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Introduction



The GRACE project is overall aimed at contributing to the EC objective of spreading and embedding Responsible Research and Innovation (RRI) in the European Research Area through the development of a set of Grounding Actions (GAs) in six research funding and performing organisations (RFPOs). For each research organisation, the planned Grounding Actions will be incorporated in an 8-year long Roadmap towards RRI (the first three of which developed under GRACE).

The project involves **10 partners**, of which 6 are involved in the implementation of the GAs (the so-called “implementing partners”) while 6 (the so-called “cooperating partners”) are involved in supporting the implementing partners, being two of the partners – the University of Groningen and ESF – both an implementing partner and a cooperating partner (for what concerns one of the RRI key, i.e., research ethics and integrity).

The **six Implementing Organisations** (IOs) are: the European Science Foundation (ESF – France); the University of Groningen (RUG – the Netherlands); the University of Siena (UNISI – Italy); the Swedish Environmental Research Institute (IVL – Sweden); the Agency for Management of University and Research Grants of the Government of Catalonia (AGAUR – Spain); and the Research Centre of the Slovenian Academy of Sciences and Arts (ZRC SAZU – Slovenia).

The **six Cooperating Organisations** are: Knowledge and Innovation (K&I – Italy); the South-East Europe Research Centre (SEERC – Greece); the European Network of Science Centres and Museums (ECSITE – Belgium); the Aarhus University (AU – Denmark) and as said above, the University of Groningen and ESF.

This report is aimed at **providing guidance** to help the six implementing organisations successfully face the challenges connected to the development and the implementation of RRI-oriented policies after the end of the project for a 5-year period.

In planning GRACE, Guidance has been considered necessary since, once the project will be ended, the continuation of the GAs initiated under the project and the launch of new ones will require institutional arrangements and approaches different from those applied during the project lifetime. Moreover, IOs will no longer benefit from the systematic support of other cooperating partners.

The document is organised into three Parts.

Part One is aimed at extrapolating a set of **lessons learned**, emerging from the experience of IOs. This part is mainly based on the outputs of the three Mutual Learning Workshops respectively held on May 28-29, 2019 (Brussels), November 3-4, 2020 (online) and May 20-21, 2021 (online). The first workshop was focused on the concept of RRI and the design of RRI-oriented GAs. The second one dealt with the issues of the establishment and reinforcement of the IO teams and the mobilisation of key stakeholders (especially researchers and leaders). The third mutual learning workshop supported IO teams to ensure the institutionalisation of the GAs initiated under GRACE and to define long-term sustainability strategies.



Part Two is the core of the Report. It contains the description of the **six Roadmaps towards RRI**, i.e., the strategies and a general plan of activities to be carried out by each IO after the 5-year period after the end of GRACE. This period has been operationally organised in two parts, i.e., a 2-year Post-project period (2022-2023) and a 3-year Consolidation period (2024-2026). A preliminary version of the Roadmaps was already included in D3.1 (Definition of GAs and Roadmaps towards RRI), delivered in November 2019. This first version has been discussed in the framework of the Third Mutual Learning Workshop (May 2021), to be strongly revised by IOs between July and October 2021. This process has been developed with the support of K&I and SEERC as well as the contribution of other cooperating organisations.

Part Three is shorter in comparison to the previous ones. It contains a **set of resources** on RRI in general and RRI keys.



PART ONE – LESSONS LEARNED



This part is devoted to describing the main lessons learned emerging from the implementation of the GAs by the six IOs. The concept of “lesson learned” refers to pieces of knowledge based on experiences, in this case gained during the GRACE project, providing orientations for future actions.

To organise this part, reference has been made to the model of RRI-oriented institutional change elaborated by Kalpazidou-Schmidt and Cacace¹.

This operational model identifies four steps.

- Step 1 – *Transformational agent*. Institutional change is triggered by a transformational agent endowed with capacities, means, or power to activate it.
- Step 2 – *Agency mobilisation*. A progressive mobilisation of individuals and stakeholders, be they internal or external to the RFPO, triggered mainly as an effect of the action of the transformational agent.
- Step 3 – *Friction on structures*. RRI-oriented actions, supported by the agency mobilisation process, come up to create friction on the existing structures, producing pressure on them to change.
- Step 4 – *Sustainability*. This leads to establishing new arrangements (interpretations, norms, and practices), which tend to become embedded in the RFPO.

Following this model, four chapters have been included in this Part of the report, devoted to the lessons learned respectively pertaining to:

- The **establishment and the building process of the team** in charge of RRI-related strategies and actions (Chapter 1)
- The **mobilisation of relevant actors** (individuals, stakeholders, leaders, etc.) and their involvement in RRI-oriented actions (Chapter 2)
- The **activation of the change process** within the organisation (Chapter 3)
- The **institutional embedment** of the RRI through the GAs (Chapter 4).

¹ Kalpazidou Schmidt, E. and Cacace, M. (2019), “Setting up a dynamic framework to activate gender equality structural transformation in research organizations”, *Science and Public Policy*, Vol. 46 No. 3, pp. 321-338. DOI: 10.1093/scipol/scy059



Chapter 1 – Building the team



In this chapter, lessons learned on how to favour the establishment and reinforcement of the team in charge of carrying out RRI-oriented actions will be presented. Most of them come from the second Mutual Learning Workshop.

1.1. Team and transformational agent

A team is not necessarily able to activate institutional change processes within their RFPO from the beginning. Rather, this capacity is acquired over time and probably under some conditions.

Put in other words, to be effective, a team should become a transformational agent, i.e., a group of people able to mobilise other individuals and stakeholders, within and outside their organisations, and to channel their energy and interest towards RRI-related objectives.

The need to build a “transformational agent” is usually overlooked or even ignored in the literature on RRI. Quite always, in handbooks and manuals focusing on RRI or RRI keys, who is the promoter of institutional change is not an issue and their capacity to perform this role is taken for granted, whereas – as the IO teams directly experienced – acquiring this capacity can be a long process susceptible to advancements and retreats.

Lesson learned

The team in charge of RRI-related actions should be aware of their potentials and limits in activating institutional change processes and should keep a focus on their own building process as a transformational agent, defining an enhancement pathway.

1.2. Internal cohesion and sense of ownership

One of the factors that, by experience, makes a team more able to mobilise other actors is their capacity to be an internally cohesive group, made up of members feeling a sense of ownership about the activities they are promoting.

Obstacles can be different: lack of resources allowing the team to work regularly, differentiated level of knowledge and awareness about RRI among the team members, different views of RRI or the priorities to be pursued. These obstacles are more likely to occur when the “core” team (i.e., the promoting group) includes in the team other members not on regular basis, thus creating an “extended team”. This approach, although often necessary to allow the team to be more effective, could make internal cohesion and a sense of ownership more difficult to attain.

The only possible solution for IO teams is “working on itself”, through self-reflexive moments allowing them to build up their identity (a common view, a common way to work together, etc.).



Lesson learned

Cohesion and a sense of ownership are two key elements to make a team able to mobilise others on RRI. Internal conflicts and diverging views may lead the team to be less impactful. Hence the need, for a team, to face these factors straightforwardly and timely.

1.3. Accessing expertise and gaining skills

Triggering institutional change is not an ordinary work. All the IO teams started with an initial idea of RRI and even less clear awareness about how RRI can be promoted and implemented. The first Mutual Learning Workshop was precisely devoted to developing a common understanding of RRI and RRI keys as well as to learning how GAs can be designed and implemented.

However, how the team can access the expertise necessary to conduct the GAs remains an issue. This partially means activating a learning process within the teams. However, many aspects of RRI require specialised knowledge and skills (for example, about Ethics or Open Access) which cannot be acquired by the team members, at least not in duly time.

Different strategies can be developed and, to a different extent, practised under GRACE, also in combination with each other. They include the following.

- **Establishing an advisory board.** One possible way to access expertise is to create an advisory board made up of external experts supporting the IO team. This can be facilitated by the managers' commitment and can be developed with limited costs.
- **Accessing training opportunities and resources.** There are presently many possible offers of training online as well as resources available for free on RRI and on the different RRI keys. The key point is selecting those which can match the need of the IOs.
- **Exploiting in-house expertise.** Especially in a large organisation, the expertise needed for implementing the GAs can be also found inside the organisation. The problem is how to mobilise the internal experts. Explicit support from the managers of the organisation, with appropriate allocations of time and resources, could be sometimes pivotal.
- **Cooperating with other organisations and networks.** Another possible pathway is establishing cooperation agreements with other research organisations that are dealing with similar problems. This would allow sharing expertise (especially when they are complementary) and resources as well as organising common capacity building events. Many national and European networks, often focused on specific RRI keys, can also be helpful.



Lesson learned

Acquiring RRI-relevant knowledge and skills is a necessary step to take for gradually allowing a team to serve as a transformational agent within the organisation. This entails activating a learning process of the team as well as accessing expertise from outside the team, internally or externally to the implementing organisation. Different strategies can be developed in this regard. Teams should be anyhow aware of the types of knowledge and skills they need to promote RRI-oriented actions.

1.4. Visibility and recognition

To serve as a transformational agent, IO teams should also be internally visible and have some sort of recognition. This may concern both the team members and the team as a whole. For example, a team made up only of people working with a temporary contract could not be authoritative enough to, e.g., mobilise leaders or staff members, including the administrative staff. Similarly, a team that is not internally visible and recognised (thanks to, e.g., the support from the leadership or the scientific or the institutional recognition of its members) could be too weak for igniting institutional change.

Different possible strategies should be devised to face these problems. Some of them have been discussed in the Mutual Learning Workshops.

- **Making the leaders' commitment visible.** To reinforce the visibility and recognition of IO teams, leaders' commitment to RRI concrete and visible from the beginning is necessary. This may happen in different ways, including public speeches, meetings with the staff members, the inclusion of RRI in the organisation's mission statement and objectives, or the institutional communication tools.
- **Enlarging the extended team as far as possible.** In principle, it could be advisable to enlarge as far as possible the extended team, including top- or middle-managers or "champions", i.e., individuals known in the organisation and involved in the promotion of RRI or specific RRI keys. This could create some problems for the internal life of the team but undoubtedly increases the visibility and recognition of the team within the organisation.
- **Making the team visible in the institutional communication channels.** Including RRI in the institutional communication channels (especially the institutional website, including the intranet site and the noticeboard, if any) could be also important to make the IO team more visible, targeting both internal and external stakeholders.
- **Increasing the visibility of the GAs.** Making the GAs as visible as possible could be also helpful to support the team's visibility and stabilisation. Creating opportunities to convene internal stakeholders to speak of the GAs indirectly could reinforce the team as well.



Lesson learned

The introduction and gradual embedment of RRI in a research funding or performing organisation may turn out to be more difficult if the IO team lacks recognition and visibility. GRACE, as an EC-funded project providing the organisations with external resources and constant support, helped the teams gain such recognition and visibility, at least partially. Despite that, some problems anyhow emerged. This suggests not to overlook these aspects and to make them a matter of specific strategies devised by the team from the beginning. Different strategies can be devised including the involvement of leader, the mobilisation of “champions” or an increased use of the institutional communication channels.



Chapter 2 – Mobilising relevant actors



In this chapter, a set of lessons learned will be presented pertaining to the mobilisation of relevant actors and their involvement in RRI-oriented actions, prevalently discussed in the second Mutual Learning Workshop.

2.1. A complex concept

One of the main obstacles met by IO teams to mobilise key stakeholders has been that of communicating RRI effectively.

The concept of RRI is not easy to explain and the terminology used is complex. Moreover, the boundaries among RRI keys are dynamic (for example, science education is often mingled with public engagement).

In many cases, RRI is mainly interpreted in ethical terms (something to be done because it is right to do so) and not in terms of benefits it can produce (thus, something to be done because it is useful to do so). This leads stakeholders to conceive RRI as something that involves specific sectors of the organisation and not the staff in general. Finally, the relevance and contents of RRI can differ according to the disciplinary field or type of organisation. This requires an investment to correctly interpret what RRI could mean in each of them.

These difficulties led some IO teams not to apply the general concept of RRI, since it could be counterproductive, although still using RRI dimensions (self-reflexivity, anticipation, inclusion, and responsiveness) as an overarching approach. Managers can be reluctant to accept RRI principles as a whole. Thus, they preferred to focus on single RRI keys. Their meaning is clear to everyone and, at least for some of them, there are already policies or measures in place in many research funding and performing organisations. However, this choice makes it more difficult to promote institutional arrangements and governance solutions across the different keys.

According to some IO teams, the important thing is not so much to include the RRI terminology, but to ensure that the dimensions of RRI are effectively applied in the ordinary life of the organisation.

The experience made under GRACE allows identifying some possible strategies to devise for coping with this issue.

- **Showing good examples.** To effectively propose RRI, providing good examples of how it has been applied in various other organizations and/or similar situations could be strongly helpful so to show its usefulness. Cooperation with other organisations already applying RRI could be important in this regard.
- **Promoting peer-to-peer communication.** Another orientation is that of favouring peer-to-peer communication on RRI issues. Researchers and administrative staff could be more motivated in discussing RRI-related issues if inputs come from their peers. They can be colleagues working in the same organisations but also someone working in other organisations performing the same activities and sharing the same practices.



- **Launching messages stressing the practical nature of RRI.** Messages pertaining to RRI and RRI keys should be conceived for bridging the gap between the abstractness of RRI-related concepts and the daily practices.
- **Using communication approaches favouring involvement and participation.** All means of communication used for promoting RRI should be participatory in nature, allowing exchange and cooperation. This is important to feed a sense of ownership and to better tailor the concept of RRI to the organisation's features.

Lesson learned

RRI is a label that is not easy to use, because of the complexity of the concept and its lack of appealing. Moreover, RRI is decreasingly used in the EU policy narratives to be gradually replaced by the concept of Open Science. However, whatever the concept would be used, the choice to focus on single RRI keys could come not to be effective. In this way, the policy context underpinning RRI keys (i.e., radically improving science-society relations to make science more reliable and effective) risks disappearing. Hence, the need to define a clear approach and effective communication and stakeholder engagement strategies to prevent this to occur.

2.2. Researchers' attitudes

Another thorny problem met by IO teams has been the mobilisation of researchers on RRI-related issues.

Researchers' justification usually given for their lack of engagement is the lack of time. However, problems are more structural. Researchers are immersed in a growingly competitive research environment, requiring them to compete for accessing publications, research funds, and permanent positions. Strongly engaged in this global environment, researchers tend to perceive RRI as entailing additional and useless paperwork that they do not want to take on or, for the better, as a noble highly time-consuming activity that they have no time to get involved in.

To counter these general attitudes, IO teams proposed and sometimes tested different possible approaches.

- **Defining the right messages about RRI.** This aspect has been already discussed above. To mobilise researchers, messages stressing the benefits for researchers and the organisation, for example, in terms of research quality, the reputation of researchers and research organisations, or access to new data and ideas. Tailoring the message to specific researchers' groups (based on their research interests or disciplinary field) could be more effective.
- **Establishing rewards and incentives.** Introducing some forms of recognition (for example, incentives, rewards, recognition for career development, etc.) should be effective, even though single research organisations have usually limited power to introduce them.



- **Identifying actual or potential RRI supporters.** Identifying RRI supporters. In any large organisation, there are researchers sensitive to RRI or specific RRI keys. Not rarely, some of them are also promoters of RRI-oriented initiatives. To facilitate researchers' mobilisation, it could be particularly helpful to map those researchers who are more sensitive to RRI and to involve them in the GAs from the beginning. A networking activity connecting them could be particularly effective.
- **Focusing on PIs.** In the Mutual Learning Workshops, the key role of the Principal Investigators (PI) as “gatekeepers” with respect to RRI has been highlighted: their support could promote the engagement of both the members of their research group and other PIs. Hence the importance to focus on them in promoting RRI, taking into consideration their engagements and orientations.
- **Establishing compensations and extra funds.** RRI entails additional costs for individual researchers (for example, additional procedures to follow, additional reports to produce, etc.). Small funds or compensations could be planned to be used as forms of incentive.
- **Introducing RRI-related criteria in research calls.** Research funding organisations can sustain the embedment of RRI principles and practices by incorporating RRI-related criteria in research calls both at the proposal stage but also during the implementation of the grants. Connecting RRI to the access to research funds or including RRI activities as eligible costs could be pivotal for making RRI currently adopted by researchers.

Lesson learned

Mobilising researchers is a difficult task. They prevalently live in a global, highly competitive research environment. Their career mainly depends on their capacity to access “global assets” (publications, citations, research grants). Any activity with which they are unfamiliar can be considered as an increase in workload or as time diverted from their main job. They may also relate it to administrative requirements rather than the research process itself. RRI is also usually perceived by them as either a new obligation to fulfil or a “good thing” that they have no time to get involved with. Hence the importance to develop specific activities focusing on them, using different kinds of means, such as tailored communication strategies, establishing incentives, promoting networking activities, or including RRI-related standards in the research process.

2.3. Leaders' attitudes

It is quite trivial to say that introducing RRI-oriented institutional changes in research funding and implementing organisations can be done only with the support of the leaders. However, once this issue is examined in detail, it appears to be less trivial.

Firstly, top managers, on average, know little or nothing about RRI and their knowledge of RRI keys can be uneven. This makes it difficult for them to assess the importance and benefits of implementing RRI in their organisation and leads them to be usually diffident and scarcely inclined to invest in the implementation of RRI.



Secondly, the attitudes of leaders towards RRI can be inconsistent or vague. IO teams reported cases of managers apparently highly supportive but scarcely engaged, or sensitive to some RRI keys and not to others. In some cases, leaders prefer to keep a neutral stance, adopting a sort of a *laissez-faire* approach. In general terms, they tend to be conservative, reproducing well-established practices, and rarely are open to promoting radical changes unless they are not strictly necessary.

Thirdly, leaders change over time. Any leadership's turnover may have strong impacts (positive or negative they can be) on how RRI is managed in the research organisation unless RRI is already solidly embedded in the organisation through clear institutional arrangements.

Finally, top managers, even when they have a supportive attitude, rarely tend to consider RRI or some RRI keys as a priority for their organisation. For such a reason, the staff may perceive to be not backed by the managers and is not motivated to get involved with RRI. The result is what can be referred to as "volunteering syndrome", i.e., the perception that the engagement on RRI is a choice done by single staff members on a voluntary basis. This perception is more evident when public engagement and science education are concerned.

The question of how to mobilise the leadership of the organisation, especially in the future, when the GRACE project will end, has been largely discussed by the IO teams. A set of possible tools to promote the involvement of managers has been highlighted.

- **Promoting participatory processes.** To introduce institutional changes, participatory processes allowing staff and stakeholders to discuss the new measures to introduce are necessary. Creating these participatory spaces can also provide the opportunity to engage the leaders since it creates pressure on them.
- **Promoting training activities addressing managers.** To favour the involvement of top managers, proposing basic and light training initiatives specifically tailored to them could be pivotal, also for making them more knowledgeable of the practical and feasible measures which they can take.
- **Institutionalising each step taken.** Applying institutional arrangements for each step taken in the process of implementation of the GAs can be important also to prevent the effect of possible leadership turnovers. In fact, for a newly appointed manager, it is problematic erasing decisions already in place.
- **Making the involvement of leaders visible.** Visibility (both inside and outside the organisation) can be an important means for urging managers to get committed to RRI. On the one side, it could be a form of reward which can render their engagement more attractive for them. On the other side, it is more difficult for them to change their mind and attitudes and to withdraw from implementing the commitments already made.
- **Identifying RRI champions and ambassadors.** It could be useful, for mobilising the staff, identifying authoritative persons inside the organisation publicly promoting RRI. This can have also important effects also on the mobilisation of the managers, especially when these RRI champions or ambassadors are also part of the management.



- **Connecting RRI with the organisation’s core strategies and agenda.** To make it more attractive for top managers, RRI should be presented as structurally connected to the core strategies and the agenda of the organisation.
- **Showing the benefits of RRI in terms of the image and reputation of the organisation.** Managers are usually interested in the public image and reputation of the organisation they lead. Thus, showing them the positive impacts of RRI in this regard could be a factor which may favour their engagement.
- **Creating stable internal and external networks or bodies in support of RRI.** The establishment of networks or groups in support of RRI or some specific RRI-related initiatives (e.g., a new code of conduct, new procedures for hiring and promotion), involving both internal and possibly external stakeholders, could be another factor feeding the managers’ commitment and preventing setbacks in case of leadership turnover.
- **Tapping into existing tasks and goals.** Leaders could be more inclined to get involved with RRI if they can see RRI as feasible. Showing them that RRI can be implemented prevalently tapping into existing tasks and goals of the organisation, so as to embed it in the existing institutional structures and mechanisms, could favour their commitment. The more ready-made solutions are proposed, the more leaders’ engagement is likely.
- **Differentiating communication strategies.** Managers are different from each other and their attitudes towards RRI can be also different because of the role they play in the organisation. Therefore, it could be advisable to differentiate communication strategies and approaches based on attitudes, responsibilities, expectations, and even personal experience of each of them.

Lesson learned

The involvement of managers is a pivotal step in the implementation of RRI. At the same time, the level, modes, and intensity of their involvement are usually variable and can vary over time. Internal reforming processes and leaderships turnover may also have strong impacts on the engagement of leaders on RRI. This means that the involvement of managers is a differentiated and dynamic process and not an event. It should be favoured and fed through a set of activities and means which should be tailored to the organisation’s features and even to the single attitudes and position of each manager.

2.4. The key role of the administrative staff

RRI is often described as a researchers’ affair or something engaging leadership. However, any institutional change process requires the involvement of the administrative staff.

Especially in universities and in research performing organisations as well as in large organisations, its role is often overlooked as administrative staff is often simply viewed as the “arm” of the leaders. However, this view is at least inappropriate if not clearly wrong. In many organisations, administrative units often played a proactive role in promoting RRI, often autonomously from leaders. In other cases, the leaders’ orientations about RRI are quite vague



and it is up to the relevant administrative units to identify the actions and institutional arrangements to be implemented. In a way or in another, when the administrative staff is not involved or does not have a supportive attitude, RRI-oriented actions are destined to fail.

This will be even truer when the GRACE project will be ended since many of the responsibilities and tasks about RRI presently managed by IO teams are likely destined to be shifted to administrative units.

Many of the approaches mentioned above with reference to other stakeholders (researchers and leaders) can be applied also to the administrative staff. They may include, for example, identifying messages on RRI tailored to the administrative staff, promoting short training initiatives addressing it, creating incentives and rewards, or making their engagement visible.

However, the most relevant issue is recognising the administrative staff members as an indispensable ally for promoting RRI, involving as far as possible in any GA launched in the organisations. Administrative staff can also play an advisory role to researchers on RRI issues and in the case of funding organisations can provide guidance to grantees.

This has already occurred under GRACE. In some cases, for example, the administrative staff has been involved in the development of guidelines aimed at institutionalising some GAs or has been consulted to design the GAs to appropriately consider the administrative and technical aspects. Members of the administrative staff have also become part of the IO team.

Lesson learned

The role of the administrative staff is pivotal for allowing RRI-oriented actions to be implemented. This role is destined to increase when GRACE will end. Therefore, the administrative staff should be considered the primary ally of RRI. This entails the development of actions aimed at ensuring the cooperation of the relevant administrative units and the progressive shift of responsibilities from the IO team to them.



Chapter 3 – **Activating the change process**



This chapter focuses on the lessons learned about the triggering of change processes mainly discussed in both the second and the third Mutual Learning Workshops.

3.1. Flexibility and responsiveness

The pathways towards RRI radically change in space and time. Each research funding and implementing organisation should find its way and such a way could change over time. All the IO teams, to a different extent, have modified the initial plan, introduced new GAs or eliminated others, changed the priorities or timelines.

Thus, flexibility and responsiveness are necessary to trigger RRI-oriented institutional change. This means, e.g., to anticipate possible risks and seize possible opportunities, reduce the risk of resistance, find sustainable and realistic solutions, avoid the objectives pursued being overambitious.

Some possible orientations have emerged from the Mutual Learning Workshops.

- **Identifying the battles to be fought.** Some IO teams have experienced the risk of acting on different keys or promoting multiple GAs at the same time. This could lead to the organisation being over-stressed and the staff being over-busy. A step-by-step approach in many cases seems to be the best option.
- **Balancing top-down and bottom-up approaches.** Institutional change cannot occur without both staff and leaders are involved. Therefore, top-down and bottom-up actions are equally important. However, the balance between them can change, according to different variables (type of action, level of engagement of different stakeholders, features of the organisation, etc.). It is up to the team to understand which possible balance is to be found.
- **Balancing the focus on RRI with that on RRI keys.** Under GRACE, some IO teams preferred to promote RRI as a general policy framework while others mainly focused on single RRI keys. Both choices have advantages and risks. It is difficult to be effective in focusing only on RRI keys. It is equally difficult to introduce RRI as both concept and a consistent set of practices. Hence the importance to find a balance that could also evolve over time.
- **Adopting a trial-and-error approach.** IO teams, in many cases, adopted a try-and-error approach, modifying their strategies, actions, or timelines if they turned out to be ineffective or inappropriate. Although this approach could be apparently time-consuming, it is sometimes the only way to proceed².
- **Establishing monitoring and evaluation mechanisms.** Under GRACE, monitoring and evaluation mechanisms have been created to support the IO teams to identify errors and

² See, in this regards, for example, Warnke, P., Röß, A., Mundt, I. (2018). *Discussion paper on the analysis of organizational barriers* (Fraunhofer Part), JERRI Project; Dotson, T. C. (2019). The promise and perils of produced waters: intelligent trial and error as an anticipatory framework for enabling responsible innovation. *Journal of Responsible Innovation*, 6(3), 305-322.



risks, anticipate bottlenecks, and timely field incoming problems. These mechanisms have been necessary to implement the GAs. They will be even more necessary after the end of the project when new GAs and RRI strategies will be initiated.

Lesson learned

Flexibility and responsiveness are required to implement RRI. However, they can be variably interpreted and applied. More likely, they are learned through experience. Keeping them in mind, especially after the end of GRACE, could help learn quicker and to act accordingly.

3.2. The internal environment

Understanding the organisation is pivotal to successfully promoting and implementing institutional change processes. Although this could be quite trivial to say, it is much more complex to do. Under GRACE, IO teams started to understand how the organisation works only when they started to promote the GAs, thus observing their own organisation from a new perspective. To some extent, promoting RRI is like an action research project in which reality is known while trying to change it.

IO teams used different diagnostic tools to collect information about the internal environment, including open meetings, interviews, surveys, or working groups.

From the experience of GRACE, some orientations can be drawn in this regard.

