

D4.2 Toolbox on implementing RRI on organizational and system levels

RRI Solution Cards - Challenges and solutions for implementing institutional change in RPOs and RFOs

Version 3.0

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Version Log

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2.0	15/02/2023	Co-Change Labs	Co-Change Lab inserted the examples in the solution cards
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Table of Contents

	Slide
Why are these solution cards necessary?	2
What are these solution cards based on?	3
Who is this solution card toolbox for?	4
How to use the solution cards?	4
Five challenge categories in RRI institutionalisation	5
Category 1. Challenges in the field characteristics of RRI institutionalisation	6-10
Tools to help overcome challenges in the field characteristics of RRI institutionalisation	11
Category 2. Actor's social position in embedding RRI	12-15
Tools to help strengthen an RRI agent's social position in embedding RRI	16
Category 3. Creating a vision for divergent change	17-20
Tools to help create a vision for divergent change	21
Category 4. Mobilising allies behind the vision	22-27
Tools to help mobilising allies behind the vision	28
Category 5. Embedding and anchoring institutional change	29-33
Tools to help embed and anchor institutional change	34
Additional tools to help in RRI institutionalisation	35

RRI SOLUTION CARDS

CHALLENGES AND SOLUTIONS FOR IMPLEMENTING
INSTITUTIONAL CHANGE IN RESEARCH PERFORMING
AND FUNDING ORGANISATIONS

24.02.2023



Why are these solution cards necessary?

- ❖ Responsible Research and Innovation (RRI) practitioners acknowledge that it is relatively easy to conduct RRI –related initiatives but difficult to embed RRI practices and principles in an institutional structure and culture. Creating change in institutions is not easy, in fact, statistics show that only 30% of transformational organisational change initiatives are successful¹. Like any change, introducing RRI to an institution or an organisation demands a new way of doing things and requires a transformation in organisational culture.
- ❖ The RRI solution cards are designed to help practitioners apply RRI principles in particular contexts, whether an organisation or a wider institutional system, by using tools that have been found effective by other practitioners in the Co-Change project, namely the Co-Change Labs.

1: https://hr.berkeley.edu/sites/default/files/change_management_toolkit.pdf

What are these solution cards based on?

- ❖ A Co-Change Lab comprises of actors who wish to introduce and embed RRI into an organisation or institution. Throughout the Co-change project, the Labs have experimented with different means and approaches and gained valuable experience on the implementation of RRI. These experiences were reported in the project deliverables and collected in online workshops organised in Forum IV and General Assembly in 2022. The RRI solution cards are based on these practical experiences.
- ❖ Each solution card presents a challenge to RRI implementation. The cards list typical challenges to RRI institutionalisation, and their respective solutions and tools found effective by Co-Change Labs.
- ❖ The toolbox is based on an institutional entrepreneurship framework which aims to identify how certain activities or actors can leverage organisational change that diverges from existing institutional practices. Accordingly, institutional change is made possible through arrangements that enable actors to mobilise around and enact visions for organisational change².
- ❖ The toolbox combines viewpoints from Change Management, Governance of Artificial Intelligence and Transition management approaches.
- ❖ The cards thus reflect solutions to common problems in the implementation of principles-based (e.g., ethical or responsibility principles) approaches to organisational change experienced in a variety of projects.



2: Battilana, J., Leca, B., & Boxenbaum, E. (2009). How actors change institutions: Towards a theory of institutional entrepreneurship. *Academy of Management Annals*, 3(1), 65–107.

Who is this solution card toolbox for?

- ❖ Solutions focus on the research context, given that Research Performing (RPO) and Research Funding Organisations (RFO) are the focus of the Co-Change project. However, many challenges and suggested solutions are universal and therefore applicable to all RRI practitioners.

How to use the solution cards?

- ❖ A RRI practitioner can navigate the solution cards according to the specific challenge at hand in order to get ideas on relevant solutions.
- ❖ Each solution card introduces a set of tools for the use of RRI practitioners. Examples of tools have been divided into four categories which are not exclusive:
 - 1) Participatory tools aim to facilitate interaction and engagement;**
 - 2) Exploratory tools aim to improve creativity;**
 - 3) Advisory tools help to advance expertise, and**
 - 4) Explanatory tools build evidence of the benefits and impacts of RRI implementation.**

Five challenge categories in RRI institutionalisation

- ❖ Category 1. Challenges in the field characteristics
- ❖ Category 2. Challenges in the RRI agent's position
- ❖ Category 3. Challenges in creating a vision for divergent change
- ❖ Category 4. Challenges in mobilising allies behind the vision
- ❖ Category 5. Challenges in embedding and anchoring institutional change

