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Introduction

This report includes the results of the benchmarking exercise (Task 1.4) conducted under WP1 (Mapping and benchmarking) of the project “Fostering Improved Training Tools for Responsible Research and Innovation” (FIT4RRI), funded by the EU DG Research and Innovation under Horizon 2020. The project is implemented by a consortium of 13 partners, led by the Sapienza University of Rome.

The overall aim of the project is to contribute to the diffusion and consolidation of Responsible Research and Innovation (RRI) and Open Science (OS) in European Research Funding and Performing Organisations (RFPOs). This involves enhancing RRI competences and skills through improvements in currently available RRI training (in terms of training tools, actions and strategies), as well as promoting the diffusion of more advanced governance settings to foster the institutional embedment of RRI and OS in research organisations.

In this context, WP1, coordinated by Conoscenza e Innovazione (K&I), is specifically aimed at mapping the **drivers** for and **barriers** to the diffusion and embedment of RRI practices and approaches in RFPOs and benchmarking **RRI experiences** that have succeeded in mainstreaming RRI practices in individual RFPOs, groups of RFPOs or specific research fields. WP1 is also expected to provide inputs for the RRI-oriented experiments to be carried out under WP3 (Experiments). This component of the project, focused on governance settings, is also expected to interact with the other FIT4RRI component (WP4), focused on RRI and OS training.

As part of the WP1 activities, as explained below, a benchmarking exercise (Task 1.4) was undertaken based on the results of the inventory of advanced RRI experiences (AEs), conducted under Task 1.3 between October 2017 and January 2018. Therefore, this report concerns the results of both tasks, which are to be regarded as a unitary benchmarking process.

This process included four main steps overall, the first three pertaining to Task 1.3 and the last to Task 1.4:

- Identification of a large number of experiences focused on RRI, on the basis of different sources, leading to a first overall inventory (INV1)
- Selection of the identified RRI-oriented experiences on the basis of a first analysis and screening process, leading to a specific inventory of "Advanced Experiences" (INV2), i.e., RRI-oriented experiences matching some parameters of capacity and transferability (see Chapter One, Section 4) making them “advanced”
- In-depth analysis and screening process of the experiences identified, leading to the compilation of a select inventory (INV3) containing the most innovative AEs in terms of governance settings
- Benchmarking exercise on the selected group of AEs included in the select inventory.

The report is divided into four chapters.

- **Chapter One** describes the objectives and the theoretical framework of the benchmarking process.

- **Chapter Two** provides a description of the methodology adopted and the activities carried out.
- **Chapter Three** dwells upon the results of the benchmarking exercise conducted on the AEs included in the select inventory.
- **Chapter Four** includes some comments about the benchmarking process as a whole.

The first and the second inventories (INV1 and INV2) are attached to the Report.

The text has been drafted by Luciano d'Andrea, Maresa Berliri and Federico Luigi Marta (K&I).

Chapter One

Theoretical framework

1. Aims

In the overall logic of the FIT4RRI project, the benchmarking process is aimed at getting three main types of information, i.e.:

- The **parameters** that allow us to identify and assess the innovativeness and effectiveness of RRI governance settings (benchmarks)
- The **guiding factors** that bring about results (enablers), and
- The **transferability potentials** they have, i.e., the extent to which extent and the conditions under which the identified governance settings can actually be transferred to other contexts.

This chapter will describe the theoretical framework adopted in pursuing these three aims. In particular, three issues will be considered:

- The concept of governance setting (Section 2)
- The typology of governance settings (Section 3)
- The parameters used to describe and assess the governance settings (Section 4).

2. The concept of governance setting

There are no well-established definitions of "governance setting". Most of the time, the concept is generically adopted to refer to the way in which a territory, a company, a public service or an organisation is ruled or managed.

In operationally defining the concept of governance setting, two conceptual oppositions have been made:

- The opposition between government and governance
- The opposition between governance setting and governance structure.

The opposition between "**government**" and "**governance**" is well established in the literature since the 1980s[1].

Whereas "**governance**" is used to refer to networked forms of public management, allowing for the involvement of and interaction among the many actors concerned (stakeholders), "**government**" is indicative of more hierarchical modes based on institutional relations and authority. Focusing precisely on this opposition between government and governance, Jon Pierre[2] describes "governance" as "sustaining coordination and coherence among a wide variety of actors with different purposes and objectives". Thus, on the basis of this first distinction, it be-

[1] See, in this regard, Lo, C. (2017). Between Government and Governance: Opening the Black Box of the Transformation Thesis. *International Journal of Public Administration*, 1-7.
[2] Pierre, J. (Ed.). (2000). *Debating governance: Authority, steering, and democracy*. OUP Oxford.

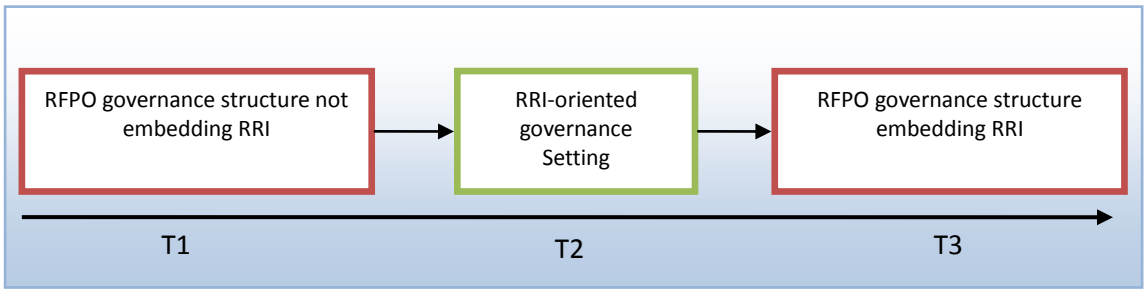
comes clear that, under FIT4RRI, the interest is focused, not on government, but on governance.

The second opposition is between "**governance setting**" and "**governance structure**".

Van Hoof and Kraus[3], we could define a **governance setting** as process, mainly based on negotiations, oriented to the "creation of new solutions stemming from a higher level of coordination among stakeholders". In opposition, "**governance structure**" can be defined as a relatively stable system of arrangements ensuring a specific level of coordination among stakeholders. Therefore, governance setting is aimed at modifying an existing governance structure in order to introduce a new governance structure.

In our case, the focus is on **RRI-oriented governance settings**, which can be understood here as a process through which a given governance structure is modified in a way that permanently incorporates RRI.

The scheme below attempts to clarify these dynamics, showing how RRI is incorporated in the governance structure of an RFPO through an RRI-oriented governance setting.



In identifying and selecting RRI-oriented governance settings, a **broad notion of RRI** has been adopted[4], including:

- **Five RRI keys** (public engagement, gender equality, open access, ethical consideration and formal or informal education)
- The different **RRI dimensions** (anticipation, responsiveness, inclusion, reflexivity, etc.)
- A general or specific **consideration of societal challenges** at any stage of the research and innovation process or of the decision making process.

Therefore, we considered RRI-oriented governance setting any attempt aimed at institutionally embedding in RFPOs new arrangements related to one or more RRI keys, one or more RRI dimensions or a consideration of societal challenges in research and innovation.

[3] Van Hoof, L., & Kraus, G. (2017). Is there a need for a new governance model for regionalised fisheries management? Implications for science and advice. *Marine Policy*, *84*, 152-155.

[4] See, in this regard, the deliverable D1.1, containing an extensive literature review about RRI.

Finally, **Advanced Experiences** (AEs) are considered to be any kind of initiative (project, programme, measure, policy, etc.) in which a governance setting is recognisable. This definition has two implications.

- The first implication is that the benchmarking process did not concern the AEs as such, but **only the governance setting** they applied. Consequently, all the aspects of the AEs which did not pertain to the governance setting were not considered.
- The second implication is that, in this way, **it was possible to compare AEs** which were extremely different in substantive terms (for example, AEs focused on open access and AEs focused on gender equality), but bearing the same type of governance setting.

3. A typology of governance settings

As said in the introduction, the first step taken in the framework of the benchmarking exercise was to identify and analyse a large number of experiences focused on RRI. This analysis made it possible to collect a wealth of information about the different strategies adopted to foster the spread and institutional embedment of RRI-related practices in RFPOs. These results were further fine-tuned through an in-depth analysis of smaller groups of AEs, which led to the definition of a typology of governance settings.

This typology identifies **nine models of governance settings**, each adopting a specific approach to the question: "how to get individuals or a group to implement RRI". These models can be identified on the basis of **two main variables**.

The **first variable** concerns where the **triggering point of change** is placed, i.e., which actors are asked to start and manage the process of change in the target RFPO. Again, three cases can be identified.

- **Internally-initiated governance settings**. Governance settings which tend to induce institutional changes on the basis of a model which is shaped by and relies upon actors acting **from inside** the RFPO.
- **Externally-initiated governance settings**. Governance settings which tend to induce institutional changes on the basis of a model which is shaped by and relies upon actors acting **from outside** the RFPO. In this case, therefore, the AE will be attributed to the actors which brought the governance setting model from outside rather than the institution in which such a model is actually applied.
- **Network-initiated governance settings**. Governance settings which tend to induce institutional changes **through cooperation relationships** linking the target RFPO with other organisations.

The **second variable** can be referred to as "**focus**", i.e., the factors in the life of an organisation which the governance setting primarily addresses and leverages upon to trigger the change process. Three main cases can be identified.

- **Social governance settings**. Governance settings which tend to induce institutional changes directly by modifying the **social patterns** (cognitive, emotional, relational, be-

haviour, etc.) which are taken for granted and shared by the majority of people inside the organisation[5].

- **Normative governance settings**. Governance settings which tend to induce institutional changes directly by modifying the existing **norms** (procedures, guidelines, protocols, rules or organisational charts, etc.), i.e. the "rules of the game" on which the life of the organisation is based[6].
- **Knowledge-oriented governance settings**. Governance settings which tend to induce institutional changes indirectly by primarily engaging the RFPO in producing **knowledge on and through RRI,** i.e. producing knowledge on RRI and/or adopting RRI principles and tools to produce knowledge.

This typology can be represented in the form of a matrix, combining these two variables to generate nine theoretical cases.

FOCUS / TRIGGERING POINT	Social patterns first	Rules first	Knowledge first
Changes from inside	A Internally-initiated social model	B Internally-initiated normative model	C Internally-initiated knowledge-oriented model
Changes from outside	D Externally-initiated social model	E Externally-initiated normative model	F Externally - initiated knowledge-oriented model
Changes through network	G Network-initiated social model	H Network-initiated normative model	I Network-initiated knowledge-oriented model

Some additional observations may help clarify this typology.

- The typology presented above is of a theoretical nature, even though based on the analysis of many empirical cases. In this sense, it should not be considered an anomaly that there are no AEs to represent one of the models identified (Model B). Moreover, in real life, boundaries between different governance setting models are much more blurred. For example, an AE can adopt two governance setting models at the same

[5] This reflects a sociological view of institution; see, for example, Berger, P. L., Luckmann, T. (1966) *The Social Construction of Reality: A Treatise in the Sociology of Knowledge*, Garden City, NY, Anchor Books; North, D. C. (1990) *Institutions, Institutional Change and Economic Performance*, Cambridge University Press, Cambridge.

[6] This reflects an organisational view of institution; see, for example, Coriat B., Weinstein, O. (2002), Organizations, firms and institutions in the generation of innovation Research Policy 31273–290; North D.C. (1990) *Institutions, Institutional Change and Economic Performance*, Cambridge University Press, 1990.

time, by addressing both social patterns and norms or by triggering the process both from inside the target RFPO and by relying on external organisations (this is the case, for example, of many EC-funded institutional change projects). Therefore, AEs have been attributed to the different governance setting models by **identifying the prevailing model shaping them**.

- As for the **triggering point of governance settings**, this concept refers, as mentioned above, exclusively to those who start and guide the process, thus shaping the governance setting, and not to those who pay for it or decide to start it. For example, a governance setting may be either started by creating an internal unit to take charge of it (internally-initiated process) or by hiring external experts in charge of implementing it within the institution (externally-initiated process). In both cases, the decision to start the process was taken by the leadership of the institution concerned.
- As for the **focus of governance settings**, while social and normative models reflect a direct approach to institutional change (i.e., changing the institution by modifying the social patterns or the norms), the knowledge-oriented models reflect an indirect approach to institutional change, based on the (conscious or unconscious) assumption that the inclusion of RRI in research content also has an impact on the life of the organisation, producing or fostering change.

To get a better grasp of the different models, some examples are given below of types of actions falling within each model.

GOVERNANCE SETTING MODELS	EXAMPLES OF ACTIONS
Internally-initiated social model	Development of RRI-oriented internal action plans based on a mobilisation of internal and external stakeholders; internal awareness-raising and RRI training programme
Internally-initiated normative model	Adoption of new internal regulations, procedures, guidelines developed by the organisations' leadership; establishment of internal RRI-oriented research funding criteria
Internally-initiated knowledge-oriented model	Establishment of a new research unit focused on RRI-related issues; activation of RRI-focused research programmes by the research organisation
Externally-initiated social model	Use of external RRI experts; participation in national/international RRI-oriented programmes
Externally-initiated normative model	Research funding schemes adopting RRI-oriented selection criteria; RRI-oriented certification processes
Externally-initiated knowledge-oriented model	RRI-oriented national research funding schemes
Network-initiated social model	Participation of the organisation in RRI-specialised networks; participation of the organisation in cross-institutional RRI-oriented programmes
Network-initiated normative model	the organisation signing up to a network-based charter (such as Athena-SWAN)
Network-initiated knowledge-oriented model	Establishment within the organisation of RRI-focused research units or research programmes supported by a pool, network, or association of research institutions

4. Parameters for assessing governance settings

So far, we have identified the subject of the benchmarking exercise, which are RRI governance settings and not RRI-oriented experiences as such. We have also identified a typology of governance settings. This should make it easier to understand the logic underlying the benchmarking exercise.

Indeed, the effort made has been that of identifying, for each governance setting model, one or more "**champions**", that is experiences which, on the basis of some parameters, could be identified as "**Advanced Experiences**" (AEs) epitomising such a model in a successful way.

Because of the great diversification both in the governance setting models and the ways in which they can actually be implemented, it has been impossible to conduct a reliable in-depth analysis for each AE (especially in cases such as national funding schemes or national research programmes).

For this reason, a **qualitative approach to benchmarking** has been adopted. This approach is often used both for companies and for regions, for which a quantitative approach is difficult to apply since many data are not available or not consistent.

Differently from quantitative benchmarking, qualitative benchmarking is not aimed at identifying quantitative standards to be attained, but at singling out the key factors which determine successful developments (be it of a company, a region, or a project) and often applies a scoring model which is based on group discussions among stakeholders.

In order to develop this approach, three sets of parameters have been applied:

- **ENTRY THRESHOLDS** – parameters to select the AEs which were actually relevant to the benchmarking exercise
- **CAPACITY** – parameters to get information about the capacity of the governance setting to actually modify the governance structure of the target RFPO(s)
- **TRANSFERABILITY** – parameters to single out the most transferable solutions emerging from the AE making it possible to replicate the governance setting model elsewhere.

In the following sections, each set of parameters will be briefly described, followed by a summary scheme.

4.1. Entry thresholds

In order to make a *prima facie* selection of the experiences to be taken into consideration, the information sources were subjected to a brief analysis on the basis of four criteria, described below, each one regarded as an **entry threshold** for including the experience in the benchmarking process.

- **CONSISTENCY**. The first parameter was consistency, aimed at ascertaining if the experience described in the sources actually existed as such, i.e., it was not a mere study or a plan without any effect in the real world.
- **IMPACTIVITY**. The second parameter was impactivity, aimed at ascertaining if the experience actually produced an impact in the real world.
- **VISIBILITY**. The third parameter was visibility, aimed at ascertaining if the experience was sufficiently well described by its promoters so as to make it a subject of analysis.
- **RRI ORIENTATION**. The final parameter was RRI orientation, aimed at ascertaining if the experience was actually oriented towards promoting RRI as defined in the terms described above (see Section 2 of this chapter).

4.2. Capacity

The second set of parameters regards the capacity of the AEs to actually implement an RRI-oriented governance setting within one or more RFPOs.

To identify these parameters, a simple assumption was adopted, according to which a governance setting should influence, to a certain extent at least, the relevant aspects of the life of a RFPO.

Starting from such an assumption, RFPOs were considered to be made up of four main components[7], namely:

- Culture
- Agency
- Action
- Identity.