- **Understanding internal stakeholders.** For the IO teams, understanding internal stakeholders has been pivotal to activate the GAs. This includes understanding, e.g., what motivates each of them, what are their characteristics and attitudes, and what are the challenges and dilemmas they are facing. Going in depth into this issue necessarily requires creating opportunities for exchange and open dialogue, even though it could be a time-consuming activity.
- **Assessing the general attitudes towards change.** Another aspect related to stakeholders is that of the attitudes of the staff towards change in general. Some IO teams noticed that the staff in their organisation was not necessarily against RRI but against the change in general. These attitudes manifest themselves through scepticism, fear of change, and the tendency to reproduce traditional views and established practices. Assessing them is important to develop effective GAs.
- **Recognising the key features of the organisation.** Some features can play an important role in the implementation of RRI, such as the size of the organisation, the internal relations among the organisational units or the “maturity level” of the internal discourse on RRI within the organisation (if it is very low, even small resistances become extremely difficult to face).
- **Identifying existing RRI-oriented initiatives and practices.** In many organisations, RRI-oriented initiatives and practices are already in place. This can concern, for example,



measures to promote gender equality, ethics committees, or open access policies. Moreover, in many organisations, RRI-oriented initiatives are promoted by individual staff members. It is necessary to draw a map of these initiatives and measures to avoid the IO team starting from scratch.

Lesson learned

To accelerate the institutional change process, it is necessary for the team to get a clear picture of the organisation. This may require specific diagnostic tools but, in a broad sense, it entails a broader capacity to perceive and interpret any relevant aspect of the organisation throughout the RRI implementation process.

3.3. RRI governance structures

One of the lessons learned emerging from the GRACE Mutual Learning Workshops is the importance to focus on governance structures from the beginning. Starting GAs without a hypothesis on how they could be continued after the end of the project turned out to be risky. In some cases, IO teams introduced at least one GA focused on RRI governance across the individual RRI keys during the project implementation period, so as to build up a unitary RRI governance structure for the different RRI keys.

The focus of governance is also necessary to prevent the risk that RRI could be perceived by the staff as “a problem of the project” and therefore of the project staff and not as a problem for the organisation and its staff overall. The role of the project as a “triggering device” of broader and longer-term RRI policies should be clear from the beginning to everyone.

A large variety of actions and tools could play a role in establishing RRI governance structures. They may include the establishment of, for example:

- New tasks, officers, or units in charge of promoting RRI-related activities
- Guidelines and protocols orienting organisational practices
- Strategic documents to be incorporated into the mission statement of the organisation
- Action plans
- Recurrent initiatives aimed at collecting data and information (e.g., surveys, focus groups, interviews)
- Periodic reports documenting the activities carried out or the situation of the organisation on specific issues (like gender equality, public engagement, or open access) or RRI in general
- Working groups or other reflection and dialogue structures propelling the change with new ideas and proposals
- Permanent training modules addressing students, researchers, administrative staff, or leaders
- Permanent awareness-raising activities
- Permanent webpages, newsletters, or other communication tools.



Lesson learned

The implementation of the GAs and the definition and preparation of their future governance structure should proceed in parallel. Governance structures across the RRI keys should be also considered even when the IO team decides not to apply a coordinated approach to RRI crosscutting the keys. More importantly, the concerned stakeholders should be aware that RRI required the establishment of a new permanent governance structure in the organisation.

3.4. The external environment

The external environment comes into play in many ways in the implementation of RRI-oriented activities. Some examples can be given drawn from the GRACE experience.

- **Creating alliances.** In many cases, under the GRACE project, the commitment of external stakeholders and even policymakers revealed to be important to establish some forms of alliances and coordination necessary to carry out the GAs.
- **Accessing expertise and training opportunities.** Contacts with external experts or the creation of advisory boards made up of external experts have been sometimes necessary to access relevant expertise that the team or the organisation was lacking. In some cases, IO teams participated in training activities organised by external entities on RRI.
- **Increasing visibility and recognition.** The involvement of external entities, experts or champions has been in some cases also useful to increase the visibility of RRI inside the organisation, favouring the internal recognition of RRI.
- **Anchoring the local stakeholders.** All the IOs have organised workshops and events to create a network of external stakeholders to involve them in the RRI activities and to reinforce the anchorage of the IO with the local dimension.
- **Accessing best practices.** All IO teams used external sources to learn from the experience made elsewhere since many solutions and tools have been already tested and can be easily identified and adapted.
- **Connecting to external networks.** Some IO teams got involved with national, European, or international networks to keep on learning and updating and also to reinforce the commitment on RRI of the leadership of their organisation

Lesson learned

All the GAs, in a way or in another, implies interactions with entities, stakeholders, or networks external to the organisation. The experience done in GRACE suggests that these interactions are vital to implementing RRI in research organisations. Hence the importance for the IO teams to plan and reinforce them, especially when the support from GRACE will cease.



3.5. The right tools to apply

RRI-oriented institutional changes are mostly made up of negotiation processes, which develop at different levels, such as the interpretive level (e.g., about RRI, about the organisation), symbolic level (e.g., visibility of RRI, involvement of champions), the normative level (e.g., rules, structures, protocols) and the operational level (e.g., sharing of new practices by the staff). Negotiations are also essential to counter resistance to change that inevitably emerges.

A large part of the discussion within the Mutual Learning Workshop concerned the best tools to use to accelerate this process. The question mainly concerns to what extent participatory tools can be applied.

On the one side, they are necessary to create a sense of ownership among the stakeholders to make RRI possible. Not rarely, the IO teams met problems in mobilising staff members since these latter ones showed no spirit of initiative and were dependent on the GRACE team since they did not feel part of the project. On the other side, there is the risk to produce a “saturation effect”, i.e., suturing the capacity of stakeholders to get involved in new activities or to receive new information inputs on RRI.

Some solutions have been tested by IO teams.

- **Applying innovative involvement tools.** During the Mutual Learning Workshop, various IO teams emphasised the difficulties to promote RRI using traditional involvement communication tools (for example, meetings or talks). Some of them developed light, playful, informal, even funny, short, and dissimilar from working activities.
- **Diversifying the level of involvement.** Some IO teams diversify the level of involvement of individual staff members and leaders so that their involvement does not cause excessive work for them.
- **Promoting co-creation workshops.** Co-creation workshops have been promoted by different IO teams to create a concern inside the organisation on RRI-related issues and to arouse a sense of ownership among staff members.
- **Reducing the number of new structures.** To prevent the saturation effect, various IO teams preferred to create new multi-purpose structures, embracing different RRI keys. For example, one of them established a new committee working on both ethical issues and gender equality issues, thus reducing the workload on the staff.

Lesson learned

Participatory tools are necessary for RRI to be implemented. However, such tools are time-consuming and could not be compatible with the engagement of researchers, leaders, and administrative staff. The tools used for promoting RRI should be, therefore, light, and flexible enough to be applied in the ordinary life of the organisation and the staff as well.



Chapter 4 – Institutionally embedding RRI



This chapter includes the main lessons learned emerged from the Mutual Learning Workshops on the institutional embedment of RRI in research organisations.

4.1. From negotiation to institutional arrangements

One of the recurrent critical issues faced by IO teams is not starting a negotiation process with stakeholders and leaders on RRI but to close it with the establishment of new institutional arrangements.

Various factors contribute in generating this problem: the lack of connection between RRI and the core policies of the organisations, making RRI a marginal aspect of the life of the organisation, to be carried out only when possible; the lack of consolidated practices related to RRI which makes it more difficult for managers to make decisions about RRI; the presence of many stakeholders interested in having a voice in the development of RRI measures, even though they are not necessarily active; the presence of resistances to change. Leadership turnovers may also play a role in that.

This mix of factors tends at least to slow the institutionalisation of RRI and can arise a sense of uncertainty, scepticism, or frustration among the concerned stakeholders.

As for the solutions, some proposals have been advanced and sometimes practiced by the IO teams. Some of them have been also highlighted in Chapter 3.

- **Institutionalising each step taken.** To reduce the risk of setbacks, it should be important to find and apply institutional arrangements for each step taken in the process of implementation of the GAs (for example, the approval by the Board of the organisation). Although it could be difficult to practise, this approach could facilitate the institutional embedment of RRI creating a series of “points of no return”.
- **Developing a general frame for RRI.** Another strategy is developing a general RRI frame directly connected to the mission and the image of the organisation. This could facilitate the implementation of the RRI-oriented activities since it could provide them with permanent legitimacy inside the organisation.
- **Increasing the visibility of the GAs.** Making the GAs as visible as possible could be also helpful. It is more difficult to slow or stop these activities when they are known by everyone inside the organisation.
- **Establishing an external advisory board.** Creating an external advisory board in support of the GAs could be useful since it could create external constraints making it more difficult for leaders to slow down or stop the process.
- **Establishing informal interest groups.** Establishing informal groups (for example, a network or an internet-based group involving researchers, PhD students, or other staff members) interested in exchanging ideas and opinions on RRI or RRI keys could help create pressure on the management to keep RRI on the agenda of the organisation.



- **Planning the institutional arrangements from the beginning.** To prevent negotiations from being too long and uncertain, it could be strongly helpful to propose the possible institutional arrangements to develop from the very beginning of the promotion of the new GA. This could avoid possible misunderstanding and facilitate the acceptance of the new measures to introduce.

Lesson learned

Closing the negotiation process can be sometimes difficult, also because the way in which new institutional arrangements are established may be different according to the, e.g., the type of organisation, the RRI key concerned, or the leadership lifestyle in the organisation. It is up to the IO team to understand how a new action or measure is embedded in the organisation, i.e., it cannot be changed simply because of a leadership turnover.

4.2. Alignment of RRI with the existing activities and structures

Another important lesson learned through the IOs experience under GRACE concerns the institutional arrangements to be adopted to institutionally embed RRI in the organisation.

Although the development of new organisational structures and activities entirely dedicated to RRI is often considered as the best solution to undertake, IO teams preferred to align RRI with the existing activities and structures, such as, for example, attributing new tasks and roles to the Communication Department, the Teaching Department, or the Human Resources Department.

This approach is beneficial from different standpoints. Firstly, it reduces possible resistance towards the adoption of new RRI measures. Secondly, this way, RRI can be more easily incorporated in the usual regulating mechanisms, for example, career development, incentives and rewards, salaries, and hierarchical relations. Thirdly, and most importantly, the alignment with the existing activities and structure makes it possible to leverage on the RRI-oriented initiatives previously done in the organisation and to fully exploit the existing expertise and competencies.

The major risk of this approach, at the same time, is trivialising or bureaucratising RRI. A too-tight alignment could make RRI scarcely visible, favour its marginalisation in the agenda of the organisation and produce delays. Moreover, it could lead not to establish new structures, officers, or units even when they could be necessary. Finally, such an approach could drive to RRI-oriented measures being fragmented and no longer recognisable as part of a unitary policy.

Again, a balance should be found between the need for RRI to be understood by the staff as a novel approach and the need for reducing resistance or saving time and resources.



Lesson learned

A realistic approach to RRI should be adopted, privileging as far as possible the alignment of RRI with the existing activities and structures. However, there is the risk to adopt an approach that is too low-profile and fragmented, reducing the power of RRI to introduce real novelties in the organisation's life. A balance between change and continuity should be then looked for.

4.3. Between institutional arrangements and mobilisation

There is a tendency of thinking of institutional change as a process of collective mobilisation and experimentation which, in the end, translates into new norms, rules, and protocols. In essence, the mobilisation ends when the new institutional arrangements are in place.

The experience of GRACE suggests that this view is wrong, for different reasons.

Firstly, RRI works if it becomes an evolutionary process. Science-society relationships change rapidly, and new arrangements, practices, and ideas are necessary to keep up with them. Secondly, although institutional changes occur, they could be put in danger for different reasons, such as leadership turnovers, restructuring of the organisation, new policies, or financial constraints. Thirdly, many RRI-oriented institutional changes require also widespread actions on culture, attitudes, knowledge, and skills, which cannot be simply done through new rules or procedures.

Therefore, any institutional change should be supported and made possible through some sort of mobilisation, even at low intensity, of key stakeholders, internal networks (e.g., networks of women scientists on gender equality, networks of researchers on ethics and integrity, networks of librarians on open access) and “champions”. This may require the development of specific initiatives, like training and awareness-raising activities, networking events, communication strategies, or the establishment of informal groups, which could keep the “RRI spirit” alive.

Lesson learned

Institutionalising RRI does not entail the end of stakeholder mobilisation. RRI should be understood as an evolutionary process that requires a proactive engagement of key stakeholders to push forward. Training and awareness-raising initiatives, networking, communication, and the presence of “champions” could be pivotal in this regard.

4.4. The importance of knowledge transfer

The presence of transformational agents (issue that was discussed in Chapter 1) will be of pivotal importance also when the GRACE project will be ended. Some of the GAs initiated under the project and especially those that will be initiated in the future will likely be designed and managed by staff members who did not participate in the project.



Apart from institutional and organisational aspects, it will be extremely important to be able to transfer the theoretical and practical knowledge, but also motivational aspects and know-how to those who will take on the responsibility for future RRI-oriented actions.

This shift can be appropriately done if the team is strong enough to be aware of the knowledge and expertise acquired during the project. However, this requires specific actions which should be planned. Based on the experience of GRACE, different approaches, not necessarily alternative to each other, can be used.

- **Developing guidelines and protocols.** One of the most powerful instruments is drafting guidelines or protocols summarising and making transferable knowledge, know-how and procedures defined and practised under GRACE. They can concern either specific GAs or the RRI as a whole. This kind of document can be detailed, including, e.g., forms or templates to be used or can be larger in scope. Producing these materials could be extremely useful also for the team to better capitalise on their own experience.
- **Backing the concerned staff.** Another possible approach is backing the staff members in charge of the continuation of RRI-related actions in the first steps of their engagement. This solution could be organisationally more complex to implement, but it would be particularly effective since it helps identify possible misunderstandings and the transfer of tacit knowledge.
- **Organising training activities.** The organisation of training activities could be another possible approach to be promoted to make the shift of responsibility smoother. This way, the transfer of knowledge and skills could be more structured and replicable.
- **Activating working groups.** Various IO teams established working groups on a voluntary basis to attract researchers, managers, or members of the administrative staff towards RRI or RRI keys. They are autonomous and serve as spaces for dialogue and co-creation, favouring knowledge transfer and feeding a sense of ownership.

Lesson learned

Gradually making a team a real transformational agent is pivotal to ensure the continuation and further development of RRI in the research organisation after the completion of GRACE through an effective and planned knowledge transfer process. Staff members who will take on the future RRI-oriented actions and strategies should be put in the condition to learn from the past and not to start from scratch.



PART TWO – ROADMAPS TOWARDS RRI



This second part of the Report focuses on the Roadmaps towards RRI developed by the six IOs, i.e., the RRI-oriented activities to carry out after the end of the GRACE projects. A five-year period has been considered, organised into two sub-periods:

- The **Post-project period** (2022-2023), mainly focused on the continuation of the GAs initiated under the project and the launch of new GAs, referring to the same RRI keys or other ones
- The **Stabilisation period** (2024-2026), mainly aimed at consolidating a stable and comprehensive RRI-oriented policy in the concerned organisation.

The design process of the Roadmaps developed through different steps.

- The first ideas of the Roadmaps were developed in the first year of the project (2019), in parallel with the design of the GAs to be implemented during the project. A short description of the Roadmaps is included in Deliverable 3.2 (Definition of Grounding Actions and Roadmaps towards RRI), delivered in November 2019.
- The Roadmaps design process recovered through the third Mutual Learning Workshop, held in May 2021 and focused on the sustainability of the GAs and the development of the activities to be launched after the project lifespan. In particular, each IO, in preparation for the workshop, was asked to draft a short note (the Self-assessment Note) in which the situation of each GA was described and some possible future developments after the completion of GRACE were envisaged.
- Then, in September 2021, a Template was developed by K&I to facilitate IOs in defining the Roadmap. The filled-in templates have been returned to K&I in October 2021.
- Based on these templates, this part of the Report has been drafted in October and November 2021.

The Part includes six chapters, each of them presenting the Roadmap of an IO, i.e.:

- European Science Foundation (ESF) (Chapter 5)
- University of Groningen (RUG) (Chapter 6)
- University of Siena (UNISI) (Chapter 7)
- Swedish Environment Research Institute (IVL) (Chapter 8)
- Agency for Management of University and Research Grants (AGAUR) (Chapter 9)
- Research Centre of the Slovenian Academy of Sciences and Arts (ZRC SAZU) (Chapter 10).

Each chapter is organised into the following sections:

- Short description of the organisation
- A reflection of the IO team on the main achievements and critical issues pertaining to the activities carried out during GRACE
- Strategies and objectives for the Post-project period (2022-2023)
- Consolidation of the GAs initiated under GRACE in the post-project period
- GAs to launch in the post-project period
- Strategy and objectives for the Stabilisation period (2024-2026)
- Ideas about the governance of RRI-related activities.



Chapter 5 – European Science Foundation (ESF)



5.1. The organisation

The **European Science Foundation (ESF)** was established in 1974 and was originally set up as a coordinating body for Europe's main research funding and research performing organisations. In that time, the Foundation has supported over 2,000 programmes and networks, gathering more than 300,000 scientific stakeholders from 186 countries through funding from 80 Member Organisations in 30 countries.

As the research landscape has evolved, so too has ESF's role in supporting scientific endeavours. ESF's traditional research support activities (EUROCORES, European Collaborative Research Projects, Exploratory Workshops, Research Networking Programmes) have been concluded to make room for a new expert services division called Science Connect, which delivers practical, skilled and interdisciplinary support across all sectors of the science community. These activities include Grant Evaluation, project management, hosting scientific platforms and career tracking services.

Since 2003 the European Foundation has been involved in more than 45 European funded projects (from FP5 to the end of H2020). Since 2014, ESF has processed more than 5,000 research proposals across 32 competitive calls implemented by international programmes, philanthropies, or national funding organisations. To carry out these activities ESF has a network of 30,000 scientific stakeholders (academics, science policy experts, key decision-makers) on the European and global research landscape. The ESF College of Experts, which is a subset of this broader network, includes nearly 8,000 highly skilled experts who are committed to participating in ESF-led Grant Evaluation.

Now ESF and its new expert services division, Science Connect, still support the conduct of scientific research across Europe, but more as a service provider, rather than a member-owned organisation. Via Science Connect ESF has launched a series of services to the scientific and academic communities, including peer review, project management, programme evaluation and career tracking. A key pillar of ESF's action has been its strong scientific network spanning across disciplines.

ESF has been gradually addressing key issues of the 'Science with and for Society – SWAFS' programme via dedicated policy briefs, 'Forward Looks' and reports that are now instrumental in facing European societal challenges tackled by Horizon 2020, in building capacities and in developing innovative ways of connecting science to society.

ESF is based in Strasbourg, France. The staff is made up of 34 highly qualified and multilingual professionals.

5.2. Main achievements and critical issues

While there was previous knowledge of the concept and theory of RRI at the ESF prior to GRACE, the project set the ground for a direct and practical application of RRI at the institutional level. At the beginning of the GRACE project, ESF was undergoing important internal changes, and this also provided a window of opportunity for change. In such a context, GRACE provided the framework for RRI-related institutional change.



Three years down the line, RRI and its main principles (with some keys more familiar than others, i.e., gender equality and open access) have become a relatively familiar notion attached to a positive aura for most of the team, including those not directly involved in RRI projects/activities. The number of RRI-related projects has significantly increased, now representing a significant fraction of the EC-funded projects run at the ESF. This has come hand in hand with increased expertise in the different keys, and increased importance given to the subject as a source of potential business/funding opportunities.

The increased relevance of RRI-related projects and activities in the overall ESF business activities (by way of EC projects and hosting of the cOAlition S office³) has also granted some legitimacy and possibly greater negotiation power to the team leading RRI projects. The positive expected impacts of RRI, and the objectives of the ESF in terms of promoting and engaging with it, are being advertised by the ESF and the concept will likely be added to the organisation's Strategy, currently under development.

Embedding RRI in governance structures via a cross-cutting approach was of key importance for the GRACE team. This has enabled transversal changes through the institution and has assured the sustainability of many of the actions. Based on the initiative of the ESF GRACE team most of the ESF operative documents have been/or are currently being revised to embrace an RRI perspective.

Obstacles remain largely connected to resources investment, especially in terms of staff working time. With the end of GRACE, and a dedicated budget framework for implementing RRI-actions, the sustainability of certain actions put in place will have to be further evaluated. Some institutional changes are also likely to take more time, requiring further institutional cultural change.

5.3. Strategies and objectives for the Post-project period

The immediate post-project period will see the start of putting the documents and policies that were developed under GRACE project in use. Therefore, this period will be characterised by monitoring activities of the implementation, together with further training and awareness-raising activities.

At the Governance level, the beginning of the post-project period coincides with the finalisation of the ESF's new Strategy and Mission, bringing an opportunity to continue embedding the RRI principles in these core documents. For assuring the sustainability of all RRI keys, the sustainability of the Governance key is essential.

For the Gender Equality key, the structuring and implementation of the institutional Gender Equality Plan is expected to guide some new activities and will assure the sustainability of the activities developed under GRACE. ESF participation in related EU-funded collaborative

³ cOAlition S is an international consortium of research funders that was launched on September 2018 to implement Plan S, an initiative for open-access science publishing.



projects will facilitate the identification of further opportunities for related awareness-raising within the organisation and its network.

In connection to the Gender Equality and Research Ethics keys, and specifically linked to the activities of the Grant Evaluation services, the use of the Guidelines for Reviewers will be monitored and evaluated. Through surveys and other indicators, the use of the Guidelines will be assessed. Continuous training and awareness-raising activities on relevant RRI subjects will be guaranteed by the Grant Evaluation team. In addition, the Open Access key (considered as Open Science) will be promoted within the Grant Evaluation services, with related awareness-raising activities for stakeholders in the post-GRACE period, as part of the continuation of GA5.

The continuity and sustainability of Research Ethics and Open Access actions will be assured by the related working group, particularly in charge of assessing further needs and possible updates on the GDPR and Ethics regulations.

The interest in actions related to Public Engagement (especially Citizen Science) and Science Education is rather recent at ESF, therefore will be further developed with a dedicated GA, aimed mainly at enlarging the network in these fields, organising awareness-raising and training activities especially to academic partners, but also to bring possibilities of further involvement in existing/new initiatives.

One of the main challenges during this phase will be the monitoring and evaluation of activities and achievements without the external assistance provided by the GRACE mentoring and monitoring framework. Monitoring and evaluation strategies implemented during the project will need to be adapted, possibly with the engagement of external experts in this phase of the post-GRACE period.

5.4. Consolidation of the GAs initiated under GRACE

ESF is presently managing six GAs, of which two on Gender Equality, two on Research Ethics and Integrity, one on Open Access and one on RRI governance.

GA1

Inclusion of gender issues in the ESF internal processes and structures (Gender Equality)

Description. This Grounding Action consists of establishing the basic structures and procedures as well as activating the key processes necessary to institutionally embed gender issues in the organisation through the development of a Gender Equality Plan (GEP).

Status. The design of the GEP is being developed and will be available by the end of 2021. Once this activity is finalised the GA would be completed.

Sustainability actions. To make this GA sustainable, the Gender Equality Working Group has been established. It showed to be sustainable and independent of the GRACE project. To assure its sustainability a budget was assigned to the Working Group activities. Moreover, a self-assessment mechanism has been introduced and it is now integrated into the GEP under



the Monitoring and Assessment section. The self-assessment process will be conducted yearly. The GEP is by itself a tool to assure sustainability since it has identified actions for the next 3 years (2022-2025) and includes a time for reflection at the end of the GEP period, to identify the needs and priorities for the following GEP, further supporting sustainability.

Elements for the GA consolidation. The following elements can be mentioned for a long-term consolidation of this GA.

- Different actors are involved in the continuation of this GA: the Gender Equality working group is already in place; the leader of the working group will be part of the GEP team and will oversee the implementation of the GEP together with some staff member that is in charge of the SwafS projects (the SwafS Cluster).
- Dedicated budget lines for the Gender Equality working group and for the implementation of the GEP will be allocated.
- All the key activities done under this GA have been incorporated in the ESF GEP and will be monitored by the appointed GEP team working on the implementation of the GEP.
- The ESF management is already involved in the design and implementation of the GEP.

Potential obstacles. The implementation of the GEP would be evaluated only internally. This could have negative impacts on the quality of the actions and on their timely implementation. A way to tackle this would be to present the advancement of the GEP implementation to ESF board members annually.

Activities to consolidate. In January 2022 the GEP team will be appointed and the GEP implementation will start. The first annual report on the GEP will be in January 2023.

GA2

Inclusion of Gender issues in Grant Evaluation (Gender Equality)

Description. This Grounding Action includes a set of activities aimed at, on the one side, enlarging the presence of women in the ESF College of Experts and, on the other side, reviewing and enhancing from a gender perspective ESF procedures in the evaluation of research proposals.

Status. For different reasons, many activities pertaining to this GA have been postponed and/or delayed, new deadlines have been set for 2021-2022.

Sustainability actions. The main outcome of this GA is the development of new Guidelines for reviewers, which would be an operative document for the Grant Evaluation team and services. Other activities (setting targets and dealing with biases) will be included in the GEP for assuring their sustainability.

Elements for the GA consolidation. The following elements can be mentioned for a long-term consolidation of this GA.

- The GA will be continued by the Grant Evaluation team (the structure at ESF in charge of the Grant Evaluation activities). However, the GEP team and the Gender Equality working group will be also involved. The SwafS Cluster can also provide support when needed.



- The GA will be continued using the resources managed by the Grant Evaluation team. Other resources and expertise could also be provided by the Gender Equality working group. As the guidelines will also include ethics and integrity components, additional resources/effort could be provided by the Ethics and Open Access working group.
- The Grant Evaluation team will ensure that the Guidelines are followed by the Reviewers and will do the respective quality checks. It will also provide informative videos to new (Research Associates, i.e., consultants that work for the Grant Evaluation services) and Reviewers, to complement the Guidelines.

Potential obstacles. The Grant Evaluation team might lack human and time resources to pursue some of the actions. In these cases, the GE working group could assist the Grant Evaluation team to deliver those tasks.

Activities to consolidate. An annual audit of the gender composition of the College of Experts and the panel meetings is planned by December 2023, as part of the monitoring indicators of the GEP. Moreover, feedback surveys addressing the Reviewers to measure their awareness of gender biases and the gender dimension in research are planned to start from December 2021.

GA3

Personal data management in ESF activities (Research Ethics & Integrity)

Description. This Grounding Action is aimed at improving the understanding of ethical regulations at ESF and introducing new procedures to improve data management at all ESF activities.

Status. This GA is almost completed. The update of the code of conduct is being finalised and will be ready by December 2021.

Sustainability actions. The main outcome of this GA is the establishment of a section of the Code of Conduct on data management. This document will be updated periodically as soon as a new normative will be defined. Informative sessions will be organised by the Ethics and Open Access working group, established under GRACE to promote activities under these two RRI keys.

