



**Advancing Sustainable Energy Systems Innovation
Since 2009**

Research | Education | Policy | Impact

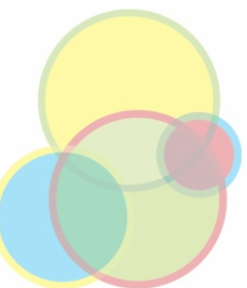
From Widening to Transformation: European Universities as Engines of Inclusion and Innovation

The Role of European Alliances in Fostering Widening R&I for the Twin Transitions

In: Bridging the Gap: Academic and Policy Insights into European Research Integration

17 June 2026, 15.30 – 16.30

- 1. Global Competitiveness**
- 2. Widening Challenges and Needs**
- 3. Best Practice Cases**
- 4. ESEIA in a Nutshell**
- 5. How to get involved**



[Draghi Report on the Future of Competitiveness 2024: innovation gap](#)

European Commission: RTD,
[European Innovation Scoreboard 2025](#)

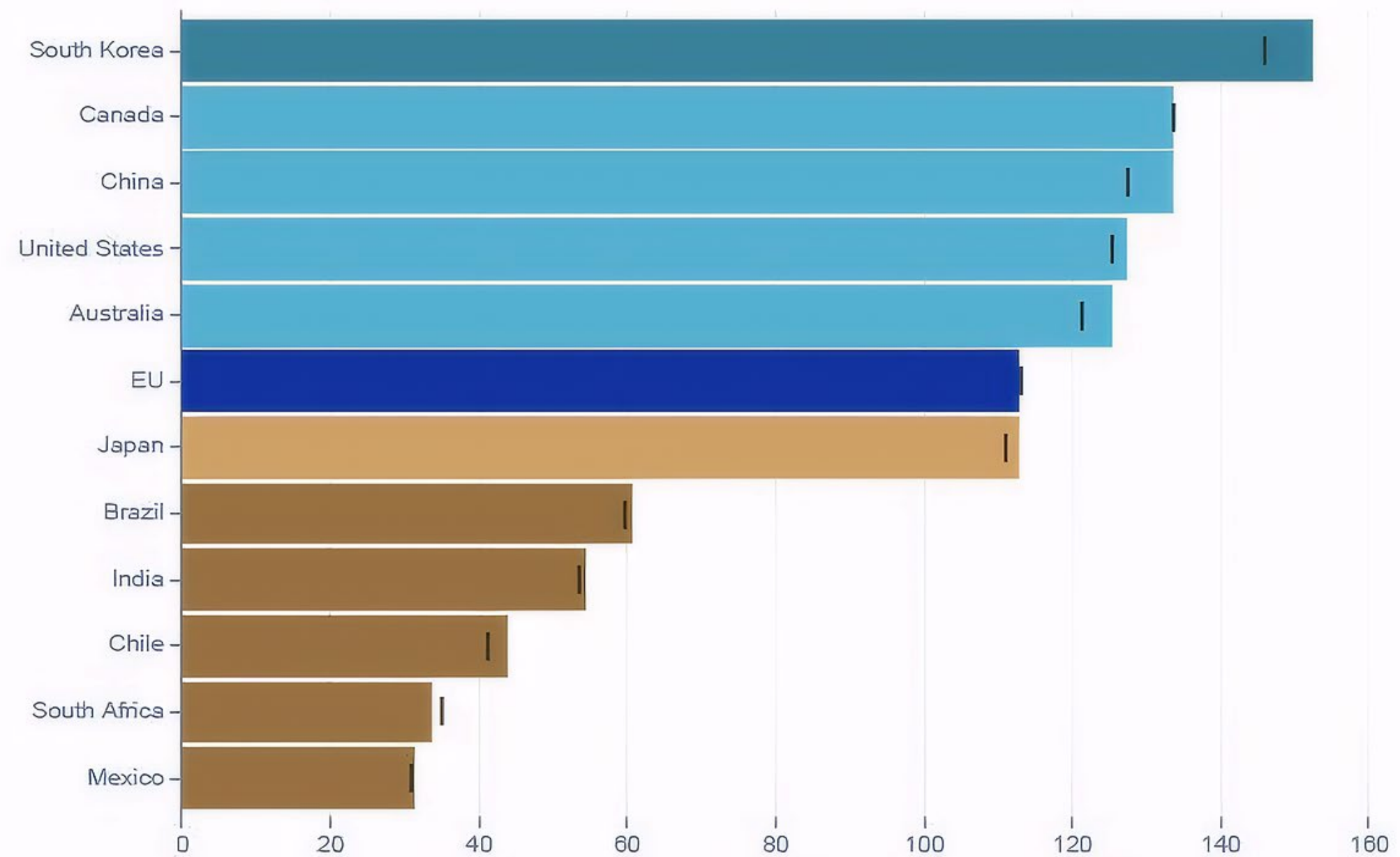
1. Innovation Leader: South Korea

2.-6. Strong Innovators

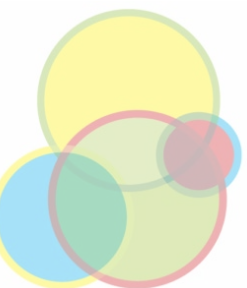
2. Canada, 3. China, 4. USA, 5. Australia, **6. EU**

7. Moderate Innovator: Japan

Figure 33: Innovation performance of the EU and its global competitors



Summary innovation index in 2025 (indexed to the EU in 2018)



European Commission: RTD,
***European Innovation
Scoreboard 2025***

Innovation Leaders: 1st CH,
*(not in the graph as they are
non EU), Sweden, DK, NL, 5th
UK, FI*

