Societal Dimensions of Horizon Europe: the search for a stronger impact

TRAINING WORKSHOP ON RESPONSIBLE RESEARCH AND INNOVATION (RRI)

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A Reminder: what is the EU RTDI Framework Programme

- Enshrined in the Treaty (TEU): *Article 182* (ex Article 166 TEC)
  - *A multiannual framework programme, setting out all the activities of the Union, shall be adopted by the European Parliament and the Council, acting in accordance with the ordinary legislative procedure after consulting the Economic and Social Committee.*
- *Article 180* (ex Article 164 TEC) defines the four (4) particular 'activities' that are 'complementing those carried out in the Member States', such as:
- (a) implementation of research, technological development and demonstration **programmes**, by promoting cooperation with and **between undertakings, research centres and universities**; (b) promotion of cooperation in the field of Union research, technological development and demonstration **with third countries and international organisations;** (c) **dissemination and optimisation of the results** of activities in Union research, technological development and demonstration; (d) **stimulation of the training and mobility of researchers** in the Union.

The Policy Context of the Treaty

TITLE XIX **RESEARCH AND TECHNOLOGICAL DEVELOPMENT AND SPACE**

- *Article 179* (ex Article 163 TEC)
- 1. The Union shall have the **objective** of **strengthening its scientific and technological bases by achieving a European research area** in which researchers, scientific knowledge and technology circulate freely, and encouraging it to become **more competitive, including in its industry**, while promoting **all the research activities deemed necessary by virtue of other Chapters of the Treaties.**
- 2. For this purpose the Union shall, throughout the Union, encourage undertakings, including small and medium-sized undertakings, research centres and universities in their research and technological development activities of high quality; it shall support their efforts to cooperate with one another, aiming, notably, at permitting **researchers to cooperate freely across borders and at enabling undertakings to exploit the internal market potential to the full, in particular through the opening-up of national public contracts, the definition of common standards and the removal of legal and fiscal obstacles to that cooperation**.

FP Structural characteristics

- Knowledge production and the implicit use of the Triple Helix model (*collaboration between university, industry and government, the Commission playing the role of the "government"*)
- A continuous effort of engaging industry together with knowledge institutions towards **improving societal impacts of technology through different forms of consortia and organizational schemes)**
- However, **difficulty of demonstrating impact**
- Continuous monitoring and evaluations focused on the issue, the latest being the so-called Lamy (2018) report

Society-driven partnerships

- The partnerships that formed the backbone of the successive FPs were not only industry driven: as early as 1995, the first Targeted Socio-economic Research (TSER) programme was introduced, and in 2001, the first Science and Society Action Plan became reality. FP6 saw the first research actions on Science and Society, activities that strengthened in FP7 and also in Horizon 2020 (SWAFS)

- Thus the FP nurtured a balanced approach that did not only favour technology solutions but at the same time cared for society, either through actions for better understanding of science but also through projects focused on ethics and gender

The Societal Interplay: a developing story

- **It's not all about tech**: Social Sciences and Humanities introduced albeit reluctantly in the Framework Programme: FAST (Forecasting and Assessment in Science and Technology) and TSER (Targeted Socio-economic Research) appeared respectively during the 3d and the 4th Framework Programmes
- **FAST and TSER** addressed both the field of *Evaluation of science and technology options*, while TSER went also deeper on issues linked with the European society and economy, faced with *disruptions from accelerating technological change*
- **A new trend for caring about societal impact led to new FP design practices:** the need for impact assessment in all Commission policies prior to adoption, as a result of the new imperative for "Better Regulation", changed profoundly the way of producing the FP, imposing wide ranging stakeholders' consultations, including online ones
- **However, difficulties remain** in properly translating open consultation results into new programme architecture and approach