Category 1. Challenges in the field characteristics of RRI institutionalisation

Note: Images of this slide set are created with the the DALL-E 2 AI art generator.
Available: <https://openai.com/dall-e-2/>



- › *CHALLENGES (a theory): The characteristics of intra-organisational as well as external institutional logics and practices affect the possibility to embed RRI. Whereas established organisational practices are likely to challenge any change, the possibility to promote RRI-driven divergent change depends on the level of disruption to established organisational practices, such as regulatory change, technological disruption, scarcity of resources, or competing institutional logics. It is important for actors wishing to attain RRI-based change to understand the organisational and broader ecosystem aspects that might accelerate or hinder the change. These include organisational structures, finance, size, maturity, and the level of external pressures.*
- › **CHALLENGES (a practice):**
 - ❖ **Finding the right time for change.**
 - ❖ **Organisational governance hampers change.**
 - ❖ **Other organisational goals run over RRI and leave no resources and/or incentives for RRI.**
 - ❖ **The ecosystem actors are not engaged in the RRI-driven change.**

Challenge: Finding the right time for change.

How to recognise a window of opportunity? Timing can simply be wrong to initiate RRI-driven change. For example, a foreseen national or international regulation can influence the change context.

Solution: Take advantage of the small or large opportunity. Even small steps and experiments are sufficient, if you cannot conjure the resources to initiate a larger change process. Be proactive by evaluating drivers and barriers in your operational environment.

Example: Building of Sustainability Programme as part of VTT's Co-Change Lab, benefitted of wider industry and society level sustainability and responsibility discussion, which acted as a driver for the Programme. Attaching RRI institutionalisation to the ongoing discussion is important as it helps to implement RRI.

Challenge: Finding the right time for change.

Tools to try out:

Creativity tools



- › Evaluation of operational environment with PESTE (Political, Economic, Social, Technological, Environmental factors) analysis. Suggested to be organised as multistakeholder workshop.

Challenge: Organisational governance hampers change.

The siloed, fragmented, and hierarchical nature of organisations prevent the forming of collective actions for change. Particularly universities with different faculties and disciplines have difficulties to promote unified RRI change.

Solution: Study your change context, and design different strategies and processes for different 'audiences'. Do not fall into '*one-size-fits-all*' trap. For example, in an academic context it might be useful to approach the change process by tailoring different messages for the audiences of applied sciences and basic sciences. Nevertheless, it is important to build a shared understanding of RRI institutionalisation in your change context.

Example: In NEN, we supported changes that are relevant for all sectors. This may relate to the way stakeholders are included, or the format in which standards are developed. We also aimed at many 'small wins' to create cumulative effect.

Challenge: Organisational governance hampers change.

Tools to try out:

Interaction tools



- › A series of participatory workshops. Start with a round of smaller interactive workshops with participants who share the same knowledge or background and continue with multidisciplinary workshops once people have built an understanding among their own peers.

Challenge: Other organisational goals take priority over RRI and leave no resources and/or incentives for RRI.

Large organisations often focus on economic results and have a technical focus. Lack of time, resources (human and financial) and interest restrain emphasis on ethics and RRI. Incentives connected to RRI either miss the logic of incentives completely, or the logic is unclear.

Solution: Involve middle and top management into RRI institutionalisation process early on as their acceptance and trust is a key success factor. However, be patient and expect a slow change process – ‘miracles will not happen over night’. Building visibility for an RRI-driven change process with concrete impacts and benefits will bring new advocates and help argumentation for incentives.

Example: In Tecnia, we involved the management from the beginning and together with other agents we paved the way for the launch of a new brand (Tecnia Creating Growth: Improving Society) and New Organisational Strategic Plan. The Strategic Plan incorporates Tecnia’s social impact into its economic impact and shifts the focus from inside to outside of the organisation.

Challenge:
Other organisational goals take priority over RRI and leave no resources and/or incentives for RRI.

Tools to try out:

Evidence-building tools



- › Develop and disseminate RRI-related guidelines, rulebooks and Codes of Conducts, and strengthen academic curriculums with RRI topics.

Challenge: The ecosystem actors are not engaged in RRI-driven change.

Ecosystem's support is missing. Customers who commission the research lack interest in RRI as they often don't see the added value of it. Who has the responsibility to implement RRI in research projects? Scientists are perceived as being too distant from societal challenges, and 'real' problems.

Challenge:
The ecosystem actors are not engaged in the RRI-driven change.