Elements for the GA consolidation. The following elements can be mentioned for a long-term consolidation of this GA.

- The GA will be continued by the Ethics and Open Access working group and the Data Protection Officer. The SwafS Cluster can also provide support.
- The GA will be continued using the resources allocated to the Ethics and Open Access working group.
- The Ethics and Open Access working group will continue the organisation of informative events (InfoSessions). It will be also in charge of conducting a survey on a regular basis to evaluate the knowledge on GDPR and Ethics issues by ESF Staff.



Potential obstacles. The main risks are the lack of evaluation of the activities under this GA and the lack of interest by the Ethics and Open Access working group members in following up these activities.

Activities to consolidate. An annual feedback round is planned to measure staff competences on GDPR and ethics issues starting by December 2023. A survey to assess the training needs of ESF staff in GDPR and ethics management is planned for December 2024.

GA4 Ethics in grant evaluation (Research Ethics & Integrity)

Description. This Grounding Action consists in producing an information package and a set of Guidelines for the ESF reviewers and staff involved in grant evaluation to help them appropriately manage ethical and integrity-related issues emerging from the evaluation procedures.

Status. This GA will be continued. The activities under this GA mostly depend on the drafting of the Guidelines for reviewers. Since this activity has been delayed to December 2021, new deadlines should be set in 2022.

Sustainability actions. The sustainability of this action will be ensured when the Guidelines for Reviewers, also covering ethics, confidentiality and GDPR issues, will be developed and approved.

Elements for the GA consolidation. The following elements can be mentioned for a long-term consolidation of this GA.

- The GA will be continued by the Grant Evaluation team. They will be supported by the Data Protection Officer, the SwafS Cluster, and the Ethics and Open Access working group. External experts could be invited to provide further/alternative insights and support.
- The GA will be continued using the resources of the Grant Evaluation team.
- Once developed, the Guidelines, also ethical and privacy-related issues, will be assessed on a regular basis.

Potential obstacles. The Grant Evaluation team might lack human/time resources to pursue some of the actions. In those cases, the Ethics and Open Access working group could assist to deliver those tasks.

Activities to consolidate. The guidelines are expected to be finished by December 2021 and start their dissemination by 2022. Feedback will be collected by users by mid-2022. A survey is planned for December 2023 to measure the acceptance of the principles included in the Guidelines by the Research Associates and members of the College of Experts. The track of the download count of the Guidelines will be also done the same month to get a measure of to what extent the Guidelines have been adopted by the Experts.



GA5

Building Open Access culture and competencies within the organisation and its network (Open Access)

Description. This Grounding Action is mainly focused on building Open Science culture within the ESF and developing competencies for better understanding Open Science procedures and becoming advocates within the ESF network.

Status. This GA is almost completed, since only one activity among those planned (Evaluation of the possibility to align ESF platforms with the Open Science principles) is lacking and it is scheduled for December 2021.

Sustainability actions. The sustainability of this action will be ensured by the Ethics and Open Access working group, with a dedicated budget.

Elements for the GA consolidation. The following elements can be mentioned for a long-term consolidation of this GA.

- The GA will be continued by the Ethics and Open Access working group, with the support from the cOAlition S officer, the Grant Evaluation team and the platform managers. The SwafS cluster will provide its expertise, since is participating in various EC projects that promote institutional changes in Open Science. Besides the SwafS cluster expertise, their network could also be of use for this GA.
- Part of the budget of the Ethics and Open Access working group will be used for this GA. Moreover, other resources could come from the SwafS Cluster.
- Once developed, the Guidelines, also ethical and privacy-related issues, will be assessed on a regular basis.
- Information events (InfoSessions) on Open Access and Open Science will continue to be organised by the working group in collaboration with the cOAlition S officer.

Potential obstacles. The Ethics and Open Access working group could lack the human and time resources, as well as the motivation or inspiration, to pursue some of the actions. The support of the SwafS cluster and maybe also the cOAlition S officer could be envisaged to overcome these obstacles.

Activities to consolidate. A set of training activities and webinars addressing the ESF staff and Grant Evaluation stakeholders will be conducted by December 2022. A survey to evaluate the knowledge of ESF staff on Open Science topics will be launched by December 2023. ESF will start hosting cOAlition S or other relevant events at its premises from December 2023.

GA6

Defining the ESF strategy for embedment of RRI (Governance)

Description. This Grounding Action develops a set of activities aimed at defining the ESF strategy for the embedment of RRI in the organisation, also capitalising on the outputs of the other GAs, especially by developing the ESF statement and framework on RRI.



Status. This GA will be continued after the end of GRACE, since the RRI statement was postponed to align it with the new ESF strategy and mission that is currently being defined.

Sustainability actions. The sustainability should be ensured by the different working groups, that have their own budget. They already organised the information sessions on RRI-related issues. Moreover, the SwafS Cluster will continue to develop RRI events. The engagement in RRI projects for the coming years, should help sustain efforts already undertaken.

Elements for the GA consolidation. The following elements can be mentioned for a long-term consolidation of this GA.

- The ESF management is directly engaged in this GA, together with the RRI-related working groups and the SwafS Cluster.
- The resources should come from the budget of the working groups and the SwafS Cluster, also leveraging on the RRI networks.
- The SwafS cluster has participated with its feedback on the ESF Mission and Strategy definition and will be in charge of developing the RRI statement in 2022.

Potential obstacles. Resistances to change are expected. As in Horizon Europe most of the RRI principles are cross-cutting in all the calls, this could serve as a strong argument to counteract the resistances.

Activities to consolidate. By December 2022, the establishment of a specific budget allocated to RRI initiatives is planned. The integration of RRI principles in the practices and projects developed by the other Clusters is expected to be implemented by December 2023. The establishment of mandatory RRI training for the ESF staff is expected by December 2024.

5.5. GAs to launch in the Post-project period

An additional GA is planned for the Post-project period, opening up ESF to both Public Engagement and Science Education. The GA is described below.

GA7

Building ESF's Public Engagement and Science Education expertise and network (Public Engagement and Science Education)

Description. This GA was developed over the last year of GRACE and aims at developing a set of activities to facilitate the embedment of Public Engagement and Science Education keys in the organisation and creating a network of stakeholders in these fields.

Planned activities. The following activities are planned.

- Participating in EC projects related to Public Engagement/Citizen Science and Science Education (September 2021)
- Setting up the ESF stakeholder database (December 2021)
- Setting up a strategy for enlarging the ESF network including the quadruple-helix actors (September 2022)
- Joining ECSA (European Citizen Science Association) (January 2022)



- Organising InfoSessions on Public Engagement/Citizen Science and Science Education addressing the ESF staff (March 2022)
- Providing training to ESF partners on Public Engagement/Citizen Science and Science Education (May 2022)

Elements for the GA consolidation. The following elements can be mentioned for a long-term consolidation of this GA.

- The GA will be developed by the SwafS Cluster and partially by the Ethics and Open Access working group. Other possible stakeholders would be the ECSA working groups, local stakeholders, EC project networks, and the CrowdHelix Network.
- The necessary resources will come from EC projects in terms of knowledge and networking (presently, ESF is participating in the TIME4CS and OTTER projects)
- The enlargement of the ESF network would assure the sustainability of this GA.
- The participation in ECSA and the possibility to showcase it on the dedicated RRI webpage is expected to increase the possibility of ESF to make this GA more sustainable and to participate in other projects focusing on Public Engagement/Citizen Science and Science Education

Potential obstacles. ESF staff turnovers and lack of maintenance of the stakeholder database could be potential obstacles to the implementation of this GA. This could be mitigated by involving several staff members in the action. Limited resources for staff involvement in ECSA activities could also be an obstacle.

5.6. Strategies and objectives for the Stabilisation period

For the Stabilisation period, the following objectives and strategies could be envisaged.

- Establishing an ESF holistic approach to RRI, reflecting on and combining the results of the activities conducted in the previous two phases.
- Reviewing and improving RRI structures and processes put in place, updating them, and establishing new objectives for ESF for Gender Equality, Research Ethics and Integrity, and Open Access.
- Reinforcing and making explicit the commitment of the institution to Gender Equality in its processes and activities.
- Raising awareness and advocating Research Ethics and Open Science.
- Defining a plan for giving a further impulse to ESF commitment to Science Education and Public Engagement.
- Making ESF an advocate and reference in RRI.

To develop these strategies and pursue these objectives, the following GAs could be implemented in the Stabilisation period.

- GA1 will be continued in the stabilisation period, a second GEP will be drafted and running by then.
- GA2 and GA4 will be continued delivering training to the Research Associates and Reviewers and making RRI keys part of the evaluation criteria at all calls managed by ESF.



- GA3 will be continued by providing training and updates on GDPR and ethics regulations to employees and assessing the knowledge gaps.
- GA5 ESF will continue advocating Open Science practices and become a facilitator to them through its extensive network.
- GA6 will be continued to assure the full embedment of RRI principles at every dimension and service of ESF.
- GA7 will be developed allowing ESF to further enhance its strategy to engage on the Science Education and PE/CS fields.

5.7. Ideas about the governance of RRI

One of the main lessons learned in GRACE was that without impacting governance, more specifically initiating change via the Governance key, the implementation of the other RRI keys is very difficult. ESF approach to embedding RRI then used a “Governance strategy”, trying to stress the RRI importance as a cross-cutting issue. Using this strategy, many of the activities were focused on changing institutional guidelines, documents, and policies in order to make the changes sustainable and ensure an overall systemic change to the organisation.

For the Post-project and Stabilisation periods, the approach of ESF will be similar. The Post-project period will be when the documents and policies developed under GRACE will start to be in use and implemented. This period will focus on monitoring their implementation and assessing their impact. By the beginning of the Stabilisation period enough data will be available to re-evaluate the documents created under GRACE and update them accordingly. New documents and policies could be developed (if needed) to support ESF activities. Budget negotiations will be needed at this stage to assure a dedicated budget line for RRI activities.



Chapter 6 – University of Groningen (RUG)



6.1. The organisation

The **University of Groningen (RUG)** is an international research university with strong roots in the north of the Netherlands and a strong global outlook. One guiding assumption is that exceptional teaching and research depend on a diverse academic community with a broad range of nationalities and talents. Research, societal impact, and education are closely intertwined at the University and are set against a backdrop of academic freedom. Against this background, the university has made a long-standing commitment to RRI goals.

RUG includes 11 faculties and nine graduate schools. Around 30,000 students are enrolled at RUG, in various programs from the undergraduate level up to doctorate students. This includes 6,000 international students and about 6,500 PhD students. Individuals from more than 120 nationalities currently study or work at the University. The academic staff is composed of around 6,100 individuals. The University (including its medical hospital UMCG) currently has 5,900 individuals. In its academic staff, a third of the academic staff is international.

GRACE project will be predominantly implemented at the **Faculty of Law**. The faculty is an internationally oriented institution that has existed for nearly four centuries. As it measures itself amongst the best law faculties in Europe, advanced systems of quality control have been implemented to continuously improve the faculty's research and education.

The faculty offers a wide range of law subjects and a large variety of specialised courses and hosts 3,700 students studying under the supervision of 38 full-time professors, 18 professors holding a special chair, 6 visiting professors and 220 full-time staff members (152 academic teaching staff members and 70 administrative staff members). Each year approximately 600 foreign students stay for a term or a full year of study. Over 65 courses are taught and examined in English. All Bachelor and Master programmes in the faculty have full accreditation, including the English-language programmes. This accreditation leads to direct legalisation of the diplomas granted at the faculty in most countries throughout the world.

6.2. Main achievements and critical issues

The University of Groningen has long been involved in different RRI keys. Yet this was for a long time not the case for all keys in all the faculties. Given this background, the work of the University of Groningen in GRACE as an IO was targeted toward the Faculty of Law. Three main changes can be documented in which RRI keys are considered that have happened during the duration of the GRACE project.

At a **faculty level**, ethical reviews of research activities and reflection on research integrity and ethics in the activities of staff, students and the legal profession are now the norm and a subject of continued discussions. The discussions are alive and engaged within the faculty and increasingly members of the faculty are also publicly speaking about integrity issues in different fora. GRACE had an important role in this change: it gives the impetus for the setting up of permanent structures. The seeds of GRACE also fell on fertile ground in that event external to GRACE that happened at the Faculty also triggered reflections on ethics and integrity.



At the **University level**, during this period there has been a push towards a more integrated approach to RRI keys at the university central level. This meant that more university-wide initiatives have been set up e.g., the setting up of open access ambassadors in all faculties; setting up of an internal learning community for members of ethics review committees; setting up of data protection officers in all faculties. This change towards integration and knowledge sharing across the university on different RRI keys further strengthen the change at the faculty level.

In the preparation of the five-year strategy for the university for the period 2021-2026, it emerged that one of the key strategies of the university would focus on the impact a university has on society. These priorities and emphasis on impact also bring with it a renewed reflection on responsibilities academic staff has including specific reflections on specific RRI keys, in particular science education and public engagement. The work in GRACE has helped in the discussions at both a university level and faculty level on increasing the understanding of the importance of science education and public engagement and exploring ways researchers can engage.

6.3. Strategies and objectives for the Post-project period

Two main objectives for the post-project period can be identified:

- a. Consolidation of the grounding actions set up during the project
- b. Transplanting and sharing structures and lessons learnt with other faculties and schools at the university where some of the RRI keys have not yet been implemented.

The focus will be on research ethics and research integrity. As part of the university strategy for the coming five years, four interdisciplinary schools are being set up. The post-project efforts will be then in assisting the setting up of research ethics committees and organisation of discussions about ethics in this interdisciplinary setting.

Multiple strategies are needed for achieving each objective.

Education and awareness. This is a strategy that is of utmost importance to achieve both objectives. Consolidation of grounding actions: while, e.g., the setting up of an ethics committee is now firmly embedded in the structures of the faculty, the members of the ethics committee change over time. It is important that knowledge sharing and deepening of knowledge on ethical issues is given a priority to ensure that the committee is not merely a tick-box exercise but a source of in-depth reflection.

Sharing structures. Not all disciplines have the same awareness or give the same importance to ethical reflection on the research or work being done. Education and awareness is a key to setting up supportive ethics review committees for the new schools.

Joining forces with existing university structures. It would be very good to leverage the current university-wide initiatives to achieve the post-project goals. The more effort and resources that can be put into the consolidation of grounding actions and sharing of structures



the more one can ensure that the objectives can be achieved. However, it is necessary to be aware that the alignment of strategies may not be easy where so many initiatives are going on.

6.4. Consolidation of the GAs initiated under GRACE

RUG is presently managing four GAs, of which one on Science Education and Public Engagement and three on Research Ethics and Integrity.

GA1

Awareness building on science education and public engagement for early career researchers (Science Education and Public Engagement)

Description. This Grounding Action consists of embedding a training programme devoted to Science Education and Public Engagement in the Graduate School of the Faculty of Law.

Status. This GA has been completed and the training programme has been designed and included in the Graduate School teaching activities.

Sustainability actions. No further sustainability actions are required.

Elements for the GA consolidation. This GA has been institutionally embedded. Awareness and co-creation festivals are now part of the training of the Graduate School. The resources to continue this GA will come from the budget of the Graduate School. The network of Graduate Schools of the university will support the GA.

Potential obstacles. No specific problem can be mentioned.

Activities to consolidate. No specific activities are necessary to consolidate this GA. The training programme will be implemented on a yearly basis. The faculty is already liaising with the university-wide initiatives on science education and public engagement, cooperating with other groups at RUG.

GA2

Process for the ethical review of research (Research Ethics and integrity)

Description. This Grounding Action consists of defining and testing a process for ethical review of research taking place at the Faculty of Law, including the development of new protocols, monitoring and evaluation mechanisms, and the establishment of a web page or web-based platform on ethical issues.

Status. This GA has been completed and the ethics review process is embedded in the procedures of the faculty.

Sustainability actions. It is likely that actions to ensure the sustainability of this GA will be necessary to face three issues. The first is the recruitment of new members to the ethics



board. An internal call for participation will be probably launched to also ensure that the persons applying are interested and committed. The second issue is ensuring that the ethics board members are updated with the requirements of funding organisations. To this aim, regular information and knowledge sharing sessions will be organised. The third issue is that of maintaining the interest and involvement of researchers in the ethics review process. To face this problem, regular discussions and experience-sharing sessions will be continued.

Elements for the GA consolidation. This GA has been institutionally embedded. The resources will be provided by the Research Office. The university-wide learning community for members of review committees will be somehow also involved in this process.

Potential obstacles. Lack of interest of researchers. However, the risk is rather small. Increased efforts in education and awareness may be needed.

Activities to consolidate. No specific activities are necessary to consolidate this GA. The recruitment of new members is planned on a yearly basis while the review of the working of the committee will be conducted every two years.

GA3

Training curriculum for embedding research and integrity reflection for early career researchers (Research Ethics and integrity)

Description. This Grounding Action consists of defining and testing a training curriculum for embedding research and integrity issues for early career researchers at the Faculty of Law.

Status. This GA has been completed and the training curriculum has been embedded in the Graduate School of the Faculty of Law.

Sustainability actions. To continue renewing the content of the ethics and research integrity sessions with early career researchers, the members of the Ethics Review Committee will be engaged. Moreover, co-creation sessions will be organised through the Graduate School to reflect on how to use the engagement of early career researchers to improve the awareness of the relevance of ethics in research throughout the faculty.

Elements for the GA consolidation. This GA has been institutionally embedded. The resources will be provided by the Graduate School.

Potential obstacles. No specific problem can be envisaged.

Activities to consolidate. No specific activities are required to consolidate the GA.



GA4

Permanent Reflection Group on integrity and ethics in research funding (Research Ethics and integrity)

Description. This Grounding Action consists of the establishment of a permanent reflection group on issues of integrity and ethics in the process of considering whether to accept external research funding from, e.g., private corporations.

Status. This GA is still in progress. A group has been set up but there is no embedding of the group in the faculty structures.

Sustainability actions. A bottom-up approach is being pursued, with interested researchers engaging in debate/reflection with other researchers in the faculty. This choice has been done for the fear that a 'permanent' group as originally envisaged could stifle or go against the reflective nature of the group.

Elements for the GA consolidation. This GA will be managed directly by the interested researchers. A rotation of leadership among them will be done. The resources will be provided by the Graduate School. To continue the GA, bottom-up initiatives directly proposed and managed by the group are being prioritised. Organisations pursuing similar goals are being contacted and engaged to increase reflection on the ethics of external funding for research.

Potential obstacles. The main obstacle could be the lack of interest and/or busy schedules of the interested persons. One way of managing this problem is to widen the group to have younger staff coming into the group on a regular basis.

Activities to consolidate. No specific activities are required to consolidate the GA. Regular meetings of the informal group are every three months while awareness-raising activities are planned for every six months.

6.5. GAs to launch in the Post-project period

An additional GA is planned for the Post-project period focusing on Research Ethics and Integrity. The GA is described below.

GA5

Process for the ethical review of research in the new school for Digital society, AI and Technology (Research Ethics and Integrity)

Description. The RUG is setting up new interdisciplinary schools. One of these schools is the School for Digital Society, AI and Technology. This will bring together researchers from 13 different faculties each with different traditions and approaches to ethical review of research. The hypothesis for this GA is that, while the ethics review committees of the different faculties will look at the research proposals from their field of expertise, the projects of the School will require an ethical review based on a holistic and interdisciplinary approach. In this framework,



this GA will be aimed at establishing an ethics review committee for the School adopting such an approach.

Planned activities. The GA is planned to start in January 2022 and is intended to continue up to January 2025. The specific activities to carry out are still to be fully defined.

Elements for the GA consolidation. The GA will be developed by the team from the Faculty of Law. The origin of the resources is still to be identified. The learning community of members of ethics review committees at the university will be also engaged.

Potential obstacles. The main obstacle could be the presence of resistance from the leadership to the establishment of a new committee. To face this problem, a discussion and elaboration on the need for such a process within the school will be launched.

6.6. Strategies and objectives for the Stabilisation period

The following strategies and objectives for the Stabilisation period can be envisaged.

- Building on the wave of changes that happened through GRACE and external to GRACE in the institution.
- Taking up the new challenges posed by the introduction of four interdisciplinary schools at the university level.
- Reflecting on and combining the results of the activities conducted in the previous two phases.
- Reviewing and improving RRI structures and processes put in place, updating them, and establishing new objectives with the Research Office and Graduate School of the Faculty of Law.
- Reinforcing and making explicit the commitment of the faculty to ethics, research integrity, and science education.
- Defining a plan for giving an impulse on ethics and research integrity in the School for Digital Society, AI and Technology.

6.7. Ideas about the governance of RRI

There are currently many attempts to introduce new governance arrangements at the university level. Therefore, it is impossible to propose new governance structures for promoting RRI without the risk to replicate or compete with them.



Chapter 7 – University of Siena (UNISI)



7.1. The organisation

The **University of Siena (UNISI)** is one of the oldest in Europe, ranking as second among the medium-sized Italian Universities for structures, study grants, and services for students (CENSIS Research Institute classification, 2021). Over the years, UNISI has enhanced its strategy of internationalisation, aiming at attracting students and researchers from all parts of the world and establishing long-term partnerships with universities, public and private institutions in various areas of the Globe. Overall, 16,000 students are enrolled at UNISI. The academic staff is made up of around 2,400 individuals.

The Roadmap and the Grounding Actions will primarily involve the **Department of Business and Law (DBL)**. The Department is mainly involved in the analysis and evaluation of accounting systems, principles, and tools of management and control, regarding the economic and business implications of the innovations that involve both the private sector and public administration. A large group of scholars and researchers focuses specifically on the public sector, from both a national and an international perspective, on issues like accounting systems and accountability, management control systems, performance measurements, public policies evaluation, and public governance,

DBL has around 90 employees among full and associate professors, lecturers, post-docs and technical-administrative staff. In collaboration with the Department of Economics and Statistics, together with whom DBL forms the School of Economics and Management, DBL offers 3 bachelor's degree courses (for a total of 8 curricula – 3 of which are taught in English) and 7 master's degree courses (3 of which are taught in English).

7.2. Main achievements and critical issues

People became more familiar with the two keys the Department of Business and Law (DBL) focused its commitment on during the three years of the project. This is particularly true for public engagement because a certain sensitivity to gender equality already existed.

Researchers are now aware that public engagement does not consist in the univocal communication of research results, how it is often believed as well as defined in national regulations. Rather, they seem to be now perfectly aware of what engaging the public really means and of its relevance.

However, some challenges do exist. Indeed, how it emerged from a survey conducted within the organisation, there is a quite spread perception that public engagement also represents something you often do not have the time, resources, and recognition for. Therefore, since public engagement is the basis of an RRI-oriented action, a great organisational commitment is necessary to increase and facilitate contacts between researchers and stakeholders.



7.3. Strategies and objectives for the Post-project period

In the post-project period, the action of DBL will still focus mainly on the two RRI keys it has focused on under GRACE, namely public engagement, and gender equality, as well as on spreading the principles of an inclusive, equal and responsible research within the whole University.

The path to be taken to achieve the objectives initially set for these keys is, in fact, still long. The activity carried out in the three years of the project is only the beginning of a process that needs to be enriched and consolidated, taking over in a meaningful way in organisational practices and culture.

The DBL will, thus, go on in:

- Making its research more and more responsive to societal needs, strengthening its relationship with the main stakeholders
- Building an increasingly equal organisational environment, which is able to attract to the same extent both good male and female researchers
- Trying to involve central bodies and other departments in the undertaken RRI path.

In doing so, the DBL is requested to, respectively:

- Directly engage in the creation of opportunities of dialogue between researchers and external actors, as well as in the periodic monitoring of researchers' initiatives and perceptions
- Monitor the presence of gender issues within the Department, organise occasions of reflection among the staff, and implement necessary improvement measures
- Have a dialogue with the other university structures.

The accomplishment of these tasks is not trivial. First, it needs the identification of responsibilities. In this respect, specific governance solutions have already been identified and they envisage the involvement of:

- The section coordinators (two figures in charge of coordinating the activity of the two sections the DBL can be divided in: the business and the law one);
- The technical administrative staff in charge of offering technical support to researchers
- The Head of Department
- The Department Board (where all the academic personnel has a seat).

Moreover, as the experience gained in the project has revealed, leadership backing is essential to carry on a process of change.

Since a new Head of Department has recently been elected, the members of the GRACE core team will present him the activities carried out and those planned for the future, asking for his support. Without his support, indeed, it would be difficult to continue the commitment undertaken by the DBL.



7.4. Consolidation of the GAs initiated under GRACE

UNISI is presently managing seven GAs, of which three on Public Engagement, three on Gender Equality, and one on RRI governance.

GA1 Training on public engagement (Public Engagement)

Description. This Grounding Action consists of designing and disseminating a set of training tools focusing on public engagement.

Status. This GA has been completed. Three practical tools have been selected to help to clarify the importance of public engagement and the modalities through which engaging external actors since the early stages of the research process. These tools have been presented to the Department Board and disseminated among the academic staff.

Sustainability actions. The DBL will organise periodic events that will give researchers the opportunity to dialogue with stakeholders since the early stages of the research process and to collaborate with them through the modalities of engagement learned from the training materials.

Elements for the GA consolidation. This GA has been already approved by the Department Board.

Potential obstacles. Risks are mainly related to the lack of a proactive attitude towards PE on the part of researchers.

Activities to consolidate. No specific activities are necessary to consolidate this GA.

GA2 Survey on public engagement (Public Engagement)

Description. This Grounding Action consists of designing and implementing a survey aimed at collecting information on researchers' attitudes, activities, expectations and plans on public engagement in the different phases of the research process.

Status. This GA has been completed. With the help of cooperating partners, a questionnaire has been prepared and sent to the academic staff to investigate their experience in the field of public engagement and their perceptions about it. The main results can be summarised as follows.

- Most of the researchers in the DBL lack experience in the field of PE. In the past they only participated in activities (organised by the Department or by the University of Siena) aimed at communicating research results.
- Although they perceive PE as something useful, they also consider it as something they do not have the time, resources, and recognition for.



- There is a general availability at increasing the commitment in engaging external actors, but with the support of the organisation.

Sustainability actions. Results of the first survey conducted in 2020 have been considered to identify priority organisational interventions. The Survey will be made on a regular basis.

Elements for the GA consolidation. This GA has been already approved by the Department Board.

Potential obstacles. Risks are mainly related to the lack of a proactive attitude towards PE on the part of researchers.

Activities to consolidate. No specific activities are necessary to consolidate this GA. A new survey is planned for 2022 and then every two years. A report will be delivered after each survey.

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| <p>GA3 Development of guidelines on public engagement (Public Engagement)</p> |
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Description. This Grounding Action consists of defining and establishing a set of guidelines aimed at institutionally embedding PE at the Department.

Status. This GA has been completed. The GRACE core team produced a document aimed at ensuring:

- The periodic conducting of the survey on public engagement firstly carried out in 2020
- The periodic organisation of an event with stakeholders, during which researchers may listen to their proposals about the research topics that they consider as relevant based on their practical experience.

