of 23 annual FTEs for new researchers and 36 patent applications by 2026, both below CPF targets. By end-2024, only about 10 researchers (0.06% of the 2019 baseline ⁽⁴⁹⁾) were reported in supported facilities. Sustainability is to be ensured through piloting performance-based funding for top-tier institutions ⁽⁵⁰⁾, fostering international partnerships, creating synergies with other funds, and embedding reforms such as the Research and Innovation Act and the establishment of an Innovation Board.

⁽⁴⁷⁾ They have not been included as completed in the FENIX system, if they were meant to be completed in 2023 and 2022, respectively. However, the national RRF portal considers them as completed - see, [ISUN 2020](#).

⁽⁴⁸⁾ Source: [Ministry of Education and Science](#).

⁽⁴⁹⁾ Source: [Eurostat](#), tsc00004, last update: 02/05/2025, it was 16,940.

⁽⁵⁰⁾ Discussed during an interview in the case study and described in the project application for the RRF support in higher education institutions, which claims that the relatively low budget for public sector research is distributed among a large number of universities and research institutes, leading to an insufficiently high quality of Bulgarian scientific production.

4. Croatia

Introduction

Croatia has allocated EUR 393 million ⁽⁵¹⁾ from its Recovery and Resilience Plan (RRP) ⁽⁵²⁾ to support R&I initiatives, representing 4% of the total national RRP funding (EUR 10 billion, as of 02/04.2025) ⁽⁵³⁾. The majority of the R&I funding is allocated to the Smart, sustainable and inclusive growth primary pillar with 65%, followed by the pillars Green transition and Digital transformation pillars.

Figure 6: Funding R&I distribution per RRF Primary Pillar

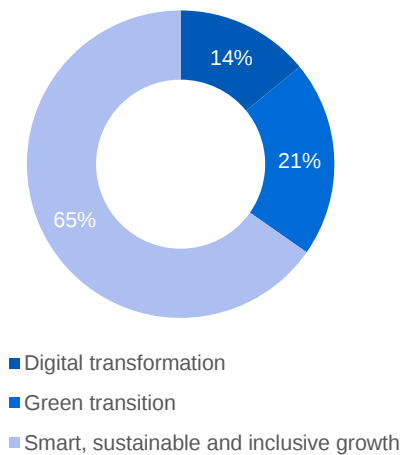
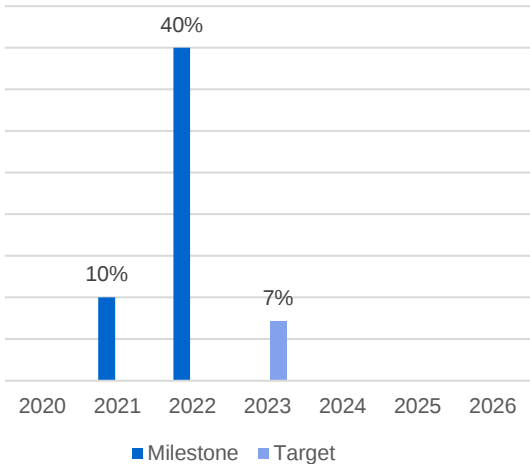


Figure 7: Share of fulfilled R&I M&T out of total R&I M&T



Source: RRF Scoreboard, Fenix database.

Croatia has 8 R&I measures in its RRP and 22 sub-measures, both reforms and investments, and are associated with 24 milestones and targets. To date ⁽⁵⁴⁾, Croatia has fulfilled 50% of its R&I milestones (5 out of 10) and 7% of its R&I targets (1 out of 14) ⁽⁵⁵⁾. In terms of R&I investments, EUR 1.1 million of the total EUR 393 billion included in the national plan for R&I, corresponding to the fulfilment of 6 measures (3 reforms and 3 investments) has been approved and disbursed, amounting to 0.3% of the total R&I allocation. Milestones fulfilled include the entry into force of the new law on the Croatian Science Foundation, the New Science and Higher Education and the entry into force of a new legal framework regulating quality requirements for study programmes, doctoral studies and working conditions for scientific institutions. The fulfilled target entails the allocation of EUR 17 million to fund research projects focused on innovation, research, and development at universities and research institutes.

⁽⁵¹⁾ Fenix database.

⁽⁵²⁾ European Commission. (2021). *Croatia's recovery and resilience plan*. Retrieved April 8, 2025, [here](#).

⁽⁵³⁾ European Commission. (2025). *RRF Scoreboard: Country Overview*, [here](#).

⁽⁵⁴⁾ Fenix database, last extracted on 31/03/2025.

⁽⁵⁵⁾ The number of fulfilled milestones/targets covers only those formally assessed as such. Additional milestones/targets may be completed but not yet assessed.

Interplay of Reforms and Investments

The Croatian RRP demonstrates a **strong synergy between reforms and investments** in the area of research and innovation (R&I). Three key reforms - C3.2.R1 (strengthening RDI capacities of the public research sector), C3.2.R2 (attracting researchers to STEM and ICT fields), and C3.2.R3 (improving efficiency of public investment in RDI) - are supported by linked investments (sub-measures) that reinforce their objectives. For instance, C3.2.R1 introduced a performance-based funding model through the new **Act on Higher Education and Scientific Activity**, with linked investments enabling competitive project funding aligned with institutional strategies. Similarly, C3.2.R2 is supported by infrastructure projects, scholarships, and grants like “Young Researchers’ Career Development,” all aimed at fostering STEM/ICT careers and enhancing digital transformation.

Reform C3.2.R3 streamlined R&I funding processes by expanding the remit of the Croatian Science Foundation to support applied research with investments funding 300 grants under the “Targeted Scientific Research” pilot programme to promote enterprise-research collaboration. These reforms and their associated investments are **mutually reinforcing**, with legislative changes under C3.2.R1 also enhancing the effectiveness of C3.2.R3 by linking funding to performance indicators such as publication quality, international collaboration and research commercialisation. The interplay between reforms further **amplifies their impact**, collectively strengthening Croatia’s RDI landscape and making STEM and ICT careers more attractive and sustainable.

Integration into Domestic R&I Policy Mix

Croatia’s national strategic framework for RDI is shaped by the **National Development Strategy 2030 (NRS 2030)**, the **Smart Specialisation Strategy 2029 (S3 2029)**, and the **National Education System Development Plan 2021–2027 (NPRSO)**. The NRS 2030 serves as the overarching strategy, setting out key policy priorities including reforming the science and research system to meet global standards, developing human potential in STEM and ICT, and overhauling RDI financing mechanisms. These priorities are directly reflected in the Croatian RRP through component C3.2 “Raising research and innovation capacity”. The alignment between the NRS and the RRP ensures that RRF measures are strategically targeted to support Croatia’s long-term RDI goals. It is important to mention that the design of its RRF measures was significantly supported by a comprehensive RDI portfolio analysis conducted by the World Bank in 2018–2019, which proved instrumental when the RRF emerged during the pandemic.

The updated Smart Specialisation Strategy 2029 (S3 2029), published in 2023, builds on the NRS 2030 and leverages the RRP as a key source of structural reforms and funding, particularly for advancing green and digital transitions. For instance, Reform C3.2.R3, which redefined the role of the Croatian Science Foundation, has enabled the Foundation to better support national strategic goals, including those outlined in the S3, by funding research in digital transformation and green technologies. New grant schemes introduced by the Foundation further align with Croatia’s integration into the European Research Area (ERA), reinforcing the strategic coherence between national planning documents and RRP implementation.

Synergies with Other Funding Programmes

The Croatian RRP demonstrates **strong synergies** with other EU funding instruments, particularly the **European Regional Development Fund (ERDF)** and **Horizon Europe (HE)**. Guided by Croatia's National Development Strategy 2030 and Smart Specialisation Strategy 2029, these instruments are strategically aligned to support research excellence, innovation infrastructure, and public-private collaboration. As shown in Table 7~~Error! Reference source not found.~~~~Error! Reference source not found.~~, Croatia has received EUR 136,4 million in Horizon Europe funding, supporting 352 signed grants and involving 539 organisations. The majority of supported entities are private for-profit organisations (37%), higher education institutions (31%), and research organisations (19%). Horizon Europe fosters scientific excellence and technological breakthroughs, supporting a wide range of research activities, from frontier and experimental research to applied research and mission-oriented research projects. A notable example of cross-programme synergy is the RRP measure “Establishment of a hydrogen-based economy” introduced via the REPowerEU amendment. This initiative, implemented through the North Adriatic Hydrogen Valley, is co-funded by Horizon Europe under the Clean Hydrogen Partnership, demonstrating effective cross-programme collaboration ⁽⁵⁶⁾. Beyond Horizon Europe, both RRP and ERDF contribute to strengthening the national RDI ecosystem through investments. They share objectives such as enhancing innovation capacity, strengthening research infrastructure, and fostering collaboration between science and industry. In particular, the ERDF, through its Competitiveness and Cohesion Programme, plays a key role in operationalising these synergies by financing regional R&I infrastructure, facilitating technology transfer and promoting digitalisation, with an emphasis on reducing regional disparities and supporting less developed areas.

Table 7: Horizon Europe funding (2021-2027)

Horizon Europe	
Net EU contribution ⁽⁵⁷⁾	EUR 136,4 million (0.32% of the HE total)
Signed grants	352 (2.20% of the HE total)
Number of organisations involved in HE projects	539 (0.54% of the total)
Rank HE contribution per inhabitant	6
Top three types of supported organisations	Private for-profit entities (37%), Higher or Secondary Education Establishments (31%), Research organisations (19%)
Top 5 keywords	ecosystems; sustainable economy; climatic changes; business models; governance

⁽⁵⁶⁾ European Commission. *North Adriatic Hydrogen Valley (NAHV)*. Clean Hydrogen Partnership, [here](#).

⁽⁵⁷⁾ Please note that the data on Horizon Europe presented in the country fiches differ from those in the case studies due to methodological differences. In the country fiches, Horizon Europe data refer to the total net EU contribution. In the case studies, by contrast, the figures reflect the sum of allocations by investment area (an approach necessary to establish correspondences with Cohesion Policy and RRF support for the coherence analysis). Annex V in the main report defines each investment area. Discrepancies arise from the impossibility of assigning certain Horizon Europe calls to the investment areas used in this analysis.

Source: [HE dashboard](#), Country profiles (mid-March 2025).

As shown in Table 8, Cohesion Policy (CP) has allocated EUR 994,8 million for R&I, further reinforcing this strategic alignment. The core focus of the Croatian RRP lies in supporting structural reforms, applied research and science-business collaboration, which complements broader EU efforts. These priorities have also been supported by the European Commission’s Horizon Policy Support Facility (PSF) for Croatia ⁽⁵⁸⁾, which aids policy development under the EU’s Horizon Europe Framework Programme. This alignment ensures a coherent and complementary funding landscape that maximises the impact of EU and national investments in research and innovation.

Table 8: Cohesion Policy funding (2021-2027)

Cohesion Policy	
Overall EU financing	EUR 8,7 billion
Total EU payments	EUR 228 million (2.62% of the CP total)
R&I EU contribution ⁽⁵⁹⁾	EUR 994,8 million for SO 1.1 “Enhancing research and innovation”
Researchers with improved infrastructure (planned)	70 annual FTEs

Source: [Cohesion data](#) (mid-March 2025).

In terms of sustainability, the RRP’s impact on Croatia’s RDI landscape is expected to extend well beyond 2026, supported by a new legislative framework and a clear roadmap for continued investment through the ERDF and future MFF. Continued funding will be provided through the *Programme for Competitiveness and Cohesion* until 2027, and later through the next MFF. The *DIGIT project*—a EUR 106 million World Bank–funded initiative running through 2028—adds complementary support, targeting transformation areas not addressed by other instruments. Together, these efforts aim to drive structural reform and enhance capacity in Croatia’s R&I ecosystem. Additionally, Croatia will introduce a new R&D tax allowance ⁽⁶⁰⁾ scheme with effect from 2025.

While concerns remain about maintaining R&D intensity and achieving the 3% GDP target, the RRP has helped crowd in additional funding by supporting high-quality projects that may not have secured Horizon Europe grants, and by enabling early-stage projects from the previous programming period to transition smoothly into the RRP. This has ensured momentum, is

⁽⁵⁸⁾ European Commission. PSF to support early stages of innovation and science-business linkages in Croatia. Horizon Europe Policy Support Facility, [here](#)

⁽⁵⁹⁾ Cohesion Policy support to R&I is derived from the [Cohesion Open Data Platform](#), based on EU amounts under Specific Objective (SO) 1.1 (“Enhancing research and innovation”) within the “Intervention Field” dimension. Data are based on the version of the platform as of 14 March 2025. Please note that the data on Cohesion Policy support to R&I in the country fiches differ from those in the case studies due to methodological differences: the fiches report the total amounts planned under SO 1.1, whereas in the case studies support is calculated as the sum of the amounts for each investment area, since focusing solely on the overall SO 1.1 allocation would have prevented an analysis by investment area (instrumental in establishing correspondences with Horizon Europe and RRF support for the coherence analysis). Annex V in the main report sets out the definition of each area.

⁽⁶⁰⁾ HR-C[C112]-R[R1] Reform of the R&D incentive system.

expected to reduce fragmentation, and lay the groundwork for a more resilient and competitive innovation ecosystem.

Bottlenecks

Thus far, there were no major bottlenecks associated with the RRF. However, challenges in implementation arise due to **differing rules** between **direct and shared management** funds, leading to confusion among beneficiaries who tend to benefit from the RRF but also Horizon Europe, Digital Europe or other funds under direct management. For instance, while direct management funds allowed procurement of consumables, shared management funds did not, creating inconsistencies in implementation ⁽⁶¹⁾.

Results and Achievements

Croatia's recent RDI reforms have already yielded **notable results** in strengthening the national research ecosystem. Reform C3.2.R1 led to the adoption of a new Act on Scientific Activity and Higher Education, introducing performance-based funding and enabling 13 public research institutes and so far, one university of applied sciences to sign programme agreements. Reform C3.2.R2 improved recruitment and promotion policies through updated legislation and launched initiatives like the "**Young Researchers' Career Development Programme**," which received 371 project proposals and contributed to a 23% increase in new STEM doctorates since 2023. Meanwhile, Reform C3.2.R3 empowered the Croatian Science Foundation with a stronger mandate and operational capacity, resulting in a new project monitoring framework and strategic funding mechanisms. These reforms have collectively enhanced the quality of research, increased international collaboration, and made Croatia's research environment more attractive, as reflected in the quadrupling of foreign doctoral students, now at 8% in 2024.

The tangible outputs of Croatia's RDI investments are becoming evident, particularly through the successful implementation of investment C3.2.R1.I1, which established a system of programme agreements for funding research institutions and awarded over EUR 17.6 million to diverse scientific projects. While the full impact is still under assessment, these projects span a wide range of disciplines and directly support scientific activity. Additional investments under reforms C3.2.R2 and C3.2.R3 are actively promoting STEM and ICT careers through grants, scholarships, and support for spin-offs, with the Croatian Science Foundation playing a central role. Notable initiatives include the Mobility Programme, which has facilitated numerous international research exchanges, and the Development Research Support programme, which empowers young researchers to lead projects. Furthermore, the Targeted Scientific Research programme under C3.2.R3 fosters collaboration between academia and industry, aiming to advance research toward higher technology readiness levels. While some targets remain unassessed, the breadth and scale of these initiatives suggest a strong foundation for long-term scientific and economic impact.

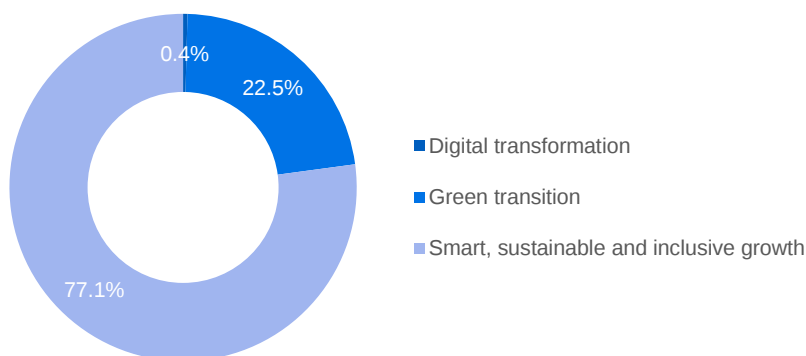
⁽⁶¹⁾ Interview with the Ministry of Regional Development and EU Funds.

5. Cyprus

Introduction

Cyprus has allocated EUR 98.5 million ⁽⁶²⁾ from its Recovery and Resilience Plan (RRP) ⁽⁶³⁾ to support R&I initiatives, representing 8% of the total national RRP funding (EUR 1.22 billion, as of 02/04/2025) ⁽⁶⁴⁾. The majority of the R&I funding has been allocated to the Smart, sustainable, and inclusive growth primary pillar (more than 75%), followed by the Green transition (22.5%). Only a small share is allocated to the Digital transformation primary pillar (0.4%).

Figure 8: Funding R&I distribution per RRF Primary Pillar



Sources: RRF Scoreboard, Fenix database.

Cyprus has 11 R&I measures in the RRP (12, if the sub-measures are counted separately), which are both reforms and investments. Associated with these measures, there are 21 milestones and targets. To date ⁽⁶⁵⁾, Cyprus has fulfilled 54% of its R&I milestones (7 out of 13) and no R&I targets (9) ⁽⁶⁶⁾. Milestones fulfilled concern notably a reform on providing incentives in the form of tax exemption for investments and human capital in R&I and the launch of a central Knowledge Transfer Office (KTO) by the Research and Innovation Foundation.

Interplay of Reforms and Investments

Cyprus' RRP strategically combines sectoral investments with complementary structural and horizontal reforms to strengthen its R&I ecosystem. Key investments include the **“Creation of a Regulatory Sandbox to enable FinTech” (C3.3I2)**, currently under assessment by the European Commission, which fosters digital innovation and supports synergies with green finance, and the **“R&I funding programme on green transition” (C3.2I3)**, which backs high-TRL green technologies aligned with Cyprus' National Energy and Climate Plan. In addition, the **“Set up and operate a central Knowledge Transfer Office (KTO)” (C3.2I1)** complements

⁽⁶²⁾ Fenix database

⁽⁶³⁾ European Commission. (2021). Cyprus' Recovery and Resilience Plan. Retrieved April 7, 2025, [here](#).

⁽⁶⁴⁾ European Commission. (2025). *RRF Scoreboard: Country Overview*, [here](#).

⁽⁶⁵⁾ Fenix database, last extracted on 31/03/2025

⁽⁶⁶⁾ The number of fulfilled milestones/targets covers only those formally assessed as such. Additional milestones/targets may be completed but not yet assessed.

these thematic investments by facilitating technology transfer and commercialisation, helping to address bottlenecks in bringing research to market. The interplay between investments exists in the way separate but related measures address common challenges from multiple angles, generating mutually reinforcing synergies, with sectoral investments also benefiting from the enabling framework created by horizontal investments. Structural reforms such as “**Incentives for investments and human capital in R&I**” (C3.2R2) address systemic barriers like skills shortages and low R&D intensity by improving financial incentives and visa policies to attract STEM talent. While modest in scale, this reform still contributes to improving the investment climate and complements sectoral investments by reinforcing the human and financial resources needed to support innovation in digital and green sectors. Together, sectoral investments drive targeted innovation, while structural reforms improve the governance framework, human capital, and innovation infrastructure, maximising the overall impact and sustainability of Cyprus’ recovery efforts.

Integration into Domestic R&I Policy Mix

Cyprus has effectively aligned its RRP with the national R&I policy mix, embedding several measures in or closely aligning them with key strategic documents. The **National Energy and Climate Plan (NECP)** ⁽⁶⁷⁾ highlights the RRF as a major funding source for the green transition, particularly in renewable energy, energy efficiency, and sustainable mobility, with investments such as the “R&I funding programme on green transition” (C3.2I3) directly supporting NECP priorities. The **National Digital Decade Strategic Roadmap** ⁽⁶⁸⁾ also places emphasis on RRF-backed investments, including the Regulatory Sandbox to enable FinTech (C3.3I2), which contribute to its priorities on digital innovation environments, business digitalisation, and research commercialisation. To sustain RRF-related initiatives beyond 2026, Cyprus plans to rely on a mix of EU and national funding, including the European Regional Development Fund (ERDF) and increased national allocations to the Research and Innovation Foundation (RIF). Existing programmes such as RIF’s Innovation & Technology Transfer Program and the Cyprus Entrepreneurship Fund (CYPFE) are positioned to support the long-term integration of RRF objectives into the national R&I framework.

Synergies with Other Funding Programmes

Cyprus has leveraged synergies between its R&I measures under the RRF and EU funding programmes like **Horizon Europe (HE)** ⁽⁶⁹⁾ and **Cohesion Policy (CP)** ⁽⁷⁰⁾ to maximise impact. While no direct synergy instruments were included in its RRP, synergies exist as the different programmes support similar themes such as in the business innovation and R&D ecosystems areas⁷¹. In **business innovation**, the RRF provides the largest share of funding, followed by Cohesion Policy and Horizon Europe. Key measures include thematic research in enterprises focused on energy production, storage, transmission, and distribution solutions (C6.1I7), “innovation funding programmes and funding schemes for the enhancement of growth and competitiveness of start-ups, innovative companies, and SMEs” (C3.2I2) and support for

⁽⁶⁷⁾ European Commission. (2023). *Cyprus - Draft Updated NECP 2021-2030*. Retrieved April 7, 2025, [here](#).

⁽⁶⁸⁾ Government of Cyprus. (2023). *National Digital Decade – Strategic Roadmap*. Retrieved April 7, 2025, [here](#).

⁽⁶⁹⁾ Research and Innovation Foundation (RIF). (2021). *Horizon Europe Programme*. Retrieved April 7, 2025, [here](#).

⁽⁷⁰⁾ European Commission. (2025). *Cohesion Open Data: 2021–2027 Cohesion Policy*. Retrieved April 7, 2025, [here](#).

⁽⁷¹⁾ Based on R&I measures categorisation developed by the Study Team.

organisations conducting R&D activities on dual technologies (C3.2I4). **R&D ecosystems** measures, such as the “R&I funding programme on the green transition” (C3.2I3), demonstrate close coordination mainly between the RRF and Horizon Europe, reflecting support across different stages of the innovation process.

Although the RRF has not directly increased Cyprus’s participation in Horizon Europe calls, it plays a crucial complementary role by strengthening the national research and innovation ecosystem, notably through investments like the “incentives for investments and human capital in R&I” (C3.2R2), which enhance commercialisation and talent development. As shown in Table 9~~Error! Reference source not found.~~ below, Cyprus’s HE participation includes a net EU contribution of EUR 301,5 million, 630 signed grants, and 874 organisations involved, focusing on priority areas aligned with the RRP such as climate change and sustainable economy.

Table 9: Horizon Europe funding (2021-2027)

Horizon Europe	
Net EU contribution ⁽⁷²⁾	EUR 301,5 million (0,71% of the HE total)
Signed grants	630 (3,94% of the HE total)
Number of organisations involved in HE projects	874 (0,88% of the total)
Rank HE contribution per inhabitant	24
Top three types of supported organisations	Private for-profit entities (48,1%), Higher or Secondary Education Establishments (33,3%), Research Organisations (9,7%)
Top 5 keywords	ecosystems; climatic changes; sustainable economy; sensors; governance

Source: [HE dashboard](#), Country profiles (mid-March 2025).

Cohesion Policy funding, including the ERDF and the JTF, supports the country’s R&I goals by building research infrastructure, boosting innovation capacity, and enabling workforce reskilling through a contribution of EUR 57 million as displayed in Table 10.

While no direct synergies were included in its RRP, programmes like “Thalia”, funded through a mix of Cohesion Policy sources, complement RRP efforts in research and innovation, while the JTF aligns with RRP human capital reforms (C3.2R2) to support the green transition. Together, these funding streams form a coordinated framework that supports the entire research and innovation cycle, from early-stage research to commercialisation and workforce readiness.

⁽⁷²⁾ Please note that the data on HE presented in the country fiches differ from those in the case studies due to methodological differences. In the country fiches, Horizon Europe data refer to the total net EU contribution. In the case studies, by contrast, the figures reflect the sum of allocations by investment area (an approach necessary to establish correspondences with CP and RRF support for the coherence analysis). Annex V in the main report defines each investment area. Discrepancies arise from the impossibility of assigning certain HE calls to the investment areas used in this analysis.

Table 10: Cohesion Policy funding (2021-2027)

Cohesion Policy	
Overall EU financing	EUR 968,57 million
Total EU payments	EUR 67,48 million (6,97%)
R&I EU contribution ⁽⁷³⁾	EUR 57 million for SO 1.1 “Enhancing research and innovation”
Researchers with improved infrastructure (planned)	-

Source: [Cohesion data](#) (mid-March 2025)

Bottlenecks

Cyprus faced some challenges during the early stages of implementing its RRP R&I measures but has largely managed to overcome them through effective coordination and adaptive management. Initial difficulties centred on **establishing a coherent regulatory framework** for all beneficiaries, particularly with the introduction of a unified verification mechanism covering both RRF and ERDF funding. This requirement created a significant **administrative burden**, as beneficiaries and implementing authorities were initially uncertain about compliance obligations. These bottlenecks were addressed through close collaboration between the Research and Innovation Foundation (RIF), the sole implementing body for R&I-related RRP measures, and relevant national authorities, particularly the Ministry of Finance, which serves as the coordinating authority. This cooperation helped clarify procedures and ensure smoother implementation.

While the RRP’s financial and operational frameworks were largely defined from the outset, including programme costing and calls, the RRF has demonstrated a reasonable degree of flexibility. Amendments have been possible where needed, allowing for the launch of additional funding calls (such as a recent call for research infrastructure) and adjustments to milestones or targets. This flexibility has been key to adapting the programme to evolving needs during implementation.

⁽⁷³⁾ CP support to R&I is derived from the [Cohesion Open Data Platform](#), based on EU amounts under SO 1.1 (“Enhancing research and innovation”) within the “Intervention Field” dimension. Data are based on the version of the platform as of 14 March 2025. Please note that the data on CP support to R&I in the country fiches differ from those in the case studies due to methodological differences: the fiches report the total amounts planned under SO 1.1, whereas in the case studies support is calculated as the sum of the amounts for each investment area, since focusing solely on the overall SO 1.1 allocation would have prevented an analysis by investment area (instrumental in establishing correspondences with HE and RRF support for the coherence analysis). Annex V in the main report sets out the definition of each area.

Results and Achievements

Recent developments in Cyprus's R&I measures are starting to show initial results in innovation and sustainability. The "Incentives for Investments and Human Capital in R&I" measure (C3.2R2), fully implemented by November 2024, introduced a tax exemption for legal entities investing in innovative companies to **boost private sector involvement**. The Regulatory Sandbox (C3.3I2), launched by the Cyprus Securities and Exchange Commission (CySEC)⁷⁴ in June 2024, enables FinTech and RegTech firms to **test new technologies within a controlled environment**, fostering regulatory adaptation and collaboration, though it is still awaiting formal European Commission assessment. In the green transition area, the R&I funding programme (C3.2I3) supported a EUR 6 million grant signed in November 2024 for sustainable projects aligned with EU and national environmental standards. Meanwhile, the Central Knowledge Transfer Office (KTO) (C3.2I1), established by the Research and Innovation Foundation in 2024, has engaged with universities, research centres, and enterprises to facilitate knowledge transfer, collaboration, and commercialisation, strengthening Cyprus's innovation ecosystem by delivering services for 86 cases. In addition, 12 local knowledge transfer offices have received capacity-building support on relevant topics, and 26 training workshops were organised to further strengthen the skills of local offices ⁽⁷⁵⁾.

⁽⁷⁴⁾ Cyprus Securities and Exchange Commission. (n.d.). *Cyprus Securities and Exchange Commission Official Website*. Retrieved April 9, 2025, [here](#).

⁽⁷⁵⁾ Research and Innovation Foundation (RIF). (2025). *Two Years of Full Operation of the Knowledge Transfer Office (KTO) of the Research and Innovation Foundation (RIF)*. Retrieved April 9, 2025, [here](#).

6. Czechia

Introduction

Czechia has allocated EUR 689.6 million ⁽⁷⁶⁾ from its Recovery and Resilience Plan (RRP) ⁽⁷⁷⁾ to support R&I initiatives, representing 7% of the total national RRP funding (EUR 9.2 billion, as of 02/04/2025) ⁽⁷⁸⁾. More than half of the R&I funding is allocated to the Smart, sustainable and inclusive growth primary pillar (55%), followed by the Health and economic, social and institutional resilience primary pillar (32%). Digital transformation and Green transition are allocated 9% and 4% of the R&I funding, respectively.

Figure 9: Funding R&I distribution per RRF Primary Pillar

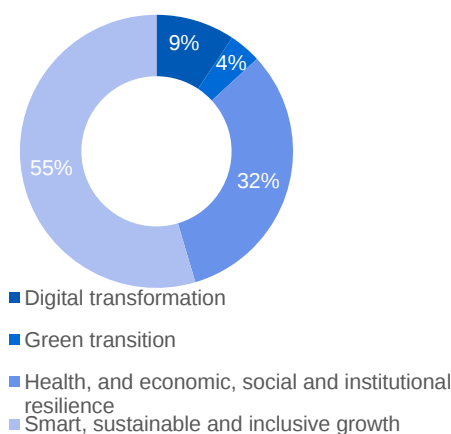
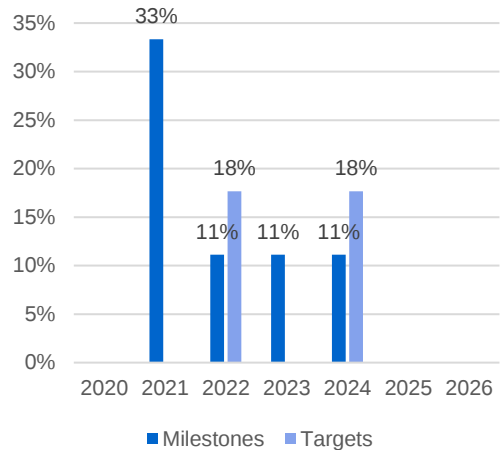


Figure 10: Share of fulfilled R&I M&T out of total R&I M&T



Source: RRF Scoreboard, Fenix database.

Czechia has 15 R&I measures in the RRP, which are both reforms and investments and are associated with 26 milestones and targets. To date ⁽⁷⁹⁾, Czechia has fulfilled 67% of its R&I milestones (6 out of 9) and 35% of its R&I targets (6 out of 17) ⁽⁸⁰⁾. Achievements include the establishment of the National Coordination Group for Industrial Research and the development of the National Oncological Programme of the Czech Republic 2022-2030. Targets include signing grant agreements for enterprises' Research & Development aligned with the RIS3 strategy and awarding public contracts to at least four R&D consortia in medical and related social sciences.

⁽⁷⁶⁾ Fenix database.

⁽⁷⁷⁾ European Commission. (2021). Czechia's Recovery and Resilience Plan. Retrieved April 7, 2025, [here](#).

⁽⁷⁸⁾ European Commission. (2025). RRF Scoreboard: Country Overview, [here](#).

⁽⁷⁹⁾ Fenix database, last extracted on 31/03/2025.

⁽⁸⁰⁾ The number of fulfilled milestones/targets covers only those formally assessed as such. Additional milestones/targets may be completed but not yet assessed.

Interplay of Reforms and Investments

The Czech RRP effectively combines horizontal and thematic reforms with complementary investments to advance national priorities such as healthcare and industrial innovation. While the plan includes important reforms, it places a slightly greater emphasis on investments, leveraging existing strategies and institutional capacities to maximise impact. In industrial R&D, the horizontal reforms, “**National coordination group for support for industrial research**” (C5.2 R1) and “**a strategically managed and internationally competitive R&D&I ecosystem**” (C5.3 R1), aim to strengthen strategic governance, enhance intelligence capacities, foster excellence, and harmonise support procedures. This is complemented by the investment “**Support for R&D cooperation (RIS3 Strategy)**” (C5.2 I2), which supports long-term applied research collaborations between SMEs and public research organisations through the Technology Agency CR (TA CR) Competence Centres. Though implemented separately, these measures jointly address fragmented industrial research funding and limited collaboration between SMEs and research institutions. In healthcare, the thematic reform “**National Oncological Programme – NOP CZ 2030**” (C6.2 R1) focuses on improving cancer care and research infrastructure, supported by initiatives such as the Motol Oncology Centre and Masaryk Memorial Cancer Institute’s Centre for Cancer Prevention. This is further reinforced by the investment “**Public R&D support for priority areas of medical sciences and related social sciences**” (C5.1 I1), which strengthens cancer research and supports national consortia in fields like oncology, diseases, and neurology. Together, C6.2 R1 and C5.1 I1 address weak links between healthcare and biomedical research, aiming to improve care quality, upgrade infrastructure, and boost international cooperation.

Integration into Domestic R&I Policy Mix

Czechia’s RRP aligns thematically with key national R&I strategies, such as the **National Policy for Research, Development, and Innovation 2021+** ⁽⁸¹⁾ and the **National RIS3 Strategy 2021–2027** ⁽⁸²⁾. However, since these documents were developed around the same time rather than sequentially, the RRP measures are not formally integrated or explicitly referenced within the strategic frameworks. Despite this, targeted efforts have enhanced coherence, for example, adapting the support for R&D cooperation (C5.2 I2) to support RIS3 goals and strengthening governance through the creation of the national coordination group for industrial research support (C5.2 R1). These efforts have fostered new partnerships, improved strategic alignment, and bolstered support for SMEs, digitalisation, and Industry 4.0. In the health sector, RRP-funded measures such as the public R&D support for priority medical sciences (C5.1 I1) and the NOP (C6.2 R1) closely align with strategic documents like the **Concept of Medical Research until 2030**. These initiatives have enabled more ambitious and focused interventions than domestic funding alone would allow. RRP funding also reinforces the National RIS3 Strategy, particularly via R&D cooperation (C5.2.I2), and complements national funding programmes such as TREND ⁽⁸³⁾, Technological Incubation ⁽⁸⁴⁾, and National Competence Centres. However, it has often substituted rather than complemented domestic funding, raising concerns about sustainability. The RRP ecosystem also supports Technology Agency

⁽⁸¹⁾ Government of the Czech Republic. (2021). *National Research, Development and Innovation Policy of the Czech Republic 2021+*. Retrieved April 9, 2025, [here](#).

⁽⁸²⁾ Ministry of Industry and Trade of the Czech Republic. (2021). *National Research and Innovation Strategy for Smart Specialisation of the Czech Republic (RIS3)*. Retrieved April 9, 2025, [here](#).

⁽⁸³⁾ Technology Agency of the Czech Republic. (n.d.). *Program TREND*. Retrieved April 9, 2025, [here](#).

⁽⁸⁴⁾ Technology Incubation Project. (n.d.). *Technology Incubation Project Overview*. Retrieved April 9, 2025, [here](#).

programmes like SIGMA ⁽⁸⁵⁾ and THÉTA 2 ⁽⁸⁶⁾ and has stimulated private investment through crowding-in effects. For instance, large companies collaborate with RRF-funded consortia under EXCELES, while SMEs benefit from improved grant access. The NOP (C6.2.R1) also illustrates how the RRF addresses regional infrastructure gaps. While the RRF has broadened the scope and ambition of Czechia’s R&I efforts, there is no formal commitment to continue funding these measures through national budgets beyond 2026. Nonetheless, the RRP has enhanced coordination and revealed gaps in the national R&I policy mix.

Synergies with Other Funding Programmes

Czechia has effectively leveraged synergies between the RRF and other EU funding programmes to enhance its R&I system, particularly in the areas of **business innovation** and **scientific excellence** ⁽⁸⁷⁾. In business innovation, the RRF aligns closely with **Horizon Europe** (HE) through support for R&D cooperation (C5.2.I4), co-funding high-potential SMEs and enabling the implementation of nine EIC Accelerator Seal of Excellence projects previously unfunded at the EU level. Overall, Czechia’s participation in HE includes EUR 477,6 million in funding (1.12% of the EU total), with 966 grants signed and over 1,300 organisations engaged, as shown in Table 11. In scientific excellence, the EXCELES programme (C5.1.I1) complements HE partnerships by supporting national consortia in oncology, neuroscience, and infectious diseases, fostering coordinated research and stronger private sector engagement.

Table 11: Horizon Europe funding (2021-2027)

Horizon Europe	
Net EU contribution ⁽⁸⁸⁾	EUR 477,6 m (1,12% of the HE total)
Signed grants	966 (6,05% of the HE total)
Number of organisations involved in HE projects	1349 (1,36% of the total)
Rank HE contribution per inhabitant	7
Top three types of supported organisations	Higher or Secondary Education Establishments (51,8%), Private for-profit entities (22,1%), Research Organisations (16,0%)
Top 5 keywords	ecosystems; climatic changes; sustainable economy; governance; machine learning

Source: [HE dashboard](#), Country profiles (mid-March 2025).

⁽⁸⁵⁾ Technology Agency of the Czech Republic. (2023). *SIGMA Programme*. Retrieved April 9, 2025, [here](#).

⁽⁸⁶⁾ Technology Agency of the Czech Republic. (2023). *THETA 2 Programme*. Retrieved April 9, 2025, [here](#).

⁽⁸⁷⁾ Based on R&I measures categorisation developed by the Study Team.

