Open and Responsible Research and Innovation in the EU

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European Commission's commitment to open science

Embrace open science as the modus operandi for researchers

Improve *the practice* of R&I

- **Providing open access** to scientific publications, research data, models, algorithms, software, protocols, notebooks, workflows and other research outputs
- **Research output management** - publications, data, and other outputs - in line with FAIR principles
- **Early and open sharing** of research, e.g. preregistration, registered reports, pre-prints
- Measures to ensure verifiability and **reproducibility** of research outputs
- **Open collaboration** within science and with other knowledge producers/users, incl. citizens, civil society and end users

Develop proper *enablers*

- **Incentives and rewards** to adopt open science practices, e.g. initiative for **Reforming Research Assessment**
- **Open research infrastructures** e.g.
  - **European Open Science Cloud (EOSC)**
  - **Open Research Europe (ORE)** open access publishing service
- **A legislative framework for copyright and data** fit for research and innovation
- **Support for skills and education** for practicing open science and data-intensive research
- **Horizon Europe provisions** on Open Access and Open Science practices

EU and MS levels: Pact, ERA, European Data Strategy, CoNOSC … + *International level*: UNESCO, OECD, G7, RDA, cOAlition S ...

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RRI in Horizon Europe Regulation and Specific Programme

- **Reg. - Recital:** ...the Programme should engage and **involve citizens and civil society organisations in co-designing and co-creating responsible research and innovation** (RRI) agendas and contents that meet citizens' and civil society's concerns, needs and expectations...
- **Reg. - Programme principle**: The programme shall promote co-creation and co-design through engagement of citizens and civil society
- **SP - Operational objectives**: (c) **promoting responsible research and innovation**, taking into account the precautionary principle; (n) Improving the relationship and interaction between science and society… and promoting the involvement of citizens and end-users in co-design and co-creation processes
- **Reg. – Definitions**: **'Open science' means an approach to the scientific process based on open cooperative work**
- Open Science will become the *modus operandi*, and open science practices such as citizen and societal engagement will be **operationalised** through the programme: **award criteria**, **key impact pathway indicators**, and **topic texts.**