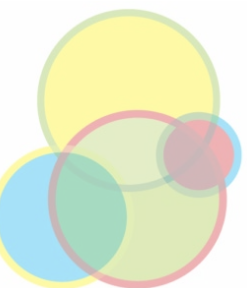
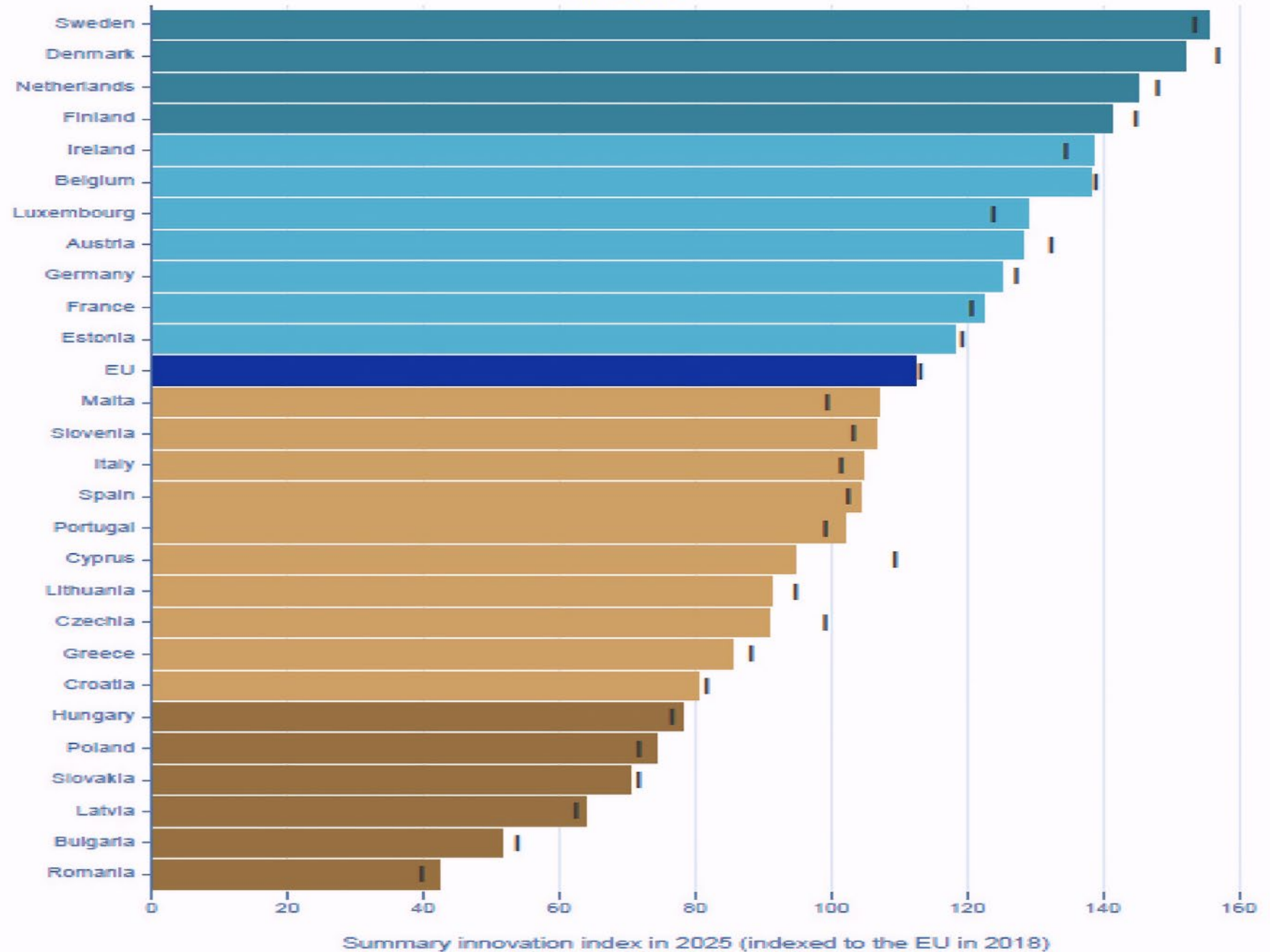
***Strong Innovators: six small
countries are leading IE, BE,
NO, LU, AT, IS followed by
large DE, FR, and small
Estonia which is the only EU
Widening in this group.***

***Moderate Innovators: led
by Malta and SI followed by
IT, ES, PT, and CY***

***Emerging Innovators: led by
HU***

1. EU Innovation Performance

Figure 2: Innovation performance of the EU27 Member States in 2025, Indexed to the EU in 2018



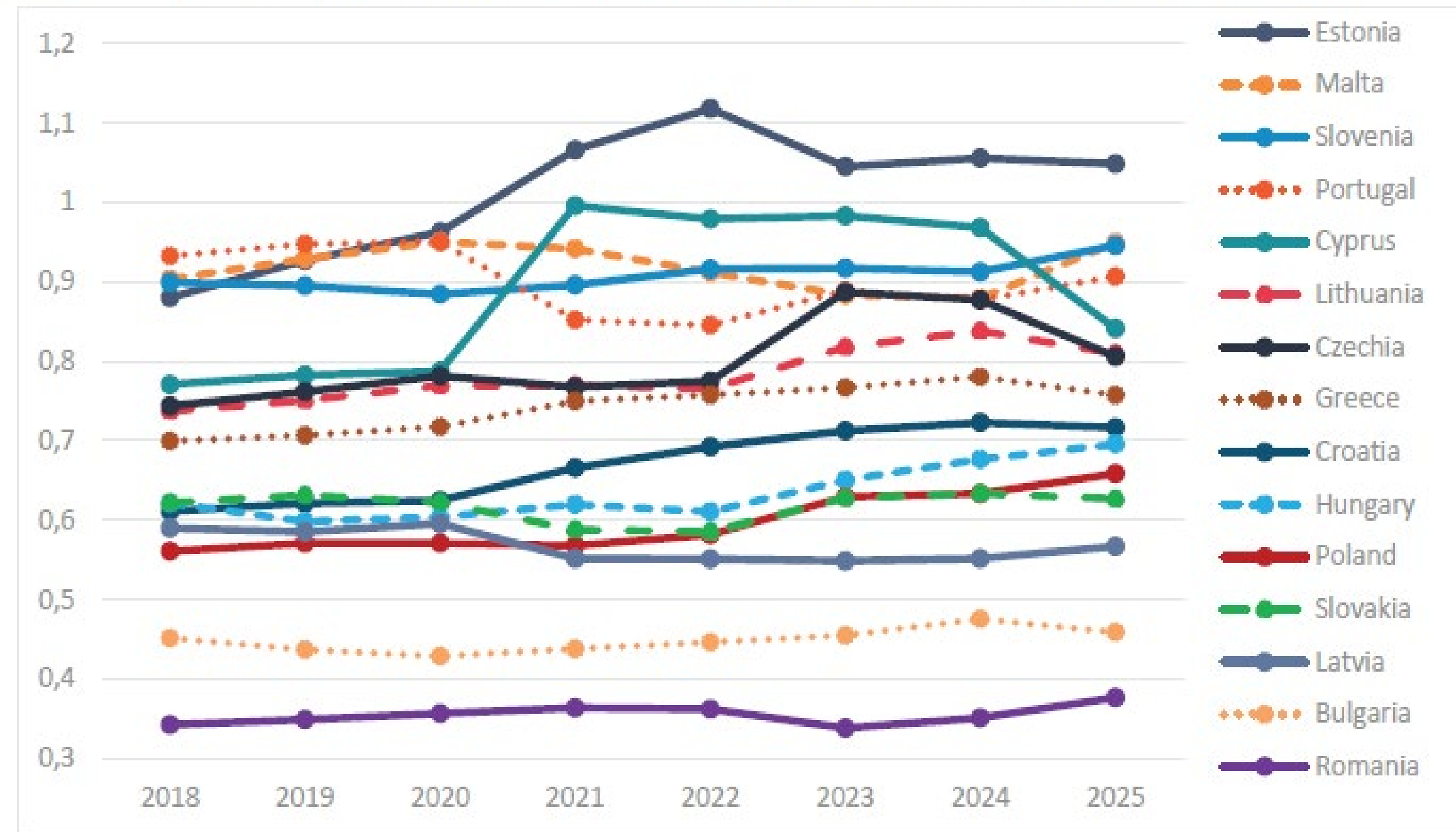
1. Widening Indicator: EP Study

[Widening Indicator:
Leveraging the potential for
inclusive European research
and innovation](#), EPRS |

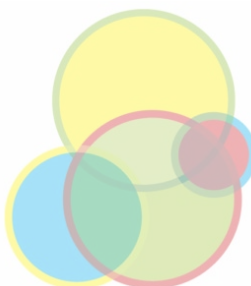
European Parliamentary
Research Service Scientific
Foresight Unit (STOA) PE
774.682 – May 2026
Veugelers, Reinhilde

1st Estonia above EU mean
Upward trend: Malta 2nd, SI
3rd, PT 4th, HU10th, PL
11th, LT13th, RO15th
Downward: CY dropped from
2nd to 5th since 24

Figure 3 – Trends in Innovation Performance (SII score) of the 'Widening' Countries



Source: Own calculations based on [EC-JRC EIS2025](#) data.