⁽⁸⁸⁾ Please note that the data on Horizon Europe presented in the country fiches differ from those in the case studies due to methodological differences. In the country fiches, Horizon Europe data refer to the total net EU contribution. In the case studies, by contrast, the figures reflect the sum of allocations by investment area (an approach necessary to establish correspondences with Cohesion Policy and RRF support for the coherence analysis). Annex V in the main report defines each investment area. Discrepancies arise from the impossibility of assigning certain Horizon Europe calls to the investment areas used in this analysis.

Synergies with **Cohesion Policy** are particularly notable in scientific excellence through the Operational Programme Johannes Amos Comenius (OP JAK) ⁽⁸⁹⁾, financed by European Regional Development Fund (ERDF)/European Social Fund Plus (ESF+), which since 2022 has launched calls totalling nearly CZK 13 billion. OP JAK complements RRF measures (C5.1.I1 and C5.2.I2) by investing in research infrastructure and skills, supporting together with the Competitiveness and Cohesion 2021-2027 programme, an expected 960 annual full-time equivalents (FTEs) in improved infrastructure, as displayed in Table 12.

Additional alignment exists between R&D cooperation (C5.2.I2), the Operational Programme Technology and Application for Competitiveness (OP TAC) ⁽⁹⁰⁾, and the Just Transition programme, supporting innovation in transforming regions. However, ensuring coordination between the RRF and other funding programmes has been challenging in practice, particularly in avoiding project duplication and double funding.

A key issue is the lack of access to detailed information about EU-funded projects due to legal and confidentiality barriers. This limitation makes it difficult to effectively cross-check projects and ensure alignment between funding mechanisms. Overlap with programmes like APLIKACE has caused administrative challenges, and unstable co-financing has hindered large-scale project support. Despite strong HE and CP participation, SME involvement remains limited due to preferences for national or RRF funding with simpler administration.

Table 12: Cohesion policy funding (2021-2027)

Cohesion Policy	
Overall EU financing	EUR 21,05 billion
Total EU payments	EUR 2,74 billion (13,01%)
R&I EU contribution ⁽⁹¹⁾	EUR 1,97 billion for SO 1.1 “Enhancing research and innovation”
Researchers with improved infrastructure (planned)	960 annual FTEs

Source: [Cohesion data](#) (mid-March 2025).

⁽⁸⁹⁾ Ministry of Education, Youth and Sports of the Czech Republic. (2021). *Operational Programme Jan Amos Comenius (OP JAK)*. Retrieved April 9, 2025, [here](#).

⁽⁹⁰⁾ Business and Innovation Agency. (2023). *Operational Program Technologies and Application for Competitiveness (OP TAC) 2021–2027*. Retrieved April 9, 2025, [here](#).

⁽⁹¹⁾ Cohesion Policy support to R&I is derived from the [Cohesion Open Data Platform](#), based on EU amounts under Specific Objective (SO) 1.1 (“Enhancing research and innovation”) within the “Intervention Field” dimension. Data are based on the version of the platform as of 14 March 2025. Please note that the data on Cohesion Policy support to R&I in the country fiches differ from those in the case studies due to methodological differences: the fiches report the total amounts planned under SO 1.1, whereas in the case studies support is calculated as the sum of the amounts for each investment area, since focusing solely on the overall SO 1.1 allocation would have prevented an analysis by investment area (instrumental in establishing correspondences with Horizon Europe and RRF support for the coherence analysis). Annex V in the main report sets out the definition of each area.

Bottlenecks

Despite progress in implementing R&I measures under the RRP, Czechia still faces structural and operational bottlenecks. These include **inefficiencies in R&I governance and coordination**, as well as hurdles in **aligning** R&I measures across various funding instruments. Some measures were designed **without sufficient implementation insights**, leading to **capacity mismatches** and **unclear responsibilities**. Frequent methodological revisions and administrative burdens have emerged, especially under the support for R&D cooperation (C5.2 I2) measure. Overlaps with domestic programmes like TREND caused confusion, and unclear indicators, particularly in health-related investments, have slowed monitoring. A **rigid governance structure**, centred around one ministry, further restricts responsiveness, while KPI rigidity limits adaptability. In response, Czech authorities have **revised the plan** (2023), enhanced **coordination**, introduced **improved monitoring**, and initiated **internal reforms** to enable **more adaptive implementation**.

Results and Achievements

The Czech RRP has driven significant progress in R&I, particularly in **scientific excellence** and **R&D ecosystems** ⁽⁹²⁾, strengthening science-business collaboration and enhancing healthcare research infrastructure. A key milestone was the 2021 establishment of the **national coordination group for industrial research** (C5.2 R1), which improved alignment between national and EU-funded programmes such as TREND and Technological Incubation, and enhanced coherence with the National RIS3 Strategy. It also fostered university-SME partnerships, boosting resource efficiency and sustainability. In parallel, the reform “**a strategically managed and internationally competitive R&D&I ecosystem**” (C5.3 R1) is expected to strengthen strategic intelligence capacities for R&I policy, create an excellence programme and harmonise the procedural rules for public R&I support by 2025. In healthcare, the “**National Oncological Programme**” (C6.2 R1) has improved cancer care infrastructure through initiatives like the Motol Oncology Centre and improved integration with European oncology networks via systematic data sharing. Other measures are showing early impact: “public R&D support for medical and social sciences” (C5.1 I1) has launched new research consortia, while “Support for R&D cooperation” (C5.2 I2) has broadened SME and institutional participation, enhancing knowledge exchange and industry-relevant outputs. Monitoring tools, including annual evaluations and ex-ante funding tools, support long-term research viability. Upcoming initiatives, such as grant agreements for cooperation projects involving at least 60 SMEs and the launch of the National Screening Centre, aim to further build national research capacity. Private investment, especially by large firms, has also grown, accelerated by the RRP. Despite challenges, the RRP has catalysed structural change in the Czech innovation ecosystem and deepened integration into the European Research Area.

⁽⁹²⁾ Based on R&I measures categorisation developed by the Study Team.

7. Denmark

Introduction

Denmark has allocated EUR 304 million ⁽⁹³⁾ from its Recovery and Resilience Plan (RRP) ⁽⁹⁴⁾ to support R&I initiatives, representing 19% of the total national RRP funding (EUR 1.62 billion, as of 02/04/2025) ⁽⁹⁵⁾. R&I funding has been allocated mainly to the Green transition primary pillar. These efforts include measures aimed at decarbonising the economy, including in sectors such as agriculture and transport, promoting circularity, and reducing energy dependencies. A significant portion of the R&I-related RRF funding (around 48%) was allocated to support tax incentives for companies engaged in R&I across multiple sectors. Another significant share of RRF funds (31%) was allocated to support four mission-driven green partnerships.

Figure 11: Funding R&I distribution per RRF Pillar

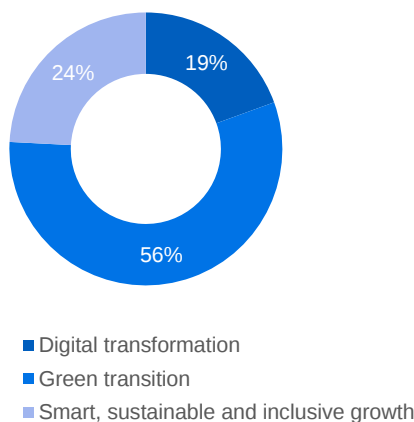
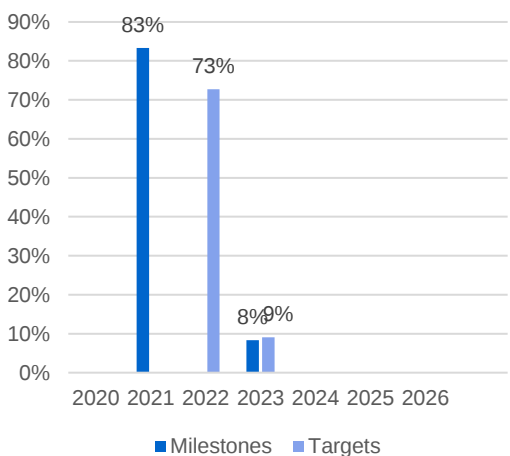


Figure 12: Share of fulfilled R&I M&T out of total R&I M&T



Source: RRF Scoreboard, Fenix database.

Denmark has 6 R&I measures in its RRP (13 if we include the sub-measures), all of which are investment-related and are associated with 23 milestones and targets. In terms of R&I investments, around EUR 269 million out of the total EUR 304 million included in the national plan for R&I has been approved and disbursed, corresponding to the fulfilment of 3 measures and 7 sub-measures; i.e. 89% of the total. To date ⁽⁹⁶⁾, the country has fulfilled 92% of its R&I milestones (11 out of 12), and 82% of its R&I targets (9 out of 11) ⁽⁹⁷⁾. Among the R&I-related milestones achieved, examples include the call for applications for the subsidy schemes for climate technologies in agriculture (brown biorefineries) and the bill on deductions for research and development work. Examples of fulfilled targets include the 500 firms that have made use

⁽⁹³⁾ Fenix database.

⁽⁹⁴⁾ European Commission. (2021). Denmark's Recovery and Resilience Plan. Retrieved April 7, 2025, [here](#).

⁽⁹⁵⁾ European Commission. (2025). RRF Scoreboard: Country Overview, Retrieved April 7, 2025, [here](#).

⁽⁹⁶⁾ Fenix database, last extracted on 31/03/2025

⁽⁹⁷⁾ The number of fulfilled milestones/targets covers only those formally assessed as such. Additional milestones/targets may be completed but not yet assessed.

of the research and development tax deduction. Other targets (8 in total) were achieved when four public-private research partnerships were selected through open calls and received funding from Innovation Fund Denmark. The partnerships address the following challenges: carbon capture and storage (CCS) or use of CO₂, green fuels for transport and industry, climate and environment-friendly agriculture and food production, and a circular economy focusing on the reuse and reduction of plastic and textile waste. The remaining two targets were planned to be achieved in 2025 and related to the setup of one full-scale biorefinery and the completion of six projects supporting organic innovation.

Interplay of Reforms and Investments

Denmark has not planned reforms in its RRP support for R&I. Instead, its approach to allocating RRF funds in this policy area focused on enhancing the financial leverage of existing programmes, primarily in the area of the green and energy transition. The main needs addressed were to reinforce the Danish R&I systems in areas related to decarbonisation of industry, reduction of emissions in the agriculture sector and mitigating disruptions in the energy market, consistently with the Country Specific Recommendations 2020-2023. These objectives were further reinforced with the inclusion of a REPowerEU chapter in the Danish RRP, amounting to DKK 1.47 billion (approximately EUR 197 million) ⁽⁹⁸⁾, including DKK 491 million transferred from the Brexit Adjustment Reserve.

Integration into national R&I Policy Mix

Denmark's allocation under the RRF was relatively modest at EUR 1.62 billion, with 19% directed towards R&I, representing less than 5% of the country's average annual public R&I spending between 2021 and 2023. Funding has been thematically concentrated on supporting innovation related to the Green Deal, reflecting Denmark's strong interest in maintaining a strong positioning in green technologies. The funding was strategically used to support decarbonisation targets for 2030 and 2050 by reinforcing existing national strategies, such as the Danish Climate Act and the Green Solutions of the Future ⁽⁹⁹⁾. Rather than creating new initiatives, Denmark integrated RRF funds into a preexisting pipeline of programmes, accelerating their implementation. Thus, the measures supported by the RRF were based on preexisting plans and would possibly have been implemented even without RRF funding, though on a smaller scale and over a longer timeframe.

Synergies with other Funding Programmes

The RRF funds were integrated into **national programmes**, providing additional financial resources without causing crowding-out effects. Denmark has not earmarked any of its RRF resources for the co-financing of other EU funding instruments dedicated to R&I. Participation in **Horizon Europe (HE)** has become increasingly important for Danish R&I stakeholders. However, this external funding has been offset by reductions in national funding, capping the total public R&D budget at about 1% of GDP, meaning Horizon Europe contributions **replace**

⁽⁹⁸⁾ Ministry of Finance of Denmark. (2023). Addendum to Denmark's Recovery and Resilience Plan - REPowerEU Chapter.

⁽⁹⁹⁾ Ministry of Higher Education and Science. (2020). Green solutions of the future: Strategy for investments in green research, technology and innovation. Danish Ministry of Higher Education and Science.

rather than supplement national investment ⁽¹⁰⁰⁾. Organisations that are successful in securing Horizon Europe funding, including Danish universities and research transfer organisations, are also actively involved in implementing several RRF measures and sub-measures. These include the four mission-driven green partnerships, carbon capture projects, and feasibility studies on sustainable transport. As shown in **Error! Reference source not found.**, Denmark has received EUR 1.2 billion in Horizon Europe funding, with 1,764 signed grants involving 2,500 organisations.

Table 13: Horizon Europe funding (2021-2027)

Horizon Europe	
Net EU contribution ⁽¹⁰¹⁾	EUR 1,2 billion (2.90% of the HE total)
Signed grants	1764 (11.04% of the HE total)
Number of organisations involved in HE projects	2500 (2.52% of the total)
Rank HE contribution per inhabitant	24
Top three types of supported organisations	Higher or Secondary Education Establishments (63.4%), Private for-profit entities (17.6%), Public bodies (9.2%)
Top 5 keywords	ecosystems; climatic changes; sustainable economy; machine learning; renewable energy

Source: [HE dashboard](#), Country profiles (mid-March 2025).

As shown in **Error! Reference source not found.**, Denmark has also allocated resources to R&I from **Cohesion Policy (CP)** funds, including the European Regional Development Fund (ERDF), with a total of EUR 72.6 million dedicated to supporting areas related to the green transition and the decarbonisation of the economy, which partially overlap with investments under the RRF. However, the ERDF follows a distinct approach by prioritising the adoption of existing technologies and their integration into business models, as well as enhancing cooperation across value chains, rather than funding the development of new technologies. The target groups of the two funding streams also differ, which limits funding overlaps and enhances complementarities.

⁽¹⁰⁰⁾ Technical University of Denmark (DTU). (2024). *Denmark secures €1 billion in EU funding for research and innovation*. Retrieved April 9, 2025, [here](#)

⁽¹⁰¹⁾ Please note that the data on Horizon Europe presented in the country fiches differ from those in the case studies due to methodological differences. In the country fiches, Horizon Europe data refer to the total net EU contribution. In the case studies, by contrast, the figures reflect the sum of allocations by investment area (an approach necessary to establish correspondences with Cohesion Policy and RRF support for the coherence analysis). Annex V in the main report defines each investment area. Discrepancies arise from the impossibility of assigning certain Horizon Europe calls to the investment areas used in this analysis.

Table 14: Cohesion Policy funding (2021-2027)

Cohesion Policy	
Overall EU financing	EUR 455,7 million
Total EU payments	EUR 46,2 million (10.14% of the CP total)
R&I EU contribution ⁽¹⁰²⁾	EUR 72,6 million for SO 1.1 “Enhancing research and innovation”
Researchers with improved infrastructure (planned)	-

Source: [Cohesion data](#) (mid-March 2025).

Complementarities between the Danish RRP-supported measures and the EU Innovation Fund have been leveraged in the CCS area. The EU Innovation Fund has awarded EUR 41 million to a consortium led by a Danish oil and gas operator for the Greensand Future project, which will store CO₂ in a depleted oil and gas field in the North Sea. This project builds on a successful pilot phase that received support under the RRF and aims to scale up CCS to an industrial level.

Bottlenecks

The implementation of the planned R&I measures and sub-measures has **progressed smoothly and largely according to plan**. There were no major bottlenecks associated with the implementation of the planned RRP investments. However, stakeholders pointed to a considerable **administrative burden** that complicated procedures. Initially, there was some confusion among recipients, ministries and agencies of RRF funding, as the funds were integrated into the State Finance Act and some beneficiaries were unaware that they were receiving EU support. This issue was subsequently addressed through improved communication by the Danish Ministry of Finance.

Results and Achievements

The implementation of Denmark’s RRP is **progressing steadily** with most R&I milestones and targets achieved. While its broader impacts are not yet visible, the plan has contributed to accelerating public efforts towards the country’s ambitious decarbonisation goals. Looking ahead, Denmark remains committed to its climate targets and intends to continue the support initiated under the RRF. This includes extending measures beyond 2026, such as the four public–private research partnerships, the R&I tax scheme, and pilot projects on carbon capture.

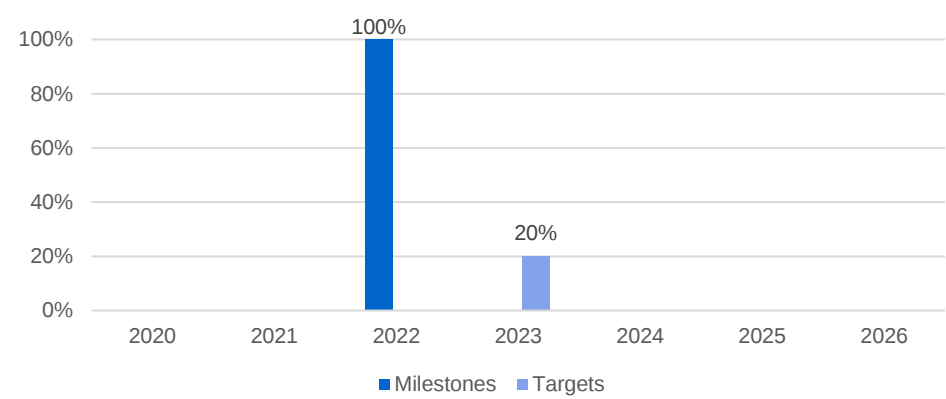
⁽¹⁰²⁾ Cohesion Policy support to R&I is derived from the [Cohesion Open Data Platform](#), based on EU amounts under SO 1.1 (“Enhancing research and innovation”) within the “Intervention Field” dimension. Data are based on the version of the platform as of 14 March 2025. Please note that the data on CP support to R&I in the country fiches differ from those in the case studies due to methodological differences: the fiches report the total amounts planned under SO 1.1, whereas in the case studies support is calculated as the sum of the amounts for each investment area, since focusing solely on the overall SO 1.1 allocation would have prevented an analysis by investment area (instrumental in establishing correspondences with HE and RRF support for the coherence analysis). Annex V in the main report sets out the definition of each area.

8. Estonia

Introduction

Estonia has allocated EUR 71.4 million ⁽¹⁰³⁾ from its Recovery and Resilience Plan (RRP) ⁽¹⁰⁴⁾ to support R&I initiatives, representing 7% of the total national RRP funding (EUR 953 million as of 02/04/2025) ⁽¹⁰⁵⁾. The total allocation of R&I funds has been allocated to the Green transition primary pillar. Estonia has 3 R&I measures in its RRP, all of which are investment-related and are associated with 8 milestones and targets. To date ⁽¹⁰⁶⁾, Estonia has fulfilled 100% of its R&I milestones (3 out of 3) and 20% of its R&I targets (1 out of 5) ⁽¹⁰⁷⁾. The three fulfilled milestones include the entry into force of the Ministerial Decree setting out the terms and conditions of grant eligibility aimed at modernising of the business models in manufacturing companies, the publication of a call for proposals for grants related to the deployment of resource-efficient green technologies and one call for proposal for the Pilot Energy Storage Programme. As for targets, the fulfilled target is related to grants awarded to projects for the deployment of resource-efficient green technologies.

Figure 13: Share of fulfilled R&I M&T out of total R&I M&T



Source: Fenix database.

Interplay of Reforms and Investments

The Estonian RRP is primarily investment-focused and does not include structural or horizontal reforms targeting the research and innovation ecosystem. Instead, it features a set of sectoral and thematic investments designed to accelerate Estonia’s green and digital transition. Key measures, such as the “modernisation of business models in manufacturing companies” (C.B I2.4), the “deployment of resource-efficient green technologies” (C.B I2.5), and the “pilot energy

⁽¹⁰³⁾ Fenix database.

⁽¹⁰⁴⁾ Government of the Republic of Estonia. (updated 2023). TAASTE- ja VASTUPIDAVUSKAVA(EE) (Translation: Recovery and Resilience Plan). Retrieved April 3, 2025, [here](#).

⁽¹⁰⁵⁾ European Commission. (2025). RRF Scoreboard: Country Overview, [here](#)

⁽¹⁰⁶⁾ Fenix database, last extracted on 31/03/2025.

⁽¹⁰⁷⁾ The number of fulfilled milestones/targets covers only those formally assessed as such. Additional milestones/targets may be completed but not yet assessed.

storage programme” (C.D I4.7), form a strategic continuum. Together, they address industrial processes, clean energy, and circular economy models as a coherent and mutually reinforcing package. While no formal structural reforms are introduced, the RRP fosters synergies between **sustainability goals** and **technological modernisation**. For instance, the “modernisation of business models in manufacturing companies” (C.B I2.4) acts as a catalyst for integrating green and digital solutions, encouraging companies to align with climate objectives and digital capabilities. This is complemented by the “deployment of resource-efficient green technologies” (C.B I2.5), which supports technological upgrades in production and bio-resource valorisation. The interplay between these measures and others like digitalisation and energy security has led to an integrated innovation ecosystem supporting companies throughout their value chains. The RRP aims to achieve tangible results, including supporting 70 enterprises in adopting environmentally aligned practices through C.B I2.4 and mobilising EUR 48 million in private co-financing and EUR 24 million in public funding via C.B I2.5.

Integration into Domestic R&I Policy Mix

Estonia's RRP is well integrated into the country's broader R&I policy landscape, particularly through its alignment with the **Estonia 2035 strategy** ⁽¹⁰⁸⁾ and, more implicitly, with the **Estonian Research, Development, Innovation and Entrepreneurship Strategy 2021–2035 (RDIE Strategy)** ⁽¹⁰⁹⁾. Both strategies prioritise green growth, digital transformation, and enhanced innovation capacity. The Estonia 2035 strategy explicitly refers to the RRP's role in supporting the green transition in business, improving environmental data access, and fostering innovation in climate technologies. Key RRP-supported activities include “Fostering the deployment of integrated hydrogen technologies” (C.B I2.7), the “creation of innovation clusters and the Green Fund” (C.B I2.6), and investments under Promoting the “deployment of resource-efficient green technologies” (C.B I2.5), demonstrating formal integration of the RRP into Estonia's strategic objectives. Although not explicitly referenced in the RDIE Strategy, many RRP measures directly support its aims. For instance, investments in the “modernisation of business models in manufacturing companies” (C.B I2.4) and the “deployment of resource-efficient green technologies” (C.B I2.5) help enhance innovation capacity, strengthen research-industry collaboration, and support sustainability in traditionally low R&I sectors. The Green Fund fills a key gap by offering Estonia's first equity-based financing for early-stage, hardware-focused cleantech ventures. Coordination by the Estonian Business and Innovation Agency, alongside ministries and smaller fund managers like SmartCap, supports the implementation of RRP measures while enabling firms to combine funding from multiple sources. The RRP complements existing national programmes by targeting high-risk or underfunded areas, including large-scale demonstration projects and circular economy innovations. **No crowding-out effects** have been reported; instead, the RRP has filled critical funding gaps and enabled higher-risk, higher-impact projects that would not have been feasible with domestic resources alone. Some RRP measures, the business model modernisation and the Green Fund, are being assessed for continuation post-2026 due to strong demand and strategic relevance.

⁽¹⁰⁸⁾ Government of the Republic of Estonia. (Updated 2022). *Estonia 2035*. Retrieved on April 3, 2025, [here](#).

⁽¹⁰⁹⁾ Government of the Republic of Estonia, Ministry of Education and Research, Ministry of Ecocnomic Affairs and Communications. (2021). *Estonian Research and Development, Innovation and Entrepreneurship Strategy 2021-2035 (RDIE)*. Retrieved on April 3, 2025, [here](#).

Synergies with Other Funding Programmes

Estonia has effectively leveraged its RRP to create synergies with key EU funding programmes, particularly Horizon Europe (HE) and the EU Cohesion Policy (CP), to strengthen its R&I landscape. These synergies include **co-funding**, cumulative synergies with an expansion logic, and **upstream/downstream** planned synergies that support a more integrated innovation ecosystem. The synergies are particularly evident in the area of **business innovation**, especially within the grants for RDI in enterprises sub-area, where coordinated support has enhanced the impact and reach of innovation funding ⁽¹¹⁰⁾. The RRP aligns closely with **Horizon Europe**, which plays a key role in boosting Estonia's research capacity and fostering cross-border collaboration in green technologies, circular economy, and energy systems. With a net contribution of EUR 258,1 million and 523 signed grants as of mid-March 2025, HE provides a solid foundation for innovation, as shown in **Error! Reference source not found..** A clear example of complementarity is the promotion of integrated hydrogen technologies (C.B I2.7), which scales up HE's clean energy agenda by developing hydrogen value chains, complementing projects like "High energy ray ceramic" (HERC) under the European Innovation Council. Upstream/downstream synergies are also visible between HE's innovation ecosystems and RRP measures such as the "modernisation of business models in manufacturing companies" (C.B I2.4) and the "deployment of resource-efficient green technologies" (C.B I2.5), which support the wider adoption of HE innovations, including Smart Cities solutions.

Table 15: Horizon Europe funding (2021-2027)

Horizon Europe	
Net EU contribution ⁽¹¹¹⁾	EUR 258,1 million (0,60% of the HE total)
Signed grants	523 (3,27% of the HE total)
Number of organisations involved in HE projects	664 (0,67% of the total)
Rank HE contribution per inhabitant	20
Top three types of supported organisations	Private for-profit entities (35%), Higher or Secondary Education Establishments (49%), Other (8,8%)
Top 5 keywords	ecosystems; business models; governance; sustainable economy; civil society

Source: [HE dashboard](#), Country profiles (mid-March 2025).

In parallel, Estonia's RRP creates synergies with **EU Cohesion Policy** ⁽¹¹²⁾ funding, which for 2021–2027 allocates EUR 3,3 billion, including EUR 343,9 million dedicated to R&I, as shown in **Error! Reference source not found..** The pilot energy storage programme (C.D I4.7) is an e

⁽¹¹⁰⁾ Based on R&I measures categorisation developed by the Study Team.

⁽¹¹¹⁾ Please note that the data on Horizon Europe presented in the country fiches differ from those in the case studies due to methodological differences. In the country fiches, Horizon Europe data refer to the total net EU contribution. In the case studies, by contrast, the figures reflect the sum of allocations by investment area (an approach necessary to establish correspondences with Cohesion Policy and RRF support for the coherence analysis). Annex V in the main report defines each investment area. Discrepancies arise from the impossibility of assigning certain Horizon Europe calls to the investment areas used in this analysis.

⁽¹¹²⁾ European Commission. (2021). *Cohesion Policy*. Retrieved April 3, 2025, from [Inforegio - Cohesion Policy](#)

xample of sequential synergy, laying groundwork for larger Cohesion Fund infrastructure projects in energy and smart grids. European Regional Development Fund (ERDF) support for technology transfer and digital transformation across thousands of companies, combined with ESF+ investments in skills development, complements RRP measures like C.B I2.4 and C.B I2.5 ⁽¹¹³⁾. The Just Transition Fund (JTF) ⁽¹¹⁴⁾ strengthens local innovation ecosystems in transition regions such as Ida-Viru, reinforcing efforts on decarbonisation and economic diversification. Together, these coordinated initiatives enhance the coherence and impact of Estonia’s green and digital transition.

Table 16: Cohesion Policy funding (2021-2027)

Cohesion Policy	
Overall EU financing	EUR 3,3 billion
Total EU payments	EUR 420 million (12,47%) - prefinancing
R&I EU contribution ⁽¹¹⁵⁾	EUR 343,9 million for SO 1.1 “Enhancing research and innovation”
Researchers with improved infrastructure (planned)	-

Source: [Cohesion data](#) (mid-March 2025).

Bottlenecks

The implementation of Estonia’s R&I measures under the RRP has faced several challenges according to stakeholders’ interviews, largely due to tight timelines and the complexity of high-risk innovation projects in emerging sectors such as hydrogen, bio-resources, and energy systems. In response, Estonia has adopted a proactive and adaptive approach, introducing a range of targeted solutions to maintain momentum. For the “Deployment of resource-efficient green technologies” (C.B I2.5), early permitting delays and uncertainty around technical targets were mitigated through adaptive project management and closer collaboration with applicants. The “Modernisation of business models in manufacturing companies” (C.B I2.4) initially saw low uptake, which was addressed by simplifying compliance requirements (e.g., “do no significant harm” clause), broadening reimbursable costs, and increasing grant rates for companies outside major urban centres. The “Promotion of integrated hydrogen technologies” (C.B I2.7) faced infrastructure and market-readiness issues, prompting a strategic shift toward pilot-scale testing to build capacity for future expansion. Similarly, the “Pilot energy storage programme” (C.D I4.7)

⁽¹¹³⁾ European Commission. (2023). *2023 Country Report Estonia European Economy*. Retrieved April 3, 2025, from [2023 Country Report - Estonia](#).

⁽¹¹⁴⁾ European Commission. (2021). *Just Transition Fund*. Retrieved April 3, 2025, from [Inforegio - Just Transition Fund](#)

⁽¹¹⁵⁾ Cohesion Policy support to R&I is derived from the [Cohesion Open Data Platform](#), based on EU amounts under Specific Objective (SO) 1.1 (“Enhancing research and innovation”) within the “Intervention Field” dimension. Data are based on the version of the platform as of 14 March 2025. Please note that the data on Cohesion Policy support to R&I in the country fiches differ from those in the case studies due to methodological differences: the fiches report the total amounts planned under SO 1.1, whereas in the case studies support is calculated as the sum of the amounts for each investment area, since focusing solely on the overall SO 1.1 allocation would have prevented an analysis by investment area (instrumental in establishing correspondences with Horizon Europe and RRF support for the coherence analysis). Annex V in the main report sets out the definition of each area.

encountered delays due to permitting complexities and supply chain constraints; Estonia responded by adjusting timelines and involving local authorities more directly in project execution. The “Green Fund” (C.B I2.6) faced initial difficulties in interpreting investment targets and disbursement schedules. These were resolved through legal clarification, improved coordination among implementing bodies, and ongoing dialogue with partners.

Results and Achievements

Estonia's RRP investments in green industrial innovation and clean technologies are delivering significant early results. These initiatives are addressing longstanding gaps in funding and innovation capacity by supporting applied research, promoting the adoption of green technologies, and increasing the innovation-readiness of industry. The “Green Fund” (C.B I2.6), launched in late 2023, has helped commercialise university-developed technologies and supported the creation of 2C Ventures, Estonia's first green tech-focused VC fund. In the manufacturing sector, 70 companies are being supported to redesign their business models around climate goals through measure C.B I2.4, with strong uptake of advisory services and university partnerships. Resource-efficient technologies (C.B I2.5) are also being deployed, including 26 energy-efficiency projects and 10 bio-resource pilots focused on sustainable packaging and biomaterials. In clean energy, early pilot projects under the hydrogen (C.B I2.7) and energy storage (C.D I4.7) measures are testing new technologies, contributing to the national hydrogen roadmap and grid resilience planning. These actions are strengthening Estonia's innovation ecosystem, which benefits from a robust monitoring framework and strong start-up activity. While challenges remain in SME technology uptake and business R&D intensity, targeted RRP measures are helping to close these gaps. The initiatives are already shaping national and EU innovation agendas, with many designed for post-2026 scale-up. Their long-term sustainability is supported by improving governance, institutional coordination, and integration into EU programmes like Horizon Europe.

9. Finland

Introduction

Finland has allocated EUR 362,9 million ⁽¹¹⁶⁾ from its Recovery and Resilience Plan (RRP) ⁽¹¹⁷⁾ to support R&I initiatives, representing 19% of the total national RRP funding (EUR 1,9 billion, as of 02/04/2025) ⁽¹¹⁸⁾. The majority of funds are allocated to the Green transition primary pillar, with over 70%, followed by the Smart, sustainable, and inclusive growth primary pillar (17%). A smaller share has been allocated to the Digital transformation primary pillar (9%).

Figure 14: Funding R&I distribution per RRF Primary Pillar

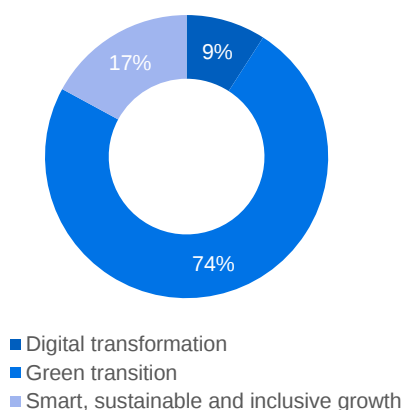
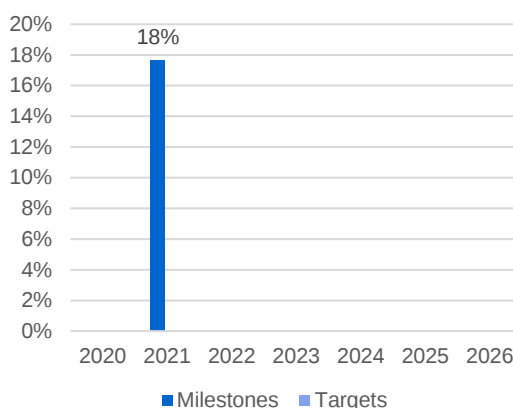


Figure 15: Share of fulfilled R&I M&T out of total R&I M&T



Sources: RRF Scoreboard, Fenix database.

Finland has 8 R&I measures in its RRP (9 if sub-measures are included), all of which are investments-related and are associated with 35 milestones and targets. To date ⁽¹¹⁹⁾, Finland has fulfilled 18% of its R&I milestones (3 out of 17) and none of its R&I targets (18) ⁽¹²⁰⁾. Milestones fulfilled include the publication of a first call for applications regarding support for a low-carbon built environment and the publication of a call for applications for the renewal and development of national research infrastructures.

Interplay of Reforms and Investments

Finland's RRP focuses on targeted investments in R&I to support the green transition and digitalisation, without introducing new structural reforms under the plan itself. The approach is

⁽¹¹⁶⁾ Fenix database.

⁽¹¹⁷⁾ European Commission. (2021). *Finland's recovery and resilience plan*. Retrieved April 8, 2025, [here](#).

⁽¹¹⁸⁾ European Commission. (2025). *RRF Scoreboard: Country Overview*, [here](#).

⁽¹¹⁹⁾ Fenix database, last extracted on 31/03/2025

⁽¹²⁰⁾ The number of fulfilled milestones/targets covers only those formally assessed as such. Additional milestones/targets may be completed but not yet assessed.

therefore investment-driven, aiming to strengthen different phases of the innovation ecosystem through coordinated funding efforts. Three flagship investments illustrate this strategy: the “Low carbon-built environment programme” (P1.C3.I2) promotes low-carbon solutions in the construction sector; the “Promoting innovation and research infrastructure” investment (P3.C3.I6) improves national research capacities, particularly in digital RDI; and the “RDI funding package supporting the green transition” (P3.C3.I2) supports climate-focused innovation across research and industry. These measures foster collaboration between academia, business, and public authorities and align with Finland’s broader RDI roadmap and EU priorities. The synergies between these investments are both thematic and operational. Thematically, they all target shared goals: advancing climate action and digital transformation. Functionally, each investment supports a different stage of the innovation pipeline: “Promoting innovation and research infrastructure” (P3.C3.I6) provides the research capacity needed for cutting-edge RDI; the green transition RDI package (P3.C3.I2) funds applied research and sector-specific innovation; and the “low-carbon built environment programme” (P1.C3.I2) focuses on implementing innovations in practice, especially in construction. This creates cumulative effect where early-stage research leads to development, which is then translated into practical solutions. Institutionally, the **Academy of Finland** manages both the infrastructure and RDI funding, ensuring consistent priorities and coordination, while **Business Finland** and relevant ministries complement these efforts through competitive calls and regulatory support. Although structural reforms are not embedded in the RRP itself, the combined impact of these investments, alongside developments like the **2024 Act on Research and Development Funding** ⁽¹²¹⁾, lays a strong foundation for long-term resilience and systemic improvement of Finland’s innovation landscape.

Integration into Domestic R&I Policy Mix

Finland’s RRP supports the country’s broader ambition to strengthen its RDI ecosystem, aligning closely—though not explicitly—with the objectives of the **Multiannual Plan for Research and Development Funding (2024–2030)**. While the Multiannual Plan does not reference the RRP directly, both frameworks share key priorities: enhancing research excellence, upgrading infrastructure, promoting international cooperation, and fostering public-private partnerships. The RRP contributes to these goals through targeted investments in areas such as the green and digital transitions, technological renewal, and skills development. A flagship initiative under the RRP is the **Digital Resilience Programme**, launched by Business Finland in 2024 with EUR 100 million to support innovation in digital security and emerging technologies like AI and quantum computing. This and other RRP-funded actions complement pre-existing national initiatives such as the AI Business Programme and the Data Economy Programme, as well as ongoing instruments like the Research Council of Finland’s competitive grants and Business Finland’s Innovation Voucher Scheme. These synergies ensure that RRP investments are integrated into Finland’s long-term RDI policy mix. Sustained impact beyond 2026 is supported by the **Act on Research and Development Funding for 2024–2030**, which provides a legislative foundation for stable national funding and a roadmap to reach 4% of GDP in RDI investment by 2030.

⁽¹²¹⁾ Finland. (2022). *Act on Central Government Funding for Research and Development Activities for 2024–2030 (211/2022)*. Retrieved April 16, 2025, [here](#).