Solution: Motivate ecosystem stakeholders to join the RRI movement. Build your arguments to drivers, barriers, and trends in the operational environment. Reach out to the local research community throughout the project with the help of structured interviews and informal chats.

Tools to try out:

Creativity tools



- › Organise Science Cafes with stakeholders (incl. citizens). Try also reverse Science cafes, and internal science cafes in your organisation.

Example: To tackle this challenge you might need a bigger consortium of actors that can support a "mental change" within the ecosystem. Council of Tampere Region together with VTT launched a Regional RRI Roundtable to collect RRI practitioners to join forces, share experiences, and disseminate the diverse knowledge of RRI to the ecosystem.

Tools to help overcome challenges in the field characteristics of RRI institutionalisation



- › Evaluation of operational environment with PESTE analysis. Suggested to be organised as multistakeholder workshop.
- › A series of participatory workshops. Start with a round of smaller interactive workshops with participants who share the same knowledge or background and continue with multidisciplinary workshops once people have built an understanding among their own peers.
- › Develop and disseminate RRI-related guidelines, rulebooks and Codes of Conducts, and strengthen academic curriculums with RRI topics.
- › Organise Science Cafes with stakeholders (incl. citizens). Try also reverse Science cafes, and internal science cafes in your organisation.

Category 2. Actor's social position in embedding RRI



- › *CHALLENGES (a theory): An agent's social position in the organisation, its hierarchy and in various informal networks, influence the agent's capacity to embed RRI. High social and hierarchical position, as well as strong informal networks support opportunities to successfully promote RRI in an organisation, and vice versa. Similarly, an actor's embeddedness in surrounding ecosystem might also increase possibilities to foster change.*

- › **CHALLENGES (a practice):**
 - ❖ **RRI change agents have low social capital and influence on employees and management.**
 - ❖ **Change agents lack legitimacy in institutional hierarchy.**
 - ❖ **Difficulties in attracting people outside the core group of change agents**

Challenge: RRI change agents have low social capital and influence on employees and management.

The RRI change agents can come from within or from another organisation. The ability to foster change in the organisation depends on the amount of influence the actor has on changing organisational practices and employee conduct. Influence depends on the extent to which the organisational hierarchy and human networks enable RRI actors to drive change.

Solution: Persistent communication and networks

Building social capital and influence can be done by expanding networks through engagement and interaction, both within the organisation and with the broader ecosystem actors. An RRI actor should clearly articulate RRI objectives and goals in terms that are meaningful in the local context. In order to both spread the RRI discourse, and to find local solutions and ways to operationalize RRI, the actor should build lasting forms of inter-stakeholder interaction and enable mutual dialogue between the organisation's employees, management and key stakeholders.

Example: PFNS organised workshops at different events such as fairs to spread the idea of change to as many people as possible. They organised dialogues, discussions, and workshops within the organisation in order to reach students and teaching staff.

Challenge: RRI change agents have low social capital and influence.

Tools to try out:

Interaction tools



- › Organise, communicate and train to gain influence and promote RRI discourse
- › Recurring ethics workshops and training, and sustainability and responsibility dialogue among research teams
- › Regular exploratory meetings within the organisation
- › Build links to other stakeholders in the ecosystem for example by organising or partaking in RRI roundtable networks or external and internal advisory groups both to receive advice and build social capital within the ecosystem

Evidence-building tools



- › Knowledge collection to understand conditions for change
 - › Interviews to understand barriers and facilitators to RRI change
 - › Survey to understand the employees' ideas about RRI

Challenge: Change agents lack legitimacy in institutional hierarchy.

The ability to initiate change depends on the level of influence and power within an organisation. An RRI agent is not expected to enjoy a position on the upper levels of management, but rather start from the lower levels of hierarchy. Legitimacy is earned by credible conduct and work which takes time. Low legitimacy and position means low influence on management.

Solution: Articulate benefits and push strategic alignment

There are three main ways an RRI agent can approach this issue. The *first* one is to build social capital in the ecosystem and enable internal dialogue to create bottom-up change, as described in the previous card. The *second* one is to charismatically and clearly articulate a plausible vision (see categories 3 and 4) that both highlights RRI as the best solution in terms of alternatives and aligns the organisational strategy with an RRI roadmap. The *third* is to find clear financial reasons for promoting RRI, either in terms of finding external funding for promoting RRI change or pinpointing potential gains.

Example: In the case of NEN, we reached out to specific individuals in the organisation who already enjoy legitimate positions through their experience, expertise, or job position. With their support, we tried to create more momentum.