Science in Society, a newcomer in the FP

- ***Science in society*** has been a major effort to cultivate new links between scientific communities and other societal stakeholders, increasingly suspicious of scientific "progress" (outbreaks of unpredictable crises contributed to this, e.g. *mad cow disease, environmental concerns, nuclear accidents, doubts and failures in different medical contexts etc.*).
- **However, widely perceived need for better mainstreaming** of science in society as well as of social sciences and humanities in all areas of the Framework programme. This seems **partly accomplished** in Horizon 2020.
- **Next FP (Horizon Europe), heralds itself as a major effort for increasing societal impact.**

A slow evolution towards more societal impact

- A long process of a '**hidden' triple helix** – with a more prominent double helix approach (universities / industry), **evolving to a 'quadruple helix**' with the gradual but difficult involvement of the 'civil society'
- As the H2020 Interim Evaluation had concluded (praising otherwise the achievements and the efficiency of the programme):
  - ***There is a need for greater outreach to civil society to better explain results and impacts and the contribution that research and innovation can make to tackling societal challenges, and to involve them better in the programme co-design (agenda-setting) and its implementation (co-creation).***

The Advent of Responsible Research and Innovation (RRI)

"Responsible Research and Innovation (RRI) is the on-going process of aligning research and innovation to the values, needs and expectations of society"

(in Rome Declaration on

Responsible Research and Innovation

in Europe

adopted in Rome (IT) on 21 November 2014)

Responsible Research and Innovation (RRI)

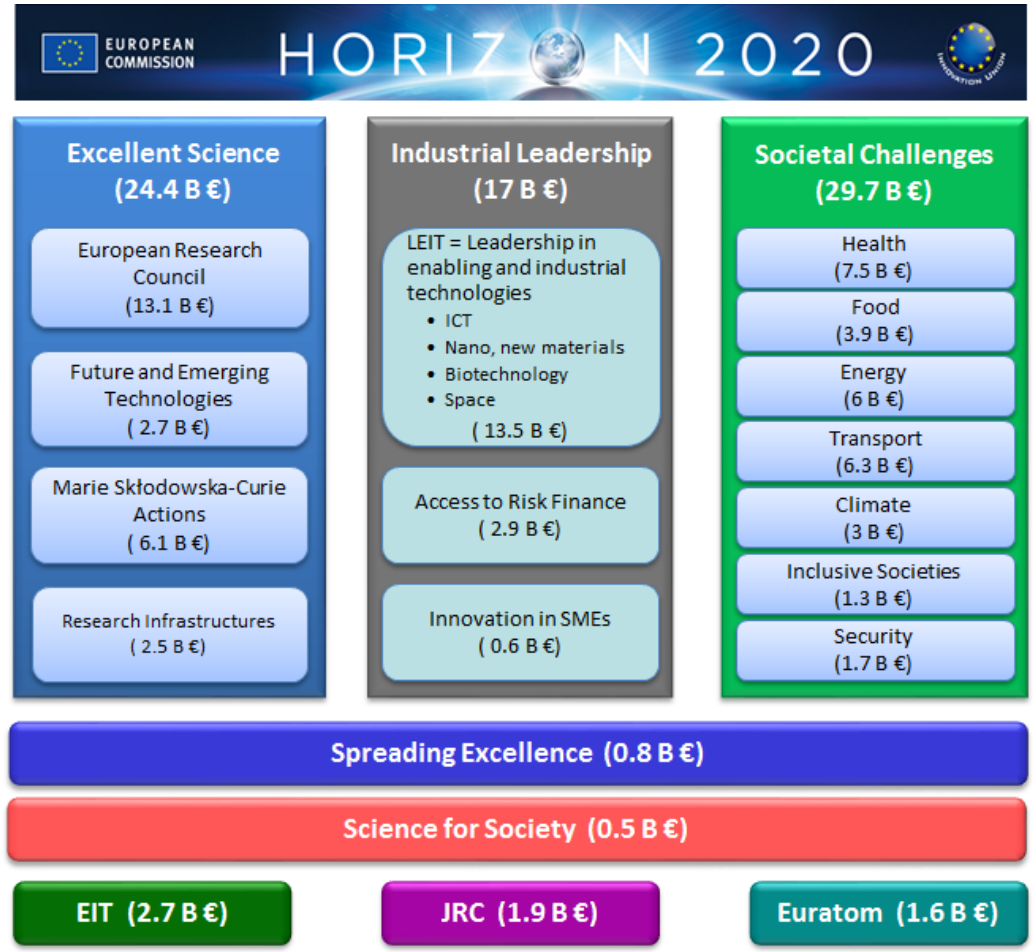
A cross-cutting issue applying across Horizon 2020!