Culture concerns any cognitive and cultural element forming the set of shared meanings necessary for a group to exist as a group. For example, the culture of a research unit may include its research mission and objectives, the disciplinary culture(s) of the members, governance style, attitudes towards novelty, symbols and rituals shared by all members, and the like. Governance settings that can positively modify the dimension of culture can be regarded as **innovative**.

Agency concerns the orientation of an actor to act and the energy the actor wishes to invest (in any sense, from money or time to emotional energy). In this model, agency is presumed to be related to issues which are perceived by RFPOs or part of them as challenging or problematic. Thus, from the RRI-implementation perspective, agency concerns the way in which RRI becomes **relevant**, i.e., something recognised as important enough to mobilise the involved actors.

[7] See, in this regard, d'Andrea, L., Quaranta, G., & Quinti, G. (2005). *Manuale sui processi di socializzazione della ricerca scientifica e tecnologica*. CERFE, Rome.

Action means what an actor actually does, how it is done, and what effects are produced. Action represents the actualisation of agency, even though the overlaps between the two may also be limited because of the many contingencies and constraints of the real world. Governance settings that can positively modify the existing governance structure with respect to RRI can be regarded as **effective**.

Identity concerns the way in which actors control their own internal and external environment[8]. This control is done by acting (mainly through negotiation processes) on the social configurations among the actors concerned and the practices and arrangements allowing them to work in a given or desired way. Governance settings able to modify the dimension of identity with respect to RRI can be regarded as **sustainable**.

Hence, four parameters regarding capacity have been applied.

- **INNOVATIVENESS**. The first parameter was innovativeness, aimed at describing and assessing the presence of new RRI-oriented ideas and views introduced in the organisation(s) through the governance setting.
- **RELEVANCE**. The second parameter was relevance, aimed at describing and assessing the ways in which the AE mobilised the actors concerned.
- **EFFECTIVENESS**. The third parameter was effectiveness, aimed at describing and assessing the arrangements taken in order to ensure that the actions carried out actually attained the desired results.
- **SUSTAINABILITY**. The final parameter was sustainability, aimed at describing and assessing the arrangements taken in order to make the RRI-oriented changes induced in the organisation actually permanent.

4.3. Transferability

The third set of parameters is qualitative in nature and concerns the solutions adopted in the AE in order to implement the governance setting.

Two main parameters have been considered.

- **TRANSFERABILITY ORIENTATION**. The first parameter was the orientation of the initiator(s) of the AE to circulate and share information. Different aspects have been considered, including: quantity and quality of the information provided on the governance setting; quality and quantity of the information provided about enablers and obstacles; information about actual replications of the AE.
- **TRANSFERABILITY POTENTIAL**. The second parameter was transferability potential, aimed at describing and assessing to what extent and under which conditions the solutions identified for promoting the embedment of RRI can actually be transferred into other institutional contexts.

[8] Luckmann, T. (1982). Individual action and social knowledge. In Von Cranach, B., Harré, R. (Eds.) *The Analysis of Action: Recent Theoretical and Empirical Advances*. Cambridge University Press.

4.4. Summary scheme

Three sets of overall parameters, subdivided into a total of 10 parameters, have been applied, as shown in the table below.

SET OF PARAMETER	Parameters
ENTRY THRESHOLDS	Consistency
	Impactivity
	Visibility
	RRI orientation
CAPACITY	Innovativeness
	Relevance
	Effectiveness
	Sustainability
TRASFERABILITY	Transferability orientation
	Transferability potentials

Chapter Two

Methodological framework

This chapter is devoted to the methodological framework and how it has been implemented in the context of the benchmarking exercise.

As already specified above, the benchmarking process included the activities under Task 1.3, focused on the inventory of AEs, and Task 1.4, regarding the benchmarking exercise as such. The inventory was necessary to select the most relevant AEs and the benchmarking exercise to extract useful information from them.

Overall, the following activities have been conducted:

- Selection and analysis of RRI-oriented experiences and establishment of an overall Inventory (INV1)
- Identification of the AEs and establishment of a specific Inventory (INV2)
- Compilation of a select Inventory of AEs (INV3)
- Benchmarking exercise.

1. Selection and analysis of RRI experiences (INV1)

The first step in the process was to identify, select and analyse the sources of information in order to set up a first overall Inventory of RRI-oriented experiences (INV1).

A literature analysis was conducted, leveraging also upon the literature review implemented under Task 1.1, using multiple information sources, including: EC-funded projects; national projects; scientific literature; grey literature; websites.

Three approaches were used to identify the experiences.

- The first approach involved identifying those experiences which were explicitly oriented to RRI or RRI keys, i.e., on the basis of the promoters' intents.
- The second approach involved identifying those experiences which were regarded as oriented towards RRI or RRI keys by people not directly concerned with the experience (for example, researchers, governmental officers, etc.) found in literature.
- The third approach involved identifying those experiences regarded as pertaining to RRI or RRI keys by the FIT4RRI project partners.

This process was conducted in the period of October-December 2017 and led to the compilation of the first inventory (INV1) made up of 302 items, each referring to an RRI-oriented experience (see Annex 1).

For each experience, only information about its identification, i.e., title, promoter organisation, and reference to information source used to identify it, was included.

2. Identification of the AEs (INV2)

The second step involved the selection of a specific group of experiences which, on the basis of specific parameters, could be considered to be “advanced”.

To this aim, two main operations were conducted:

- Application of entry thresholds to the experiences included in INV1 – first selection
- Rapid appraisal of the capacity parameters of the remaining experiences – second selection.

This two-step process, carried out between January and mid-February 2018, led to the establishment of a specific Inventory (INV2), including 43 records, referring to experiences which, on the basis of the analysis done, were considered to be “advanced”, i.e., endowed with a capacity to generate and implement a governance setting.

Also this inventory contains some descriptive information about the AEs, including: title; leading institution(s); country or countries; time period. Finally, the governance setting model applied in each AE (see Chapter One) was also included in the database. The distribution of the AEs is detailed in the table below.

The AEs included in INV2 were grouped according to the governance setting model they referred to. In this way, nine classes of AEs were established. Obviously, the size of the classes varied considerably, since some models were much more common than others.

FOCUS / TRIGGERING POINT	Social patterns first	Rules first	Knowledge first
Changes from inside	MODEL A 13	MODEL B 0	MODEL C 4
Changes from outside	MODEL D 3	MODEL E 8	MODEL F 1
Changes through network	MODEL G 4	MODEL H 2	MODEL I 8

3. Identification of a select group of AEs (INV3)

The third step involved identifying a select group of 18 AEs (INV3) to be submitted to the benchmarking exercise, conducted between 15th and 28th February 2018.

This group was chosen through the following procedure.

- For each class, AEs were ranked on the basis of the results of the rapid appraisal mentioned above. The results of this process were discussed within the team and approved in their final form.
- For each class, a number of AEs, corresponding as far as possible to the relative size of each group, was selected, thus identifying a group of 18 AEs, which were to be subjected to the benchmarking exercise.

The distribution of the AEs among the classes based on the governance setting models is given in the table below.

FOCUS / TRIGGERING POINT	Social patterns first	Rules first	Knowledge first
Changes from inside	MODEL A 4	MODEL B 0	MODEL C 2
Changes from outside	MODEL D 1	MODEL E 4	MODEL F 1
Changes through network	MODEL G 1	MODEL H 1	MODEL I 4

4. Benchmarking exercise

The benchmarking exercise was conducted between March 1st and April 10th, and involved the operations described below:

- For each of the 18 AEs a file with all the relevant available information was compiled
- Each file was analysed in-depth by one of the team members using an analytical grid, based on the theoretical framework described above (Chapter One)
- The results of the analysis were discussed within the team, with the aim of identifying, for each AE, the most innovative and potentially transferable practices, to be regarded as benchmarks in the realm of RRI-oriented governance settings
- Contacts were established, when needed, with the promoters of the AEs in order to get additional information
- The final version of the grids was drawn up, providing the basis for the drafting of this report.

Practices were identified and assessed according to the same capacity-related criteria presented above (Chapter One, 3.2.), applied to select the AEs. i.e.:

- **Innovativeness** (capacity of the practice to introduce new ideas, approaches and orientation in the culture of the organisation)

- **Relevance** (capacity of the practice to address issues which mobilise the interest and passion of the actors concerned)
- **Effectiveness** (capacity of the practice to provide solutions which really attain the expected results)
- **Sustainability** (capacity of the practice to be embedded permanently in the organisation).

Moreover, assessments were also made of the **transferability potential** of the practice (i.e., the tendency of the practice to be transferred to other institutional contexts without activating complex processes or high investments).

The results of the benchmarking exercise are described in Chapter Three.

Chapter Three

The results of the benchmarking exercise

In this chapter, the results of the benchmarking exercise will be presented. As said above, this exercise involved a group of 18 RRI-oriented Advanced Experiences (AEs), representing, overall, the different governance setting models.

The benchmarking methodology is not applied here in a strictly comparative sense, since the subjects of the analysis – governance setting models – are profoundly different from each other in terms of specific aims, rationales, steps and tools, only sharing a similar overall objective, i.e., promoting the diffusion and the institutional embedment of RRI or part of it. Therefore, it would have been meaningless to rank the AEs according to a set of specific quality criteria.

Rather – as said above – a qualitative approach has been implemented aimed at showing concretely how the different models of governance setting have actually been implemented, thus presenting some of the most innovative and transferable practices adopted to do it (benchmarks), as well as some of the factors which may contribute to making the application of the model successful in reality (enablers).

Needless to say, the benchmarking process also had an evaluative component, which came into play in the selection and interpretation of the AEs.

The 18 AEs will be described in terms of a general scheme divided into **four parts**.

- The **first part** (Short description) gives a brief description of the key features of the AE.
- The **second part** (Benchmarks) will focus on the governance setting practices which can be regarded as benchmarks.
- The **third part** (Capacity and transferability considerations) will dwell upon the reasons why the selected practices can be regarded as benchmarks.
- The **fourth part** (Enablers) reports the major factors that contributed to the successful application of the practice, to be considered in view of their transferability to other institutional contexts.

The table below (see next page) shows the 18 AEs distributed according to the governance setting model they refer to. As may clearly be seen, Model B is not represented by any AEs (a few short considerations are made in this regard in Section 2, of this chapter).

TRIGGERING POINT	FOCUS		
	Social patterns first	**Rules first**	**Knowledge first**
Changes from inside	MODEL A – JERRI Project at TNO – LIBRA Project at CeMM – TRIGGER Project at UPD – RRI policies at UAB	MODEL B None	MODEL C – Synbiochem – Midstream Modulation at TU Delft
Changes from out-side	MODEL D – CeRRI, Fraunhofer IAO	MODEL E – MVI, NWO – Biotek 2021, RCN – CDI, VINNOVA – EuroPriSe, ITA	MODEL F – SoScience
Changes through network	MODEL G – University Network Education by Responsibility	MODEL H – Athena SWAN Charter	MODEL I – CSymBi – Mistra Urban Futures – Applied Nanoparticles – Ethics and Society, HBP

1. Internally-initiated social model (Model A)

The AEs considered in this section adopt an internally-initiated social governance setting model (Model A). "Internally-initiated model" means that the model is shaped by and relies upon the actors acting inside the organisation; "social model" means that the model is intended to induce RRI-oriented institutional changes primarily by modifying the social patterns (cognitive, emotional, relational, behavioural, etc.) which are dominant within the organisation.

Four AEs falling within this Model are presented below.

1.1. The JERRI Project at TNO (INV1 #105)

A. Short Description

The Joining Efforts for Responsible Research and Innovation (JERRI) Project is a project funded by the European Commission under Horizon 2020. Having started in 2016 and expected to be completed in 2019, the project is aimed at developing action plans in two research institutes (Fraunhofer Gesellschaft and the Netherlands Organization for Applied Scientific Research – TNO), focusing on the main RRI keys (Ethics, Societal Engagement, Gender Equality and Gender in Research and Innovation Content, Science Education, and Open Access). In this report, the focus is only on activities conducted at the Netherlands Organisation for Applied Scientific Research (TNO).

B. Benchmarks

Under the project, the most relevant activities conducted so far concern the design of the action plans. At TNO, this process has been carried out in different steps and by applying different practices. Three of the practices adopted have been considered by the FIT4RRI Team as benchmarks for the development of an effective governance setting based on Model A: the Goal setting process, the RRI institutionalisation level analysis and the Transition roadmap to RRI.

Goal setting process

Both internal and external stakeholders have been involved in setting the goals to be pursued under the project. Some goal-setting workshops were organised after a preparatory briefing on workshop contents and methods.

For each key, a workshop was organised with internal stakeholders (involving 6-8 people each), using different approaches (Appreciative Inquiry, Stakeholder Support and Participatory Design) to facilitate goal identification. Bilateral discussions or workshops with specific external stakeholders were then held to fine-tune identified goals.

These workshops produced a draft list of goals. The list is based on some basic operational implementation choices, such as boosting existing initiatives, extending existing initiatives beyond current practice and producing new materials/tools and instruments to establish new organisational requirements (e.g., for training activities or awareness raising initiatives). The goals were

defined in such a way as to make it transparent which actions, timelines, internal stakeholders and impacts the proposed goals would entail and which budgets were required to be able to achieve them.

Three members of TNO staff department then reviewed the draft goals providing advice on how they could be pursued. The institutional process for approval by TNO management then followed.

Since more goals (with requests for budgets) were proposed than TNO could fund from the project, the project team presented the goals to internal stakeholders to get their advice on the selection and prioritisation of the goals.

RRI institutionalisation level analysis

An analysis of the levels of institutionalisation of the different RRI keys was conducted at the beginning of the project. The institutionalisation level was assessed on the basis of a 5-level maturity scale (developed from the Capability Maturity Model), as regards the new processes which were intended to be introduced. The five levels can be described as follows:

1. INITIAL (ad hoc personal actions are carried out, which are hard to replicate)
2. REPEATABLE (basic processes are established, defined and documented)
3. DEFINED (processes are part of the internal business process)
4. PREDICTABLE (processes are analysed, measured and controlled by the organisation across departmental units)
5. EFFICIENT (processes are a matter of continuous improvements).

This analysis made it possible, among other things: to select the keys which needed more effort; to avoid a proliferation of new targets, projects and activities; to use existing initiatives in the best way; to focus on the alignment of new processes with those performed or planned by the internal stakeholders.

Transition roadmap to RRI

The JERRI Project was considered as a triggering factor to attain longer term objectives in the five keys. For that reason, the activities undertaken under the Project were regarded as pilot initiatives and framed into a broader time horizon. In this light, TNO drafted a "transition Roadmap to RRI", detailing pathways from today's pilots to the envisaged long-term goals to guide the process beyond the project's lifetime.

C. Capacity and Transferability Considerations

The **goal setting process** can be regarded as a benchmark for its capacity to ensure clearly structured, co-ordinated and effective involvement of many internal and external stakeholders from the very beginning of the process, taking specific care to keep a realistic approach to RRI so as to avoid setting over-ambitious goals.

Institutionalisation level analysis is based on practices which are often used in the management of business organisations. In this case, conducting a diagnostic of the institutionalisation

levels for each RRI key made it possible to take advantage of existing initiatives and to approach RRI keys as framed within a unique integrated perspective.

The **transition roadmap to RRI** is a practice which makes it possible to address from the very beginning the problem of the sustainability of the initiatives launched under the project and to look for a long-term engagement of the leaderships to actually embed them into the mission, practices and norms of the organisation.

D. ENABLERS

The **major enablers** identified for these practices with regard to transferability are as follows:

- Strong commitment from the leadership and middle management for RRI
- Specific funding provided by an external entity (the European Commission)
- High level of efficiency of the organisational process within the TNO
- Close relations established by TNO with external stakeholders and their involvement from the beginning.

1.2. The LIBRA Project at CeMM (INV1 #188)

A. SHORT DESCRIPTION

The Leading Innovative measures to reach gender Balance in Research Activities (LIBRA) Project is an EC funded project which brings together ten research institutes in life sciences in ten European countries with the aim of promoting gender equality in the institutions concerned and fostering the inclusion of gender and sex dimension in research contents. This AE, therefore, does not concern RRI as a whole but one of its keys (gender equality). The project includes an initial assessment of the participating organisation, a mutual learning process, and the design and development of 10 institute-tailored Gender Equality Plans, based, also, on a set of cross-cutting activities. The Project started in 2015 and is expected to be completed in 2019.

B. BENCHMARKS

The benchmarking process involved one of the participant organisations, the Research Center for Molecular Medicine of the Austrian Academy of Sciences (CeMM), based in Vienna. Three practices were selected as benchmarks.