The document includes indications about the frequency of these activities, the ways in which to carry them out, and the responsibilities to attribute. It was presented to the Department Board and received its approval.

Sustainability actions. The GRACE core team will talk about such a commitment with the new Head of Department, asking him to take or to delegate to a specific unit the responsibility to supervise the implementation of these efforts.

Elements for the GA consolidation. This GA has already received approval from the Department Board.

Potential obstacles. A lack of support by the new Head could be an obstacle.

Activities to consolidate. No specific activities are necessary to consolidate this GA.



GA4
Collection of gender-disaggregated data (Gender Equality)

Description. This Grounding Action consists in the design and implementation of gender-disaggregated data collection in the DBL to make a diagnosis of the situation of women.

Status. This GA has been completed. The GRACE core team of the DBL developed a tool that includes:

- The calculation of some indicators about the composition of the academic personnel and its career opportunities based on gender
- The analysis of the composition of the main bodies of the Department
- A questionnaire aimed at investigating the perceptions of the academic staff about their work-life balance and gender issues within the Department.

The GA generated much information and allowed an increase in awareness about the state of the art of gender equality in the DBL.

Sustainability actions. Results of the first survey conducted in 2021 have been considered to identify priority organisational interventions. Moreover, as it is clear from GA6, the intention is to periodically repeat such survey in the future.

Elements for the GA consolidation. This GA was approved by the Department Board. The use of disaggregated data should be kept in the future. The results of the data collection allowed to identify some improvement measures (see GA5 below) to be implemented in the Post-project period. GA6 (see below) should allow ensuring the periodic implementation of a survey aimed at monitoring gender equality within the Department.

Potential obstacles. This GA has been completed. No specific obstacle can be identified.

Activities to consolidate. No specific activities are necessary to consolidate this GA.

GA5
Identification of improvement actions (Gender Equality)

Description. This Grounding Action consists in the organisation of a set of consultation and co-creation activities to single out action lines to improve the working environment for women.

Status. This GA has been completed. The GRACE core team of the DBL identified some measures aimed at improving gender equality within the Department. These are seven measures that are aimed at improving the equality of the working environment and of the processes of personnel selection and career progress, as well as the work-life balance. The measures selected were included in a tentative Gender Equality Plan.

Sustainability actions. No specific action is planned.



Elements for the GA consolidation. The identified measures received the approval of the Department Board and will be presented to the Rector for approval. In this is the case, the sustainability of the GA should be ensured.

Potential obstacles. Although the measures have been already approved by the Department Board, there will be the need for an engagement also on the part of the new Head of Department and of the central bodies as well (for the measures that require an intervention at the central level).

Activities to consolidate. The presentation of the tentative plan to the Rector is under preparation.

GA6

Development of guidelines on the data collection of gender-disaggregated data (Gender Equality)

Description. This Grounding Action consists in the definition of a set of Guidelines for establishing a monitoring system to record gender-related dynamics over time.

Status. This GA is completed. The GRACE core team produced a document aimed at ensuring:

- The periodic conducting of the data collection on gender equality firstly carried out in 2021
- The periodic realisation of a focus group to allow the academic personnel to discuss gender issues.

The document includes indications about the frequency of these activities, the ways in which to carry them out, and the responsibilities to attribute.

Sustainability actions. No specific action is required to enhance the sustainability of this GA.

Elements for the GA consolidation. The Guidelines have been approved by the Department Board. This, in principle, should ensure the periodic realisation in the future of the two activities mentioned above.

Potential obstacles. One possible obstacle is the shift in the leadership of DBL. Although the measures have been already approved, there will be the need for an engagement also on the part of the next Head of Department.

Activities to consolidate. No specific activity is required.



GA7

Initiatives to extend RRI-related discourse to other departments and at the central level (Governance)

Description. This Grounding Action consists of the definition and implementation of meetings and exchange processes aimed at extending the experience of DBL on RRI to the central level and to other Departments of the University of Siena.

Status. This GA is completed. The activities carried out under GRACE were presented to the Academic Senate and the Board of Directors of the School of Economics and Management where the key leaders of the Department of Economics and Politics have a seat. The latter were proposed to join the DBL's RRI-oriented path, and they showed relevant interest.

Sustainability actions. The intention is to keep the dialogue with the Department of Economics and Politics alive, and to periodically update the Academic Senate about any RRI-oriented step that will be taken in the future.

Elements for the GA consolidation. A discussion with the new Head is needed to identify the best way to continue the dialogue just started with the Department of Economics and Politics and the Academic Senate. With reference to the latter, it may be the Head of Department (who has a seat there) to keep the body updated about the next steps. Alternatively, the Head can also ask another person (for example a member of the GRACE core team) to intervene during a meeting of the Academic Senate, asking for Rector's authorisation.

Potential obstacles. In this case too, a lack of support by the new Head of Department would be an obstacle.

Activities to consolidate. No specific activities are required.

7.5. GAs to launch in the Post-project period

Three additional GAs are planned for the Post-project period. They are described below.

GA8

Increasing public engagement actions (Public Engagement)

Description. This GA consists of the periodic organisation of an event during which researchers can meet stakeholders and listen to their proposals about the research topics that they consider as relevant based on their practical experience. This GA contributes to the sustainability of the GAs related to the training tools (GA1) and the production of guidelines on public engagement (GA3).

Planned activities. The first event should be held once the situation of the pandemic will make it easy again to organise events in person and, since then, it will be realised once every two



years, alternating with the event devoted to the communication of research results to stakeholders, which the Department has been organising since before the start of the project.

Elements for the GA consolidation. Responsibilities for the organisation of the event have already been identified in the guidelines on public engagement. Specifically, it requires the commitment of the Department Board (where almost all the academic personnel have a seat) and the Head of Department. The solution to organise the event in alternate with another one devoted to communication with stakeholders allows this GA to benefit from the resources already allocated to this latter event.

Potential obstacles. Even in this case, the main risk is a lack of support by the new Head.

GA9

Implementing and enlarging the improvement actions on gender equality (Gender Equality)

Description. This GA consists in the adoption of the measures that have been identified during the GRACE project and approved by the Department Board and (hopefully soon) by the Rector. Moreover, it includes the identification of other possible measures.

Planned activities. Seven measures have been selected so far. Some of them may be implemented at the Department level, while some others need adoption at the central level. They are aimed at improving the working environment, the work-life balance, and the processes of selection and career development, from a gender perspective. For each of them, the interventions needed for their implementation and a possible deadline have been identified.

Elements for the GA consolidation. The Department Board will have the responsibility of the adoption of the measures (already approved) that can be implemented at the Department level. As for the measures that need to be adopted at the central level, instead, once approved, will involve the relevant central bodies and offices. The selected measures do not need relevant resources. They can be conducted without further charges for the University.

Potential obstacles. The main obstacles are the lack of support from the next Head of Department and the lack of approval from the Rector. However, the high level of interest in and sensitiveness towards gender equality in the University bodes well.

GA10

Periodic reporting on gender equality and public engagement (Gender Equality)

Description. This GA consists in:

- The production of a report every two years on the state of the art and the perceptions of public engagement in the Department
- The production of a report every two years regarding gender issues in the Department.



Planned activities. The two reports will be grounded on the results of the surveys on public engagement and gender equality respectively carried out for the first time in 2020 and in 2021. In the beginning, the reports will have only an internal diffusion, and they will serve to raise awareness among internal staff. Once the actions and the commitment on these two topics will increase enough the reports will be also published.

Elements for the GA consolidation. The responsibilities for conducting the GA have already been identified in the guidelines produced during the project. Specifically, it is foreseen the involvement of:

- The section coordinators (two officers in charge of coordinating the activity of the two sections the DBL is divided in: the business and the law one)
- The technical administrative staff in charge of offering technical support to researchers
- The Head of Department
- The Department Board.

A dialogue with the new Head of Department is needed to ask him to take or to delegate to a specific unit/person the responsibility to supervise the implementation of these activities. The GA could be conducted without additional resources.

Potential obstacles. The leadership turnover at the Department level could lead to reduced attention towards RRI-related issues.

7.6. Strategies and objectives for the Stabilisation period

As highlighted above, DBL aims at spreading the principles of inclusive, equal, and responsible research within the whole University of Siena. In doing so, it started a dialogue with the Academic Senate and with the Department of Economics and Politics during GRACE. However, this is not enough to reach the objective. The dialogue needs to be intensified and to be extended to other Departments. It will be done in the years immediately following the end of the project, also by sharing the future activities focusing on RRI.

In the Stabilisation period, the main goal is the inclusion of RRI principles within the mission statement of the University of Siena, and the definition of a set of RRI-oriented measures at the university level.

7.7. Ideas about the governance of RRI

The creation of an internal structure devoted to RRI crosscutting the different RRI keys is not yet planned since it is quite difficult to implement at the Department level. Rather, a more effective strategy could be that to act at the university level, once RRI principles will start to be adopted at the central level. In such a scenario, the offices presently in charge of Gender Equality, Third Mission, and Open Access could be reorganised and become more integrated to better achieve a unique and complex common goal.



Chapter 8 – Swedish Environment Research Institute (IVL)



8.1. The organisation

IVL Swedish Environmental Research Institute (IVL Svenska Miljöinstitutet AB) is an independent, non-profit organisation, owned by a foundation jointly established by the Swedish Government and Swedish industry. IVL was established in 1966 and has since then been involved in the development of solutions to environmental problems, both at the national and international levels.

IVL works with applied research and contract assignments for ecologically, economically, and socially sustainable growth within the business world and society at large. The institute comprises Sweden's largest group of environmental experts, which makes it a leading institute for applied environmental research and consultancy services. IVL reported net sales of more than SEK 327 million in 2017 and employs around 300 engineers, behavioural scientists, chemists, marine biologists, biologists, political scientists, journalists, business developers and economists. Almost a third of employees have doctorates.

The institute undertakes both research projects and contract assignments in the entire sustainability field. The activities include, e.g., climate issues, sustainable building, environmental technology, indoor environment, waste management, working environment, environmental measurements, and environmental quality evaluation. IVL also performs studies of the environmental effects in air, water, and soil, and the institute has its accredited laboratories for analysis. All activities are linked to four major thematic areas: Natural resource, climate, and energy; Resource-efficient recycling and consumption; Sustainable production and environmental technology; Sustainable urban development and transport.

The broad scope of IVL's activities, combined with its multidisciplinary approach, enables the institute to offer its customers holistic solutions, as well as answers to highly specific problems.

8.2. Main achievements and critical issues

During the GRACE project, the awareness of the RRI concept and its different elements has grown gradually. Several aspects of RRI are also already included in IVL internal routines and quality management systems.

Open Access guidelines, IVL Open Access policy, and instructions for how to use the new Open Access platform are specified on the internal web and have also been incorporated in the existing internal training programme for project managers at IVL, as will Gender Equality within short. In addition, a checklist, or toolkit, with questions and examples is about to be included in the CRM web-based software used for all IVL projects.

Activities performed and measures taken, have undoubtedly resulted in an improved awareness of the importance of these specific topics and these topics have also been incorporated in the internal project process, the institute makes a clear statement that these issues are prioritised.

In parallel to this success, it has possibly been more difficult for all to grasp the width of the RRI concept and focus for some might lie on the individual elements. In addition, change in



Governance Structure might show to be more difficult, compared to incorporating and emphasising the individual elements, as this requires far more organisational changes and well-reasoned decisions. IVL performs both research and consulting for external clients within the same organisational structure, and RRI is only applicable to the research activities. Thus, an RRI-based governance structure cannot be implemented directly but has to be adapted to allow differentiation depending on the type of activity.

8.3. Strategies and objectives for the Post-project period

The IVL general strategy will be mainly that of activating institutional learning processes on RRI-related issues. During spring and fall 2021, several such processes have been started, including workshops, new elements to the project management training and “checkpoint” questions added to the web-based project process all project leaders follow. These issues, regarding learning processes, will be the most important ones to pursue within the post-project period.

In more detail, this would include, for example, improving internal awareness of the importance and routines related to Open Access publications, and through this, increasing the visibility and impact of the research conducted at IVL through Open Access. It would also include creating awareness among the staff on gender equality in research processes, so that, when relevant for the result of the research performed, gender as an aspect should be identified and included in the project (from design to communication of results) to secure relevant results without bias.

Once KPIs and routines for monitoring Open Access publications have been set and implemented, monitoring and follow-up will be of great importance to measure progress.

In parallel to the learning processes, the work with implementing and evaluating a new RRI-adapted Governance structure will continue, to secure continuous work with the RRI elements.

8.4. Consolidation of the GAs initiated under GRACE

IVL is presently managing six GAs, of which two on Open Access, one on Governance, and three on Gender Equality.

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| GA1 Guidelines and platform for Open Access publication (Open Access) |
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Description. This Grounding Action consists of a thorough revision and improvement of the IVL guidelines for publication and the use and functioning of the IVL online platform serving as the open access archive.

Status. This GA is completed. Guidelines on Open Access are completed, included in the IVL internal project process, and a platform for Open Access publication is in use since September



2021. An Open Access module has been included in the internal project management training; the first education initiative has been held in October 2021. Awareness-raising and information on how to use the Open Access platform were delivered at the monthly Research forum in September 2021. The medium- and long-term goals to increase the awareness of importance related to Open Access publications, as well as increasing the visibility and impact of the research conducted at IVL through Open Access remain.

Sustainability actions. Guidelines on how to register reports are the main factor in the sustainability of this action. They have been incorporated into the IVL project process. The Open Access platform is in use for registering IVL reports since the end of September 2021 and ensures Open Access to all public publications.

Elements for the GA consolidation. No specific element for the consolidation of this GA is required.

Potential obstacles. No specific obstacle can be mentioned.

Activities to consolidate. No specific activity to consolidate this GA is required.

GA2

Methods and procedures for measuring IVL Open Access publication practices (Open Access)

Description. This Grounding Action consists of identifying and applying methods and securing appropriated routines for measuring the use of open access for publishing. This will allow a monitoring of the open access publications at IVL and an actual institutionalisation of the mechanisms related to open access publications put in place at the institute.

Status. This GA is to be continued. A written document for a monitoring system is yet to be finalised, as well as defining which KPIs to monitor. The first steps in this GA have been completed, including identification of main relevant data and collection of relevant data, as well as a draft of the monitoring system.

Sustainability actions. Once the monitoring system and KPIs have been settled, it will be up to the Research unit at IVL to make sure that data is collected and analysed. This will be an important piece of information and useful to the Research unit in dialogue with owners and funding organisations.

Elements for the GA consolidation. The Research unit will take up the responsibility of this GA. Support will come from the IT and administration department. Other possible stakeholders will be the funding organisations, the owners, and the clients.

Potential obstacles. The main potential obstacle could be the lack of time to perform analyses and the lack of funding for researchers to publish in Open Access journals. Both could partly be solved with better planning.

Activities to consolidate. Two activities are planned before the end of the project, i.e., delivering a document on the monitoring system and settling the KPIs to be monitored.



GA3

Identification and implementation of a RRI governance structure (Governance)

Description. This Grounding Action consists of identifying and implementing an RRI governance structure tailored on the features and needs of IVL.

Status. This GA is to be continued. The first proposal of governance structure has been developed but it could be simplified to better fit the present organisational structure and to facilitate a smoother adaptation. The work of developing a more simplified structure is in progress.

Sustainability actions. Once a governance structure has been adopted by the management, it will permeate the organisation. To be adopted, a prerequisite is that the new suggested structure is well thought through and allows a feasible transition. To ensure that the outcomes achieved during GRACE are sustained, the structure already produced will be further developed and refined, to facilitate implementation.

Elements for the GA consolidation. The decision by management will allow support from all parts of the organisation including leaders of operational units. Institutional arrangements will then be necessary to define roles and responsibilities to ensure implementation and sustainability. Support from owners and funding agencies may also play an important role.

Potential obstacles. A too complex or different structure from the originally developed structure will probably be more difficult to implement. To manage this aspect, the drafted RRI governance structure will be simplified before being presented to the management.

Activities to consolidate. Two activities are planned, before the end of January 2022, i.e., simplifying the drafted governance structure, and securing the handover of the GA to internal units that will continue the GA. The implementation of the new governance structure could start from January 2022.

GA4

Diagnosis of gender in the research process (Gender Equality)

Description. This Grounding Action consists of making a diagnosis of the ability to perform gender analysis and handle gender aspects in the research process.

Status. This GA is to be continued. All the short-term deliveries and success criteria have been met and fulfilled, while the medium- and long-term success criteria are yet to be achieved. A diagnostic report on the present IVL status about gender has been developed and presented to the management. Training and awareness-raising activities have been performed and discussions are held on how to best incorporate gender issues into the project process, i.e., into the IVL Customer Relationship Management system and in the internal project management training.



Sustainability actions. As a parallel project to the GRACE project, a Gender Equality Plan (GEP) is being developed at IVL from requirements within the Horizon Europe funding programme. The GEP will make use of the analyses, interviews and surveys made within the GRACE project, hence further ensuring that the outcomes are sustained within IVL.

Elements for the GA consolidation. This GA will be carried out through the GEP which will be put in force during 2022. The Research unit will be primarily concerned with the active involvement of researchers. External funding agencies and other stakeholders will also have a role.

Potential obstacles. The main obstacles can be the lack of time of researchers and the lack of resources since these latter ones are still to be secured.

Activities to consolidate. The main activity to consolidate this GEP will be the design of a GEP according to the Horizon Europe requirements. This activity could be implemented by January 2022.

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| <p>GA5 Training and awareness-raising initiatives on gender equality in research process (Gender Equality)</p> |
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Description. This Grounding Action consists of developing and implementing training and awareness-raising sessions on gender equality addressing IVL researchers and project leaders.

Status. This GA is to be continued. Training and awareness-raising workshops were held in June and September 2021. A toolkit/checklist with guiding questions and examples has been developed and discussed at the workshops. The ambition is that gender issues, as well as other RRI issues, will be included in the internal IVL project manager training. A positive meeting has been held with the responsible person at IVL and the framework for the incorporation is under discussion.

Sustainability actions. The major factor ensuring the sustainability of this GA is the incorporation of the toolkit into the internal IVL project process, by being added as a compulsory step in IVL CRM-software “Salesforce” and in the compulsory project manager training. Additional information (e.g., in the form of “Read more”) will be added to the internal web page. By adding the toolkit to the project process, the outcomes from the training and awareness sessions will be sustained and further developed within IVL.

Elements for the GA consolidation. The Salesforce team, the officer in charge of the Project manager training, and an educator will be responsible for the GA. Funding organisation and clients could also be involved as stakeholders as well as industrial actors. The decision about the resources to be used is still to be taken.

Potential obstacles. The presence of unconscious bias may have a negative impact on the development of this GA, creating resistance. The training and awareness-raising activities, the toolkit, and the project management training could be helpful in countering resistance over time. Moreover, there could be difficulties for the researchers in identifying how gender and



equality issues can be applied to traditional natural science projects. To face this problem, the toolkit could be used. The researchers could also be better informed about the RRI requirements from funding organisations

Activities to consolidate. By December 2021, the toolkit could be implemented and embedded in Salesforce. The implementation of the training activities and their incorporation in the Project management training may occur between Winter 2021 and Spring 2022.

GA6

Monitoring and evaluation mechanisms on gender equality in the research process (Gender Equality)

Description. This Grounding Action consists of the Identification, testing and adoption of gender-related indicators to be included in the research process follow-up scheme focused on the adoption of a gender-sensitive approach in R&I projects.

Status. This GA is to be continued. The next activities to be implemented are identifying the relevant indicators on gender equality and defining the protocols necessary to embed them into the IVL organisational follow-up scheme.

Sustainability actions. The incorporation of the indicators in the follow-up scheme will ensure the sustainability of this GA. This effect will be further enhanced by coupling this GA with the monitoring activities performed within the GEP (see GA4 above).

Elements for the GA consolidation. The GA will be under the responsibility of the Human Resources Department. Funding organisations could also play an important role. The decision about the resources to be used is still to be taken. The implementation of the GEP incorporating monitoring mechanisms could strongly increase the sustainability of the GA.

Potential obstacles. The main possible obstacles could be the lack of the resources necessary to adequately conduct this GA.

Activities to consolidate. Between December 2021 and the first months of 2022, the relevant indicators will be identified and incorporated in the follow-up scheme of the GEP.

8.5. GAs to launch in the Post-project period

Three additional GAs are planned for the Post-project period, on Open Access, Gender Equality, and Research ethics and integrity, respectively. These are described below.



GA7
Refining Open Access policies (Open Access)

Description. This GA will be aimed at refining and consolidating the Open Access policies, thus contributing to the sustainability of GA1 and GA2.

Planned activities. The activities included in this GA are still to be identified. In general terms, they will be focused on potential problems, obstacles and resistance and will provide a support to enable refinement of the procedures established by use the outputs of the monitoring systems and KPIs established through GA2.

Elements for the GA consolidation. The Research unit should be in charge of it. Owners, funding organisations, clients, and industrial partners could also be involved. The size and origin of the resources necessary to implement this GA are still to be defined.

Potential obstacles. The main possible obstacles could pertain the lack of time and resources.

GA8
Incorporation of gender analysis in IVL R&I projects (Gender Equality)

Description. This GA will be aimed at incorporating gender analysis in IVL R&I projects, thus contributing to the sustainability of GA4, GA5, and GA6.

Planned activities. The activities included in this GA are still to be identified. The basic idea is to ensure the production of follow-up data to visualise progress made and spot areas that need further improvement. Moreover, the GA will provide the information basis for developing specific actions aiming to develop gender-insensitive research and allows incorporating indicators into the GEP formed in line with Horizon Europe criteria. The process of developing the GEP will start during October 2021, while the incorporation of gender analysis outcomes and methodologies from GRACE might start by December 2021 or possibly the beginning of 2022.

Elements for the GA consolidation. The Research coordinator and the Human Resources department should oversee this GA. Funding organisations could be an important role in setting criteria regarding gender issues. The size and origin of the resources necessary to implement this GA are still to be defined. The sustainability of this GA is anyhow increased by its connection to the GEP, which will be put in force during 2022.

Potential obstacles. The main possible obstacles could pertain to the lack of time.



GA9

Research integrity and ethics initiatives (Research Ethics and Integrity)

Description. This GA will be aimed at refining research integrity and ethics initiatives in IVL R&I projects. Indirectly, this GA is expected to also contribute to the sustainability and long-term goals of the GAs pertaining to Open Access and Gender Equality.

Planned activities. The core idea is activating a set of grounding actions overall aimed at enhancing IVL existing measures to ensure research integrity and especially at better incorporating ethical considerations in the IVL current research practices. This process will be based on the preliminary analysis conducted under the GRACE project period.

Elements for the GA consolidation. The Research Unit should be responsible for this GA. Funding organisations could also be interested in this GA. The size and origin of the resources necessary to implement this GA are still to be defined.

Potential obstacles. The main possible obstacles could pertain the lack of time.

8.6. Strategies and objectives for the Stabilisation period

In the 3-year Stabilisation period (2024-2026), the main action line will be that of consolidating IVL-specific RRI framework and governance structures. The IVL-specific RRI framework emerging from the actions conducted in the previous periods will be critically reviewed and refined, to enhance routines and processes. This review process will imply a coordinated collection of data and an internal consultation process. A coordinated set of RRI-oriented actions will be defined and implemented.

8.7. Ideas about the governance of RRI

Future governance structures focusing on the RRI keys at IVL can be further developed also for the sections within the institute that concerns assignments. The focus of the RRI concept at IVL during GRACE has dominantly been on the research part of the institute. However, by adding modules to the project management training, the concept and RRI keys will also reach sections of the organisation that works mostly or exclusively with assignment-type projects.

By looking at governance structure and implementing the RRI concept over the organisation, the objectives, goals, and activities from GRACE – although developed with a research focus – can hence be integrated also into the other parts of the organisation.



Chapter 9 – Agency for management of University and Research Grants (AGAUR)



9.1. The organisation

The **Agency for Management of University and Research Grants – AGAUR** (Agència de Gestió d'Ajuts Universitaris i de Recerca) is a public funding body within the recently created Ministry of Universities and Research of the Government of Catalonia. AGAUR's mission is to improve the quality and competitiveness of the Catalan research system, by awarding grants and scholarships through open competition for the promotion of university education, scientific and technical research and technological innovation in Catalonia. AGAUR manages around 170 million Euro per year from the Autonomous Government of Catalonia budget and other external programme-contracts.

Main institutional aims of AGAUR includes: supporting higher education through scholarships, grants and loans for university students; fostering research capacity building, attracting talents and favouring mobility through research grants; promoting university-industry collaboration; encouraging the transfer of research results to market; assessing research and innovation calls for external entities; promoting researchers' professional development and skills acting as helpdesk for career opportunities and legal or practical issues regarding mobility; implementing policy strategies through international scientific and technical cooperation agreements; encouraging the attraction of European and international research funds; providing advice and training on European and international research funding for researchers and research administrators, serving as "one-stop-shop" to scientific community; providing a networking forum and a learning platform to share experiences and best practices related to research and innovation management addressed to the scientific community.

AGAUR runs grants and scholarships from the national and regional funds as well as structural funds from different European programmes, such as the European Regional Development Fund (ERDF) or the European Social Fund (ESF). AGAUR hosts regional contact points of some Horizon Europe programmes (Cluster 2 and WIDERA). It is the Euraxess service centre in Catalonia, which coordinates more than 50 research institutions and acts as a helpdesk for researchers looking for opportunities or mobility advice on legal and practical issues. AGAUR has obtained the following international quality certification seals: Quality Management System ISO-9001:2008; Environment Management System (14001:2004) and the Occupational Health and Safety and the European HR excellence in research seal. AGAUR's Improvement Programme for the period 2019-2021 concerns actions related to some of the RRI keys.

9.2. Main achievements and critical issues

Before the project, RRI measures were being put in place at AGAUR but in an inconsistent and unstructured manner. There was not clear staff awareness of its importance, and some measures were included out of inertia (as any other technical measure of legal administrative procedure in calls) and not as a policy strategy of its own, with the aim of improving the way AGAUR does research, generates results, and creates value for society.