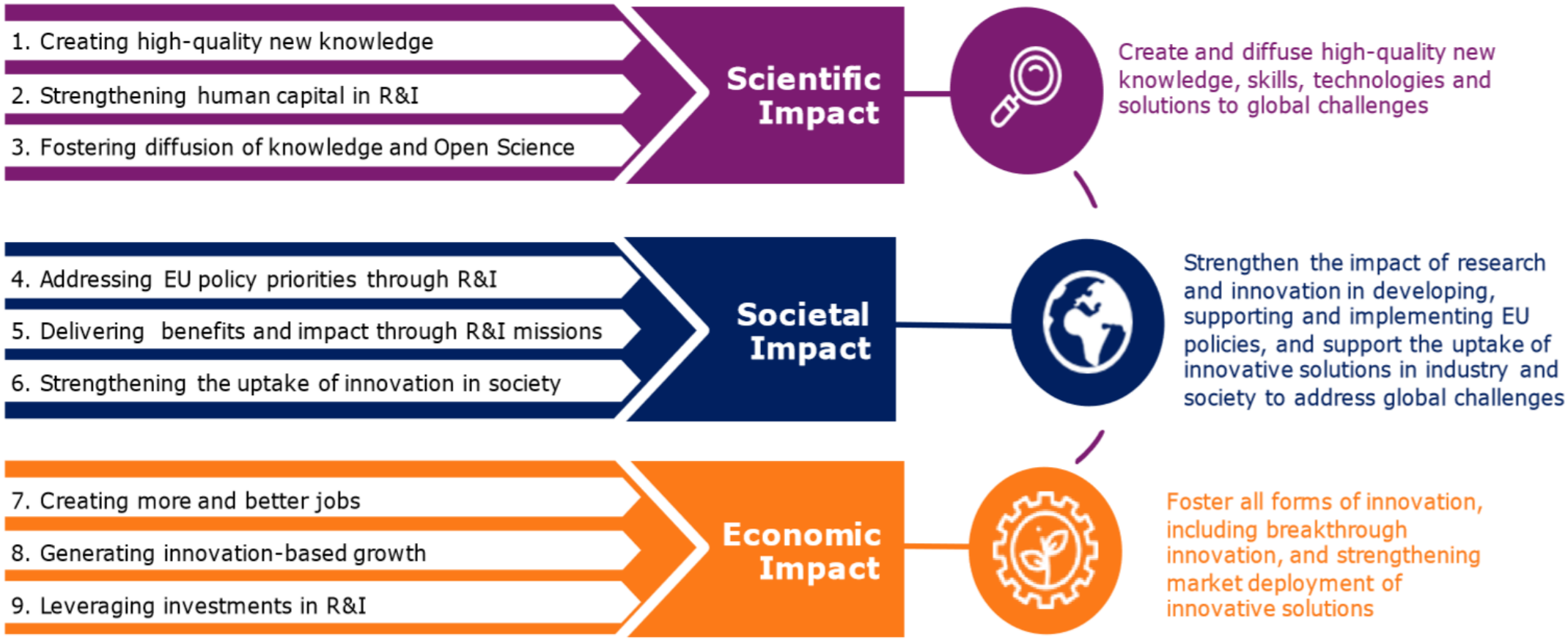
Horizon Europe proposal evaluation

Excellence criterion: "… soundness of the proposed methodology, including … engagement of citizens, civil society and end users where appropriate"

Methodology: Describe how appropriate open science practices are implemented as an integral part of the proposed methodology. Show how the choice of practices and their implementation are adapted to the nature of your work, in a way that will increase the chances of the project delivering on its objectives [e.g. 1 page]. If you believe that none of these practices are appropriate for your project, please provide a justification here.

- ! Open science is an approach based on open cooperative work and systematic sharing of knowledge and tools as early and widely as possible in the process. Open science practices include… involving all relevant knowledge actors including citizens, civil society and end users in the co-creation of R&I agendas and contents (such as citizen science).
- ! This question does not refer to outreach actions that may be planned as part of communication, dissemination and exploitation activities. These aspects should instead be described below under 'Impact'.

Monitoring - Key impact pathways



Key Impact Pathway 6

	Short term (during project)	Medium term (~3 years after project)	Long term (~10 years after project)
Strengthening the uptake of research and innovation in society	Co-creation - Number and share of FP projects where EU citizens and end-users contribute to the co-creation of R&I content	Engagement - Number and share of FP beneficiary entities with citizen and end-users engagement mechanisms after FP project	Societal R&I uptake - Uptake and outreach of FP co-created scientific results and innovative solutions
	Similar to H2020's RRI monitoring, but: 1) more tightly focused, 2) based on actual activities, 3) differentiates between types of engagement.	Similar to SwafS KPI, but: 1) Mainstreamed to the programme as a whole, 2) more tightly focused, 3) differentiates by type of mechanism.	.

Open Science central to ‘Pact for R&I in Europe’

Open science is a central part of the ‘Pact for R&I in Europe’ (Nov ’21)

Upholding values

- Ethics and integrity
- Freedom of scientific research
- Gender equality and equal opportunities

Working better

- **Free circulation**
- **Pursuit of excellence**
- **Value creation**

Working together

- Coordination, coherence and commitment
- Global outreach
- **Inclusiveness**
- **Societal responsibility**

Open Science in priority areas for joint ERA action (Nov ‘21)

Deepening ERA

- **Open Science**
- **Research Infrastructures**
- Gender equality, equal opportunities for all
- Careers and mobility of researchers and **research assessment and reward systems**
- Knowledge valorisation
- Scientific leadership
- Global engagement

Broadening ERA and relevance

- Challenge-based ERA actions
- Synergies with education EU Skills Agenda
- Synergies with sectoral and industrial policy, to boost innovation ecosystems
- **Active citizen and society engagement**

Amplifying access to excellence

Advancing R&I investments and reforms

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MLE Public Engagement - scope

A whole encompassing approach in considering various engagement dimensions:

- co-design activities to develop R&I agendas, e.g. involvement in discussing challenges and implications related to research and technology development
- co-creation activities to develop new research themes, knowledge or innovations etc.
- co-assessment activities, such as experimentation and evaluation, to help ensure interaction on the quality and utilisation of R&I outputs
- public engagement activities in relation to innovation deployment, knowledge valorisation and uptake of R&I outputs

Wider issues of different layers of public participation in R&I policy design should be examined in-depth, with an emphasis on national experiences regarding the democratic governance of R&I

Preliminary identification of priority topics

Take stock of divergent national realities and trace potential differences or similarities in terms of public engagement strategies, programmes, instruments.