Synergies with Other Funding Programmes

Finland has strategically designed its RRP to complement other EU funding instruments, particularly Horizon Europe (HE) and the Cohesion Policy (CP) Funds, creating a coherent and coordinated approach to R&I. These complementarities are particularly evident in the areas of **business innovation, scientific excellence, and R&D ecosystems** ⁽¹²²⁾, where coordinated investments avoid duplication and maximise impact. Different types of complementarities, co-funding, upstream/downstream, and capacity-building, have been deliberately structured to ensure continuity across the R&I pipeline. Several HE projects, including R TIMBERHAUS, Regions4Climate (R4C), and ARISE, complement key RRP measures such as the “Low-carbon built environment programme” (P1.C3.I2), the “RDI funding package for the green transition” (P3.C3.I2), and “Research and innovation infrastructures and Digitalisation of the RDI environment” (P3.C3.I6). HE contributes to early-stage, high-impact international R&D collaborations, while the RRP supports nationally relevant infrastructure and applied innovation, creating a coherent progression from research to deployment. Finland further strengthens these complementarities through Business Finland’s National Liaison Office (EUTI), which enhances stakeholder capacity to access HE funding. With EUR 120.3 million secured in EU contributions, 1,466 signed grants, and 2,404 participating organisations, Finland plays a significant role in HE, particularly in fields such as ecosystems, sustainable economy, and climate change, as shown in **Error! Reference source not found.**the table below.

Table 17: Horizon Europe funding (2021-2027)

Horizon Europe	
Net EU contribution ⁽¹²³⁾	EUR 120,3 m (2,83% of the HE total)
Signed grants	1466 (9,17% of the HE total)
Number of organisations involved in HE projects	2404 (2,42% of the total)
Rank HE contribution per inhabitant	25
Top three types of supported organisations	Higher or Secondary Education Establishments (43,6%), Research Organisations (26,9%), Private for-profit entities (21,9%)
Top 5 keywords	ecosystems; sustainable economy; climatic changes; governance; business models

Source: HE [dashboard](#), Country profiles (mid-March 2025).

Complementarities with EU CP Funds are equally well-integrated. Under the 2021–2027 Partnership Agreement, Finland has allocated EUR 1,9 billion in EU funding, including EUR

⁽¹²²⁾ Based on R&I measures categorisation developed by the Study Team.

⁽¹²³⁾ Please note that the data on Horizon Europe presented in the country fiches differ from those in the case studies due to methodological differences. In the country fiches, Horizon Europe data refer to the total net EU contribution. In the case studies, by contrast, the figures reflect the sum of allocations by investment area (an approach necessary to establish correspondences with Cohesion Policy and RRF support for the coherence analysis). Annex V in the main report defines each investment area. Discrepancies arise from the impossibility of assigning certain Horizon Europe calls to the investment areas used in this analysis.

228,6 million earmarked for enhancing R&I through the Innovation and Skills in Finland 2021–2027 programme, as presented in Table 18 below. This programme complements the RRP by supporting SME competitiveness, digitalisation, and applied RDI. The ESF+ invests EUR 602 million in employment, education, and skills development, supporting inclusive R&I growth. The Just Transition Fund (JTF), with EUR 466 million in EU funding and EUR 665 million in national co-financing, aids carbon-dependent regions in transitioning to green industries through workforce reskilling, business diversification, and peatland restoration. Despite thematic overlaps, particularly regarding the green transition, duplication is avoided through clear separation of funding scopes and effective coordination. While CP focuses on regional development and HE supports the full R&I cycle, the RRP bridges the two by investing in applied R&I, infrastructure, and capacity-building, ensuring a complementary EU funding ecosystem.

Table 18: Cohesion Policy funding (2021-2027)

Cohesion Policy	
Overall EU financing	EUR 1,9 billion
Total EU payments	EUR 254 million (13,11%)
R&I EU contribution ⁽¹²⁴⁾	EUR 228,6 million for SO 1.1 “Enhancing research and innovation”
Researchers with improved infrastructure (planned)	-

Source: [Cohesion data](#) (mid-March 2025).

Bottlenecks

Finland’s implementation of R&I measures under the RRF has generally proceeded well, benefiting from the flexibility typical of research activities, but several challenges emerged along the way. Key bottlenecks included **staffing and continuity issues**, as frequent turnover disrupted project execution and increased costs. **Regulatory uncertainty** also posed difficulties, particularly during the early stages when essential rules, such as the “Do No Significant Harm” principle, were still being finalised. This led to some uncertainty, as the Research Council of Finland had to revise funding criteria after project selection to reflect the evolving framework, which required further clarification for both applicants and authorities. Long-term research infrastructure projects faced additional hurdles due to their complexity and timelines, which were difficult to align with the fixed RRF funding period. Initial coordination among ministries and agencies was limited but improved during the implementation phase as responsibilities became clearer and communication routines were established. Despite the relative adaptability of R&I measures, the broader RRF framework remained rigid, with changes

⁽¹²⁴⁾ Cohesion Policy support to R&I is derived from the [Cohesion Open Data Platform](#), based on EU amounts under Specific Objective (SO) 1.1 (“Enhancing research and innovation”) within the “Intervention Field” dimension. Data are based on the version of the platform as of 14 March 2025. Please note that the data on Cohesion Policy support to R&I in the country fiches differ from those in the case studies due to methodological differences: the fiches report the total amounts planned under SO 1.1, whereas in the case studies support is calculated as the sum of the amounts for each investment area, since focusing solely on the overall SO 1.1 allocation would have prevented an analysis by investment area (instrumental in establishing correspondences with Horizon Europe and RRF support for the coherence analysis). Annex V in the main report sets out the definition of each area.

to plans or milestones requiring lengthy national and EU-level approvals. In response, authorities postponed milestones, updated guidance, and fostered close cooperation between implementing bodies. Finland's strong political consensus on R&D investment also supported the smooth implementation of R&I components. Nevertheless, the inflexible structure of the RRF and the approaching 2026 deadline continue to pose risks, especially for complex infrastructure projects that demand precise planning and are less able to adjust to delays.

Results and Achievements

The RRP has begun delivering measurable results in Finland's green and digital transition through targeted R&I investments. The "Low Carbon-Built Environment Programme" (P1.C3.I2), building on the earlier **KIRA-Digi** ⁽¹²⁵⁾ pilot (2016–2019), is already generating concrete impact, with smart building technologies now being deployed in cities such as Helsinki and Tampere to monitor and reduce energy consumption and emissions. Strong interest in the programme, demonstrated by the high number of applications following the March 2024 funding call, highlights growing demand for scalable low-carbon solutions. In parallel, the "RDI Funding Package Supporting the Green Transition" (P3.C3.I2) has driven early progress in Finland's hydrogen economy. **Fortum's hydrogen production plant**, supported under this measure, has completed installation and grid integration trials and is expected to be fully operational by mid-2025. The investment is fostering collaboration between research institutions and industry, advancing joint R&D in hydrogen storage, transport, and safety. Complementary calls from the Academy of Finland (March 2024) and Business Finland (April 2025) have further strengthened RDI capacity, attracting high-quality proposals across sectors such as renewable fuels and circular economy solutions. Collectively, these developments underline the RRF's contribution to accelerating Finland's sustainability and innovation goals, while highlighting the importance of continued monitoring, evaluation, and alignment with EU and national RDI priorities to ensure lasting impact.

⁽¹²⁵⁾ KIRA-digi. (n.d.). *Front page*. Retrieved April 7, 2025, [here](#)

10. France

Introduction

France has allocated EUR 5,778 million ⁽¹²⁶⁾ from its Recovery and Resilience Plan (RRP) ⁽¹²⁷⁾ to support R&I initiatives, representing 14% of the total national RRP funding (EUR 40,270 million, as of 02/04/2025) ⁽¹²⁸⁾. The majority of the funding has been allocated to the Green transition primary pillar (61% of total R&I) and the Digital transformation primary pillar (21%) ⁽¹²⁹⁾.

Figure 16: Funding R&I distribution per RRF primary pillar

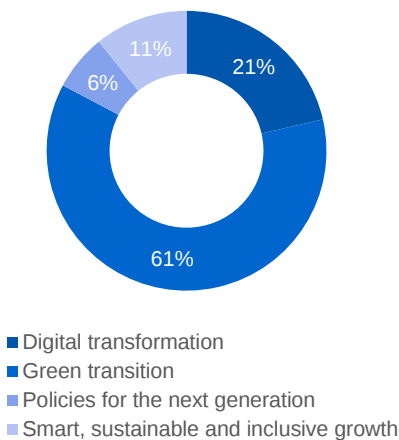
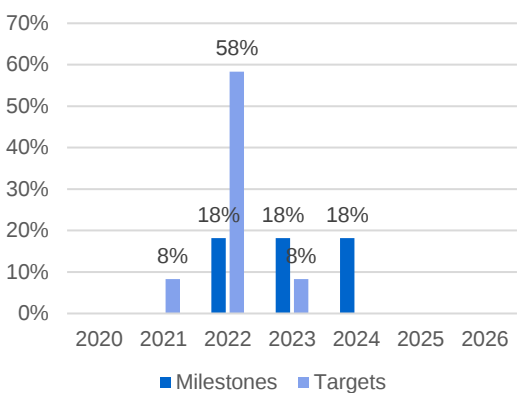


Figure 17: Share of fulfilled R&I M&T out of total R&I M&T



Source: RRF Scoreboard, Fenix database.

France has 2 R&I measures and 29 sub-measures in its RRP, both reforms and investments and are associated with 23 milestones and targets. To date ⁽¹³⁰⁾, the country fulfilled 54% of its R&I milestones (6 out of 11) and 74% of its R&I targets (9 out of 12) ⁽¹³¹⁾. Fulfilled milestones include the reform to revise the governance of the Programme d’Investissements d’Avenir (PIA) and the launch of calls for proposals for projects to support the green transition and to support teaching, research, development and innovation ecosystems. Targets include the entry into force of decrees related to the Law on the Programming of Research (LPR), the number of acceleration strategies validated for the green transition or the awards of contracts to beneficiaries in the space sector.

⁽¹²⁶⁾ Fenix database

⁽¹²⁷⁾ European Commission. (2021). *France’s recovery and resilience plan*. Retrieved April 8, 2025, [here](#).

⁽¹²⁸⁾ European Commission. (2025). *RRF Scoreboard: Country Overview*, [here](#).

⁽¹²⁹⁾ The share for digital R&I reported may be slightly underestimated. The FENIX classification of the measures under “digital R&D&I” does not include investment C6-I2 on fostering R&I in key digital technologies, which is assigned to a different policy area in FENIX.

⁽¹³⁰⁾ Fenix database, last extracted on 31/03/2025.

⁽¹³¹⁾ The number of fulfilled milestones/targets covers only those formally assessed as such. Additional milestones/targets may be completed but not yet assessed.

Interplay of Reforms and Investments

France's RRP adopts a strategic approach to R&I by combining reforms with both horizontal R&I investments and thematically-oriented ones, with a strong emphasis on fossil-free hydrogen, industrial decarbonisation, and key sectors like space and aeronautics. The plan also aims to enhance public research funding and preserve R&D employment in the private sector through intersectoral mobility schemes. One reform focuses on implementing the LPR, which strengthens public research policy and funding. This reform is closely linked to investment measures supporting the R&D activities of the National Research Agency (ANR). The second reform revises the governance of the c to streamline investments in priority sectors. This reform is more directly connected to several RRP investment measures in R&I, which benefit from PIA4 funding and are influenced by the improvements made in its governance.

Integration into Domestic R&I Policy Mix

France's RRP funding has been strategically integrated into the broader national framework of the 'France Relance' plan, which encompasses R&I priorities among other policy areas. Within this context, the RRP served as an additional financing tool, complementing national investments by covering 40% of the 'France Relance' allocation. Rather than funding new initiatives, the French RRP primarily supported existing national measures, such as R&I support programmes under the 'structural' strand of the PIA4 (now merged with France 2030) and acceleration strategies targeting green and digital technologies under the 'directional' strand of the PIA4/France 2030. The selection of which specific measures to include in the French RRP was guided by RRF priorities—namely, alignment with Country-Specific Recommendations, strong focus on the green and digital transitions—and practical considerations, e.g. measurability of milestones and targets, and feasibility of timely implementation. National authorities broadly acknowledge the RRP's role in accelerating implementation and expanding the scale or ambition of investment measures, particularly in support of the green transition and public research. This is especially evident in the case of public research, where RRP funding significantly bolstered the budget of the National Research Agency (ANR), helping to address a long-standing decline in national research funding. This budget increase made it also possible to raise the success rate of the ANR's calls for projects, which increased from 16% in 2018 to 23% in 2021 and 24% in 2022.

Synergies with Other Funding Programmes

While synergies between the RRF funding and other EU funding streams, such as Cohesion Policy (CP), Horizon Europe (HE), and InvestEU, were not explicitly pursued by authorities, they may have occurred organically. Some firms have reportedly accessed multiple funding sources. Given the strong safeguards in place to prevent double financing, it is likely that, in such cases, these different funding streams were used in a complementary and synergistic manner. Since RRF funding was primarily intended to complement nationally defined R&I priorities, no significant issues of coherence or substitution between national funding streams have been reported. Regarding CP funding—implemented at the regional level in France—initial coordination efforts between national and regional authorities aimed to prevent overlaps. However, responsibility for avoiding duplication largely rested with regional actors. Although there was a strong focus on preventing double financing at the project level, there is no concrete evidence confirming that duplication across similar policy areas was fully avoided in practice. In fact, despite coordination efforts, some crowding-out effects on European Regional Development Fund (ERDF) funding have been observed by authorities overseeing ERDF

coordination, reflected in the delayed start of the 2021–2027 programming period and slower absorption of ERDF funds. This was mainly due to the comparatively simpler and more flexible access to RRF resources.

Table 19: Horizon Europe funding (2021-2027)

Horizon Europe	
Net EU contribution ⁽¹³²⁾	EUR 4,8 billion (11.34% of the HE total)
Signed grants	4408 (27.59% of the HE total)
Number of organisations involved in HE projects	9150 (9.22% of the total)
Rank HE contribution per inhabitant	13
Top three types of supported organisations	Research Organisations (42.2%), Private for-profit entities (33.3%), Higher or Secondary Education Establishments (15.6%)
Top 5 keywords	ecosystems; climatic changes; sustainable economy; machine learning; sensors

Source: [HE dashboard](#), Country profiles (mid-March 2025).

Table 20: Cohesion Policy funding (2021-2027)

Cohesion Policy	
Overall EU financing	EUR 16,8 billion
Total EU payments	EUR 1,06 billion (6.32% of the CP total)
R&I EU contribution ⁽¹³³⁾	EUR 1,3 billion for SO 1.1 “Enhancing research and innovation”
Researchers with improved infrastructure (planned)	14,372 annual FTEs

Source: [Cohesion data](#) (mid-March 2025).

⁽¹³²⁾ Please note that the data on Horizon Europe presented in the country fiches differ from those in the case studies due to methodological differences. In the country fiches, Horizon Europe data refer to the total net EU contribution. In the case studies, by contrast, the figures reflect the sum of allocations by investment area (an approach necessary to establish correspondences with Cohesion Policy and RRF support for the coherence analysis). Annex V in the main report defines each investment area. Discrepancies arise from the impossibility of assigning certain Horizon Europe calls to the investment areas used in this analysis.

⁽¹³³⁾ Cohesion Policy support to R&I is derived from the [Cohesion Open Data Platform](#), based on EU amounts under Specific Objective (SO) 1.1 (“Enhancing research and innovation”) within the “Intervention Field” dimension. Data are based on the version of the platform as of 14 March 2025. Please note that the data on Cohesion Policy support to R&I in the country fiches differ from those in the case studies due to methodological differences: the fiches report the total amounts planned under SO 1.1, whereas in the case studies support is calculated as the sum of the amounts for each investment area, since focusing solely on the overall SO 1.1 allocation would have

Bottlenecks

No specific bottlenecks were identified during the implementation of the French RRP. According to the RRF coordinating body, any difficulties that did arise were occasional and occurred at the project level, similar to those encountered in other policy areas. As such, these issues were not intrinsic to the French RRP's R&I measures themselves.

Results and Achievements

All R&I reforms under the RRP in France have been implemented, and most R&I investments have progressed significantly, with some already yielding initial results. While it is still too early to fully assess their long-term impact, the RRP's strong focus on RDI for the green transition has clearly helped steer investment towards this priority area. This strategic direction is expected to yield substantial benefits, particularly in supporting France's shift to a low-carbon economy. Some of these efforts, are integrated into the broader 'France 2030' investment plan (which was merged with the PIA4), which reinforces key RRF priorities such as fossil-free hydrogen, industrial decarbonisation, and strategic sectors like space and aeronautics. However, while France 2030 provides multi-annual support, its current budgetary envelope is only secured until 2026. Looking beyond that horizon, no formal decision has yet been made regarding the continuation of public investment in R&I in strategic sectors (in keeping with the funding logic introduced under the successive 'Investments for the Future Programme' since 2010 and now France 2030), creating uncertainty over the long-term sustainability of innovation activities conducted and outcomes achieved so far. At the same time, it remains uncertain whether public research funding will be increased, as requested by the LPR.

prevented an analysis by investment area (instrumental in establishing correspondences with Horizon Europe and RRF support for the coherence analysis). Annex V in the main report sets out the definition of each area.

11. Germany

Introduction

Germany has allocated EUR 6.4 billion ⁽¹³⁴⁾ from its Recovery and Resilience Plan (RRP) ⁽¹³⁵⁾ to support R&I initiatives, representing 21% of the total national RRP funding (EUR 30.3 billion, as of 02/04/2025) ⁽¹³⁶⁾. The majority of R&I funding is almost equally allocated to the Digital transformation and Green transition primary pillars, with 47% and 40% of total R&I funding, respectively. A smaller share (12%) is allocated to the Smart, sustainable, and inclusive growth primary pillar.

Figure 18: Funding R&I distribution per RRF Primary Pillar

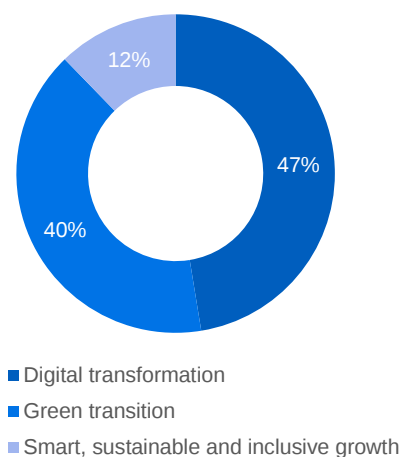
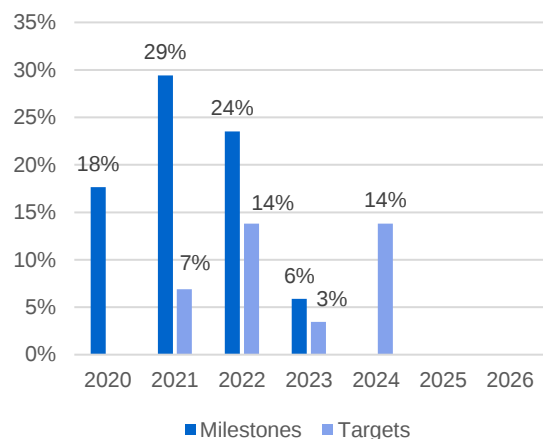


Figure 19: Share of fulfilled R&I M&T out of total R&I M&T



Source: RRF Scoreboard, Fenix database.

Germany has 6 R&I measures in its RRP (12 if sub-measures are counted separately), with both a reform and investments, which are associated with 46 milestones and targets. To date ⁽¹³⁷⁾, Germany has fulfilled 76% of its R&I milestones (13 out of 17) and 41% of its R&I targets (11 out of 29) ⁽¹³⁸⁾. In terms of R&I investments, EUR 633 million out of the total EUR 6.4 billion included in the national plan for R&I has been approved and disbursed, corresponding to the fulfilment of two investment-related measures and accounting for 10% of the total R&I allocation. Milestones fulfilled include the entry into force of funding guidelines for decarbonisation in industry and the launch of R&D&I projects related to IPCEI Next Generation Cloud Infrastructure and Services (IPCEI CIS). Targets include grants for flagship projects for research and innovation in the context of the National Hydrogen Strategy and the launch of the first projects within the IPCEI CIS.

⁽¹³⁴⁾ Fenix database.

⁽¹³⁵⁾ European Commission. (2021). Germany's Recovery and Resilience Plan. Retrieved April 7, 2025, [here](#).

⁽¹³⁶⁾ European Commission. (2025). RRF Scoreboard: Country Overview, [here](#).

⁽¹³⁷⁾ Fenix database, last extracted on 31/03/2025.

⁽¹³⁸⁾ The number of fulfilled milestones/targets covers only those formally assessed as such. Additional milestones/targets may be completed but not yet assessed.

Interplay of Reforms and Investments

Germany's RRP presents a comprehensive and interconnected approach to R&I, combining a central reform with multiple investments across key sectors. Even though Germany has included only one reform in the R&I domain, several investments have been included in the R&I field, all of which are connected and mutually reinforcing, showing that Germany has prioritised investments over reforms. Nonetheless, the reform on innovative data policy (DE-C[2.1]-R[1]) enhances data use and sharing through infrastructure, education, and governance improvements, and is reinforced by investments such as the Bundeswehr's digitalisation centre (dtec.bw).

The plan also supports cutting-edge technologies through initiatives such as the IPCEIs on microelectronics and cloud infrastructure, while promoting green innovation via major hydrogen projects and industrial decarbonisation efforts. Mobility is addressed through support for e-mobility and the automotive transition, and health R&I is strengthened through vaccine development funding. Overall, the RRP is strategically aligned to foster synergies among digitalisation, sustainability, and industrial competitiveness, underpinned by targeted skills development and research infrastructure.

Integration into Domestic R&I Policy Mix

In Germany, R&I activities are carried out by a wide array of public and private institutions, and the RRF serves as a supplementary funding source. While the RRF contributes to achieving the federal target of 3.5% of GDP for R&I investment by 2025, most of the supported initiatives would likely have been implemented regardless, albeit on a smaller scale. The RRF is a complementary mechanism to several national strategies, including the Future Research and Innovation Strategy, the National Action Plan for the European Research Area (ERA), and the High-Tech Strategy 2025 (HTS 2025), all of which emphasise competitiveness, resilience, sustainability, and digital transformation.

The RRF measures demonstrate a particularly strong alignment with these strategies. For instance, six missions are outlined in the future R&I strategy and investments in electric vehicles and sustainable transport correspond to the mission on promoting a resource-efficient and competitive circular economy. The German RRP is well-aligned with national R&I strategies, demonstrating how the RRF enhanced the reach and impact of pre-existing national priorities.

Synergies with Other Funding Programmes

Germany has utilised the RRF as a source of additional funding to support projects that are aligned with national R&I priorities, without replacing existing national funding streams. At the EU level, complementarity is anticipated between RRF investments and both Horizon Europe (HE) and Cohesion Policy (CP) funds.

Germany is the largest recipient of HE funding, with EUR 6.74 billion allocated to a range of actors, as reported in Table 21—including universities and private companies—working on green hydrogen, electromobility, digitalisation, and advanced public sector technologies, many of which overlap with RRF-funded areas.

Table 21: Horizon Europe funding (2021-2027)

Horizon Europe	
Net EU contribution ⁽¹³⁹⁾	6,74 billion (15.79% of the HE total)
Signed grants	5786 (36.21% of the HE total)
Number of organisations involved in HE projects	11151 (11.23% of the total)
Rank HE contribution per inhabitant	15
Top three types of supported organisations	Higher or Secondary Education Establishments (34.3%), Research Organisations (32.0%), Private for-profit entities (28.0%)
Top 5 keywords	ecosystems; climatic changes; sustainable economy; machine learning; sensors

Source: [HE dashboard](#), Country profiles (mid-March 2025).

A similar pattern is evident in the context of CP, which includes EUR 3.7 billion from the European Regional Development Fund (ERDF) for R&I, as shown in Table 22. At this stage, no particular evidence for the explicit use of synergies between the RRP and the ERDF was found.

Table 22: Cohesion Policy funding (2021-2027)

Cohesion Policy	
Overall EU financing	EUR 19,86 billion
Total EU payments	EUR 1 394 234 221 (7.02% of the CP total)
R&I EU contribution ⁽¹⁴⁰⁾	EUR 3.7 billion for SO 1.1 “Enhancing research and innovation”
Researchers with improved infrastructure (planned)	8876 annual FTEs

Source: [Cohesion data](#) (mid-March 2025).

⁽¹³⁹⁾ Please note that the data on Horizon Europe presented in the country fiches differ from those in the case studies due to methodological differences. In the country fiches, Horizon Europe data refer to the total net EU contribution. In the case studies, by contrast, the figures reflect the sum of allocations by investment area (an approach necessary to establish correspondences with Cohesion Policy and RRF support for the coherence analysis). Annex V in the main report defines each investment area. Discrepancies arise from the impossibility of assigning certain Horizon Europe calls to the investment areas used in this analysis.

⁽¹⁴⁰⁾ Cohesion Policy support to R&I is derived from the [Cohesion Open Data Platform](#), based on EU amounts under SO 1.1 (“Enhancing research and innovation”) within the “Intervention Field” dimension. Data are based on the version of the platform as of 14 March 2025. Please note that the data on Cohesion Policy support to R&I in the country fiches differ from those in the case studies due to methodological differences: the fiches report the total amounts planned under SO 1.1, whereas in the case studies support is calculated as the sum of the amounts for each investment area, since focusing solely on the overall SO 1.1 allocation would have prevented an analysis by investment area (instrumental in establishing correspondences with Horizon Europe and RRF support for the coherence analysis). Annex V in the main report sets out the definition of each area.

Bottlenecks

No evidence of bottlenecks identified so far.

Results and Achievements

The implementation of Germany's R&I measures is progressing well, with 42 milestones and targets already met. However, it should be noted that these primarily reflect outputs such as launched calls or selected projects, rather than actual results or long-term impacts. A notable exception is the EUR 740 million investment in accelerating the development of a vaccine for the prevention of the effects of the virus known as SARS-CoV-2, which resulted in EUR 591 million being contributed by the RRF. This initiative financed three significant vaccine projects, one of which was BioNTech's Comirnaty®, which became the world's first approved mRNA vaccine for the treatment of SARS-CoV-2 and accounted for over 70% of Germany's vaccinations. The support enabled rapid vaccine development, clinical trials, regulatory approval, and mass production, significantly aiding Germany's pandemic response and boosting the resilience of its pharmaceutical sector. While the full impacts of the German measures are yet to be realised, initial evidence suggests that the RRF has meaningfully advanced Germany's innovation capacity and sustainability goals.

12. Greece

Introduction

Greece has allocated EUR 1,121 million ⁽¹⁴¹⁾ (both grants and loans) from the Recovery and Resilience Plan (RRP) ⁽¹⁴²⁾ to support R&I initiatives, representing 3% of the total national RRP funding (EUR 35,95 billion, as of 02/04/2025) ⁽¹⁴³⁾. As shown in Figure 20, the R&I-related funding has been allocated almost equally to the Policies for the next-generation primary pillar (34%) and to the Smart, sustainable and inclusive growth primary pillar (33%). Health and economic, social and institutional resilience primary pillar has been allocated 22% of the funds, while the Green transition is 11%.

Figure 20: Funding R&I distribution per RRF Primary Pillar

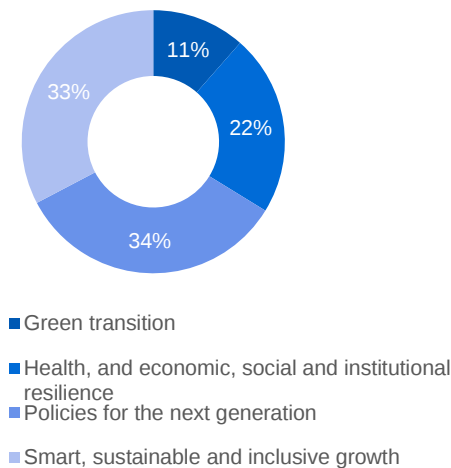
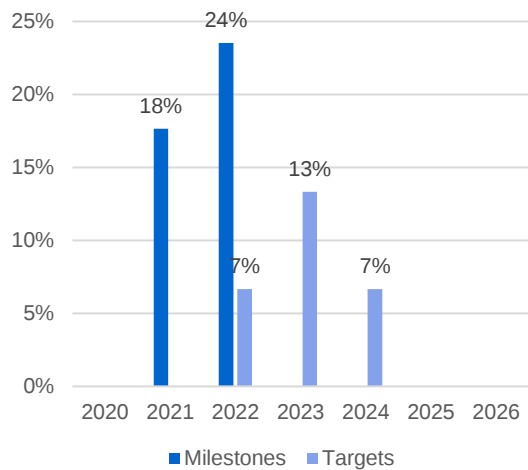


Figure 21: Share of fulfilled R&I M&T out of total R&I M&T



Source: RRF Scoreboard, Fenix database.

Greece has 7 R&I measures and 2 sub-measures in its RPP, which are both reforms and investments and are associated with 32 milestones and targets. To date ⁽¹⁴⁴⁾, as shown in Figure 21, Greece has fulfilled 42% of its R&I milestones (7 out of 17) and 27% of its R&I targets (4 out of 15) ⁽¹⁴⁵⁾. Milestones fulfilled include the launch of the call for proposals for the creation, expansion and upgrade of research centres', infrastructures as well as the reform and acceleration of investments in the healthcare sector. As for targets, they are mainly related to the RRP loan funds allocated.

⁽¹⁴¹⁾ Fenix database.

⁽¹⁴²⁾ European Commission. (2021). *Greece's recovery and resilience plan*. Retrieved April 8, 2025, [here](#).

⁽¹⁴³⁾ European Commission. (2025). *RRF Scoreboard: Country Overview*, [here](#)

⁽¹⁴⁴⁾ Fenix database, last extracted on 31/03/2025.

⁽¹⁴⁵⁾ The number of fulfilled milestones/targets covers only those formally assessed as such. Additional milestones/targets may be completed but not yet assessed.

Interplay of Reforms and Investments

The Greek RRP strategically strengthens the national research and innovation ecosystem by integrating structural reforms with targeted sector-specific investments that complement each other. Structural investments like the **“Creation – Expansion – Upgrade of Infrastructures of Research Centres” (C4,5-I16624)**, which enhance facilities across 13 research centres and establish a new centre in Ioannina, providing foundational capacity for advanced research. These efforts are further supported by sectoral, thematic investments such as the **“Basic & Applied Research initiative” (C4,5-I16618)**, funding interdisciplinary projects in robotics, precision medicine, artificial intelligence, unmanned systems, and sustainable materials, facilitating the translation of research into practical innovations and fostering public-private collaborations. To stimulate private sector engagement, the Plan includes the **“RRP Loan Facility – Research and Innovation” (C4,7-I16980)**, a financing investment designed to lower borrowing costs and encourage private investment in innovation infrastructure and R&D projects, as exemplified by DEMO SA’s development of a Biotechnology Research Centre in Attica. Structural reforms such as the **“Reforms and Acceleration of investments in the Healthcare Sector” (C3,3-R16816)** focus on digital upgrades and support for medical innovation. This integrated approach addresses interconnected challenges, such as infrastructure deficits, limited private funding, and sector-specific modernisation, by aligning reforms and investments to collectively accelerate Greece’s innovation capacity and competitiveness.

Integration into Domestic R&I Policy Mix

Greece’s RRP R&I measures are well aligned with the country’s green and digital transition priorities and are explicitly integrated within the **Greek National Digital Decade Strategic Roadmap** ⁽¹⁴⁶⁾, developed after the RRP to advance Greece’s innovation agenda. While earlier national frameworks like the **National Energy and Climate Plan (NECP)** ⁽¹⁴⁷⁾ and the **National Circular Economy Strategy** ⁽¹⁴⁸⁾ do not specifically reference the RRP, they share consistent objectives to reduce emissions by 55% by 2030 and achieve climate neutrality by 2050, in line with the EU Climate Law (2022). Key RRP initiatives, such as “Creation – Expansion – Upgrade of Research Centres” (C4,5-I16624) and “Basic & Applied Research” (C4,5-I16618), focus on strengthening research infrastructure and applied research in priority sectors like renewable energy, sustainable materials, and artificial intelligence, with national agencies ensuring alignment with strategic goals. The **National Smart Specialisation Strategy** explicitly recognises the RRP as a major funding source alongside national programmes such as Competitiveness, Entrepreneurship and Innovation (EPAnEK) ⁽¹⁴⁹⁾ and relevant regional programmes, embedding RRP investments into Greece’s broader R&I policy framework. Additional measures like the “RRP Loan Facility – Research and Innovation” (C4,7-I16980) and “Reforms and Acceleration of investments in the Healthcare Sector” (C3,3-R16816) support private sector R&D, biotechnology, sustainable technologies, and digital health innovations. Looking beyond 2026, there are currently no formal government commitments regarding post-

⁽¹⁴⁶⁾ Ministry of Digital Governance. (2021). *The Greek National Digital Decade Strategic Roadmap*. Retrieved April 8, 2025, [here](#).

⁽¹⁴⁷⁾ Hellenic Ministry of Environment and Energy. (2020). *National Energy and Climate Plan (NECP) 2021-2030*. Retrieved April 8, 2025, [here](#).

⁽¹⁴⁸⁾ Ministry of Environment & Energy. (2018). *National Circular Economy Strategy*. Retrieved April 8, 2025, from [here](#).

⁽¹⁴⁹⁾ Managing Authority of the Operational Programme Competitiveness, Entrepreneurship, and Innovation (EPAnEK). (2014). *Events*. Retrieved April 8, 2025, [here](#).

2026 funding of these measures, though national funding managed by the General Secretariat for Research and Technology (GSRT) through programmes like EPAnEK is expected to play a role in sustaining and building upon RRP investments. According to interviewees, plans for a capitalisation strategy are anticipated to secure the long-term impact of these initiatives.

Synergies with Other Funding Programmes

Greece has successfully fostered synergies between the RRF and key EU funding programmes, including Horizon Europe (HE) and Cohesion Policy (CP), to maximise the efficiency and impact of its R&I investments. These co-funding synergies cover business innovation, collaborative R&I, and scientific excellence ⁽¹⁵⁰⁾ and allow projects to leverage multiple sources without overlapping costs, boosting overall R&I outcomes. Horizon Europe plays a pivotal role in Greece's R&I strategy. With a national contribution of EUR 1,7 billion, representing 3.94% of total HE funding, Greece has secured over 2,000 signed grants across key thematic areas such as renewable energy, digital transformation, and sustainable agriculture as shown in Table 23. The RRP complements HE through **cumulative synergies** by investing in research infrastructure which in turn enable HE projects such as EOSC Beyond and KM3NET-INFRADEV2. These synergies also follow sequential and upstream/downstream logic: while HE supports frontier research, the RRF Loan Facility facilitates the commercialisation and scaling of innovations. Flagship HE projects such as CAPTUS, HyInHeat, and URBREATH, which align with Greece's climate and low-carbon economy goals, are further reinforced through RRF-backed financing.

Table 23: Horizon Europe funding (2021-2027)

Horizon Europe	
Net EU contribution ⁽¹⁵¹⁾	EUR 1,7 billion (3,94% of the HE total)
Signed grants	2091 (13,09% of the HE total)
Number of organisations involved in HE projects	4491 (4,52% of the total)
Rank HE contribution per inhabitant	15
Top three types of supported organisations	Private for-profit entities (32,9%), Research Organisations (32,3%), Higher or Secondary Education Establishments (27,4%)
Top 5 keywords	ecosystems; sustainable economy; climatic changes; business models; artificial intelligence

Source: [HE dashboard](#), Country profiles (mid-March 2025).

⁽¹⁵⁰⁾ Based on R&I measures categorisation developed by the Study Team.

⁽¹⁵¹⁾ Please note that the data on Horizon Europe presented in the country fiches differ from those in the case studies due to methodological differences. In the country fiches, Horizon Europe data refer to the total net EU contribution. In the case studies, by contrast, the figures reflect the sum of allocations by investment area (an approach necessary to establish correspondences with Cohesion Policy and RRF support for the coherence analysis). Annex V in the main report defines each investment area. Discrepancies arise from the impossibility of assigning certain Horizon Europe calls to the investment areas used in this analysis.

Synergies also extend through coordination with **Cohesion Policy** funds ⁽¹⁵²⁾, including the **European Regional Development Fund** and the **Just Transition Fund**, which together allocate approximately EUR 843,8 million to research and innovation, as displayed in Table 24. These include planned upstream and downstream synergies, where different EU instruments provide a coordinated and seamless framework across all stages of the R&I process. For example, the RRP’s “Basic & Applied Research” (C4,5-I16618) funds upstream academic research that is expanded through ERDF programmes like Research–Create–Innovate, which focus on applied research and market uptake. Additionally, the RRP’s “Creation – Expansion – Upgrade of Research Centres” (C4,5-I16624) builds on prior Cohesion Policy infrastructure investments, creating cumulative synergy. The Just Transition Fund (JTF) supports regional decarbonisation, industrial transformation, and workforce retraining in lignite-dependent areas, complementing RRP measures without geographical overlap.

Table 24: Cohesion policy funding (2021-2027)

Cohesion Policy	
Overall EU financing	EUR 2,5 billion
Total EU payments	EUR 2,2 million (10,85%)
R&I EU contribution ⁽¹⁵³⁾	EUR 843,8 million for SO 1.1 “Enhancing research and innovation”
Researchers with improved infrastructure (planned)	2882 annual FTEs

Source: [Cohesion data](#) (mid-March 2025).