2. Similar Challenges for Green and Digital Transitions

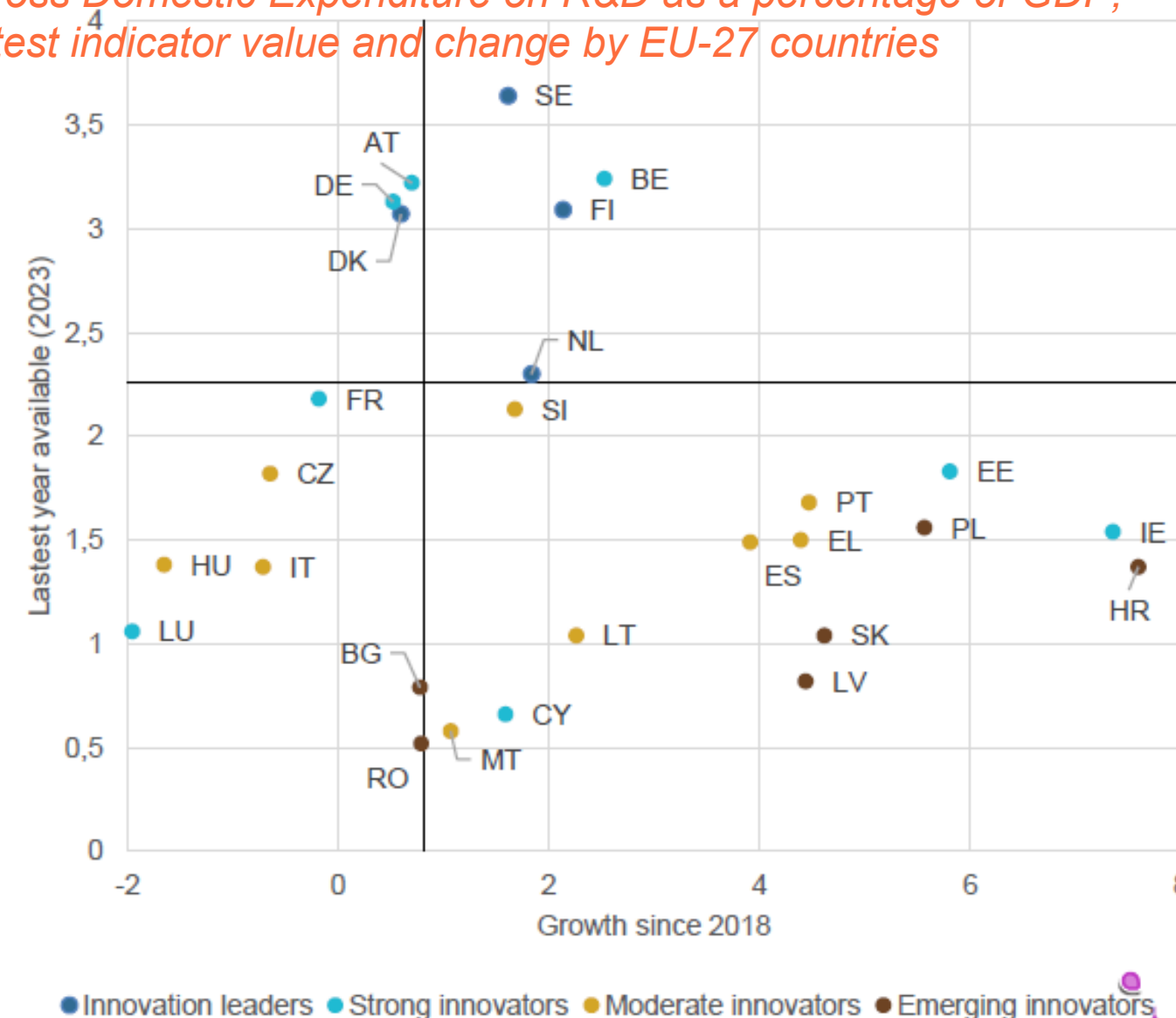
Green and Digital Transition Challenges in Widening:

- financial and regulatory barriers (sandboxes)
- insufficient incentives for investors (high risk)
- bureaucratic obstacles absence of connection fees for RES
- high initial costs and for scaling up solutions
- limited market access and complexity of backup systems
- lack of legislation to support energy communities
- outdated grid infrastructures,
- cloud to store vast data, supercomputing to process data, cybersecurity to protect sensitive sectors, and advanced networks for transmission
- shortage of skilled employees, lack of digital literacy

Source: [INITIATE Deliverable 1.2 - Report on policy barriers and requirements](#), Brigitte Hasewend, ESEIA, October 2024

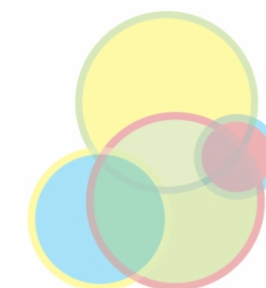
Compare: [Strategic Energy Technology Plan Task Force Access to the Market findings on market obstacles for clean technologies](#)

Gross Domestic Expenditure on R&D as a percentage of GDP, latest indicator value and change by EU-27 countries



Source: Eurostat, OECD, UNESCO UIS. Calculations by Fraunhofer ISI.

[ERA Scoreboard 2025](#)