Identify good practices and challenges concerning implementation of PE policies and programmes: co-design and co-creation, co-assessment, and participation in deployment, uptake and use of outputs

Analyse good practices in public engagement vis-à-vis framework conditions, e.g. infrastructure, competences, incentives and rewards

Establish potential of good practices and accompanying policy frameworks in terms of generalisation across the ERA: what would constitute a common basis for a European approach?

Expected outcomes

- Common policy recommendations for engaging the public in R&I policies within the ERA
- Sharper and more impactful national and European policies and initiatives for public engagement in R&I
- Greater coherence between policies and initiatives across the ERA, among countries and between national and EU levels

Coalition on Advancing Research Assessment

CoARA

Our **vision** is that the assessment of research, researchers and research organisations recognises the **diverse outputs, practices and activities** that **maximise the quality and impact** of research.

This requires basing assessment primarily on **qualitative judgement**, for which peer review is central, supported by **responsible use of quantitative indicators**.

Contextual considerations

- Favourable **framework conditions** and **sustainable funding** are needed to achieve reform
- Assessment practices should **vary depending on the type and purpose** of assessment concerned

In the long term, reforms of the assessment system are expected to trigger higher **quality** and more **impactful** research and contribute to more **attractive research careers**.

Better recognition of knowledge and data sharing and **open collaboration including societal engagement** will lead to increased **trust** in the research and innovation system and its outputs.

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Implementing core and supporting commitments

Core commitments:

1. Recognise the **diversity of contributions to, and careers in research** according to the needs and the nature of the research
2. Base research assessment **primarily on qualitative evaluation** for which peer-review is central, **supported by responsible use of quantitative indicators**
3. **Abandon inappropriate uses** in research assessment of journal- and publication-based metrics, in particular inappropriate uses of journal impact factor (JIF) and h-index
4. **Avoid the use of rankings of research organisations in research assessment**

Support commitments:

- Three commitments to enable the move towards **new criteria, tools and processes** for research assessment
- Three commitments to facilitate **mutual learning**, **communicate progress** and ensure that new approaches are **evidence-informed**

Organising and operating a coalition

- Offering a space for **mutual learning and collaboration** that supports and facilitates the implementation of the Commitments by the members, while respecting their autonomy
- For this purpose, **working groups** will be established on specific topics as '**Communities of practice**' - proposed at the initiative of members and other members' participation is voluntary, e.g. "Interest communities", Discipline communities", "Institution communities", "National communities"
- Other means, such as **workshops or webinars**, may also be used to support mutual learning and collaboration
- Mechanisms for periodic interactions with, and **involvement of, national and regional authorities** will ensure national/regional policies and frameworks are conducive to the Coalition's work

Summary

HE WP 2023-2024 continues to provide strategic support to **reforming research assessment** in ERA. Equally supports **EU-wide citizen science**, reproducibility of scientific results, global cooperation in not-for-profit OA publishing and capacity building in IP management to support OS.

RRI capacity building important for success of Research Assessment Reform.

MLE 2023-2024 Public engagement in R&I. Learning exchanges with MS (ERA Policy Agenda Action 14.4)

Future avenues for research: equity in Open and Responsible R&I, trust in science through deeper engagement with citizens.

General Implementation Aspects H2020

Silvia Abad, Project Officer

Research Executive Agency (REA)

RRI project implementation in H2020

- **Science with and for Society (SwafS)** had a total budget of **EUR 462 million** in Horizon 2020.
- SwafS projects: consortia:10/12 partners/project, average duration of 3 years.
- **30% RIA/ 70% CSA***
- Projects funded under RRI can be divided into 4 categories: Industry, territorial governance, knowledge base and RPO/RFO.
- **WP 2018_2020 focus on territorial governance**: aim to work towards the establishment of self-sustaining R&I ecosystems, characterised by a high degree of openness and responsiveness to local needs. This required relevant quadruple helix R&I actors to work together.
- Liasing with other projects formally encouraged in 2018_2020 WP