Challenge: Change agents lack legitimacy in institutional hierarchy

Tools to try out:

Interaction tools



- › Gradually build bottom-up change through workshops, trainings, meetings and dialogue
- › Strategic alignment: Co-create a tailored RRI roadmap with the organisational strategic plan in cooperation with management

Evidence-building tools



- › Show the benefits: Clearly articulate and communicate the potential gains of RRI change in contrast to alternative modes of operation

Challenge: Difficulties in attracting people outside the core group of change agents

Engaging a broad array of people from various disciplines and positions into mutual dialogue is important for igniting a cultural change within the organisation. Attracting people from outside the core group of change agents can be a challenge, since many employees are rooted in everyday routines.

Solution: Engagement practices

Engagement can be built both internally in an organisation and with external stakeholders through workshops, trainings, meetings and dialogue. Also, citizen panels, science cafes, blogs and social media can provoke debate and discussion.

Example: Engaging with citizens (users and professionals) was needed in VTT's Change Lab to create an AI ethics' dialogue. It was realized that ethics can be a distant and non-attractive term especially for citizens but also professionals, therefore the ethics was dropped from the invitations and event was marketed as discussion of values which was more approachable topic. Once the terminology was adjusted, recruitment of users became easier.

Challenge: Difficulties in attracting people outside the core group of change agents

Tools to try out:

Interaction tools



- › Organise, communicate & train:
 - › recurring ethics workshops and training programs, and interdisciplinary sustainability and responsibility dialogue among research teams
 - › regular exploratory meetings within the organisation
- › Citizen engagement:
 - › Citizen engagement workshops
 - › Science café
 - › Communications: Blogs, social media

Tools to help strengthen an RRI agent's social position in embedding RRI



- › Gradually build bottom-up change through workshops, trainings, meetings and dialogue
- › Knowledge collection to understand conditions for change
 - › Interviews to understand barriers and facilitators to RRI change
 - › Survey to understand the employees' ideas about RRI
- › Show the benefits: Clearly articulate and communicate the potential gains of RRI change in contrast to alternative modes of operation
- › Strategic alignment: Co-create a tailored RRI roadmap with the organisational strategic plan in cooperation with management
- › Find funding for RRI -informed change, either within the organisation or externally. For example, this can be responsible innovation funding.
- › Ecosystem networking
 - › Build links to other stakeholders in the ecosystem for example by organising or partaking in RRI roundtable networks or external and internal advisory groups both to receive advice and build social capital within the ecosystem
 - › Citizen engagement:
 - › Citizen engagement workshops
 - › Science café
 - › Communications: Blogs, social media



Challenge: RRI remains too abstract to be operationalised.

The RRI terminology is very abstract and broad, making it difficult to "find a common language". Creating a common vision for RRI institutionalisation is hard if participants do not share an understanding of RRI. It is easy to talk 'RRI' without engaging into practical and concrete actions. The challenge is that RRI institutionalisation lacks 'walk the talk' examples.

Solution: *"The best way to talk about RRI is not to talk about RRI."* Instead of using abstract abbreviations, try finding more common terminology of sustainability and responsibility and blend it with the local discourse. Sustainability covers social, environmental and economic aspects while responsibility can be addressed from ethics or gender equality perspectives, for example. While you praise RRI-driven change, make sure practical actions follow.

Example: To communicate the importance of responsibility in innovation funding, Council of Tampere Region has been advising project applicants to think about the possible impacts of their projects. What risks can be seen in AI related projects? And how diversity of people engaged in the project can help to manage the risks? Practical examples work best.

Challenge:
RRI remains too abstract
to be operationalised.

Tools to try out:

Evidence-
building tools



- › Blogs or other writings that address versatility of RRI, with topics covering ethics, gender equality, and open science, to name a few.
- › Organise trainings about the different topics under the RRI umbrella.

Challenge: The vision is unattainable because the perceived added value and understandings of RRI differ among stakeholders.

Employees' values may differ, and pinpointing value gain is unclear or misunderstood. There are potential conflicts between values for organisational success and their societal impact: for instance, research organisation's goals (academic KPIs) might be conflict with attempts to foster social sustainability. In the case that RRI remains ambiguous and key actors remain unfamiliar with the benefits of RRI, there is a danger of RRI whitewashing.

Solution: Make an effort to explain and translate the importance and benefits of RRI and desired change throughout the organisation. Be open-minded; listen and learn about the different stakeholders', values and wishes, and do not assume how they think. Avoid using complex terminology, since some researchers might not be comfortable talking about ethics for example.

Example: In the case of NEN, we identified various motives for RRI in the context of standardization and tried to understand the perceived importance of these. We found that employees believe that RRI may enhance the credibility of the organisation, could enhance the quality of standards, and benefit the adoption of standards. By motivating the RRI-related visions with these arguments, we tried to reap more support.

