RRI concept presentation. History. Six keys. State-of-play.

Training “Understanding Responsible Research and Innovation (=RRI) “

04-05 February, 2019

RRI as term

In a nutshell:

- Solving real-world problems collaboratively
- Research and innovation (including applied research) addressing research questions from society
- Collaborations between researchers, policymakers, civil society organizations (CSOs), and industry at all stage of the research process

RRI as term

https://ec.europa.eu/programmes/horizon2020/en/h2020-section/responsible-research-innovation

… is an approach that anticipates and assesses potential implications and societal expectations with regard to research and innovation, with the aim to foster the design of inclusive and sustainable research and innovation.

http://www.rri-tools.eu/documents/10182/18424/D1.3_QualityCriteriaGoodPracticeStandards.pdf/f7a1d707-5e54-48cb-949b-053dc7c6f36f

… is a dynamic, iterative process where by all stakeholders involved in the Research and Innovation practice become mutually responsive and share responsibility regarding both the outcomes and process requirements.

Why? Learning the lessons of the past

- **To motive the use of new technologies for social benefit**
- **To avoid losing out on another technological advance... (GMO)**
- **To prevent another disaster like….. (**asbestos, CFCs- chlorofluorocarbon)
- **Fear of unintended consequences…..**

> *"in every act of creation and innovation there exists the potential, also, for our undoing."*
> *Lord Robert Winston Bad Ideas; an arresting history of our inventions*

- **Fear of Irreversible consequences - *we can't put it back in the box***

- ***Why now?***
  - ***The loss of trust and the 'rise' of the public***
  - ***Globalisation and the need for speed***

- ***Hilary Sutcliffe.*** A Report on Responsible Research & Innovation

What's behind the term?

- The terms „***Responsible Research***", „***Responsible Innovation***" or „***Responsible Research and Innovation (RRI)***" have been increasingly used for over a decade
  - History contains some examples of scientists who demonstrated a strong commitment to social responsibility **Albert Einstein** Letter to Franklin D. Roosevelt, August 2, http://www.atomicarchive.com/Docs/Begin/Einstein.shtml

- RRI can be seen to operate as an "umbrella term" in the academic literature, which comprises a series of theoretical approaches and methods, and cuts across different sectors.

Term is not yet rooted, although content is being followed.

Content of RRI

- **Involvement of society** (development of participatory processes, use of external expert groups, cross-sectoral research and innovation);
- Better use of the **full potential** of the research community (40% target for female researchers), gender in science and innovation;
- Following the principles of **research ethics** throughout the whole process from planning to implementation;
- Relationships with **science education**;
- **Open access** to research results and data;
- **Governance**, which leads to the desired results and must be:
  - applicable to possible unexpected developments in R&D;
  - close enough to stay informed about R&D activities;
  - is able to share responsibilities with related parties; and
  - to have levers that make it possible to implement shared responsibilities.

Who are the main actors in R&I processes?

- **Policy Makers** - from funders to policy officers, research centre directors and representatives of learned societies, whether at a European, national, or local scale;
- **Research Community** - researchers, innovators, research managers, public affairs and communication officers, and all those who support the diversity of the R&I system;
- **Education Community** - teachers, students, science museums' staff, families and all those concerned with education at all levels;
- **Business and Industry** - from contractors and SMEs to large transnational companies with strong R&I activity
- **Civil Society Organisations** - from individuals to organisations, NGOs and the media

RRI Tools
https://www.rri-tools.eu/

Principles

- **Diversity and Inclusion** means **early involvement** of a wide range of of actors in R&I practice, deliberation, and decision-making **to yield more useful and higher quality knowledge**. This strengthens democracy and broadens sources of expertise, disciplines and perspectives.
- **Anticipation and Reflection** means to **envision impacts** and **reflect on the underlying assumptions**, values, and purposes **to better understand how R&I shapes the future**. This produces valuable insights and increases our capacity to act on what we know.
- **Openness and Transparency** means **to communicate** in a balanced, meaningful way methods, results, conclusions, and implications **to enable public scrutiny and dialogue**. This benefits the visibility and understanding of R&I.
- **Responsiveness and Adaptive Change** means to be able to **modify modes of thought and behaviour**, overarching organizational structures, **in response to changing circumstances**, knowledge, and perspectives. This aligns action with the needs expressed by stakeholders and publics.