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SwafS-14-2018-2019-2020

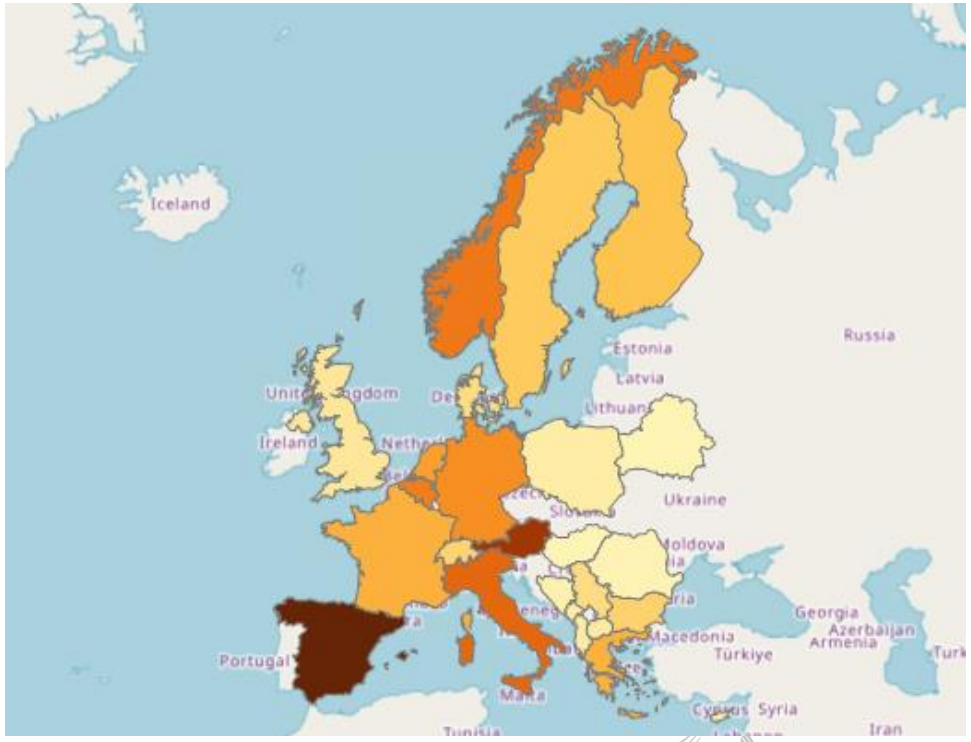
Supporting the development of territorial Responsible Research and Innovation

11 GAs signed ~ EUR 22 M

128 participants ~ 113 unique participants

In the picture, Net EU contribution by country:

Country	% (of total)	Net EU Contribution	% (of total)
Spain	15,6%	€ 3.101.679,00	14,0%
Austria	9,4%	€ 2.588.954,75	11,7%
Italy	7,0%	€ 1.869.387,50	8,5%
Norway	7,0%	€ 1.689.940,00	7,6%
Belgium	8,6%	€ 1.607.612,50	7,3%
Germany	3,9%	€ 1.448.257,31	6,6%
Netherlands	5,5%	€ 1.270.406,25	5,8%
France	4,7%	€ 1.107.365,00	5,0%
Greece	5,5%	€ 1.089.725,00	4,9%



More info in the [Horizon dashboard]

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RRI implementation at regional level

Projects funded under these topics aimed to bring together a broad range of **stakeholders**, including citizens**, to co-create and co-design of a regional plan** and implement **common bottom-up solutions** in a particular sector/field based on regional needs.

Such approach when successfully implemented has led to an increasing in the overall level of **openness, transparency and democratization of R&I systems;** this new regional governance approach creates positive societal, democratic, environmental and economic impacts.

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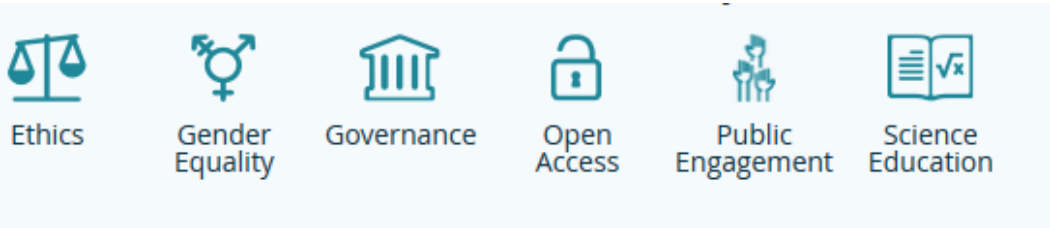
RRI implementation findings in H2020

RRI is of crucial importance at the regional level. It serves as a catalyst for **sustainable regional development, enhances competitiveness, fosters social cohesion, and addresses region-specific challenges.**

The results of RRI projects will reveal many individual **institutional changes** already implemented or in the process of being implemented.

SwafS stakeholders are in an excellent position to take a leading role in supporting other entities envisaging institutional transformation.

RRI dimensions (gender, open access, science education, ethics and public engagement), must be part of how research and innovation is realised in all domains as well as its implications for governance



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