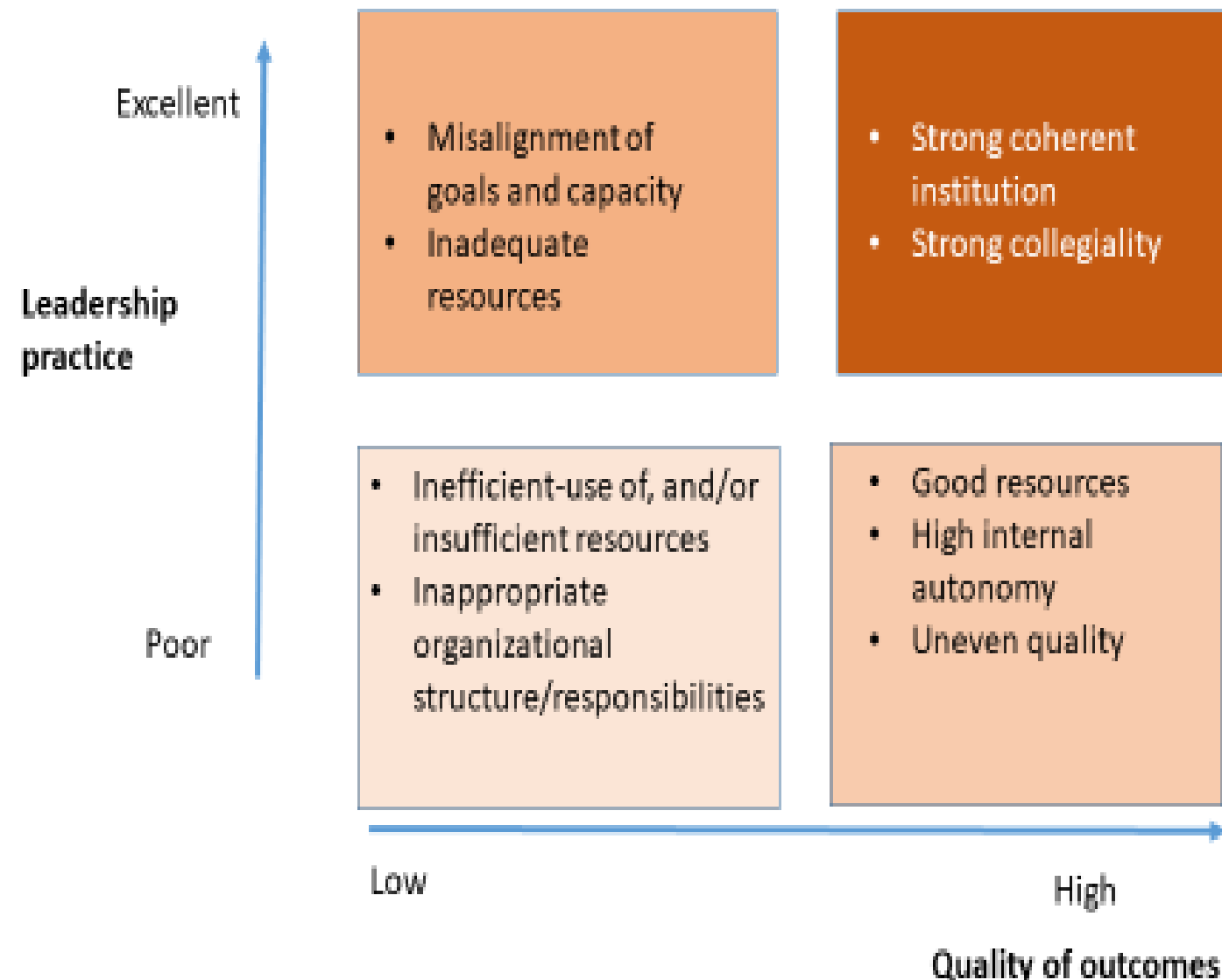


2. Systemic Widening R&I Challenges and Needs

An indicative mapping of university leadership effectiveness to quality of outcomes

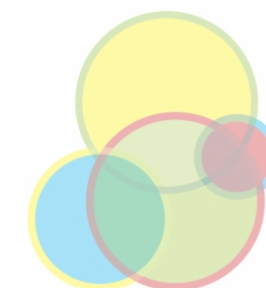
R&I Challenges for Widening countries include:

- inadequate funding
- Innovation unfriendly governance
- poor strategic planning, both on national and institutional levels
- restrictive legislation which complicates the establishment of spin-offs
- weak eco-system partnerships between HEIs, ROs, industry, and public bodies
- lack of talent because of a lack of defined PhD positions and restrictive employment policies
- bureaucratic obstacles and complex administrative procedures
- Lack of adequate R&I infrastructures



Source: [INITIATE Deliverable 1.2](#) - Report on policy barriers and requirements, Brigitte Hasewend, ESEIA October 2024

Source: ESEIA President Brian Norton, October 2024, External Evaluator, EUA-IEP in [INITIATE Deliverable 2.1](#). ESEIA, 2024



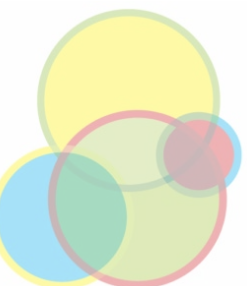
SUPPORTING EUROPEAN R&I THROUGH STAKEHOLDER COLLABORATION AND INSTITUTIONAL REFORM

20 best practice cases were rated (High to Moderate) in terms of their impact and effectiveness.

Primary focus on permanent structures, that are pervasive, and that are trusted because they respond to the needs of the research and innovation communities and address the twin challenges effectively.

- 1. University Alliances (High)**
- 2. R&I infrastructures (High)**
- 3. Innovation hubs (High)**
- 4. Entrepreneurial education and training (High), and**
- 5. EU funded R&I projects for green and digital transition (High to Moderate).**

Source: [INITIATE Deliverable 1.2](#) - Report on policy barriers and requirements, Brigitte Hasewend, ESEIA, October 2024



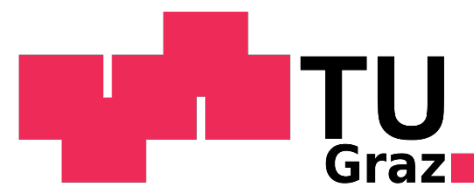
TOP 3 BEST PRACTICE TO SUPPORT AND ENHANCE R&I

1. University Alliances

- International Partnerships to enhance R&I performance
- ESEIA Working Groups involve the entire innovation ecosystem
- Create synergies and foster interdisciplinary research
- Most effective for the twin transitions
- Capacity building of research staff through joint training events and exchanges
- Permanent and Pervasive structure

2. R&I Infrastructures

- Act as central research hub and concentrate expertise
- Research programmes which combine business and science
- Joint interdisciplinary research
- Best practice: TU Graz leads 16 [Competence Centers](#) (5 K1 + 11 K2) in Austria (COMET)

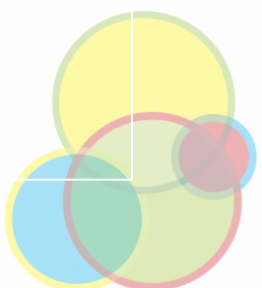


3. Innovation Hubs

Digital Innovation Hub of Portugal, PTCentroDiH: Advances Digital and green innovation through education, training, and developing R&I infrastructure.

INNOFEIT of Macedonia: advances sustainable energy and digital innovation by supporting renewable energy technologies and digital solutions in industry.

Source: [INITIATE Deliverable 1.2 - Report on policy barriers and requirements](#), Brigitte Hasewend, ESEIA, October 2024



TOP 4-5 BEST PRACTICE TO SUPPORT AND ENHANCE R&I

4. Entrepreneurial Education and Training

- Fostering **entrepreneurial education and training for the twin transitions** is key
- HEIs curricula addressing **key challenges from industry**
- Systematically supporting **capacity-building measures** including staff exchanges and job shadowing
- ESEIA Lecture Series: ref. [ESEIA Education and Training programme](#)

Source: [INITIATE Deliverable 1.2](#) - Report on policy barriers and requirements, Brigitte Hasewend, ESEIA, October 2024

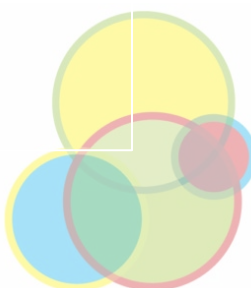


5. EU funded R&I Projects

- **Widening R&I critically depends on advanced EU R&I** for the exchange of knowledge, concepts, methodology, and tools to spread excellence
- **EU critically depends on the creative power of Widening R&I for growing ERA** to overtake global R&I market leaders

Lessons learnt for Future FP10:

- **Systematically involve partners from Widening** into ERA (not just on a project by project basis)
- **Open up research infrastructure for Widening permanently**
- **Tailor EU Widening R&I measures to specific needs** (ref. Study [EP Widening Indicator](#))



ESEIA is a leading European non-profit association of research and innovation organizations in sustainable energy systems.