Challenge:
Vision is unattainable because the perceived added value and understanding of RRI differ among stakeholders.

Tools to try out:

Interaction tools



- › Events and discussions to engage people to share their beliefs and values about a specific RRI dimension, for example.
- › Internal webinars to showcase results and benefits responsible research.

Challenge: Social aspects of technology lack recognition.

Social sciences and ethics are not considered as important as technical sciences in research organisations. This complicates the process of building a case for RRI implementation. Literacy on social aspects of technology is underdeveloped. How to make social aspects of technology a part of critical public discussion?

Solution: Address socio-technical change from a multidisciplinary perspective. Increase the literacy on ethical and societal impacts in the organisation by strengthening of cross-disciplinary dialogue and learning.

Example: At the AIT Austrian Institute of Technology a Lab was created as an informal meeting space, where technical experts convened with social scientists to reflect on ethical issues, such as bias, privacy and fairness. An important ingredient for the lab success was the existence of a technician interested in this communication who could therefore act as a “translator” between disciplines. As the literacy of both social and technical scientists increased over the months, it was possible to show possible gains of further cooperation and engage into common activities such as workshops.

Challenge: Social aspects of technology lack recognition

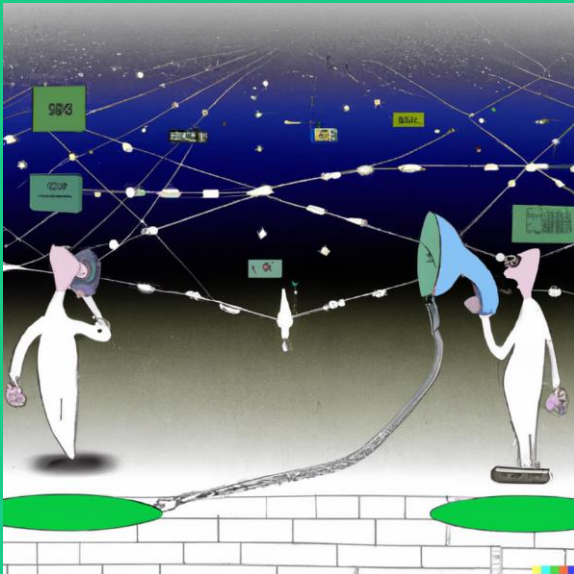
Tools to try out:

Advisory tools



- › Organise RRI and ethics training that reflect needs and understanding of socio-technical change in different fields of science.
- › Put emphasis on cross-disciplinary dissemination and communication

Tools to help create a vision for divergent change



- › Co-create a vision: Clearly articulate a vision for RRI change that is based on mutual discussions and research on the organisational characteristics and align it with the organisational strategy.
- › Blogs or other writings that address versatility of RRI, with topics covering ethics, gender equality, and open science, to name a few.
- › Organise trainings about the different topics under the RRI umbrella.
- › Events and discussions to engage people to share their beliefs and values about a specific RRI dimension, for example.
- › Internal webinars to showcase results and benefits responsible research.

Category 4. Mobilising allies behind the vision



- › *CHALLENGES (a theory): RRI implementation requires a convincing vision (see category 3) that drives change by mobilising actors to its cause. An RRI agent can promote mobilisation through skilled communication and by building trust, networks and alliances for the cause. The social position, formal authority and social capital are key characteristics to the success of the change agent in mobilising allies (see category 2). An RRI agent might also aim to build external pressure for change by mobilising allies from adjacent organisations and institutions. Lastly, reducing the costs of the initial phases of the change can reduce opposition.*

- › **CHALLENGES (a practice):**
 - ❖ **Unbalance between top-down (strategy process) and bottom-up (individual enthusiasm) activities.**
 - ❖ **Ambiguous use of RRI causes divergent priorities for RRI in the ecosystem, which might make RRI harder to communicate and operationalise.**
 - ❖ **Lack of organisational resources, incentives and recognition to motivate embedding RRI.**
 - ❖ **RRI is not embedded in all processes, and it is operationalised shallowly.**
 - ❖ **It is difficult to align individual RRI expectations and form collective awareness.**

Challenge

Challenge: Unbalance between top-down (strategy process) and bottom-up (individual enthusiasm) activities.

RRI agents start out with trying to convince people of doing something new. Often this means that there are no existing governance structures in place to support such change. With time bottom-up change can end up convincing the management, but change is often slow. In any case, the strategy must be legitimized and embedded in everyday practices.