Bottlenecks

Greece’s R&I initiatives under the RRF have encountered challenges, particularly related to **frequent reporting requirements**, **tight project timelines**, and **rising construction costs**. The semi-annual submission of data, often based on estimates, adds **administrative burden** and slows coordination across hundreds of projects. The **short duration** of the RRF has also pressured some projects to accelerate timelines, raising concerns about long-term impact. Nonetheless, effective solutions are in place: strong collaboration between the Ministry of Finance, the General Secretariat for Research and Innovation (GSRI) and research institutions, a structured funding model, and robust communication systems have helped maintain momentum. Flexibility within the **Technical Assistance Agreement (TAA)** has allowed for some adaptation, though further adjustments may be needed to address ongoing economic

⁽¹⁵²⁾ European Commission. (2025). *Cohesion Data*. Retrieved April 8, 2025, [here](#).

⁽¹⁵³⁾ Cohesion Policy support to R&I is derived from the [Cohesion Open Data Platform](#), based on EU amounts under Specific Objective (SO) 1.1 (“Enhancing research and innovation”) within the “Intervention Field” dimension. Data are based on the version of the platform as of 14 March 2025. Please note that the data on Cohesion Policy support to R&I in the country fiches differ from those in the case studies due to methodological differences: the fiches report the total amounts planned under SO 1.1, whereas in the case studies support is calculated as the sum of the amounts for each investment area, since focusing solely on the overall SO 1.1 allocation would have prevented an analysis by investment area (instrumental in establishing correspondences with Horizon Europe and RRF support for the coherence analysis). Annex V in the main report sets out the definition of each area.

pressures. Overall, substantial investments are already strengthening Greece's research infrastructure, laying a solid foundation for continued development beyond 2026.

Results and Achievements

While none of the R&I measures under Greece's RRP have been fully completed, several have begun to show modest early results, reflecting initial institutional progress and financial mobilisation. Under the "Basic & Applied Research" measure (C4.5-I16618), a revised legal framework and new calls for proposals have laid the groundwork for **stronger interdisciplinary research**, with some institutions, such as the **Robotics Institute**, already leveraging support to access external funding like the Horizon Europe Teaming programme. The "RRP Loan Facility – Research and Innovation" (C4.7-I16980) has progressed more quickly in financial terms, with approximately EUR 5.86 billion in loans allocated by end-2024 to projects in digital, health, and green technologies, though many are still at early stages. Equity financing through platforms like "Innovate Now Equifund" has also begun, pending further approvals. The "Creation – Expansion – Upgrade of Infrastructures of Research Centres" measure (C4.5-I16624) has initiated infrastructure upgrades at **13 research centres**, with early steps such as procurement and facility expansion already underway at institutions like FORTH ⁽¹⁵⁴⁾ and the Athena Research Centre ⁽¹⁵⁵⁾. In the health sector, the "Reforms and Acceleration of investments in the Healthcare Sector" measure (C3.3-R16816) has achieved its first policy milestone through clawback reduction legislation, with a target of EUR 50 million in savings and a planned redirection of EUR 250 million into pharmaceutical R&D. While most impacts remain to be seen, these developments represent important first steps toward strengthening Greece's research and innovation ecosystem.

⁽¹⁵⁴⁾ Foundation for Research and Technology - Hellas (FORTH). (2023). Latest News. Retrieved April 8, 2025, [here](#).

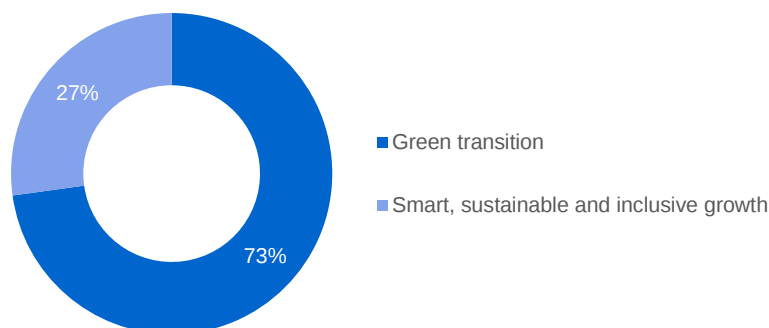
⁽¹⁵⁵⁾ Athena Research Center. (2023). Construction Phase Started for Two Major Athena Facilities. Retrieved April 8, 2025, [here](#).

13. Hungary

Introduction

Hungary has allocated EUR 799 million ⁽¹⁵⁶⁾ from its Recovery and Resilience Plan (RRP) ⁽¹⁵⁷⁾ to support R&I initiatives, representing 8% of the total of the national RRP funding (EUR 10,4 billion, as of 02/04/2025) ⁽¹⁵⁸⁾. The R&I funding is mainly allocated to the Green transition primary pillar (73%) and to the Smart, sustainable and inclusive growth (27%).

Figure 22: Funding R&I distribution per RRF Primary Pillar



Source: RRF Scoreboard.

Hungary has 2 R&I measures and 2 sub-measures in the RRP, all of which are investment-related measures and are associated with 8 milestones and targets. To date ⁽¹⁵⁹⁾, the country has not fulfilled any of its R&I milestones (7) or targets (1). In terms of R&I investments, Hungary has not yet fulfilled any of the R&I investments included in its national plan ⁽¹⁶⁰⁾.

Interplay of Reforms and Investments

Hungary's RRP focuses primarily on targeted investments rather than broad structural reforms, especially in the areas of green and digital innovation. A central R&I investment is under the **Highly Qualified, Competitive Workforce component (C2)**, particularly through the **"Establishment of national research and development laboratories" (C2 I6)**. This initiative supports 26 laboratories in priority areas like artificial intelligence, renewable energy, and water security, fostering collaboration among academia, public institutions, and SMEs. Supported by the development of Scientific, Technological, and Innovation Parks (STIPs), it enhances both

⁽¹⁵⁶⁾ Fenix database.

⁽¹⁵⁷⁾ European Commission. (2021). *Hungary's recovery and resilience plan*. Retrieved on March 31, [here](#).

⁽¹⁵⁸⁾ European Commission. (2025). *RRF Scoreboard: Country Overview*, [here](#).

⁽¹⁵⁹⁾ Fenix database, last extracted on 31/03/2025

⁽¹⁶⁰⁾ Please note that Hungary has not yet submitted any payment request linked to any milestone and targets. According to Council approval of the Hungarian RRP on 12 December 2022, 27 milestones under the 'Governance and public administration' component, related to the rule of law, are referred to as 'super milestones'. Their full and correct fulfilment represents a condition for the disbursement of any RRF fund to the country.

institutional capacity and physical infrastructure, strengthening the national research ecosystem and providing the skilled workforce needed for innovation.

These R&I investments are completed by measures in the **REPowerEU component (C10)** that, while not directly focused on research and innovation, create strong demand for new technologies and innovation outputs through industrial decarbonisation. The **“Application of green technologies for the decarbonisation of industry” (C10 I4)** promotes energy efficiency, industrial process transformation, and infrastructure modernisation, supported by **“Improvements enabling the deployment of alternative gases such as hydrogen and electrification” (C10 I4.2)** and **Biomethane integration (C10 I4.3)**. Complementing these, **“Building green economy production capacities” (C10 I3)** strengthens domestic manufacturing, R&D&I activities, and workforce training to scale and sustain green technologies. These measures function synergistically as C10 I4.2 and C10 I4.3 drive demand for alternative energy sources within industry, while C10 I3 builds the necessary production and innovation capacity to meet that demand. Together, these measures reinforce each other by simultaneously enabling technology adoption and expanding Hungary’s industrial base, accelerating the green transition and improving energy system flexibility. The synergy here arises from how C2 I6 strengthens the national research ecosystem that underpins technological innovation, complementing the green technology deployment in C10 measures by providing the scientific foundation and skilled workforce needed to innovate and implement new solutions. Although not a structural reform, C2 I6 aims to operate within a broader framework promoting public-private cooperation and international collaboration, broadening the impact of investments. Despite regulatory challenges and the lack of comprehensive reforms, these coordinated investments can collectively create reinforcing effects to advance Hungary’s industrial decarbonisation, innovation capacity, and long-term sustainability goals.

Integration into Domestic R&I Policy Mix

Hungary’s RRP is closely aligned with national R&I priorities, reflecting the thematic focus of the **RDI Strategy 2021–2030** ⁽¹⁶¹⁾ and the **Smart Specialisation Strategy (S3) 2021–2027** ⁽¹⁶²⁾, even though these strategies do not explicitly reference the RRP due to their earlier or parallel development. Shared priorities, such as digitalisation, energy transformation, and advanced technologies, have enabled RRP measures to reinforce national objectives. A key example is the **“Establishment of national research and development laboratories” (C2 I6)**, which expanded the pre-existing National Laboratories Programme and demonstrates effective coordination between EU and domestic funding through the NRD Fund. This co-financing has produced synergies by harmonising implementation practices, strengthening institutional collaboration, and scaling research infrastructure in strategic areas like artificial intelligence and clean energy. In the energy and climate domain, the RRP’s integration is more formalised: Hungary’s **National Energy and Climate Plan (NECP)** ⁽¹⁶³⁾ extensively references the RRP as a key instrument for achieving 2030 decarbonisation targets. The REPowerEU chapter supports this through measures such as Application of green technologies for the decarbonisation of industry (C10 I4) and Building green economy production capacities (C10 I3), which are recognised in the NECP as critical to advancing industrial transformation and energy

⁽¹⁶¹⁾ National Research, Development and Innovation Office. (2021). *The Research, Development and Innovation Strategy of Hungary, 2021-2030*. Retrieved on March 31, [here](#).

⁽¹⁶²⁾ National Research, Development and Innovation Office. (2021). *National Smart Specialisation Strategy (S3), 2021-2027*. Retrieved on March 31, [here](#).

⁽¹⁶³⁾ European Commission. (2024). *Hungary National Energy and Climate Plan (NECP)*. Retrieved on March 31, [here](#).

sovereignty. Looking ahead, while no formal decision has been made on the continuation of all RRP investments post-2026, programmes such as the National Laboratories are expected to be maintained through national funding. The coordinated use of RRF and domestic instruments has built a foundation to sustain and expand R&I efforts beyond the RRP.

Synergies with Other Funding Programmes

Hungary has strategically aligned its R&I measures under the RRP with other EU funding instruments, resulting in synergies that are primarily thematic and sequential, alongside targeted use of co-funding mechanisms. Co-funding is particularly evident in **business innovation**, through **grants supporting RDI activities in enterprises**, and to a lesser extent in **scientific excellence** via investments in **research infrastructure** ⁽¹⁶⁴⁾. Thematic synergies with **Horizon Europe (HE)** are especially pronounced in areas such as hydrogen technologies, digitalisation, and green energy. The RRP measure “**Application of green technologies for the decarbonisation of industry**” (C10 I4), including “Improvements enabling the deployment of alternative gases such as hydrogen and electrification” (C10 I4.2) and Biomethane integration (C10 I4.3), aligns with Horizon Europe Pillar III priorities on climate action and sustainable industry. Initiatives like the EU-funded OHPERA project, which develops decentralised hydrogen production systems, illustrate this complementarity. In some cases, RRP beneficiaries are required to commit to applying for Horizon Europe funding to scale up or internationalise their activities, although such commitments are typically tracked through declarations of intent, with limited evidence of systematic follow-up. As displayed in Table 25, Hungary’s participation in Horizon Europe remains moderate, with 761 organisations supported by EUR 195 million in EU contributions, representing 0,77% of total programme participation.

Table 25: Horizon Europe funding (2021-2027)

Horizon Europe	
Net EU contribution ⁽¹⁶⁵⁾	EUR 195 m (0,46% of the HE total)
Signed grants	570 (3,57% of the HE total)
Number of organisations involved in HE projects	761 (0,77% of the total)
Rank HE contribution per inhabitant	4
Top three types of supported organisations	Private for-profit entities (31,7%), Research Organisations (22,4%), Higher or Secondary Education Establishments (21,9%)
Top 5 keywords	ecosystems; sustainable economy; climatic changes; governance; business models

Source: [HE dashboard](#), Country profiles (mid-March 2025)

⁽¹⁶⁴⁾ Based on R&I measures categorisation developed by the Study Team.

⁽¹⁶⁵⁾ Please note that the data on Horizon Europe presented in the country fiches differ from those in the case studies due to methodological differences. In the country fiches, Horizon Europe data refer to the total net EU contribution. In the case studies, by contrast, the figures reflect the sum of allocations by investment area (an

In parallel, sequential synergies have emerged between the RRP and **Cohesion Policy** ⁽¹⁶⁶⁾ **(CP)** instruments, particularly through the Economic Development and Innovation Plus and Digital Renewal Plus programmes (2021–2027), which jointly allocate EUR 1,6 billion to R&I as shown in Table 26. These programmes reinforce the continuity of objectives launched under the RRP by supporting innovation among SMEs, patent generation, and research collaboration, targeting notably around 2620 annual FTEs. While both the RRP and EDIOP Plus originally aimed to address similar areas, they now operate in distinct yet complementary domains: the RRP enables large-scale, mission-driven investments in research infrastructure, including in developed regions such as Budapest, while EDIOP Plus focuses on SME-led, market-driven innovation in less-developed areas. This division of focus enables both territorial and functional complementarity: the RRP addresses gaps in Cohesion Policy coverage by supporting innovation in regions typically excluded from ERDF funding, while EDIOP Plus ensures the continuation and diffusion of innovation activities through more decentralised, enterprise-led initiatives.

Table 26: Cohesion Policy funding (2021-2027)

Cohesion Policy	
Overall EU financing	EUR 21,7 billion
Total EU payments	EUR 1,8 billion (8,31%) - prefinancing
R&I EU contribution ⁽¹⁶⁷⁾	EUR 1,6 billion for SO 1.1 “Enhancing research and innovation”
Researchers with improved infrastructure (planned)	2620 annual FTEs (planned)

Source: [Cohesion data](#) (mid-March 2025).

Bottlenecks

Hungary’s RRP has made progress in advancing R&I investments, but several implementation bottlenecks have emerged, particularly in the early phases of measures such as the “establishment of national research and development laboratories” (C2 I6). Interviews with national authorities revealed that delays stemmed from the **slow setup** of new RRF governance structures. This created **administrative uncertainty**, as programme planning and

approach necessary to establish correspondences with Cohesion Policy and RRF support for the coherence analysis). Annex V in the main report defines each investment area. Discrepancies arise from the impossibility of assigning certain Horizon Europe calls to the investment areas used in this analysis.

⁽¹⁶⁶⁾ European Commission. (2022). *EU Cohesion Policy 2021-2027: Investing in a fair climate and digital transition while strengthening Hungary’s administrative capacity, transparency and prevention of corruption*. Retrieved on March 31, from [EU Cohesion Policy 2021-2027: Hungary](#).

⁽¹⁶⁷⁾ Cohesion Policy support to R&I is derived from the [Cohesion Open Data Platform](#), based on EU amounts under Specific Objective (SO) 1.1 (“Enhancing research and innovation”) within the “Intervention Field” dimension. Data are based on the version of the platform as of 14 March 2025. Please note that the data on Cohesion Policy support to R&I in the country fiches differ from those in the case studies due to methodological differences: the fiches report the total amounts planned under SO 1.1, whereas in the case studies support is calculated as the sum of the amounts for each investment area, since focusing solely on the overall SO 1.1 allocation would have prevented an analysis by investment area (instrumental in establishing correspondences with Horizon Europe and RRF support for the coherence analysis). Annex V in the main report sets out the definition of each area.

implementation began in a changing regulatory environment where key rules were developed only afterwards and often became increasingly rigid. While these RRF-specific challenges were later mitigated as institutional capacity improved, broader structural constraints continue to impact the implementation and sustainability of RRP measures. **Low public R&D spending** and persistent **shortages in STEM skills**, especially in fields relevant to the green transition, pose significant risks to long-term success. This is particularly evident in labour-intensive and technically demanding measures like “Improvements enabling the deployment of alternative gases such as hydrogen and electrification” (C10 I4.2) and “Biomethane integration” (C10 I4.3) ⁽¹⁶⁸⁾. While the RRP has addressed some of these challenges through targeted investments, further progress will require sustained national funding, strategic workforce development, and stronger alignment between research, education, and labour market policies.

Results and Achievements

Hungary’s R&I measures under the RRP, especially the “Establishment of national research and development laboratories” (C2 I6), have already shown results by enhancing research capacities and promoting collaboration among academia, public institutions, and the private sector. So far, 26 National Laboratories have been set up in key areas like healthy living, digital transformation, green transition, and security, bringing together previously isolated research groups to boost coordination, joint projects, and scientific quality. The programme has actively involved SMEs, facilitating knowledge transfer and the economic application of research outcomes. It has also helped stabilise the research workforce by engaging PhD students and early-career researchers, raising professional standards within institutions. International collaboration has grown, with Hungary’s share of internationally co-authored scientific publications rising to 60,2% in 2024, reflecting stronger integration with European research networks. Early digital innovation efforts funded by the RRP are enhancing institutional technological capabilities, with more significant results expected as projects mature. Looking ahead, the National Laboratories Programme is set to expand in 2025, and a new mission-oriented research initiative post-2026 will aim to sustain and build on these achievements, supported by the growing budget of the National Research, Development and Innovation Fund.

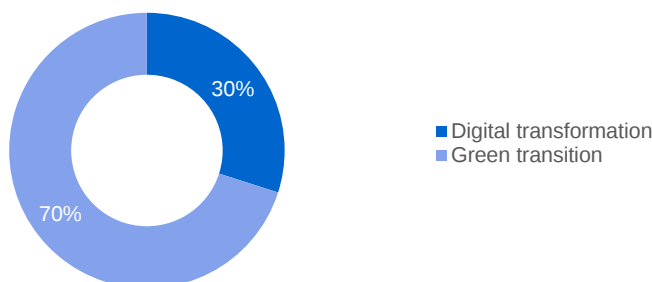
⁽¹⁶⁸⁾ European Commission. (2024). *Commission Staff Working Document 2024 Country Report – Hungary*. Retrieved on March 31, [here](#).

14.Ireland

Introduction

Ireland has allocated EUR 71.6 million ⁽¹⁶⁹⁾ from its Recovery and Resilience Plan (RRP) ⁽¹⁷⁰⁾ to support R&I initiatives, representing 6% of the total national RRP funding (EUR 1,153 million as of 02/04/2025) ⁽¹⁷¹⁾. The funding is divided between the Green transition primary pillar (70%) and the Digital transformation primary pillar (30%), as shown in Figure 23.

Figure 23: Funding R&I distribution per RRF Primary Pillar



Source: RRF Scoreboard, Fenix database.

Ireland has 2 R&I sub-measures in its RRP, both of which are investment-related and are associated with 8 milestones. To date ⁽¹⁷²⁾, the country has not fulfilled any of its R&I milestones and targets. This aligns with the planned investment schedule, which is progressing on track.

Interplay of Reforms and Investments

Ireland's RRP has placed a higher priority on investments than on reforms, with minimal interplay between the two on the R&I domains. The primary R&I investment is the EUR 71.6 million **National Challenge Fund** (NCF), overseen by Research Ireland, which fosters research and innovation to address societal challenges related to the green transition and digital transformation. Other reforms included in the plan complement the NCF's goals, including reforms in offshore wind development, climate governance, carbon tax legislation, and digitalisation of public services, particularly in healthcare and education, although these are not directly linked to the R&I domain ⁽¹⁷³⁾.

The NCF is embedded within broader strategic frameworks such as Ireland's Industry 4.0 Strategy ⁽¹⁷⁴⁾ and the Green Transition Fund and aligns with initiatives by bodies like Enterprise Ireland that promote public-private R&I partnerships. However, the effective functioning of these synergies has been to some extent hindered by the presence of tight timelines and administrative burdens linked to RRF reporting and implementation requirements, for example,

⁽¹⁶⁹⁾ Fenix database.

⁽¹⁷⁰⁾ European Commission. (2021). *Ireland's recovery and resilience plan*. Retrieved on March 31, [here](#).

⁽¹⁷¹⁾ European Commission. (2025). RRF Scoreboard: Country Overview, [here](#).

⁽¹⁷²⁾ Fenix database, last extracted on 31/03/2025

⁽¹⁷³⁾ European Commission. (2021). Ireland's recovery and resilience plan, [here](#).

⁽¹⁷⁴⁾ Government of Ireland. (2019). *Ireland's Industry 4.0 Strategy 2020-2025: Supporting the digital transformation of the manufacturing sector and its supply chain*. Retrieved August 24, 2025, [here](#).

the challenge of launching eight calls in a single year. Notwithstanding these challenges, the NCF has effectively promoted innovation and competitiveness, suggesting a strong potential to achieve its intended impact.

Integration into Domestic R&I Policy Mix

The NCF has carved out a strategic role within the country's broader research and innovation landscape. Despite its relatively limited financial contribution to the overall R&I policy mix, the RRP closely aligns with national strategies, such as the Department of the Environment's R&I Strategy to 2030 ⁽¹⁷⁵⁾ and the National Smart Specialisation Strategy 2022–2027 ⁽¹⁷⁶⁾. These strategies emphasise digitalisation, green transformation, and international R&I collaboration.

Furthermore, the RRP is complementary to broader frameworks, including the National Development Plan ⁽¹⁷⁷⁾ and the EU Digital Decade Roadmap. The NCF has strengthened Ireland's R&I ecosystem by fostering collaboration across civil society and government, acting as a catalyst for similar initiatives and leveraging additional funding. Furthermore, it has addressed specific gaps in training and support for researchers, enhancing its value beyond direct funding alone.

Synergies with Other Funding Programmes

Regarding the synergies with Horizon Europe (HE) funding, despite Ireland not being among the biggest Horizon Europe receivers, as shown in Table 27, the NCF has been found to align closely with Horizon Europe Missions, particularly Adaptation to Climate Change and 100 Climate-Neutral and Smart Cities, and to complement national strategies such as the Smart Specialisation Strategy and the Green Transition Fund.

As regards its complementarities with cohesion policy funds, despite its relatively limited financial resources (see Table 28), the NCF has been instrumental in fostering collaboration across various sectors, building thematic complementarities with European Regional Development Fund (ERDF) initiatives (e.g., ARC Hub), and enabling Research Ireland to diversify its funding targets. The engagement of stakeholders, including the utilisation of "Societal Impact Champions," has been instrumental in enhancing the relevance of funded projects.

While the long-term impacts are yet to be fully realised, the early implementation has demonstrated Ireland's active engagement in EU R&I programmes and accelerated innovation through agile, impact-focused funding mechanisms.

⁽¹⁷⁵⁾ Government of Ireland. (2024). *Research and Innovation Strategy to 2030*. Retrieved August 24, 2025, [here](#).

⁽¹⁷⁶⁾ Government of Ireland. (2022). *National Smart Specialisation Strategy for Innovation 2022-2027*. Retrieved August 24, 2025, [here](#).

⁽¹⁷⁷⁾ Government of Ireland. (2018). *National Development Plan 2018-2027*. Retrieved August 24, 2025, [here](#).

Table 27: Horizon Europe funding (2021-2027)

Horizon Europe	
Net EU contribution ⁽¹⁷⁸⁾	EUR 894,5 million (2.10% of the HE total)
Signed grants	1357 (8.49% of the HE total)
Number of organisations involved in HE projects	1907 (0.1% of the total)
Rank HE contribution per inhabitant	21
Top three types of supported organisations	Higher or Secondary Education Establishments (56.5%), Private for-profit entities (30.6%), Other (6.1%)
Top 5 keywords	ecosystems; sustainable economy; climatic changes; governance; business models

Source: [HE dashboard](#), Country profiles (mid-March 2025)

Table 28: Cohesion Policy funding (2021-2027)

Cohesion Policy	
Overall EU financing	EUR 988,6 million
Total EU payments	EUR 59,5 million (8.4%)
R&I EU contribution ⁽¹⁷⁹⁾	EUR 143,9 million for SO 1.1 “Enhancing research and innovation”
Researchers with improved infrastructure (planned)	-

Source: [Cohesion data](#) (mid-March 2025).

⁽¹⁷⁸⁾ Please note that the data on Horizon Europe presented in the country fiches differ from those in the case studies due to methodological differences. In the country fiches, Horizon Europe data refer to the total net EU contribution. In the case studies, by contrast, the figures reflect the sum of allocations by investment area (an approach necessary to establish correspondences with Cohesion Policy and RRF support for the coherence analysis). Annex V in the main report defines each investment area. Discrepancies arise from the impossibility of assigning certain Horizon Europe calls to the investment areas used in this analysis.

⁽¹⁷⁹⁾ Cohesion Policy support to R&I is derived from the [Cohesion Open Data Platform](#), based on EU amounts under Specific Objective (SO) 1.1 (“Enhancing research and innovation”) within the “Intervention Field” dimension. Data are based on the version of the platform as of 14 March 2025. Please note that the data on Cohesion Policy support to R&I in the country fiches differ from those in the case studies due to methodological differences: the fiches report the total amounts planned under SO 1.1, whereas in the case studies support is calculated as the sum of the amounts for each investment area, since focusing solely on the overall SO 1.1 allocation would have prevented an analysis by investment area (instrumental in establishing correspondences with Horizon Europe and RRF support for the coherence analysis). Annex V in the main report sets out the definition of each area.

Bottlenecks

The NCF is currently undergoing an assessment to identify and address any potential bottlenecks or challenges. However, according to the stakeholders consulted, a key feature of the programme's design is the swift exit of teams that are underperforming, a strategy that has been found to enhance efficiency. This approach, while effective in terms of utilising resources, also allows Research Ireland to maintain oversight and provide support to teams that have exited the programme, thereby facilitating innovation beyond the direct scope of the RRF.

While the implementation of strict monitoring mechanisms and EU-set milestones has resulted in coordination challenges, these measures have also contributed to the streamlining of the programme's implementation.

Results and Achievements

The NCF is still in progress, with tangible impacts yet to be evaluated. According to the interviewees, a final evaluation is scheduled to take place at a later date; however, significant progress is evident as the initial 96 research teams have been reduced to 34 teams that are focusing on solutions with commercial or societal impact. On 30 April 2025, these teams presented their projects at an internal event in Dublin, at which the eight teams with the highest level of performance will receive an additional year and EUR 500,000 for deployment, according to the stakeholders consulted. The NCF has facilitated effective coordination between government departments and agencies, including the Department of Further and Higher Education, Research, Innovation and Science, the Department of Public Expenditure, and the Department of Finance. The initiative's long-term sustainability is supported by Ireland's "Impact 2030" strategy, signalling potential future funding beyond the RRP.

15. Italy

Introduction

Italy has allocated **EUR 13,556 million** ⁽¹⁸⁰⁾ (both grants and loans) from its Recovery and Resilience Plan (RRP) ⁽¹⁸¹⁾ to support R&I measures and sub-measures ⁽¹⁸²⁾, representing around 7% of the total RRP funding (EUR 194,382 million, as of 04/04/25) ⁽¹⁸³⁾. As shown in Figure 24, R&I funding has been allocated mainly to the Smart, sustainable and inclusive growth primary pillar (57%), followed by the Green transition (25%) and the Digital transformation (14%).

Figure 24: Funding R&I distribution per RRF Primary Pillar

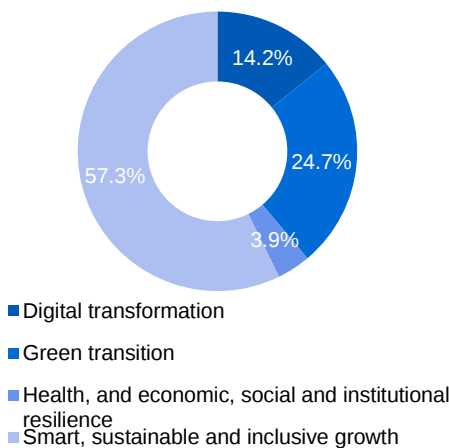
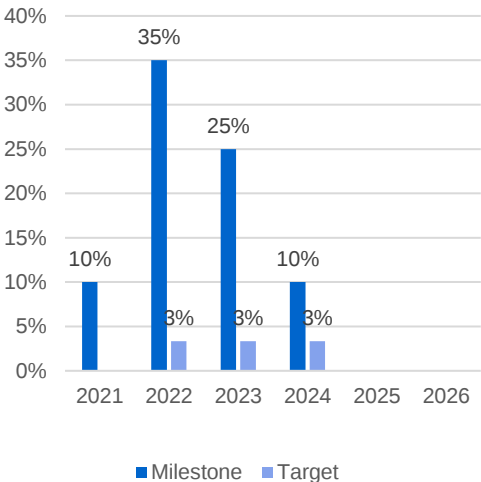


Figure 25: Share of fulfilled R&I M&T out of total R&I M&T



Source: RRF Scoreboard, Fenix database.

The country has **14 R&I measures and 20 R&I sub-measures** in the RRP, both reforms and investments, associated with 50 milestones and targets. To date ⁽¹⁸⁴⁾, Italy has fulfilled ⁽¹⁸⁵⁾ 80% of its R&I milestones (16 out of 20) and 10% of its R&I targets (3 out of 30) ⁽¹⁸⁶⁾.

⁽¹⁸⁰⁾ Fenix database.

⁽¹⁸¹⁾ European Commission. (2021). *Italy's recovery and resilience plan*. Retrieved on March 31, [here](#).

⁽¹⁸²⁾ A measure or sub-measure is defined as related to R&I (for the purposes of this study) if the European Commission assigned to it a R&I-related policy area (either as primary or secondary policy area, or both). R&I-related policy areas are three: R&D&I; R&D&I In Green Activities; Digital-Related Measures in R&D&I. Importantly, the set of R&I-related measures under scope in this study does not necessarily coincide with national-level documentation, for instance, because some measures are not assigned a R&I-relevant policy area in the Commission classification. As an example, the Italian RRP has a measure called "Fund for the realisation of an integrated system of research and innovation infrastructures" [M4C2I3], worth EUR 1.6 billion, which is however not included in the study's scope of analysis for this reason.

⁽¹⁸³⁾ European Commission. (2025). *RRF Scoreboard: Country Overview*, [here](#).

⁽¹⁸⁴⁾ Fenix database, last extracted on 31/03/2025.

⁽¹⁸⁵⁾ The number of fulfilled milestones/targets covers only those formally assessed as such. Additional milestones/targets may be completed but not yet assessed.

⁽¹⁸⁶⁾ The following caveat applies: among the milestones and targets associated with R&I-related measures, some are not (or not fully) R&I-related, because they reflect non-R&I elements of broad parent measures. Excluding

The 34 measures and sub-measures pursue different goals. Within the RRP, they are under the following Missions: Mission 1 “Digitalisation and competitiveness”; 2 “Green transition”; 4 “Education and Research”; 6 “Health”, 7 “RePowerEU”. R&D measures under Mission 4 have a cost of over EUR 7.2 billion, which corresponds to 53% of the total EUR 13.6 billion mentioned above. Missions 1 and 2 follow, with over EUR 3.5 billion (26%) and EUR 2.1 billion (16%) respectively. Under the three main Missions, the R&I-related measures are the following ones.

- Mission 1 “**Digitalisation and competitiveness**” includes a **Tax credit for R&D** [M1C2I1.4], a measure on **Satellite technology and space economy** [M1C2I4] structured into four sub-measures, and an **Investment in the Industrial Property System** [M1C2I6].
- Mission 2 “**Green transition**” includes a measure (structured into three sub-measures) on **Innovation and mechanisation in agriculture** [M2C1I2.3], a **Fund supporting R&D in the agricultural supply chain** [M2C1I3.4e], and six measures related to **R&D in the hydrogen sector** [M2C2I3.1.b, M2C2I3.3, M2C2I3.4, M2C2I3.5a, M2C2I3.5b, M2C2I5.2].
- Mission 4 “**Education and research**” includes two reforms concerning **PhDs** [M4C1R4.1] and **Support to R&D fostering simplification and mobility** [M4C2R1.1]. It also includes investment measures about **Research Projects of Significant National Interest** [M4C2I1.1], **Projects presented by young researchers** [M4C2I1.2], **IPCEI in the green sector** [M4C2I2.1b], **Innovation Agreements** [M4C2I2.2bis], and a set of three measures (referred to as “systemic actions” by the Ministry of University and Research, and structured in a total of 8 sub-measures) about **Partnerships** extended to universities, research centres, companies and funding of basic research projects [M4C2I1.3], **Strengthening research structures and supporting the creation of “national R&D leaders”** on some Key Enabling Technologies [M4C2I1.4], and **Establishing of innovation ecosystems, building “territorial leaders of R&D”** [M4C2I1.5].

The individual measure with the highest cost is the Tax credit for R&D, amounting to EUR 2 billion.

Altogether, the 34 measures represent a mix of R&I-specific measures (especially under Mission 4), **deployment of vertical policies in innovative sectors** (such as space under Mission 1 and medical research under Mission 6), **and support to R&D-related aspects of more traditional sectors** (such as agriculture under Mission 2 or industrial policy under Mission 1).

Interplay of Reforms and Investments

The RRP’s approach to R&I places particular focus on reinforcing the connection between the R&I system and businesses, a link that has traditionally been weak, mainly due to the predominance of SMEs in the Italian economic landscape. Under Mission 4, reforms and investments form a single strategy, resulting in a systemic support for the Italian R&I system.

Structural investments aiming to enhance the science-business link under Mission 4 Component 2, the RRP’s R&I core component, are designed with strong complementarities between each other. They target different actors and levels of technological maturity, forming a comprehensive policy design.

these milestones and targets not related to R&I is however not straightforward, because there is no immediate correspondence between sub-measures and milestones/targets.

Integration into Domestic R&I Policy Mix

The 34 RDI-related measures under scope have a heterogeneous relationship with the preexisting policy setting: some represent new policy initiatives, while others are the continuation of already existing initiatives. The RRP integrated well within the national R&I policy, as it provided resources to implement the vision outlined in the national R&I strategy (National Research Programme) issued at the end of 2020. Overall, there is no evidence to suggest that the RRF has displaced or crowded out existing funding streams. Instead, it has generally acted as an additional source of support. Moreover, in 2021 Italy set up a National Plan for Complementary Investments to the RRP, integrating the contents of the RRP, including in the R&I sector, without the same time constraints of the RRF (in terms of eligibility period until 2026).

Synergies with Other Funding Programmes

The original RRP included measure “Partnerships for research and innovation – Horizon Europe” [M4C2I2.2] that aimed to fund research projects identified through calls for participation in 7 EU partnerships. However, in 2024, the government removed this measure from the RRP because of insufficient demand, risks related to the RRF timeline, and difficulties related to the process to justify the avoidance of double funding. A measure funding “Projects presented by young researchers” [M4C2I1.2] offers an example of a successful synergy with other funding programmes instead: under this measure, research grants were awarded to Marie Skłodowska-Curie Individual Fellowships and Postdoctoral Fellowships (MSCA), as well as to Seal of Excellence (SOE) and European Research Council (ERC) grantees. Moreover, ERC researchers were hired as second-level university professors or second-level researchers; MSCA and SOE researchers were hired as researchers.

Synergies with Cohesion Policy were planned in terms of complementarity based on demarcation between different themes. The actions envisaged by the National Research and Competitiveness Programme (PN RIC) 2021-2027, financed by Cohesion Policy funds, have been formulated with a clear demarcation from the measures of the RRP, precisely to avoid overlaps and duplications. In principle, the RRP focuses more on strategic investments and reforms, while Cohesion Policy is expected to support specific projects and basic and applied research activities. The implementation of Cohesion Policy programmes suffered from the parallel implementation and prioritisation of the Italian RRP, but governance reforms are expected to facilitate a joint steering. Examples of RRP-Cohesion Policy synergies include staggered calls and co-funding for PhD support⁽¹⁸⁷⁾, and references to regional S3 strategies.

The following table provides an overview of Italian participation in Horizon Europe.

⁽¹⁸⁷⁾ With regard to PhDs, different efforts were made to differentiate RRF-funded initiatives from those supported by the National Programme (NP). Calls under the NP were strategically launched after the conclusion of similar RRF-funded calls to avoid overlap. Additionally, the RRF was used to fund specialised PhD programmes, including those targeting collaboration with private companies, public administrations, and the cultural sector. Only calls for innovative research doctorates overlapped with NP initiatives. For these, RRP resources were used up to the 40th PhD cycle (i.e. 2024-25), with NP activities were scheduled to commence from the 41st onward (2025-26).

Table 29: Horizon Europe funding (2021-2027)

Horizon Europe	
Net EU contribution ¹⁸⁸	EUR 3,62 billion (8.48% of the HE total)
Signed grants	4,591 (28.73% of the HE total)
Number of organisations involved in HE projects	9,588 (9.66% of the total)
Rank HE contribution per inhabitant	12
Top three types of supported organisations	Higher or Secondary Education Establishments (38.1%), Private for-profit entities (32.2%), Research Organisations (20.3%)
Top 5 keywords	ecosystems; sustainable economy; climatic changes; governance; machine learning

Source: [HE dashboard](#), Country profiles (mid-March 2025).

The following table provides an overview of Cohesion Policy funding to Italy in the R&I sector.

Table 30: Cohesion Policy funding (2021-2027)

Cohesion Policy	
Overall EU financing	EUR 42,2 billion
Total EU payments	EUR 1,5 billion (3.6%)
R&I EU contribution ¹⁸⁹	EUR 2,9 billion for SO 1.1 “Enhancing research and innovation”
Researchers with improved infrastructure (planned)	941 annual FTEs

Source: [Cohesion data](#) (mid-March 2025)

⁽¹⁸⁸⁾ Please note that the data on Horizon Europe presented in the country fiches differ from those in the case studies due to methodological differences. In the country fiches, Horizon Europe data refer to the total net EU contribution. In the case studies, by contrast, the figures reflect the sum of allocations by investment area (an approach necessary to establish correspondences with Cohesion Policy and RRF support for the coherence analysis). Annex V in the main report defines each investment area. Discrepancies arise from the impossibility of assigning certain Horizon Europe calls to the investment areas used in this analysis.