Highly representative extended team

At CeMM, the team in charge of the Gender Action Plan is made up of a core group and an extended team. Besides the team leader, the core group includes the PhD and Postdoc Program Manager and the Head of Human Resources. The extended team includes the Administrative Director, the Director of Medical Affairs, the Head of Scientific Support, the Head of IT Services, the Media Relations Managers and the Head of Public Relations. Afterwards, two group leaders and an executive assistant joined the team voluntarily.

Even though coordination was difficult at the beginning, teamwork improved quite rapidly overall, thanks to the adoption of a more participative approach, leading to increasing opportunities for discussion and information exchange. The involvement of high-level leaders from the administration, scientific support staff and senior researchers made the action plan institutionally strong, thus facilitating implementation and increasing impact.

It is worth noting that, even though the team is highly representative in institutional terms, team leaders succeeded in not making it a bureaucratic or administrative entity, but a streamlined coordinating structure largely based on the willingness and motivations of its members. The presence of two group leaders who jointed voluntarily was a significant event in this regard.

RRI-oriented procedures setting process

A handbook to help foster an inclusive, transparent and gender unbiased recruitment process was developed at CeMM, to be spread and tested in all the ten research institutions involved in the LIBRA project. The development process included several steps, which are particularly effective from the perspective of an RRI-oriented governance setting.

1. CeMM hosted a seminar involving both HR officers and international experts.
2. The results of the seminar were used to produce a draft version of the handbook.
3. The draft version was reviewed by the same experts participating in the seminar. Care was taken to combine the theoretical soundness of the text with the need to provide practical orientations, which could be applied quite easily by research officers.
4. The team in charge of the LIBRA project at CeMM conducted an analysis of the actions included in the handbook, selecting those, which could be considered most relevant and urgent for their own institution.
5. The proposed actions were discussed and improved upon with the Head of Human Resources, in charge of managing recruitment applications.
6. The actions were then submitted to both the Scientific Director and the Administrative Director.
7. Having obtained the support of the directors, the handbook was included in the agenda of a Faculty meeting and discussed by the research group leaders.
8. Finally, most of the actions proposed were approved and the application process started.

Initial diagnostic analysis

All LIBRA partners were involved, from the very beginning of the project, in conducting an initial assessment of the situation of the target organisation with reference to gender equality. With the support of an expert organisation on gender, CeMM – as all the other LIBRA partners – assessed their own current policies and procedures in order to identify gender biases and obstacles.

The analysis was conducted on the basis of a common template which concerned both quantitative and qualitative information about the situation of women. Direct support was also given by the expert organisation to the partners though an on-site visit and distance interactions. The

process led to the drafting, for each target institution, of a Diagnostic Report, to be used to orient the action plan.

1.3. The TRIGGER Project at Université Paris Diderot (INV1 #189)

A. Short Description

The TRansforming Institutions by Gendering contents and Gaining Equality in Research (TRIGGER) Project was funded by the EC and the Italian government with the aim of promoting gender-oriented institutional changes in five European research institutions and fostering the use of gender and sex as meaningful variables in research processes. The Project also included a mutual learning process involving not only the project partners but also representatives of other EC-funded projects promoting gender-oriented action plans in research institutions. The Project started in 2014 and ended in 2017.

B. Benchmarks

The benchmarking process concerned one of the institutions involved in the project, i.e. the Université Paris Diderot – Paris 7 (UPD). From the action plan carried out at UPD, three practices were identified as benchmarks.

Internal organisational coordination

The team in charge of the action plan at UPD established a network of "referents", so as to promote the implementation of gender equality actions in all relevant areas of the university. The network was intended to act as the "backbone" of the action plans, since its members would be engaged, on the one hand, in providing information on the actual needs of the department they were working in and, on the other, in cooperating with the team in the implementation of the planned actions and adapting them to their department or service. Other important roles played by the referents were facilitating information sharing on the action plan and ensuring a better link with top and middle managers.

The process was launched by the president of the university and the team was given the task of collecting spontaneous candidatures from each university service and department. Candidatures were then selected and ratified by the University Council.

Some problems were met while establishing and developing the network. To keep the network active, the team tried to assign a specific role to each member in drafting the new university gender plan. Moreover, some problems emerged because, in some cases, network members also had "political" visibility (members of elective bodies or influential professors), which sometimes had a negative impact on the action plan.

However, the network of referents proved to be a pivotal factor for the success of the action plan, supporting it in different ways: co-organising the actions with the team; convening researchers for project activities; contributing to defining the new gender action plan; organising new unplanned actions, related also to topics other than gender (for example, on other forms

of discrimination); fostering the institutionalisation of some of the actions conducted under the action plan; extending the scope of the gender policy throughout the University.

Links with external stakeholders

One of the factors that most helped the team at UPD to implement the action plan was the establishment of intense and visible links with external stakeholders. They involved other university and research institutions, national institutional entities (starting with the Ministry of Higher Education and the parliamentary delegation on women rights), private enterprises, local authorities, students' associations, and women's organisations. The team was also included in the organisational committee of a European conference devoted to gender equality in higher education, which allowed it to reinforce its relations with national institutional counterparts.

The development of external links played an important role in increasing the team's capacity to activate changes within the institution. The visibility of these links helped address internal opposition, increasing the internal visibility of the action plan and the team in charge of it, getting additional resources, making the leaders' commitments more binding and offering support to the University in developing public relations policies.

Sustainability plan

As the other TRIGGER partners, the team at UPD also developed a sustainability plan, i.e., a plan aimed at ensuring as far as possible the continuation of the actions initiated under the action plan after the project lifespan.

The sustainability plan was launched at the midpoint of the Project through a feasibility study defining a roadmap to sustainability. This roadmap included different phases covering the last two years of the action plan:

- A screening phase, aimed at carrying out an in-depth analysis of the Action Plan, in order to select the actions which deserve to be continued after the completion of the project and to scrutinise viable options to make this happen
- A consultation phase, aimed at collecting additional information to complete the screening of the actions through direct consultations with all relevant stakeholders inside and outside the organisation
- A design phase, allowing the team to draft the sustainability plan, defining, for each selected action, grounded hypotheses about how it would continue
- A transitional phase, aimed at testing the hypotheses developed in the design phase and actually start developing the new arrangements envisaged in the sustainability plan.

The whole process led to the drafting of the final sustainability plan which was used at UPD as a basis for negotiation with the university management to ensure a future for the action plan.

C. Capacity and Transferability Considerations

The **internal organisational coordination** can be regarded as a benchmark for different reasons: being based on volunteering, it is a way to foster the involvement of all the organisational units concerned in the institutional embedment process of RRI; it makes it possible to adapt

the RRI-oriented actions to the features of each unit; it fosters the identification of "RRI champions" in the different parts of the organisation, who are able to mobilise their colleagues and staff members vis-à-vis RRI; it makes it possible to create institutional interfaces for the managers at different levels of the organisation.

The **establishment of links with external stakeholders** is a strategy which often proved to be effective in the RRI-oriented governance setting process. In fact, RRI cannot be understood as part of the organisation's "internal affairs". Rather, any RRI-oriented action, regardless of its features and contents, is immediately part of the broader dynamics that go beyond institutional boundaries and affect other stakeholders at national or local level. Thus, the experience at UPD suggests that no institutional embedment of RRI is possible without enlarging the scope of the action to encompass the most important external stakeholders.

The **sustainability plan** can be regarded as a benchmark for two main reasons. First, it provides a feasible and transferable procedure to address the problem of sustainability in explicit and effective ways, fully involving the management of the organisation and key actors through a consultation process. Moreover, the sustainability plan also plays a critical role, allowing for better assessment of the activities carried out in order to select those which proved to be useful and which deserved to be continued.

D. ENABLERS

The **major enablers** identified in the case of this AE are:

- Specific funds provided by an external entity (the European Commission)
- The chance to work with other institutions facing similar problems
- The strong commitment of the leadership (especially in launching a network of referents)
- General mobilisation on gender equality also among public institutions and governmental entities (which cannot be taken for granted when other RRI keys are concerned).

1.4. RRI policies at Universitat Autonoma de Barcelona (INV1 #237)

A. SHORT DESCRIPTION

The Universitat Autonoma de Barcelona (UAB) has long been engaged in promoting and implementing RRI-oriented actions and strategies, regarding different RRI keys (public engagement, gender equality, ethical issues, education, open access), benefiting also from the participation of UAB in several RRI-focused EC-funded projects. Among the RRI-oriented activities, the following can be mentioned: the establishment of an Observatory for Equality; the creation of an Ethics Committee; the development of different initiatives aimed at public engagement and education (including the creation of an Institute for Science Education and an observatory for the spread of science); the creation of the Intellectual Property and Open Access website for open-access publication (Open Access Institutional Repository) and providing support to the staff about these issues.

B. BENCHMARKS

The analysis of the rich experience of UAB on RRI led to the identification of two practices as benchmarks for RRI-oriented governance setting.

Multiple focal points for RRI actions

In order to pursue RRI-oriented objectives, UAB adopted an approach aimed at creating multiple focal points for action focused on different RRI keys.

For example, as regards gender equality issues, an Observatory for Equality was established, endowed with its own website, responsible for periodically defining and implementing an equality action plan, disseminating information, conducting studies and collecting data, and the provision of advisory services to groups and offices.

Similarly, as for public engagement and science education, many activities are promoted by the Institute for Science Education, which carries out initiatives of different kinds (including training courses, workshops, meetings, science communication events, outreach activities, etc.), thus playing the role of both institutional referent for these kinds of activities and promoter of cultural change among UAB researchers and administrative staff.

An Ethics Committee was also created to manage ethical issues connected to research activities, which also functions as a reference point for the Catalan research system as a whole.

Light integration of RRI keys

As a consequence of the decision to create multiple focal points on RRI, UAB had to address the problem of integrating them, with the aim of developing a unique recognisable RRI policy at university level.

A light integration approach was developed, i.e., integration which did not entail the creation of new organisational units or structures, but based on the establishment of a common policy and communication framework, which includes at least four different forms of integration.

- RRI has become part of UAB's mission.
- RRI has been connected with other basic UAB policies, including HR Excellence in Research policies, recruitment policies and career development policies.
- The many activities and actors engaged in specific RRI keys are conceptually presented and communicated on the institutional website as part of a unique overarching RRI policy, so as to make it clear and visible that the different focal points on RRI are integrated.

C. CAPACITY AND TRANSFERABILITY CONSIDERATIONS

The **multiple focal points for RRI actions** can be regarded as a benchmark, since they make it possible to address one of the main problems RRI meets on its path towards institutionalisation, i.e., the need to keep a source of mobilisation active (resources, ideas, people, strategies, etc.) to feed the change process permanently. The establishment of various pro-active focal points managed by dedicated teams prevents the risk of bureaucratising the approach to RRI, keeping alive also the interest of staff and students.

The adoption of a **light integration of RRI keys** can be viewed as a benchmark in that it allows for the strategic and communicative integration of different keys (seeing them as part of the same overall strategy aimed at embedding RRI in the organisation), but at the same time it avoids an organisational integration of activities (for example, having a single body of staff to deal with all the keys), which risks overlooking the fact that the keys are very different in nature and require diversified approaches to be implemented.

D. ENABLERS

The **major enablers** identified in the case of this AE are:

- A clear and explicit strategic approach from leadership
- The strong commitment of the leadership over time
- The capacity to access different funds
- An advanced approach to institutional communication.

2. Internally-initiated normative model (Model B)

The analysis did not succeed in identifying any AEs which adopt an internally-initiated normative model of governance setting (Model B). “Internally-initiated model” means that the model is shaped by and relies upon the actors acting inside the organisation; “normative model” means that the model is designed to induce RRI-oriented institutional changes by first modifying the existing norms (procedures, guidelines, protocols, rules or organisational charters, etc.) which are dominant within the organisation.

This does not mean that the normative dimension is not considered in internally-initiated governance setting models. For example, in the cases presented in the previous section, new rules, standards or reference procedures have been established. Rather, this only means that a normative top-down approach to RRI is very difficult to develop, even in the most hierarchically structured or centralised organisations. For this reason, it is rare to find internally-initiated experiences which start by changing norms in order to then modify the social patterns inside an organisation.

To be implemented, RRI probably anyhow requires the activation of a consensus-building process. This is also true in cases of externally-initiated models (see Section 5 in this regard). The real difference is that, in the latter cases, adopting a normative approach is much easier than in the cases in which an internally-initiated normative model is applied.

3. Internally-initiated knowledge-oriented model (Model C)

In this section AEs are considered which adopt an internally-initiated knowledge-oriented model of governance setting (Model C). "Internally-initiated" means that the model is shaped by and relies upon the actors acting inside the organisation; "knowledge-oriented model" means that the model is designed to induce RRI-oriented institutional changes by first modifying the way in which knowledge is produced in the organisation, i.e., producing knowledge on RRI and/or adopting RRI principles and tools in producing knowledge.

Two AEs falling within this Model are presented.

3.1. Synbiochem (INV1 #19)

A. Short Description

The University of Manchester Synthetic Biology Research Centre for Synthetic Biology of Fine and Speciality Chemicals (Synbiochem) is a research institute aimed at developing cutting-edge research in the field of synthetic biology, leading to new products and methods for drug development. Synbiochem adopts an interdisciplinary approach and works in partnership with all four faculties of the University of Manchester. The institute includes an RRI platform for developing major programmes on the ethical and regulatory aspects of research, also including real-time assessment and anticipation of research and innovation trajectories, deliberation and reflection, and collaborative development.

B. Benchmarks

Two main practices have been selected as benchmarks for RRI governance setting.

RRI integration in the productive process

All the projects at Synbiochem go through a cycle-shaped process which involves three technology platforms, i.e. Design, Build, and Test platforms. They are supported by two other platforms: the data platform provides support at all levels for data acquisition, curation and analysis; the RRI platform develops major programmes on the ethical and regulatory aspects addressed by the projects.

In particular, the RRI platform includes the following processes:

- Real-time assessment and anticipation to assess research targets, commercial applications and innovation pathways
- Ethics and deliberation processes to anticipate potential risks, as well as ethical, legal, and regulatory issues
- Providing the necessary expertise for analysing life-cycle and sustainability implications

- Fostering collaborative development by promoting engagement and deliberation processes with scientists, companies, external stakeholders and publics, as well as by providing researchers with training services.

The RRI Platform is, therefore, fully integrated in the production process in all its steps.

Establishment of an RRI unit

Symbiochem created an internal RRI Group in charge of providing RRI expertise, guidance and training, thus defining an RRI process supporting all steps of the research and innovation process at Symbiochem. The unit manages the RRI Platform (see above) and assists Synbiochem in providing training and awareness services to industries, academics, SMEs, young researchers and the public at large.

The role played by the RRI Group is also evident in the organisational structure of Synbiochem. The Synbiochem Cabinet (the organisational structure supporting the three directors in managing the organisation) also includes the head of the RRI Group as permanent member.

C. Capacity and Transferability Considerations

RRI integration in the technology process is regarded as a benchmark for at least three reasons. First, RRI is conceived as a component of the research and innovation process and not as an external or additional (and marginal) part of it. This recognition is even more important considering that Synbiochem's aim is to market new products as rapidly as possible, thus showing that RRI also plays a role in the private sector. Secondly, RRI integration is conducted in an interdisciplinary process of co-creation, involving different competences, thus including those related to RRI. Finally, this practice shows that RRI principles and approaches can be turned into routinary processes, fully embedded into the current organisational practices.

The **establishment of an RRI unit** is probably the most direct way to embed RRI in an organisation. The RRI Group at Synbiochem is visible, has its own budget and responsibilities, develops its own programmes and is represented in the leadership of the institution. It is worth noting that the importance attributed to the RRI Group is connected to and reflects the full embedment of RRI in the research and innovation process through the RRI platform. Therefore, the two practices selected at Synbiochem, although different from each other, are closely interlinked.

D. Enablers

The **major enablers** identified in the case of this AE are:

- The strong commitment of the leadership
- The advanced approach adopted in developing and managing the production process
- The importance attributed to RRI in the UK research system.

3.2. Midstream Modulation at TU Delft (INV1 #12)

A. Short Description

At the Technical University of Delft, in the Netherlands, the Midstream Modulation approach was tested in 2008. The core of this approach consists of the inclusion of humanists and social researchers in laboratory work to orient decisions and reflection. The test was developed by adopting a specific protocol, allowing the team in charge of the project to discuss ethically relevant topics with laboratory staff, as well as normative issues and the ways in which decisions are taken. Midstream Modulation has been also applied in other organisational and national contexts.