The GRACE project has allowed AGAUR to:

- **Create an institutional framework for RRI**, start implementing Gender, Open Access (OA) and Ethics policy agendas in a systematic and generalised way, planning measures for all the calls and programmes it runs.
- **Align internal funding policies with those of the European Research Area** (and in those cases where this was already done, to raise awareness of it). In the past, the focus was more on improving administrative procedures and not so much on incorporating research and innovation policies in the management processes themselves (including those at national level).
- **Raise awareness** of the importance of RRI within the Agency staff. Previously few people were aware of the different RRI policy agendas, and now all staff (to a greater or lesser extent and from all different Areas) are sensitised and understand the concepts and its practical application. Although the broad outlines of funding programs are decided at a political level, officers play an important role in the implementation of calls for proposals (drafting call for proposals, forms, helpdesk services, etc.). It is very important that they are aware of its meaning to make effective and sustainable changes towards RRI. They have also a direct relationship with the beneficiaries (R&I community) and are therefore an agent of change.
- **Become a driving agent of RRI on a territorial level**. AGAUR has been invited to different co-creation sessions or best-practice exchange events at the regional level (among others, local co-creation workshops under the TRANSFORM, CASPER and SEERRI projects and a gender in research networking event organised by the University of Barcelona in November 2021). Before the GRACE project, this would not have been possible. The Agency is also contacted as a regional central entity who is committed to these issues, reaches out to all stakeholders and its actions have a multiplier effect on the system. Many stakeholders also see AGAUR as a bridge entity to the Government.
- **Train a group of specific people** in gender, open access and ethics, in addition to the general training that has been carried out for all staff. This group of people are now part of the new internal RRI Working Group in RRI (a stable group created as a result of the project).
- **Increase the visibility of RRI for policy making**. The Government's Department of Universities and Research (REU) is now considering AGAUR not only a manager of their programmes and calls (executive task), but as an agent of change and a reference entity for both guiding research policies and favouring changes towards RRI policy agendas (the fact that REU staff has been invited to AGAUR's RRI trainings has been an important factor; and a key person of the REU is also member of the internal RRI Working Group). In 2021, the Spanish Ministry created a working group on gender in research formed by two representatives of each regional government. At the level of Catalonia, a representative of the REU and another from AGAUR have been appointed (this would not have happened two years ago). The REU will also take the RRI guidelines developed by AGAUR as a reference for other government funding programmes (two meetings are already planned by the end of 2021).



Overall, it is possible to say that **there has been a ‘before and after’ of the GRACE project internally.**

However, three considerations should be made.

- Before the GRACE project, the implementation of an RRI policy was incipient, which has allowed a considerable leap forward to be made (the starting point was low).
- The project has been implemented at a very favourable momentum, marked by some important facts: on a political level, the approval of the new Science Law proposal and the National Pact for R&D in 2020; and the implementation of the Mission, Vision, and Values initiative promoted by the AGAUR board of directors in 2019, which was fully aligned with the RRI philosophy. **The RRI and the GRACE project have been used as an instrument to implement this institutional initiative and it has borne fruit.** Now RRI is already part of a line of action of AGAUR, with a working group, tasks, and a person in charge. The responsible for the quality and organisation unit, who leads the Agency’s structural and transversal policies believes in RRI and has been an important driving agent during these three years.
- The size of the entity (70 staff members) has allowed the involvement of all the staff in the training and awareness activities that have been carried out within the framework of the GRACE project.

The key strategy adopted by AGAUR to implement the project has been to establish first the foundations to start working on the different RRI policy agendas. The focus has been on designing a **governance framework** embedded with the Agency policies and initiatives, including the setup of the specific **RRI Working Group**. During the first three years, the major lines of action have been started to become more concrete over time. The availability of data and a tool (RRI tracker) to evaluate the implementation of the current GAs make it possible to develop and implement more concrete GAs and specific measures even based on specific target groups.

Moreover, another logic followed during the GRACE project is that the measures implemented, and activities developed are not time-specific, but go beyond the GRACE project and are part of a long-term process of the entity (Mission, Vision and Values Initiative). If they had been considered as stand-alone activities, many of the project actions would have not been possible, as they would have had the resistance of some key people of the entity.

AGAUR is currently including effectively the RRI planned measures (and the continuation of those already in place) in the Agency’s 2022-2024 Strategic Improvement Plan to ensure their viability and sustainability. The main difficulty to implement future actions and tasks lies in the workload that can slow-down the execution of activities.



9.3. Strategies and objectives for the Post-project period

As for the post-project 2-year period (2022-2023), three main action lines are identified considering the following considerations:

- During the first three years of the project, the work has focused more on the RRI general governance and on mainly implementing institutional changes in funding programmes and less on the Agency's internal policies (Gender equality plan, data plan, etc) that will be carried out in the next two years
- Actions must be aligned/embedded with the AGAUR Improvement Plan 2022-2024 (mutual feedback).

The **three main lines of action** are as follows.

Consolidation of RRI governance structures. An RRI Working Group has been created and will have to start working as such (implementation of activities already scheduled and proposal of new ones). No setback is expected in this regard: the members of the Working Group have either already been part of the internal working groups on RRI during the GRACE project or the tasks associated to their job posts are directly linked to RRI.

Consolidation of the institutional changes included in AGAUR's funding programmes during the GRACE project. This process of consolidation will be carried out following a set of orientations:

- Continuation of the implementation of the three GAs related to Gender, Ethics and Open Access (update both the institutional internal guidelines and those addressed to the beneficiaries and evaluators when necessary)
- Consolidation and expansion of the measures included in the AGAUR funding programs. In 2021, changes have been made in 56% of the calls and now it must be extended to the rest
- Monitor and evaluate the implementation of the RRI measures and propose new ones (for beyond 2024)
- Publish reports, infographics, brochures, etc related to the RRI (data and results of the calls)
- Fostering accountability, transparency, awareness-raising, and position AGAUR as an RRI driving agent at the regional level (organising external training and awareness activities, participating in RRI activities at the regional level, etc.)
- Continue to be a benchmark entity in RRI for the Government.

A new round of GAs. Finally, a new round of GAs will be developed. In particular, the following points can be highlighted.

- A GA on public engagement is foreseen to be developed.
- New GAs will be developed on the following topics: Gender Equality Plan, Gender-based violence and sexual harassment Protocol, Data and Transparency Plan and a Conflict-of-Interest Protocol
- Future GAs will be identified by the RRI Working Group, as RRI data indicators are obtained, and the implementation of the measures included in the calls are evaluated.



In the following tables, the strategy/vision and the main activities/objectives pertaining to the different RRI keys are summarised.

In the following tables, the strategy/vision and the main activities/objectives pertaining to the different RRI keys are summarised.

| RRI Governance and Framework | |
|------------------------------|--|
| Strategy/ Vision | <ul style="list-style-type: none"> – Aligning AGAUR's activities and the research it funds with the principles of RRI, creating value for society in an ethical and responsible way – Embedding RRI GA as part of AGAUR Improvement Plan – Continue working closely with the Department of Research and Universities and other Government Departments as well as with the different entities and stakeholders of the Catalan research ecosystem. |
| Objectives /Activities | <ul style="list-style-type: none"> – Increasing the level of openness and transparency of AGAUR as a mandate of the Catalan Government for all the public entities (Data and Transparency Plan) – Develop and implement a Gender Equality Plan and a protocol for prevention, detection, action and resolution of discriminatory situations. – Evaluate annually the results through the RRI tracker (report and propose new measures). – Participate in Horizon Europe Call for proposals related to RRI (Widening and Strengthening the European Research Area) in the following years. – Consolidate the RRI Working Group (they will develop a work plan 2022-2024, based on AGAUR Improvement Plan and embrace the work done by the GRACE project). – Actively participate in networks related to RRI at regional, state, and international level: ERION-EARMA; Gender Research Group of the Spanish Ministry; Women and Research Working Group of the Catalan Government; RRING Network; etc – Organise internal (AGAUR) and external (Catalan R&I Community) trainings and awareness activities. |

| Gender | |
|---------------------------|---|
| Strategy | <ul style="list-style-type: none"> – Continue with the GAs implemented during GRACE. – Develop a Gender Equality Plan. – Develop a protocol for prevention, detection, action, and resolution of discriminatory situations. |
| Objectives /Activities | <ul style="list-style-type: none"> – Expand and consolidate the gender measures in the calls. – Monitor and evaluate gender indicators. – Propose new goals and actions based on the evaluation report (in 2 years) – Publish the gender indicators of AGAUR funding programmes (Annual infographic). |

| Open Access | |
|---------------------------|---|
| Strategy | <ul style="list-style-type: none"> – Continue with the GAs implemented during GRACE. – Develop a Data and Transparency Plan |
| Objectives /Activities | <ul style="list-style-type: none"> – Consolidate the OA publication measures in the calls. – Expand the OA of research data measures in the calls (data management plans, etc) – Monitor and evaluate OA indicators. – Propose new goals and actions based on the evaluation report (in 2 years) – Publish the OA data of AGAUR funding programmes (Annual infographic). |



| Ethics and Integrity | |
|------------------------|---|
| Strategy | <ul style="list-style-type: none"> – Continue with the GAs implemented during GRACE. – Develop a Data and Transparency Plan – Develop a Conflict-of-Interest Protocol |
| Objectives /Activities | <ul style="list-style-type: none"> – Expand and consolidate the Ethical and research integrity measures in the calls. – Monitor and evaluate the ethical indicators. – Propose new goals and actions based on the evaluation report (in 2 years) – Publish the Ethical indicators of AGAUR funding programmes (Annual infographic). |

9.4. Consolidation of the GAs initiated under GRACE

AGAUR is presently managing nine GAs, of which three on RRI Governance, two on Gender Equality, two on Open Access and two on research Ethics and Integrity. In some cases, the GAs are dealt with together because of their strong convergence in terms of objectives and actions.

GA1
RRI Framework and Governance (Governance)
GA3
Preparation of RRI-related plans and cross-cutting measures (Governance)

Description. GA1 aims to define a comprehensive RRI Framework for AGAUR, establishing rules, procedures and standards, which will be incorporated in a set of RRI Guidelines as well as a group of awareness-raising and training initiatives about RRI. GA3 is aimed at paving the way for the GRACE post-project period by capitalising on the activities carried out under the project to define detailed plans and starting cross-cutting measures on RRI in general. Both these GAs do not address the AGAUR's funding programmes but AGAUR as organisation.

Status. These GAs have been completed but now they are continuing and are extended in scope.

Sustainability actions. The following elements can be mentioned for a long-term consolidation of this GA.

- A stable RRI Advisory Board and an RRI Internal Working Group have been set up.
- A long-term RRI framework related to the funding programmes have already been established.
- The GAs initiated in the GRACE Project have already been embedded in the Agency Improvement Work Plan 2022-2024.
- The Government (Department of Universities and Research) considers AGAUR as a reference to implement measures in the rest of the funding programs, which are not managed by AGAUR.



- New Plans are scheduled (a Gender Equality Plan; a protocol for prevention, detection, action and resolution of discriminatory situations; and an Open Data Plan and Transparency measures; the Conflict-of-interest protocol).
- Participation in networks and RRI Working Groups (Responsible Research and Innovation Networked Globally).

Elements for the GA consolidation. The consolidation of these GAs is enhanced through the development of an internal working plan. This process will involve the RRI working group and will be led by the Quality and Organisation Offices. Moreover, the Advisory Board will continue to support and work closely with AGAUR.

Potential obstacles. The main obstacle is that work overload may slow down the activities.

Activities to consolidate. In February 2022, the RRI Working Group and the new measures will be presented to all the staff at the AGAUR General Meeting. The Working Group will develop its 2022-2024 Plan by July 2022 (the first meeting of the Working Group is set for February 2022). In the first semester of 2022, the RRI Advisory Board Annual Meeting will be held. At least two meetings per year of the Government Research and Innovation Department will be scheduled.

GA2 RRI Monitoring Plan (Governance)

Description. This Grounding Action consists of developing and testing an “RRI tracker”, i.e., a monitoring system tracking the development of RRI measures.

Status. These GAs has been partially completed. A first draft of the RRI tracker has been developed but needs to be revised, approved and tested.

Sustainability actions. The RRI Working Group will be in charge to assess RRI measures, both those concerning the internal practices and the funding programmes. It is also important to highlight that collecting, monitoring, and publishing the Data from the AGAUR funding programmes in a structured and systematic way is a key objective of AGAUR in the following years and part of the Government Mandate.

Elements for the GA consolidation. The consolidation of this GA will be made possible with the involvement of the Advisory Board, the Data Officer (a new position at AGAUR), and the head of the Quality and Assessment units as part of the team. This GA is included in the RRI Working Group plan for the following years. Moreover, part of the RRI tracker (quantitative indicators) will be included in the Agency Data and Transparency Plan (2022-2024).

Potential obstacles. The main obstacles are the work overload that may slow down the activities and the lack of expertise. To face this latter issue, a Data Officer is going to be recruited (November 2021).

Activities to consolidate. In the first semester of 2022, the inclusion process of the RRI-related indicators in AGAUR’s funding calls should be completed. By the end of 2022, the first report



on the results of the application of the RRI tracker will be drafted (the report will be then updated annually).

GA4

Inclusion of gender equality issues in AGAUR's funding programmes (Gender Equality)

GA5

Gender Equality complementary activities (Gender Equality)

Description. GA4 consists of a set of activities overall fostering gender equality in the AGAUR funding programmes while GA5 includes some complementary activities to facilitate the activation and implementation of the measures defined under GA4.

Status. These GAs has been completed and now they are going to be extended, with the addition of new activities.

Sustainability actions. The sustainability of these GAs will be ensured with their embedment into the AGAUR's Human Resources Strategy, carried out in the framework of the EC HRS4R label. Moreover, they will be further facilitated with the development of the Gender Equality Plan and through the training of a specific staff focused on Gender Equality issues.

Elements for the GA consolidation. The consolidation of these GAs will pass through the RRI Working Group, the participation of AGAUR in the new Gender Research Group of the Spanish Ministry (started in 2021) and the Women and Science of the Catalan Government. Finally new measures are already scheduled, including the monitoring and evaluation of the implemented RRI measures in the funding calls and the organisation of training and awareness events.

Potential obstacles. No specific obstacle can be identified.

Activities to consolidate. Multiple activities are planned to consolidate these GAs: the development of Gender measures in those funding calls that haven't been covered yet (July 2022); the establishment of RRI indicators in the AGAUR's funding calls (July 2022); the evaluation of the gender measures on an annual basis, proposing new measures when necessary (starting from December 2022); the first report on the outputs of the application of the RRI tracker (by the end of 2022); the publication of a new Annual Factsheet (the first edition has been published in 2021), concerning the AGAUR's contribution of the United Nations Sustainable Development Goal No. 5 Gender Equality (July 2022); the organisation of Infodays and meetings with the beneficiaries of the AGAUR's funding calls on gender equality measures taken by the agency (during the whole year, at least 4 events per year are foreseen); the organisation of training sessions for staff members (February/March 2022); Gender training activities for the scientific community of Catalonia (since 2019, three sessions are developed each year by AGAUR's internationalisation Area) (February 2022).



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|---|
| GA6 |
| Inclusion of Open Access measures in AGAUR's funding programmes (Open Access) |
| GA7 |
| Open Access complementary activities (Open Access) |

Description. GA6 consists of a set of activities overall fostering Open Access in the AGAUR funding programmes and, indirectly, to promote it in the Catalan regional research and innovation systems. GA7 includes a set of complementary activities in support of the AGAUR's policies and measures developed under GA6.

Status. These GAs has been completed and now they are going to be extended, with the addition of new activities.

Sustainability actions. The sustainability of these GAs will be developed in the framework of the Data and Transparency Plan. It is to consider that Open Access is one of the key research policies of the current Government (appointed in July 2021) and AGAUR will have to provide feedback on its implementation periodically.

Elements for the GA consolidation. The RRI Working Group will be involved together with the Advisory Board (two of the members of the advisory board are developing the Catalan Strategy on Open Access). A Data Management Officer is being recruited. As the Open Access measures will evolve as the government's open science policy evolves, a person from AGAUR is expected to be appointed to be part of the government Open Access working group. New measures are already scheduled including the monitoring and evaluation of the implemented RRI measures in the funding calls and the organisation of training and awareness events.

Potential obstacles. No specific obstacle can be identified.

Activities to consolidate. Multiple activities to consolidate these GAs: the development of Open Access measures in those funding calls that haven't been covered yet (July 2022); the establishment of RRI indicators in the AGAUR's funding calls (July 2022); the evaluation of the Open Access measures on an annual basis, proposing new measures when necessary (starting from December 2022); the first report on the outputs of the application of the RRI tracker (by the end of 2022); the publication of a new Annual Factsheet (the first edition will only include the postdoctoral grants; available data for the rest of the call from 2023) (July 2022); the organisation of Infodays and meetings with the beneficiaries of the AGAUR's funding calls on Open Access measures taken by the agency (during the whole year); the organisation of training sessions for staff members (third week of January 2022).



GA8

Inclusion of ethical considerations measures in AGAUR's funding programmes (Research Ethics and Integrity)

GA9

Research ethics and integrity complementary activities (Research Ethics and Integrity)

Description. GA8 is focused on including ethical considerations in the AGAUR funding programmes. It is to consider that extensive statutory and regulatory standards already exist to govern ethical research practice where it is deemed necessary. GA9 includes a set of complementary activities in support of the AGAUR's policies and measures developed under GA8.

Status. These GAs has been completed and now they are going to be extended, with the addition of new activities.

Sustainability actions. The sustainability of these GAs will be developed in the framework of the Data and Transparency Plan. The sustainability of these GAs will be also ensured with their embedment into the AGAUR's Human Resources Strategy, carried out in the framework of the EC label HRS4R. Moreover, they will be further facilitated through the training of a specific staff focused on Research ethics and integrity issues. This training has already started (November and December 2021) and comprises 7 people from different units (legal, research, innovation and international).

Elements for the GA consolidation. The RRI Working Group will be involved as well as the Data Management Officer who is being recruited. New measures are already scheduled including the monitoring and evaluation of the implemented RRI measures in the funding calls and the organisation of training and awareness events. Finally, another factor to consider is that, since 2021, AGAUR is a member of the Ethics and Research Integrity Officers Network of EARMA (European Association of Research Managers and Administrators), that organises meeting twice a year in addition to the organisation of training and networking events.

Potential obstacles. No specific obstacle can be identified.

Activities to consolidate. Multiple activities to consolidate these GAs: the development of measures related to research ethics in those funding calls that haven't been covered yet (July 2022); the establishment of RRI indicators in the AGAUR's funding calls (July 2022); the evaluation of the ethics-related measures on an annual basis, proposing new measures when necessary (starting from December 2022); the first report on the outputs of the application of the RRI tracker (by the end of 2022); the publication of a new Annual Factsheet (2024); the organisation of Infodays and meetings with the beneficiaries of the AGAUR's funding calls on ethics-related measures taken by the agency (during the whole year); the organisation of training sessions for staff members (2022-2023).



9.5. GAs to launch in the Post-project period

Five additional GAs are planned for the Post-project period, respectively one on Public Engagement, two on Gender Equality, one on Open Access and one on Research ethics and integrity. They are described below.

GA10 RRI Public Engagement in funding calls (Public Engagement)

Description. This GA will be aimed at including in AGAUR funding calls the possibility to undertake public engagement activities in a structured and systematic way (only now a few calls include this possibility; however, they are already included on a voluntary basis in many funded projects from different programmes) and mainly increasing the knowledge, skills, and confidence of researchers granted by AGAUR.

Planned activities. The first internal training session is scheduled for the first semester of 2022. Other initiatives will be planned afterward.

Elements for the GA consolidation. The RRI Working Group will oversee this GA. It will be developed by the HR department in the framework of the EC HRS4R label. It is worth mentioning that, during the internal training and co-creation sessions organised during the GRACE project, the need to carry out public engagement activities were raised by most of the staff members as a need and a line of action (including public engagement in the AGAUR funding programmes, assess them in the evaluation process and publish/communicate success projects on this issue). Moreover, Open Science is a key policy in the New Catalan Science Law (approved 27 July 2021) and therefore AGAUR's mandate is to implement the policies and initiatives connected to this new Law.

Potential obstacles. The main possible obstacles could pertain to the lack of time and resources.

GA11 Gender Equality Plan (Gender Equality)

Description. This GA will be aimed at defining and implementing the Gender Equality Plan (GEP). The GA is connected to GA4 and GA5.

Planned activities. The activities included in the GEP are still to be fully defined. This GA already started in the last semester of 2021. Its main objectives are as follows: aligning AGAUR's internal governance, policies, and activities with gender equality principles and practices; developing a more gender-fair research funding system; fostering equality in scientific careers, increasing women's participation in research, improving their career paths and achieving gender balance in decision making; enhancing the scientific quality and societal



relevance of scientific products, technological outputs, and innovation process connected with the AGAUR funding programmes.

Elements for the GA consolidation. The GA is already included in the AGAUR's 2022-2024 Improvement Plan.

Potential obstacles. The main possible obstacle is the staff work overload that could result in slowing down the activities. However, the need to have a GEP to be eligible for Horizon Europe for the 2022 calls onwards could be a good incentive.

GA12

Protocol for prevention, detection, action, and resolution of discriminatory situations (Gender Equality)

Description. This GA will be aimed at anticipating and eradicating sexual or gender-based harassment to progress towards the full participation of all members of AGAUR in the Agency activity and ensure respectful and harmonious relations between all of them as well as protecting the rights of people involved in situations of harassment, including the right to dignity and the free development of one's personality, the right to physical and moral integrity, the right to non-discrimination based on gender or any other personal or social circumstance, and the right to privacy and honour, all of which are governed by international law, the Spanish Constitution, the Statute of Autonomy of Catalonia, and the Catalan Government Protocols. This GA is connected to GA4 and GA5.

Planned activities. The activities are still to be defined. This GA started in March 2021, in relation to GA4 and GA5, and will be developed throughout the Post-project period.

Elements for the GA consolidation. To implement this GA, a working group has already been created (5 people from different areas; 2 meetings have been already held). The GA is already included in the AGAUR's 2022-2024 Improvement Plan.

Potential obstacles. The main possible obstacle is the staff work overload that could results in slowing down the activities.

GA13

Data and Transparency Plan (Open Access)

Description. This GA will be aimed at creating a set of data indicators (it will include some RRI tracker indicators), identifying data needs to answer priority Agency and Government needs, setting up a robust, integrated approach to collecting, storing and monitoring the data generated by the calls and making the results of public funding programmes known to the general public.

Planned activities. The activities are still to be defined. They are planned to start in 2022.



Elements for the GA consolidation. The GA is already included in the AGAUR's 2022-2024 Improvement Plan.

Potential obstacles. The main possible obstacle is the staff work overload that could result in slowing down the activities. However, there is a mandate from the Catalan Government which AGAUR has to implement.

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| GA14 Conflict of Interest Statement (Research Ethics and Integrity) |
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Description. This GA will be aimed at providing guidance in identifying and handling potential and actual conflicts of interest involving AGAUR. The protocol will address both staff, beneficiaries and evaluators. The GA is connected to GA8 and GA9.

Planned activities. The activities will start in 2023.

Elements for the GA consolidation. The GA is already included in the AGAUR's 2022-2024 Improvement Plan.

Potential obstacles. The main possible obstacle is the staff work overload that could result in slowing down the activities.

9.6. Strategies and objectives for the Stabilisation period

In the Stabilisation period, AGAUR will pursue the following objectives.

- Continue contributing to an increase in the ethical acceptability, sustainability, and social desirability of the process and outcomes of AGAUR's R& funding programmes.
- Increasing the level of inclusiveness, openness, and transparency of AGAUR.
- Reinforcing the capacity of AGAUR to act as a socially responsible Agency in the Catalan university, research, and innovation community.
- Make AGAUR an RRI driving force at the regional level.
- Make AGAUR a reference funding Agency on RRI at the regional and national levels.

To attain these objectives, the AGAUR strategies for the Stabilisation period will move towards four main directions.

- **RRI embedment.** The first strategy is attaining a full embedment of RRI GAs in the AGAUR multiannual strategic plans, to ensure the inclusion of RRI principles in the core of the organisation.
- **Expansion.** The second strategy is continuing the current GAs while gradually increasing and expanding the current measures. An internal critical assessment of the results attained will be conducted annually (at end of the year), involving the relevant internal stakeholders, to define new long-term objectives and, in case, a more advanced RRI Framework for AGAUR.



- **AGAUR as a regional player.** The third strategy is reinforcing the role of AGAUR at the regional level. To this aim, the communication and dissemination of results related to RRI to the beneficiaries, the Catalan Scientific Community, the policymakers and the general public will be strengthened. Infographics and reports will be also produced to illustrate RR-related activities once they will reach a maturity level.
- **Tracking advancements.** The fourth strategy is enhancing the capacity of the Agency to track the advancements (or backlashes) in RRI-related activities. The development and improvement over time of the RRI tracker will provide useful input to develop new GAs or update and expand the existing ones.

As for the **GAs**, the **continuation** of the current GAs on Gender Equality, Research Ethics and Integrity, Open Access and Public Engagement is planned, however increasing and expanding the measures, adapting them to the new needs and making them more focused on the different target groups. In relation to **Open Access**, new open data measures in funding calls are foreseen as the Government policy evolves (i.e., include them as an obligation in the future and not highly recommended as it is in the current measures implemented during the GRACE project). In relation to **Research Ethics and Integrity**, new ethical research issues will emerge in the future (i.e., research and innovation in emerging new technologies). Therefore, continuous updates will be necessary, as already suggested by the Advisory Board members. Finally, with reference to the **RRI Framework**, guides and protocols developed from 2020 to 2024 (beneficiary guides, data plans, etc.) will be periodically revised and updated. Moreover, the development of GEP will likely provide new inputs. Other aspects to include in the Framework are also expected to emerge.

9.7. Ideas about the governance of RRI

An RRI governance structure is already in place, based on the RRI Working Group and the RRI Advisory Board. This RRI WG is created as a cross-organisational structure within AGAUR that strives to implement RRI principles and adapt them to the specific nature and conditions of the Agency, while also reinforcing existing, well-functioning practices, and carrying out a vigorous follow-up of these processes. It continues the work developed in the framework of the GRACE project and will be take care of implementing AGAUR's activities and initiatives related to the different agendas of RRI on a technical level. This WG will also oversee and make proposals so that the internal policies and processes are aligned with RRI policies of the Catalan Government, of the European Commission and of other national or international organisms and networks.



Chapter 10 – Research Centre of the Slovenian Academy of Sciences and Arts (ZRC SAZU)



10.1. The organisation

The **Research Centre of the Slovenian Academy of Sciences and Arts (ZRC SAZU)** is the leading Slovenian research centre in the humanities. Its mission is to study basic humanities, social sciences, natural sciences, and multidisciplinary topics that cover natural, social, and cultural elements and processes, giving priority to those related to Slovenian natural and cultural heritage. This mission is carried out within the framework of national research programmes and projects, excellence centres, and international projects (e.g., the Seventh Framework Programme, Horizon 2020, COST, etc.). In applied research, ZRC SAZU participates in inventorying, developing protection measures and management plans, developing strategies, regional development plans, participatory approaches in planning, environmental and vulnerability assessment plans, expert bases for planning and protection, water resource management, tourism development, and other areas.