⁽¹⁸⁹⁾ Cohesion Policy support to R&I is derived from the [Cohesion Open Data Platform](#), based on EU amounts under Specific Objective (SO) 1.1 (“Enhancing research and innovation”) within the “Intervention Field” dimension. Data are based on the version of the platform as of 14 March 2025. Please note that the data on Cohesion Policy support to R&I in the country fiches differ from those in the case studies due to methodological differences: the fiches report the total amounts planned under SO 1.1, whereas in the case studies support is calculated as the sum of the amounts for each investment area, since focusing solely on the overall SO 1.1 allocation would have prevented an analysis by investment area (instrumental in establishing correspondences with Horizon Europe and RRF support for the coherence analysis). Annex V in the main report sets out the definition of each area.

The following box briefly summarises the results of further analysis comparing RRF, Horizon Europe and Cohesion Policy, presented in the Case study on Moderate Innovators (Annex “Comparing RRF, Horizon Europe and Cohesion Policy: the case of R&D projects in Italy”).

Box 1: Results comparing RRF, Horizon Europe and Cohesion Policy, presented in the Case study on Moderate Innovators

Using the Italian Open Data catalogue on RRF projects, Cordis (Horizon Europe) and Cohesion Policy open data, three analyses were carried out: 1) The territorial concentration of the funds was examined based on the geographical disaggregation of the datasets. 2) The level of overlap between RRF and HE participants was investigated making use of VAT codes, which allow to uniquely identify participants across both datasets. 3) A similarity analysis between projects done by the same entity was performed by means of a sentence similarity algorithm (sentence similarity is a Natural Language Processing task which aims to determine the semantic similarity between a pair of sentences).

The first analysis found that the RRF support to R&I stands between CP and Horizon Europe in terms of concentration by type of region. Horizon Europe participants tend to be in more developed regions, while CP has a higher focus on less developed regions. The RRF resources, while having the largest amount in absolute terms, are more balanced across the three categories of regions. Differently from the other two funding mechanisms, the RRF emerges as the instrument that plays a crucial role not in one specific category of regions, but in more developed and less developed regions alike. In fact, if we cumulatively consider all R&I-related funds under the RRF, Horizon Europe and Cohesion Policy, Horizon Europe covers a large share (37%) of these funds for more developed regions and a little share (6%) for less developed ones; vice versa, Cohesion policy covers a large share of funds for less developed regions (46%) and a small share (10%) for more developed ones. The RRF covers a large and similar share in both types of regions, instead of about 50% of the total R&I funds (48% in less developed regions, 53% in more developed regions).

Relative to GDP, the RRF provides most of the support to less developed regions (0.57% of the less developed regions' GDP), while it has the same weight in transition and more developed regions (0.31% each).

The second analysis unveiled that Italian RRF R&I-related measures have financed ⁽¹⁹⁰⁾ 23,328 projects. 19,332 distinct final beneficiaries are participating in these projects. Horizon Europe has financed ⁽¹⁹¹⁾ 4,569 projects in Italy instead. These projects are being carried out by 2,025 distinct organisations. 322 final beneficiaries of RRF are also Horizon Europe's participants ⁽¹⁹²⁾. Specifically, these organisations participated in 16,936 RRF projects and 3,521 Horizon projects, securing EUR 3,534 million and EUR 2,319 million from the two instruments, respectively. On average, entities benefiting from both programmes participate in 53 RRF and 17 Horizon Europe projects.

From the similarity analysis, what emerges is that universities and research organisations, when funded from both RRF and Horizon Europe, display higher similarity among their projects, especially if compared to private companies. This similarity in the projects carried out by

⁽¹⁹⁰⁾ Update of 31st March 2025

⁽¹⁹¹⁾ Update of 15th May 2025

⁽¹⁹²⁾ Note that out of the 19,332 distinct final beneficiaries participating in R&I projects funded by the RRF, 14,389 do not have any VAT number associated. These are mostly natural persons and agricultural firms. Without the VAT number it is not possible to search for the same entity in the Horizon Europe database.

organisations benefitting from both programmes could point to complementarities and possible synergies between RRF and Horizon Europe.

For further details on the three analyses, see the Annexe III “Comparing RRF, Horizon Europe and Cohesion Policy: the case of R&D projects in Italy” in the case study on moderate innovators.

Bottlenecks

The RRP’s implementation in the R&I sector encountered several bottlenecks. A key challenge is applying the “Do No Significant Harm” (DNSH) principle, which, while supporting environmental goals, introduced, according to interview feedback, disproportionate administrative burdens—especially for low-risk measures like patent platforms. Universities and research institutions faced steep procedural demands despite existing financial oversight systems. The influx of RRP funds burdened university grant offices, indirectly reducing participation in Horizon Europe. Additional barriers include procedural rigidity, tight revision timelines, and evolving guidance from the EU level, all of which strained administrative capacity. Though targeted training and reforms like centralised governance helped, broader systemic issues persist, including burdens related to the fact that the simplification originally expected to be generated by the performance-based system did not materialise, as the emphasis on cost control increased considerably over time, adding complexity. In addition, initial uncertainties and market unpreparedness—particularly in areas like hydrogen—have slowed implementation.

Results and Achievements

The RRP has delivered an enhanced R&I ecosystem by strengthening capacity in universities and research bodies, fostering stronger university-business collaboration and supporting SMEs’ innovation uptake. However, structural challenges remain in integrating research into Italy’s SME-dominated economy. Sustained strategic effort is needed to ensure lasting transformation in Italy’s R&I landscape. Italy has committed (in its 2025-2029 Medium-Term Fiscal-Structural Plan) to increasing public expenditure for R&I: this is expected to contribute to ensuring a lasting impact of RRF investments over time. Despite this, some concerns about sustainability beyond 2026 remain: RRP measures have created valuable infrastructure and human capital, but long-term funding is relatively uncertain. For some RRF measures (e.g. the systemic actions at the core of the RRP’s R&I approach), however, concrete steps have already been taken by the government to ensure continued funding. From an administrative point of view, an important legacy of the RRP might lie in the experience of Ministerial RRP Mission Units, which have enhanced coordination within and across ministries. In principle, their experience could be renewed to cover the whole set of EU funds in the future.

16. Latvia

Introduction

Latvia has allocated EUR 197.6 million ⁽¹⁹³⁾ from its Recovery and Resilience Plan (RRP) ⁽¹⁹⁴⁾ to support R&I initiatives, representing 10% of the total national RRP funding (EUR 1,969 million, as of 04/04/25) ⁽¹⁹⁵⁾. R&I funding has been allocated mainly to the Smart, sustainable and inclusive growth primary pillar.

Figure 26: Funding R&I distribution per RRF primary pillar

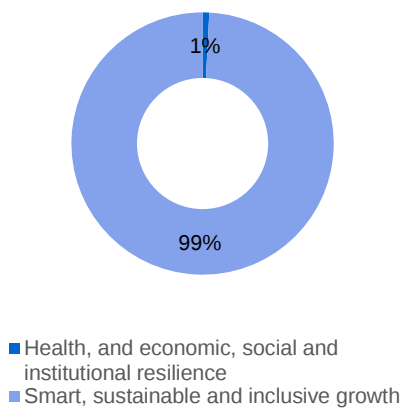
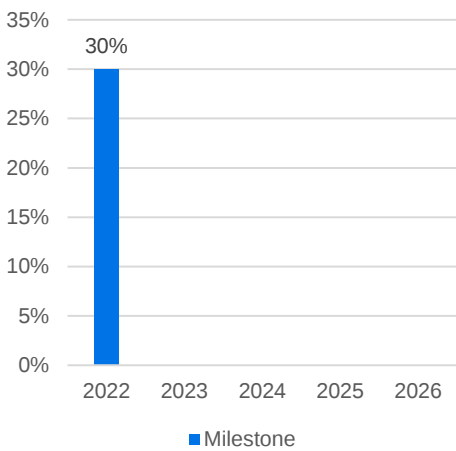


Figure 27: Share of fulfilled R&I M&T out of total R&I M&T



Source: RRF Scoreboard, Fenix database.

The country has 7 R&I measures in its RRP, both reforms and investments, associated with 17 milestones and targets. To date ⁽¹⁹⁶⁾, the country has fulfilled 30% of its R&I milestones (3 out of 10), and none of its R&I targets (7) ⁽¹⁹⁷⁾. Latvia’s achievements include developing long-term strategies for its RIS3 areas, setting up Strategic Steering Boards, contracting staff for innovation governance, reforming higher education governance, approving consolidation plans for universities, and adopting a unified methodology for research on antimicrobial resistance, vaccination, and infectious diseases.

Interplay of Reforms and Investments

The Latvian measures for R&I comprise interconnected reforms and investments that are complementary in nature. A pivotal reform entails the implementation of an ecosystem approach to innovation governance (LV-C[C5]-R[5-1-r] Innovation system governance and private R&D

⁽¹⁹³⁾ Fenix database.

⁽¹⁹⁴⁾ European Commission. (2021). *Latvia's Recovery and Resilience Plan*. Retrieved April 16, 2025, [here](#).

⁽¹⁹⁵⁾ European Commission. (2025). *RRF Scoreboard: Country Overview*, [here](#).

⁽¹⁹⁶⁾ Fenix database, last extracted on 31/03/2025.

⁽¹⁹⁷⁾ The number of fulfilled milestones/targets covers only those formally assessed as such. Additional milestones/targets may be completed but not yet assessed.

investment motivation), with the objective of enhancing R&D capacity within enterprises and cultivating cross-sectoral collaboration. This reform is supported by two investments: one for developing an innovation system governance model (LV-C[C5]-I[5-1-1-1-i] Operationalisation of a fully-fledged innovation system governance model), focusing on key sectors such as bio-economy and smart energy, and another for increasing private R&D investments through targeted public funding across various support programmes (LV-C[C5]-I[5-1-1-2-i] Support for research and internationalization).

Furthermore, the reform of higher education and scientific excellence and Governance (LV-C[C5]-R[5-2-1-r-]) is accompanied by an investment to consolidate higher education institutions and improve competitiveness (LV-C[C5]-I[5-2-1-1-i] Research, development and consolidation grants). The measures have been meticulously designed to ensure complementarities between them, with the objective of facilitating their seamless and effective implementation.

Integration into Domestic R&I Policy Mix

The RRF served as a crucial bridging financing solution for Latvia, connecting the EU funding periods of 2014-2020 and 2021-2027. Its alignment with national R&I strategies is a positive element to highlight, particularly with the National Development Plan 2021-2027, which prioritises scientific excellence and innovation.

The RRF in Latvia also complements the Guidelines for Science, Technology Development and Innovation 2021-2027, which outline medium-term R&I objectives, including the development of a new academic career framework. While, according to the stakeholders interviewed, most measures would have been implemented without the RRF, its funding reinforced these initiatives, preventing delays and ensuring their timely execution as reported by the stakeholders consulted.

Synergies with Other Funding Programmes

The Latvian plan was designed to create synergies with other funding programs, using RRF funding as a transitional financial instrument between the 2014-2020 and 2021-2027 EU funding periods. Several RRP measures identified as complementary to EU programmes, including the European Regional Development Fund (ERDF)¹⁹⁸.

With regard to Horizon Europe (HE), despite Latvia's low participation in HE, it offers a valuable source of opportunities that can benefit from the changes occurring in the Latvian research and innovation system within the RRF framework. Even though no concrete synergies have been identified at this stage, the reforms and investments in the Latvian RRP should strengthen the Latvian R&I ecosystem and hence lead to higher HE participation.

⁽¹⁹⁸⁾ See e.g., for measure LV-C[C5]-I[5-2-1-1-i] Research, development and consolidation grants [here](#) or for measures LV-C[C5]-I[5-1-1-2-i] Instrument to support the development of innovation clusters, [here](#).

Table 31: Horizon Europe funding (2021-2027)

Horizon Europe	
Net EU contribution ⁽¹⁹⁹⁾	EUR 100 million (0.23% of the HE total)
Signed grants	283 (1.77% of the HE total)
Number of organisations involved in HE projects	355 (0.36% of the total)
Rank HE contribution per inhabitant	8
Top three types of supported organisations	Higher or Secondary Education Establishments (33.1%), Private for-profit entities (26.7%), Research Organisations (26.4%)
Top 5 keywords	ecosystems; sustainable economy; governance; climatic changes; business models

Source: [HE dashboard](#), Country profiles (mid-March 2025).

With regard to Cohesion Policy (CP) funds, a dedicated website outlines the interrelationships between European-funded projects, such as those from ERDF and RRP. The website shows, for example, that LV-C[C5]-I[5-1-1-1-i-] ⁽²⁰⁰⁾ Innovation system governance and private R&D investment motivation fits together with two ERDF-funded investments: the funding for PhD students and support for innovative SMEs.

These measures fit together in practice because the RRP investment strengthens the overall governance model and coordination of the Latvian innovation ecosystem, which creates a more effective framework for channelling human capital and enterprise support. The ERDF-funded investment in PhD students ensures a steady supply of highly skilled researchers, while the ERDF support for innovative SMEs provides the business base capable of absorbing and commercialising research outputs. The RRP measure thus provides the institutional and systemic backbone that enables the ERDF-funded measures to be more impactful, avoiding fragmentation and ensuring that human capital, business innovation and governance capacity are aligned towards the same strategic R&I objectives.

In this way, Latvia has maximised the use of available funds, ensuring optimal coordination to address R&I challenges and demonstrating good practice in utilising European funds effectively.

⁽¹⁹⁹⁾ Please note that the data on Horizon Europe presented in the country fiches differ from those in the case studies due to methodological differences. In the country fiches, Horizon Europe data refer to the total net EU contribution. In the case studies, by contrast, the figures reflect the sum of allocations by investment area (an approach necessary to establish correspondences with Cohesion Policy and RRF support for the coherence analysis). Annex V in the main report defines each investment area. Discrepancies arise from the impossibility of assigning certain Horizon Europe calls to the investment areas used in this analysis.

⁽²⁰⁰⁾ See e.g. for measure LV-C[C5]-I[5-1-1-1-i-] Development and continuous operation of a fully-fledged innovation system governance model, [here](#).

Table 32: Cohesion Policy funding (2021-2027)

Cohesion Policy	
Overall EU financing	EUR 4,4 billion
Total EU payments	EUR 215,63 million (4.86% of the CP total)
R&I EU contribution ⁽²⁰¹⁾	EUR 365,8 million for SO 1.1 “Enhancing research and innovation”
Researchers with improved infrastructure (planned)	265 annual FTEs

Source: [Cohesion data](#) (mid-March 2025).

Bottlenecks

No specific bottlenecks have been identified under the framework of this study.

Results and Achievements

The implementation of Latvia's R&I measures is progressing well, with three milestones fulfilled. Key achievements include the establishment of a methodology for research on antimicrobial resistance, vaccination, and infection reduction, and the hiring of 19 staff to support innovation governance and ecosystems. However, there is limited information on the outcomes of the measures at this stage. The reform of higher education is expected to improve university processes, and some projects are being piloted for future funding and development, which can result in an increase of efficiency in the higher education system and positive results for the Latvian R&I system.

⁽²⁰¹⁾ Cohesion Policy support to R&I is derived from the [Cohesion Open Data Platform](#), based on EU amounts under Specific Objective (SO) 1.1 (“Enhancing research and innovation”) within the “Intervention Field” dimension. Data are based on the version of the platform as of 14 March 2025. Please note that the data on Cohesion Policy support to R&I in the country fiches differ from those in the case studies due to methodological differences: the fiches report the total amounts planned under SO 1.1, whereas in the case studies support is calculated as the sum of the amounts for each investment area, since focusing solely on the overall SO 1.1 allocation would have prevented an analysis by investment area (instrumental in establishing correspondences with Horizon Europe and RRF support for the coherence analysis). Annex V in the main report sets out the definition of each area.

17. Lithuania

Introduction

Lithuania has allocated EUR 237,9 million ⁽²⁰²⁾ from its Recovery and Resilience Plan (RRP) ⁽²⁰³⁾ to support R&I initiatives, representing 6% of the total national RRP funding (EUR 3,841 million, as of 04/04/2025) ⁽²⁰⁴⁾. As shown in Figure 29, most of the R&I funding has been allocated to the Smart, sustainable and inclusive growth primary pillar (59%), followed by the Green transition primary pillar (21%).

Figure 28: Funding R&I distribution per RRF Primary Pillar

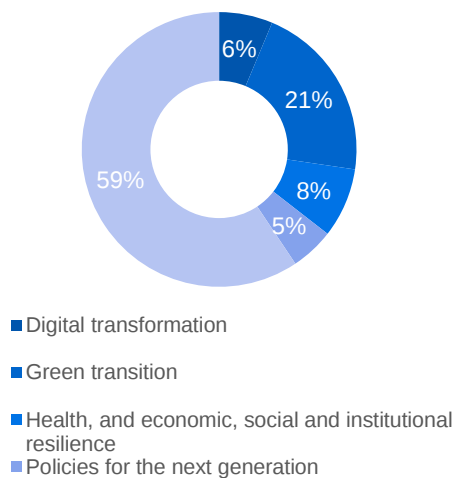
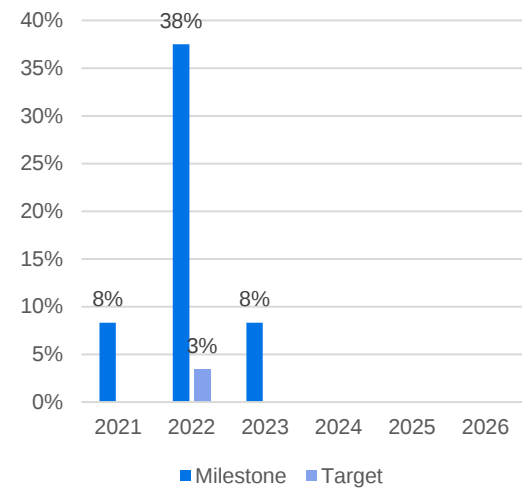


Figure 29: Share of fulfilled R&I M&T out of total R&I M&T



Source: RRF Scoreboard, Fenix database.

The country has 17 R&I sub-measures in the RFF, both reforms and investments and are associated with 53 milestones and targets. To date ⁽²⁰⁵⁾, Lithuania has fulfilled 54% of its R&I milestones (13 out of 24) and 3% of its R&I targets (1 out of 29) ⁽²⁰⁶⁾. These milestones cover a broad range of reforms and investments, including, creating a Green Finance Action Plan and Competence Centre, revising R&D incentives and legislation, updating the Smart Specialisation concept, and reforming health services and higher education governance, among others.

In terms of R&I investments, EUR 2.5 million out of the total EUR 33.9 million investments included in the national plan for R&I has been approved and disbursed, corresponding to the fulfilment of 1 sub-measure; i.e. 7% of the total.

⁽²⁰²⁾ Fenix database.

⁽²⁰³⁾ European Commission. (2021). *Lithuania's Recovery and Resilience Plan*. Retrieved April 16, 2025, [here](#).

⁽²⁰⁴⁾ European Commission. (2025). *RRF Scoreboard: Country Overview*, [here](#).

⁽²⁰⁵⁾ Fenix database, last extracted on 31/03/2025.

⁽²⁰⁶⁾ The number of fulfilled milestones/targets covers only those formally assessed as such. Additional milestones/targets may be completed but not yet assessed.

Interplay of Reforms and Investments

The Lithuanian RRP integrates structural reforms and investments to strengthen its R&I ecosystem, focusing on innovation, ICT, and sustainable finance. A central reform, “Effective Implementation of Innovation Policy, Increased Demand for Innovation, Developed Start-Up Ecosystem, and Green Innovation Development” (C5-R.E1.2), addresses fragmented governance, weak science-business collaboration, and low innovation demand. Its flagship measures, “Establishment of the Innovation Agency Lithuania” (C5-E1.2.1), launched in April 2022 with EUR 5 million in RRF support, consolidated multiple institutions and streamlined innovation governance through legislative amendments. Similarly, at the same time, the Research Council of Lithuania was reorganised (C5-E.1.4), and together they form twin agencies – one for businesses, the other for researchers. Another systemic reform, “Quality Higher Education and Strong Higher Education Institutions” (C5-E1.1), has reshaped the higher education landscape. It introduced a new basic and performance-based funding model, defined the missions of universities and colleges, and increased the share of R&D funding within the higher education budget.

Complementing this is the investment “Increasing Demand for Innovation in Lithuania by Exploiting the Potential of Public Procurement” (C5-E1.2.2), under which 55 innovative public procurements shall be completed and 97 environmentally friendly product or technology development/deployment projects shall receive financial support. This is aligned with Lithuania’s ambitious target of 100% for green public procurement and 20% for innovation procurement by 2030 ⁽²⁰⁷⁾. Synergy between reform and investment is also seen in the link between “Promoting the development of Green Innovation” (C5-E1.2.4) and the “Green Finance Competence and Knowledge Center” (C2-B.3.1), which supports green innovation in underfunded non-industrial sectors through financial tools and capacity-building.

Further integration is provided by “Mission-Based Science and Business Collaboration” (C5-R.E1.3), backed by EUR 77 million in RRF funding, which supports consortia focused on smart industry, digitalisation, and biotechnology. Together, these measures demonstrate how aligned reforms and investments can drive systemic transformation, with several now embedded in national policy for lasting impact beyond the RRF timeframe.

Integration into Domestic R&I Policy Mix

Although Lithuania’s core strategic R&I documents, such as the **Lithuania 2050 Strategy** ⁽²⁰⁸⁾, the **National Progress Programme 2021–2030** ⁽²⁰⁹⁾, or the **Smart Specialisation Strategy (RIS3)** ⁽²¹⁰⁾, do not explicitly reference to the RRP, the R&I measures funded under the RRP are well-aligned with national priorities. RRP R&I investments have supported structural reforms in green innovation, digitalisation, and institutional capacity, reinforcing Lithuania’s long-term R&I objectives. Notable examples include the creation of the Innovation Agency Lithuania, the reorganisation of the Research Council of Lithuania and the establishment of the Green Finance

⁽²⁰⁷⁾ Organisation for Economic Co-operation and Development. (2024). *Public Procurement in Lithuania*. Retrieved April 7, 2025, [here](#).

⁽²⁰⁸⁾ Seimas of the Republic of Lithuania. (2023). *State Progress Strategy 'Lithuania's Vision for the Future 'Lithuania 2050'*. Retrieved April 7, 2025, [here](#).

⁽²⁰⁹⁾ Organisation for Economic Co-operation and Development. (2023). *National Progress Program for 2021-2030*. Retrieved April 7, 2025, [here](#).

⁽²¹⁰⁾ Ministry of the Economy and Innovation of the Republic of Lithuania. (2022). *Smart specialisation*. Retrieved April 7, 2025, [here](#).

Competence and Knowledge Centre, both of which contribute to policy coherence and systemic improvements. Lithuania's RRP measures are also aligned with national programmes, notably the Horizon Europe Acceleration Programme funded by the Research Council of Lithuania, which assists in proposal preparation and complements RRP's capacity-building activities (C5.E.1.3). The Innovation Agency Lithuania and the reorganisation of the Research Council of Lithuania, established through RRF support, centralises access to national funding and advisory services, reinforcing coordination between national and RRP innovation efforts and fostering science-business collaboration.

Looking ahead, these reforms are expected to have lasting effects, with the Innovation Agency and the Research Council of Lithuania continuing beyond 2026 through national funding, while Lithuania plans to increasingly leverage EU structural funds to sustain and expand its R&I activities. Together, these efforts provide a strong foundation for advancing Lithuania's innovation ecosystem and progressing towards the EU's 3% R&D investment target.

Synergies with Other Funding Programmes

Lithuania has effectively leveraged synergies between its RRP innovation measures and other EU funding programmes to enhance its innovation strategy's implementation and impact. The RRF co-funds R&I measures at EU level with both **Horizon Europe (HE)** ⁽²¹¹⁾ and **Cohesion Policy (CP)** ⁽²¹²⁾ funds, particularly in the areas of **business innovation, R&D ecosystems, and scientific excellence** ⁽²¹³⁾.

Lithuania's HE participation is closely aligned with national priorities, securing EUR 157,3 million through 403 grants involving 528 organisations, as shown in Table 33, and achieving an 18,5% success rate, well above the EU average. These increased figures partly reflect Lithuania's decision to transfer European Regional Development Fund (ERDF) funds directly to HE, implemented last year, which boosted participation in ERC, EIC, and Marie Skłodowska-Curie projects. Supported projects focus on health technologies, ICT, and sustainable production, complementing RRP investments in digital transformation and green innovation.

Key co-funded measures such as digital innovation development (C3.C.1.4) and the green finance competence centre (C2.B.3.1), alongside HE's European Innovation Council support, strengthen startups and deep-tech sectors. These co-funding synergies involve different cost components covered by separate programmes, and RRF-funded infrastructure and capacity building improve success rates in HE calls.

⁽²¹¹⁾ European Commission. (2025). EU Digital Dashboard: Analysis. Retrieved April 7, 2025, [here](#).

⁽²¹²⁾ European Commission. (2021). EU Cohesion Policy 2021-2027. Retrieved April 7, 2025, [here](#).

⁽²¹³⁾ Based on R&I measures categorisation developed by the Study Team.

Table 33: Horizon Europe funding (2021-2027)

Horizon Europe	
Net EU contribution ⁽²¹⁴⁾	EUR 157,3 m (0,37% of the HE total)
Signed grants	403 (2,52% of the HE total)
Number of organisations involved in HE projects	528 (0,53% of the total)
Rank HE contribution per inhabitant	9
Top three types of supported organisations	Higher or Secondary Education Establishments (36,8%), Private for-profit entities (28,4%), Public bodies (15,4%)
Top 5 keywords	ecosystems; climatic changes; sustainable economy; business models; governance

Source: [HE dashboard](#), Country profiles (mid-March 2025)

CP funding is the major complement, co-funding the same R&I measures as HE and thus amplifying impact in digitalisation, SME innovation support, and green transition. With EUR 550,3 million allocated to R&I under the 2021–2027 EU Funds' Investments programme, CP supports regional innovation capacity, SME growth, and circular economy projects aligned with RRF goals as displayed in Table 34. Planned outputs include 1,225 researchers benefiting from improved infrastructure.

Additionally, CP funding has been particularly impactful in boosting regional innovation capacity, with EUR 105 million to SME-led R&I initiatives, EUR 75 million to circular economy projects, and EUR 14,6 million in micro-enterprise R&I in the Capital region. Such investments not only align with RRF-supported goals in sustainability and digitalisation but are also expected to generate over 2,000 new R&I jobs in the MWL region by 2029, significantly expanding Lithuania's applied innovation base. By co-funding key measures such as digital innovation development (C3.C.1.4) and knowledge centres (C2.B.3.1), CP extends the territorial reach of RRF initiatives, expands access to applied research, and supports the creation of new R&I jobs.

⁽²¹⁴⁾ Please note that the data on Horizon Europe presented in the country fiches differ from those in the case studies due to methodological differences. In the country fiches, Horizon Europe data refer to the total net EU contribution. In the case studies, by contrast, the figures reflect the sum of allocations by investment area (an approach necessary to establish correspondences with Cohesion Policy and RRF support for the coherence analysis). Annex V in the main report defines each investment area. Discrepancies arise from the impossibility of assigning certain Horizon Europe calls to the investment areas used in this analysis.

Table 34: Cohesion Policy funding (2021-2027)

Cohesion Policy	
Overall EU financing	EUR 6,2 billion
Total EU payments	EUR 593 million (9,47%)
R&I EU contribution ⁽²¹⁵⁾	EUR 550,3 million for SO 1.1 “Enhancing research and innovation”
Researchers with improved infrastructure (planned)	1225 annual FTEs

Source: [Cohesion data](#) (mid-March 2025).

Bottlenecks

The implementation of R&I measures under the RRF in Lithuania faced early bottlenecks, particularly due to the unprecedented specificity and rigidity of RRF milestones and targets compared to other EU programmes. These demands **exposed gaps in existing monitoring systems** and **strained administrative capacities**, especially in infrastructure-heavy projects like competence centres, where **procurement delays** and construction approvals proved challenging. In response, Lithuanian authorities enhanced monitoring frameworks, adjusted project scopes, and streamlined administrative procedures to maintain compliance and delivery timelines. Initial **coordination issues** among institutions in 2021 and 2022 further highlighted the need for stronger interinstitutional collaboration, which improved over time through adaptive learning and sustained dialogue. In some instances, formal revisions to milestones, targets and financial allocations were made to better align implementation with evolving realities and maximise impact.

Results and Achievements

Lithuania’s R&I measures under the RRP have begun delivering measurable results, strengthening the country’s innovation capacity and advancing green and digital priorities. A central measure is “Quality higher education and strong higher education institutions” (C5-E1.1), which introduced a new funding structure for higher education (basic and performance-based), defined the missions of universities and colleges, and increased the R&D funding component. This was enabled by amendments to the Law on Research and Studies in 2023 and the entry into force of the legal act establishing the science policy implementing agency in 2022. 21 R&D projects aligned with three smart specialisation strategies are due for completion by mid-2026.

⁽²¹⁵⁾ Cohesion Policy support to R&I is derived from the [Cohesion Open Data Platform](#), based on EU amounts under Specific Objective (SO) 1.1 (“Enhancing research and innovation”) within the “Intervention Field” dimension. Data are based on the version of the platform as of 14 March 2025. Please note that the data on Cohesion Policy support to R&I in the country fiches differ from those in the case studies due to methodological differences: the fiches report the total amounts planned under SO 1.1, whereas in the case studies support is calculated as the sum of the amounts for each investment area, since focusing solely on the overall SO 1.1 allocation would have prevented an analysis by investment area (instrumental in establishing correspondences with Horizon Europe and RRF support for the coherence analysis). Annex V in the main report sets out the definition of each area.

The launch of the Sustainable Finance Forum in April 2024 brought together over 50 public and private organisations. Institutional initiatives also progressed with the establishment of the Innovation Agency and the reorganisation of the Research Council of Lithuania, which both consolidated fragmented innovation support services respectively in business and research. This was followed by the operationalisation of the Green Finance Competence and Knowledge Centre within INVEGA at the end of 2023, which supports the development of a sustainable finance labelling ecosystem. Lastly, the updated legislation on innovative activities and the rollout of a new R&D incentive framework in December 2024. Efforts to stimulate demand-driven innovation are also advancing, with the goal of supporting 155 projects through strategic public procurement by early 2026 under C5-E.1.2.2. Additionally, the Industry 4.0 Lab platform, launched under C5-E.1.2.4, is driving industrial digitalisation and green transformation.

18. Malta

Introduction

Malta has allocated no resources to support R&I initiatives out of a total of EUR 328 million in national Recovery and Resilience Plan (RRP) funding ⁽²¹⁶⁾. The country has only one R&I measure in its RRP (a reform on smart specialisation strategy), which is associated with 1 milestone and 1 target, but not associated with any costs. To date ⁽²¹⁷⁾, it has fulfilled its only milestone on the adoption of Malta's Smart Specialisation Strategy, while its sole target remains unfulfilled.

Interplay of Reforms and Investments

The Maltese RRP includes just one R&I-focused measure, C3.R.2, which concerns the adoption of Malta's Smart Specialisation Strategy (S3) 2021–2027. This reform aims to create a policy framework that strengthens business R&I and public-private cooperation across six priority areas aligned with EU goals, including health, climate, manufacturing, maritime, aerospace, and digital technologies. While the RRP itself contains no direct R&I investments, the strategy sets the stage for future investments, including the RRP-funded Blood, Tissue, and Cell Centre. Also, measure C3.R.2 includes the support of 50 enterprises through a collaboration between Malta Enterprise and Xjenza Malta, by offering tailored R&D advice, investment support, and opportunities for internationalisation through participation in European programmes and initiatives.

The strategic interplay between reforms and investments in Malta's case is largely sequential: the reform builds the necessary framework to guide and maximise the impact of investments from other funding sources, notably Cohesion Policy. The absence of further R&I investments in the RRP reflects two interrelated key challenges: Malta's long-standing difficulties in absorbing R&I funds and the milestone-based RRF payment system, which was perceived as too rigid to include R&I projects. Combined, these factors made the RRP less suitable for direct R&I investments compared to other, more flexible EU programmes.

Integration into Domestic R&I Policy Mix

By supporting the finalisation and implementation of the Smart Specialisation Strategy (S3) 2021–2027, the RRF has helped to realign national R&I priorities with evolving economic and societal needs, thereby contributing to addressing Country-Specific Recommendation No. 3 for 2019 and 2020. While the preparation of the S3 was already well advanced before the RRF, the funding has complemented national and European Regional Development Fund (ERDF) resources, reinforcing Malta's commitment to six priority areas and identifying key investment initiatives.

More importantly, the RRF has addressed a critical gap from the 2014–2020 period—the weak uptake of RDI measures—by supporting the creation of an inter-agency account management system between Malta Enterprise and Xjenza Malta. This initiative responds directly to the recommendations of the 2019 Peer Review and aims to raise awareness, simplify access to

⁽²¹⁶⁾ European Commission. (2025). *RRF Scoreboard: Country Overview*. Retrieved April 7, 2025, [here](#).

⁽²¹⁷⁾ Fenix database, last extracted on 31/03/2025.

funding, and strengthen the innovation ecosystem. While the S3 would likely have been completed without RRF support, the new register and reporting system would not have been implemented or would have faced delays without the RRP, highlighting the RRF’s added value in accelerating reforms.

Synergies with Other Funding Programmes

By using RRF funds to finalise and adopt Malta’s S3 2021-2027, Malta has fostered a complementary effort to leverage various funding sources for a common goal. While the S3 serves as an enabling condition for access to Cohesion Funds, its implementation requires a holistic approach to addressing the six thematic areas.

The ERDF will support investments in research infrastructure and equipment, enabling research and enhancing capacities within both new and existing research facilities. The funds will promote centres of excellence, facilitate knowledge transfer, and develop R&I capacities across academia, public institutions, and industry. This includes support for European Partnerships and efforts to translate research outcomes into innovations for the market. For the private sector, grant schemes will be designed to assist industry in generating R&I and increasing capacities in the six S3 areas, with financial incentives for the necessary equipment, technology, infrastructure, products, processes, and expertise.

In line with the description of measure C3.R.2 in the Annexe of the Council Implementing Decision, Malta’s Smart Specialisation Strategy will focus on key initiatives, including supporting internationalisation. In this context, participation in Horizon Europe (HE) is highlighted.

Table 35: Horizon Europe funding (2021-2027)

Horizon Europe	
Net EU contribution ⁽²¹⁸⁾	EUR 45,8 million (0.11% of the HE total)
Signed grants	148 (0.93% of the HE total)
Number of organisations involved in HE projects	183 (0.18% of the total)
Rank HE contribution per inhabitant	11
Top three types of supported organisations	Higher or Secondary Education Establishments (39.5%), Private for-profit entities (32.6%), Public bodies (19.7%)
Top 5 keywords	climatic changes; ecosystems; civil society; sustainable economy; governance

Source: [HE dashboard](#), Country profiles (mid-March 2025).

⁽²¹⁸⁾ Please note that the data on Horizon Europe presented in the country fiches differ from those in the case studies due to methodological differences. In the country fiches, Horizon Europe data refer to the total net EU contribution. In the case studies, by contrast, the figures reflect the sum of allocations by investment area (an approach necessary to establish correspondences with Cohesion Policy and RRF support for the coherence analysis). Annex V in the main report defines each investment area. Discrepancies arise from the impossibility of assigning certain Horizon Europe calls to the investment areas used in this analysis.

Malta’s RRP includes no allocated funding for R&I, and the country decided to use other funding programs (especially the Cohesion funds) to finance R&I activities. Malta’s R&I ecosystem significantly differs from other Member States. While some companies are engaged in research, their activities are typically limited to basic research rather than commercialisation, and many of these companies are subsidiaries of larger firms whose strategic R&D planning occurs abroad.

Malta’s small, non-research-oriented labour market further complicates the development of a robust, independent R&I ecosystem. To address these challenges, Malta has been exploring alternative ways to maximize the impact of support, such as the creation of a register and monitoring mechanism to bridge the gap between academia, research, and business (which is part of measure C3.R.2). This mechanism aims to identify ecosystem gaps and explore strategies to strengthen the R&I landscape in Malta in light of existing challenges.

Table 36: Cohesion Policy funding (2021-2027)

Cohesion Policy	
Overall EU financing	EUR 772,8 million
Total EU payments	EUR 22,2 million (2.87% of the CP total)
R&I EU contribution ⁽²¹⁹⁾	EUR 15 million for SO 1.1 “Enhancing research and innovation”
Researchers with improved infrastructure (planned)	-

Source: [Cohesion data](#) (mid-March 2025).

Bottlenecks

So far, there have been no noticeable difficulties. However, a challenge may arise when providing proof of target achievement (see below).

Results and Achievements

The RRF measure [C3.R.2] in Malta has achieved its milestone with the adoption of the S3 2021–2027 in December 2021, supported by documented evidence in line with the verification mechanism set out in the Operational Arrangements. The S3 outlines priorities such as investment in research infrastructure, support for internationalisation through initiatives like Horizon Europe, promotion of inter-agency collaboration to improve access to R&I funding, and incentives for private-sector innovation.

⁽²¹⁹⁾ Cohesion Policy support to R&I is derived from the [Cohesion Open Data Platform](#), based on EU amounts under Specific Objective (SO) 1.1 (“Enhancing research and innovation”) within the “Intervention Field” dimension. Data are based on the version of the platform as of 14 March 2025. Please note that the data on Cohesion Policy support to R&I in the country fiches differ from those in the case studies due to methodological differences: the fiches report the total amounts planned under SO 1.1, whereas in the case studies support is calculated as the sum of the amounts for each investment area, since focusing solely on the overall SO 1.1 allocation would have prevented an analysis by investment area (instrumental in establishing correspondences with Horizon Europe and RRF support for the coherence analysis). Annex V in the main report sets out the definition of each area.