Aim: To encourage societal actors to work together during the whole research and innovation process to better align R&I and its outcomes with the values, needs and expectations of society

KPI: Citizens, Civil Society Organisations (CSOs) and other societal actors contributing to co-creation of scientific agendas and scientific contents

RRI in Horizon 2020

- Responsible Research and Innovation (RRI): A cross-cutting issue
- **Part V**: Science with and for Society in support to RRI
- H2020 (all areas) translates into some 22,000 projects receiving €41.5b of EU contribution [01/2019]
- Almost €80b foreseen as EU contribution for the whole period (2014-2020)



Horizon 2020 Part V - Science with and for Society (SwafS)

Objectives

1) Build effective co-operation between science and society (scientific and societal stakeholders)

2) Foster the recruitment of new talent for science

3) Pair scientific excellence with social awareness and responsibility

Key Performance Indicator:

Number of institutional change actions (ICs) promoted by the programme towards Responsible Research and Innovation.

Target - 100 ICs in R&I stakeholder organisations by end of H2020

SwafS portfolio related to RRI

Knowledge > Practice

SiSCODE
SCALINGS
RiCONFIGURE
MULTI-ACT
SUPER_MoRRI

Higher education

HEIRRI
ENRRICH

Institutional change

FoTTRIS
PROSO
RRI PRACTICE
NUCLEUS
STARBIOS2
JERRI
FiT4RRI
ORION
GRRIP
GRACE

Governance

MARINA
NewHoRRIzon
RRING

Citizen science

D-NOSES
EU-Citizen.Science
CitieS-Health
MICS
ACTION

Public engagement

SPARKS
CIMULACT
DITOs
BIGPICNIC
SciSHOPS.EU
InSPIRES

Territories

ON-LINE S3
TeRRIFICA
TeRRItoria
SeeRRI
(FORWARD)