B. Benchmarks

One aspect of Midstream Modulation has been identified as a benchmark for RRI governance setting.

Protocol for interdisciplinary integration

In two laboratories, a group of social researchers worked with biologists for 12 weeks using the STIR (Socio-Technical Integration Research) protocol. The embedment of social researchers was variable (from 12 hours per week to once per month). A set of ethically relevant topics was discussed in order to drive the decision making process.

The STIR protocol conceptually distinguishes four decision components, i.e., opportunities, considerations, alternatives, and outcomes, from both the technical, and the social perspectives, thus mapping laboratory decisions in real-time. The protocol usually included interactions with research participants consisting of pre- and post interviews, participant observation, and regular application of the protocol and collaborative drafting of visual representations of the research process. It makes it possible to identify otherwise latent values, goals, and other considerations, and creates opportunities to reflect on decisions.

In addition to micro-ethical discussions – lab practices, responsible conduct of research and environmental health and safety concerns – resulting directly from laboratory work, the feedback processes also occasioned discussion of macro-ethical issues, normative issues that apply to the collective social responsibility of a profession, and to societal decisions about technology.

C. Capacity and Transferability Considerations

The **protocol for interdisciplinary integration** was considered a benchmark for governance setting, since it has the potential to evolve into a more structured procedure allowing for the incorporation of humanists and social scientists into a laboratory staff. The protocol proved to be effective enough to foster reflexive processes, to allow RRI-oriented real-time decisions and to ensure a “light” presence of humanists and social scientists, thus preventing possible conflicts within the staff.

The limit of this Advanced Experience is that the Midstream Modulation approach has been applied only as a research tool and not as an institutional procedure aimed at embedding RRI

practices in the organisation. Consequently, it is impossible to assess such an approach in terms of its institutional impacts. However, it was decided to include this AE in INV3 since Midstream Modulation is the only approach among those identified in the benchmarking process which promotes interdisciplinary work aimed at embedding RRI in the research process in real time.

D. ENABLERS

The **major enablers** identified in the case of this AE are:

- Close cooperation and strong support from the leaders and researchers concerned
- The identification of practicable and economically sustainable forms of institutionalisation of the protocol and, more in general, of the Midstream Modulation approach.

4. Externally-initiated social model (Model D)

In this section AEs are considered which adopt an externally-initiated social model of governance setting (Model D). "Externally-initiated model" means that the model is shaped by and relies upon actors acting outside the organisation; "social model" means that the model is designed to induce RRI-oriented institutional change by first modifying the social patterns (cognitive, emotional, relational, behavioural, etc.) which are dominant within the organisation.

One AE falling within this Model is presented.

4.1. Fraunhofer Center for Responsible Research and Innovation - CeRRI (INV1 #121)

A. Short Description

The Fraunhofer Center for Responsible Research and Innovation (CeRRI) is a research unit based at the Fraunhofer Institute for Industrial Engineering (IAO), which provides services to other institutions and private companies related to Responsible Research and Innovation. In particular, CeRRI developed new approaches and methods that allow research agendas and technology development processes to be need-oriented from the very start, thus increasing the efficient use of research funds and the societal acceptance of future solutions. The staff included members with knowledge and skills from different fields, such as the natural sciences, economics, design, communication, social sciences and computer science.

B. Benchmarks

Two practices have been selected from CeRRI as benchmarks for RRI governance setting.

Mainstreaming approach to RRI

CeRRI offers its clients a wide range of services in which RRI is embedded. This comprehensive approach also emerges from the institute's organizational structure, which is divided into four teams:

- A team specialised in providing services aimed at fostering **need-oriented research planning**, based on public engagement and including ethical considerations
- A team providing services focused on **process design and transformative methods**, aimed overall at promoting innovation processes based on people's preferences and initiating new trajectories of socio-technological advances
- A team focused on promoting **diversity in organisations**, by evaluating existing practices, developing recommendations for potential adjustments and facilitating such adjustments
- A team working on **technology transfer research**, seeking to synchronize such advances with public preferences.

RRI is, therefore, viewed as a relevant component of any client organisational process, including human resources management, research planning, production process, innovation process, and technology transfer, thus resulting in a sort of RRI mainstreaming process.

Tailored managerial support

Although the services provided by CeRRI are also directly related to knowledge production and innovation processes, the overall approach involves supporting organisations in modifying their methods or incorporating new ones in their usual working procedures.

Tailored analyses are provided to clients in order to help them initiate the change process, taking into consideration both assessment results and the demands of the organisation for support. Methods and recommendations for actions are also equally tailored to the demands and goals of the client, adopting a fairly flexible mix of tools, which may include, e.g., new leadership and career models, change in the organisational and business culture, co-design, participatory foresight processes or new business models.

C. Capacity and Transferability Considerations

The **mainstreaming approach to RRI** developed at CeRRI can be viewed as a benchmark since it makes it possible to connect RRI with all the problems that a research institution is facing, thus overcoming an "additive logic" according to which RRI is not a new way to do the old things but something researchers and managers have to do in addition to the already established objectives and practices.

The provision of **tailored managerial support** is a consequence of RRI mainstreaming. CeRRI's efforts involved defining a customised RRI profile for the target organisation, resorting to a wide range of tools.

D. Enablers

Two **major enablers** in terms of transferability can be identified in the case of these practices:

- The real motivation of the organisation that asks a support from an external expert organisation to actually accept an external guidance and to invest its own resources on RRI
- The attitudes of the organisation's staff to cooperate in the process, since the introduction of RRI-oriented managerial schemes necessarily involves widespread commitment from staff.

5. Externally-initiated normative model (Model E)

This section considers AEs which adopt an externally-initiated normative model of governance setting (Model E). "Externally-initiated model" means that the model is shaped by and relies upon the actors acting outside the organisation; "normative model" means that the model is designed to induce RRI-oriented institutional changes by first modifying the existing norms (procedures, guidelines, protocols, rules or organisational charts, etc.) which are dominant within the organisation.

Four AEs falling within this Model are presented below.

5.1. Responsible Innovation Programme - MVI (INV1 #4)

A. Short Description

In 2009, the Dutch Research Council (NWO), which is the major research funding agency in the Netherlands, launched the Responsible Innovation Programme (MVI), characterised by RRI-oriented features and selection criteria, and especially the consideration of the ethical and societal aspects of the proposed innovation projects at an early stage. Moreover, applicants are requested to actively involve stakeholders in project implementation and in the management of its results. An interdisciplinary approach, mixing humanities, natural sciences and social sciences, is also included in the criteria to be adopted.

B. Benchmarks

Two practices have been selected from MVI as benchmarks for RRI governance setting.

RRI-related criteria for research funding

MVI is a funding scheme aiming to make RRI a mainstreaming approach to research and innovation in the Netherlands. On the one hand, it is connected to the other major funding schemes developed by NWO and, on the other hand, it provides research grants for projects involving many societal challenges, including energy transition, health and quality of life, circular and bio-based economy, digital society and sustainable water.

Central characteristics of the projects eligible for funding are as follows:

- Ethical and social aspects should be included in the innovation design process from the onset. Stakeholders are closely involved in research and research results should be suitable for practical implementation
- Researchers in the humanities, exact sciences and social sciences should work together on the projects and take a collaborative, interdisciplinary approach to an issue based on their respective fields
- During the selection process, all research projects are assessed according to social relevance and result applicability. In addition, each project also has a valorisation panel comprising representatives of governments, businesses, civil society organisations and citizens

who use the innovations, who have to take them into account when formulating policy, or who may – unintentionally – be affected by them.

The selection process is done on the basis of:

- The general scientific quality of the proposal
- The scientific quality within the MVI framework, which includes three criteria: multidisciplinary and interdisciplinary scientific collaboration; the incorporation of ethical and societal aspects in the design process of the innovation pathways; the international orientation and/or collaboration of the proposal
- Societal relevance and knowledge utilisation, involving different criteria, such as the societal importance and relevance of the proposal to the Top Sector, as identified at national levels, the involvement of the valorisation panel or the degree to which users are involved in the dissemination and communication of research results.

The size of grants varies from 125,000 to 250,000 Euros.

RRI-oriented platform and networking

In 2016, the MVI research programme developed into a platform for responsible innovation to provide information, inspiration and contacts for researchers, companies, government bodies and societal organisations. The platform is also intended as a tool for supporting the so-called "NWO-MVI" community, involving both researchers and private partners, financially contributing to the implementation of the projects. Remarkable efforts were made to involve young researchers, also through the "NWO-MVI Young Responsible Design Award", a competition aimed at students, young researchers, designers and entrepreneurs, requiring them to create an innovative responsible design or idea to solve an urgent societal problem.

Networking is also promoted, fostering exchanges of experience and knowledge on the application of MVI approach. An NWO-MVI Conference is organised each year on issues concerning the application of responsible innovation principles. A newsletter is also issued. In addition, the platform develops customised meetings and events, such as workshops in which research results and experiences can be shared. The platform regularly acts as a partner and takes part in activities organised by third parties.

C. Capacity and Transferability Considerations

The use of **RRI-oriented criteria in research funding** allows for both the inclusion of RRI in all research phases (as in the case of CeRRI), and the linking of the MVI Programme to the strategic research and innovation objectives of NWO and, more in general, of the government, in all relevant research fields. From this perspective, the practice can be regarded as a benchmark for promoting effective embedment of RRI in research institutions, since it represents a potentially impactful incentive for researchers, research institutions and private companies from any research and innovation sector, thus avoiding the risk of RRI becoming part of one specific research sector.

The **RRI-oriented platform and networking** can be considered a benchmark in that they support a normative approach and a social approach by creating a community of actors around the

projects funded under the scheme, who are interested in deepening, promoting, and disseminating RRI among research institutions.

D. ENABLERS

Several **enablers** can be identified in the case of these practices:

- A national RRI strategy (implemented both by the Ministry of Education, Culture and Science and by NWO)
- The availability of research funds devoted to RRI-oriented research
- Strong prior connections between research institutions, private sectors and other stakeholders
- A high level of motivation and interest in RRI on the part of researchers and research institutions.

5.2. BIOTEK 2021 (INV1 #7)

A. SHORT DESCRIPTION

In 2012, the Norwegian Research Council (NRC) established the Biotechnology for Innovation – BIOTEK 2021 Programme as part of the implementation of the 2011-2020 National Strategy for Biotechnology and as the continuation of the previous programme on functional genomics (FUGE). BIOTEK 2021 covers four substantive fields (marine sector, medical sector, industrial biotechnology sector, and agricultural sector) and four cross-cutting focus areas, one of which concerns the relations between biotechnology and society.

B. BENCHMARKS

Two practices have been selected from BIOTEK 2021 as benchmarks for RRI governance setting.

RRI embedment in funding schemes as a core issue

Although BIOTEK 2021 is focused on biotechnology-related innovation, its mission and objectives are described as fully merged with RRI-related considerations. Based on the government's strategy in the biotechnology sector to prioritise "areas in which there is convergence between national competitive advantages or major social challenges and the opportunities inherent in biotechnology", the Biotek 2021 Programme aims "to develop biotechnological innovation and focus on the application of research results as a means of promoting value creation and industrial development geared towards solving major societal challenges in a responsible manner".

This attempt to fully embed RRI as a core issue is also given visibility in the communication of the BIOTEK 2021 Programme. In the official website, RRI is presented as "a strategic priority under the BIOTEK 2021 Programme and refers to an approach in which research, technology development and innovation are viewed as socially interwoven processes".

It is worth noting that other funding schemes developed by the Norwegian Research Council adopt the same approach. This is the case, for example, of the Research Programme on Nanotechnology and Advanced Materials (NANO2021) and the Initiative for ICT and digital innovation (IKTPLUSS).

RRI framework for applicants

All BIOTEK 2021 applicants are asked to take into consideration, in preparing their applications, to the "Framework for Responsible Innovation under BIOTEK 2021", a document explaining how RRI is interpreted by the funding agency, why it is considered an essential component of the funding programme and how RRI can be promoted and monitored. The framework is largely based on EC documents.

In this way, applicants are not simply required to use some specific criteria while presenting their project proposals, but are invited to see RRI as one of the major factors entirely shaping the proposal and its logic, assuming – as it were – the point of view of RRI in developing their project ideas.

C. Capacity and Transferability Considerations

The practice adopted by the Norway Research Council, aimed at placing **RRI at the core of the funding scheme**, has been regarded as a benchmark since it is quite rare to find research programmes in which the research and innovation objectives themselves are described through the "vocabulary" of RRI, which is, therefore, also symbolically displayed as a central axis of the programme.

The development of an **RRI framework** as the reference scheme to be considered in the application process is largely connected to the previous practice. The presentation of a "theoretical" framework adopted by the funding agency urges applicants to see and interpret RRI as part of the project. In this way, RRI cannot be restricted to some specific components of the project and be expressed in some boxes to be ticked in the application form.

D. Enablers

Several **enablers** can be identified in the case of these practices:

- Having a national RRI strategy
- The availability of research funds devoted to RRI-oriented research
- A high level of motivation and interest in RRI on the part of researchers and research institutions.

5.3. Challenge-Driven Innovation - CDI (INV1 #91)

A. Short Description

The Challenge-Driven Innovation (CDI) Programme is a research programme established by the Swedish research funding agency VINNOVA in 2011. The programme promotes the development of new, sustainable solutions with international eminence that can meet crucial societal challenges. Projects under this funding scheme are expected to be "visionary"; challenging existing mental models, in order to contribute to the development of a more sustainable society and solving societal challenges.

B. Benchmarks

One practice has been selected from CDI as a benchmark for RRI governance setting.

Three-stage procedure to research funding

To be selected for funding under CDI, the project proposals should match certain requirements such as: combining social benefit and international business potential; being based on cooperation among different sectors, such as civil society, industry, academia and the public sector; developing solutions jointly with users, customers and other relevant parties; being gender-equal, so that both men and women receive a share of the grant and are involved in the project on equal terms.

A three-stage procedure to research funding was developed for the CDI programme.

In Stage 1 (Initiation), applicants are requested to initiate the project on the basis of the project proposal, further developing the project concept and expanding collaborative network. The maximum grant is SEK 500,000, covering up to 80% of the total costs. The duration of this stage is approximately 9 months.

In Stage 2 (Collaboration), applicants are asked to develop and test the proposed solutions, albeit on a limited scale. The maximum grant is SEK 10,000,000, covering up to 50% of the total costs. The duration of this stage is approximately 2 years.

In Stage 3 (Implementation), applicants should test and implement the solutions on a full scale. The maximum grant is between SEK 5,000,000 and 20,000,000, covering between 25 and 40% of the total costs.

Each stage is more competitive than the one before. Also to be noted is that, as risks lessen and results become better established, applicants' financial participation in the project also increases.

C. Capacity and Transferability Considerations

The **three-stage procedure to research funding** developed under the CDI programme can be regarded as a benchmark from different angles.

- While based on a top-down normative approach, with strictly defined expected features of the project proposals, it also leaves applicants free to define the key elements of their projects: the societal challenge to be tackled, the solutions to be developed, the actors to be involved and how to involve them.
- The procedure makes it possible to activate a learning process among the applicants, through an iterative process, about how to use RRI to shape innovation projects.
- The approach tends also to progressively move the focus of responsibility on the project from the funding agency to the applicants and the network of actors they involve, thus feeding a sense of ownership of the project and of the RRI-oriented philosophy underlying it.

D. ENABLERS

Different **enablers** can be identified in the case of these practices:

- Having a national RRI strategy
- The availability of research funds devoted to RRI-oriented research
- A high level of motivation and interest towards RRI on the part of researchers and research institutions
- A favourable environment for activating collaborative processes.

5.4. EuroPriSe (INV1 #290)

A. SHORT DESCRIPTION

EuroPriSe (European Privacy Seal) is a privacy certification system for IT products, IT-based services and websites that are compliant with the EU data protection system. The certification system, established in 2008, is managed by the Institute of Technology Assessment (ITA) of the Austrian Academy of Science. The origin of EuroPriSe is to be found in two EC-funded projects carried out by ITA and other partners, which led to the definition of a set of guidelines and criteria for data protection compliant and privacy enhancing security technologies.

B. BENCHMARKS

One practice has been selected from this AE as a benchmark for RRI governance setting.