The measure's target, [T.3.4], aims to support 50 enterprises through an inter-agency account management system between Malta Enterprise and Xjenza Malta; although this has not yet been formally reported, information from the RRF coordinating body confirms that 62 enterprises have already benefited, with official reporting planned in the next payment request.

The S3 is expected to deliver effects in the long-term, as its main implementation will be funded through ERDF during the 2021–2027 programming period. The inter-agency register and reporting mechanism is already enhancing coordination and raising awareness among enterprises, addressing critical gaps identified in Malta's 2019 R&I Peer Review. However, the lasting effects will depend heavily on the follow-up actions of the private sector and the system's ability to learn from barriers encountered, such as administrative or legal hurdles. If the cooperation between Malta Enterprise and Xjenza Malta proves valuable, it is likely to be maintained beyond the RRF period, helping to shape future policy, better align public support with business needs, and strengthen Malta's integration into European R&I networks.

19.The Netherlands

Introduction

The Netherlands has allocated EUR 472,15 million ⁽²²⁰⁾ from its Recovery and Resilience Plan (RRP) ⁽²²¹⁾ to support R&I initiatives, representing 8,7% of the total national RRP funding (EUR 5,441 million, as of 04/04/25) ⁽²²²⁾. R&I funding has been allocated to two main pillars: the Digital transformation primary pillar (69%) and the Green transition (31%).

The Dutch RRP includes 2 R&I measures and 6 sub-measures, all of which are investment-related and are associated with 15 M&T, specifically, 6 milestones and 9 targets. To date ⁽²²³⁾, the country has fulfilled 17% of its R&I milestones (1 out of 6), while none of the 9 targets have been yet fulfilled ⁽²²⁴⁾. This reflects the planned investment schedule, which is progressing on track. The fulfilled milestone focuses on quantum innovation, notably the establishment of Quantum Delta NL, supported by funding and a detailed action plan to advance quantum computing and networking.

Figure 30: Funding R&I distribution per RRF Primary Pillar

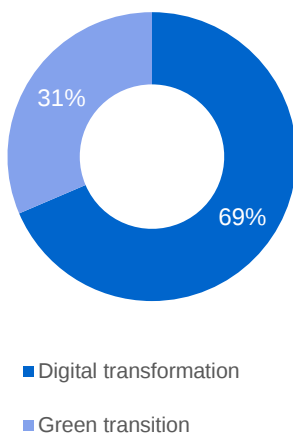
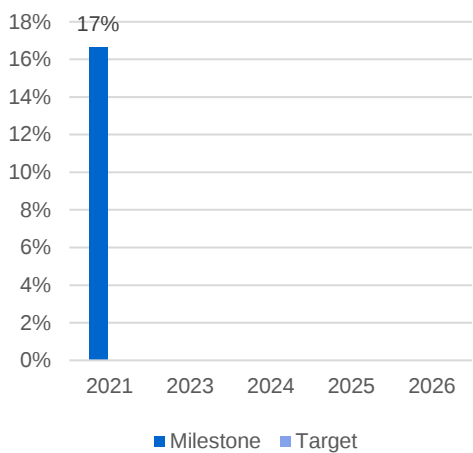


Figure 31: Share of fulfilled R&I M&T out of total R&I M&T



Source: RRF Scoreboard, Fenix.

Interplay of Reforms and Investments

The Netherlands' RRP does not include structural reforms in the area of R&I but instead focuses on targeted investments aimed at promoting sustainable growth and long-term sectoral improvements. These investments focus on strengthening technological infrastructure, developing skills, and fostering innovation in high-impact sectors. The RRP's measures are

⁽²²⁰⁾ Fenix database

⁽²²¹⁾ European Commission. (2021). *Netherlands recovery and resilience plan*. Retrieved April 7, 2025, [here](#).

⁽²²²⁾ European Commission. (2025). *RRF Scoreboard: Country Overview*, [here](#).

⁽²²³⁾ Fenix database, last extracted on 31/03/2025.

⁽²²⁴⁾ The number of fulfilled milestones/targets covers only those formally assessed as such. Additional milestones/targets may be completed but not yet assessed.

designed to be mutually reinforcing, creating synergies that amplify their overall effectiveness. For instance, the **“Green Power of Hydrogen investment” (C1.1-I2a and C1.1-I2b)** supports the expansion of hydrogen infrastructure and is strategically linked with the **“AI Ned and Applied AI Learning Communities” (C2.1-I2)**, which promotes AI adoption and digital skills. Together, they demonstrate how AI can optimise hydrogen technologies and contribute to the green transition. Similarly, “AI Ned and Applied AI Learning Communities” (C2.1-I2) complements **“Quantum Delta NL”** ⁽²²⁵⁾ **(C2.1-I1)**, a project under R&D ecosystems and Strategic instruments, which advances quantum technologies crucial to both digital and green transformation. In addition, the investment **“Aviation in transition” (C1.1-I4)** supports the decarbonisation and innovation of the aviation sector, contributing to the broader green transition and aligning with the RRP’s emphasis on sustainable mobility and technological advancement. Through this integrated approach, the Netherlands leverages innovation and workforce development to drive systemic change, positioning itself as a leader in the dual transition to a digital and sustainable economy.

Integration into Domestic R&I Policy Mix

The RRF plays a pivotal role in accelerating the Netherlands’ R&I priorities by complementing major national strategies such as the **Dutch Digitalisation Strategy** ⁽²²⁶⁾ and the **Climate Agreement** ⁽²²⁷⁾, despite not being explicitly mentioned in them. Key targeted investments like “Quantum Delta NL” (C2.1-I1), “AI Ned and Applied AI Learning Communities” (C2.1-I2), and “Green Power of Hydrogen” (C1.1-I2), reflect shared goals in digitalisation, sustainability, and technological leadership. These initiatives also complement existing national funding instruments, such as the National Growth Fund (NGF) ⁽²²⁸⁾, reinforcing coherence between EU and national efforts. The NGF plays a critical role in this ecosystem by co-financing large-scale projects. For instance, Quantum Delta NL also received EUR 615 million from the NGF, supporting infrastructure development, start-up growth, and workforce training. In parallel, the Dutch government allocates approximately EUR 200 million annually through the Sector Plans for Scientific Research and University Education, funding research capacity in priority areas such as sustainability, agriculture, digitalisation, and health. The integration of NGF-funded projects within the RRP ensures strategic alignment, prevents duplication of funding, and supports coherence with EU planning requirements. It also helps establish mechanisms and practices, such as coordinated investment planning and cross-sectoral collaboration, with the potential to secure long-term national funding, if R&I remains a political priority. Looking ahead to the post-2026 period, discussions are underway to extend funding for selected RRF-backed projects, particularly those focused on talent development and building innovation ecosystems, to sustain momentum towards long-term R&I ambitions. However, other projects may naturally conclude once their objectives are met, requiring no further investment. Ultimately, the continuation of R&I funding beyond the RRF will depend on future political priorities and national budget decisions, making the landscape for post-2026 support uncertain.

Synergies with Other Funding Programmes

The Netherlands’ RRP R&I investments are strategically designed to create synergies with other European funding programmes. **Co-funding synergies** are especially evident in the areas of

⁽²²⁵⁾ Quantum Delta. (2023). *Quantum Delta NL*. Retrieved April 7, 2025, [here](#).

⁽²²⁶⁾ Dutch Digital Government. (2024). *Dutch digitalisation strategy (NDS)*. Retrieved April 7, 2025, [here](#).

⁽²²⁷⁾ Government of the Netherlands. (2019). *Climate agreement*. Retrieved April 7, 2025, [here](#).

⁽²²⁸⁾ European Commission. (n.d.). *National Growth Fund NL*. Retrieved April 7, 2025, [here](#).

scientific excellence and **R&D ecosystems** ⁽²²⁹⁾, supported by EUR 472 million from the RRP, EUR 2,95 billion from Horizon Europe (HE) ⁽²³⁰⁾, and EUR 169 million from Cohesion Policy (CP) Funds. As of mid-March 2025, and as shown in Table 37, the Netherlands, a leading participant in HE, has secured EUR 3,7 billion (8,67% of the HE budget) through 3,677 signed grants involving 6,280 organisations. This illustrates the country's strong capacity to leverage EU-level research funding, reinforcing national priorities and offering a solid foundation for long-term investment. Cumulative funding follows a sequential logic, with RRP measures building on HE-funded research to support downstream deployment. Examples include "Quantum Delta NL" (C2.1-I1) and "Green Power of Hydrogen" (C1.1-I2), which scale and apply innovations developed through upstream HE projects. These synergies help accelerate the transition from research to application and expand the scope of national initiatives by building on EU-funded foundations. According to observations, upstream/downstream synergies appear broadly aligned: HE supports early-stage R&I, while the RRP focuses on demonstration, adoption, and market readiness, ensuring a seamless transition from research to application. In **quantum technologies**, HE projects like QModem and QIA-Phase1 feed directly into the RRP's "Quantum Delta NL" (C2.1-I1), helping to expand national quantum infrastructure and ecosystem development. In **green hydrogen**, HE's HYScale ⁽²³¹⁾ complements the RRP's "Green Power of Hydrogen" (C1.1-I2), contributing to the acceleration of technology scale-up and market readiness. In **AI**, RRP investments through "AI NED and Applied AI Learning Communities" (C2.1-I2) support adoption and skills development, building on HE's FAITH ⁽²³²⁾ project, thereby amplifying the societal impact of upstream research.

⁽²²⁹⁾ Based on R&I measures categorisation developed by the Study Team.

⁽²³⁰⁾ European Commission. (2025). *Horizon Europe country profile: Netherlands*. Retrieved April 7, 2025, [here](#).

⁽²³¹⁾ Economic Green Hydrogen Production at Scale via a Novel, Critical Raw Material-Free, Highly Efficient and Low-CAPEX Advanced Alkaline Membrane Water Electrolysis Technology.

⁽²³²⁾ Fostering Artificial Intelligence Trust for Humans towards the optimisation of trustworthiness through large-scale pilots in critical domains.

Table 37: Horizon Europe funding (2021-2027)

Horizon Europe	
Net EU contribution ⁽²³³⁾	EUR 3,7 billion (8,67% of the HE total)
Signed grants	3677 (23,01% of the HE total)
Number of organisations involved in HE projects	6280 (6,33% of the total)
Rank HE contribution per inhabitant	22
Top three types of supported organisations	Higher or Secondary Education Establishments (46,4%), Private for-profit entities (24,5%), Research Organisations (20,5%)
Top 5 keywords	ecosystems; sustainable economy; climatic changes; governance; machine learning

Source: [HE dashboard](#), Country profiles (mid-March 2025)

The RRP also aligns with **EU cohesion policy** through complementarities with European Regional Development Fund (ERDF) ⁽²³⁴⁾ investments in the areas of **Scientific excellence** and **R&D ecosystems** ⁽²³⁵⁾. While this alignment was not explicitly planned in the original RRP, the amended version acknowledges that its investments complement measures financed under the EU Cohesion Fund in the 2021–2027 programming period ⁽²³⁶⁾. This coordination was achieved through programming efforts that helped avoid duplication and ensured coherence between regional and national funding instruments. The complementarity is functional: ERDF programmes support early-stage regional innovation and SME development, while RRP measures focus on scaling and national deployment. As shown in Table 38 **Error! Reference source not found.**, EUR 313,8 million from the ERDF is allocated to regional programmes supporting R&I projects. These investments complement the RRP's digital education and innovation measures, helping to reduce regional disparities and strengthen local innovation ecosystems. A further EUR 240 million from the ERDF supports energy efficiency projects that intersect with R&I by funding technological upgrades, smart systems, and innovation in low-carbon solutions, reinforcing the RRP's goals in the circular economy and sustainable technologies.

Table 38: Cohesion Policy funding (2021-2027)

Cohesion Policy

⁽²³³⁾ Please note that the data on Horizon Europe presented in the country fiches differ from those in the case studies due to methodological differences. In the country fiches, Horizon Europe data refer to the total net EU contribution. In the case studies, by contrast, the figures reflect the sum of allocations by investment area (an approach necessary to establish correspondences with Cohesion Policy and RRF support for the coherence analysis). Annex V in the main report defines each investment area. Discrepancies arise from the impossibility of assigning certain Horizon Europe calls to the investment areas used in this analysis.

⁽²³⁴⁾ Government of the Netherlands. (2021). *European Regional Development Fund (ERDF)*. Retrieved April 7, 2025, [here](#).

⁽²³⁵⁾ Based on R&I measures categorisation developed by the Study Team.

⁽²³⁶⁾ European Parliament. (2024). *The Netherlands' National Recovery and Resilience Plan*. Retrieved April 7, 2025, [here](#).

Overall EU financing	EUR 1,5 billion
Total EU payments	EUR 214,5 million (13,90% of the CP total)
R&I EU contribution (²³⁷)	EUR 313,8 million for SO 1.1 “Enhancing research and innovation”
Researchers with improved infrastructure (planned)	-

Source: [Cohesion data](#) (mid-March 2025)

(²³⁷) Cohesion Policy support to R&I is derived from the [Cohesion Open Data Platform](#), based on EU amounts under Specific Objective (SO) 1.1 (“Enhancing research and innovation”) within the “Intervention Field” dimension. Data are based on the version of the platform as of 14 March 2025. Please note that the data on Cohesion Policy support to R&I in the country fiches differ from those in the case studies due to methodological differences: the fiches report the total amounts planned under SO 1.1, whereas in the case studies support is calculated as the sum of the amounts for each investment area, since focusing solely on the overall SO 1.1 allocation would have prevented an analysis by investment area (instrumental in establishing correspondences with Horizon Europe and RRF support for the coherence analysis). Annex V in the main report sets out the definition of each area.

Bottlenecks

While the Netherlands' RRP R&I measures benefit from strategic design and strong synergies, some challenges have emerged during the implementation phase. One key issue has been **aligning multiple funding sources**, including Horizon Europe, the ERDF, and national programmes. This required amendments to the RRP to exclude components already funded by other EU programmes, such as Digital Europe and Key Digital Technologies, in order to avoid overlap and ensure compliance. Another challenge involved meeting the **“Do No Significant Harm” (DNSH) requirements**. These assessments were not integrated early in the process and had to be conducted retroactively, which was time-consuming. The need to apply DNSH criteria after project design added administrative complexity, though the issue was ultimately resolved. In the “Green Power of Hydrogen” (C1.1-I2), **procedural difficulties** also arose in demonstrating that the human capital agenda had been adopted. This was addressed by providing additional documentation, including a formal letter confirming adoption by the government. The RRP allows some flexibility, like amending the RRP, but greater agility would better given the nature of R&I measures. Nonetheless, coordination between the Ministry of Economic Affairs and other ministries has been effective, with responsibilities clearly delineated. The framework has worked well overall, with projects remaining on track and only a few instances requiring adjustments.

Results and Achievements

The Netherlands' RRP R&I investments have driven major progress in national innovation, particularly in green hydrogen, artificial intelligence, and quantum technology. The Green Power of Hydrogen initiative launched the EUR 34,5 million HyPRO project ⁽²³⁸⁾, the country's largest green hydrogen R&D effort, uniting 58 academic and industry partners to advance cost-effective electrolysis and plasma technologies. Key milestones include a human capital agenda and upcoming demonstration facilities. In AI, the AI Ned and Applied AI Learning Communities project awarded 13 fellowships in 2024 and plans to establish ELSA labs, fund R&D projects, and open six AI learning hubs by 2026 ⁽²³⁹⁾. Meanwhile, the Quantum Delta NL initiative, backed by EUR 615 million from the National Growth Fund, has funded 16 projects and laid foundational infrastructure, with significant progress expected by mid-2026 to strengthen the Netherlands' global standing in quantum technology.

⁽²³⁸⁾ TNO. (n.d.). *HyPRO: The road to cost-efficient green-hydrogen production*. Retrieved April 7, 2025, [here](#).

⁽²³⁹⁾ NLAIC. (2023). *Learning communities rondom AI: Hoe staat het ervoor?* Retrieved April 7, 2025, [here](#).

20.Poland

Introduction

Poland has allocated EUR 1,105.8 million ⁽²⁴⁰⁾ from its Recovery and Resilience Plan (RRP) ⁽²⁴¹⁾ to support R&I initiatives, representing 4.4% of the total national RRP funding (EUR 25,277 million, as of 04/04/25) ⁽²⁴²⁾. As shown in Figure 32: Funding R&I distribution per RRF

Primary Pillar **Error! Reference source not found.**, R&I funding has been allocated mainly to the Smart, sustainable, and inclusive growth primary pillar (44%), followed by almost equal allocation to the Green transition (25%) and the Health, and economic, social, and institutional resilience primary pillars, (24%), A smaller share has been allocated to the Policies for the next generation primary pillar (7%).

Poland has 7 R&I measures and 2 sub-measures in its RRP, both reforms and investments, associated with 26 milestones (14) and targets (12). To date ⁽²⁴³⁾, the country has fulfilled 57% of its R&I milestones (8 out of 14), while no targets have been fulfilled (0 out of 12), ⁽²⁴⁴⁾ reflecting the planned investment schedule. Poland's fulfilled milestones focus on boosting medical and hydrogen research, improving education infrastructure, and fostering science–industry collaboration. These include putting into operation a clinical trials platform, adopting acts on hydrogen to facilitate decarbonisation, and introducing updated frameworks for ICT in schools, biomedical innovation, and special-purpose vehicles for technology transfer. In terms of R&I investment, Poland has not yet fulfilled any of the R&I investments included in its RRP.

Figure 32: Funding R&I distribution per RRF Primary Pillar

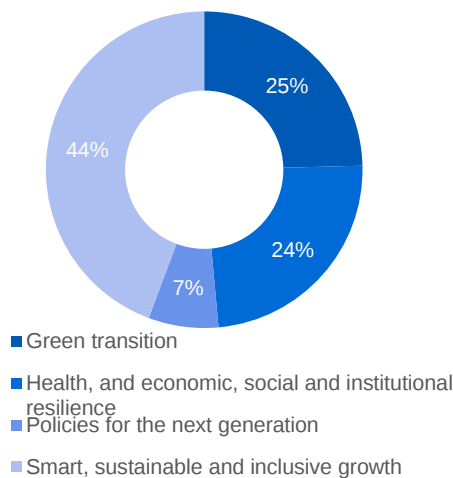
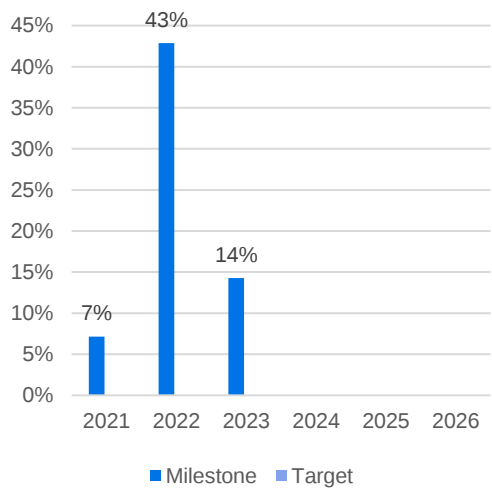


Figure 33: Share of fulfilled R&I M&T out of total R&I M&T



⁽²⁴⁰⁾ Fenix database.

⁽²⁴¹⁾ European Commission. (2021). *Poland's recovery and resilience plan*. Retrieved April 7, 2025, [here](#).

⁽²⁴²⁾ European Commission. (2025). *RRF Scoreboard: Country Overview*, [here](#).

⁽²⁴³⁾ Fenix database, last extracted on 31/03/2025.

⁽²⁴⁴⁾ The number of fulfilled milestones/targets covers only those formally assessed as such. Additional milestones/targets may be completed but not yet assessed.

Interplay of Reforms and Investments

The Polish RRP presents a well-structured and interlinked approach to reforms and investments in R&I, focusing on fostering collaboration between science and industry. A cornerstone of this strategy is a key reform (PL-C[A]-R[2.4] Strengthening cooperation mechanisms between science and industry) that enables universities and research institutes to become shareholders in companies, thereby enhancing technology transfer and interdisciplinary cooperation. Complementing this, a related investment (PL-C[A]-I[2.4.1] investment in the development of research capacities) supports the development of research infrastructure across institutions like the Łukasiewicz Research Network and agri-food research institutes, thereby reinforcing structural capacities essential for impactful science-business collaboration.

The plan also integrates multiple sector-specific R&I measures. In the renewable energy sector, a dedicated reform (PL-C[B]-R[2.1] improving the conditions for the development of hydrogen technologies and other decarbonised gases) seeks to establish a robust market for renewable and low-carbon hydrogen by setting up regulatory frameworks and infrastructure planning—an important step toward decarbonising transport and ensuring energy security. In the health domain, coordinated investments and reforms (PL-C[D]-I[3.1.1] comprehensive development of research in the field of medical sciences and health sciences and PL-C[D]-R[3.1] increasing the efficiency and quality of the healthcare system by supporting Polish research and development potential in the field of medical sciences and health sciences) aim to advance biomedical research, digitize the Polish Clinical Research Network, and streamline clinical trial regulations through a new legislative act. These combined efforts are expected to enhance the efficiency, transparency, and impact of Poland's healthcare research landscape.

Education and digitalisation are also addressed through an investment (PL-C[C]-I[2..1.2] level playing field for schools with mobile multimedia devices – investments related to the fulfilment of minimum equipment standards) aimed at enhancing ICT infrastructure in schools. By equipping 16,000 schools with AI and STEM labs, the initiative intends to improve educational outcomes and digital literacy, particularly in emerging technologies. Meanwhile, the environmental technology agenda is pressed on through a mutually reinforcing reform-investment pair (PL-C[A]-R[2.2] creating the conditions for the transition to a circular economy model and PL-C[A]-I[2.2.1] investments in the deployment of environmental technologies and innovation, including those related to circular economy). The reform establishes a legal framework for the secondary raw materials market, while the investment supports SME-led projects developing technologies that convert waste into usable materials—both vital to Poland's circular economy transition.

Integration into Domestic R&I Policy Mix

Since 2004, Poland has significantly developed its R&I system, with marked improvements between 2018 and 2020 driven by expanded broadband access and a vibrant entrepreneurial ecosystem. National R&I funding has relied heavily on cohesion policy funds; however, the RRF has played a crucial complementary role, especially in areas like Warsaw, where cohesion funds were insufficient, according to stakeholders consulted. The RRF also supported strategic sectors such as food security and health research. Despite delays in the plan's approval—lasting over two years—RRF funds were ultimately channelled into high-TRL projects, which, while more feasible, may have limited the scope for more ambitious measures that would have needed more time to be implemented.

Moreover, the Polish RRP is strongly aligned with national R&I strategies, including the Productivity Strategy 2030, the State Science Policy. It also aligns with broader national initiatives that focus on several aspects, such as the Strategy for Responsible Development, which aims to increase income and social, economic and environmental cohesion. These frameworks emphasise boosting research capacities, fostering science-industry cooperation, and enhancing SME innovation—all of which are reflected in the RRP's objectives. In climate and energy, the RRP complements key national programmes such as the Energy Policy until 2040 (PEP2040) and the National Energy and Climate Plan (NECP), with major investments in energy transition and hydrogen technologies. In health, the RRP complements national goals by funding reforms and infrastructure to enhance the healthcare system's efficiency and resilience. Overall, the RRP has acted as a strategic tool to fill funding gaps, enhance Poland's R&I landscape, and align with long-term national policy goals, despite minor limitations in project ambition due to time constraints. Complementarities also extend to national funding, such as the OPUS programme, which supports fundamental/ basic research, while the RRF funds support applied R&I.

Finally, in terms of complementarities with national funding, a good practice in this regard can be the interdependency between the different European funds that the Polish government has ensured. The RRP has been instrumental in the development of research infrastructures in Poland, particularly in areas where funding from the Cohesion Policy has been limited, such as Warsaw, which also happens to be the primary hub for research activities in the country. Furthermore, the stakeholders consulted asserted the existence of complementarities for investment in the development of research capacities. This is due to the fact that, while the RRF encompasses applied and industrial research, an element that could not be covered through national funds, the national budget covers the scientific/basic research component.

On top of that, the national programme OPUS also provides grants to finance research and innovation projects on a continuous basis. Synergies with the RRF are therefore anticipated. Another good practice is the use of RRF funding to support Poland's participation in cross-border projects such as IPCEI on Cloud Infrastructure and Services (CIS), where authorities pointed out that without the RRF's support, Polish participation in these projects would not have been possible.

Synergies with Other Funding Programmes

Poland's RRP complements major EU funding instruments like Horizon Europe (HE) and Cohesion Policy (CP) funds, with potential for significant synergies in multiple areas. In particular, the RRF has served as a foundation to build the research and institutional capacities required for greater participation in Horizon Europe in Poland. Reforms and investments under the RRP, particularly those aimed at fostering science-industry collaboration and improving research infrastructure, are expected to strengthen the Polish research ecosystem and increase its competitiveness in securing Horizon Europe funding.

Moreover, according to the stakeholders consulted, the RRF projects catalysed additional public and private co-investments, mainly in digital and green transformation, while strengthening player's capacities to apply for other EU funds like Horizon Europe for follow-up phases. As shown in Table 39 **Error! Reference source not found.**, Poland has received EUR 656,7 million in Horizon Europe funding, supporting 1,273 signed grants and involving 1,773 organisations. Notably, Polish entities were already active in Horizon 2020, participating in nearly 75% of its partnerships, and stand to benefit from better integration of national support tools and RRF investments.

Table 39: Horizon Europe funding (2021-2027)

Horizon Europe	
Net EU contribution ⁽²⁴⁵⁾	EUR 656,7 million (1.54% of HE)
Signed grants	1273 (7.97% of HE)
Number of organisations involved in HE projects	1773 (1.79% of the total)
Rank HE contribution per inhabitant	2
Top three types of supported organisations	Higher or Secondary Education Establishments (34.3%), Research Organisations (24.7%), Private for-profit entities (23.0%)
Top 5 keywords	ecosystems; sustainable economy; climatic changes; governance; business models

Source: [HE dashboard](#), Country profiles (mid-March 2025)

Complementarity between the RRF and Cohesion Policy funds appears to be better defined based on the desk research conducted on the available sources. The two funding streams were designed with distinct objectives, with the RRF filling gaps, particularly in research infrastructure where cohesion funding was limited—most notably in Warsaw. Moreover, Poland has leveraged synergies with its S3 framework through existing governance structures both at the regional and national levels, which led to an alignment of funds towards innovation priorities and strategic project selection. As shown in Table 40**Error! Reference source not found.**, CPF has allocated EUR 7.1 billion to R&I initiatives.

Synergies are evident in thematic areas like SME support and green innovation, as seen in the alignment of the RRF with the “European Funds for Smart Economy” programme and the Just Transition Fund. The RRF’s reform on hydrogen technology development complements cohesion efforts to commercialise green hydrogen in regions like Konin.

While the RRF has helped crowd in co-investment and stimulated interest in EU programmes, some crowding-out effects have emerged, with stakeholders at times prioritising RRF funds over Horizon Europe or Cohesion calls due to simplicity and speed of access, as reported by the consulted stakeholders. Nonetheless, the RRF’s integrative design has generally strengthened Poland’s innovation ecosystem by strategically leveraging multiple funding sources.

⁽²⁴⁵⁾ Please note that the data on Horizon Europe presented in the country fiches differ from those in the case studies due to methodological differences. In the country fiches, Horizon Europe data refer to the total net EU contribution. In the case studies, by contrast, the figures reflect the sum of allocations by investment area (an approach necessary to establish correspondences with Cohesion Policy and RRF support for the coherence analysis). Annex V in the main report defines each investment area. Discrepancies arise from the impossibility of assigning certain Horizon Europe calls to the investment areas used in this analysis.

Table 40: Cohesion Policy funding (2021-2027)

Cohesion Policy	
Overall EU financing	EUR 75,46 billion
Total EU payments	EUR 4,9 billion (6.52% of CP)
R&I EU contribution ⁽²⁴⁶⁾	EUR 7,1 billion for SO 1.1 “Enhancing research and innovation”
Researchers with improved infrastructure (planned)	2572 annual FTEs

Source: [Cohesion data](#) (mid-March 2025)

Bottlenecks

No specific bottlenecks have been identified under the framework of this study.

Results and Achievements

Despite a two-year delay in implementation due to prolonged negotiations, Poland’s RRP has begun delivering tangible results in the field of R&I. So far, 12 milestones and targets linked to R&I measures have been completed, with key outputs including 20 signed contracts for the modernisation of research infrastructure in areas such as energy, mobility, and healthcare, and the hiring of 136 researchers, according to the dedicated website of the Polish plan.

The Polish RRP is supporting structural reforms and strategic investments across several thematic areas. These include the circular economy (via legislation enabling industrial waste reuse), hydrogen economy development (through infrastructure and regulatory alignment with EU standards), and healthcare modernisation (streamlining clinical trial processes and supporting non-commercial trials through the Medical Research Agency). Furthermore, the plan aims to improve collaboration between science and industry by expanding the eligibility of special-purpose vehicles to research institutions and funding new R&D facilities and commercialisation initiatives. These measures are designed to raise the commercialisation rate of academic research and address skills gaps in high-demand sectors. Nonetheless, the sustainability of the R&I measures supported by the RRP in Poland is contingent upon the use of available EU funding instruments in the future, as the Institutions supported under the RRP are aiming to leverage this foundation to secure additional grants. This is due to the fact that there is no national strategy or binding budget commitment in place to ensure continuity after the RRP is finished.

⁽²⁴⁶⁾ Cohesion Policy support to R&I is derived from the [Cohesion Open Data Platform](#), based on EU amounts under Specific Objective (SO) 1.1 (“Enhancing research and innovation”) within the “Intervention Field” dimension. Data are based on the version of the platform as of 14 March 2025. Please note that the data on Cohesion Policy support to R&I in the country fiches differ from those in the case studies due to methodological differences: the fiches report the total amounts planned under SO 1.1, whereas in the case studies support is calculated as the sum of the amounts for each investment area, since focusing solely on the overall SO 1.1 allocation would have prevented an analysis by investment area (instrumental in establishing correspondences with Horizon Europe and RRF support for the coherence analysis). Annex V in the main report sets out the definition of each area.

21. Portugal

Introduction

Portugal has allocated EUR 3,709 million ⁽²⁴⁷⁾ (both grants and loans) from its Recovery and Resilience Plan (RRP) ⁽²⁴⁸⁾ to support R&I initiatives, representing around 17% of the total national RRP funding (EUR 22,216 million, as of 04/04/25) ⁽²⁴⁹⁾. R&I funding has been allocated to two main primary pillars, namely the Smart, sustainable and inclusive growth (49%) and the Green transition primary pillars (around 49%).

Figure 34: Funding R&I distribution per RRF Primary Pillar

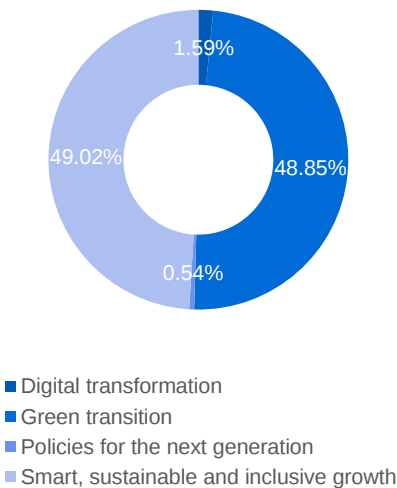
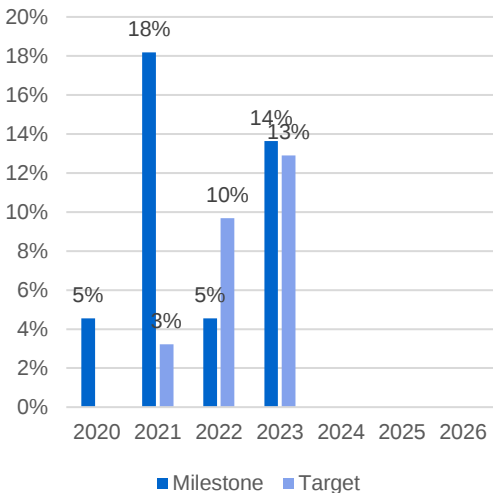


Figure 35: Share of fulfilled R&I M&T out of total R&I M&T



Source: RRF Scoreboard, Fenix database.

Portugal has 11 R&I measures and 22 R&I sub-measures in the RRF, both reforms and investments, associated with 53 milestones and targets. To date ⁽²⁵⁰⁾, the country has fulfilled 41% of its R&I milestones (9 out of 22) and 26% of its R&I targets (8 out of 31) ⁽²⁵¹⁾. Portugal has fulfilled measures that strengthen its maritime research capabilities, promote sustainability, and modernise research governance. Multiple innovation contracts have also been concluded in strategic sectors—low-carbon economy, digitalisation, and resilience—ensuring robust public-private collaboration and reinforcing Portugal’s path toward green and digital transitions. In terms of R&I investments, Portugal has not yet fulfilled any of the R&I investments included in its national plan.

⁽²⁴⁷⁾ Fenix database
⁽²⁴⁸⁾ European Commission. (2021). *Portugal’s recovery and resilience plan*. Retrieved April 7, 2025, [here](#).
⁽²⁴⁹⁾ European Commission. (2025). *RRF Scoreboard: Country Overview*. Retrieved April 7, 2025, [here](#).
⁽²⁵⁰⁾ Fenix database, last extracted on 31/03/2025.
⁽²⁵¹⁾ The number of fulfilled milestones/targets covers only those formally assessed as such. Additional milestones/targets may be completed but not yet assessed

Interplay of Reforms and Investments

The Portuguese RRP is strategically designed to create strong synergies across its various reforms and investments in R&I, aligning them with national priorities like the Portugal 2030 strategy and EU CSRs. Central to the plan is the reform to promote R&D and innovative enterprise investment, which aims to modernise Portugal's R&I landscape through updates to strategic frameworks and targeted support. This is complemented by thematic initiatives, such as the Innovation Agenda for Agriculture 2030, which combines reforms and investments to strengthen agri-food research and partnerships, and the expansion of Interface Institutions to enhance science-business collaboration. Other measures, such as the Mobilising Agendas for Business Innovation and investments in higher education capacities, work together to build a more connected and productive R&I ecosystem.

The RRP also addresses key national priorities through sector-specific initiatives. In the blue economy, coordinated investments create a national infrastructure network and support regional marine research hubs in the Azores and Madeira. For the green transition, the Green Agendas for Business Innovation focus on sustainable R&D, digitalisation, and awareness-building, supported by scale-up mechanisms. In digitalisation, measures like "More Digital Impulse" and "More Digital Science" aim to modernise the scientific system and improve digital skills across disciplines. Overall, the Portuguese RRP ensures coherence by tightly integrating reforms and investments within and across sectors.

Integration into Domestic R&I Policy Mix

The RRF has significantly influenced Portugal's R&I landscape by driving the allocation of resources towards covering the needs of the system and increasing the visibility of the challenges that the system faced. The alignment between the RRF and the Portugal 2030 strategy allowed for the creation of a coherent national R&I policy. Stakeholders acknowledged that the RRF addressed previous limitations in funding scope, scale, and flexibility, enabling more ambitious and effective investments in R&I. This alignment also ensured the integration of national strategic goals, such as digitalisation and sustainability, with broader EU priorities, making the RRF a catalyst for structural change.

Additionally, the RRF facilitated synergies between national and sectoral strategies—such as ENEI 2030 and the National Ocean Strategy—ensuring that R&I measures were not only well-funded but also strategically directed. Stakeholders noted that the RRF played a vital role in strengthening collaboration across institutions and in translating research into market-ready solutions. Without the RRF's support, many of the R&I measures currently driving Portugal's R&I progress would not have been possible, underscoring its critical role in shaping a more dynamic and effective research and innovation ecosystem.

Synergies with Other Funding Programmes

The Portuguese plan has been effectively leveraged to complement and reinforce EU funding programmes in the field of R&I. Stakeholders consulted have highlighted that the RRF not only fills critical investment gaps but also adds unique value, particularly by ensuring full territorial coverage, including remote and insular areas. Its alignment with national strategies, such as ENEI 2030 and Portugal 2030, has fostered synergies between the RRF and existing programmes. For instance, the Interface Mission investment under the RRF has been successfully combined with Horizon Europe (HE) funds to bolster the scientific and financial capacity of participating organisations. As shown in Table 41, Portugal has received EUR 995,6

million in HE funding, supporting 1,712 signed grants and involving 2,802 organisations, with research organisations, higher education institutions and private entities being the main beneficiaries. Additionally, programmes managed by the Foundation for Science and Technology (FCT) and regional cohesion policy instruments, like the Alentejo Regional Programme, are thematically aligned with RRF initiatives and contribute to strengthening regional innovation ecosystems.

Table 41: Horizon Europe funding (2021-2027)

Horizon Europe	
Net EU contribution ⁽²⁵²⁾	EUR 995,6 million (2.33% of the HE total)
Signed grants	1712 (10.71% of the HE total)
Number of organisations involved in HE projects	2802 (2.82% of the total)
Rank HE contribution per inhabitant	10
Top three types of supported organisations	Research Organisations (37.2%), Higher or Secondary Education Establishments (29.6%), Private for-profit entities (25.6%)
Top 5 keywords	ecosystems; climatic changes; sustainable economy; governance; business models

Source: [HE dashboard](#), Country profiles (mid-March 2025).