No excuses

- We didn't know what we were doing;
- We didn't know it was wrong;
- We had no chance to find out;
- We didn't know there were other options;
- We had no time to consider

Jeroen van den Hoven, Professor of Ethics and Technology at Delft University of Technology

Materials

- GLOBAL CODE OF CONDUCT FOR RESEARCH IN RESOURCE-POOR SETTINGS
  - http://www.globalcodeofconduct.org/wp-content/uploads/2018/05/Global-Code-of-Conduct-Brochure.pdf
- Montreal Statement on Research Integrity in Cross-Boundary Research Collaborations
  - https://wcrif.org/documents/335-montreal-statement/file
- Singapore Statement on Research Integrity
  - https://www.etag.ee/wp-content/uploads/2015/11/singpore-statement_A4size.pdf

RRI in FP

RRI in H2020

- **Rome Declaration** on Responsible Research and Innovation in Europe (21.11.14)
  - 2009 Lund Declaration
  - 2013 Vilnius declaration
- RRI as cross-cutting issue
  - https://ec.europa.eu/programmes/horizon2020/en/h2020-section/responsible-research-innovation

SwafS

Gender

Gender is one of the 5 ERA key priorities:

- More effective national research systems
- Optimal transnational co-operation and competition
- An open labour market for researchers
- **Gender equality and gender mainstreaming in research**
- Optimal circulation, access to and transfer of scientific knowledge including via digital ERA

3 Objectives of EC concerning **gender equality in Horizon 2020**:

- Gender Balance in Research Teams at all levels (in funded projects)
- Gender balance in decision-making: 40 % quota in H2020 related panels & groups (50% Advisory Groups working for EC on H2020 programmes)
- Integrating gender / sex analysis in R & I content

- **Legal basis:** Horizon 2020 Regulation (Art.14, 16, 31, 32) Rules for participation (Art. 13, 18, 40) Specific programme

Gender is a cross-cutting issue in Horizon 2020

Objectives:

1. **Fostering gender balance in Horizon 2020 research teams**, in order to address the gaps in the participation of women in the Framework Programme's projects:

In the EVALUATION PROCESS:

- *Gender balance comes into play as a **ranking factor to prioritize** ex aequo proposals*

Article 33 of the Grant Agreement (GA):

- **33.1 Obligation to aim for gender equality:**

- *The beneficiary must take all measures to promote equal opportunities between men and women in the implementation of the action. It must aim, to the extent possible, for a gender balance at all levels of personnel assigned to the action, including at supervisory and managerial level.*

2. Ensuring gender balance <u>in decision-making</u>, in order to reach the Commission's target of 40% of the under represented sex in panels and groups (50% for advisory Groups)

ADVISORY GROUPS:

- 50% women/men

- H2020 incorporates at least one gender expert in each of the advisory groups working on the preparation of work programmes.

EVALUATION PANELS:

Composition of panels: 40% target of the under-represented sex, taking into account the situation in the specific field

3. Integrating gender/sex analysis in research and innovation (R&I) content, helps improve the scientific quality and societal relevance of the produced knowledge, technology and/or innovation.

Gender analysis is considered a factor of EXCELLENCE (First Chapter, Article 16)

The gender dimension is explicitly integrated into several topics across all the sections of the Work Program

In the Proposal Template applicants are asked the following question: *"Where relevant, describe how sex and/or gender analysis is taken into account in the project's content".*

THIS WILL COUNT AS AN EVALUATION FACTOR, like any other item referred to the scientific content that is relevant to the content of research.

It will be integrated in the GRANT AGREEMENT and project reports, as in other parts of the project.

Novelty: inclusion of gender training among the eligible costs of an action in H2020 projects.

http://ec.europa.eu/programmes/horizon2020

GENDER-RESPONSIBLE RULES FOR PARTICIPATION IN HORIZON EUROPE

- To develop Temporary Special Measures (positive action) in the Rules for Participation in order to promote women's participation in Horizon Europe projects, especially gender balance of project leaders.
  - *The Interim Evaluation on Gender in H2020 estimated that only 25% of projects were headed by women.*
- To design effective work-life balance measures to be applied in Horizon Europe projects in consultation with gender stakeholders.
  - *HG asked for additional funding to recruit a cover post or to extend the research period in cases of family/parental leave.*

- To include an obligation for partner institutions to guarantee equal pay in the proposals submitted for funding.