As for education, the ZRC SAZU Graduate School offers the doctoral programme *Comparative Study of Ideas and Cultures*, including modules in anthropology, archaeology, philosophy, linguistics, cultural history, lexicography, and Slovenian studies. In cooperation with the University of Nova Gorica, ZRC SAZU also offers a doctoral programme in *Karst Studies* (also a UNESCO chair) and participates in the international master's programme in *Migrations and Intercultural Connections* (Erasmus Mundus programme). Besides, it holds the *International School of Karst Studies* and the *Summer School of Visual Anthropology* every year.

ZRC SAZU has 18 different institutes and many infrastructures to support research, including a publishing house (Založba ZRC); a bookstore; a venue (ZRC Atrium) hosting exhibitions, conferences, and social events; the Geographical Museum; a set of laboratories (audio-visual, palaeobotany, biology, geology, and others); fifteen specialised libraries; a repository for digital collections; a Geographic Information System and a Thematic Cartography Department. ZRC SAZU promotes different regular events, such as *Generations of Excellence* (representing the highest research awards in the humanities); *Historical Seminar* (public talks by established researchers from Slovenia and abroad); *Castles at a Crossroads* (roundtables on the fate of castle heritage in Slovenia); *Research Doesn't Bite* (an entertaining event promoting research work); *Let's Play Science! – ZRC Research Playrooms* (science for schoolchildren); *Harmonia Concertans* (an annual cycle of early music concerts played on period instruments); *Shout and Sing* (an annual Slovenian folk music concert).

ZRC SAZU is a public body and has 384 employees and a yearly turnover of around € 20 million (31. 12. 2020), composed of stable (national) and competitive (a variety of sources) funding. The most important funding body is the Slovenian Research Agency.

10.2. Main achievements and critical issues

Over the past three years, there have been several changes in how RRI keys are viewed and addressed at ZRC SAZU.

The most important change that GAs has brought about in **Public Engagement** is a more general awareness of all the benefits that public engagement procedures and citizen science approaches can bring to the research process. The central Language Counselling Service



became much more responsive to the needs of language users. In the project, the initial resistance to new approaches and the integration of PE mechanisms in the ZRC SAZU's service has been overcome, thus achieving a wider acceptance of a more public-oriented research approach. This general acceptance of the efforts made will ensure the continuation of the RRI-oriented actions initiated under GRACE, as the results of the improved Language Counselling Service are already evident.

The GAs on **Ethics and Integrity** helped initiate an institution-wide debate on research ethics and integrity and the support mechanisms needed to manage them successfully in day-to-day research practice. The primary outcome is the ZRC SAZU Policy on Ethics, Integrity and Equal Opportunities in Research; the document was developed based on a discussion process with ZRC SAZU researchers and administration. In developing the policy, the GRACE GAs created synergies with the efforts of another RRI project at ZRC SAZU dedicated to Gender Equality (R&I PEERS project). With this Policy, ZRC SAZU commits to establishing an advisory committee to oversee ethics review, develop ethics, integrity and equal opportunities guidelines, action plans and misconduct protocols in collaboration with researchers, and organise awareness and training events. The document includes a timeline for policy implementation and distribution of responsibilities.

In addition to this progress, some other efforts have been made in **Open Science** and **Science Education**. Most of ZRC SAZU's journals are already open access (<https://ojs.zrc-sazu.si/>), and the repository of open access publications (<https://omp.zrc-sazu.si/>) is steadily expanding. Moreover, ZRC SAZU is a core member and coordinator of the future Slovenian node of OPERAS (the European Research Infrastructure for the Development of Open Scholarly Communication in the Social Sciences and Humanities), a member of the recently established Slovenian Community for Open Science. Therefore, it participates not only internally but also at the national level in setting the standards in SSH publishing. Internally, the ZRC SAZU Open Science Commission was established in 2019 (after an institutional/internal survey on attitudes towards open science). The Commission has drafted the ZRC SAZU state and perspectives of OA policy and has worked to raise awareness of Open Access policy, including issues of Research Ethics and Integrity (e.g., by organising various events, workshops, and training sessions on Open Access publishing, digital publishing, citations, plagiarism, metrics, etc. for editors and researchers).

Undoubtedly, the GAs conducted as part of the GRACE project have contributed significantly to raising awareness of RRI issues and initiating a long-term focus on RRI at ZRC SAZU.

10.3. Strategies and objectives for the Post-project period

In the post-project period, ZRC SAZU will continue to gradually embed RRI into the regular practices of the institution by following a spiral development.

All the actions concerning **Public Engagement** that were already implemented in the ZRC SAZU Language Counselling Service will be consolidated and expanded. The online service will be kept available to all users and the scope of activities will be slowly extended as planned (e.g., through the possible integration of certain up- and midstream research activities). This will



serve the medium-term goals of the institution (defining more advanced forms of collaboration between researchers and non-professional language users and creating appropriate technical and institutional conditions for applying a citizen science approach) and help ensure that Slovenian language users become a full part of the research process.

As for **Research Ethics and Integrity**, the main objective is to implement successfully the ZRC SAZU Policy on Ethics, Integrity and Equal Opportunities in Research developed in GA4. This includes, first and foremost, the establishment of the ZRC SAZU Committee on Ethics, Integrity and Equal Opportunities and the effective commencement of its activities (it meets regularly to review projects and give advice and organises the process of guidelines development). Training and awareness-raising activities during this period will focus on embedding the Committee within the day-to-day research practices of the organisation (ZRC SAZU staff will be made aware of the ethics and integrity policy and Committee activities; at least one workshop or public discussion on ethics and integrity per year).

In addition to consolidating the GAs initiated under the GRACE project and achieving their medium and long-term goals, ZRC SAZU will also launch **two new GAs**, one on the common area of Research Ethics, Integrity, and Gender Equality, and the second on Open Access. The overall objective of the latter is to fully embed open science principles into the ZRC SAZU publishing standards and, at the same time, to become a link between international initiatives for open science and national open access publishing culture (especially in the field of SSH).

10.4. Consolidation of the GAs initiated under GRACE

ZRC SAZU is presently managing five GAs, of which two on Public Engagement and three on Research Ethics and Integrity. The GAs are dealt with grouped by RRI keys.

| |
|--|
| GA1 |
| Stakeholder consultation on the engagement of citizens in the ZRC SAZU Language Counselling Service (Public Engagement) |
| GA2 |
| Development of a platform and procedures allowing citizens to participate in the ZRC SAZU Language Counselling Service (Public Engagement) |

Description. GA1 consists of promoting a stakeholder consultation aimed at defining the best way to engage citizens in the ZRC SAZU Language Counselling Service. GA2 consists of establishing a set of procedures and creating and testing a web-based platform for increasing the opportunities for citizens to participate in the Language Counselling Service and the research process carried out at ZRC SAZU in the linguistic field.

Status. GA1 is completed. Under this GA, the needs and possibilities for including citizens in the Language Counselling Service were assessed, and a study on good practices in citizen science was conducted. A preliminary plan for the upgrade of the platform was devised and tested through a consultation process. Based on the analysis of the consultation process, a final version of the plan was designed. GA2 is almost completed. Under this GA, a schedule for implementing the upgrade plan was put in place, and the development of the web platform



was arranged with allocated software developers. The testing of the platform led to a revision of the upgraded PE mechanisms and procedures. The testing, which is completed, revealed some minor problems that is expected to be resolved by the end of 2021, when a presentation of the platform and procedures is due.

Sustainability actions. A policy document has been already developed, defining procedures and responsibilities for the continuation of these two GAs. The online service will remain available to all users. It already represents a vital resource to a considerable portion of the Fran Ramovš Institute of the Slovenia Language at ZRC SAZU research activities.

Elements for the GA consolidation. Language Counselling Service is already part of regular long-term activities. The GAs will remain in the domain of the Orthographic Section of the Fran Ramovš Institute of the Slovenian Language at ZRC SAZU. The minimal operational costs are already fully covered. Several professional groups are interested, such as translators, proofreaders, and Slovenian language teachers, and some of them will be likely involved as stakeholders.

Potential obstacles. The main obstacles can be the motivation of language counsellors to get involved with the GAs and software problems. In the case of the future expansion of the platform, also problems of resources could arise.

Activities to consolidate. The language counselling guidelines will be developed. The process started in October 2021 and is expected to be completed in one year.

GA3

Internal exchange and learning process on Research Ethics and Integrity Issues (Research Ethics and Integrity)

GA4

Definition of the ZRC SAZU Policy framework on Research Ethics and Integrity (Research Ethics and Integrity)

GA5

Awareness-raising and training activities on Research Ethics and Integrity (Research Ethics and Integrity)

Description. GA3 consists of activating an institutional learning process within ZRC SAZU on Research Ethics and Integrity through a study on good practices and the development of the internal debate. GA4 consists of defining a comprehensive policy approach to Research Ethics and Integrity, through a highly participatory process. Finally, GA5 consists of supporting all the processes of definition and launch of the new policy framework on Research Ethics and Integrity with appropriate awareness-raising and training actions.

Status. GA3 is completed and will continue after the GRACE project lifetime. Under this GA, the discussion and learning process was designed to gather information and input based on which to develop, in a participatory way, the ethics and integrity policy in GA4. The process of discussing and learning is something to be continued in the form of regular discussion/awareness events and training activities. As for GA4, it is now completed and is in the process of being passed through the official institutional channels. Then the policy



implementation phase (post-project/midterm) will start, considering the sustainability of implemented mechanisms (stabilisation period/long-term). Finally, with respect to GA5, a set of activities will be organised aimed at familiarising the employees with the policy launch and the ethics and integrity plans at the institution. This will complete the awareness and training activities planned for this GA. The policy itself includes plans for regular awareness and training events and activities in the long term.

Sustainability actions. A policy document has been already developed, defining procedures and responsibilities for the continuation of these GAs.

Elements for the GA consolidation. Ethics and integrity actions will be taken on by the newly established ZRC SAZU Committee for Ethics, Integrity and Equal Opportunities, which will oversee ethics review, develop ethics and integrity guidelines, action plans and misconduct protocols in collaboration with researchers, and organise awareness events and training sessions. These GAs have been recognised as part of the institutional policy; therefore, basic/minimal funding is secured. Moreover, the ZRC SAZU administration is committed to implementing an RRI approach in the organisation. Throughout designing the policy, steps have been taken to activate researchers to participate. These activities will continue during the development process of the Ethics and Integrity guidelines, inviting researchers to participate in working groups aimed at identifying the most critical issues and the guidance and support mechanisms more suitable to face them.

Potential obstacles. One of the potential obstacles could be the difficulty of identifying personnel with expertise and experience in ethics and integrity issues and motivating them to participate in the Committee and the guidelines development process. To face this problem, different measures could be taken, such as encouraging the potential members of the Committee to participate in training initiatives, organising and exchange of good practices internally to the institution or with personnel involved with similar committees in other institutions. Another possible obstacle could be the lack of interest of the staff in using the support mechanisms. In this regard, awareness-raising and training events could be organised.

Activities to consolidate. The statute and rulebook of the Committee will be drafted and the preparation of the administrative support for the functioning of the Committee will be completed. These activities started in October 2021 and should be finalised by March 2022. Between April and May 2022, the ZRC SAZU Committee for Ethics, Integrity and Equal Opportunities should be formally established. Between May and April 2022, the ZRC SAZU Code of Research Ethics and Integrity will be developed. At least one document providing a set of guidelines on specific Ethics and Integrity issues will be developed every year. At least, one training and awareness-raising event will be organised annually.



10.5. GAs to launch in the Post-project period

Three additional GAs are planned for the Post-project period, one of which is devoted to Research Ethics and Integrity and Gender Equality and two on Open Access. They are described below.

GA6

Ethics, Integrity and Gender Equality in the Research Area of Slovenia: Between Policies and their Implementation (Research Ethics and Integrity and Gender Equality)

Description. This GA will produce research ethics and integrity and gender equality policy recommendations on the national level in Slovenia. It is related to the ethics and integrity GAs within the GRACE project.

Planned activities. This GA will be conducted in the framework of the two-year project *Ethics, Integrity and Gender Equality in the Research Area of Slovenia: Between Policies and their Implementation* led by ZRC SAZU and financed by the Slovenian Research Agency and the Ministry of Education, Science and Sports. The project will produce an overview of ethics, integrity and gender equality policies and practices in Slovenia at the national level, in systemic/umbrella organisations (e.g., national funding agency, academy of science, university associations) and individual research performing organisations. Based on an analysis of these policies and practices and discussions with relevant stakeholders, the project will produce recommendations for national-level institutions and a good practices handbook for research performing organisations. It will also establish a forum of ethics and integrity committees at research performing organisations in order to exchange experiences and good practices.

Elements for the GA consolidation. The ethics and integrity activities will be led by the same research team that led the GRACE GAs. This project has the financial support of the Slovenian Research Agency and the Ministry of Education, Science and Sport, who have published a grant call on this topic. A national research grant is, therefore, secured for this project. The project will result in recommendations for RRI institutional arrangements on a national level.

Potential obstacles. No specific problem is envisaged.

GA7

Discussion on the ZRC SAZU rules to ensure open access to scientific information (Open Access)

GA8

Awareness-raising on Open Access principles (Open Access)

Description. The overall goal of GAs is to incorporate Open Science principles fully into the ZRC SAZU publishing. In particular, the objective of GA7 is to discuss the draft, improve and finalise it, and put it into effect. The aim of GA8 is to present and explain to and promote the principles of OA among ZRC SAZU researchers, editors, and also in general in the research culture in Slovenia (especially in the fields of SSH).



Planned activities. The activities are still to be identified. In general terms, as for GA7, coordination meetings will be planned between the ZRC SAZU Open Science Commission, ZRC Publishing, the legal office, the administration, and researchers. As for GA8, various events, workshops, and training sessions on open science, open access, digital publishing and editing will be organised (at least one event per year). These GAs will start in January 2022 and are expected to last up to December 2023.

Elements for the GA consolidation. These GAs will be carried out by the Open Science Commission, Založba ZRC (the publishing unit of ZRC SAZU), the Legal Office, and the Administration. Resources will be drawn from the ZRC SAZU infrastructure funds. The new rules developed under GA7 should be adopted by the Board of Directors.

Potential obstacles. The main possible obstacle could be the lack of commitment in the discussion process and the lack of awareness from staff, impeding full implementation of the new rules in daily practice. This can be prevented by constant awareness-raising activities.

10.6. Strategies and objectives for the Stabilisation period

In the Stabilisation period (2024–2026), the results of the GAs will be maintained and, following a spiral development, constantly reassessed. Eventually, new objectives for each RRI key will be developed, and the GAs (with a 3-year timeline for RRI-related activities, allocation of appropriate resources and implementation of activities) will be identified.

Public Engagement. The Stabilisation will consist of reviewing and enhancing the mechanisms put in place under GRACE. In the Stabilisation period, ZRC SAZU intends to consolidate and extend in scope all the actions concerning Public Engagement that were already implemented in the Language Counselling Service. The online service available will be kept available to all users and the activities' scope will be slowly expanded as planned (e.g., eventual integration of certain up- and mid-stream research activities).

Research Ethics, Integrity, and Gender Equality. The goals of the Stabilisation phase for RRI Research Ethics and Integrity are:

- To provide a reliable and responsive ethics support service (updated ethics and integrity guidelines, individual advice), ethics review and malpractice protocols
- To keep ethics and integrity issues on the agenda by regular awareness activities and organising public discussions on topical issues
- To implement a high level of ethics and integrity culture at ZRC SAZU.

However, the ZRC SAZU Committee for Ethics, Integrity and Equal Opportunities will also address gender equality issues. It will include three specialised working groups for ethics, integrity and gender equality while setting the stage for integrated and coordinated RRI-oriented action. This set-up will allow seeing ethics issues also from the gender perspective and vice versa. The plan is to work closely with the ZRC SAZU Open Science initiative to clarify ethical and integrity considerations in domains like data sharing and open publishing practices.



Research Ethics and Integrity activities (along with Gender Equality) will continue through the ongoing work and development of the Committee. The same is true for Public Engagement activities, which are maintained through the availability of the online platform. In addition to stabilising the activities initiated under the GRACE project, the Open Science activities will also be supported.

10.7. Ideas about the governance of RRI

RRI governance will be achieved by establishing RRI governance structures and procedures supported by the institution's leadership and administration. The central structure will be composed of the promoters/ambassadors for each RRI key (not all at once, though); it will bring together the Committee for Ethics, Integrity and Equal Opportunities, the Open Science Commission, and, possibly, a representative for Public Engagement and Citizens Science. Coordinated procedures will be established through regular meetings and joint actions of the promoters/ambassadors. The institution's website is in the process of restructuring (November 2021) to give better visibility to RRI. All topics and activities associated with RRI will be gathered under the umbrella website Responsible Research.



PART THREE – RESOURCES



This part is aimed at providing a set of resources about RRI and the single RRI keys which could use by the IOs in designing and developing their future GAs.

Therefore, resources about RRI in general will be provided firstly (Chapter 11). Then, the different RRI keys will be considered, i.e., Gender Equality (Chapter 12), Public Engagement (Chapter 13), Science Education, (Chapter 14) Research Ethics and Integrity (Chapter 15), and Open Access (Chapter 16).

Resources mainly include hands-on documents available online, websites, and repositories that can be used by IO teams in developing their future RRI activities. The chapters include a variable number of paragraphs, each of them devoted to a specific topical area. The resources have been selected based on their quality and relevance to the topics. An effort has been made to privilege the most updated resources.



Chapter 11 – Resources on RRI in general



This chapter is devoted to RRI in general. It includes two paragraphs, respectively devoted to the following topics:

- Concept and theory of RRI
- Implementation of RRI.

It could be important to signal that wide range of resources on RRI in general and on RRI keys can be found on the repository created under the RRI Tools project (<https://rri-tools.eu>).

11.1. RRI concept and theory

There is a quite vast debate and literature on how to define the concept of RRI and how theoretically it works. As for the concept, different definitions of RRI are provided in the table below.

| SOME DEFINITIONS OF RRI |
|--|
| The process by which societal actors and innovators become mutually responsive to each other with a view to the (ethical) acceptability, sustainability and societal desirability of the innovation process and its marketable products (R. Von Schomberg) ⁴ . |
| A collective commitment of care for the future through responsive stewardship of science and innovation in the present (R. Owen et al.) ⁵ . |
| An alignment to R&I process and its outcomes to values, needs and expectations of European society (M. Georhean-Quinn) ⁶ . |
| Ways of proceeding in Research and Innovation that allow those who initiate and are involved in the processes of research and innovation at an early stage (A) to obtain relevant knowledge on the consequences of the outcomes of their actions and on the range of options open to them and (B) to effectively evaluate both outcomes and options in terms of moral values (including, but not limited to wellbeing, justice, equality, privacy, autonomy, safety, security, sustainability, accountability, democracy and efficiency) and (C) to use these considerations (under A and B) as functional requirements for design and development of new research, products and services (Expert Group on the State of Art in Europe on RRI) ⁷ . |
| Reflection, analysis and (public) debate concerning the moral acceptability of new technology and innovation (J. Van den Hoven) ⁸ . |

⁴ Von Schomberg, R. (2012). Prospects for technology assessment in a framework of responsible research and innovation. In *Technikfolgen abschätzen lehren* (pp. 39-61). VS Verlag für Sozialwissenschaften.

⁵ Owen, R., Stilgoe, J., Macnaghten, P., Gorman, M., Fisher, E., & Guston, D.H. (2013). Framework for Responsible Innovation. In R.Owen, Heintz, M. & Bessant, J. (eds.) *Responsible Innovation*. Wiley.

⁶ Georhean-Quinn, M. (2012). *Science in Dialogue. Towards a European Model for Responsible Research and Innovation*. Odense, Denmark.

⁷ Expert Group on the State of Art in Europe on RRI (2013). Options for strengthening responsible research and innovation. Luxembourg: Publications Office of the European Union.

⁸ van den Hoven, J. (2014) *Responsible Innovation in brief*. The Delft University of Technology.



A higher-level responsibility or meta-responsibility that aims to shape, maintain, develop, coordinate and align existing and novel research and innovation-related processes, actors and responsibilities with a view to ensuring desirable and acceptable research outcomes (B.C. Stahl)⁹.

In the EC mainstream approach, RRI incorporates five RRI keys (Gender Equality, Research Ethics and Integrity, Science Education, Open Access, and Public Engagement). An additional and cross-cutting key is that of the RRI governance. Moreover, a set of “dimensions” related to the implementation of RRI have been identified.

- **Inclusion.** It mainly refers to the engagement of different stakeholders from the early stages of research and innovation onward to give voice to all the concerned interests, values, needs, and beliefs.
- **Anticipation.** It refers to the capacity of envisioning the future of R&I and understanding how current dynamics help design the future to prevent risks and to lead research to desirable impacts.
- **Responsiveness.** It concerns the capacity to develop proactive management of new technologies to identify risks and develop an ethically adequate response. Responsiveness also relates to transparency (responses should be open to the public debate) and accessibility (scientific results about risks and responses should be openly accessible to everyone). As it is easy to notice, responsiveness is partially overlapped with the dimension of anticipation.
- **Reflexivity.** It is mainly seen as the capacity of the research system to keep control of its own activities and assumptions, to be aware of the limits of the knowledge produced and of the framing processes connected to the identification of the issues to be addressed as well as to reflect on values and beliefs connected with R&I. Reflexivity is linked to public dialogue and collaborative approaches in science.

Some resources to deepen this topic are given below.

- A general introduction on RRI can be found on the Website “RRI tools”, which provides a wide range of links with RRI-related resources.
<https://rri-tools.eu/about-rri>
- A presentation on the debate on the concept and theory of RRI can be found in the FIT4RRI Project Report on literature review.
https://zenodo.org/record/1434349#.YX5_Zp7MJPYù
- A reflection on the motivations of RRI is proposed by René von Schomberg, one of the authors that develop the most the concept of responsibility in science and innovation
<https://philarchive.org/archive/VONWRI>

⁹ Stahl, B. C. (2013). Responsible research and innovation: The role of privacy in an emerging framework. *Science and Public Policy*, 40(6), 708-716.



- An analysis of the literature on RRI dimension can be found in a paper by Gwizdala and Sledzik¹⁰
https://www.researchgate.net/publication/319577222_Responsible_Research_and_Innovation_in_the_Context_of_University_Technology_Transfer
- A set of videos on RRI theory, concept, and motivations are made available by the RRI tools project YouTube Channel
<https://www.youtube.com/user/RRITools>

11.2. RRI implementation

The implementation of RRI is the subject of multiple hands-on publications, mostly developed in the framework of various EC-funded RRI-oriented projects. Although quite different in nature, these publications help understand the different aspects of measures and activities aimed at embedding RRI in research organisations and, in some cases, in other types of organisations, like enterprises.

Some of these publications are listed below.

- A set of policy recommendations and roadmaps developed under the EC-funded project RRI-In-Practice.
https://www.rri-practice.eu/wp-content/uploads/2019/06/RRI-Practice_Policy_recommendations.pdf
- A practical guide to RRI developed under the RRI Tools project
<https://www.fosteropenscience.eu/sites/default/files/pdf/3646.pdf>
- The guidelines to favour RRI-oriented institutional change in research organisation produced in the framework of FIT4RRI project
<https://zenodo.org/record/3760665#.YX6C5J7MJPY>
- The guidelines for implementing RRI in research institutions focusing on biosciences
<http://uu.diva-portal.org/smash/get/diva2:1396179/FULLTEXT01.pdf>
- An inventory of RRI governance innovation practices developed under the TeRRitoria project
<https://zenodo.org/record/5526532#.YX6B9p7MJPY>
- The guidelines on RRI produced by the GREAT project
<https://www.great-project.eu/Deliverables10>

¹⁰ Gwizdala, J. P., & Sledzik, K. (2017). Responsible Research and Innovation in the Context of University Technology Transfer. *Folia Oeconomica*, 2.



- The Responsibility Navigator, a practical tool for implementing RRI, developed by the Res-AgorA Project
http://responsibility-navigator.eu/wp-content/uploads/2016/01/Res-AgorA_Responsibility_Navigator.pdf
- The Responsible Research and Innovation Maturity Model aimed at identifying progressions towards RRI in industry context, developed in the context of the Responsible-Industry Project
<https://www.mdpi.com/2071-1050/9/6/1036>
- Two websites providing resources and training on RRI
<https://www.fosteropenscience.eu/fit4rri>
<https://rri-tools.eu/>



Chapter 12 – Resources on Gender Equality



This chapter is devoted to the resources on Gender Equality. It includes six paragraphs, respectively devoted to the following topics:

- Recruitment process
- Career development
- Work-life balance
- Working environment
- Gender dimension in science
- Governance structures for gender equality.

12.1. Recruitment process

One of the main elements favouring gender equality in science is the establishment of fairer, more transparent, and more accountable recruitment procedures, thus fostering the underrepresentation of women in scientific fields and particularly in senior positions.

Many factors, in fact, affect the fairness and transparency of the process, including gender bias influencing recruitment procedures in all phases (vacancies advertisements and development of the recruitment material, the composition of the recruitment committees, the way in which the interviews are conducted, etc.), the regulations adopted (which do not take adequately into considerations aspects like the career breaks due to pregnancies or the unfair distribution of family duties among women and men), or the lack of recognition of the different attitudes of women and man towards their own career (usually, women tend to promote themselves less than men do and are less aggressive and competitive than their male colleagues).

Some resources on this topic are given below.

- The EC report “Implicit gender biases during evaluations: how to raise awareness and change attitudes?”
http://www.geecco-project.eu/fileadmin/t/geecco/2017_report_on_implicit_gender_biases_during_evaluations.pdf
- The Guidelines on recruitment developed under the LIBRA project
https://www.eu-libra.eu/sites/default/files/article-files/libra_recruitment_guidelines_second_edition_0.pdf
- The Handbook on Gender-sensitive Design of Criteria and Recruitment, Appointment and Promotion Processes in Academia, developed under the FESTA project, showing the general logic of these processes in some universities
<http://www.genderportal.eu/resources/festa-project-gender-sensitive-design-criteria-and-recruitment-appointment-and-promotion>



- A literature review on unconscious bias developed by the Equality Challenge Unit (the entity in charge of the Athena SWAN Programme) in <https://www.ecu.ac.uk/wp-content/uploads/2014/07/unconscious-bias-and-higher-education.pdf>
- The policy brief on recruitment and hiring developed by the University of Colorado under the NSF-funded ADVANCE Programme https://www.colorado.edu/eer/sites/default/files/attached-files/5_inclusivehiringbrief123015.pdf
- Video on unconscious bias in recruitment processes developed by the Catalan Research Centres (ICERCA) <https://www.youtube.com/watch?v=g978T58gELo>

12.2. Career development

An important aspect to be faced for promoting gender equality in science is maintaining women in the career track, to favour their career progression, and to redress vertical segregation mechanisms by sustaining women's access to leadership positions.