What is our Vision?

Enable Europe to reach its renewable energy targets as outlined in the Green Deal and the Clean Industrial Deal by contributing research for innovative solutions, as well as education and training for a climate-neutral sustainable energy system by 2050.



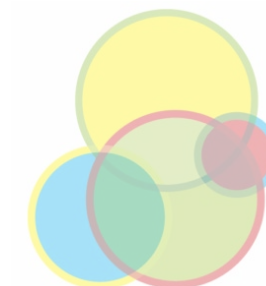
How do we work?

The ESEIA Working Groups (WGs) are the key drivers of the Association. They are the main forum for codesign and collaboration. The ESEIA WGs coordinate expertise from our members in key innovation areas.



How does ESEIA engage?

ESEIA coordinates sustainable energy innovation projects, organizes expert panels, designs entrepreneurial education and training events, fosters international cooperation, and promotes dialogue with European citizens.



22
Member
Organisations

13
EU
Countries



Represents the entire innovation ecosystem:



Research



Education



Industry

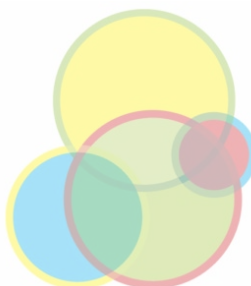
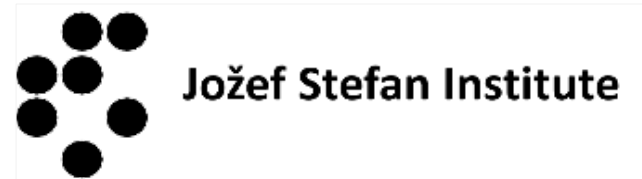


Government



4. Best Practice: ESEIA in a Nutshell

Member Organisations



4. Best Practice: ESEIA in a Nutshell

Three Areas of Impact



1

Setting the Agenda for Renewables in the European Market

Advising European Commission decision-makers on knowledge gaps and implementation instruments to accelerate renewable energy adoption.



2

Capacity Building for People and Institutions

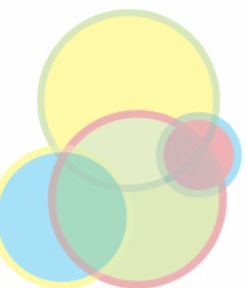
Developing skills, knowledge, and institutional frameworks through education, training programs, and collaborative learning initiatives.



3

Forging International Partnerships

Supporting the EU Global Approach to Research & Innovation through strategic collaborations with international organizations.



4. Best Practice: ESEIA in a Nutshell



Working Groups

350

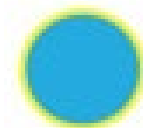
ACTIVE EXPERTS

5

WORKING GROUPS

THEMATIC WORKING GROUPS

HORIZONTAL WORKING GROUPS



WG 1 Bioresources Utilization

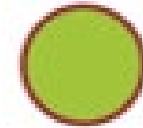
Coordinator:

Michael Bongards
TH Cologne, DE



Focus Groups:

- 1: Biorefineries, BioFuels
- 2: Circular Bioeconomy
- 3: Bioenergy usage scenarios



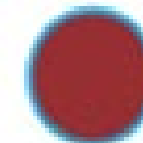
WG 2 Energy Transition in Urban Regions

Coordinator:

Goran Krajačić
UNIZAG, HR



- 1: Smart Mobility
- 2: Smart Grids
- 3: Sustainable Built Environment
- 4: Advanced Computing



WG 3 Smart Energy Materials

Coordinator:

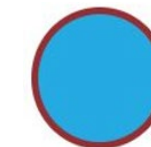
Tina Zuzek
JSI, SI



WG 4 Governance, Business Models and Legal Frameworks

Coordinator:

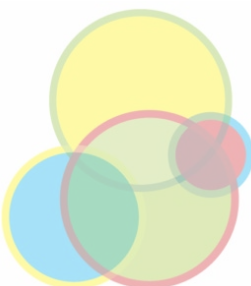
Frans Coenen
UTwente, NL

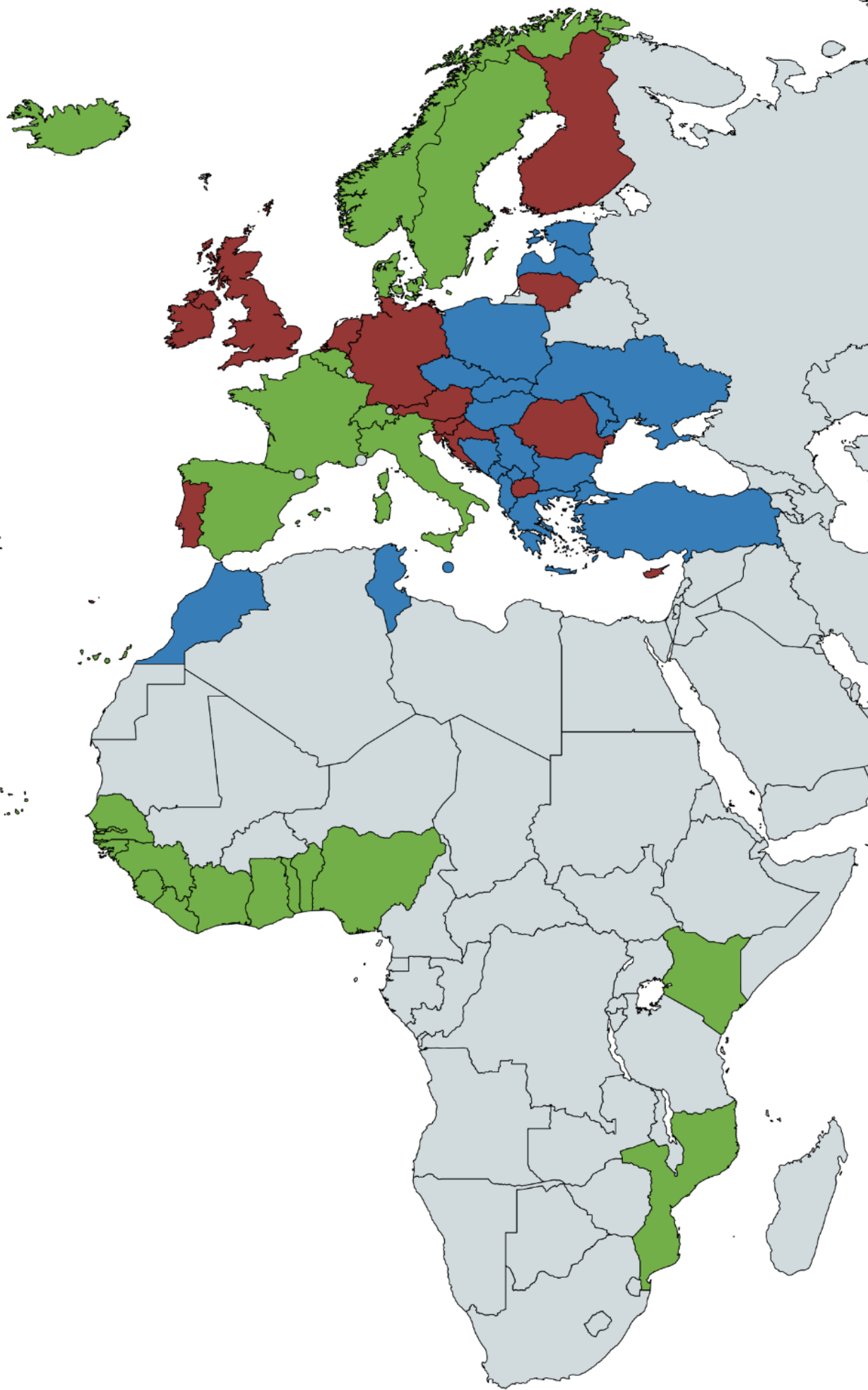


WG 5 Education and Training

Coordinator:

Fabio Montagnino
CYI, CY





4. Best Practice: ESEIA in a Nutshell



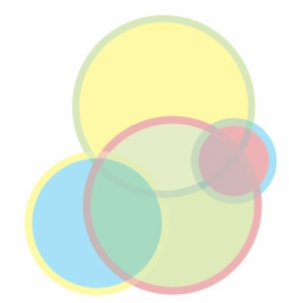
Members and Partnerships

6
Member
Organisations
from Widening
Countries

350
Partner
Organisations


53
Countries
Including
19
Widening
Countries

- ESEIA Members
- ESEIA Partners
- Widening Partners




1,900
Participants


49
Events
Organized


7
Formats

Target Groups


Postgraduate
Students


Professionals,
i.e. Policy-Makers


Interested
Public

4. ESEIA in a Nutshell



Education and Training Programme (ETP)

Green Energy Solutions

7TH ESEIA INTERNATIONAL CONFERENCE

23-25 November 2026, Lisbon, Portugal



7th ESEIA International Conference | Green Energy Solutions, 23–25 November 2026 | hosted by LNEG, Lisbon, PT

Key topics: Sustainable aviation fuels, clean energy systems modelling, R&I for the triple transitions, market access for clean energy technologies, bio-based and bio-fabricated materials, ESEIA start-ups

[Website and registration](#)

INITIATE



EEl: Supporting European R&I Through Stakeholder Collaboration And Institutional Reform

2024-2027

AIM: Empower and strengthen R&I in European higher education institutions using a collaborative and inclusive approach. The project focuses on institution-wide changes through stakeholder engagement and co-design methodologies.

WIDENING PARTNERS: Uni Zagreb (HR), CYI (CY), JSI (SI), NURE (UA), BrainIT (HR), B1 (HR), UMP (MA), VINCA (RS), UKIM (MK), EPBiH (BA), ISCTE (PT), LPNU (UA), UTBv (RO)

4. ESEIA in a Nutshell



Ongoing Projects



An Integrated Biorefinery For Sustainable Aviation Fuel Production From Tomato Residues

2026-2029

AIM: Develop a next-generation integrated, energy- and material-efficient biorefinery concept to transform agricultural waste streams, particularly tomato residues, into high-value products like sustainable aviation fuel.

WIDENING PARTNERS: LNEG (PT), Uni Zagreb (HR), Podravka (HR)

FURTHER PARTNERS: TU Graz (AT), TU Vienna (AT), LUT (FI), Fraunhofer (DE), MUL (AT), EEIP (BE), Mutti (IT)



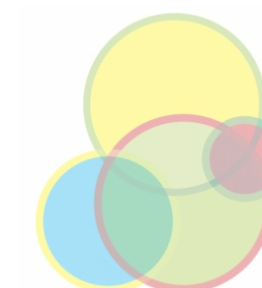
Energy System Modelling For Green Development Of Africa

2023-2026

AIM: Provide African policy makers, academics, investors and citizens with the tools and knowledge required to increase the production of clean energy and the sustainable use of resources while bridging cultural and socioeconomic divides.

WIDENING PARTNERS: Uni Zagreb (HR), UMP (MA), BrainIT (HR)

FURTHER PARTNERS: EnGreen (IT), CARTIF (ES), CIRCE (ES), Artelys (FR), ECREE-ECOWS (CP), Universidade Eduardo Mondlane (MZ), AfriLabs (NI)





— [ESEIA FP10 Position Paper](#), Article by ESEIA Director Brigitte Hasewend ([EEI Magazine 2024](#))

Five Key Recommendations for FP10:

1. Enhance Role of European Thematic Alliances	2. Foster Global Innovation Eco-system Partnerships	3. Prioritise Horizontal Topics in Research and Innovation	4. Ensure Actionability of the Framework Programme	5. Provide Room for Self-Organisation and Entrepreneurship
<ul style="list-style-type: none"> • AT POLICY LEVEL: Involve European Alliances from design to implementation. • AT PORTFOLIO LEVEL: Jointly create exploitation pathways. • AT PROJECT LEVEL: Use European Alliances as sounding boards for new R&I topics. 	<ul style="list-style-type: none"> • Increase International Relevance by creating international innovation ecosystem partnerships for co-creation. • Enhance international access to R&I Infrastructure. • Implement strategies to effectively facilitate capacity building. 	<ul style="list-style-type: none"> • Prioritizing cross-cutting horizontal topics. • Provide support for deep tech projects fostering sustainability. • Boost Excellence and Innovation by providing support mechanisms tailored to Widening countries. 	<ul style="list-style-type: none"> • By dedicating actions to multi-actor innovation ecosystem approach. • Improving coordination across the innovation cycle and different TRLs. • Simplification, to make participation more accessible and efficient. 	<ul style="list-style-type: none"> • Continuously take on board novel thematic challenges. • Support maturation and validation of novel ideas from lab to business. • Start-Ups and SME scale-up to new markets.

1. Transformation requires favorable framework conditions

national and institutional policies, governance and regulatory frameworks need to actively support transformation processes.

2. Widening ecosystems need long-term partnerships

Sustainable collaboration is built on **trust, continuity, and sustained collaboration** that extends beyond shorter project cycles

3. Interdisciplinary and international cooperation is essential

Transformation requires **strong collaboration** between **academia, industry, policymakers, and civil society**, and a **culture of codesign of disciplines, sectors, countries** which unfolds locally for the creation of sustainable solutions.

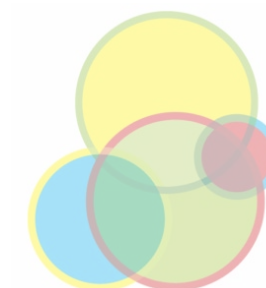
4. Human capital is central to transformation

Successful transformation **requires people, talent retention, strengthening digital and innovation skills, and building institutional capacities**

5. Summary

5. European Thematic Alliances are key

Have a special role to play **to bridge the knowledge divide**, as a long-standing organization, ESEIA Working groups **ensure a permanent inclusive structure for collaboration on R&I gaps**. ESEIA is a trusted and pervasive initiative **at short reach** for all energy innovators.