Industry

PRISMA
SMART-MAP
COMPASS
LIV.IN
I AM RRI

41 projects
(33 active [11 starting], 8 ended)
up to 01/2019

Horizon Europe: citizens everywhere…

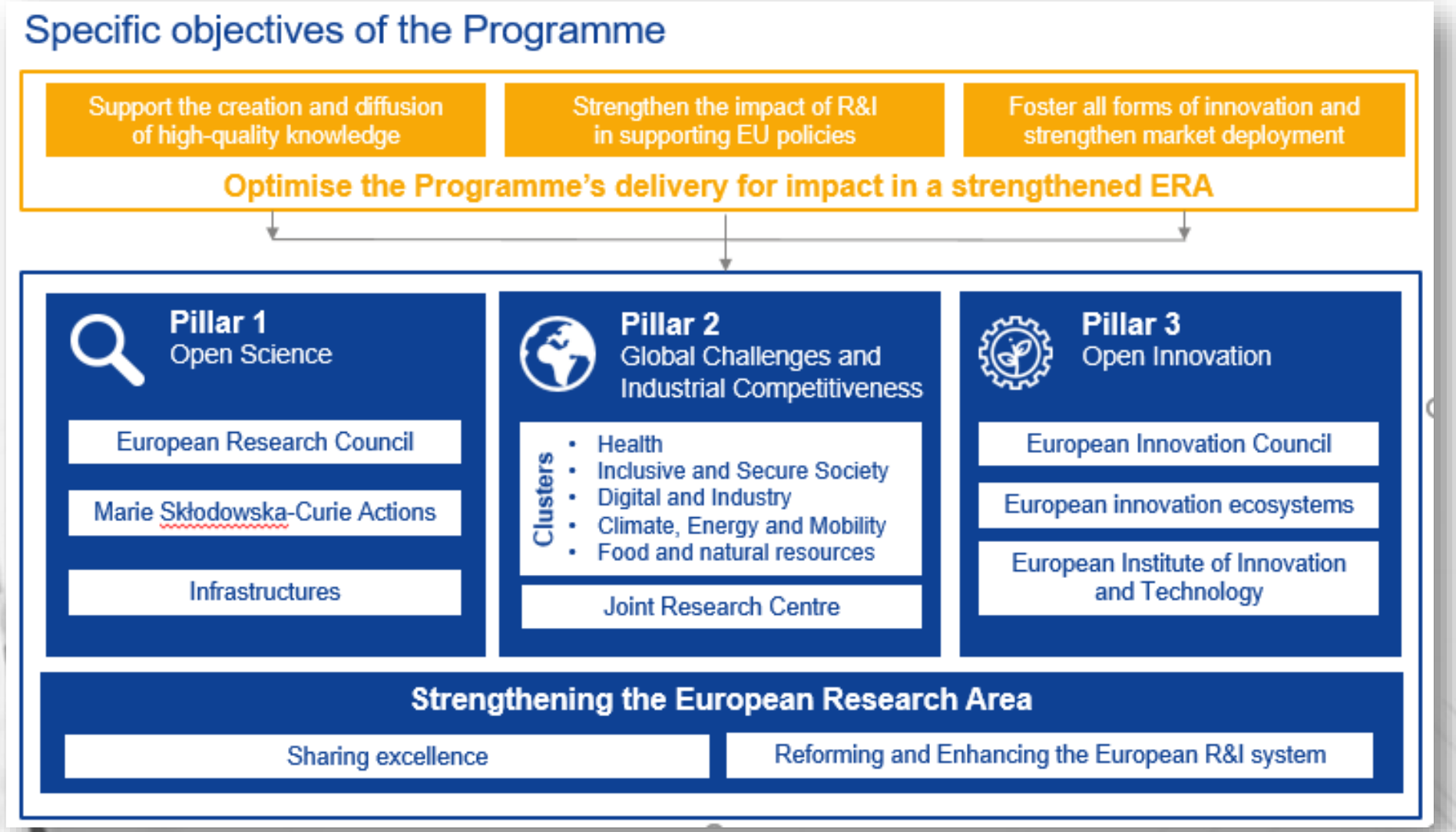
Citizen related key features:
Recital 26: "engage and involve citizens and civil society organisations in co-designing and co-creating responsible research and innovation agendas and contents"

Citizen related key features:
A citizen science line in Reforming and Enhancing the European R&I system

Citizen related key features:
Art. 10 on Open science (including citizen science)

Citizen related key features:
R&I missions: A portfolio of actions taking multi-stakeholder and transdisciplinary approaches involving citizens

Horizon Europe



€100 billion (2021-2027), including €400m for Reforming and Enhancing the European R&I system

Horizon Europe: the promise of Mission oriented research

- Structure of Horizon Europe / How is it different?
- **Co design and co creation**, new buzzwords to go
- **Lab fab app** the new driving directions , towards more productive and relevant science for the European citizen
- **Values of SWAFS** will be present in Horizon Europe
- **Missions: the big promise**