Solution

Solution: For change to happen, bottom-up RRI initiatives must be accepted and promoted by the top management, and vice versa; RRI initiatives and principles must be put into practice on the grassroots level. Thus, an RRI agent should strive to promote management acceptance of bottom-up initiatives (category 3), build an RRI aligned strategy, and co-create means to operationalize RRI.

Example

Example: In 2022 Tecnia launched an Impact Award Program to give voice to its employees and recognize and celebrate their inspirational ideas. The awards are open to employees and are selected through voting. There are three categories: Economic Impact, Social Impact and Environmental Impact.

Challenge: Unbalance between top-down and bottom-up activities.

Tools to try out:

Interaction tools



- › Assessing the regulatory and organisational landscape: what must be considered for change to happen?
 - › Interview to understand moral barriers, facilitators, and barriers
 - › Survey to understand the employees' ideas about RRI
- › Co-creation and stakeholder participation:
 - › RRI/Ethics training and co-creation of ways to implement principles

Evidence-building tools



- › Monitoring and assessing change, and implementing a bonus/sanction regimen

Challenge: Ambiguous use of RRI causes divergent priorities for RRI in the ecosystem, which might make RRI harder to communicate and operationalise.

It is easy to “talk RRI” without creating actual means for change. RRI and ethical principles are lofty until they are embedded in localized practices. If RRI terminology remains undefined in terms of their concrete meaning in a specific organisation, ways of working and governance practices, no real change beyond rhetoric will occur. At worst, this causes RRI whitewashing where an organisation successfully adopts RRI terminology, without actually aligning practices with RRI outcomes.

Solution:

Network and communicate among RRI agents to co-create and build mutual narratives and rhetoric to popularize RRI into the everyday discourse in target organisations. Co-create hands on tools and heuristics, KPI's, assessment and monitoring tools to both translate abstract RRI terminology into meaningful practices and maintain and develop the localised meanings of RRI.

Example: WWTF learned that a clear definition of RRI at the beginning of the project is vital. To sharpen the outreach of activities, also defining goals and non-goals deserve attention. Furthermore, we should not forget regular discussions among relevant internal and external stakeholder groups to foster feedback-loops.

Challenge:
Ambiguous use of RRI causes divergent priorities for RRI in the ecosystem, which might make RRI harder to communicate and operationalise.

Tools to try out:

Interaction tools



› Networking:

- › Organise or partake in RRI roundtable networks to gain mutual understanding, and co-create means and narratives around RRI implementation
- › Scientific communication: Partake in conferences and publish papers

Challenge: Lack of organisational resources, incentives and recognition to motivate the embedding of RRI.

There is no change without resources and incentives to back it up. When initiating change this can however be the status quo. Initiating RRI change must gain recognition that motivate an organisation to invest in change and monitor its outcomes.

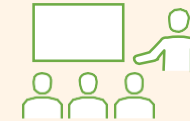
Solution: Aim to change the field determinants (Category 1) by influencing policy-makers and funding organisations. Articulate a clear vision (Category 3) and show the gains of embedding RRI. Clearly articulate the benefits and gains of RRI to the organisation and aim to co-create and integrate RRI into the organisational strategy that is backed up by incentives-structures.

Example: At the AIT Austrian Institute of Technology, the AIT AI Ethics Lab works as a bottom-up endeavour. As a regular short and informal online meeting, it features a low threshold. The thorough reflection on ethical and social aspects has led technical experts convinced that this engagement can also benefit colleagues. In addition, technical experts have referred to the AIT AI Ethics Lab to demonstrate to third parties that ethics does play a part in their technical work. Since then, allies have been found to create a growing change coalition and RRI elements have been anchored in strategic documents. Working through the organisational ecosystem and external RRI networks, RRI elements also have found their way into government documents.

Challenge: Lack of organisational resources, incentives and recognition to motivate the embedding of RRI.

Tools to try out:

Advisory tools



- › Strategic alignment: Co-create a tailored RRI roadmap with the organisational strategic plan in cooperation with management

Evidence-building tools



- › Show the benefits: Clearly articulate and communicate the potential gains of RRI change in contrast to alternative modes of operation

Challenge: RRI is not embedded in all processes, and its operationalisation is shallow.

Implementing RRI is a multi-phased process and requires RRI to be considered on multiple levels of an organisation. The challenge is both to spread RRI horizontally into different parts of an organisation, but also vertically by making it more qualitative and increasing the actual RRI capabilities and implementation.

Solution: Long-term collaboration work to build awareness and capabilities and RRI culture around a visionary narrative (Card 3). Iteratively co-creating ways to both operationalize and adjust means of implementing RRI. This includes guidelines for implementation, including monitoring, assessment capabilities tied to organisation strategy.