Certification process

EuroPriSe is based on a certification process initiated by the manufacturers or vendors of IT products and IT-based services. The process consists of an evaluation of the product/service by qualified legal and IT experts and a validation of the evaluation report by an independent certification authority. The certification may be obtained through the following steps:

1. Choose and contact a legal and a technical expert from the expert register compiled by EuroPriSe
2. Discuss evaluation with experts

3. Contact the certification authority and schedule a preparatory first meeting
4. Agree on evaluation with experts
5. Apply for certification and conclude a Certification Agreement with the Certification Authority
6. Experts conduct evaluation
7. Manufacturer/Service provider hands in
   - Evaluation Report (confidential) compiled by a legal and technical expert and approved by the manufacturer
   - Short Public Report (public) compiled by a legal and technical expert and approved by the manufacturer.

The EuroPriSe criteria are adapted and updated to changes in EU privacy legislation as well as to developments in information technology. Admission and updating workshops for experts are also organised. The list of certified products/services and public reports on them are available on the EuroPriSe website.

C. Capacity and Transferability Considerations

The certification process is evidently important in this report since it concerns an aspect which falls into the sphere of RRI, i.e., developing scientific and technological products, anticipating potential impacts and preventing risks (in this case, preventing a human right violation, namely, the right to privacy).

In principle, this kind of certification should be regarded as aimed at protecting users and citizens and not at embedding RRI-related practices in research and innovation actors.

However, different impacts related to the embedment of RRI are entailed in such a practice:

- It contributes to the visibility of RRI-related instances and issues
- It contributes to developing a community of practices around the application of RRI-oriented criteria in research and innovation
- It contributes to propelling an RRI-oriented culture among researchers and technology developers prompting them, e.g., to prevent risks and anticipate impacts and people's needs
- It provides clear and updated criteria which make it possible to incorporate ethical or societal considerations in the design of new technologies and technology-based services (in this case, adopting a "privacy by design" approach)
- It helps match the gap between general principles or norms (in this case, those related to privacy protection) and their implementation in tangible criteria, practices and solutions.

D. ENABLERS

Two main **enablers** can be identified in the case of these practices:

- The capacity to create a demand for certification that is large enough to sustain the certification process and the business model underlying it
- Having initial investments (in this case, two EC-funded projects) for the development of an effective and sustainable certification system.

6. Externally-initiated knowledge-oriented model (Model F)

This section considers AEs which adopt an externally-initiated knowledge-oriented model of governance setting (Model F). "Externally initiated model" means that the model is shaped by and relies upon the actors acting outside the organisation; "knowledge-oriented model" means that the model is designed to induce RRI-oriented institutional changes by first modifying the way in which knowledge is produced in the organisation, i.e., producing knowledge on RRI and/or adopting RRI principles and tools in producing knowledge.

One AE falling within this Model is presented.

6.1. SoScience (INV1 #76)

A. Short Description

SoScience is a small private enterprise based in Paris providing advice and consultancy services to companies and organisations in the development of new research and innovation programmes shaped around RRI. SoScience was established in 2013.

B. Benchmarks

Two practices have been selected from this AE as a benchmark for RRI governance setting.

Business-oriented approach to RRI

The main element characterising SoScience is their view of RRI, not as a limitation for companies (limiting energy consumption, waste, pollution, resources, etc.), but as a cognitive framework for them to identify new market opportunities linking research and innovation projects to societal and environmental challenges, thus developing new marketable solutions.

This general philosophy led SoScience to develop methods and tools aimed at making it feasible and productive. The consultancy process involves four main steps.

- The first step consists of the organisation of interviews or workshops with the company management and staff, in order to define the issues to be addressed, needs and expectations.
- The second step revolves around the development of an Opportunity Matrix. This is a method developed by SoScience in order to visualize the interactions between drivers, societal challenges and the company's expertise.
- The third step is aimed at producing an analysis report of the opportunities identified in order to orient the decision making process.
- Finally, in the last step, a Responsible Innovation Taskforce inside the company is created in order to develop the research and innovation pathways emerging from the previous steps.

To define the project further, a set of research criteria for responsible innovation were provided, regarding, among other things, some of major RRI dimensions, including anticipation, reflexivity, responsiveness and inclusion.

Partnership-like approach to consultancy services

The second element characterising SoScience is that consultancy services are provided on the basis of a partnership-like approach. The example provided by SoScience actually shows the experts making a direct commitment to the success of the new initiative, so that, even though the consultancy nature of the support given to a company is never in doubt, the motivations and personal commitment of the experts play an important role in the success of the initiative.

It is difficult to define such an approach as a "practice" describable in terms of specific actions or a conceptual framework. Rather, it can be viewed as a sort of psychological orientation of the experts which provides the basis for a "temporary partnership" involving SoScience and its client.

C. Capacity and Transferability Considerations

The **business-oriented approach to RRI** is considered a benchmark for three main reasons.

- The approach addresses the perceived disconnection between RRI and business, which is one of the main obstacles preventing companies from embracing RRI-oriented solutions. In fact, companies often experience or view RRI-sensitive solutions as more expensive and less competitive than traditional ones. The efforts made by SoScience focus on bridging this gap, providing companies with tools and methods to find responsible and profitable solutions.
- The approach is logically original but relatively simple to replicate in other contexts, to the extent that it is managed directly by the companies themselves (thus shifting from an externally-initiated to an internally-initiated knowledge-oriented model).
- The method allows for the establishment of a strong partnership between consultants and company staff, based on a "co-creation" approach in which the activation of the interests and motivations of both participants plays a key role.

As for **partnership-like approach to consultancy services**, this is an important, although intangible, element that plays a pivotal role in the case of SoScience, and which is probably present in many other RRI-oriented experiences. It is, in fact, difficult to trigger complex processes of change in a given organisation or company – like those related to RRI – without modifying, at least partially, the way in which managers perceive their work or organise their projects. This can be done only when external support is given, not in a context of "cold" professional relationships but in one where partnership-based co-creation processes are activated.

D. Enablers

Two main **enablers** can be identified in the case of these practices:

- The company leaders' sensitiveness towards RRI
- The demand for RRI-oriented solutions in the private sector.

7. Network-initiated social model (Model G)

This section considers AEs which adopt a network-initiated social model of governance setting (Model G). "Network-initiated model" means that the model is shaped by and relies upon the actors in cooperation relationships involving the RFPO concerned and other organisations; "social model" means that the model is designed to induce RRI-oriented institutional changes by first modifying the social patterns (cognitive, emotional, relational, behavioural, etc.) which are dominant within the organisation.

One AE falling within this Model is presented.

7.1. University Network Education by Responsibility (INV1 #213)

A. Short Description

The University Network Education by Responsibility (Hochschulnetzwerk Bildung durch Verantwortung) is an association of universities (37 at present) that aims to strengthen the civic engagement of students, teachers and other university members. Formally established as an association in 2015, the University Network provides associate members with expertise, resources, learning and knowledge exchange opportunities, advocacy and lobbying, and joint research programmes. This is mainly done through "Service Learning", a teaching approach which combines lecture hall or classroom and civic involvement, engaging students and teachers in working with communities while learning and teaching.

B. Benchmarks

One practice has been selected from this AE as a benchmark for RRI governance setting.

RRI-oriented comprehensive training

To support colleges on the way to becoming a committed university, the University Network has established the Academy for Education through Responsibility. The Academy offers courses, coaching, and counselling and organises workshops on issues related to university civic engagement and third mission. Academy activities were set in motion thanks to a temporary fund from the Robert Bosch Foundation.

Moreover, the Academy offers the certificate course "Campus and Community", which started in September 2015 and organised in cooperation with the Danube University Krems. The course is aimed at training the participants in developing initiatives and programmes fostering a cooperation between universities and local communities. For this reason, in this case the target group includes, not only the officers in charge of university development and strategy, research and teaching, but also people in positions of responsibility from civil society organisations and associations. The certificate course runs for two semesters and offers 30 credits. In addition, graduates receive a corresponding university certificate.

A toolbox was also developed to address different issues, including public relations and lobbying, civic engagement, community based research, service learning, and social entrepreneurship.

In order to offer better support to university institutes, the Academy also created a pool of experts and instructors to provide advice and counselling on service learning, third university mission and civic engagement and related topics. They can be contacted individually and provide tailored support for university institutes requesting help.

C. Capacity and Transferability Considerations

Rather than being a single practice, the **RRI-oriented comprehensive training** is a set of coordinated practices revolving around the idea of making universities' societal engagement a subject of research and teaching or even a disciplinary field, the core of which is the development of a scientific education sensitive to societal considerations. The Academy is based on networking relationships involving a considerable number of universities, thus producing an impact at national level. The establishment of a pool of experts in these matters enhances the effectiveness of such an approach, which, due to all these features, can be considered a benchmark which could be replicated in other national contexts.

D. Enablers

Two main **enablers** can be identified in the case of these practices:

- The availability of initial investments and regular financial support
- A culture of societal engagement among university leaderships and researchers, which is sufficiently developed so as to create a critical mass of higher education institutions interested in participating in the network.

8. Network-initiated normative model (Model H)

This section considers AEs which adopt a network-initiated normative model of governance setting (Model H). "Network-initiated model" means that the model is shaped by and relies upon actors in cooperation relationships involving the RFPO concerned and other organisations; "normative model" means that the model is designed to induce RRI-oriented institutional changes by first modifying the existing norms (procedures, guidelines, protocols, rules or organisational charts, etc.) which are dominant within the organisation.

One AEs belonging to this Model is presented.

8.1. Athena SWAN Charter (INV1 #120)

A. Short Description

Athena SWAN Charter was established in 2005 to encourage and recognise commitment to advancing the careers of women in STEM employment in higher education and research. It was established by the Athena Project, promoted by a group of women academics, with the support of the Scientific Women's Academic Network (SWAN). Athena SWAN promotes a network connecting research institutions who applied for an Athena SWAN Award (bronze, silver and gold). The Charter is managed by the Equality Challenge Unit, a registered charity funded by the Scottish Funding Council, the Higher Education Funding Council for Wales and Universities UK, and through direct subscription from higher education institutions in England and Northern Ireland. Around 590 university departments and 140 research institutions have received awards so far.

B. Benchmarks

Three practices have been selected from this AE as a benchmark for RRI governance setting.

Three-level award system

There are three levels of awards available for institutions and individual departments. Members are encouraged to work through three levels: Bronze, Silver and Gold.

- Bronze awards recognise that an institute has a solid foundation in eliminating gender bias and developing an inclusive culture that values all staff. This includes: 1) an assessment of gender equality in the institute, based on quantitative (staff and student data) and qualitative (staff feedback on policies, practices, systems and arrangements) evidence, and identification of both challenges and opportunities; 2) a four-year plan that builds on this assessment, information on activities that are already in place and what has been learned from these; 3) The development of an organisational structure, including a self-assessment team, to carry proposed actions forward.
- Silver awards recognise that the institute has taken action in response to previously identified challenges and can demonstrate the impact of these actions. Institutes need to dem-

onstrate how well Athena SWAN is embedded within the institution with strong leadership in promoting charter principles and should highlight the impact of Athena SWAN activities.

- Gold awards recognise a significant and sustained record of activity and achievement by the institute in addressing challenges across the full range of the institute and promoting gender equality within and beyond the institute. Applications should demonstrate how Athena SWAN is completely embedded within the institute with strong leadership in promoting and championing charter principles. The institute should also demonstrate that they have taken an intersectional approach to analysing data and devising possible solutions to identified challenges.

Award-holders have to re-apply after a set period of time. These renewals also require evidence of progress and the successful completion of earlier action plans. The withdrawal of an award or the granting of an award at a level below the one applied for is also possible.

Self-assessment and peer-reviewing process

The award process is based on a mix of self-assessment and peer-review.

In the first stage of the process, applicants are required to implement a self-assessment of the situation, where obstacles are expected to be identified and then addressed in the action plan. Self-assessment should also include quantitative (staff and student data) and qualitative (staff feedback on policies, practices, systems and arrangements) evidence, and identification of both challenges and opportunities.

In a following stage, applications are reviewed by awards panels, usually made up of five people. Each panel usually review up to five applications per sitting. Presently, around 630 people are registered as potential panellists. They are drawn from different groups of people, including: academics and technical services staff; human resources or equality and diversity practitioners with experience of higher education; specialists (for example industry and research institute representatives, members or employees of learned and professional societies, gender equality and diversity specialists as appropriate); students.

Local networks

Under the Athena SWAN, local networks at regional level have been established across UK, allowing representatives from the institutions that are signatory of the Athena SWAN Charter to have a recognised, geographically co-located peer group with whom they can collectively consider gender equality challenges and priorities and to access the Equality Challenge Unit staff members in charge of Athena SWAN to get advice on best practice and guidance on procedure.

The networks pursue a number of aims, including:

- Facilitating knowledge and information sharing and mutual learning
- Developing appropriate approaches to tackle gender equality challenges
- Providing opportunities to update others on planned and on-going work to advance gender equality
- Providing a non-judgemental and non-prejudicial environment in which to network with other staff undertaking work related to the Athena SWAN Charter

- Agreeing, where possible, on joint approaches to tackling challenges, and informing and steering, where relevant, work programmes of the Equality Challenge Unit.

C. Capacity and Transferability Considerations

The **three-level award system** can be considered a benchmark for its almost unique capacity to create mechanisms which foster visible and continuous improvement, thus making it difficult for any institution "to stay still" or to abandon the system. This approach also uses a set of norms to promote changes in the social patterns of managers and staff members within the institutions concerned. In this sense, although based on a normative governance setting model, this AE also includes a significant social model element.

The combination of **self-assessment and peer-reviewing** within the award process is another aspect of the Athena SWAN Charter which deserves to be considered as a benchmark. Athena SWAN awards do not imply a judgmental assessment from a totally independent entity. Rather, for a university or research institution, making an application means starting a negotiation process about gender equality involving all internal stakeholders (self-assessment) and continuing this negotiation with external co-operating peers (peer-reviewing) who are experts in gender issues. This is probably the most effective way to develop a normative model for triggering changes which are socially, culturally and organisationally complex to implement.

The establishment of **local networks** involving the actors concerned is another important component of the Athena SWAN approach. Through the network, the continuous improvement process which the Charter requires is strongly supported through the creation of "places" where it is possible to exchange experiences, to engage in mutual learning processes and to encourage practitioners and experts to hone their skills. Networks allow informal interactions which make the "formal process" actually feasible.

D. Enablers

Many **enablers** can be identified in the case of these practices. Three of them deserve to be mentioned here:

- Having a favourable policy framework that can connect gender inequality to national research and innovation policies
- Constant investment or resources and policy commitment on gender issues on the part of both the national research system and single research organisations
- Having a widespread community of experts and practitioners on gender issues.

9. Network-initiated knowledge-oriented model (Model I)

This section considers AEs which adopt a network-initiated knowledge-oriented model of governance setting (Model I). "Network-initiated model" means that the model is shaped by and relies upon the actors in a cooperation relationship involving the RFPO concerned and other organisations; "knowledge-oriented model" means that the model is designed to induce RRI-oriented institutional changes by first modifying the way in which knowledge is produced in the organisation, i.e., producing knowledge on RRI and/or adopting RRI principles and tools in producing knowledge.

Four AEs belonging to this Model are presented.

9.1. CSynBI (INV1 #47)

A. Short Description

CSynBI is a synthetic biology research centre established in 2009 through an EPSRC Science and Innovation award designed to stimulate new activity in areas of synthetic biology of national strategic importance. CSynBI includes scientific researchers at Imperial College London and societal and ethical researchers from the Department of Social Science, Health and Medicine at King's College London, who explore the social, political, economic and ethical dimensions of synthetic biology.

B. Benchmarks

One practice has been selected from this AE as a benchmark for RRI governance setting.

STEM and social sciences institutional partnerships

The Centre is the outcome of a partnership between synthetic biology researchers at Imperial College London and social scientists at the Department of Social Science, Health and Medicine at Kings College London. This collaboration makes it possible to combine cutting-edge research and sensitiveness toward societal and policy implications related to synthetic biology.

This approach is reflected in staff composition (including both STEM researchers and social scientists) as well as in research issues (including, for example, research on participatory forms of governance or the social, ethical and political dimensions of life sciences and biomedicine) and training activities.

Moreover, CSynBI researchers are regularly involved in scientific outreach collaborations with designers and artists and public events like an annual research symposium.

Being both part of the Research Group Lab Global Health & Social Medicine of the Department of the King's College of London and a component of the UK Hub on synthetic biology hosted at the Imperial College of London, CSynBI can also interact with the many other research and teaching activities carried out in both institutes. In particular, at King's College, other research

groups are working on RRI-related issues, such as the governance of emerging technologies and the application of RRI in synthetic biology.