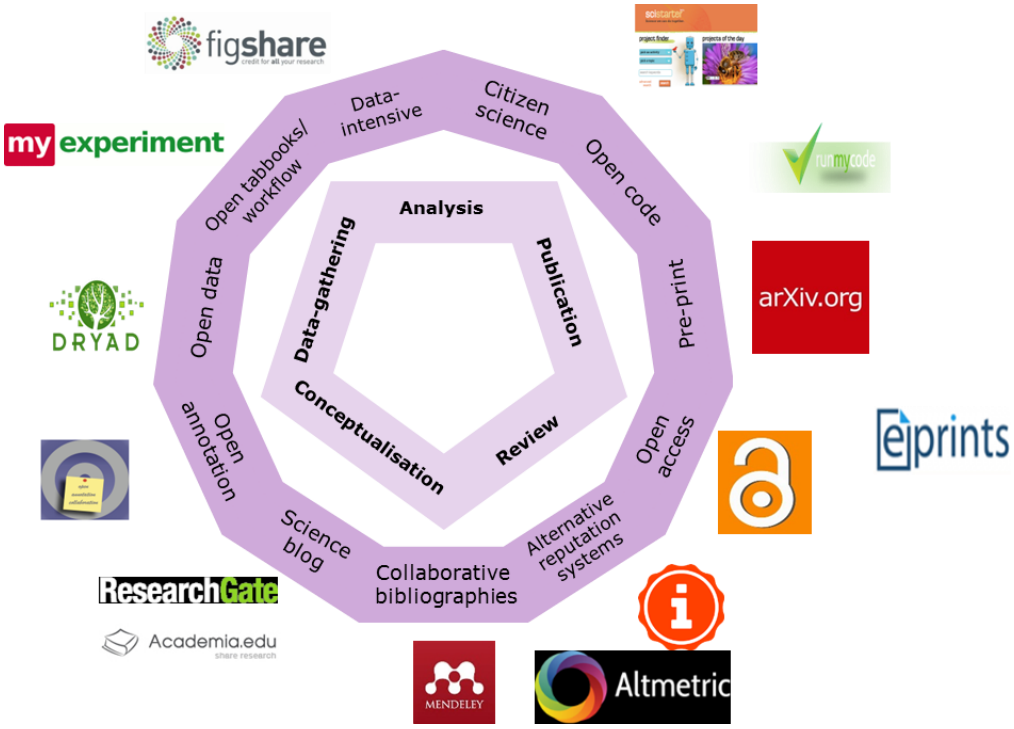
- To strengthen the requirements and monitoring of the integration of the gender dimension in the proposals through sex/gender analysis box in applications and gender expertise within the consortium.

- To include Gender-Responsible Research & Innovation issues among the award criteria

- To ensure gender balance in the composition of evaluation committees and evaluators (article 26 of the Proposal for a Regulation), inclusion of gender experts among evaluators and gender training for evaluators to combat gender bias in evaluation.

Open Science

by Jarkko Siren, Research Executive Agency – Brussels, 26 June 2018



- The nature of science is changing from a closed system to an <u>open and sharing</u> one

- It affects virtually all components of doing science and research

- It shifts in particular the focus from "publishing as fast as possible" to "sharing knowledge as early as possible"

Illustration: Ron Dekker, CESSD

How to describe Open Science?

- There are many definitions but maybe Open Science is:
  - A system of practices that moves towards a more open, collaborative, data-intensive and networked way of doing research and sharing research results, enabled by developments in ICT and related infrastructures and the increasing proliferation of data.

Why is Open Science so important?