Example: To strengthen ethics and responsibility as a core of VTT's research processes, VTT launched in 2022 a mandatory training of ethics, safety and responsible innovation for research teams. In addition to research ethics, an integral part of the training is improving the diversity, equity and inclusiveness (DEI) that is one of the focus areas of VTT in 2023.

Challenge:
RRI is not embedded in all processes, and its operationalisation is shallow.

Tools to try out:

Interaction tools



- › Organise, communicate & train:
 - › recurring ethics workshops and training programs, and interdisciplinary sustainability and responsibility dialogue among research teams
 - › regular exploratory meetings within the organisation
- › Assessing the regulatory and organisational landscape: what must be considered for change to happen?
- › Co-creation and stakeholder participation
- › Monitoring and assessing change, and implementing a bonus/sanction regimen

Challenge: It is difficult to align individual RRI expectations and form collective awareness.

The RRI concept easily remains abstract and ambiguous to individuals not familiar with the concept. In a target organisation the viewpoints and expectations might differ considerably, and the collective narrative and awareness of RRI ambiguous.

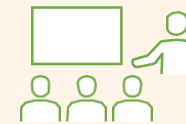
Solution: Aligning RRI expectations and forming collective awareness requires recurring communication, co-creation and engagement and trust to both articulate a vision and mobilise actors around it.

Example: At PFNS we included different staff and non-staff members in creation of gender equality plan, such as syndicate, administrative staff and students' parliament.

Challenge: It is difficult to align individual RRI expectations and form collective awareness.

Tools to try out:

Advisory tools



- › Articulate co-created vision: Clearly articulate a vision for RRI change that is based on mutual discussions and research on the organisational characteristics and align it with organisational strategy

Interaction



- › Organise, communicate & train:
 - › recurring ethics workshops and training programs, and interdisciplinary sustainability and responsibility dialogue among research teams
 - › regular exploratory meetings within the organisation
 - › build trust through established networks

Tools to help mobilising allies behind the vision



- › Assessing the regulatory and organisational landscape: what must be considered for change to happen?
 - › Interview to understand moral barriers and facilitators;
 - › Survey to understand the employees' ideas about RRI
- › Co-creation and stakeholder participation: RRI and ethics training and co-creation of ways to implement principles, and monitoring and assessing change, and implementing a bonus/sanction regimen.
- › Networking: Organise or partake in RRI roundtable networks to gain mutual understanding, and co-create means and narratives around RRI implementation
- › Scientific communication: Partake in conferences and publish papers
- › Show the benefits: Clearly articulate and communicate the potential gains of RRI change in contrast to alternative modes of operation
- › Strategic alignment: Co-create a tailored RRI roadmap with the organisational strategic plan in cooperation with management
- › Find funding for RRI change, either within the organisation or externally (e.g. responsible innovation funding).
- › Organise, communicate & train:
 - › recurring ethics workshops and training programs, and interdisciplinary sustainability and responsibility dialogue among research teams
 - › regular exploratory meetings within the organisation
 - › Build trust through established networks
- › Articulate co-created vision: Clearly articulate a vision for RRI change that is based on mutual discussions and research on the organisational characteristics and align it with organisational strategy.

Category 5. Embedding and anchoring institutional change



- › *CHALLENGES (a theory): Anchoring institutional change is contingent on the success of the previous four steps: the ability to understand and assess the local institutional and organisational environment in terms of possibilities to forward RRI, on which an RRI practitioner creates a convincing vision and narrative capable of mobilising allies to diverge from established practices. According to the societal embedding of innovations framework³, maintaining the change and further embedding it into an organisation depends on the extent to which stakeholders' viewpoints of the direct and indirect impacts of RRI implementation are accounted for in the implementation and ongoing employment of RRI. In order to maintain its importance, RRI should be valuable to its users and society. RRI practitioners should be able to identify key stakeholders and carefully consider their viewpoints, needs, interests and expectations. This requires ongoing and recurrent efforts of iteratively addressing the other four challenges presented in previous cards.*
- › **CHALLENGES (a practice):**
 - ❖ **RRI institutionalisation remains an isolated process in the organisation or system.**
 - ❖ **Lack of collectivism and ownership of change.**
 - ❖ **RRI incentives do not instigate positive feed-back loops in the (innovation) ecosystem.**
 - ❖ **RRI transformation demands long-term inputs.**



3: Kivisaari, S., Saari, E., Lehto, J., Kokkinen, L. & Saranummi, N. (2013). System innovations in the making: Hybrid actors and the challenge of up-scaling. *Technology Analysis & Strategic Management*. 25(2): 187-201

Challenge: RRI institutionalisation remains an isolated process in the organisation or system.