The factors influencing women's careers are many, some of which like those mentioned in the previous section (gender biases, unfair distribution of family duties among women and men, etc.). However, other factors come also into play, more connected to the working environment, remarkably limiting the access of women to career opportunities and resources, such as research grants, visible tasks, participation in scientific conferences as main speakers, or the lack of role models for women.

Some resources on this topic are given below.

- The Gender Competent Leadership E-learning package, developed by the GENOVATE project <https://studylib.net/doc/6716443/d4.1-online-gender-competent-leadership-and-management-pa...>
- Three policy briefs developed by GENPORT on women in decision making https://www.genderportal.eu/sites/default/files/resource_pool/pb20_decisionmaking_inn_o.pdf
https://www.genderportal.eu/sites/default/files/resource_pool/pb18_decisionmaking_consolidate.pdf
https://www.genderportal.eu/sites/default/files/resource_pool/pb17_decisionmaking_start_0.pdf
- The Part D of the PRAGES Guidelines developed by ASDO, devoted to women in leadership positions <http://www.asdo-info.org/public/PRAGESguidelines.pdf>



- A publication on mentoring developed by the Equality Challenge Unit
<https://www.ecu.ac.uk/wp-content/uploads/external/mentoring-progressing-womens-careers-in-higher-education.pdf>
- The Handbook on mentoring good practice developed by the Birkbeck College, University of London under the TRIGGER Project
http://triggerproject.eu/wp-content/uploads/2018/05/TRIGGER-D_3-5_Mentoring-Handbook-of-Best-Practice.pdf

12.3. Work-life balance

Some of the most important career segments, in science as in other careers, coincide with the stage of one's personal biography when people usually "settle down" with a long-term partner and create a new family. This process traditionally hinders women's career more than men's, with different effects, including the diversion from highly valued career paths (typically from research to teaching or from research to administrative or supporting work), career breaks, part-time work up to abandoning the scientific career.

Hence the importance to address the many factors limiting women to reach a balance between professional and family life, considering that many of these factors are deeply rooted in the way in which the entire society is organised.

Some resources on this topic are given below.

- A policy brief on flexible working arrangements and on family-friendly accommodations developed by the University of Colorado under the NSF-funded ADVANCE Programme
https://www.colorado.edu/eer/sites/default/files/attached-files/8_flexibleworkarrangements123015.pdf
- A document "Mapping organisational work-life policies and practices" developed under the GARCIA project describing work-life balance policies in some European universities
http://garciaproject.eu/wp-content/uploads/2015/10/GARCIA_report_wp4.pdf
- The section devoted to work-life balance ("The rush hour in academia) in the EC document "Meta-analysis of gender and science research"
https://www.genderportal.eu/sites/default/files/resource_pool/meta_analysis_synthesis_report.pdf

12.4. Working environment

Another relevant area pertaining to gender equality in science is that of the quality of the working environment for women. This issue largely involves the overall management of research organisations, since the quality of the working environment does not affect only women but the entire staff. However, also a high-quality working environment may have



specific dynamics and features which negatively impact women (or other special groups, like ethnic minorities, members of the LGBT community, or disabled people).

This happens because inequality dynamics are often different to detect and even more difficult to eradicate, being deeply rooted in the cultural and social patterns as well as in power relationships. It is not by chance that, when actions aimed at supporting gender equality are developed, many forms of resistance emerge, also among women.

Some resources on this topic are given below.

- A policy brief and a guide on sexual harassment respectively developed under the projects GENPORT and TRIGGER
https://www.genderportal.eu/sites/default/files/resource_pool/pb21_sexualharrasment.pdf
http://triggerproject.eu/wp-content/uploads/2018/05/Deliverable_D5-2_GL_SEX_HARAS_UPM.pdf
- Two guidance-like publications to use a gender-sensitive language, respectively developed by the University of Reutlingen, and the University of Pisa
https://eige.europa.eu/sites/default/files/reutlingen_university_guidelines_for_using_gender-sensitive_language.pdf
http://triggerproject.eu/wp-content/uploads/2018/05/D1.7_Completo.pdf
- A policy brief on the visibility of women and gender equality issues developed by the University of Colorado under the NSF-funded ADVANCE Programme
https://www.colorado.edu/eer/sites/default/files/attached-files/13_enhancedvisibilitybrief123115.pdf
- A guide for enhancing the department climate developed by the Wisconsin University under the NSF-funded ADVANCE Programme
<http://wiseli.engr.wisc.edu/docs/ClimateBrochure.pdf>

12.5. Gender dimension in science

Sex and gender are two potentially critical factors of experimental design in many research fields, which have been for a long time overlooked or simply neglected. Recently, the relevance of the so-called “gendered science” (i.e., a science which considers sex and gender as scientific variables) started to be acknowledged in academia, with the double effect of, on the one side, activating new research paths and encouraging the adoption of new research protocols and, on the other side, unveiling the impacts of gender-related dynamics on the research process and the image of science.

Some resources on this topic are given below.

- The EC document “Gendered Innovations. How Gender Analysis Contributes to Research”
<https://op.europa.eu/en/publication-detail/-/publication/d15a85d6-cd2d-4fbc-b998-42e53a73a449>



- A set of guidelines for integrating sex and gender analysis into research contents, developed under the GENDER-NET Project
https://eige.europa.eu/sites/default/files/d3.11_manuals_with_guidelines_on_the_integration_of_sex_and_gender_analysis_into_research.pdf
- The online tool including a set of recommendations on the integration of gender analysis in research, also in this case developed by the GENDER-NET Project
<http://igar-tool.gender-net.eu/en>
- A report developed by the project GenPORT on gender in research content and knowledge production
https://www.genderportal.eu/sites/default/files/resource_pool/genport_rs4_knowledge_v3_13jan.pdf

12.6. Governance structures for gender equality

Achieving gender equality in research organisations is a long-term goal, requiring continuity of action, monitoring mechanisms, a comprehensive vision of the problems to be addressed and an ability to change the types and intensity of the actions throughout the process, also reacting to unforeseen events (for example, a leadership turnover or an organisational reform) that could endanger the results already achieved.

There is, therefore, the need to create as far as possible stable governance structures able to drive the process, to keep gender equality issues on the agenda, to mobilise the internal actors and stakeholders, and to timely produce data and information about advancements, constraints, and critical steps towards gender equality.

Some resources on this topic are given below.

- The toolkit developed by the European Institute for Gender Equality (EIGE)
<https://eige.europa.eu/gender-mainstreaming/toolkits/gear>
- The toolkit on how to design and implement gender equality plans in institutions working on ICT prepared by the EQUA-LIST project
<https://equalist.dais.unive.it/public/docs/EQUAL-IST-710549-D3.5%20Toolkit%20for%20designing%20and%20implementing%20GEPs.V2.0.pdf>
- The Roadmap for the implementation of customized gender equality plans developed by the GENERA project
https://www.peba.kit.edu/downloads/D4.2_Roadmap%20for%20the%20implementation%20of%20customized%20Gender%20Equality%20Plans.pdf
- The guidelines on gender equality practices developed under the PRAGES project
<http://www.asdo-info.org/public/PRAGESguidelines.pdf>



- The guidelines on structural transformation produced by the STAGES project
http://www.stages.unimi.it/upload/documents/Guidelines_STAGES_new.pdf
- The guidelines developed under the TRIGGER project
<http://triggerproject.eu/wp-content/uploads/2018/01/TRIGGERING-PAGG-SINGOLE.pdf>

Other publications are focused on how **managing the impacts of action plans** or **how to measure progress**. The following resources can be mentioned.

- Two publications developed by the Equality Challenge Units
<https://www.ecu.ac.uk/wp-content/uploads/external/measuring-progress-on-equality-qualitative-evidence.pdf>
http://www.ecu.ac.uk/wp-content/uploads/2018/03/2018-03-ECU_Research-and-data-briefing-5_final.pdf
- The evaluation framework developed under the EC-Funded EFFORTI project
<https://www.efforti.eu/sites/default/files/2018-03/EFFORTI%20D3.3%20FINAL%20report%2027032018.pdf>
- A document developed by the GENDER-NET project on the use of qualitative indicators for monitoring gender equality
http://www.gender-net.eu/IMG/pdf/GENDER-NET_D4-15_Publish_first_joint_monitoring_report_on_gender_equality_indicators_MENESR_ECU.pdf
- The guidelines developed by the GENOVATE project on how evaluating gender equality action plans
<https://www.queenssport.com/sites/QueensGenderInitiative/FileStore/Filetoupload,959872,en.pdf>



Chapter 13 – Resources on Public Engagement



This chapter is devoted to the resources on Public Engagement. It includes five paragraphs, respectively devoted to:

- Science communication
- Participatory mechanisms
- Citizen science
- Open innovation
- Governance structures for public engagement.

Before analysing the specific topics, it might be useful to mention the website of the National Coordination Center for Public Engagement of the United Kingdom (<http://www.publicengagement.ac.uk/resources>) which offers a wide range of resources on public engagement.

13.1. Science communication

Science communication is usually considered as the first step of public engagement, being based, differently from the other forms of public engagement, on a one-way communication flow from scientists to the public or to other stakeholders, and not on a real interaction between them.

However, science communication is a necessary precondition for public engagement since it serves to raise the interest of people or specific stakeholders on science and to encourage them to get involved with science and technology as well as to create in research organisations an enabling environment for more advanced forms of engagement. Moreover, science communication is also expected to enhance the image of science and to attract young people to start scientific careers. From the point of view of individual researchers, the benefits of being involved in science communication can be different, including skills development, career enhancement, higher personal and institutional profile, students' recruitment, personal reward, or additional funds.

It is also important not to overlook the question of what should or could be communicated about science. Usually, the main objectives pursued through science communication are transferring knowledge and skills to laypeople to increase their “scientific literacy” and attract them to science. However, there are many other aspects that could be included in science communication that usually are not, such as: how a research organisation works, including problems and critical issues they face; the life of scientists; the political and ethical issues connected with scientific research; the changes affecting science (including increasing competition, globalisation, organisational transformations in research institutes, etc.) and the problems and opportunities they entail; the presence of forms of inequality in scientific settings grounded on, e.g., gender, sexual orientations, nationalities or personal physical conditions. This is only to say that the aims of science communication initiatives, the contents to be communicated, the targets addressed, and the communication means used should be carefully identified.



Some resources on this topic are given below.

- The toolkit “Successful Communication A Toolkit for Researchers and Civil Society Organisations”
<https://cdn.odi.org/media/documents/192.pdf>
- A chapter of a book authored by Karen Bultitude on “The Why and How of Science Communication”
https://www.scifode-foundation.org/attachments/article/38/Karen_Bultitude_-_Science_Communication_Why_and_How.pdf
- The EU Guide on science communication on video
<https://www.youtube.com/playlist?list=PLvpwljZTs-Lhe0wu6uy8gr7JFfmv8EZuH>
- The document “An introduction to communicating science” by Richard Holliman
www.researchgate.net/publication/242513678_An_introduction_to_communicating_science

13.2. Participatory mechanisms

This section deals with the many forms in which the communication flow comes from the public to reach scientists or, more often, in which two-way communication is activated between researchers or research institutions, on the one side, and the public or specific stakeholders, on the other side.

Therefore, while science communication does not imply people’s engagement with science and innovation, participatory initiatives necessarily do it. For such a reason, communicating science is relatively easy while promoting participation in science is quite always a complex process. The complexity derives from different factors. Three can be mentioned here.

- Participatory initiatives require the interaction among multiple actors and therefore among multiple interests, views, and expectations. Combining them is usually difficult. Difficulties usually depend upon variables like: the nature (lay people, “quasi-experts”, stakeholders, other scientists, etc.) and number (few, many, etc.) of participants; the nature of the organisers (universities, governmental agencies, funding organisations, etc.); the issues discussed (for example, having or not actual impacts on, the research organisation, participants, local communities or other actors); above all, the objective of the initiative (activating a dialogue, taking deliberations, favouring mutual learning and exchange, etc.).
- While science communication is increasingly part of the “culture” of researchers and research organisations, the proactive involvement of external stakeholders or the public at large it is not. Therefore, many forms of resistance can arise on the part of leaders, managers, and scientists towards participatory approaches in science and innovation.



- Another factor usually making this kind of initiative difficult to implement concerns who manage the impacts of participatory initiatives. When people accept to get involved, usually desire to contribute to managing the impacts of their own participation (for example, the implementation of the decisions they contribute to take). If this does not happen, participation can be perceived as useless or disappointing. Hence the need to design participatory events or programmes having clear objectives and including participatory mechanisms in all phases.

Some resources on this topic are given below.

- The publication “Tools and instruments for a better societal engagement in Horizon 2020”, providing many examples of methods
<http://engage2020.eu/media/D3-2-Public-Engagement-Methods-and-Tools-3.pdf>
- The booklet “What is public dialogue”, developed by the Sciencewise, the UK’s national centre for public dialogue in policy making on science and technology
<https://participedia.net/sites/default/files/case-files/What%20is%20public%20dialogue%3F%20FAQ%20Report.pdf>
- The publication “Doing public dialogue” developed by a consortium of entities led by the Research Councils UK
<https://www.involve.org.uk/sites/default/files/uploads/120727RCUKResource.pdf>
- The Citizens engagement handbook developed by the Canadian Institute of Health Research
http://www.cihr-irsc.gc.ca/e/documents/ce_handbook_e.pdf

13.3. Citizen science

If the concept of collaboration mainly refers to the involvement of citizens and stakeholders in the policy cycle related to science and innovation that of citizen science refers to their involvement in the research cycle. In fact, citizen science describes the voluntary engagement in the scientific process of people who are not tied to scientific institutions and often who have not a university degree, ensuring that scientific standards are fully matched.

Forms of citizen science are traditionally performed in some research sectors, such as astronomy, archaeology, or zoology. However, there is a strong tendency, in the last decades, both to enlarge the research fields where people can be involved and to enlarge the tasks and roles which people can perform. This is made more feasible now also thanks to the internet (allowing the establishment of more organised forms of scientific volunteering) and web-based technologies which can easily be managed by lay people (for example, air pollution apps for smartphones to monitor the quality of air).

There are different kinds of benefits related to citizen science. For scientists, they include, for example, creating large datasets reducing costs, considering new views of the research topics they deal with or increasing the public acceptance of their research results. For participants, the benefits deriving from citizen science include, for example, contributing to scientific



discoveries, increasing their understanding of complex problems, introducing new ideas in the research process, or simply having fun. For many authors, there are also benefits for society, in terms of democratisation of science, better circulation of scientific information increased transparency of scientific institutions, and better transfer of research results into practice.

Some resources on this topic are given below.

- The 10 principles of citizen science developed by the European Citizen Science Association <https://ecsa.citizen-science.net/documents/>
- An essay on public participation in scientific research developed by the Center for Advancement of Informal Science Education (CAISE) <https://www.informalscience.org/sites/default/files/PublicParticipationinScientificResearch.pdf>
- A guide to when and how to use citizen science to monitor biodiversity and the environment, developed by the Scottish Environment Protection Agency and the Centre for Ecology and Hydrology https://www.ceh.ac.uk/sites/default/files/sepa_choosingandusingcitizenscience_interactive_4web_final_amended-blue1.pdf
- The Guide to Citizen Science published by the UK Environmental Observation Framework <http://www.ukeof.org.uk/documents/guide-to-citizen-science/view>
- The report by Muki Haklay on citizen science and policy in a European perspective https://www.wilsoncenter.org/sites/default/files/Citizen_Science_Policy_European_Perspective_Haklay.pdf
- The White paper on citizen science for Europe, drafted by Societize for the European Commission <https://eu-citizen.science/resource/8>
- The guide for citizen science practitioners drafted under the GEWISS project https://www.buergerschaffenwissen.de/sites/default/files/assets/dokumente/handreichung_a5_engl_web.pdf

13.4. Open innovation

Usually, Responsible Research and Innovation does not consider the role of citizens in innovation activities and, especially the relations between citizens and industry.

This is not the case for the concept of Open Science, which, on the contrary, sees citizens more and more involved in innovation, together with research organisations and industry.

The EC document “Open Science, Open Innovation, Open to the World”, in this regard, highlights the multiple role citizens and civil society organisations may play in the innovation processes, including creating new demands for innovative products and services, funding



projects that are relevant to them, being active promoters of innovation through their ideas and having a say in shapes and impacts of research-based products.

However, very few research organisations are culturally prepared and organisational structured to promote forms of innovation involving citizens and other stakeholders in addition to technology developers and industrial partners, even though there is an increasing trend to ground innovation on co-working, cooperation, and interchange among actors of different types.

In this section, we limit ourselves to provide some tips and ideas about how research organisations can take some steps toward innovation initiatives somehow encompassing citizens, citizens networks and other stakeholders, together with industry and governmental organisations.

Some resources on this topic are given below.

- The EC document “Open innovation, Open Science, Open to the World. A vision for Europe”
<https://www.fosteropenscience.eu/content/open-innovation-open-science-open-world-vision-europe>
- Two handbooks on how to develop a living lab
https://www.ltu.se/cms_fs/1.101555!/file/LivingLabsMethodologyBook_web.pdf
https://u4iot.eu/pdf/U4IoT_LivingLabMethodology_Handbook.pdf
- A guide on innovation labs published by UNICEF
https://s25924.pcdn.co/wp-content/uploads/2017/11/Innovation_Labs_A_Do-It-Yourself_Guide.pdf
- A practical guidance for developing a social innovation lab
https://www.ccednet-rcdec.ca/sites/ccednet-rcdec.ca/files/social_innovation_lab_field_guide.pdf
- An article on the university-based makerspaces
<https://www.ingentaconnect.com/content/nai/ti/2017/00000019/00000001/art00005?crawler=true&mimetype=application/pdf>

13.5. Governance structures for public engagement

The many initiatives promoted so far in Europe on public engagement have had many impacts on science and technology. However, public engagement still meets some resistance in research organisations. For example, getting involved in public engagement is not recognised for career advancements and it can even damage their scientific career. There are no incentives for public engagement. In general, leaders and heads of departments consider public engagement as a marginal aspect in the life of the organisation and sometimes they see it simply as a waste of time. This is also the reason why researchers in most cases limit their



public engagement actions to science communication which is less complex to develop and usually more recognised and supported in the research organisation.

In this framework, the need to embed public engagement in research institutions clearly emerges, to make it a permanent function of the organisation, by activating governance structures able to go beyond a dispersed and occasional approach to public engagement.

Some resources on this topic are given below.

- A toolkit developed by Beacon for public engagement at the University College of London
https://www.ucl.ac.uk/culture/sites/culture/files/final_ucl_beacon_for_public_engagement_website_ver.pdf
- A document on how to support public engagement developed by the UK National Coordinating Centre for Public Engagement
http://www.publicengagement.ac.uk/sites/default/files/publication/learning_resource_pack.pdf
- The Concordat for Engaging the Public with Research developed by Research Councils UK where a set of principles concerning public engagement are established
<https://www.ukri.org/files/legacy/scisoc/concordatforengagingthepublicwithresearch-pdf/>
- The public engagement strategic plan at the University of Oxford
http://www.ox.ac.uk/sites/files/oxford/media_wysiwyg/University%20of%20Oxford%20-%20Public%20Engagement%20with%20Research%20Strategic%20Plan.pdf



Chapter 14 – Resources on Science Education



This chapter is devoted to the resources on Science Education. It includes four paragraphs, respectively devoted to the following topics:

- Science education with and for schools
- Science education outreach
- Improvement the skills in science education
- Governance structures on science education.

14.1. Science education with and for schools

The first area of action for Science Education is establishing cooperation relationships between research organisations and schools. Research organisations often play an active role in the promotion of science education programmes addressed to school students and teachers (certainly primary schools but mainly secondary schools), pursuing a wide range of objectives, including:

- Promoting a direct contact of students with the reality of the research organisation, on both the contents and practices of research (e.g., initiatives inside the Labs with pupils)
- Showing controversial issues attached to specific scientific areas
- Attracting youth (especially girls) to scientific careers
- Involving students in co-design initiatives to help them understand the logic of scientific discovery and innovation
- Building new aptitudes (critical thinking), multidisciplinary knowledge and collaborative learning skills
- Supporting schools' teachers to introduce new approaches and methods in science teaching and learning.

Some resources on this topic are given below.

- A teachers' Guide of including best practices in Science Education for secondary schools
<https://www.britishcouncil.gr/sites/default/files/march-best-practices-report-2016.pdf>
- A report developed by European Schoolnet providing an overview of the situation of STEM in European education systems.
http://www.scientix.eu/documents/10137/782005/Scientix_Texas-Instruments_STEM-policies-October-2018.pdf/d56db8e4-cef1-4480-a420-1107bae513d5
- The portal Open Schools for Open Societies in which several innovative projects concerning science teaching in schools are illustrated
<https://portal.opendiscoveryspace.eu/en/osos>
- The booklet on the Socio-Scientific Inquiry-Based Learning developed under the PARRISE project
<https://www.parrise.eu/wp-content/uploads/2018/04/parrise-en-rgb.pdf>



14.2. Science education outreach

The second area of action relevant for science education is **science outreach**. This concept is an “umbrella concept” including a wide range of activities united by the same basic idea of “bearing science” outside research environments.

Someone also considers science education activities carried out in schools as a form of science outreach. Here activities involving schools are kept separate since they directly influence the way in which science is formally taught in the schools. Under the concept of science outreach, only activities of informal nature are labelled here as “science outreach”, usually aimed at reaching audiences usually excluded from formal education mechanisms (for different reasons, including forms of social exclusion grounded on class, gender, race, or age).

Types of outreach initiatives can be, for example:

- **Community events**, such as science festivals or science days in which, thanks to portable labs, exhibits and scientific demonstrations, it is possible to show scientific processes and results
- **Science contests**, allowing youth and other groups to get involved in scientific initiatives and to express their own creativity
- **Internships**, aiming people to make direct experience of the scientific work
- **Hands-on activities**, which allow participants to get involved in practical experiments and to better grasp the contents and implications of the issues dealt with by scientists
- **Debates** concerning science-related topics, which make it possible to get aware of the role of science in dealing with societal challenges.

It is to be also noticed that, in many academic environments, **science education outreach is still considered something that “good scientists” have no time to do** and therefore reserved to those who are not fully committed with the scientific work. Overcoming this stereotypical view of science outreach is probably one of the main barriers to face in the pathway towards RRI.

Some resources on this topic are given below.

- A set of best practices on outreach and science education in the field of marine sciences
http://www.seachangeproject.eu/images/SEACHANGE/SC_Results//D3.4_Online_Directory_of_Good_Practice_Final.pdf
- The outreach programme developed by the Stanford’s Office of Science Outreach (OSO)
<https://oso.stanford.edu>
- SciRech, an online database on science communication and outreach
<https://www.scireach.org/>



- A toolkit on science communication and outreach developed under the EC-funded DESIRE project
http://desire.eun.org/c/document_library/get_file?uuid=19f37a23-d566-4a49-8106-5a29857a16f3&groupId=12834

14.3. Improvement of the skills in science education

The third area of action for research organisations includes all the activities aimed at **improving the skills and competencies of researchers in science education**.

The core idea at the basis of this kind of action is that scientists are not prepared, on the one side, to conduct science education activities and, on the other side, to develop research activities following RRI principles and practices. Hence the need for initiatives integrating science education and RRI in **university curricula** of researchers in the different research fields.

Some resources on this topic are given below.

- The training programmes addressing RRI (HEIRRI)
<http://heirri.eu/resources/heirri-at-rritools-eu/>
- A document on how to design curricula in higher education from an RRI perspective (EnRRICH)
https://www.livingknowledge.org/fileadmin/Dateien-Living-Knowledge/Dokumente_Dateien/EnRRICH/D2.3_The_EnRRICH_Tool_for_Educators.pdf
- The document “Embedding Responsible Research and Innovation in Higher Education Curricula: Practical approaches” (EnRRICH)
https://www.livingknowledge.org/fileadmin/Dateien-Living-Knowledge/Dokumente_Dateien/EnRRICH/EnRRICH_Policy_Brief_D5.3.pdf
- An inventory of training experiences on RRI in higher education (EnRRICH)
http://www.guninetwork.org/files/images/imce/heirri_wp2_d2.3.pdf

14.4. Governance structures on science education

The rapid changes affecting science-society relations, as they also emerge from RRI, are increasingly leading to a stronger involvement of research organisations serving as reference points in science education-related activities. As a matter of fact, scientists and research organisations are directly concerned with all the objectives pursued through science education (see the box below), even though they only rarely perceive science education as part of their own institutional role and mission.

Some resources on this topic are given below.



There are not direct sources dealing with the establishment of governance structures in research organisations related to science education. It could perhaps useful to consider some general documents dealing with science education policies, such as:

- The European Union report on science education for responsible citizenship
<https://op.europa.eu/en/publication-detail/-/publication/a1d14fa0-8dbe-11e5-b8b7-01aa75ed71a1>
- The document on science education policies and practices in Europe developed by Eurydice
http://www.indire.it/lucabas/lkmw_file/eurydice/sciences_EN.pdf
- The policy brief of the SIS Net on science education policies in the European Commission
http://www.sisnetwork.eu/media/sisnet/Policy_Brief_Science_Education.pdf
- The STEM Education policies in Europe Report, developed by Scientix
http://www.scientix.eu/documents/10137/782005/Scientix_Texas-Instruments_STEM-policies-October-2018.pdf/d56db8e4-cef1-4480-a420-1107bae513d5

Other interesting sources could be the programmes on science education developed by universities. In this regard, see for examples:

- <https://education.jlab.org/>
- <https://www.mcgill.ca/ose/about>
- <https://www.howscienceworks.pitt.edu/>



Chapter 15 – Resources on Research Ethics and Integrity



This chapter is devoted to the resources on Research Ethics and Integrity. It includes five paragraphs, respectively devoted to the following topics:

- Promoting research integrity
- Integrating ethics into all phases of the R&I process
- Facilitating structures for reflection
- Training
- Governance structures for research ethics and integrity.

15.1. Promoting research integrity

The ongoing transition in the way in which scientific knowledge is produced (see Document 6), disseminated and exploited while bringing new perspectives in the relationship of science with the rest of society, is also generating social and institutional stress and an increasing feeling of uncertainty, especially among researchers. Changes affecting science are leading to, for example, increasingly uncertain access to public resources and support, growing competition among researchers and research institutes, fragmentation, and even a distortion of science internal mechanisms of scientific production (e.g., data reproducibility, peer-reviewing, research quality assessment) and an increasing tendency of researchers to adopt safe and low-risk research strategies. In this situation, research integrity is, in general, more challenged than it was in the past.

Often researchers feel or are, left alone to cope with internal and external pressures that lead to scientific misconduct. As part of the general strategy of RRI, integrity issues are instead to be considered not only depending on the responsibility of the individual researcher but as part of a more general challenge to research ethics.