4. ESEIA in a Nutshell

Member Benefits

ESEIA Member Benefits



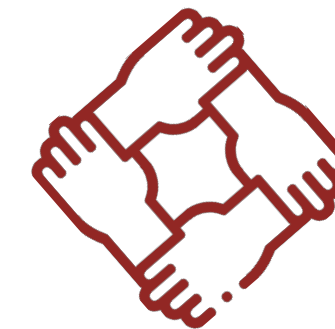
Joint Strategic Programming for Yearly ESEIA Work Programmes, regular Working Group meetings in MY ESEIA



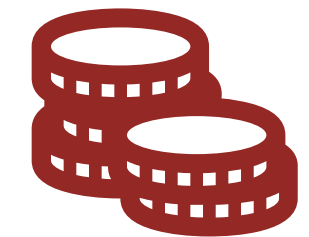
Background info on latest Brussels news and knowledge sharing through training events by tapping into ESEIA's Expert Database



Highlighting and communicating achievements with experts and stakeholders through ESEIA's network



Support from the ESEIA Team for call analysis, consortium building, proposal preparation, and exploitation strategy



Access to EU Funding Opportunities

5. How to get involved?

Contact:

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CEO ESEIA, Director ISP TU Graz

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1000 Brussels, Belgium

Stay in touch



WWW.ESEIA.EU



www.tugraz.at

SUPPORTING EUROPEAN R&I THROUGH STAKEHOLDER COLLABORATION AND INSTITUTIONAL REFORM

AIM

INITIATE aims to empower HEIs to enhance R&I capacity for twin transitions through institution reform (ref. [EEI Initiative](#))

BUDGET

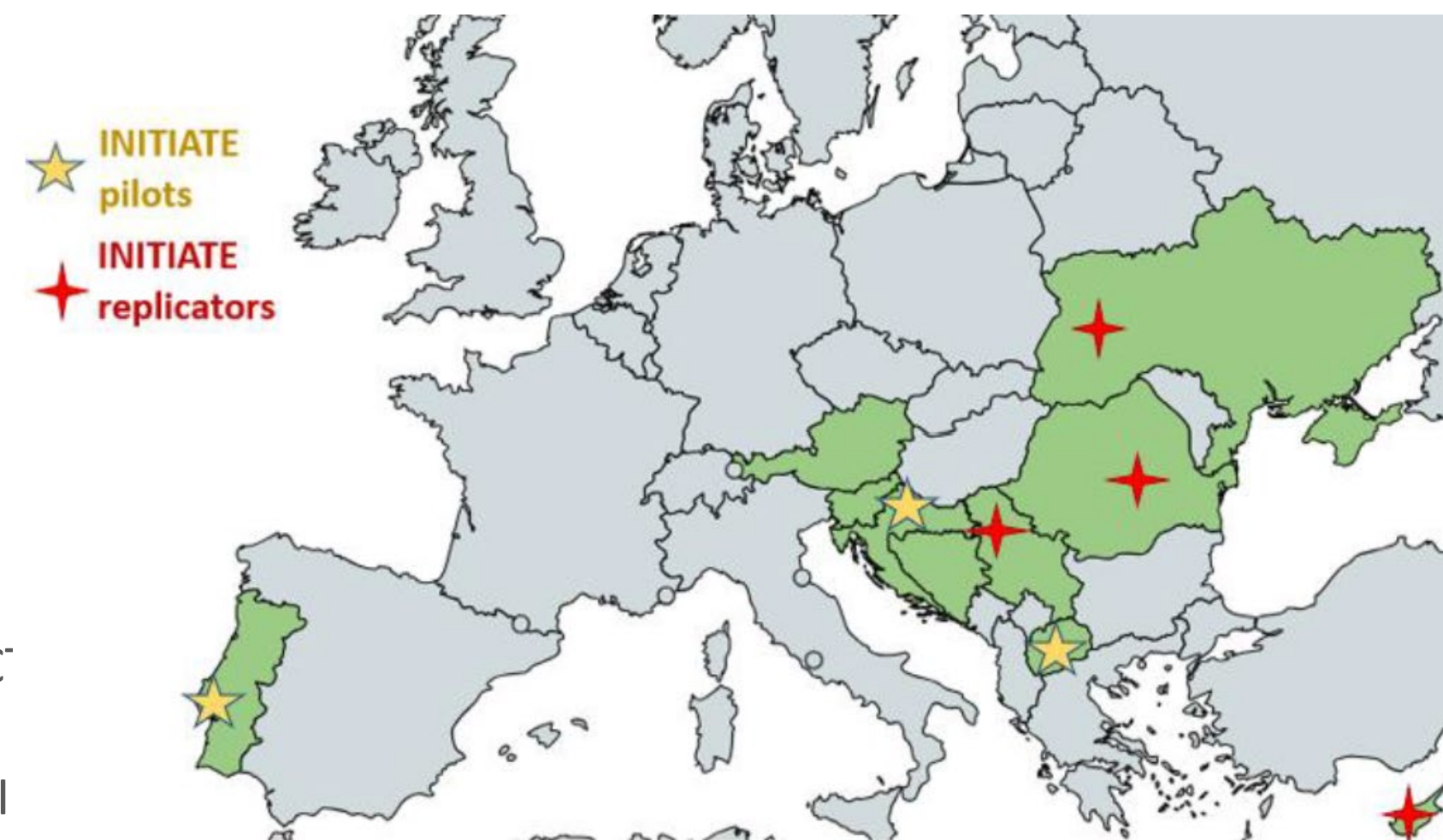
4,5 Mio €

PERIOD

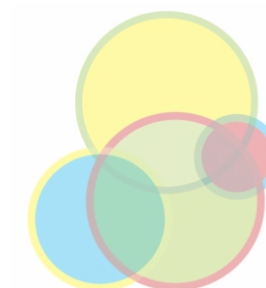
Feb 2024 – July 2027

14 PARTNERS FROM 10 WIDENING COUNTRIES + AUSTRIA

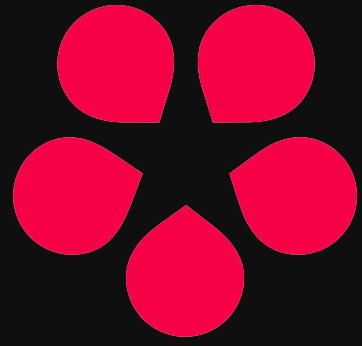
- EU: ESEIA, **Austria** (only non-Widening), UZagreb FSB, Media, Brain-IT, **Croatia**, Cyprus Institute, **Cyprus**, ISC **Portugal**, UTBV, **Romania**, JSI, Slovenia
- Associated: EPBH, **Bosnia-Herzegovina**, UMP, **Morocco**, UKI **North Macedonia**, Vinca, **Serbia**, Kharkiv National U, Lviv Politechnic, **Ukraine**