MISSIONS FOR EU RESEARCH AND INNOVATION

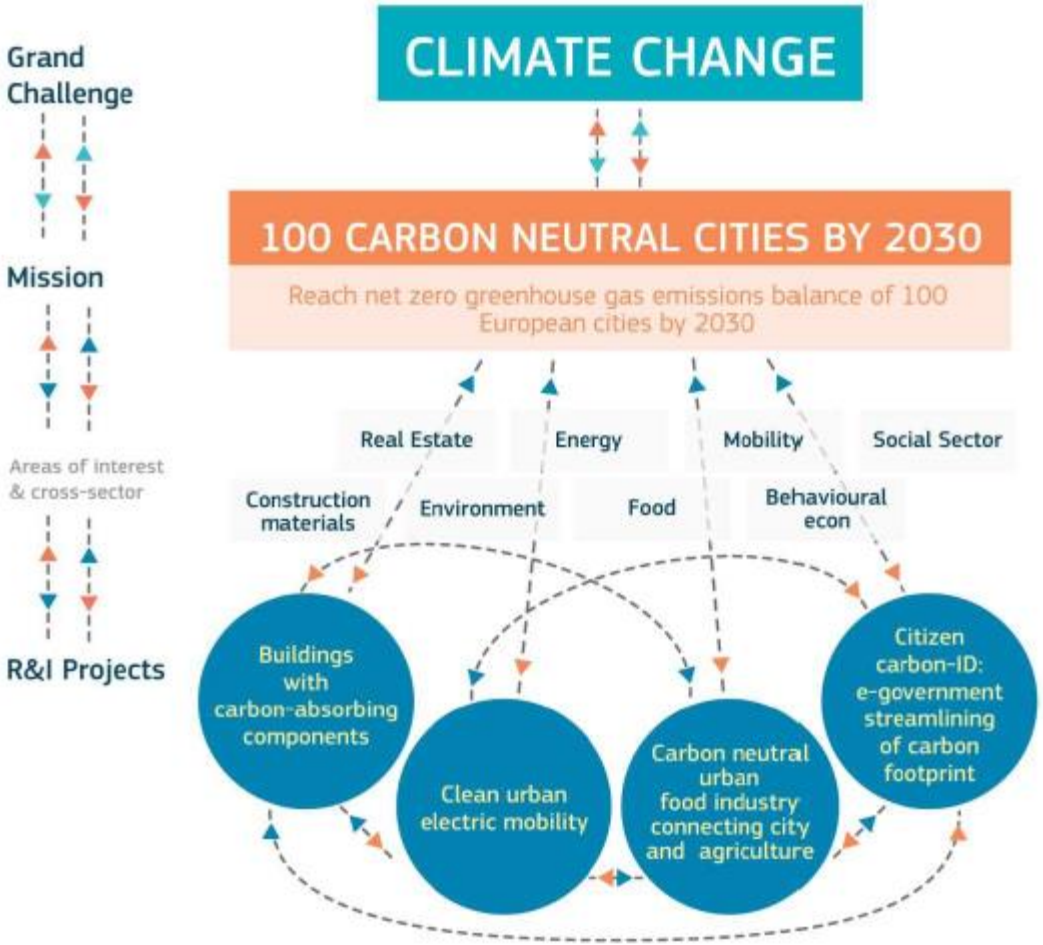
- Societal Relevance
  EU added value - Improve society's welfare
- No 'One Size Fits All'
  Flexibility is needed in how a mission is defined.
- Granularity: between a project and a challenge
- Fostering Experimentation
  Mission success depends on bottom-up processes that nurture innovation.
- New conversations between fundamental and applied research

PUBLIC ENGAGEMENT

- Public participation in the selection process of missions
- Public inclusion in the implementation
- Citizens as active participants in missions

FUTURE EXAMPLE: 100 Carbon Neutral Cities by 2030

1. Impact 40% of European citizens
2. 100 cities by 2030
3. R&I in Construction materials – mobility – citizen carbon-ID
4. Urban planning-energy efficiency – mobility-behavioural economics
5. Simultaneous projects ->



European Commission

European Parliament

2014-2019

TEXTS ADOPTED

Provisional edition

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Establishing Horizon Europe – laying down its rules for participation and dissemination ***I