- It's good for **science**: efficiency, verifiability, transparency, inter-disciplinarity
- It's good for the **economy**: access to and re-use of scientific information by industry, innovation
- It's good for **society**: broader, faster, transparent & equal access for citizens, increased societal impact of science and research

Open Science starts with open access

- Open access = the practice of providing on-line access to scientific information that is free of charge to the user and that is re-usable
- No single definition but some well-accepted, authoritative ones e.g. the Budapest Declaration (2002) and the Berlin Declaration (2003).
  - These definitions describe 'access' in the context of open access as including not only basic elements such as the right to read, download and print, but also the right to copy, distribute, search, link, crawl, and mine
- Open access to research outputs: publications, data, software and other outputs
- For publications:
  - Open access publishing, i.e. publishing in an open access mode/venue (**Gold** OA)
  - Making accessible through archiving in repositories (**Green** OA)

Green OA in H2020

- No publishing fees
- Deposit a copy in a repository: immediately after publication
- Open Access: latest 6 months after publication (12 for SSH)
- Some journals have longer embargoes -> non-compliant (check SHERPA/RoMEO or journal website http://www.sherpa.ac.uk/romeo/index.php

Gold OA in H2020

- Publishing fees: from 0 EUR to several thousand
- Deposit a copy in a repository: immediately after publication
- Open Access: immediately after publication
- Some journals accept both options (hybrid)
- Attention to multi-funder publications

Scientific publications in H2020

- Mandatory open access to peer-reviewed publications through repositories at the same time as publication
  - Acceptable embargo: 6M and up to 12M for SSH
  - Open access publishing encouraged and APCs (*article processing charge*) - **eligible costs**
  - Current success rate: about 68% (depending on the method of calculation)

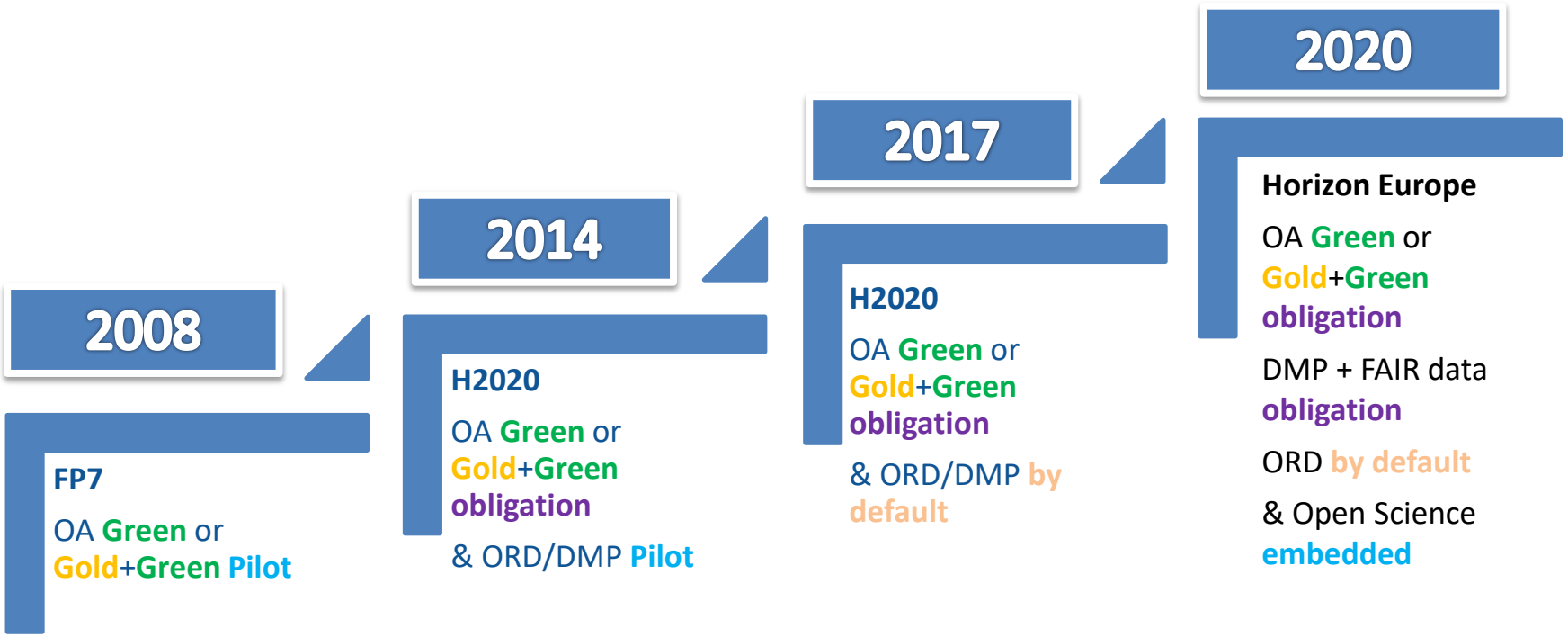
Research data in H2020

- Specified "digital research data"