In the last decades, research organisations and research systems, also at an international level, are developing more robust mechanisms for promoting research integrity. This led to a better definition of both contents and methods. For example, the Singapore statement, representing the first international effort to encourage the development of unified policies, guidelines, and codes of conduct, with the long-range goal of fostering greater integrity in research worldwide, set up 4 general principles and 14 subsequent responsibilities to define research integrity¹¹.

In the context of RRI, it could be useful to mention the definition of research integrity proposed by the RRI Tools project¹². In such a perspective, research integrity means that “research methods, activities and processes are (1) guided by standards, guidelines and protocols; (2) open to external scrutiny (for example, ethical bodies extended to societal stakeholders); and (3) open to internal reflexivity (nurtured by a culture of open deliberative integrity). Research integrity is thus essential to ensuring research quality and trust in science”.

Some resources on this topic are given below.

¹¹ The Singapore Statement on Research Integrity was developed as part of the 2nd World Conference on Research Integrity, 21-24 July 2010, in Singapore. <https://www.wcrif.org/documents/327-singapore-statement-a4size/file>

¹² The section devoted to ethics and research integrity in the RRI web tool, one of the main sources of this chapter, is available at <https://www.rri-tools.eu/how-to-pa-ethics#menu-anchor-id1-content>



- Some international statements (The Singapore statement on research integrity, the Montreal Statement on Research Integrity in Cross-Boundary Research Collaborations and the Amsterdam Agenda), representing the foundation of the international initiatives on research integrity
<https://wcrif.org/guidance/singapore-statement>
<https://www.wcrif.org/guidance/montreal-statement>
<https://www.wcrif.org/guidance/amsterdam-agenda>
- A webtool on research integrity devised by the Norwegian Research Ethics Committees
<https://www.etikkom.no/en/library/topics/integrity-and-collegiality/>
- The New Netherlands Code of Conduct for Research Integrity (a helping hand that researchers and institutions can and will apply themselves)
<https://www.nwo.nl/en/news-and-events/news/2018/09/new-netherlands-code-of-conduct-for-research-integrity.html>
- The Concordat to support Research Integrity, which helps to ensure that research produced by or in collaboration with the UK research community is underpinned by the highest standards of rigour and integrity
<https://www.universitiesuk.ac.uk/policy-and-analysis/reports/Pages/research-concordat.aspx>
- The forensic tools set up by the Office of research integrity of the US Department of health and human services (ORI)
<https://ori.hhs.gov/forensic-tools>
- The list of misconduct cases managed by the ORI
https://ori.hhs.gov/case_summary
- The scientific misconduct strategy of the European Research Council
https://erc.europa.eu/sites/default/files/document/file/ERC_Scientific_misconduct_strategy.pdf
- The handbook of recommendations for the investigation of research misconduct issued by the ENERI project in collaboration with the European Network of Research Integrity Offices (ENRIO)
http://eneri.eu/wp-content/uploads/2019/03/INV-Handbook_ENRIO_web_final.pdf
- The report of the SATORI project on the legal frameworks that guide or constrain research procedures in the EU countries
<http://satoriproject.eu/media/SATORI-Deliverable-3.1-.pdf>
- The list of training resources on research integrity set up by the European Network of Research Integrity Offices (ENRIO)
<http://www.enrio.eu/resources/?cat=4>



- The interactive games The Lab and The Research Clinic from the ORI
<https://ori.hhs.gov/thelab>
<https://ori.hhs.gov/the-research-clinic>
- The Interactive movie on scientific integrity titled “Integrity factor”
<http://integrityfactor.nl/>
- The videos explaining the Socio-Technical Integration Research (STIR) of the Centre for Science, Policy and Outcomes (CSPO) of the University of Arizona, focusing on developing tools that can help improve the links between scientific research programs and the societal benefits of research
<https://www.youtube.com/watch?v=feOOT2il16o&feature=youtu.be>
<https://cspo.org/research/new-tools-for-science-policy-videos/>

15.2. Integrating ethics into all phases of the R&I process

EC-funded research is committed to applying fundamental ethical principles. Ethics is thus an integral part of research from beginning to end and ethical compliance is pivotal to achieving real research excellence.

Twelve Golden Rules to Ethical Research Conduct¹³

You must ensure that your research:

1. Respects the integrity and dignity of persons (that this intrinsic worth protects them from being used for greater perceived benefits)
2. Follows the “Do no harm” principle. Any risks must be clearly communicated to subjects involved
3. Recognises the rights of individuals to privacy, personal data protection and freedom of movement
4. Honours the requirement of informed consent and continuous dialogue with research subjects
5. Treats animals with respect and works under humane conditions before, during and after the research
6. Designs animal research in accordance with the 3 Rs: Replacement, Reduction, Refinement
7. Respects the principle of proportionality: not imposing more than is necessary on your subjects or going beyond stated objectives (mission creep)
8. Treats societal concerns seriously - a researcher’s first obligation is to listen to the public and engage with them in constructive dialogue, transparently, honestly and with integrity
9. Tries to prevent being openly available for misuse or malignant dual use by terrorists or military organisations
10. Recognises the wholeness of an individual and that any modification (genetic or technological) does not interfere with this principle
11. Respects biodiversity and does not impose irreversible change that threatens the environment or ecological balance

¹³ EC, Ethics for researchers. Facilitating Research Excellence in FP7, 2013
http://ec.europa.eu/research/participants/data/ref/fp7/89888/ethics-for-researchers_en.pdf



12. Builds on the understanding that any benefits are for the good of society, and any widely shared expressions of concern about threats from your research must be considered (with the acceptance that perhaps certain research practices might have to be abandoned).

By inserting the ethics key in the general strategy of responsible research and innovation, the intention of the EU policy was to support the integration of the ethical dimension throughout the whole research and innovation process and its phases, i.e.: policy making and agenda setting, funding call formulation, project definition and proposal writing, and project execution and evaluation.

Integrating ethics throughout all phases of the process requires a continuous action of orientation, reflection and deliberation on the decisions, actions, and values at stake, which implies an effort inside the individual research performing and financing organisation and coordination among different organisations and stakeholders, as well as integration with national and regional policies.

Some resources on this topic are given below.

- The Framework for Ethical Evidence for non-medical science developed by the Pro-res project
<https://prores-project.eu/>
- The STIR (Socio-technical integration research) programme website, including the description of the STIR method and some tools to customize it to one's own' research
<https://cns.asu.edu/research/stir>
<https://cns.asu.edu/research/stir/howto>
- The paper “A framework for Responsible Innovation”, proposing a set of decision components and related critical questions to build ethical capacities in the researchers/innovators teams
<http://www.synbicite.com/media/attachments/1119966361-3.pdf>
- The report of the Dutch national project “knowledge for climate”, describing the co-creation method adopted to identify issues at stake for the research on climate change
<http://edepot.wur.nl/340780>
- The Guidebook drafted by James Lind Alliance (UK), a step-by-step guide to the processes involved in a priority setting partnership
<http://www.jla.nihr.ac.uk/jla-guidebook/>
- The “RRI Funder Requirements Matrix” developed in the ProGReSS project
http://www.progressproject.eu/wp-content/uploads/2013/05/ProGReSS_-Deliverable-5_2-Final-16-Oct-14.pdf
- The funding conditions of the Wellcome for different research activities
<https://wellcome.ac.uk/funding/guidance/grant-conditions>



- The funding principles of the EPSRC Engineering and Physical Science Research Council of the UK
<https://epsrc.ukri.org/funding/>
- The Techno moral vignettes devised by the Rathenau Institute (NL)
https://www.rathenau.nl/sites/default/files/inline-files/Future_scenarios_synthetic_biology.pdf
- The Platform for responsible innovation, devised by the NWO (NL) offering various examples and tools for research and technology design in a responsible way
<https://www.nwo-mvi.nl/>
- A set of Guidelines on research ethics in different research fields developed by the Norwegian Research Ethics Committees
<https://www.etikkom.no/en/ethical-guidelines-for-research/>
- A portal created by a network-oriented to values-driven, ethically aligned design for autonomous and intelligent systems
<https://ethicsinaction.ieee.org/#>
- The webpage of the Consortium of European Social Science Data Archives on the ethical review process, reporting a self-assessment procedure
<https://www.cessda.eu/Training/Training-Resources/Library/Data-Management-Expert-Guide/5.-Protect/Ethical-review-process>
- The Self-assessment tool for the concordat to support research integrity, devised by the UK research integrity office
<https://ukrio.org/wp-content/uploads/UKRIO-Self-Assessment-Tool-for-The-Concordat-to-Support-Research-Integrity-May-2014-1.pdf>

15.3. Facilitating structures for reflection

In connection with the development of approaches inspired by the idea of more responsible science, many initiatives have been promoted with the aim of creating “institutional spaces” for supporting reflexivity and appropriately dealing with the ethical issues involved with the research process.

Unlike other types of initiatives already presented in Section 1 and Section 2, these “institutional spaces” for reflection are not only aimed at orienting and controlling the conduct of researchers or at managing the ethical issues related to the research activities, but also at exploring the presence of ethical issues in new areas, in new research fields or in research situations not yet analysed in an ethical perspective.

These spaces are “dialogic” in nature, entailing an interaction among researchers, experts in ethical issues and often other actors and stakeholders. This dialogic nature of this process is



due to a general breakdown of consensus about moral, ethical and religious values or good. This makes it necessary to develop a constant conversation among the concerned actors about what is right and good and what is not, what is desirable and what is not.

Some resources on this topic are given below.

- A document of the National Committees for the Research Ethics in Norway dealing with, in general, the issue of risks and uncertainties in the research process
<https://www.forskningsetikk.no/globalassets/dokumenter/4-publikasjoner-som-pdf/risk-and-uncertainty-20092.pdf>
- A research report on ethics assessment and guidance in different types of organisations produced under the EC-funded SATORI project
<http://satoriproject.eu/media/3.a-Research-ethics-committees.pdf>
- An article on the midstream modulation approach
https://cspo.org/legacy/library/1301291041F35042430WO_lib_Schuurbiers.pdf
- Two articles explaining the constructive technology assessment by the University of Twente (NL)
https://www.researchgate.net/publication/225864123_Constructive_Technology_Assessment_and_Socio-Technical_Scenarios
<https://easst.net/article/constructive-technology-assessment-sts-for-and-with-technology-actors/>
- The EC's Joint Research Centre FOR-LEARN online foresight guide, providing an explanation of the rationale and tools for the foresight exercise
https://knowledge4policy.ec.europa.eu/foresight/topic/forlearn-online-foresight-guide_en
- The website of the University of Hasselt as an example of the organisation of ethical committees
<https://www.uhasselt.be/UH/Responsible-research-and-integrity/Scientific-integrity/Information-for-researchers-at-Hasselt-University.html>

15.4. Training

The development of training initiatives focused on research ethics and integrity is one of the main tools adopted for reinforcing research ethics and integrity in research institutions. Training activities usually address primarily undergraduate and PhD students, but often they are tailored to researchers, administrators, and members of ethics committees or leaders of research organisations.

The diffusion of training programmes can be observed in the last two decades in most universities and research organisations, also thanks to the progressive consolidation of national and international mechanisms and rules pertaining to researchers' conduct and the ethical review of research projects.



Some resources on this topic are given below.

- A list of online training options on research ethics and integrity developed under the EC-funded project ENERI
<http://eneri.eu/online-available-training-options-for-recs-and-rios/>
- The website of CITI programme including training modules on research ethics
<https://about.citiprogram.org/en/homepage/>
- The ENERI Manual on research integrity and ethics
<http://eneri.eu/wp-content/uploads/2018/10/ENERI-e-Manual.pdf>
- The European textbook and syllabus on research ethics developed by the European Commission
<https://op.europa.eu/en/publication-detail/-/publication/12567a07-6beb-4998-95cd-8bca103fcf43>
<https://op.europa.eu/en/publication-detail/-/publication/3b85d7d8-c113-44ad-97d1-408a01a9>
- The textbook on responsible conduct of researchers developed by the University of Copenhagen
<https://ifro.ku.dk/rcr.pdf/>
- The website of the Illinois Institute of Technology Center for the Study of Ethics in the professions, in which many examples of training formats are provided
<http://ethics.iit.edu/teaching/ethics-across-curriculum>
- A set of syllabi pertaining to courses on research ethics and integrity in different universities, i.e.
 - The Massachusetts Institute of Technology
<https://ocw.mit.edu/courses/engineering-systems-division/esd-932-engineering-ethics-spring-2006/syllabus/>
 - The NOVA University of Lisbon
https://www.unl.pt/sites/default/files/research_ethics_course_syllabus_en.pdf
 - The University of Oslo
<https://www.uio.no/studier/emner/medisin/inthealth/INTHE4008/index.html>
 - The Royal Institute of Technology of Stockholm
<https://www.kth.se/student/kurser/kurs/AK2017?l=en>
 - The University of Padoa
<http://www.cfnns.it/courses/>
- The page of the website of the Norwegian National Research Ethics Committee devoted to the development of courses on research ethics and integrity
<https://www.forskningsetikk.no/en/resources/quick-guide-to-course-design>



15.5. Governance structures for Research Ethics and Integrity

In many countries, there has been a strong development of permanent structures and aimed at institutionally embedding research ethics and integrity in research organisations as well as at regional and national levels.

In the great majority of cases, Research Ethics Committees have been established in charge of taking measures against cases of misconduct and establishing procedures and criteria to protect research integrity.

In some cases, this happens on the basis of national policies, but, more in general, this trend reflects a long-term cultural change process affecting research organisations and research systems.

However, notwithstanding these general positive trends, many constraints can be observed including: the lack of governance structures in many research organisations, the narrow scope of ethics assessments when focused only on compliance and not on ethical reflection, the lack of clear procedures and clear legal competences of Research Ethics Committees, the lack of ethical culture among researchers or the shortage of resources.

Therefore, a reflection on the governance structures and policies on research ethics and integrity in each research organisation can only begin with an assessment of the situation allowing to identify problems to face and objectives to pursue.

Some resources on this topic are given below.

- The European Code of Conduct for Research Integrity produced by ALLEA
<http://www.allea.org/wp-content/uploads/2017/03/ALLEA-European-Code-of-Conduct-for-Research-Integrity-2017-1.pdf>
- The EC Guide “Ethics for researchers”, summarising the history, the legal bases and the main rules to follow in EC funded research
http://ec.europa.eu/research/participants/data/ref/fp7/89888/ethics-for-researchers_en.pdf
- The Research Ethics Library, an online resource on research ethics developed by the Norwegian Research Ethics Committees
<https://www.forskningsetikk.no/en/guidelines/medical-and-health-research/>
- The ethics platform of Lyon University providing information on the approach to research ethics and integrity developed there
<https://www.universite-lyon.fr/culture-science-and-society/resetis-platform/>
- A policy brief developed under the SATORI project on the improvement of the organisation of research ethics committees



<http://satoriproject.eu/media/SATORI-policy-brief- January-2017-C2-1- FINAL.pdf>

- A paper by Armin Grundwald connecting Technology Assessment, RRI, and ethical issues
<https://run.unl.pt/bitstream/10362/7944/1/Grunwald9-31.pdf>



Chapter 16 – Resources on Open Access



This chapter is devoted to the resources on Open Access. It includes five paragraphs, respectively devoted to:

- Open Access publications
- Open Access data
- Open Science evaluation
- Open Access culture
- Governance, infrastructures, and policies for Open Access.

16.1. Open Access publications

Any form of scientific output can be made openly available, simply by being posted onto a website. This can and does happen for journal articles, book chapters and whole books, datasets of all types (including graphics, photographs, audio, and video files), and software. The term Open Access (OA), however, tends to be used about information made available in one of two structured ways, i.e.:

- The Green open access, which refers to the regular inclusion of publications in an open repository
- The Gold open access, which refers to the inclusion of publications in open access journals.

There is also Hybrid open access, which refers to a publishing model where some articles are made openly available in an otherwise subscription-based journal (hybrid journal).

It is to be reminded that OA is currently an integral part of the research policies of the EC, making it compulsory that all funded research is published under this form. The compliance with this mandatory requirement can nevertheless be interpreted in a range of different ways by different institutions and research groups, starting from a minimal level (that is, leaving the responsibility for the fulfilment of the rule to individual researchers or financed groups) up to the adoption of comprehensive policies for the whole institution.

Some resources on this topic are given below.

- An introduction (in a very short version and a slightly longer one) to open access (OA) for those who are new to the concept, created and maintained by Peter Suber (Harvard University).
<http://legacy.earlham.edu/~peters/fos/brief.htm>
<http://legacy.earlham.edu/~peters/fos/overview.htm#repositories>
- A compendium of simple factual lists about open access (OA) to science and scholarship, maintained by the OA community at large.
http://oad.simmons.edu/oadwiki/Main_Page
- An article providing suggestions on how to create an institutional repository
<http://repositorium.sdum.uminho.pt/bitstream/1822/7639/1/Carrots%20and%20Sticks.pdf>



- The website of the Confederation of Open Access Repositories (COAR), a not-for-profit association of repositories which enhances greater visibility and application of research outputs through global networks of Open Access digital repositories initiatives.
<https://www.coar-repositories.org/>
- The searchable international registry charting the growth of open access mandates and policies adopted by universities, research institutions and research funders that require or request their researchers to provide open access to their peer-reviewed research article output by depositing it in an open access repository.
<http://roarmap.eprints.org/>
- The online resource SHERPA RoMEO that aggregates and analyses publisher open access policies from around the world and provides summaries of self-archiving permissions and conditions of rights given to authors on a journal-by-journal basis.
<http://www.sherpa.ac.uk/romeo/about.php?la=en&fIDnum=|&mode=simple>
- The portal of Knowledge Unlatched, a leading player in finding economically sustainable ways to open or unlatch scholarly literature, both in journals and in books.
<http://knowledgeunlatched.org/about-us/>
- A set of websites about open access journals and resources.
<http://cofactorscience.com/journal-selector>
<http://www.eigenfactor.org/openaccess/fullfree.php>
<https://doaj.org/>
<http://www.oapen.org/>
<https://www.openedition.org/6438>

16.2. Open Access data

Research data, as argued by projects aiming at spreading the practice of open data, is the new currency of the digital age. In the digital era, data is increasingly considered the main part of a scientific publication, while the paper serves the secondary role of describing and disseminating scientific results. This is because open data tend to survive the associated document. Indeed, others (professional researchers and interested members of the general public) can conduct a new analysis on these data and can do so in the context of new questions, leading to new scientific discoveries. Literature shows that scientific papers accompanied by publicly available data are on average cited more often and are moreover characterised by fewer statistical errors and a greater degree of robustness.

Therefore, the open science strategy of the EC incorporates the principle of FAIR (Findable, openly Accessible, Interoperable and Reusable) data, and a progressive and mandatory data openness is expected to happen over time.

However, serious gaps persist in the level of preparation amongst European research performing organisations, mainly in areas such as policy development, awareness of current



issues, skills development, training, costs, community building, governance, disciplinary/legal/terminological and geographical differences.

Some resources on this topic are given below.

- A set of guides and resources on data management developed by OpenAIRE project
<https://www.openaire.eu/task-forces-in-openaire-advance>
- A guide to research data management developed by EUI
<https://www.eui.eu/Research/Library/PublishingAndOpenScience/RDM>
- The introductory web-course on Managing and Sharing Research Data.
<https://www.fosteropenscience.eu/node/2328>
- The webtools provided by the Digital Curation Centre (DCC) to self-assess, prepare for, and deliver a research data support service for scientific institutions.
<http://www.dcc.ac.uk/resources/tools-and-applications>
- An advice paper developed by LERU containing explanation and recommendations for different types of stakeholders concerning research data management.
<https://www.leru.org/files/LERU-Roadmap-for-Research-Data-Full-paper.pdf>
- An article on data curation.
<https://www.webarchive.org.uk/wayback/en/archive/2018/http://www.ukoln.ac.uk/ukoln/staff/e.j.lyon/150.pdf>
- The LEARN Toolkit of Best Practice for Research Data Management.
<http://learn-rdm.eu/wp-content/uploads/RDMToolkit.pdf>
- Three short documents all issued by the LEARN project on Research Data Management.
http://discovery.ucl.ac.uk/1546606/1/25_Learn_Model%20Policy_133-136.pdf
http://discovery.ucl.ac.uk/1546596/1/26_Learn_Guidance_137-140.pdf
http://learn-rdm.eu/wp-content/uploads/red_LEARN_Elements_of_the_Content_of_a_RDM_Policy.pdf
- The 20 RDM best practices recommendations, including Key Performance Indicators issued by the LEARN project.
<https://www.fosteropenscience.eu/content/20-rdm-best-practice-recommendations>
- The website of the Research Data Alliance (RDA), which promotes the development and adoption of infrastructure for data sharing and data-driven research.
<https://rd-alliance.org>
<https://rd-alliance.org/get-involved/studentearly-career-programms>
- The series of webinars on different issues related to RDM organised by the digital publisher Dataversity.
<https://www.dataversity.net/category/education/webinars/upcoming-webinars/>



- The website of the Mozilla Science Lab, which facilitates learning about open source and open data, and furthermore offers fellowships for early-career researchers.
<https://wiki.mozilla.org/ScienceLab>

16.3. Open Science evaluation

In a broader perspective, open access can be viewed also as part of Open Science, which, according to the European Commission, can be intended as “a new approach to the scientific process based on cooperative work and new ways of diffusing knowledge by using digital technologies and new collaborative tools”. Although Open Science is not directly considered in the GRACE project, it is anyhow connected with open access and therefore with the general structure of RRI.

In this document, only an aspect of Open Science is considered, i.e., how the research evaluation systems are changing or expected to change under the pressure towards the open access of publications, data, and methods. In particular, a shift is occurring from exclusively or mainly quantitative and metric evaluation to a better and more sensitive mix of quantitative and qualitative evaluation. To be successful, it should also be aligned with a transition to evaluating the performance of researchers on a broader, multidimensional basis, which includes not only research, but also a wider range of other professional results mostly related to Open Science and RRI including, e.g., educational commitment, group work and collaboration, supervision of junior colleagues, institutional citizenship, and service to the profession or society in general.

In this context, a crisis of the systems of peer review is also increasingly perceived. The researchers often denounce the fact that the peer review system is no longer working. A considerable number of articles have appeared in various journals that question the process and how it is used, raising problems with the consistency of the review, its definition, ethics, costs and the speed of the process. A more transparent system of peer review, able to stand against current flaws, preserving researchers’ integrity and ethics, is strongly required.

Some resources on this topic are given below.

- The introductory clip “What are altmetrics”.
<https://www.altmetric.com/about-altmetrics/what-are-altmetrics/#prettyPhoto/0/>
- The Altmetrics manifesto J. Priem, D. Taraborelli, P. Groth, C. Neylon (2010), Altmetrics; A manifesto, 26 October 2010
<http://altmetrics.org/manifesto>
- The report Next-generation metrics: Responsible metrics and evaluation for open science.
<https://op.europa.eu/en/publication-detail/-/publication/b858d952-0a19-11e7-8a35-01aa75ed71a1>
- The report OpenUp Altmetrics Status Quo.
<https://zenodo.org/record/1146618#.YYAPtp7MJPY>



- The Course and Subject Guide on Altmetrics developed by the University of Pittsburgh
<https://pitt.libguides.com/altmetrics>
- The EC document Evaluation of Research Careers fully acknowledging Open Science Practices; Rewards, incentives and/or recognition for researchers practising Open Science.
<https://op.europa.eu/en/publication-detail/-/publication/47a3a330-c9cb-11e7-8e69-01aa75ed71a1>
- The report of the Mutual Learning Exercise: Open Science – Altmetrics and Rewards.
https://www.zsi.at/object/news/4826/attach/MLE_OS_Final_Report.pdf

16.4. Open Access culture

The full adoption of open access philosophy and practice represents a cultural change in the way stakeholders in the research, education, and knowledge exchange communities create, store, share and deliver the outputs of their activity. For universities and other stakeholders, there needs to be a culture change in these organisations if this transition is to be successfully negotiated.

Some resources on this topic are given below.

- The Policy paper LERU Open Science and its role in universities: A roadmap for cultural change ADVICE PAPER no.24 - May 2018.
<https://www.leru.org/files/LERU-AP24-Open-Science-full-paper.pdf>
- The open access week website, which contains all the events registered worldwide and open access advocacy material.
<http://www.openaccessweek.org/>
- The report of the Expert Group to the European Commission on the Future of Scholarly Publishing and Scholarly Communication.
<https://publications.europa.eu/en/publication-detail/-/publication/464477b3-2559-11e9-8d04-01aa75ed71a1>

16.5. Governance, infrastructures, and policies on Open Access

Open Access can only be fully achieved if the right infrastructure is in place to enable global access and true interoperability and if an institutional policy is adopted. This requires, in turn, that the whole matter will be given a governance system.

It is to be noted that the diversity of research fields implies different degrees of implementation and practice of OA even within the same institution. National policies and institutional characteristics (e.g., a big generalist university and a research centre focusing on one research area) are other factors affecting the different pace of change. As argued by the



LERU, committed to OA since the early 2010s, “*‘the pathway’ to Open Access is not a smooth one. Many parties are involved and there are many competing interests*”.

The institutional policy should include some key elements (see the UNESCO policy guidelines), including:

- The Open Access routes (‘green’, ‘gold’ or mixed modes)
- The Deposit locus
- Content types covered (journal articles, books, research data outputs)
- Embargoes (maximum embargo length permitted, i.e., the period in which the full text of the item remaining in the repository, but closed)
- Permissions of the copyright holder ‘loophole’ for publishers to exploit
- Compliance with policies
- Advocacy to support the policy
- Sanctions to support the policy
- Waivers (for example, for authors based in developing countries)
- ‘Gold’ Open Access (where available).

Some resources on this topic are given below.

- The LERU roadmap towards open access.
<https://www.leru.org/publications/the-leru-roadmap-towards-open-access#>
- The UNESCO Guidelines on open access Swan A, Policy Guidelines for the development and promotion of open access.
<http://www.unesco.org/new/en/communication-and-information/resources/publications-and-communication-materials/publications/full-list/policy-guidelines-for-the-development-and-promotion-of-open-access/>
- The Pasteur4OA document Monitoring Compliance with Open Access Policies which proposes useful information for monitoring.
http://www.pasteur4oa.eu/sites/pasteur4oa/files/resource/Brief_Monitoring%20compliance%20with%20OA%20policies_0.pdf
- Portals managed by international networks of organisations aiming at fostering open access and open science.
<http://scoss.org/>
<http://www.knowledge-exchange.info>
- Key documents on the European Open Science Cloud.
<https://www.eosc-portal.eu/sites/default/files/CELEX%253A52016DC0178%253AEN%253ATXT.pdf>
<https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32018H0790&from=EN>
https://www.eosc-portal.eu/sites/default/files/eosc_declaration.pdf
https://www.eosc-hub.eu/sites/default/files/EOSC_Portal_Booklet.pdf