These complementarities extend to both upstream and downstream funding opportunities. While RRF measures do not directly overlap with CP funds, ongoing coordination between managing bodies is expected to produce future synergies. Specific thematic areas—such as the digitalisation of SMEs, development of research infrastructures, and support for innovative SMEs—are co-financed by cohesion funds and complement the objectives of the RRP. As shown in Table 42**Error! Reference source not found.**, Portugal has allocated EUR 1,7 billion to R&I.

Furthermore, the RRF’s 100% co-financing rate has enabled the implementation of more ambitious R&I projects, and the provision of base funding has allowed beneficiaries to focus fully on project execution, as reported by the beneficiaries consulted. Overall, the RRF has not only enhanced Portugal’s R&I funding landscape but has also generated positive “crowding-in” effects by encouraging further investment from national and EU sources.

⁽²⁵²⁾ Please note that the data on Horizon Europe presented in the country fiches differ from those in the case studies due to methodological differences. In the country fiches, Horizon Europe data refer to the total net EU contribution. In the case studies, by contrast, the figures reflect the sum of allocations by investment area (an approach necessary to establish correspondences with Cohesion Policy and RRF support for the coherence analysis). Annex V in the main report defines each investment area. Discrepancies arise from the impossibility of assigning certain Horizon Europe calls to the investment areas used in this analysis.

Table 42: Cohesion Policy funding (2021-2027)

Cohesion Policy	
Overall EU financing	EUR 22,6 billion
Total EU payments	EUR 714,9 million (3.16% of the CP total)
R&I EU contribution ⁽²⁵³⁾	EUR 1,7 billion for SO 1.1 “Enhancing research and innovation”
Researchers with improved infrastructure (planned)	1894 annual FTEs

Source: [Cohesion data](#) (mid-March 2025)

Bottlenecks

No specific bottlenecks have been identified under the framework of this study.

Results and Achievements

The implementation of R&I measures under the Portuguese RRP is progressing well, with 17 M&Ts already achieved, mainly related to the initial phases of projects and structural reforms. These achievements primarily relate to initial steps, such as launching projects and contracts, but they have laid the foundation for more tangible outcomes. Among the most impactful initiatives is the Reform on the Promotion of R&I&D and Innovative Investment in Enterprises, which updated the national innovation strategy and enhanced the framework for public-private partnerships. This has enabled the development of large-scale collaborative research agendas, notably the Mobilising Agendas for Business Innovation. Early indications show these agendas have fostered a strong culture of collaboration across sectors and contributed to concrete business growth—for example, four firms in the automotive sector reported EUR 20 million in additional revenue each through new product development.

Currently, 50 out of 53 Mobilising Agendas (30 business-focused, 20 green) have been contracted, involving 1,247 entities and representing EUR 7.8 billion in total investment, with EUR 2.8 billion in public funding. The Interface Institutions network, another core component of the RRP, has also expanded through legislative reform and financial support, enhancing the knowledge and technology transfer system. Over 8,800 companies have benefited from these institutions’ activities, and more than 3,600 researchers (38% female) are employed in Technology and Innovation Centres (CTIs) and Collaborative Laboratories (CoLAB) facilities. Current data although limited due to ongoing projects points to a strong and positive impact on Portugal’s research, innovation, and collaboration landscape.

⁽²⁵³⁾ Cohesion Policy support to R&I is derived from the [Cohesion Open Data Platform](#), based on EU amounts under Specific Objective (SO) 1.1 (“Enhancing research and innovation”) within the “Intervention Field” dimension. Data are based on the version of the platform as of 14 March 2025. Please note that the data on Cohesion Policy support to R&I in the country fiches differ from those in the case studies due to methodological differences: the fiches report the total amounts planned under SO 1.1, whereas in the case studies support is calculated as the sum of the amounts for each investment area, since focusing solely on the overall SO 1.1 allocation would have prevented an analysis by investment area (instrumental in establishing correspondences with Horizon Europe and RRF support for the coherence analysis). Annex V in the main report sets out the definition of each area.

22.Romania

Introduction

Romania has allocated EUR 308,03 million ⁽²⁵⁴⁾ from its Recovery and Resilience Plan (RRP) ⁽²⁵⁵⁾ to support R&I initiatives, representing 1,1% of the total national RRP funding (EUR 28,497 million, as of 04/04/2025) ⁽²⁵⁶⁾. R&I funding has been allocated mainly to the Smart, sustainable and inclusive growth primary pillar (84%) and the Green transition primary pillar (16%).

Romania has 11 R&I measures and 1 R&I sub-measure in the RRF, both reforms and investments, associated with 22 milestones and targets. To date ⁽²⁵⁷⁾, the country has fulfilled 10% of its R&I milestones (1 out of 10) while none of the 12 R&I have been fulfilled yet. The fulfilled milestone concerns the establishment and operationalisation of the Policy Support Facility (PSF) Reform unit, enacted through a normative act, which is tasked with coordinating reforms in the national research, development, and innovation system during the 2021–2026 period.

Figure 36: Funding R&I distribution per RRF Primary Pillar

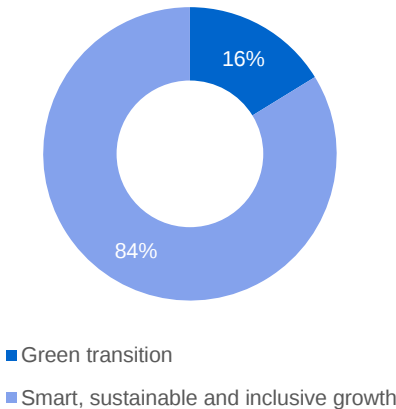
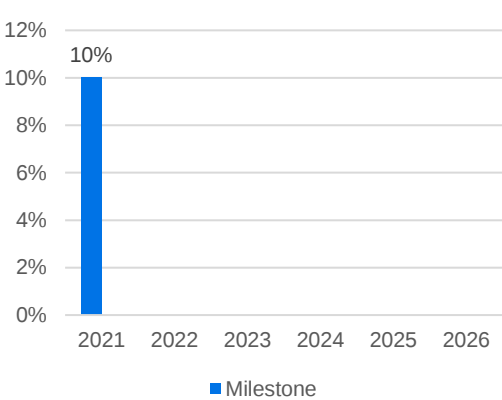


Figure 37: Share of fulfilled R&I M&T out of total R&I M&T



Source: RRF Scoreboard, Fenix database.

Interplay of Reforms and Investments

Romania’s RRP implementation represents a coordinated strategy to strengthen the national RDI system by leveraging synergies between structural reforms and targeted investments, as well as among related reforms that address shared systemic challenges. These measures converge around key persistent issues: fragmented and inefficient RDI governance, difficulties in attracting and retaining highly qualified research personnel, and limited integration into the European Research Area (ERA). The reform “**Streamline governance of research, development and innovation**” (C9.R2) improves institutional coordination, transparency, and

⁽²⁵⁴⁾ Fenix database.

⁽²⁵⁵⁾ European Commission. (2021). *Romania’s recovery and resilience plan*. Retrieved April 7, 2025, [here](#).

⁽²⁵⁶⁾ European Commission. (2025). *RRF Scoreboard: Country Overview*, [here](#).

⁽²⁵⁷⁾ Fenix database, last extracted on 31/03/2025.

decision-making by establishing the **Policy Support Facility Reform Unit**. This structural reform is closely supported by the investment “**Development of a programme to attract the highly specialised human resource from abroad in research (development and innovation activities)**” (C9.I8), which funds 100 research projects led by internationally recognised researchers. By addressing the overlapping issues of governance inefficiency and talent scarcity, C9.R2 and C9.I8 form a clear operational synergy, where improved governance enables more efficient implementation of investments, and the investment in turn activates and reinforces the new governance framework. Further synergies are evident between the reform “**Reform of research career**” (C9.R3) and the associated investment (C9.I8). C9.R3 introduces a merit-based, transparent, and competitive research career structure, which directly supports Romania's efforts to attract and retain top-level researchers. This reform and investment share the strategic goal of strengthening Romania's human capital base, creating a mutually reinforcing effect. These horizontal reforms, C9.R2 and C9.R3, also support the thematic reform “**Integration of Romania in the ERA**” (C9.R5), which aims to enhance international cooperation by establishing competence centres aligned with Horizon Europe missions. C9.R5 depends on the improved institutional governance and career frameworks laid out by the other reforms, demonstrating a systemic synergy among the reforms themselves.

Integration into Domestic R&I Policy Mix

Romania's RRF R&I measures are explicitly integrated into the country's strategic R&I policy framework, particularly the **National Strategy for Research, Innovation, and Smart Specialisation 2022–2027 (SNCISI)** ⁽²⁵⁸⁾. The SNCISI highlights the RDI components of the NRRP as structural and transformative investments, complementary to all national and EU programmes financing RDI. Rather than operating in isolation, the RRF measures support SNCISI implementation in governance reform, talent development, and strategic innovation. Measures such as “Development of a programme to attract the highly specialised human resource from abroad in research, development and innovation activities” (C9.I8), “Streamline governance of research, development and innovation” (C9.R2), “Reform of research career” (C9.R3), and “Support to integrate the research, development and innovation organisations in Romania in the ERA” (C9.R5) contribute to reversing brain drain, improving institutional coordination, enhancing human capital, and strengthening integration into the ERA.

In parallel, national funding through the **National Plan for Research, Development and Innovation 2022–2027 (PNCDI IV)** ⁽²⁵⁹⁾ provides complementarity and synergy with the RRF. As the main instrument for implementing the SNCISI, PNCDI IV reinforces the strategic direction set by the RRF by supporting innovation, technology transfer, and public–private collaboration. It complements C9.I8 by enhancing national absorption capacity and C9.R3 by improving researcher retention. While no formal commitment exists yet to continue RRF-funded measures through national budgets, key stakeholders, including the Agency for the National Council for Scientific Research, support continuing initiatives such as the PSF beyond 2026 under the principle of irreversibility of reforms.

⁽²⁵⁸⁾ Ministry of Research, Innovation and Digitalisation. (n.d.). *National Strategy for Research, Innovation, and Smart Specialisation 2022–2027*. Retrieved April 7, 2025, [here](#).

⁽²⁵⁹⁾ Oportunități UE. (n.d.). *Planul Național de Cercetare-Dezvoltare și Inovare 2022–2027 (PNCDI IV)*. Retrieved April 7, 2025, [here](#).

Synergies with Other Funding Programmes

Romania has effectively leveraged synergies between its RRF-funded R&I measures and other EU funding instruments, particularly **Horizon Europe (HE)** and **Cohesion Policy (CP)** ⁽²⁶⁰⁾, resulting in a more integrated and strategically aligned approach to strengthening its RDI system. These synergies are evident in the scientific excellence area ⁽²⁶¹⁾ and include **cumulative funding based on sequential logic**, where RRF reforms and investments build on the outputs of HE initiatives, as well as **upstream/downstream planned synergies**, where national reforms create enabling conditions for participation in EU-level programmes and vice versa.

Some complementarities, like in talent development and governance, emerged during implementation, while others, such as supporting international collaboration and research careers, were clearly planned with EU-level alignment in mind. As shown in Table 43, Romania has secured EUR 290,7 million under HE, supporting 703 grants across a broad range of institutions as of mid-March 2025. Notable examples include the investment “Development of a programme to attract the highly specialised human resource from abroad in research (development and innovation activities)” (C9.I8), which complements HE projects such as “Boosting INGENIUM for Excellence” (BI4E) and “EU-CONEXUS ENABLES – Promoting excellence through innovative ecosystems”, and the reform “Streamline governance of research, development and innovation” (C9.R2), which aligns with initiatives like “SYSTEMEU: Fostering Systemic Innovation and Digital transformation across European innovation ecosystems” and “Framing And Bridging Regional R&I ecosystems Capacities for a renewed ERA” (ERA_FABRIC).

Similarly, the “Reform of research career” (C9.R3) supports mobility and talent frameworks promoted by the project “Transforming Europe Through Doctoral Talent and Skills Recognition” (DocTalent4EU) and ERA Talents, while “Integration of Romania in the ERA” (C9.R5) builds on earlier governance and career reforms and is reinforced by HE twinning projects such as “Strengthening the Research Capacities for Extreme Weather Events in Romania” (SCEWERO) and “Empowering participation and accelerating synergies in Widening countries with a focus on Green & Digital Transition” (TWIN SYNERGIES).

⁽²⁶⁰⁾ European Commission. (2025). *Cohesion policy data: Romania 2014–2020*. Retrieved April 7, 2025, [here](#).

⁽²⁶¹⁾ Based on R&I measures categorisation developed by the Study Team.

Table 43: Horizon Europe funding (2021-2027)

Horizon Europe	
Net EU contribution ⁽²⁶²⁾	EUR 290,7 m (0,68% of the HE total)
Signed grants	703 (4,40% of the HE total)
Number of organisations involved in HE projects	1079 (1,09% of the total)
Rank HE contribution per inhabitant	1
Top three types of supported organisations	Private for-profit entities (30,7%), Higher or Secondary Education Establishments (26,5%), Research Organisations (26,2%)
Top 5 keywords	ecosystems; climatic changes; governance; sustainable economy; business models

Source: [HE dashboard](#), Country profiles (mid-March 2025).

Complementing this, Romania has also established **co-funding synergies** between the RRF and CP, particularly the European Regional Development Fund (ERDF) and the European Social Fund Plus (ESF+), in areas such as science-business collaboration, R&D projects, and research infrastructure ⁽²⁶³⁾. As shown in Table 44, these funds, amounting to EUR 1,3 billion for R&I during 2021–2027, have supported infrastructure for 1,445 researchers.

The CP contribution reinforces RRF-supported structural reforms by financing related but distinct activities that advance common goals, particularly in regional innovation and SME support. While Romania has managed to avoid duplication of costs, the absence of a unified ex-ante strategy and some timing misalignments point to a need for more deliberate coordination.

⁽²⁶²⁾ Please note that the data on Horizon Europe presented in the country fiches differ from those in the case studies due to methodological differences. In the country fiches, Horizon Europe data refer to the total net EU contribution. In the case studies, by contrast, the figures reflect the sum of allocations by investment area (an approach necessary to establish correspondences with Cohesion Policy and RRF support for the coherence analysis). Annex V in the main report defines each investment area. Discrepancies arise from the impossibility of assigning certain Horizon Europe calls to the investment areas used in this analysis.

⁽²⁶³⁾ Based on R&I measures categorisation developed by the Study Team.

Table 44: Cohesion Policy funding (2021-2027)

Cohesion Policy	
Overall EU financing	EUR 31 billion
Total EU payments	EUR 1,9 billion (6,0%) - prefinancing
R&I EU contribution ⁽²⁶⁴⁾	EUR 1,3 billion for SO 1.1 “Enhancing research and innovation”
Researchers with improved infrastructure (planned)	1445 annual FTEs

Source: [Cohesion data](#) (mid-March 2025).

Bottlenecks

Romania’s implementation of R&I measures under the RRF has faced several bottlenecks, particularly during the implementation phase, due to **administrative complexity**, **multiple regulatory layers**, and difficulties in transposing RRF requirements into normative acts and investments. According to national authorities interviewed, these challenges have slowed reforms such as the “Streamline governance of research, development and innovation” (C9.R2) and “Reform of research career” (C9.R3), and affected the rollout of investments like the “Development of a programme to attract the highly specialised human resource from abroad in research (development and innovation activities)” (C9.I8) and the “Development of a programme to support postdoctoral research” (C9.I9). Monitoring progress has been relatively straightforward for measures with clear, quantifiable indicators, but more complex outputs—such as user satisfaction or the dissemination of project results—remain difficult to track. Further difficulties have arisen from misalignment between European Commission terminology and national implementation practices, as well as limited coordination among ministries, universities and regional development agencies. While steps such as **technical guidance**, **stakeholder consultations** involving the ANC, research institutes, universities, and **support from the World Bank** have addressed some issues, a comprehensive solution is still lacking. Continued coordination efforts and gradual process stabilisation will be key to resolving these bottlenecks and fully realising the impact of RRF-supported measures.

Results and Achievements

As of mid-2025, Romania’s R&I measures under the RRP have begun delivering early operational outputs ⁽²⁶⁵⁾, though it is too soon to assess the full impact. Most reforms and investments remain in **early implementation stages**, with significant effects, such as enhanced research quality, talent retention, and international collaboration, expected to emerge over time.

⁽²⁶⁴⁾ Cohesion Policy support to R&I is derived from the [Cohesion Open Data Platform](#), based on EU amounts under Specific Objective (SO) 1.1 (“Enhancing research and innovation”) within the “Intervention Field” dimension. Data are based on the version of the platform as of 14 March 2025. Please note that the data on Cohesion Policy support to R&I in the country fiches differ from those in the case studies due to methodological differences: the fiches report the total amounts planned under SO 1.1, whereas in the case studies support is calculated as the sum of the amounts for each investment area, since focusing solely on the overall SO 1.1 allocation would have prevented an analysis by investment area (instrumental in establishing correspondences with Horizon Europe and RRF support for the coherence analysis). Annex V in the main report sets out the definition of each area.

⁽²⁶⁵⁾ Ministry of Education and Research. (2025). *Component 9 – Support for the private sector, research, development and innovation*. Retrieved April 7, 2025, [here](#).

Key milestones include the **launch of the PSF Reform Implementation Unit** under the “Streamline governance of research, development and innovation” reform (C9.R2) and the adoption of Law no. 25/2023 ⁽²⁶⁶⁾ under the “Support to integrate the research, development and innovation organisations in Romania in the ERA” reform (C9.R5), both aimed at improving RDI governance and reducing fragmentation. On the investment side, progress includes **establishing five consortia** under the “Development of a network of consortia of excellence in R&I” (C9.I5), and initial funding of projects through the “Development of a programme to attract highly specialised human resources from abroad” (C9.I8) and the “Development of a programme to support postdoctoral research” (C9.I9). The “Reform of research career” (C9.R3), supported by the “Development of a career guidance programme in research” (C9.I10), has also begun to clarify career pathways and pilot support services. These developments signal steady progress and lay important groundwork for the long-term strengthening of Romania’s R&I ecosystem.

⁽²⁶⁶⁾ Organisation for Economic Co-operation and Development (OECD). (2023). *Law No. 25/2023 concerning the voluntary association of research and development institutions*. Retrieved April 7, 2025, [here](#).

23.Slovakia

Introduction

Slovakia has allocated EUR 738,94 million ⁽²⁶⁷⁾ from its Recovery and Resilience Plan (RRP) to support R&I initiatives, representing 11.5% of the total national RRP funding (EUR 6,408 million, as of 04/04/25) ⁽²⁶⁸⁾. As shown in Figure 38, the R&I funding has been allocated to two main primary pillars, namely the Smart, sustainable and inclusive growth (47%) and the Digital transformation (42%) primary pillars.

Slovakia has 11 R&I measures and 8 sub-measures in the RRF, both reforms and investments, associated with 34 milestones and targets. To date ⁽²⁶⁹⁾, the country has fulfilled 81% of its R&I milestones (13 out of 16) and 17% of its R&I related targets (3 out of 18) ⁽²⁷⁰⁾. Milestones fulfilled include reforms of governance, evaluation and support in science, research and innovation, including the design of the national RDI Strategy and the reform of the Slovak Academy of Science (SaS); while fulfilled targets include grants to European projects related to the digital economy (Digital Innovation Hubs), public universities applying for a verification of the compliance of their internal quality systems with new accreditation standards, and evaluations conducted on the scientific performance of public universities.

Figure 38: Funding R&I distribution per RRF Primary Pillar

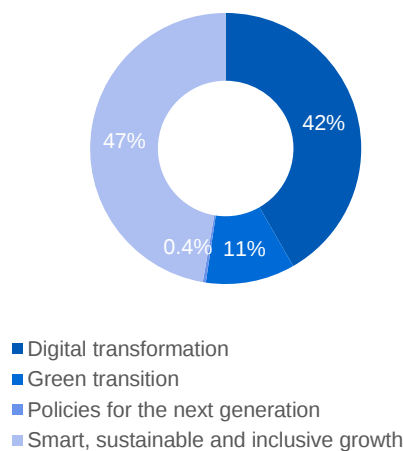
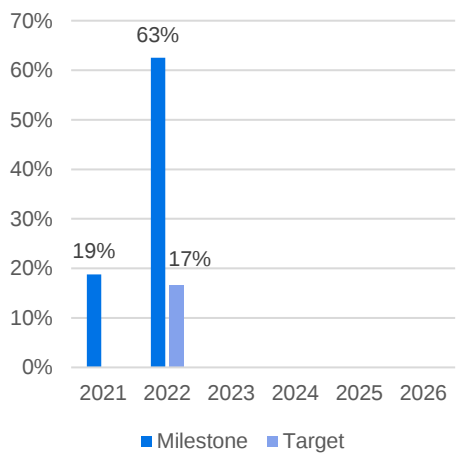


Figure 39: Share of fulfilled R&I M&T out of total R&I M&T



Source: RRF Scoreboard, Fenix database.

⁽²⁶⁷⁾ Fenix database

⁽²⁶⁸⁾ European Commission. (2025). *RRF Scoreboard: Country Overview*, [here](#).

⁽²⁶⁹⁾ Fenix database, last extracted on 31/03/2025.

⁽²⁷⁰⁾ The number of fulfilled milestones/targets covers only those formally assessed as such. Additional milestones/targets may be completed but not yet assessed.

Interplay of Reforms and Investments

The Slovak RRP includes three components dealing with R&I: the main component C9 focused on structurally strengthening R&I (2 reforms C9.R.1-2 and five investments C9.I.1-5), complemented by component C8 related to universities (comprising 5 reforms C8.R.1-5 and investments for universities), and component C17 supporting programmes for R&I in digitalisation (investments C17.I.3-4).

The reforms in C8 deal mainly with the financing of universities, their periodic scientific performance evaluation, management and accreditation of university education, and are supported by investments. C9 introduced a new policy framework - National Strategy for Research, Development and Innovation 2030 - including reform of management, evaluation and support in the field of R&I. The strategy was complemented by investments supporting participation in European programmes and initiatives, excellent science and cooperation between academia and industry, as well as R&I support in decarbonisation and digitalisation of the economy using also voucher schemes and financial instruments.

The new RDI strategy was also a milestone under C9. The Action Plan is an important part of the strategy containing a set of 91 measures to increase the innovation performance of the Slovak economy. The reforms were crucial to create a new legal framework and methodological guidance for the support of R&I, exceptionally including the national budget lines for the support. The reforms established the backbone and created the environment enabling focused support of complementary R&I investments. The established rules and procedures were pilot tested and applied for all subsequent investments demonstrating the synergy of one of the implemented reforms and investments.

Integration into Domestic R&I Policy Mix

The RRP has been a key driver of the national R&I policy making, introducing strategic management from one umbrella institution. The R&I support before the RRF was weak, funds provided by state budget was very limited and R&I support depended on CP funding. The RRP's R&I component was the decisive catalyst for establishing a coherent national R&I policy, enabling strategic management under a unified framework, resolving funding fragmentation, and significantly boosting public investment, achievements that would not have materialized without its support.

The R&I component of the RRP laid the basis for the national R&I policy, strengthened and professionalised interdepartmental coordination and made progress in addressing the fragmentation of the R&I management. The newly established strategic and legal framework is valid for all national and RRP R&I funds and resulted in crowding-in effects, that strengthened national commitment and boosted public funding for R&I. The RRP introduced the new overall strategy with the Action Plan setting the individual steps and activities for the implementation. The national strategy is complemented by the updated RIS3 2021 - 2027. The interdepartmental coordination platform for synergies and complementarities was established to ensure borderlines and synergies.

Synergies with Other Funding Programmes

Slovakia offers examples of synergies with Horizon Europe (HE). RRP investment C9.I.1, in fact, offered direct support for preparing Horizon Europe applications and co-financing successful projects, fostering synergy effects and enabling more impactful outcomes through

combined funding sources, while also extending support to Seal of Excellence projects that meet high-quality standards but lack EU funding. The following table provides an overview of Slovak participation in Horizon Europe.

Table 45: Horizon Europe funding (2021-2027)

Horizon Europe	
Net EU contribution ⁽²⁷¹⁾	EUR 106,8 million (0.25% of the HE total)
Signed grants	322 (2.02% of the HE total)
Number of organisations involved in HE projects	414 (0.42% of the total)
Rank HE contribution per inhabitant	3
Top three types of supported organisations	Private for-profit entities (31.5%), Higher or Secondary Education Establishments (28.5%), Research Organisations (23.4%)
Top 5 keywords	ecosystems; sustainable economy; governance; climatic changes; business models

Source: [HE dashboard](#), Country profiles (mid-March 2025).

Until the RRF's introduction, the main source of funding for the support of R&I activities in Slovakia have been Cohesion Policy (CP) funds. R&I in Slovakia lacked a centralized strategic approach and suffered from significant underfunding. Introduction of RRF funding played a crucial role in establishing and professionalizing interdepartmental coordination, the implemented measures rebuilt the entire system of R&I support. While Slovakia aimed to align RRF interventions with CP support, challenges arose due to administrative complexities and competition between funding sources. The interdepartmental coordination body was established to coordinate synergies and complementarities.

RRF and CP funds were planned to support very similar interventions. Moreover, several interventions were planned to start with support from the RRF and continue with support from CP funds. A specific planning of synergies and complementarities was carried out to this end. The actual implementation, however, partly changed the original intentions, as some interventions are currently running in parallel (financing different items so as not to generate cases of double funding). The following table provides an overview of Cohesion Policy funding to Slovakia in the R&I sector.

⁽²⁷¹⁾ Please note that the data on Horizon Europe presented in the country fiches differ from those in the case studies due to methodological differences. In the country fiches, Horizon Europe data refer to the total net EU contribution. In the case studies, by contrast, the figures reflect the sum of allocations by investment area (an approach necessary to establish correspondences with Cohesion Policy and RRF support for the coherence analysis). Annex V in the main report defines each investment area. Discrepancies arise from the impossibility of assigning certain Horizon Europe calls to the investment areas used in this analysis.

Table 46: Cohesion Policy funding (2021-2027)

Cohesion Policy	
Overall EU financing	EUR 12,6 billion
Total EU payments	EUR 602,8 million (4.79% of the CP total)
R&I EU contribution (²⁷²)	EUR 972,8 million for SO 1.1 “Enhancing research and innovation”
Researchers with improved infrastructure (planned)	240 annual FTEs

Source: [Cohesion data](#) (mid-March 2025).

Bottlenecks

The implementation of the RRP investment under Component 9 faced significant challenges due to the simultaneous launch of reforms and investments, rather than a phased approach. Coordination was further complicated by delays in CP funds and the absence of a prepared implementation system, requiring the urgent identification of Intermediary Bodies and the establishment of new structures and processes. The use of separate IT systems for RRF and EU funds added inefficiencies, highlighting the missed opportunity to build on the existing ITMS platform. Despite the limited timeframe, 28 Calls were rapidly launched, but the assessment of applications became a major bottleneck due to time-consuming administrative controls required by Slovak legislation. In some cases, contracts were signed nearly two years after Calls were initiated, prompting a shift in administrative checks to post-selection stages. The preparation of state aid schemes and the high volume of Calls also strained final recipients, raising concerns about absorption capacity and project quality. As a result of lengthy approval processes, project durations were shortened from three to two years, and while a few projects have been completed, most remain in the implementation phase.

Results and Achievements

Slovakia’s RRP implementation is progressing with most of milestones and some targets achieved. However, the results as well as broader impact on R&I system remain limited as these effects are not visible, yet.

The establishment of the Research and Innovation Authority and National Implementation and Coordination Authority enabled more effective coordination of R&I efforts. The reforms led to improved strategic steering and national budget allocations (expected to reach EUR 326 million in 2026). By establishing stricter accreditation criteria, Slovakia ensured higher standards for research institutions and fostered collaboration across various sectors. The methodological

(²⁷²) Cohesion Policy support to R&I is derived from the [Cohesion Open Data Platform](#), based on EU amounts under Specific Objective (SO) 1.1 (“Enhancing research and innovation”) within the “Intervention Field” dimension. Data are based on the version of the platform as of 14 March 2025. Please note that the data on Cohesion Policy support to R&I in the country fiches differ from those in the case studies due to methodological differences: the fiches report the total amounts planned under SO 1.1, whereas in the case studies support is calculated as the sum of the amounts for each investment area, since focusing solely on the overall SO 1.1 allocation would have prevented an analysis by investment area (instrumental in establishing correspondences with Horizon Europe and RRF support for the coherence analysis). Annex V in the main report sets out the definition of each area.

guideline introduced in 2023 unified R&I funding mechanisms, ensuring streamlined administration of grants and state aid. The introduction of a system of period scientific performance evaluation, improved the accountability of research organizations. Additionally, 28 Calls for R&I proposals enabled various investments: funding international research collaboration - European research programs, Seal of Excellence projects and Horizon Europe (I1), supporting collaborative research - joint projects between academia and industry (I2), within Excellent Science hundreds of research fellowships and support for young researches were distributed (I3) , projects addressing the R&I challenges of green transformation and decarbonization (I4) and digitalisation (I5) through voucher schemes A new feature of the RRF implementation was the introduction of international assessment, utilizing foreign experts to evaluate project proposals. This marked a significant shift in the evaluation process, aiming to enhance objectivity and raise the quality standards of supported projects. On the other side, the RRF lacked the necessary flexibility as compared to planning, some of the needs had changed since the time RRF was planned, which required adjustment. However, even for minor changes this process was lengthy and complicated. The use of international experts in project evaluation enhanced research integrity and competitiveness. The introduction of simplified cost options and lump-sum funding streamlined financial administration, reducing bureaucratic delays in project implementation.

Overall, the measures and investments of RRF are expected to kick off the R&I in Slovakia and should have a long-term effect also due to the secured state budget sources, if there is no change. The ultimate effects should be reflected in the economy and competitiveness of the country. The political commitment and results-driven focus of RRF were the main factors pushing the implementation of measures and investment. The R&I interventions could benefit more if the implementation of both RRF and CP funds is using one system that is less competing and more cooperative. Increased R&I investments have full potential to strengthen the country's competitiveness and align it with broader European strategic objectives.

The reforms and investments supported under the RRF are expected to sustain their impact beyond the RRF's active period. The National R&I Strategy has permanently established governance structures and budget allocations, ensuring continuity of funding beyond 2026. Additionally, structural changes, such as improved accreditation processes and competitive grant mechanisms, will further drive innovation. Sustainability will depend on maintaining stable funding sources and fostering a culture of competitive, high-quality research. If effectively leveraged, Slovakia's strengthened R&I landscape can continue contributing to broader EU innovation goals, supporting scientific excellence and technological advancement across Europe.

24. Slovenia

Introduction

Slovenia has allocated EUR 106 million ⁽²⁷³⁾ from its Recovery and Resilience Plan (RRP) ⁽²⁷⁴⁾ to support R&I initiatives, representing around 4% of the total national RRP funding (EUR 2,686 million, as of 02/04/25) ⁽²⁷⁵⁾. R&I funding has been allocated mainly to the Smart, sustainable and inclusive growth primary pillar.

Slovenia has 7 R&I measures and 3 R&I sub-measures in the RRF, both reforms and investments, associated with 20 milestones and targets. To date ⁽²⁷⁶⁾, 45% of its R&I milestones have been fulfilled (5 out of 11). None of the 9 targets have been fulfilled yet ⁽²⁷⁷⁾. The fulfilled milestones focus on regulatory and preparatory actions, including the launch of the call for expression of interest in the IPCEI on next-generation cloud, the finalisation of the list of participants in a microelectronics IPCEI and the entry into force of the Act on Research, Development and Innovation Activities. In terms of R&I investments, Slovenia has fulfilled ⁽²⁷⁸⁾ EUR 14,7 million out of the total EUR 106 million included in the national plan; i.e. 14% of the total.

Figure 40: Funding R&I distribution per RRF Primary Pillar

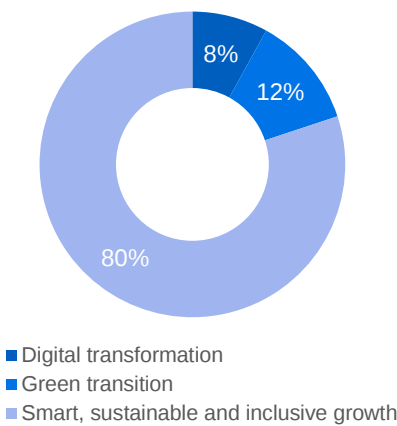
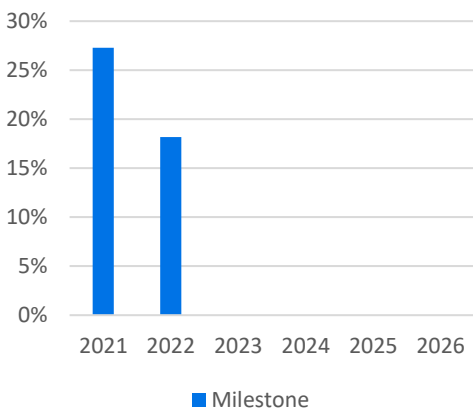


Figure 41: Share of fulfilled R&I M&T out of total R&I M&T



Source: RRF Scoreboard, Fenix database.

⁽²⁷³⁾ Fenix database.

⁽²⁷⁴⁾ Government of the Republic of Slovenia. (2021). *Recovery and resilience plan*. Retrieved April 2, 2025, [here](#).

⁽²⁷⁵⁾ European Commission. (2025). *RRF Scoreboard: Country Overview*. Retrieved April 7, 2025, [here](#).

⁽²⁷⁶⁾ Fenix database, last extracted on 31/03/2025.

⁽²⁷⁷⁾ The number of fulfilled milestones/targets covers only those formally assessed as such. Additional milestones/targets may be completed but not yet assessed.

⁽²⁷⁸⁾ All related M&T that make up a measure (investment) have been fulfilled; therefore, the entire investment is considered fulfilled.

Interplay of Reforms and Investments

The Slovenian RRP integrates a reform and several investments to directly strengthen R&I governance and boost innovation capacity, supporting digital and green transitions. Of the EUR 106 million allocated from the RRF for R&I initiatives, EUR 54 million funds open science data infrastructure, EUR 37 million supports system reforms, and EUR 15 million goes towards green and digital innovation investments. These measures have enabled important progress, especially in the structural reform “Operation and management of the RDI system” (C8 RA), where national budgets have often been limited. Key initiatives show deliberate **synergies** between reforms and investments, and among investments themselves, through separate but complementary measures that address a common issue. For example, C8 RA has made it easier for companies to collaborate with research organisations, improving coordination, funding mechanisms, and public-private cooperation. Investments under C8 further reinforce this by encouraging joint innovation projects and strengthening institutional capacity. These efforts are complemented by investments such as “European common data infrastructure and services” (C6 ID) and “Low-power processors and semiconductor chips” (C6 IE), which support data-driven innovation and cross-border collaboration. Together, these measures contribute to a more integrated and resilient R&I ecosystem.

Integration into Domestic R&I Policy Mix

Slovenia’s RRF funding is **closely integrated into its domestic R&I policy mix**, aligning with strategic documents such as the **Resolution on the Slovenian Scientific Research and Innovation Strategy 2030 (ReZrIS30)** ⁽²⁷⁹⁾ and the **National Energy and Climate Plan (NECP)** ⁽²⁸⁰⁾, both of which explicitly reference the RRF. The reform of the “Operation and management of the RDI system” (C8 RA) directly supports ReZrIS30 structural objectives and NECP priorities by improving governance and public R&I funding efficiency. Key legislative actions, including the new Act on Scientific Research and Innovation Activities as part of C8 RA, have strengthened academia-business collaboration, and reinforced support for green and digital transitions. Cross-border innovation initiatives and high-impact projects such as the “European common data infrastructure and services” (C6 ID) and “Low-power processors and semiconductor chips” (C6 IE), align with both ReZrIS30’s focus on competitiveness and integration into European value chains and NECP’s emphasis on energy-efficient technologies. The RRF has introduced new mechanisms, such as mobility schemes for researchers, reintegration programmes, and capacity-building in research management, that were previously not available through national funding. These are now being implemented in coordination with national agencies, including the Slovenian Research and Innovation Agency (ARIS) and the Technology Agency (TIA). National programmes complement RRF funding through **sequential** and **expansion** logic, for example, supporting outgoing mobility while RRF covers incoming researchers, ensuring continuity and scale. These measures were informed by national policy priorities, country-specific recommendations, and findings from the EU Innovation Scoreboard, addressing previously identified gaps in commercialisation and research capacity. The RRF has therefore enabled systemic reforms that were previously unattainable under national funding alone, with **no evidence of crowding-out effects**, rather, it reinforces and complements existing EU and national funding, ensuring added value to Slovenia’s R&I system. Looking

⁽²⁷⁹⁾ Government of the Republic of Slovenia. (2022). *Resolution on the Slovenian Scientific Research and Innovation Strategy 2030 (ReZrIS30)*. Retrieved April 2, 2025, [here](#).

⁽²⁸⁰⁾ European Commission. (2024). *Slovenia draft updated National Energy and Climate Plan (NECP)*. Retrieved April 2, 2025, [here](#).

ahead, Slovenia plans to sustain and scale these reforms through national funding, continued EU engagement, and alignment with cohesion policy, supporting long-term innovation capacity and progress toward R&D intensity targets.