  'Digital research data' is information in digital form (in particular facts or numbers), collected to be examined and used as a basis for reasoning, discussion or calculation; this includes statistics, results of experiments, measurements, observations resulting from fieldwork, survey results, interview recordings and images. (H2020 Annotated Model Grant Agreement =AGA)

- Targeted primarily towards data underlying publications (other data as specified in Data Management Plan)
  - Opt outs options for IPR, confidentiality/privacy and security reason as well as if OA runs against the main objective of the project
  - Whether projects opt-out or not does not affect the evaluation
- Required to develop DMP as a deliverable
  - What data will be generated; how curation, preservation and sustainability will be ensured; what parts will be open
- Costs for open access to research data fully eligible

The evolution of the EU funding programmes for R&I



ORD: object-relational database
DMP: data management plan

Materials

- **DOAJ (Directory of Open Access Journals)**
  - https://doaj.org/
- **H2020 Online Manual**
  - http://ec.europa.eu/research/participants/docs/h2020-funding-guide/cross-cutting-issues/open-access-dissemination_en.htm

The Ethics Appraisal Scheme in H2020
3 Steps

1. Ethics **Self-Assessment** (preparation phase: by the applicant)
2. The Ethics **Review** (before the finalization of GA: by ethics experts)
   - An Ethics Pre-screening/Screening;
   - An Ethics Assessment.
3. The Ethics **Checks** (for selected projects, after the signature of the GA: by ethics experts)