European Parliament legislative resolution of 17 April 2019 on the proposal for a regulation of the European Parliament and of the Council establishing Horizon Europe – the Framework Programme for Research and Innovation, laying down its rules for participation and dissemination (COM(2018)0435 – C8-0252/2018 – 2018/0224(COD))

(Ordinary legislative procedure: first reading)

ANNEX Va

Areas for possible missions and areas for possible institutionalised European Partnerships to be established under Article 185 or 187 TFEU

In accordance with Article 7 and 8 of this Regulation, the areas for possible Missions and possible European Partnerships to be established under Articles 185 or 187 TFEU are set out in this Annex.

I. Areas for possible Missions

Missions Area 1: Adaptation to Climate Change, including Societal Transformation

Mission Area 2: Cancer

Mission Area 3: Healthy Oceans, Seas, Coastal and Inland Waters

Mission Area 4: Climate-Neutral and Smart Cities

Mission Area 5: Soil Health and Food

Each mission will follow the principles set out in Article 7 paragraph 3 of this Regulation.

II. Areas for possible institutionalised European Partnerships on the basis of Article 185 TFEU or Article 187 TFEU

Partnership Area 1: Faster development and safer use of health innovations for European patients, and global health.

Partnership Area 2: Advancing key digital and enabling technologies and their use, including but not limited to novel technologies such as Artificial Intelligence, photonics and quantum technologies.

Partnership Area 3: European leadership in Metrology including an integrated Metrology system.

Partnership Area 4: Accelerate competitiveness, safety and environmental performance of EU air traffic, aviation and rail.

Partnership Area 5: Sustainable, inclusive and circular bio-based solutions.

Partnership Area 6: Hydrogen and sustainable energy storage technologies with lower environmental footprint and less energy-intensive production.

Partnership Area 7: Clean, connected, cooperative, autonomous and automated solutions for future mobility demands of people and goods.

Partnership Area 8: Innovative and R&D intensive small and medium-sized enterprises.

The process of assessing the need for an institutionalised European partnership in one of the abovementioned Partnership Areas may result in a proposal on the basis of Article 185 TFEU or Article 187 TFEU, in accordance with the European Commission's right of initiative. Otherwise the respective Partnership Area can also be subject to a partnership following Article 8(1)(a) or Article 8(1)(b) of the Framework Programme or be implemented by calls for proposals within Horizon Europe.

As the possible areas for institutionalised European partnerships cover broad thematic fields, they can, based on the assessed needs, be implemented by more than one partnership.

Horizon Europe: references to society have never been so vocal: examples (recitals):

- 8d) **The engagement with society** is to be fostered through **responsible research and innovation** as a **cross-cutting** element with a view to build effective cooperation between **science and society**. It would allow all societal actors (researchers, citizens, policy makers, business, third sector organisations etc.) to work together during the whole research and innovation process in order to **better align both the process and its outcomes with the values, needs and expectations of European society**

- (26) With the aim of **deepening the relationship between science and society** and maximising benefits of their interactions, 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, promoting science education, making scientific knowledge publicly accessible and **facilitating participation of citizens and civil society** organisations in its activities. The measures taken to improve the involvement of citizens and civil society should be monitored.

Horizon Europe: references to society have never been so vocal: examples (recitals) (II):

Article 4/ Programme structure

1. The Programme is structured in the following parts contributing to the general and specific objectives set out in Article 3:

…..

- **(2) Pillar II 'Global Challenges and European Industrial Competitiveness' with the following components, taking into account that social sciences and humanities (SSH) shall play an important role across all clusters:**
- **(a) cluster 'Health';**
- **(b) cluster 'Culture, creativity and inclusive society';**
- **(ba) cluster 'Civil Security for Society';**

Horizon Europe: references to society have never been so vocal: examples (recitals) (III):

Article 6a Principles of the Programme (….)