C. Capacity and Transferability Considerations

The **STEM and social sciences institutional partnership** represents a practice of particular interest, especially because it involves two institutions which are characterised by different disciplinary backgrounds, one related to STEMs and the other to social sciences, creating a new RRI-oriented research entity that is considered a benchmark and a transferable practice. The main reason is that this approach takes RRI seriously, recognising it as something not to be simply added to current research practices, but to be placed at the very centre of the research and innovation process. The risk is evidently that the two research communities work separately, thus keeping the partnership only on paper. However, this seems not to be the case, considering the many common activities in which the two institutions are involved.

D. Enablers

Two **enablers** can be identified in the case of these practices.

- Having top managers who are sufficiently innovative to accept the risks of investing in a new enterprise involving both STEM researchers and social scientists.
- Having a favourable policy and cultural framework making the joint venture acceptable to both STEM researchers and social scientists and allowing RRI to become an "added value" in accessing public and private funds in the research market.

9.2. Mistra (INV1 #51)

A. Short Description

Mistra Urban Futures is an international centre for sustainable urban development based in Sweden and established in 2010. It is financed by the foundations Mistra and Sida, together with a consortium comprising: Chalmers University of Technology, the University of Gothenburg, the City of Gothenburg, the Gothenburg Region Association of Local Authorities (GR), IVL Swedish Environmental Research Institute, the County Administrative Board of Västra Götaland, and the Region of Västra Götaland.

B. Benchmarks

Two practices have been selected from this AE as a benchmark for RRI governance setting.

Local interaction platforms

Mistra Urban Futures offers an arena for the development and transmission of knowledge, based on cooperation with business, interest groups and the general public. This arena takes the form of a Local Interaction Platform (LIP), i.e., a physical and exchange infrastructure for the co-creation, design and development of projects, and promotion of events and networking

activities. Each LIP is endowed with staff to facilitate interaction among the actors involved and drive the knowledge production process. So far, five LIPs have been established.

Joint knowledge production process

The approach used at Mistra Urban Future is strongly characterised by a knowledge co-creation process, illustrated in a manual[9] used by the different Local Interaction Platforms.

The process is divided into three phases, devoted, respectively, to project formulation, implementation and evaluation. What is important here is that orientations and suggestions for these three phases are made in a way that allows for a joint knowledge production process, i.e., a knowledge co-creation process that can bring together different disciplines, kinds of knowledge and perspectives. The main reason given in the manual for justifying the relevance of a similar approach is that "sustainable development is a vague and ambiguous concept" so that "what the concept means depends upon whom one asks, and in what context it is used". Thus, "the first challenge concerns how the diversity of perspectives, priorities and evaluations which exist among those who influence and are influenced by urban development can be accommodated". Hence the need to "make use of the broad experience and competence which exists within the various groups who live and work in urban areas". Many sharable and transferable practices usefully applicable in any RRI-sensitive research programme are also provided.

C. Capacity and Transferability Considerations

Both practices identified in the context of Mistra Urban Futures may be regarded as a benchmark for a governance setting focused on knowledge production.

They are clearly mutually interconnected.

On the one hand, **Local Interaction Platforms** provide a permanent and visible infrastructure to make the co-creation process possible. In the context of an analysis focused on RRI-oriented governance setting, such an infrastructure, although largely intangible, is socially active and plays an important role in making the knowledge co-production process a business-as-usual practice.

On the other hand, the **joint knowledge production process** makes knowledge co-production something really feasible and replicable, avoiding an illusory view of co-creation as something spontaneously emerging from interactive relations, without applying any method or rule.

D. Enablers

Two main **enablers** can be identified in the case of these practices:

- Having triggering investments and a constant flow of resources of different types (in this case, guaranteed by the institutions which are members of the consortium) to develop the projects
- Close relations between project promoters and local stakeholders willing to cooperate.

[9] Polk, M., Frid, A., Westberg, L. (2013). Mistra urban futures: manual of joint knowledge production for urban change. First English Draft

9.3. Applied Nanoparticles (INV1 #124)

A. Short Description

Applied Nanoparticles s.l. (AppNps) is a spin-off of the Catalan Institute of Nanotechnology (ICN2), the University Autonoma of Barcelona (UAB) and the Institut Català de Recerca i Estudis Avançats (ICREA), established in 2013, for the development and production of Biogas+, a biogas ready to use additives based on safe and sustainable engineered iron based nanoparticles directed towards the optimisation of anaerobic digestion processes which increase the production of biogas from organic waste. Among the co-founders, there are scientists from these institutions, international RRI experts (Responsible Research and Innovation), and experts in e-communication, business development and technology transfer. The AppNps offices are in Barcelona and the laboratory is in the UAB campus. AppNps business is based on the principles of Responsible Innovation, focusing on the design processes of nanoparticles and low energy consumption, low toxicity, waste minimisation and reduction of emissions.

B. Benchmarks

Two practices have been selected from this AE as a benchmark for RRI governance setting.

RRI-sensitive production process

The company has a staff of 13 people, of different backgrounds including nanoscience, nanotechnology and environmental science, law, marketing, e-communication and graphic design. Ten of them are engaged with the company full-time. The company's management is organised in a way that there is no actual CEO, but responsibility is delegated according to the needs, skills and availability of each member.

A midstream modulation approach was developed through a set of informal meetings, so as to discuss all the technology and business aspects of the company and to deal together with issues and implications, including those related to the environment, health and safety, sustainability, patenting, long-term research and business strategies, ethical issues and science communication.

RRI-oriented code of conduct

AppNps adopts an internal Code of Conduct which defines "the principles and standards of ethical conduct that should govern the actions of the related persons in the exercise of their professional activities in their relationship with the company".

The Code includes Responsible Innovation in the mission and ordinary life of the company. In particular, the Code mentions Responsible Innovation principles from both "the point of view of the product (it has to be useful, sustainable and safe) and process (it has to be collaborative and inclusive)". In this way, the Code defines the core ideas on which the company is based: "Innovation directed towards social benefit; ethical considerations of impacts at social and environmental levels; studies on product security throughout its full life cycle, from production to disposal or reuse, addressing the health and safety of workers and consumers".

The key contents of the Code of Conduct have been discussed among company's shareholders and workers.

C. CAPACITY AND TRANSFERABILITY CONSIDERATIONS

The adoption of an **RRI-sensitive production process** can be considered a benchmark in that it offers the chance of practically adopting RRI as a guiding orientation, leveraging also upon the different disciplines, specialisations and points of view of staff members. The midstream modulation model (see the Midstream Modulation at TU Delf) has been adopted and adapted so as to include societal and ethical considerations in the day-by-day decision-making processes.

The **RRI-oriented code of conduct** provides the basis (both legal and symbolical) for placing RRI at the core of the company's objectives and activities. It is worth noting that many companies, if not the majority of them, establish code of conducts that also include aspects related to RRI (such as those pertaining to gender equality or ethical issues). What is particular is the explicit reference to Responsible Innovation for both the product and process.

Both practices seem to show the possibility of combining RRI and competitiveness and even using RRI to increase the company's level of competitiveness, while often RRI is described as a constraint since it is viewed as inevitably entailing increases in production costs.

D. ENABLERS

The main **enabler** is the fact that there is a favourable cultural environment (provided, in this case, by the different Catalan research institutions involved in the establishment of Applied Nanoparticles s.l.) for the creation of advanced spin-offs sensitive to RRI-related issues.

9.4. Ethics and Society in the Human Brain Project (INV1 #241)

A. SHORT DESCRIPTION

Ethics and Society is one of the sub-projects of the Human Brain Project (HBP), a H2020 Flagship Project focused on neuroscience, computing and brain-related medicine. The 10-year Project began in 2013 and directly employs some 500 scientists at more than 100 universities, teaching hospitals and research centres across Europe. The project includes 12 sub-projects that span the development of six ICT-based platforms, as well as data gathering, cognitive and theoretical neuroscience, ethics, and administrative services. The Ethics and Society sub-project aims to study the ethical and societal implications of HBP's work and includes different kind of activities.

B. BENCHMARKS

Three practices have been selected from this AE as a benchmark for RRI governance setting.

Multiple approach to RRI embedment in research programmes

Ethics and Society adopts a multiple approach generally aimed at embedding RRI-related issues in the Human Brain Project as a whole. Among the different components of this approach, the following can be mentioned:

- Foresight studies aimed at identifying and evaluating the future impact of new knowledge and technologies generated by the HBP, using a range of methods from action research, interviews, participant observation to literature reviews, questionnaire surveys and expert workshops
- Organisation of public meetings where ethical, legal, cultural, societal, and legal issues related to HBP research are debated, including also stakeholder dialogue on issues of possible controversy and immediate relevance to the HBP
- Studies on conceptual, social, ethical, and regulatory issues related to neuroscientific research and emerging neurotechnologies
- Provision of ethical support to HBP to manage ethical issues, involving also the establishment of an Ethics Advisory Board providing expert advice and support to HBP staff.

Ethical concerns registration system

In the context of the Human Brain Project, a rapid way for people to raise ethical issues and to report them to HBP has been established.

This mechanism is called “POint of REgistration” (PORE), an online system geared to registering and identifying these issues, and keeping track of how they are dealt with. PORE registers issues so they can be followed from start to finish. Requests may be submitted by any person within or outside the project, choosing to be identifiable or remaining anonymous. An online form can be filled in and submitted.

Issues may be related but not limited to the planning of experimentation or a phase of implementation. Each registered issue is reviewed by the Ethics Management Team. The team, which includes an ethics manager, decides how best to deal with the issue. The registered issue may be further directed to the Ethics Advisory Board (EAB) or SP12's Steering Committee.

Ethics Management Team and Ethics Rapporteurs

The Human Brain Project has a dedicated Ethics Management Team working in collaboration with the ethics and society researchers and HBP management to support best research practices and in close connection with the Ethics Advisory Board (established to support the Team in implementing its functions).

The team interacts with the subprojects through Ethics Rapporteurs. An Ethics Rapporteur is an academic, a scientist, a technologist or an administrator engaged in HBP work, having the responsibility to communicate with the Ethics and Society programme about the Subproject ethics, science and technology work. Ethics Rapporteurs include senior and junior members, each possessing a unique set of competences in science and ethics.

Ethics Rapporteurs regularly communicate with the Ethics Advisory Board members and with the Ethics Management team. Joint meetings between the three bodies are held annually.

C. Capacity and Transferability Considerations

Although the Human Brain Project has been the subject of controversy on different grounds, the three practices presented above have been considered promising from an RRI perspective.

The **multiple approach to RRI embedment in research programmes** is to be taken as a benchmark since it is a comprehensive approach which fits in well with the complexity of RRI. It combines anticipatory research, an inclusive approach to research, studies on ethical and societal issues related to pertinent research fields and practical mechanisms to manage ethical issues connected to the research process. This kind of approach is conceptually and practically transferable to smaller research programmes.

In addition, the **ethical concerns registration system** is considered a benchmark since it combines ethical issues with public engagement, allowing everyone inside or outside the project staff to raise ethical issues so they may be taken into consideration in the internal research process.

Also interesting, from the point of view of the analysis of governance setting models, is the establishment of an **Ethics Management Team** using **Ethics Rapporteurs** to link the team to all project units and structures, thus allowing ethical issues to be incorporated in the research process.

D. Enablers

Many **enablers** can be identified in the case of these practices. Three of them can be mentioned here.

- The availability of dedicated funds for the development of a differentiated set of actions pertaining to ethical issues.
- Having managers and researchers that are highly motivated vis-à-vis ethical issues and RRI in general.
- A high quality project organisation structure to enable the management of interactions between the ethical team and the organisational units concerned.

Chapter Four

Comments on the benchmarking exercise

This chapter comments on the results of the benchmarking process summarised in the previous chapter.

The benchmarking exercise focused on 18 Advanced Experiences (AEs), found in 8 out of the 9 governance setting models identified. Overall, six of them are internally-initiated AEs, six externally-initiated AEs and six network-based AEs. Moreover, six AEs focus on social patterns, five on rules and seven on knowledge.

The benchmarking process allowed us to identify **36 different practices which have been regarded as a benchmark** from the perspective of establishing effective RRI-oriented governance settings, defining "governance setting" as a process through which a given governance structure (of an institution, project or company) is modified in a way that it can permanently incorporate RRI (in usual procedures, culture, internal relations, organisational structure, etc.).

The table below lists the AEs and the benchmarked practices.

MODEL	Description	AE	Benchmark
A	Internally-initiated social model	JERRI Project at TNO	1. Goal setting process 2. RRI institutionalisation level analysis 3. Transition roadmap to RRI
		LIBRA Project at CeMM	4. Highly representative enlarged team 5. RRI-oriented procedures setting process 6. Initial diagnostic analysis
		TRIGGER Project at UPD	7. Internal organisational coordination 8. Links with external stakeholders 9. Sustainability plan
		RRI policies at UAB	10. Multiple focal points for RRI actions 11. Light integration of RRI keys
B	Internally-initiated normative model	None	
C	Internally-initiated knowledge-oriented model	Symbiochem	12. RRI integration in the productive process 13. Establishment of an RRI Unit
		Midstream Modulation at TU Delft	14. Protocol for interdisciplinary integration
D	Externally-initiated social model	CeRRI	15. Mainstreaming approach to RRI 16. Tailored managerial support
E	Externally-initiated normative model	MVI, NWO	17. RRI-related criteria for research funding 18. RRI-oriented platform and networking
		Biotek 2021, RCN	19. RRI embedment in funding scheme as a core issue 20. RRI framework for applicants
		CDI, VINNOVA	21. Three-stage procedure to research funding

MODEL	Description	AE	Benchmark
		EuroPriSe, ITA	22. Certification process
F	Externally-initiated knowledge-oriented model	SoScience	23. Business-oriented approach to RRI 24. Partnership-like approach in consultancy services
G	Network-based social model	University Network Education by Responsibility	25. RRI-oriented comprehensive training
H	Network-based normative model	Athena SWAN Charter	26. Three-level award system 27. Self-assessment and peer-reviewing process 28. Local networks
I	Network-based knowledge-oriented model	CSymBi	29. STEM and social sciences institutional partnerships
		Mistra Urban Futures	30. Local co-creation platforms 31. Joint knowledge production process
		Applied Nanoparticles	32. RRI-sensitive production process 33. RRI-oriented code of conduct
		Ethics and Society, HBP	34. Multiple approach to RRI embedment in research programmes 35. Ethical concerns registration system 36. Ethics Management Team and Ethics Rapporteurs

The following comments are to be considered provisional, and require more in-depth work and verification in the next steps of the FIT4RRI project.

1. The distribution of AEs among the governance setting models

It is useful to first focus on the distribution of AEs among the nine governance setting models identified in the first chapters of this report.

As may be observed in the distribution of the AEs included in INV2 (see Chapter 2, Section 2), 29 out 43 AEs (i.e., almost 70% of AEs) fall within three governance setting models: 13 AEs in Model A (internally-initiated social model); 8 in Model E (externally initiated normative model); 8 in Model H (network-initiated knowledge-oriented model).

This shows that there are **three dominant correspondences** between the two variables (regarding respectively the triggering point and the focus) placed at the basis of the typology of the governance setting models. They are presented below.

– When the governance setting is shaped and promoted internally, within the organisation, it is difficult to start from norms, following a top-down approach, at least when a complex issue like RRI needs to be transferred into the organisation. This does not mean that norms, formal procedures, standards and protocols are not involved in this process. However, they

tend to be introduced later or in support of a broader change of social patterns (ideas and visions, dominant behaviours, languages, interaction models, etc.).

- Governance settings shaped and promoted externally, from outside the organisation, are instead more likely to start from a normative approach. This is typically the case of research funding schemes applying RRI-inspired criteria to applicants. A normative approach is evidently easier to apply when the actor triggering the process is different from the organisation embedding RRI and is endowed with some form of power (e.g., that of providing research grants) over the target organisation, allowing it to "impose" some sort of norms.
- Finally, governance settings based on networks are more likely to start from the production of new knowledge. This is probably due to the general trend in science in which research is increasingly based on ever-expanding networks. This facilitates access to many types of knowledge and disciplines, including those related to RRI.

The distribution of the 18 AEs selected for the benchmarking exercise clearly reproduces this general trend.

2. The role of initial investments

A second fact to be noticed concerns the role of initial public investments in activating an RRI-oriented embedding process. Overall, at least 10 AEs out of 18 started thanks to institutional funds from the EC (5 cases: JERRI, LIBRA, TRIGGER, EUROPRISE and Ethics and Society) or national governments (5 cases: MVI, Biotek 2021, CDI, CSymBI and Mistra Urban Futures). Initial public investments also play an important role in other AEs (for example, RRI policies at UAB and Athena SWAN Charter).