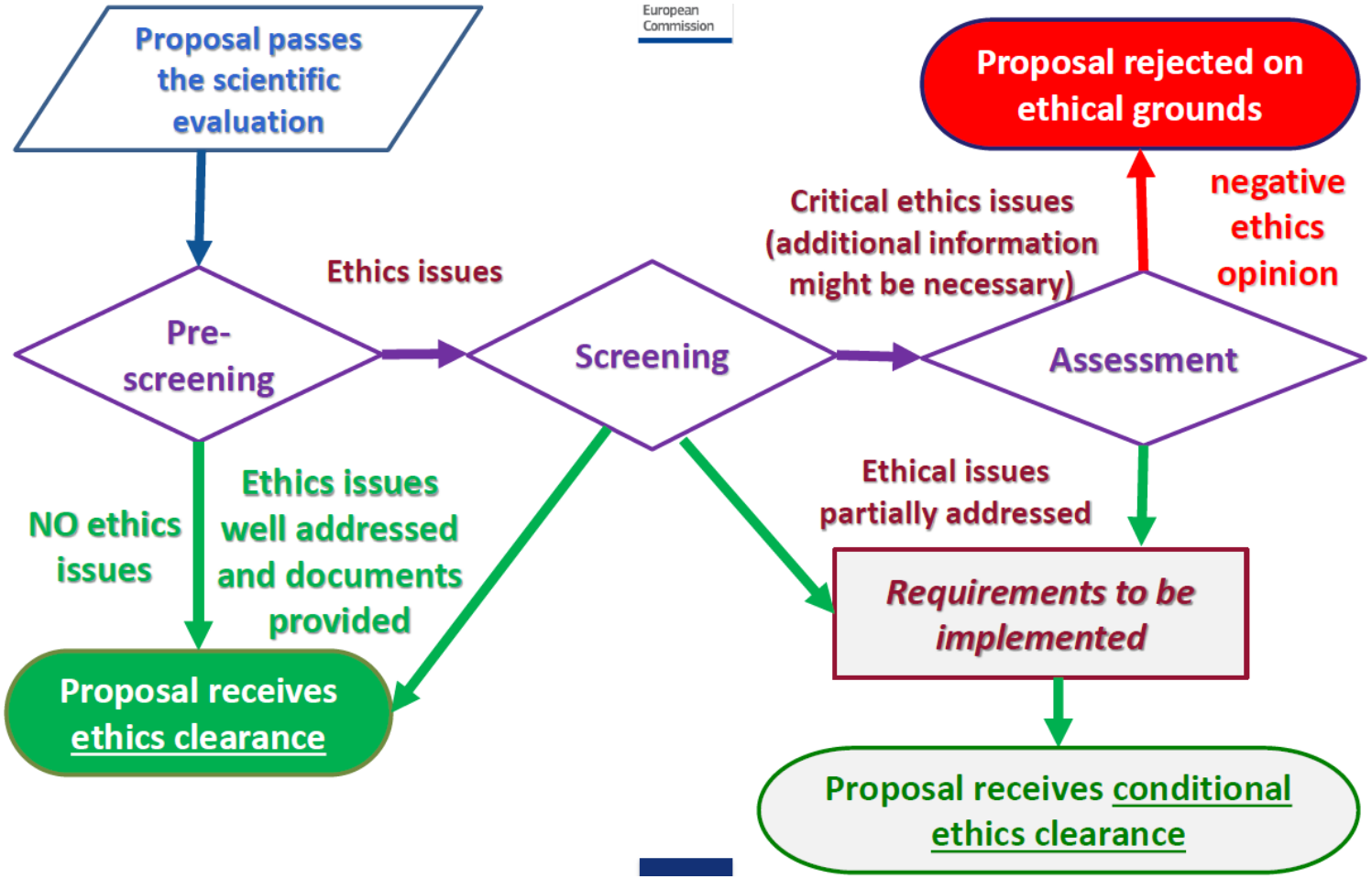
Step 1: Self-assessment

- **The applicants must:**
  - Identify all potential ethical issues (PartA);
  - Handle all ethics aspects of the proposal;
  - Explain in sufficient detail how the ethics issues will be addressed (PartB).

Part A, Section 4 'Ethics Issues Table' :

1. Human embryo/foetuses
2. Human beings
3. Human cells/tissues
4. Personal data
5. Animals
6. Non-EU countries
7. Environment, health & safety
8. Dual-use
9. Exclusive focus on civil applications
10. Misuse
11. Other ethics issues

Step2: Ethics Review



Step 3: Ethics check

Ethics Checks are requested:

- For projects raising complex or difficult ethics issues;
- Documents provided are unsatisfactory;
- Compliance with ethics requirements needs to be checked during the implementation;
- For issues related to breaches of research integrity, in particular scientific misconduct.

Materials

How to complete your ethics self-assessment

http://ec.europa.eu/research/participants/data/ref/h2020/grants_manual/hi/ethics/h2020_hi_ethics-self-assess_en.pdf

Science Education in H2020

Maria Karamitrou – Science Education RTD B7 - Science with and for Society

- Science, Technology, Engineering and Mathematics (STEM)
- SwafS:
  - formal settings of science education (e.g. schools)
  - and non-formal,
  - out-of-school teaching settings (e.g. science parks, science museums and events).

Definitions on formal, non-formal and informal learning and Open Schooling…

Formal learning – learning that occurs in an organised and structured environment (e.g. in an education or training institution or on the job) and is explicitly designated as learning (in terms of objectives, time or resources). Formal learning is intentional from the learner's point of view. It typically leads to validation and certification.

Non-formal learning – learning which is embedded in planned activities not always explicitly designated as learning (in terms of learning objectives, learning time or learning support), but which contains an important learning element. Non-formal learning is intentional from the learner's point of view. It can take place in museums, science camps/ clubs etc.

Informal learning – learning resulting from daily activities related to work, family or leisure. It is not organised or structured in terms of objectives, time or learning support. Informal learning is mostly unintentional from the learner's perspective.

Open Schooling – institutions that promote partnerships with families and the local community, with a view to engaging them in the teaching and learning processes but also to promote education as part of local community development.

Materials

- Science Education
  - http://ec.europa.eu/research/swafs/pdf/pub_science_education/KI-NA-26-893-EN-N.pdf
- What is citizen science?
  - https://www.youtube.com/watch?v=xzo64NX0bKE

Group work

- Ethics
- Gender
- Citizen science
- Science Education
- Public Engagement

RRI in H2020 (as May 2018)