- (8) The programme shall promote **co-creation and co-design through engagement of citizens and civil society**.

Article 10 Open science

- 1. The programme shall encourage open science as an approach to the scientific process based on cooperative work and diffusing knowledge, in particular in line with the following elements:

- - open access to scientific publications resulting from research funded under the Programme;
  - open access to research data, including those underlying scientific publications.

- These elements shall be ensured in accordance with Article 35(3) of this regulation. The latter shall also be in line with the principle '**as open as possible, as closed as necessary**';

- 1a. The principle of reciprocity in open science shall be promoted and encouraged in all association and cooperation agreements with third countries, including agreements signed by funding bodies entrusted for indirect management of the Programme.
  2. **Responsible management of research data shall be ensured in line with the principles 'Findability', 'Accessibility', 'Interoperability' and 'Reusability' (FAIR). Attention shall also be paid to the long-term preservation of data.**
  3. Other open science practices shall be promoted and encouraged, including for the benefit of SMEs.

Horizon Europe: references to society have never been so vocal: examples (IV):

2. CLUSTER '**CULTURE, CREATIVITY AND INCLUSIVE SOCIETY**'

2.1. Rationale :

- **The EU stands for a unique way of combining economic growth with sustainable development goals and social policies, with high levels of social inclusion, shared values embracing democracy, human rights, gender equality and the richness of diversity**. This model is constantly evolving and needs to deal with the challenges from amongst other things, globalisation and technological change and **rising inequalities**.

- The EU must promote a **model of inclusive and sustainable growth** while reaping the benefits of technological advancements**, enhancing trust in and promoting innovation of democratic governance, fostering education, combatting inequalities, unemployment, marginalisation, discrimination and radicalisation, guaranteeing human rights, fostering cultural diversity and European cultural heritage and empowering citizens through social innovation.** The management of migration and the integration of migrants will also continue to be priority issues. The role of research and innovation in **social sciences, humanities, and arts**, as well as in the cultural and creative sectors, in responding to these challenges and achieving the EU's goals is fundamental. **In particular SSH aspects are included in all intervention areas of this cluster**.

Foreseeable RRI legacy in ERA

A lively RRI community:

- **#RRI_EU**: a twitter community born end of 2018 and counting 358 followers at the beginning of 2019;
- **@RRITools** twitter account (since June 2013) with 4285 followers;
- A web Toolkit with 1620 people registered and more than 1000 RRI resources [https://www.rri-tools.eu/about-rri];
- A portfolio of SwafS projects;
- A portfolio of related flagged projects in Horizon 2020;

Foreseeable RRI legacy in ERA

What about the RRI dimensions?

- **Open access**: expanding to **Open Science** (publications, data, cloud, rewards and incentives,…)
- **Ethics:** integration of research integrity and scientific advice
- **Gender**: expanding to diversity…
- **Science education**: coupled with citizen science in Horizon Europe;
- **Citizen science**: recognised as valid data and reflexions provider by the **Open Science Policy Platform**;
- **Governance**: several projects involving institutional changes.

A new major effort for integration of societal dimensions in a hard-wired technology programme

Challenges:

- **Digitalisation, climate change, depletion of resources, environmental degradation , biotech, health challenges**
- **New complex areas with unpredictable results** and difficult to determine ways to go, without disrupting society
- **Values of RRI still more relevant than ever**

Horizon Europe: Societal by Design?

- **Social impact of projects** needs now **to be addressed at design level and followed / monitored on closely**
- **Questions for nanotech,** similar of those in other areas as it holds a **strong transformational potential**
- **Fear of the unknown** needs to be mitigated with **careful safeguards** ***without hampering innovation***.
- **Search for impact and increased accountability will define future boundaries for responsible scientific development**
- **However biggest challenge is succeeding the transition from buzzwords to implementation**

Big Thank You!

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Disclaimer: views expressed in this presentation are personal and do not represent those of the European Commission (my ex-employer)

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