Funded by
the European Union

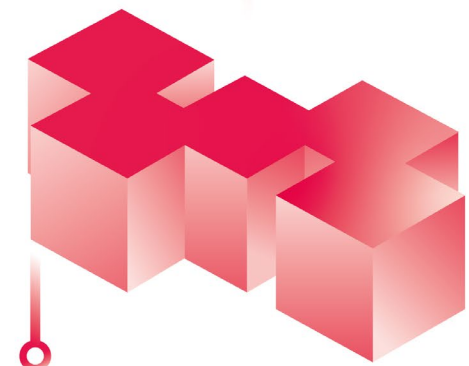


FIELDS OF EXPERTISE



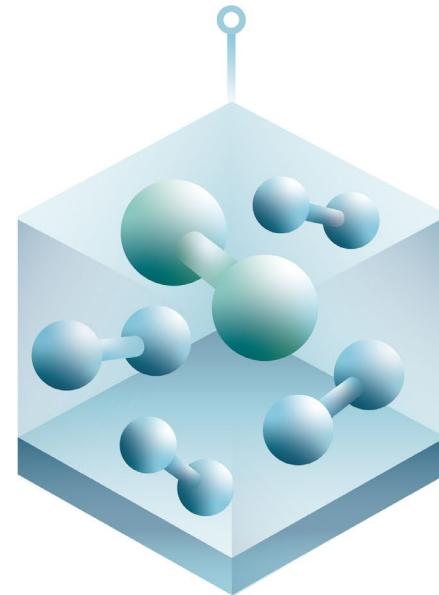
Advanced Materials Science	Human & Biotechnology	Information, Communication & Computing	Mobility & Production	Sustainable Systems
<ul style="list-style-type: none"> ▪ Development of new materials and processes ▪ Microanalytics and nanoanalytics, structure determination ▪ Materials modelling 	<ul style="list-style-type: none"> ▪ Biomedical Engineering ▪ Molecular Biomedicine ▪ Industrial Biotechnology ▪ Environmental Biotechnology 	<ul style="list-style-type: none"> ▪ Algorithms and mathematical modelling ▪ Smart and dependable systems ▪ Intelligent communication and sensor systems ▪ Multimodal interfaces, applications ▪ Intelligent multimedia processes and structures 	<ul style="list-style-type: none"> ▪ Engine and Powertrain ▪ Electromobility ▪ Hydrogen-based mobility ▪ Active and passive safety ▪ Production and Process Technology 	<ul style="list-style-type: none"> ▪ Urban and mobility planning ▪ Sustainable construction ▪ Future-oriented energy systems

TU Graz Research Centers

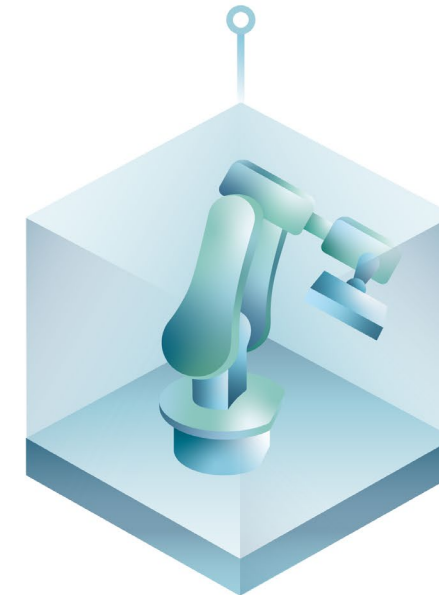


Research Centers
TU Graz / Topics

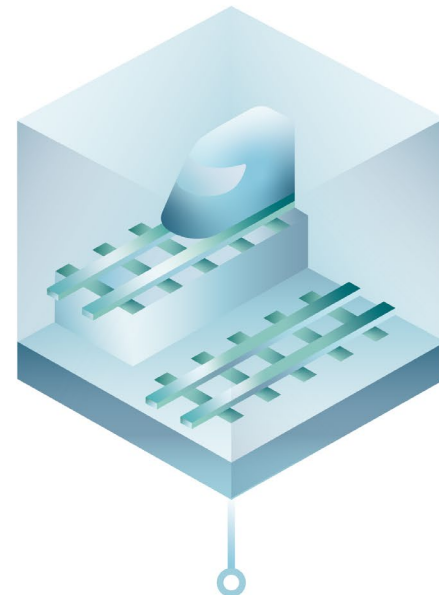
Green Hydrogen and Fuel Technologies



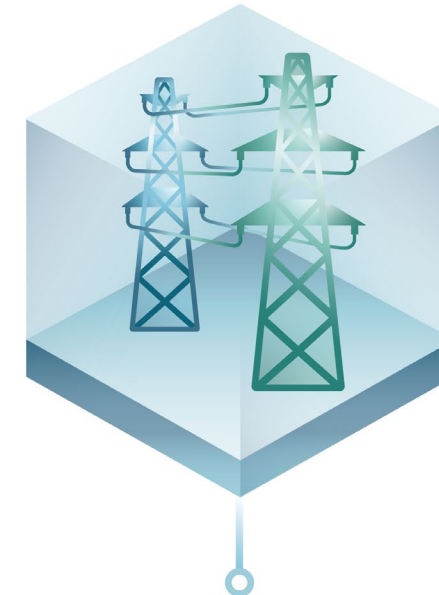
Smart Production



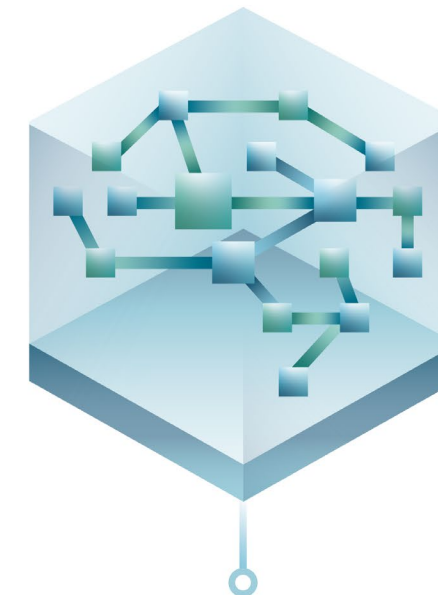
Sustainable Construction



Railway Systems



Energy Economics & Energy Analytics



Machine Learning

Study Programmes at Graz University of Technology

19
Bachelor's
programmes

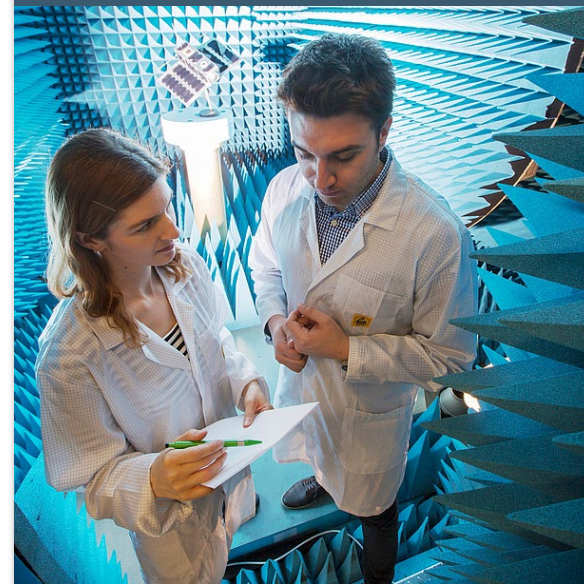
6 of them
NAWI Graz
programmes



36
Master's
programmes

22 of them
taught in
English

16 of them
NAWI Graz
programmes



PhD programmes in
14
Doctoral
Schools

with English
as working
language



Continuing
Education
TU Graz
Life Long Learning