Synergies with Other Funding Programmes

Slovenia has **effectively aligned its RRP with EU funding programmes** to optimise investments and ensure a coordinated approach to national and EU objectives. This alignment supports EU priorities such as digital transformation, R&I, and sustainable development. Key instruments include Horizon Europe (HE) and Cohesion Policy (CP) funds. As shown in Table 47^{Error! Reference source not found.}, Slovenia secured EUR 354,1 million in HE funding, with 1078 organisations involved as of mid-March 2025. Compared to similar-sized EU countries, this reflects above-average engagement, supported by a balanced distribution of beneficiaries across research organisations, private entities, and higher education institutions, reflecting strong participation from both public and private sectors. The RRP complements HE by **co-funding** projects that boost EU research impact. In the area **R&I ecosystems**, measures “Co-financing of investments in RDI demonstration and pilot projects” (C8 ID) and “Co-financing of R&I projects for green transition and digitalisation” (C8 IB) support industrial R&I aligned with HE priorities. In the area **Scientific Excellence**, the measure “Co-financing of projects to enhance international mobility of Slovenian researchers” (C8 IC) supports highly rated researchers who miss HE funding, supporting their mobility and reintegration ⁽²⁸¹⁾.

Table 47: Horizon Europe funding (2021-2027)

Horizon Europe	
Net EU contribution ⁽²⁸²⁾	EUR 354,1 million (0,83% of the HE total)
Signed grants	730 (4,57% of the HE total)
Number of organisations involved in HE projects	1078 (1,09% of the total)
Rank HE contribution per inhabitant	17
Top three types of supported organisations	Research Organisations (38,8%), Private for-profit entities (29,3%), Higher or Secondary Education Establishments (22,9%)
Top 5 keywords	sustainable economy; ecosystems; business models; governance; climatic changes

Source: [HE dashboard](#), Country profiles (mid-March 2025).

Cohesion Policy, including the European Social Fund Plus (ERDF), complements Slovenia’s RRP R&I initiatives by contributing EUR 428,4 million to R&I, as shown in Table 52. The RRP

⁽²⁸¹⁾ Based on R&I measures categorisation developed by the Study Team.

⁽²⁸²⁾ Please note that the data on Horizon Europe presented in the country fiches differ from those in the case studies due to methodological differences. In the country fiches, Horizon Europe data refer to the total net EU contribution. In the case studies, by contrast, the figures reflect the sum of allocations by investment area (an approach necessary to establish correspondences with Cohesion Policy and RRF support for the coherence analysis). Annex V in the main report defines each investment area. Discrepancies arise from the impossibility of assigning certain Horizon Europe calls to the investment areas used in this analysis.

reinforces this through measures such as “Co-financing of investments in RDI demonstration and pilot projects” (C8 ID) and “Co-financing of R&I projects for green transition and digitalisation” (C8 IB), supporting collaborative R&I and high-TRL activities aligned with PO 1 (a Smarter Europe) and PO 2 (a Greener Europe) ⁽²⁸³⁾. The synergy with CP combines **co-funding**, similar to that with HE, and **upstream/downstream** roles, where ERDF supports SME infrastructure and innovation (upstream), and the RRF funds systemic reforms and capacity-building (downstream). This coordinated approach enhances R&I governance, researcher mobility, and skills development, boosting the long-term impact of investments.

Table 48: Cohesion Policy funding (2021-2027)

Cohesion Policy	
Overall EU financing	EUR 3,2 billion
Total EU payments	EUR 140 million (4,3%)
R&I EU contribution ⁽²⁸⁴⁾	EUR 428,4 million for SO 1.1 “Enhancing research and innovation”
Researchers with improved infrastructure (planned)	287 annual FTEs

Source: [Cohesion data](#) (mid-March 2025).

Bottlenecks

Slovenia faces common bottlenecks in implementing RRF-funded R&I measures, both in the design and implementation phases, which may affect the timely achievement of milestones by 2026. According to national authorities interviewed, cross-cutting challenges include unclear guidance on milestone design, limited administrative capacity, rigid RRF procedures and a complex governance structure for RRF implementation involving multiple actors with separate responsibilities, limited information flow, and temporary entities delaying execution. In the **design phase**, the **absence of clear frameworks** for milestones, cost-tracking, and performance indicators created difficulties, especially for complex reforms like the “Operation and management of the RDI system” (C8 RA). During **implementation**, coordination and capacity constraints continue to pose challenges, particularly in the digital transition, where fragmented governance, limited infrastructure, and slow Industry 4.0 adoption have slowed progress. Although mechanisms like the State Administration Informatics Development Council are in place, delays remain in cybersecurity, cross-border digital services, and business digitalisation. To address these issues, Slovenia is investing in hybrid cloud systems and participating in several EU initiatives such as the IPCEI on Cloud Infrastructure and Services

⁽²⁸³⁾ European Commission. (2025). *Slovenia - European regional development fund (ERDF)*. Retrieved April 2, 2025, [here](#).

⁽²⁸⁴⁾ Cohesion Policy support to R&I is derived from the [Cohesion Open Data Platform](#), based on EU amounts under Specific Objective (SO) 1.1 (“Enhancing research and innovation”) within the “Intervention Field” dimension. Data are based on the version of the platform as of 14 March 2025. Please note that the data on Cohesion Policy support to R&I in the country fiches differ from those in the case studies due to methodological differences: the fiches report the total amounts planned under SO 1.1, whereas in the case studies support is calculated as the sum of the amounts for each investment area, since focusing solely on the overall SO 1.1 allocation would have prevented an analysis by investment area (instrumental in establishing correspondences with Horizon Europe and RRF support for the coherence analysis). Annex V in the main report sets out the definition of each area.

(CIS), the IPCEI on Microelectronics, and the European Blockchain Services Infrastructure (EBSI), which aim to strengthen digital capabilities, enhance cross-border services, and support strategic semiconductor development. Monitoring and reporting have also improved through the adjustment of indicators, from completed projects to researcher inclusion, and more realistic target-setting, particularly for HE-related mobility schemes. While administrative burdens and limited RRF flexibility persist, Slovenia has introduced solutions, and ongoing efforts in governance improvement and capacity-building are expected to gradually resolve the remaining challenges.

Results and Achievements

Slovenia's RRP-supported R&I measures show **early progress**, particularly in the **business innovation** area, reflecting the effectiveness of targeted interventions across enterprise-driven digitalisation. Investments such as “European common data infrastructure and services” (C6 ID) and “Low-Power Processors and Semiconductor Chips investment” (C6 IE) have advanced enterprise-led digitalisation. C6 ID has achieved key milestones such as the launch of a call for a next-generation cloud project, backed by strategic frameworks like Digital Slovenia 2030 ⁽²⁸⁵⁾ and the establishment of the State Administration Informatics Development Council. By February 2025, 23 projects involving 108 companies received EUR 43.8 million in EU co-financing, reflecting strong uptake across sectors like business operations and technological innovation ⁽²⁸⁶⁾. Slovenia's participation in IPCEI CIS and investments in hybrid cloud technologies is also enhancing digital governance and cross-border infrastructure. In parallel, C6 IE has positioned Slovenia in the EU's semiconductor ecosystem through milestone achievements like finalising project participants list and advancing on chip design and AI computing. The reform “Operation and management of the RDI system” (C8 RA) has introduced performance-based funding via the adoption and amendment of the RDI Act, and establishment of coordination bodies such as the Joint Programme Committee and Development Council—strengthening collaboration, knowledge transfer, and researcher retention. While some measures, such as targets under the researcher mobility scheme, required adjustments, implementation remains on track and is delivering systemic improvements.

⁽²⁸⁵⁾ Government of the Republic of Slovenia. (2017). *Digital Slovenia 2030 strategy*. Retrieved April 2, 2025, [here](#).

⁽²⁸⁶⁾ Government of the Republic of Slovenia. (2025). *EU funding for digital transformation of the economy*. Retrieved April 2, 2025, [here](#).

25. Spain

Introduction

Spain has allocated EUR 17,579.13 million ⁽²⁸⁷⁾ (both grants and loans) from its Recovery and Resilience Plan (RRP) ⁽²⁸⁸⁾ to support R&I initiatives, representing 11% of the total national RRP funding (EUR 163.01 billion, 02/04/2025) ⁽²⁸⁹⁾. R&I funding has been allocated mainly to the Green transition primary pillar (54%) and the Smart, sustainable and inclusive growth primary pillar (around 30%), as shown in Figure 42.

Figure 42: Funding R&I distribution per RRF Primary Pillar

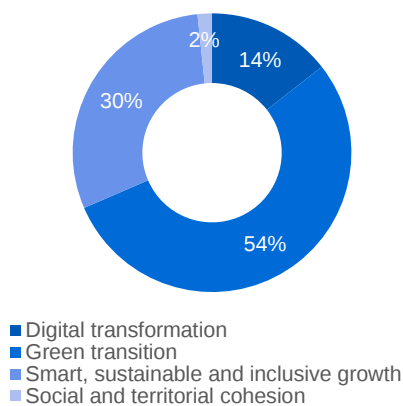
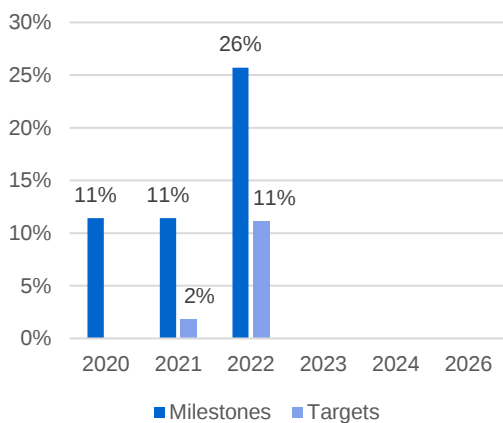


Figure 43: Share of fulfilled R&I M&T out of total R&I M&T



Source: RRF Scoreboard, Fenix database.

Spain has 18 R&I measures and 25 sub-measures in its RRP, which are both reforms and investments and are associated with 89 milestones and targets. To date ⁽²⁹⁰⁾, the country has fulfilled 49% of its R&I milestones (17 out of 35) and 13% of its R&I targets (7 out of 54) ⁽²⁹¹⁾, as shown in **Error! Reference source not found.** In terms of R&I investments, EUR 333,237 million out of the total EUR 17,579.13 million included in the national plan for R&I, i.e. 2% of the total, has been approved and disbursed. Fulfilled milestones mainly cover regulatory and strategic actions, such as the entry into force of the modification of the Law on Science, Technology and Innovation and the adoption of the Hydrogen Roadmap, the National AI Strategy, and major R&D funding decisions. Fulfilled targets include among others the awarding of grants aimed at strengthening the capacity, infrastructure and equipment of State System for Science, Technology and Innovation and to automotive R&D projects.

⁽²⁸⁷⁾ Fenix database.

⁽²⁸⁸⁾ European Commission. (2021). *Greece's recovery and resilience plan*. Retrieved April 8, 2025, [here](#).

⁽²⁸⁹⁾ European Commission. (2025). *RRF Scoreboard: Country Overview*, [here](#).

⁽²⁹⁰⁾ Fenix database, last extracted on 31/03/2025.

⁽²⁹¹⁾ The number of fulfilled milestones/targets covers only those formally assessed as such. Additional milestones/targets may be completed but not yet assessed.

Interplay of Reforms and Investments

Spain's RRP features a comprehensive set of interconnected reforms and investments aimed at strengthening the national R&I system. Two core reforms—the Spanish Strategy for Science, Technology and Innovation 2021–2027 and the reform of the Science, Technology and Innovation Law—provide the strategic and legislative backbone for the country's R&I agenda. These reforms focus on improving governance, fostering a stable scientific career path, and promoting knowledge transfer. They are supported by key investments in research infrastructure, competitive research, development and innovation (R&D&I hereafter) projects, and collaboration with regional governments through “Complementary R&D&I Plans” to align national and regional smart specialisation strategies. Additional reforms target the reorganisation of Public Research Organisations to enhance efficiency and coordination within the system.

Beyond the core R&I measures, the plan includes several sector-specific reforms and investments that reinforce innovation across green energy, transport, AI, and strategic industries such as health, aerospace, fisheries, and culture. Notable initiatives include support for hydrogen and renewable energy innovation, the national AI strategy, and public-private partnerships (PERTES) ⁽²⁹²⁾ in health ⁽²⁹³⁾ and aerospace ⁽²⁹⁴⁾. The plan also targets SMEs and the digitalisation of various sectors. Overall, the Spanish RRP demonstrates a strong interplay between reforms and investments, ensuring policy coherence and effective implementation across multiple levels of government and economic sectors.

Integration into Domestic R&I Policy Mix

The RRF has played a pivotal role in reinforcing R&I's national priorities, serving not just as a funding mechanism but as a strategic pillar of national policy. A standout feature of the Spanish RRP is its emphasis on regional cohesion, as seen in the development of complementary R&D&I plans with Autonomous Communities. Component 17 of the plan is dedicated as a whole to R&I and addresses core structural challenges of the R&I system, with initiatives such as the Science, Technology and Innovation Strategy (EECTI) and reforms supporting institutional capacity-building and knowledge transfer. The Horizon Europe Incentive Plan ⁽²⁹⁵⁾ further complements the RRP by promoting internationalisation and enhancing Spanish participation in EU programmes and shows a high level of alignment with the Spanish plan.

Beyond the RRP, Spain has implemented several national strategies aligned with and reinforced by the RRF, such as the España Digital ⁽²⁹⁶⁾ with the digitalization measures of the RRP, the Plan de Choque por la Ciencia y la Innovación ⁽²⁹⁷⁾, and the Plan de atracción y retención de talento científico e innovador ⁽²⁹⁸⁾ that intervene on broader areas of the R&I system. These initiatives aim to strengthen the digital economy, boost public R&I investment, and attract global

⁽²⁹²⁾ There are 12 PERTE projects in the Spanish RRP, of which these 2 are managed by the Ministry of Science, Universities and Innovation (health and aerospace), although many other PERTES have a R&I dimension.

⁽²⁹³⁾ Government of Spain. (2021). *PERTE para la salud de vanguardia*. Retrieved August 24, 2025, [here](#).

⁽²⁹⁴⁾ Government of Spain. (2021). *PERTE Aeroespacial*. Retrieved August 24, 2025, [here](#).

⁽²⁹⁵⁾ Government of Spain. (2021). *Plan de incentivación Horizonte Europa*. Retrieved August 24, 2025, [here](#).

⁽²⁹⁶⁾ Government of Spain. (2023). *España Digital*. Retrieved August 24, 2025, [here](#).

⁽²⁹⁷⁾ Government of Spain. (2020). *Plan de Choque por la Ciencia y la Innovación*. Retrieved August 24, 2025, [here](#).

⁽²⁹⁸⁾ Government of Spain. (2022). *Plan de atracción y retención de talento científico e innovador*. Retrieved August 24, 2025, [here](#).

talent. The Pacto por la Ciencia y la Innovación ⁽²⁹⁹⁾ and the Estrategia Nacional de Ciencia Abierta ⁽³⁰⁰⁾ also reflect Spain’s broader commitment to advancing open, transparent, and well-financed science. Together, these efforts demonstrate that the RRF has become a cornerstone of Spain’s R&I landscape, though the sustainability of these measures post-RRF remains a critical question for the future.

Synergies with Other Funding Programmes

The RRF in Spain shows a high degree of complementarity with key EU funding instruments such as Horizon Europe (HE), Cohesion Policy (CP) Funds (especially the European Regional Development Fund (ERDF)), and the Connecting Europe Facility (CEF). Spain has been a strong performer in Horizon Europe ⁽³⁰¹⁾, ranking third in total funding received between 2021–2023, with over 5,600 entities participating in nearly 18,000 proposals. Spanish institutions not only participated widely but also led 16% of all collaborative projects funded under Horizon Europe, illustrating Spain’s leadership in R&I. Although complementarities with the RRF were foreseen, complex procedures to avoid double funding limited opportunities for co-funding. Nevertheless, thematic overlap is evident in fields like renewable energy and artificial intelligence, where Spanish projects have secured both Horizon Europe and RRF support.

Table 49 :Horizon Europe funding (2021-2027)

Horizon Europe	
Net EU contribution ⁽³⁰²⁾	EUR 4,47 million (10.47% of the HE total)
Signed grants	4869 (30.47% of the HE total)
Number of organisations involved in HE projects	11140 (11.22% of the total)
Rank HE contribution per inhabitant	16
Top three types of supported organisations	Research Organisations (38.6%), Private for-profit entities (31.7%), Higher or Secondary Education Establishments (21.9%)
Top 5 keywords	ecosystems; sustainable economy; climatic changes; machine learning; artificial intelligence

Source: [HE dashboard](#), Country profiles (mid-March 2025)

⁽²⁹⁹⁾ Government of Spain. (2021). *Pacto por la Ciencia y la Innovación*. Retrieved August 24, 2025, [here](#).
⁽³⁰⁰⁾ Government of Spain. (2023). *Estrategia Nacional de Ciencia Abierta (ENCA) 2023-2027*. Retrieved August 24, 2025, [here](#).
⁽³⁰¹⁾ CDTI. (2024). *España logra un récord de retorno de 3.416 millones de euros con el Programa Horizonte Europa entre 2021 y 2023*. Retrieved August 24, 2025, [here](#).
⁽³⁰²⁾ Please note that the data on Horizon Europe presented in the country fiches differ from those in the case studies due to methodological differences. In the country fiches, Horizon Europe data refer to the total net EU contribution. In the case studies, by contrast, the figures reflect the sum of allocations by investment area (an approach necessary to establish correspondences with Cohesion Policy and RRF support for the coherence analysis). Annex V in the main report defines each investment area. Discrepancies arise from the impossibility of assigning certain Horizon Europe calls to the investment areas used in this analysis.

Cohesion Policy, and in particular ERDF funds, play a reinforcing role alongside the RRF. Spain is set to receive EUR 35.6 billion during 2021–2027 from Cohesion Policy, with over EUR 9 billion allocated to R&I, green transition, and digitalisation. ERDF interventions have been aligned with national strategies like the Spanish Strategy for Science, Technology and Innovation and the Smart Specialisation Strategy. Complementarities are clear in the NRRP components related to R&I, notably through Component 17, which has helped launch new regional research units and fostered the formation of large research consortia. Further synergies are seen in the design of Complementary R&I Plans, jointly funded by the RRF and ERDF (the only one funded by the ERDF is the tech transfer plan), covering areas like marine science, quantum communication, and green hydrogen. These plans serve as vehicles to strengthen coordination between national and regional R&I agendas.

Additionally, the RRF has catalysed institutional reforms, such as the update of the Science, Technology, and Innovation Law, to improve governance and coordination in Spain’s R&I system. It also introduced mechanisms like the ‘Health Seal of Excellence’ grants, funded under Component 17, which supported high-quality health research projects. Complementarities extend to other EU programmes like CEF, where alignment with sustainable transport and automotive R&I has been clearly structured to avoid overlaps. Importantly, the RRF has not replaced national investment but rather increased overall R&I funding. However, stakeholders highlight concerns about post-RRF sustainability, especially in maintaining researcher positions beyond 2026. The RRF has thus served as a catalyst for long-term structural improvements, though ensuring continuity of funding remains a future challenge.

Table 50: Cohesion Policy funding (2021-2027)

Cohesion Policy	
Overall EU financing	EUR 35,56 billion
Total EU payments	EUR 963 million (2.71%)
R&I EU contribution ⁽³⁰³⁾	EUR 4,7 billion for SO 1.1 “Enhancing research and innovation”
Researchers with improved infrastructure (planned)	43060 annual FTEs

Source: [Cohesion data](#) (mid-March 2025).

Bottlenecks

No specific bottlenecks have been identified under the framework of this study.

⁽³⁰³⁾ Cohesion Policy support to R&I is derived from the [Cohesion Open Data Platform](#), based on EU amounts under Specific Objective (SO) 1.1 (“Enhancing research and innovation”) within the “Intervention Field” dimension. Data are based on the version of the platform as of 14 March 2025. Please note that the data on Cohesion Policy support to R&I in the country fiches differ from those in the case studies due to methodological differences: the fiches report the total amounts planned under SO 1.1, whereas in the case studies support is calculated as the sum of the amounts for each investment area, since focusing solely on the overall SO 1.1 allocation would have prevented an analysis by investment area (instrumental in establishing correspondences with Horizon Europe and RRF support for the coherence analysis). Annex V in the main report sets out the definition of each area.

Results and Achievements

Spain has focused its RRP on the science and innovation ecosystem, where substantial structural improvements are anticipated. These include better research infrastructure, stronger public-private partnerships, and enhanced career paths for researchers. The RRF has played a crucial role in strengthening Spain's research and innovation capacity, contributing 43.8% of the public R&I budget between 2021 and 2023 ⁽³⁰⁴⁾. Key performance indicators reflect this impact: R&D investment rose from 1.24% in 2019 to 1.49% of GDP in 2023, and the number of researchers and R&D staff significantly increased. Research excellence also improved, with more ERC grants and high-impact publications ⁽³⁰⁵⁾. Progress is evident in knowledge transfer metrics, such as patent licensing and business R&D expenditure, both of which saw measurable gains. Licensed patents per million inhabitants increased from 26.13 in 2019 to 28.70 in 2022, and business R&D investment rose from EUR 8.74 billion to EUR 10.9 billion. These trends affirm the substantial effect of RRF funding on Spain's innovation ecosystem, complementing national efforts and enhancing outcomes. Sectorally, Spain's RRP investments have made strong headway. In health, the PERTE for Cutting-Edge Health has executed 82% of its budget, supporting landmark projects such as SPAIN NEUROTECH and MARSII-Bionics ⁽³⁰⁶⁾. In green energy, Spain has advanced hydrogen and offshore wind development, supported by regulatory frameworks and over 50 major projects. Digital transformation has reached the cultural sector, with museums modernized through RRF investments ⁽³⁰⁷⁾. In AI, a new national strategy focuses on innovation and responsible development ⁽³⁰⁸⁾. Lastly, knowledge transfer initiatives like BlueSolar's thermos-photovoltaic plant showcase how RRF funding is enabling SMEs to lead in clean energy innovation ⁽³⁰⁹⁾. Overall, Spain's plan is delivering tangible, transformative results across multiple strategic areas.

⁽³⁰⁴⁾ Spanish Ministry of Science, Innovation and Universities (2025). *Seguimiento y evaluación de la EECTI 2021-2027*. Retrieved August 24, 2025, [here](#).

⁽³⁰⁵⁾ Ibid.

⁽³⁰⁶⁾ Government of Spain. (2024). *PERTE Para la Salud de Vanguardia*. Retrieved August 24, 2025, [here](#).

⁽³⁰⁷⁾ Government of Spain. (2024). *Los Museos Estatales estrenan visitas virtuales en alta resolución*. Retrieved August 24, 2025, [here](#).

⁽³⁰⁸⁾ Government of Spain. (2024). *Estrategia de Inteligencia Artificial 2024*. Retrieved August 24, 2025, [here](#).

⁽³⁰⁹⁾ CDTI. (2024). *Noticias sobre el Proyecto BlueSolar*. Retrieved August 24, 2025, [here](#); Government of Spain. (2023). *Informe sobre los avances de la Estrategia Nacional de Inteligencia Artificial*. Retrieved August 24, 2025, [here](#).

26. Sweden

Introduction

Sweden has allocated EUR 286,4 million ⁽³¹⁰⁾ from its Recovery and Resilience Plan (RRP) ⁽³¹¹⁾ to support R&I initiatives, representing 8,3% of the total national RRP funding (EUR 3,446 million, as of 02/04/25) ⁽³¹²⁾. R&I funding has been fully allocated to the Green transition primary pillar.

Sweden has 2 sub-measures, both investments, on its RRP and are associated with 3 targets. To date ⁽³¹³⁾, none of the 3 R&I-related targets has been assessed as fulfilled, as they are scheduled for completion by the end of 2025 and in 2026. Thus, the related quantitative target indicators have not yet been fulfilled. The planned measures include the award of funding in 2025 to projects with the potential to reduce carbon dioxide emissions. In 2026, financial support is expected to be disbursed to additional projects with similar emission reduction potential.

Interplay of Reforms and Investments

Sweden's RRP is structured around six main components aligned with national priorities, including the green transition, education, digitalisation, and energy. The Green Recovery component (CA 1) specifically targets climate-related investments, with a strong focus on industrial sustainability and innovation. Importantly, the RRP does not include any R&I reforms—only investments. Central to this component is the **“Industry Leap/ Industriklivet”** ⁽³¹⁴⁾ (C.A I2) initiative, which fosters collaboration between enterprises to accelerate Sweden's transition to low-carbon, resource-efficient industrial practices. Projects under the Industry Leap include investments relating to research, pilot plants, feasibility studies and preliminary studies for investments. The measure includes two sub-measures: the **“investment in the industrial sector focusing on low carbon economy, resilience and adaptation to climate change”** (C.A I2.1), which promotes the adoption of green technologies, carbon capture, and renewable energy solutions to reduce emissions and enhance energy efficiency across energy-intensive sectors, and the **“investment in the industrial sector focusing on circular economy”** (C.A I2.2), which focuses on improving resource efficiency, recycling technologies, and sustainable supply chains. Together, these **two distinct investment sub-measures address the common challenge of sustainable industrial transformation**, creating synergies by targeting complementary aspects of the green transition. While C.A I2.1 reduces emissions through low-carbon technologies, C.A I2.2 lowers raw material dependency through circular economy solutions, both contributing to a more competitive and climate-resilient industrial sector. By promoting these complementary investments, the RRP aims to drive synergies between carbon reduction technologies and circular practices, reducing waste, lowering energy demand, and supporting Sweden's goal of net-zero emissions by 2045.

⁽³¹⁰⁾ Fenix database.

⁽³¹¹⁾ European Commission. (2022). Sweden's recovery and resilience plan. Retrieved April 7, 2025, [here](#).

⁽³¹²⁾ European Commission. (2025). *RRF Scoreboard: Country Overview*, [here](#).

⁽³¹³⁾ Fenix database, last extracted on 31/03/2025.

⁽³¹⁴⁾ Swedish Energy Agency. (n.d.). *The Industrial Leap*. Retrieved May 8, 2025, [here](#).

Integration into Domestic R&I Policy Mix

While the RRP is not explicitly referenced in Sweden's **National Energy and Climate Plan (NECP)** ⁽³¹⁵⁾, its R&I measures are closely aligned with Sweden's national climate and innovation policy framework. In particular, they contribute to achieving the objectives of the **Swedish Climate Act and the Climate Policy Framework** ⁽³¹⁶⁾, notably the legally binding target of net-zero greenhouse gas emissions by 2045. Although not formally integrated into all strategic documents, the RRP's climate-related R&I investments complement and reinforce national policy priorities in practice. A key measure, the "Industry Leap/Industriklivet" (C.A I2), plays a central role by funding projects aimed at reducing greenhouse gas emissions in the industrial sector, including carbon capture and storage (CCS), low-carbon technologies, and circular economy innovations in energy-intensive sectors like steel and cement. Investments in low carbon economy, resilience and adaptation to climate change (CA I2.1) and in circular economy solutions (CA I2.2) directly support long-term emissions reduction targets. At the national level, Industriklivet, launched in 2018 by the Swedish Energy Agency, shows strong co-funding synergies with the RRP, supporting CCS, hydrogen technologies, and electrification projects that complement the RRP's industrial decarbonisation efforts. The integration of RRP and national funding under Industriklivet demonstrates a deliberate and effective alignment of resources, enhancing both policy coherence and project scalability. In addition, Sweden's Strategic Innovation Programmes (SIPs) enhance access to national R&I funding and foster collaboration, reinforcing RRP-supported initiatives. Overall, the RRF has complemented existing national R&I mechanisms. Although some **substitution** occurred during the early post-pandemic period, national funding has since resumed alongside the RRF, reflecting a balanced co-financing approach. A key limitation is the RRF's strict exclusion of fossil-based energy projects, which, though aligned with EU climate goals, may limit synergies with national programmes. At the same time, it has also helped scale up the Climate Leap (Klimatklivet) programme, beyond what national funds could achieve alone. Still, the Swedish National Audit Office warns of overlaps with initiatives like the Climate Step (Klimatsteget), highlighting the need for stronger coordination. Looking ahead, some RRP-supported projects are expected to yield emissions reductions through 2035. National funding is secured through 2030, and discussions are ongoing on continued support beyond that point. There is broad consensus among policy-makers that Industriklivet will remain a central instrument in Sweden's ecological transition and innovation strategy.

Synergies with Other Funding Programmes

Sweden has strategically leveraged synergies between its RRP investments and various EU funding programmes to maximise efficiency and impact in its sustainable industrial transformation. At the EU level, **synergies are particularly evident within the business innovation area** ⁽³¹⁷⁾, notably between the "Industry Leap/Industriklivet" (C.A I2) and both **Horizon Europe (HE)** ⁽³¹⁸⁾ and **Cohesion Policy (CP)** programmes.

With a net EU contribution of EUR 1.42 billion, Swedish institutions benefit from access to international projects in areas like climate, sustainability, and industrial innovation, as detailed in Table 51. BIO-FlexCLC, a Horizon Europe project, exemplifies **upstream/downstream**

⁽³¹⁵⁾ Swedish Government. (2023). *National Energy and Climate Plan (NECP)*. Retrieved April 8, 2025, [here](#).

⁽³¹⁶⁾ Swedish Environmental Protection Agency. (2021). *Swedish Climate Act and the Climate Policy Framework*. Retrieved April 8, 2025, [here](#).

⁽³¹⁷⁾ Based on R&I measures categorisation developed by the Study Team.

⁽³¹⁸⁾ European Commission. (n.d.). *Horizon Europe (HE)*. Retrieved April 8, 2025, [here](#).

synergies, with its research on biomass and carbon capture technologies feeding into C.A I2's downstream demonstration and pilot projects, accelerating Sweden's decarbonisation and circular economy goals. This collaboration shows how upstream/downstream planned synergies align scientific research with market-ready solutions, speeding up industrial decarbonisation.

Table 51: Horizon Europe funding (2021-2027)

Horizon Europe	
Net EU contribution ⁽³¹⁹⁾	EUR 1,420 million (3,33% of the HE total)
Signed grants	1931 (12,08% of the HE total)
Number of organisations involved in HE projects	2811 (2,83% of the total)
Rank HE contribution per inhabitant	18
Top three types of supported organisations	Higher or Secondary Education Establishments (59,2%), Private for-profit entities (22,3%), Research Organisations (9,5%)
Top 5 keywords	ecosystems; climatic changes; sustainable economy; machine learning; governance

Source: [HE dashboard](#), Country profiles (mid-March 2025).

Cohesion Policy funds, particularly the **European Social Fund Plus (ERDF)** ⁽³²⁰⁾, provide additional support to Sweden's RRP R&I initiatives, contributing EUR 225,5 million to regional innovation programmes, as shown in Table 52.

A key example of **co-funding** and **sequential logic** is the relationship between the **ERDF-funded ALMI Invest Greentech** initiative and C.A I2.1, which supports early-stage green innovation among SMEs and start-ups, while C.A I2 scales up low-carbon technologies in energy-intensive industries.

More generally, ERDF R&I funding strengthens Sweden's innovation capacity and industrial competitiveness, including infrastructure improvements that benefit 310 researchers annually. The **Just Transition Fund (JTF)** further complements C.A I2 by focusing on workforce reskilling, resource efficiency, and climate-smart technologies in carbon-intensive regions like **Norrbottn** and **Gotland**, creating **enabling conditions** for industrial decarbonisation.

⁽³¹⁹⁾ Please note that the data on Horizon Europe presented in the country fiches differ from those in the case studies due to methodological differences. In the country fiches, Horizon Europe data refer to the total net EU contribution. In the case studies, by contrast, the figures reflect the sum of allocations by investment area (an approach necessary to establish correspondences with Cohesion Policy and RRF support for the coherence analysis). Annex V in the main report defines each investment area. Discrepancies arise from the impossibility of assigning certain Horizon Europe calls to the investment areas used in this analysis.

⁽³²⁰⁾ European Commission. (2021). *European Regional Development Fund (ERDF)*. Retrieved April 8, 2025, [here](#).

Table 52: Cohesion Policy funding (2021-2027)

Cohesion Policy	
Overall EU financing	EUR 1,7 billion
Total EU payments	EUR 213 million (12,37%)
R&I EU contribution ⁽³²¹⁾	EUR 225,5 million for SO 1.1 “Enhancing research and innovation”
Researchers with improved infrastructure (planned)	310 annual FTEs

Source: [Cohesion data](#) (mid-March 2025).

Bottlenecks

Sweden faces specific implementation bottlenecks in its RRP, particularly within the green transition component ⁽³²²⁾. Challenges directly linked to RRP-funded measures include delays in the “Industry Leap/Industriklivet” (C.A I2) due to limited grid capacity and the nascent state of CCS technologies, as well as permitting complexities and skilled labour shortages affecting low-carbon and circular economy investments ⁽³²³⁾. In response, Sweden is simplifying environmental permitting and investing in workforce upskilling ⁽³²⁴⁾. However, persistent issues such as **administrative fragmentation** at the project level, limited coordination between RRP and other national initiatives like the Climate Step, and barriers faced by smaller stakeholders due to low administrative capacity continue to hinder efficient implementation. The large number of funded projects has also created significant **challenges in follow-up and monitoring**. The most pronounced difficulties have emerged during the reporting phase, particularly in providing adequate data to the European Commission to demonstrate the fulfilment of milestones and targets. In some cases, projects had to be excluded from RRF funding because they could not sufficiently demonstrate compliance. This exclusion approach was adopted to ensure the overall integrity of milestone tracking and compliance with RRF requirements. While the RRF framework has helped drive coordinated investment, its structured nature has also imposed limitations on flexibility. In situations where adjustments to RRP measures were not feasible within the RRF framework, Sweden relied on national funding mechanisms to complement and adapt support to evolving needs. This combination of EU and national funding has helped maintain responsiveness to emerging priorities, including energy market shifts, regulatory developments, and technological readiness. Targeted support and stronger coordination

⁽³²¹⁾ Cohesion Policy support to R&I is derived from the [Cohesion Open Data Platform](#), based on EU amounts under Specific Objective (SO) 1.1 (“Enhancing research and innovation”) within the “Intervention Field” dimension. Data are based on the version of the platform as of 14 March 2025. Please note that the data on Cohesion Policy support to R&I in the country fiches differ from those in the case studies due to methodological differences: the fiches report the total amounts planned under SO 1.1, whereas in the case studies support is calculated as the sum of the amounts for each investment area, since focusing solely on the overall SO 1.1 allocation would have prevented an analysis by investment area (instrumental in establishing correspondences with Horizon Europe and RRF support for the coherence analysis). Annex V in the main report sets out the definition of each area.

⁽³²²⁾ European Commission. (2023). *EC Annual Reports on RRF implementation: 2023 Country Report - Sweden*. Retrieved April 8, 2025, [here](#).

⁽³²³⁾ Swedish National Audit Office. (2024). *Industriklivet Audit Report: Planering, genomförande och uppföljning*. Retrieved April 8, 2025, [here](#).

⁽³²⁴⁾ European Commission. (2024). *RRF Mid-term Evaluation*. Retrieved April 8, 2025, [here](#).

mechanisms are needed to improve alignment, reduce overlap, and ensure more inclusive access to RRP funding.

Results and Achievements

Although it is still early to fully assess the impact of Sweden's R&I measures under the RRP, as no milestones or targets have yet been officially met, initial progress is evident in the area of **Business innovation**, in the form of **Grants for RDI in enterprises**, through the Green Recovery component and the implementation of the "Industry Leap/Industriklivet" (C.A I2) measure. This initiative has funded several large-scale industrial demonstration projects aimed at decarbonising emission-intensive sectors, with projected greenhouse gas emission reductions of 230,000 tonnes, contributing to Sweden's climate targets and EU goals ⁽³²⁵⁾. Investments in low-carbon technologies, such as hydrogen-based industrial processes, carbon capture and storage, and circular economy solutions, are progressing as part of these efforts. The integration of RRP-funded projects within existing national frameworks has facilitated smoother implementation. The RRF has played a key role in advancing scientific excellence and fostering innovation in sustainable technologies, while the Industrial Leap has helped position Sweden as a leader in the green transition and in building a competitive green industry. Swedish SMEs have made notable progress in adopting sustainability practices, surpassing the EU average in areas like waste minimisation and energy savings ⁽³²⁶⁾. Sweden has also reduced its Raw Material Consumption (RMC), achieving around 22 million tonnes per capita annually from 2020 to 2023 ⁽³²⁷⁾, while improving resource productivity, demonstrating more efficient material use across the economy ⁽³²⁸⁾. While these achievements reflect broader national efforts and cannot be directly attributed to the RRF, the RRP R&I measures are expected to further reinforce and accelerate such positive trends over time.

⁽³²⁵⁾ European Commission. (2023). *Study supporting the mid-term 2023 evaluation of RRF*. Retrieved April 8, 2025, [here](#).

⁽³²⁶⁾ European Commission. (2024). *Factsheet Flash Eurobarometer 549 SMEs, resource efficiency and green markets*. Retrieved April 8, 2025, [here](#).

⁽³²⁷⁾ European Environment Agency. (2024). *Circular economy country profile 2024 – Sweden*. Retrieved April 8, 2025, [here](#).

⁽³²⁸⁾ Eurostat. (2024). *Resource productivity: Sweden*. Retrieved April 8, 2025, [here](#).

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This document provides a country-by-country overview of how each Member State has implemented research and innovation (R&I) measures supported by the Recovery and Resilience Facility (RRF). The country fiches summarise the allocation of RRF funding to R&I, the interplay between reforms and investments, integration with domestic policy frameworks, synergies with other EU and national funding programmes, and key achievements and bottlenecks.

Studies and reports