This circumstance suggests that initiating RRI-oriented processes is still **partially dependent upon specific public policies**. It is not by chance that all the AEs that started through initial public investments fall within the three dominant models (Model A, Model E, and Model I) identified above, which are also probably dominant because they are better supported by public policies than other models are.

At the same time, the analysis also shows that the process of change, once started, can often keep going and evolve, even in the absence of external investments. This is the case, for example, of AEs like JERRI at TNO, TRIGGER at UPD or CSynBI. Moreover, many other AEs considered in this chapter started without external funds and, in some cases (for example, Athena SWAN) through a bottom-up mobilisation process.

3. The distribution of benchmarks among the governance setting models

Finally, it should be observed that the 36 benchmarked practices tend to act on different aspects of the RRI-oriented governance setting, intended as a process of institutional change aimed at embedding RRI into research institutions.

In this regard, four different components of the process of institutional change can be considered here.

- **Transformational agent.** The first component is the existence of a group of people (a team) that can progressively activate and sustain the process over time, becoming a transformational agent within its organisation, i.e., increasingly capable of managing the complexity inherent in RRI-oriented institutional change.
- **Mobilisation.** The second component refers to the need to mobilise and involve key actors and individuals, achieving the consent, energy and support necessary to trigger a process of change.
- **Impact making.** The third component refers to the capacity to actually alter existing institutional arrangements, activating a process of change, modifying social patterns, normative structures or the way in which knowledge is designed, implemented and used.
- **Sustainability.** The last component concerns the capacity to activate mechanisms that allow RRI-oriented arrangements to last and evolve over time, thus becoming part of the current practices and culture of the organisation[10].

The table below shows which component the different benchmarked practices primarily focus on, at least in the interpretation given to them in this report.

MODEL	AE	Benchmark	Dominant component
A	JERRI Project at TNO	1. Goal setting process	MOBILISATION
		2. RRI institutionalisation level analysis	IMPACT MAKING
		3. Transition roadmap to RRI	SUSTAINABILITY
	LIBRA Project at CeMM	4. Highly representative enlarged team	TRANSFORMATIONAL AGENT
		5. RRI-oriented procedures setting process	MOBILISATION
		6. Initial diagnostic analysis	IMPACT MAKING
	TRIGGER Project at UPD	7. Internal organisational coordination	TRANSFORMATIONAL AGENT
		8. Links with external stakeholders	MOBILISATION
		9. Sustainability plan	SUSTAINABILITY
	RRI policies at UAB	10. Multiple focal points for RRI actions	TRANSFORMATIONAL AGENT
		11. Light integration of RRI keys	SUSTAINABILITY
C	Symbiochem	12. RRI integration in the productive process	IMPACT MAKING
		13. Establishment of an RRI Unit	TRANSFORMATIONAL AGENT
	Midstream Modulation at TU Delft	14. Protocol for interdisciplinary integration	IMPACT MAKING
D	CeRRI	15. Mainstreaming approach to	IMPACT MAKING

[10] The concept of sustainability has been already applied on the practices to be included in the benchmarking process (see Chapter Two, Section 4) to refer to the capacity of the practice to be sustainable over time. In this case, the concept of sustainability is applied on the primary function of a practice, i.e., if the practice is primarily aimed at making RRI-oriented changes sustainable over time. This means that, while all the practices considered are sustainable, only few of them are aimed to sustainability.

MODEL	AE	Benchmark	Dominant component
		RRI	
		16. Tailored managerial support	MOBILISATION
E	MVI, NWO	17. RRI-related criteria for research funding	IMPACT MAKING
		18. RRI-oriented platform and networking	MOBILISATION
	Biotek 2021, RCN	19. RRI embedment in funding scheme as a core issue	IMPACT MAKING
		20. RRI framework for applicants	MOBILISATION
	CDI, VINNOVA	21. Three-stage procedure to research funding	IMPACT MAKING
	EuroPriSe, ITA	22. Certification process	IMPACT MAKING
F	SoScience	23. Business-oriented approach to RRI	IMPACT MAKING
		24. Partnership-like approach in consultancy services	MOBILISATION
G	University Network Education by Responsibility	25. RRI-oriented comprehensive training	MOBILISATION
H	Athena SWAN Charter	26. Three-level award system	SUSTAINABILITY
		27. Self-assessment and peer-reviewing process	IMPACT MAKING
		28. Local networks	MOBILISATION
I	CSymBi	29. STEM and social sciences institutional partnerships	TRANSFORMATIONAL AGENT
	Mistra Urban Futures	30. Local co-creation platforms	MOBILISATION
		31. Joint knowledge production process	MOBILISATION
	Applied Nanoparticles	32. RRI-sensitive production process	IMPACT MAKING
		33. RRI-oriented code of conduct	IMPACT MAKING
	Ethics and Society, HBP	34. Multiple approach to RRI embedment in research programmes	IMPACT MAKING
		35. Ethical concerns registration system	MOBILISATION
		36. Ethics Management Team and Ethics Rapporteurs	TRANSFORMATIONAL AGENT

Overall:

- 14 practices are focused on the **impact making** component
- 12 practices are focused on the **mobilisation** component
- 6 practices are focused on the **transformational agent** component
- 4 practices are focused on the **sustainability** component.

The distribution of the practices per governance setting models is given below.

<table>
<tr><th rowspan="2">TRIGGER-ING POINT</th><th colspan="4">FOCUS</th></tr>
<tr><th>Social patterns first</th><th>Rules first</th><th>Knowledge first</th><th>TOTAL</th></tr>
<tr><td>Changes from inside</td><td>MODEL A
<table><tr><td>Tran. Agent</td><td>3</td></tr><tr><td>Mobilisation</td><td>3</td></tr><tr><td>Imp. making</td><td>2</td></tr><tr><td>Sustainability</td><td>3</td></tr></table></td><td>MODEL B
<table><tr><td>Tran. Agent</td><td>0</td></tr><tr><td>Mobilisation</td><td>0</td></tr><tr><td>Imp. Making</td><td>0</td></tr><tr><td>Sustainability</td><td>0</td></tr></table></td><td>MODEL C
<table><tr><td>Tran. Agent</td><td>1</td></tr><tr><td>Mobilisation</td><td>0</td></tr><tr><td>Imp. making</td><td>2</td></tr><tr><td>Sustainability</td><td>0</td></tr></table></td><td>INTERNALLY-INITIATED MODELS
<table><tr><td>Tran. Agent</td><td>4</td></tr><tr><td>Mobilisation</td><td>3</td></tr><tr><td>Imp. making</td><td>4</td></tr><tr><td>Sustainability</td><td>3</td></tr></table></td></tr>
<tr><td>Changes from out-side</td><td>MODEL D
<table><tr><td>Tran. Agent</td><td>0</td></tr><tr><td>Mobilisation</td><td>1</td></tr><tr><td>Imp. making</td><td>1</td></tr><tr><td>Sustainability</td><td>0</td></tr></table></td><td>MODEL E
<table><tr><td>Tran. Agent</td><td>0</td></tr><tr><td>Mobilisation</td><td>2</td></tr><tr><td>Imp. Making</td><td>4</td></tr><tr><td>Sustainability</td><td>0</td></tr></table></td><td>MODEL F
<table><tr><td>Tran. Agent</td><td>0</td></tr><tr><td>Mobilisation</td><td>1</td></tr><tr><td>Imp. making</td><td>1</td></tr><tr><td>Sustainability</td><td>0</td></tr></table></td><td>EXTERNALLY-INITIATED MODELS
<table><tr><td>Tran. Agent</td><td>0</td></tr><tr><td>Mobilisation</td><td>4</td></tr><tr><td>Imp. making</td><td>6</td></tr><tr><td>Sustainability</td><td>0</td></tr></table></td></tr>
<tr><td>Changes through network</td><td>MODEL G
<table><tr><td>Tran. Agent</td><td>0</td></tr><tr><td>Mobilisation</td><td>1</td></tr><tr><td>Imp. making</td><td>0</td></tr><tr><td>Sustainability</td><td>0</td></tr></table></td><td>MODEL H
<table><tr><td>Tran. Agent</td><td>0</td></tr><tr><td>Mobilisation</td><td>1</td></tr><tr><td>Imp. making</td><td>1</td></tr><tr><td>Sustainability</td><td>1</td></tr></table></td><td>MODEL I
<table><tr><td>Tran. Agent</td><td>2</td></tr><tr><td>Mobilisation</td><td>3</td></tr><tr><td>Imp. making</td><td>3</td></tr><tr><td>Sustainability</td><td>0</td></tr></table></td><td>NETWORK-BASED MODELS
<table><tr><td>Tran. Agent</td><td>2</td></tr><tr><td>Mobilisation</td><td>5</td></tr><tr><td>Imp. making</td><td>4</td></tr><tr><td>Sustainability</td><td>1</td></tr></table></td></tr>
<tr><td>TOTAL</td><td>SOCIAL MODELS
<table><tr><td>Tran. Agent</td><td>3</td></tr><tr><td>Mobilisation</td><td>5</td></tr><tr><td>Imp. making</td><td>3</td></tr><tr><td>Sustainability</td><td>3</td></tr></table></td><td>NORMATIVE MODELS
<table><tr><td>Tran. Agent</td><td>0</td></tr><tr><td>Mobilisation</td><td>3</td></tr><tr><td>Imp. making</td><td>5</td></tr><tr><td>Sustainability</td><td>1</td></tr></table></td><td>KNOWLEDGE-ORIENTED MODELS
<table><tr><td>Tran. Agent</td><td>3</td></tr><tr><td>Mobilisation</td><td>4</td></tr><tr><td>Imp. making</td><td>6</td></tr><tr><td>Sustainability</td><td>0</td></tr></table></td><td>ALL MODELS
<table><tr><td>Tran. Agent</td><td>6</td></tr><tr><td>Mobilisation</td><td>12</td></tr><tr><td>Imp. making</td><td>14</td></tr><tr><td>Sustainability</td><td>4</td></tr></table></td></tr>
</table>

This distribution is evidently based on few qualitative data and cannot be at all meaningful in statistical terms. Moreover, the practices to be benchmarked have been selected according to qualitative criteria and each practice has been attributed to a governance setting component according to the criterion of prevalence (in some cases, the practice may involve more than one component), on the basis, also, of how the practice was presented by the promoters themselves, thus interpreting somehow their point of view.

However, this distribution allows us to highlight some possible general trends related to the different governance setting models.

3.1. Sustainability

We will start with the component of sustainability, which is the least represented among the benchmarked practices (four times).

In particular, this component is represented three times out of four in the case of Model A governance setting (internally-initiated social model). This can be partially explained by taking into consideration that the AEs belonging to this model mainly use the "action plan" approach, i.e., an integrated multi-year plan involving many (if not all) internal units of the institution, as well as internal and often external stakeholders. In this framework, sustainability – i.e., permanently institutionalising the solutions developed under the action plans – becomes a pivotal issue for preventing long-term failures.

The remaining case refers to Athena SWAN, falling within Model H (Network-based normative model). This case is interesting since the normative mechanism (the award) is conceived and organised in a way that encourages the institutions concerned to enhance their engagement continuously and to embed it permanently into institutional arrangements.

In the other cases, sustainability is less relevant. For example, in the case of externally-initiated normative models (typically the RRI-oriented research funding schemes), sustainability is not considered an issue, since it affects only indirectly the individual institutions concerned (e.g., those applying for research funds), and the norms, once formally established, are "sustainable" by their very nature, at least until they are changed by someone else.

However, other practices which have been connected to other components also play a function in making RRI sustainable over time, such as the local co-creation platforms developed under the Mistra Urban Futures (practice no. 30), or RRI integration in the productive process (practice no. 12), as found in the case of Symbiochem.

3.2. Transformational agent

The number of practices pertaining to the transformational agent are six and they only fall within three governance setting models, namely, Model A, Model C, and Model I.

The issue is evidently important in the case of Model A (internally-initiated social model) for the same reason detailed above: the AEs belonging to this group adopt an integrated approach to RRI (typically, a comprehensive action plan) and, therefore, they need to identify a specific group as the one responsible for activating the change.

In the cases of Model C (Internally-initiated knowledge-oriented model) and Model I (network-based knowledge-oriented model), the transformational agent is represented by a unit or other forms of institutional structure allowing experts on RRI-related issues to contribute to the production of scientific knowledge in a visible and recognised way.

In the case of normative models, the need to establish an "agent" supporting RRI appears to be less relevant, since they are not, in principle, concerned with changing the dominant social patterns, for which a "transformational agent" supporting the change is more important.

Other practices, labelled under other components, probably contribute to establishing a transformational agent. We can mention here, as examples, the business-oriented approach to RRI (practice no. 23), the last step of which is precisely the creation of a Responsible Innovation Taskforce inside the company supported by SoScience, and the three-level award system (practice no. 26) promoted by Athena SWAN, which also includes, among the requirements for attaining the award, the creation of a group in charge of managing a gender equality action plan.

3.3. Mobilisation

Mobilisation is a component which is present to a large extent in any kind of governance setting model and twelve times overall.

It is worth noting that the mobilisation component is also represented in the case of normative-oriented models. For example, RRI-oriented funding schemes usually combine a normative approach (expressed in, e.g., criteria applied for selecting applications, templates specifying how to include RRI in project proposals, RRI-oriented requirements, etc.) with initiatives aimed at "mobilising" the potential or actual applicants (for example, providing them with information on RRI, training services and tailored support services).

This makes us think that RRI cannot be transferred to research organisations simply on the basis of a set of norms and formal procedures, following a mere top-down approach, even when matching these norms is required to access opportunities such as getting extra-funds or getting an award. Rather, RRI implies, to a certain extent, that researchers and research managers are motivated enough to modify their business-as-usual practices, which is always problematic.

3.4. Impact-making

The impact-making component, recurring fourteen times, is also widespread in all governance setting models. This fact is not surprisingly at all, since this component includes all the practices concerning the capacity to actually alter existing institutional arrangements, activating a process of change.

However, the nature of the solutions adopted vary widely. For example, in some cases (practices 2, 6 and 27), the focus is on diagnosing the situation of the organisation concerned from the point of view of RRI or specific aspects of it.

In other cases (practices 12, 14, 15, 19, 23 and 34), the problem on the table is how to integrate RRI in the research and innovation process so as to avoid RRI becoming only a marginal component of it.

Finally, there are practices (17, 21, 22, 32 and 33) which appear to be more focused on how to make an RRI-oriented approach practically feasible, modifying or enriching current practices.

Annex 1

Overall Inventory of RRI-oriented experiences (INV1)

This annex contains the entire list of all RRI-oriented experiences collected during the literature analysis conducted also leveraging upon the literature review implemented under Task 1.1, using multiple information sources, including: EC-funded projects; National projects; Scientific literature; Gray literature; Websites.

This first inventory, called “Overall Inventory of RRI-oriented experiences”, contains 302 records, each one referring to a specific RRI-oriented experience. For each experience, only information allowing its identification has been included. Each record included the following information:

- A progressive number
- The title of the experience
- The promoter
- The reference to the information source used for identifying the experience.

The references are represented by a link to a website (last access: 12th April, 2018).

1 Framework for Responsible Innovation

Engineering and Physical Science Research Council - EPSRC

https://www.epsrc.ac.uk/research/framework/

2 Risk Register

Engineering and Physical Science Research Council - EPSRC

https://www.epsrc.ac.uk/about/

3 Stratospheric Particle Injection for Climate Engineering - SPICE

School of Earth Sciences, University of Bristol

http://www.spice.ac.uk/

4 Responsible Innovation Programme - MVI

Dutch Research Council - NWO

https://www.nwo.nl/en/research-and-results/programmes/responsible+innovation

5 Nanonext Programme

NanoNextNL Foundation

http://www.nanonextnl.nl/

6 Norwegian Technology Board

Norway Research Council - NRF

https://www.euroscientist.com/towards-responsible-research-innovation/

7 BIOTEK 2021

Norway Research Council - NRF

https://www.forskningsradet.no/prognett-biotek2021/Home_page/1253970728140

8	NGOs Consultation on OGM Potatoes
	BASF
	https://www.basf.com/it/it/products-and-industries/agriculture.html
9	REACH Directive
	European Chemicals Agency - ECHA
	https://echa.europa.eu/it/regulations/reach/understanding-reach
10	European Charters for Researchers and Codes of Conduct
	European Commission and European Parliament
	http://ec.europa.eu/research/science-society/document_library/pdf
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	https://sigarra.up.pt/up/en/web_base.gera_pagina?p_pagina=voluntariado
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	Kone Foundation
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	Centre for the Study of Sciences and Humanities, University of Bergen - UIB
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	https://www.ntnu.edu/physics/sorosol/summary
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	Norwegian University of Science and Technology - NTNU
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Annex 2

Specific Inventory of RRI-oriented advanced experiences (INV2)

This annex contains the Specific Inventory of RRI-oriented advanced experiences (INV2), including 43 records selected among the 302 listed in the Overall inventory (see Annex 1). These records refer to experiences which, on the basis of the analysis done, were considered as “advanced”, i.e., endowed with a capacity to generate and implement a governance setting.

Also this inventory contains few descriptive information about the AE, including:

- A progressive number (that is the same of the Overall Inventory)
- The title of the experience
- The promoter
- The country of the promoter
- The implementation period (from/to)
- The main information source used for identifying it
- The model of governance setting applied in the AE (see Chapter One).

A summary table of the nine governance setting models is given below.

SUMMARY TABLE OF THE NINE GOVERNANCE SETTING MODELS

Model A
Internally-initiated / Social model

23 RES AGORA; **33** PRINTEGER; **80** UNIAKTIV; **105** JERRI Action Plan at TNO; **129** ENRRICH; **135** GARCIA; **143** FESTA; **145** GENDERTIME; **185** STARBIOS2; **187** STAGES; **188**; Libra Action Plan at CeMM; **189** Trigger Action Plan at UPD; **237** RRI Programme at UAB

Model B
Intenally-initiated / Normative model

Model C
Internally-initiated / Knowledge model

12 Midstream Modulation at Delft; **19** SYNBIOCHEM; **141** Midstream Modulation at ASU; **283** CENSES

Model D
Esternally-initiated / Social model

25 RRI Tools Project; **121** CERRI; **134** FOSTER Plus

Model E
Externally-initiated / Normative model

1 Framework for Responsible Innovation; **4** Responsible Innovation Programme; **7** Biotek 2021; **42** HGP Project; **91** Challenge-Driven Innovation; **195** Human Resources Strategy for Researcher; **253** UGO Certification; **290** EuroPrise

Model F
Externally-initiated / Knowledge model

76 SOSCIENCE

Model G
Network-initiated / Social model

94 The Reward Alliance; **196** Nordic Sustainable Campus Network; **213** University Network Education by Responsibility; **260** KARIM

Model H
Network-initiated / Normative model

120 Athena SWAN Charter; **193** Italian University Network of Sustainable Development

Model I
Network-initiated / Knowledge model

47 CSYNBI; **51** Mistra Urban Futures; **53** Responsibility and Human Enhancement; **83** Knowledge for Climate; **124** Applied Nanoparticles; **214** Institute for Innovation Generation in the Life Sciences; **241** Human Brain Project; **279** OpenScience Project

1. *Framework for Responsible Innovation*

Promoter: Engineering and Physical Science Research Council - EPSRC

Time period from: 2006 **To**: on going

Country: United Kingdom

Sources: https://www.epsrc.ac.uk/research/framework/

Governance setting model:

Model A	Model B	Model C
Model D	Model E	Model F
Model G	Model H	Model I

4. *Responsible Innovation Programme*

Promoter: Dutch Research Council - NWO

Time period from: 2009 **To**: on going

Country: The Netherlands

Sources: https://www.nwo.nl/en/research-and-results/programmes/responsible+innovation

Governance setting model:

Model A	Model B	Model C
Model D	Model E	Model F
Model G	Model H	Model I

7. *BIOTEK 2021*

Promoter: Norway Research Council - NRF

Time period from: 2012 **To**: 2021

Country: Norway

Sources: https://www.forskningsradet.no/prognett-biotek2021/Home_page/1253970728140

Governance setting model:

Model A	Model B	Model C
Model D	**Model E**	Model F
Model G	Model H	Model I

12. *Midstream Modulation at Delft TU*

Promoter: Delft University of Technology - TU

Time period from: 2007 **To**: 2007

Country: The Netherlands

Sources: https://cspo.org/legacy/library/1301291041F35042430WO_lib_Schuurbiers.pdf

Governance setting model:

Model A	Model B	**Model C**
Model D	Model E	Model F
Model G	Model H	Model I

19. SYNBIOCHEM

Promoter: Manchester Institute of Biotechnology

Time period from: 2014 **To**: on going

Country: United Kingdom

Sources: http://synbiochem.co.uk/responsible-research-and-innovation/

Governance setting model:

Model A	Model B	**Model C**
Model D	Model E	Model F
Model G	Model H	Model I

23. RES AGORA

Promoter: Fraunhofer Institute for Systems and Innovation Research - ISI

Time period from: 2013 **To**: 2017

Country: Germany

Sources: http://res-agora.eu/news/

Governance setting model:

Model A	Model B	Model C
Model D	Model E	Model F
Model G	Model H	Model I

25. RRI Tools

Promoter: La Caixa Foundation

Time period from: 2014 **To**: 2017

Country: Spain

Sources: https://www.rri-tools.eu/

Governance setting model:

Model A	Model B	Model C
Model D	Model E	Model F
Model G	Model H	Model I

33. PRINTEGER

Promoter: Radboud University

Time period from: 2015 **To**: 2018

Country: The Netherlands

Sources: http://printeger.eu/

Governance setting model:

Model A	Model B	Model C
Model D	Model E	Model F
Model G	Model H	Model I

42. *The Human Genoma Project - HGP*

Promoter: National Human Genome Research Institute - NHGRI

Time period from: 1990 **To**: on going

Country: United States

Sources: https://www.genome.gov/10001772/all-about-the--human-genome-project-hgp/

Governance setting model:

Model A	Model B	Model C
Model D	**Model E**	Model F
Model G	Model H	Model I

47. *CSynBI*

Promoter: King's College, London

Time period from: 2009 **To**: on going

Country: United Kingdom

Sources: https://www.kcl.ac.uk/sspp/departments/sshm/research/Research-Labs/CSynBI@KCL.aspx

Governance setting model:

Model A	Model B	Model C
Model D	Model E	Model F
Model G	Model H	**Model I**

51. *Mistra Urban Futures*

Promoter: Chalmers University of Technology

Time period from: 2010 **To**: on going

Country: Sweden

Sources: https://www.mistraurbanfutures.org/en

Governance setting model:

Model A	Model B	Model C
Model D	Model E	Model F
Model G	Model H	Model I

53. *Responsibility and Human Enhancement*

Promoter: Jacques Maritain Institute

Time period from: 2016 **To**: on going

Country: Italy

Sources: https://www.responsibleenhancement.eu/

Governance setting model:

Model A	Model B	Model C
Model D	Model E	Model F
Model G	Model H	Model I

76. SoScience

Promoter: SoScience

Time period from: 2013 **To**: on going

Country: France

Sources: http://www.soscience.org/

Governance setting model:

Model A	Model B	Model C
Model D	**Model E**	Model F
Model G	Model H	Model I

80. UNIAKTIV

Promoter: Centre for Societal Learning and Civic Responsibility, University of Duisburg-Essen

Time period from: 2005 **To**: On going

Country: Germany

Sources: https://www.uniaktiv.org/

Governance setting model:

Model A	Model B	Model C
Model D	Model E	Model F
Model G	Model H	Model I

83. *Knowledge for Climate*

Promoter: Knowledge for Climate Foundation

Time period from: 2007 **To**: 2014

Country: The Netherlands

Sources: http://www.knowledgeforclimate.nl/

Governance setting model:

Model A	Model B	Model C
Model D	Model E	Model F
Model G	Model H	**Model I**

91. *Challenge-Driven Innovation - CDI*

Promoter: Vinnova

Time period from: 2009 **To**: On going

Country: Sweden

Sources: https://www.vinnova.se/en/publikationer/challenge-driven-innovation/

Governance setting model:

Model A	Model B	Model C
Model D	**Model E**	Model F
Model G	Model H	Model I

94. The Reward Alliance

Promoter: The Lancet

Time period from: 2014 **To**: on going

Country: United Kingdom

Sources: http://rewardalliance.net/

Governance setting model:

Model A	Model B	Model C
Model D	Model E	Model F
Model G	Model H	Model I

105. JERRI: Action Plan at TNO

Promoter: Netherlands Organization for Applied Scientific Research - TNO

Time period from: 2016 **To**: 2019

Country: The Netherlands

Sources: https://www.jerri-project.eu/jerri-wAssets/docs/deliverables/wp-3/JERRI_Deliverable_D3_2_Description-of-specified-RRI-goals-at-TNO.pdf

Governance setting model:

Model A	Model B	Model C
Model D	Model E	Model F
Model G	Model H	Model I

120. Athena SWAN Charter

Promoter: Equality Challenge Unit - ECU

Time period from: 2005 **To**: on going

Country: United Kingdom

Sources: https://www.ecu.ac.uk/equality-charters/athena-swan/

Governance setting model:

Model A	Model B	Model C
Model D	Model E	Model F
Model G	**Model H**	Model I

121. Fraunhofer Center for RRI - CeRRI

Promoter: Fraunhofer Society

Time period from: 2014 **To**: 2019

Country: Germany

Sources: www.cerri.iao.fraunhofer.de/en.html

Governance setting model:

Model A	Model B	Model C
Model D	Model E	Model F
Model G	Model H	Model I

124. Applied Nanoparticles

Promoter: Applied Nanoparticles SL - AppNP

Time period from: 2013 **To**: on going

Country: United Kingdom

Sources: https://www.appliednanoparticles.eu/

Governance setting model:

Model A	Model B	Model C
Model D	Model E	Model F
Model G	Model H	**Model I**

129. EnRRICH

Promoter: Free University of Brussels

Time period from: 2015 **To**: 2017

Country: Belgium

Sources: http://www.livingknowledge.org/projects/enrrich/

Governance setting model:

Model A	Model B	Model C
Model D	Model E	Model F
Model G	Model H	Model I

134. *FOSTER Plus*

Promoter: University of Minho

Time period from: 2014 **To**: 2017

Country: Portugal

Sources: https://www.fosteropenscience.eu/about#theproject

Governance setting model:

Model A	Model B	Model C
Model D	Model E	Model F
Model G	Model H	Model I

135. *GARCIA*

Promoter: University of Trento

Time period from: 2014 **To**: 2017

Country: Italy

Sources: http://garciaproject.eu/

Governance setting model:

Model A	Model B	Model C
Model D	Model E	Model F
Model G	Model H	Model I

141. *Midstream Modulation at ASU*

Promoter: Arizona State University - ASU

Time period from: 2006 **To**: 2010

Country: United States

Sources: https://cns.asu.edu/research/stir

Governance setting model:

Model A	Model B	Model C
Model D	Model E	Model F
Model G	Model H	Model I

143. *FESTA*

Promoter: Uppsala University

Time period from: 2012 **To**: 2016

Country: Sweden

Sources: http://www.festa-europa.eu/

Governance setting model:

Model A	Model B	Model C
Model D	Model E	Model F
Model G	Model H	Model I

145. GenderTime

Promoter: Egalité des Chances dans les Etudes e la Profession d'Ingenieur - ECEPIE

Time period from: 2012 **To**: 2016

Country: France

Sources: http://www.gendertime.org/

Governance setting model:

Model A	Model B	Model C
Model D	Model E	Model F
Model G	Model H	Model I

185. STARBIOS2

Promoter: Tor Vergata University of Rome

Time period from: 2016 **To**: 2020

Country: Italy

Sources: https://starbios2.eu/

Governance setting model:

Model A	Model B	Model C
Model D	Model E	Model F
Model G	Model H	Model I

187. STAGES

Promoter: Department for Equal Opportunities, Italian Presidency of the Council of Ministers

Time period from: 2012 **To**: 2016

Country: Italy

Sources: http://www.projectstages.it/index.php/it/

Governance setting model:

Model A	Model B	Model C
Model D	Model E	Model F
Model G	Model H	Model I

188. LIBRA Action Plan at CeMM

Promoter: Research Center for Molecular Medicine - CeMM

Time period from: 2015 **To**: 2019

Country: Austria

Sources: http://cemm.at/career/libra/

Governance setting model:

Model A	Model B	Model C
Model D	Model E	Model F
Model G	Model H	Model I

189. *TRIGGER Action Plan at the UPD*

Promoter: Université Paris Didérot - UPD (Paris7)

Time period from: 2014 **To**: 2017

Country: France

Sources: https://universite.univ-paris-diderot.fr/une-universite-engagee/egalite-femmes-hommes/trigger-un-projet-europeen

Governance setting model:

Model A	Model B	Model C
Model D	Model E	Model F
Model G	Model H	Model I

193. *Italian University Network for Sustainable Development - RUS*

Promoter: Cà Foscari University of Venice

Time period from: 2015 **To**: on going

Country: Italy

Sources: https://www.crui.it/rus-rete-delle-universita-per-la-sostenibilita.html

Governance setting model:

Model A	Model B	Model C
Model D	Model E	Model F
Model G	**Model H**	Model I

195. Human Resources Strategy for Researchers - HRS4R

Promoter: University La Sapienza of Rome

Time period from: 2016 **To**: on going

Country: Italy

Sources: https://www.uniroma1.it/it/pagina/human-resources-strategy-researchers-hrs4r

Governance setting model:

Model A	Model B	Model C
Model D	**Model E**	Model F
Model G	Model H	Model I

196. Nordic Sustainable Campus Network - NSCN

Promoter: Aalto University

Time period from: 2011 **To**: on going

Country: Finland

Sources: https://nordicsustainablecampusnetwork.wordpress.com/

Governance setting model:

Model A	Model B	Model C
Model D	Model E	Model F
Model G	Model H	Model I

213. University Network Education by Responsibility

Promoter: University of Kassel

Time period from: 2015 **To**: on going

Country: Germany

Sources: http://www.bildung-durch-verantwortung.de

Governance setting model:

Model A	Model B	Model C
Model D	Model E	Model F
Model G	Model H	Model I

214. Institute for Innovation Generation in the Life Sciences

Promoter: Centre for Social and Economic Research on Innovation in Genomics

Time period from: 2012 **To**: on going

Country: United Kingdom

Sources: https://www.innogen.ac.uk/

Governance setting model:

Model A	Model B	Model C
Model D	Model E	Model F
Model G	Model H	**Model I**

237. RRI Programme at UAB

Promoter: Universitat Autonoma de Barcelona - UAB

Time period from: 2012 **To**: on going

Country: Spain

Sources: http://www.uab.cat/web/research/itineraries/uab-research/euraxess-uab/responsible-research-and-innovation-1345717923318.htmlUniversitat Autonoma de Barcelona - UAB

Governance setting model:

Model A	Model B	Model C
Model D	Model E	Model F
Model G	Model H	Model I

241. Ethics and Society, Human Brain Project - HBP

Promoter: Ecole Polytechnique Federale de Lausanne

Time period from: 2013 **To**: 2023

Country: Switzerland

Sources: https://www.humanbrainproject.eu/en/open-ethical-engaged/ethics/

Governance setting model:

Model A	Model B	Model C
Model D	Model E	Model F
Model G	Model H	**Model I**

253. UGO Certification - Responsible Innovation

Promoter: Centre for Innovation and Economic Development - CISE

Time period from: 2011 **To**: on going

Country: Italy

Sources: http://www.ugocertification.org/index.htm?lang=ENG

Governance setting model:

Model A	Model B	Model C
Model D	**Model E**	Model F
Model G	Model H	Model I

260. KARIM

Promoter: University College Dublin

Time period from: 2011 **To**: 2015

Country: Ireland

Sources: http://www.ucd.ie/karim/

Governance setting model:

Model A	Model B	Model C
Model D	Model E	Model F
Model G	Model H	Model I

279. OpenScience Project

Promoter: University of Notre Dame

Time period from: n.a. **To**: on going

Country: United States

Sources: http://openscience.org/about-openscience/

Governance setting model:

Model A	Model B	Model C
Model D	Model E	Model F
Model G	Model H	Model I

283. CenSES

Promoter: Center for Sustainable Energy Studies - CenSES

Time period from: 2011 **To**: on going

Country: Norway

Sources: https://www.ntnu.edu/censes

Governance setting model:

Model A	Model B	Model C
Model D	Model E	Model F
Model G	Model H	Model I

290. EuroPriSe

Promoter: Austrian Academy of Sciences, Institute of Technology Assessment

Time period from: 2008 **To**: on going

Country: Austria

Sources: https://www.european-privacy-seal.eu/EPS-en/Home

Governance setting model:

Model A	Model B	Model C
Model D	**Model E**	Model F
Model G	Model H	Model I