Single and isolated institutional change is difficult to put into force, and institutional change is not scaled sufficiently. RRI does not become a part of deep structures of the organisation or system, like research processes.

Solution: The RRI change needs small daily interdisciplinary interactions in the system and should ideally be integrated in other ongoing strategy processes. Try to identify topics and processes that have even a slight connection to RRI topics – remember that processes does not need to have a strict RRI label. Keeping RRI on the organisation’s daily agenda is important.

Example: At the AIT Austrian Institute of Technology, the AIT AI Ethics Lab consisting of social and technical scientists has aimed to integrate RRI elements into organisational routines. By forming an RRI community, it was possible to create a change coalition, which has worked to create an understanding of the opportunities of RRI within the organisation and beyond. The lab team has engaged in projects including external partners and, e.g., has worked together with the Austrian Federal Ministry of Public Service on how to ethically implement AI systems in the public administration. Through this activity the lab has gained recognition and was accepted in policy-making networks, bringing RRI inspired practices and ideas into AI governance.

Challenge: RRI institutionalisation remains an isolated process in the organisation or system.

Tools to try out:

Advisory tools



- › Discussions with management and personnel to build trust and keep RRI on the organisation’s agenda.
- › Building an action plan or roadmap for introducing RRI.
- › Showcasing good RRI practices and excellence, for example by organising a competition or annual award.

Challenge: Lack of a collective ownership of change.

If a change is forced top-down from a single authority, it is easily identified as single person's agenda which does not motivate people to engage in the change process. To create collective motivation for change is important but takes long to gain.

Solution: Open communication and participation into RRI working groups is essential to enhance ownership of a common change. Those as target of the change should feel they have an opportunity to participate in the RRI institutionalisation process, even if they are inhibited to get involved.

Example: At PFNS we organised gender equality workshop where in an active, "hands on" exercise all participants had an opportunity to have a say and also to see that similar changes are going on in nearby organisations and were given an explanation of why we have to change.

Challenge:
Lack of a collective
ownership of change.

Tools to try out:

Interaction tools



- › Townhall meetings that reach large audience and promote transparency. Try also reverse Townhalls in which employees challenge the management.

Challenge: RRI incentives do not instigate positive feed-back loops in the (innovation) ecosystem.

RRI incentives, like time and money, are lacking for ecosystem partners to engage into the RRI institutionalisation. Lack of incentives hinder involving the research ecosystem to co-develop RRI. This in turn prevents the emergence and accumulation of essential feedback-loops in the process.

Solution: It is important to seek continuation for the RRI-driven change so that the research ecosystem is an inherent part of the RRI-driven change process. Design subsequent projects together with the ecosystem stakeholders to strengthen ownership and incentives to continue embedding process. Try to establish continuing dialogue with stakeholders to show importance of RRI in the ecosystem.

Example: We at WWTF have learned that participation in large EU-funded projects in order to exchange with diverse stakeholders encountering the same problems and forming a critical mass to foster change is important. For example, incentivize partners to engage via meaningful topics and create a mutual learning experience.

Challenge: RRI incentives do not instigate positive feed- back loops in the (innovation) ecosystem

Tools to try out:

Evidence-
building tools



- › Establish formal working groups, for instance gender equality board or ethical board, and invite key stakeholders to join.
- › Seminars and workshops that bring change agents and ecosystem stakeholders together to change ideas and envision the future

Challenge: RRI transformation demands long-term inputs.

How to maintain and keep the momentum going? Organisational RRI embedding will not succeed if it is run only for short term gains. Organisation is not committed to long transformation process, and engagement to the small daily RRI-related interactions is neglected.

Solution: RRI transformation is a long-term and continuous process which demands day-to-day continuous interdisciplinary/transdisciplinary work. Gradually bridges are built through the daily interactions and prevailing RRI expertise gets noticed and asked for internally in the change context and in the surrounding ecosystem.

Example: In 2021 Tecnia launched its New Organisational Strategic Plan which aims to shift the focus on impact from inside to outside the organisation. Tecnia's research has a real impact on society and provides specific solutions to the major global challenges.

Challenge:
RRI transformation
demands long-term
inputs.

Tools to try out:

Creativity tools



- › Organise unofficial meetings with staff and management on how to implement changes

Tools to help embed and anchor institutional change



- › Discussions with management and personnel to build trust and keep RRI on the organisation's agenda.
- › Building an action plan or roadmap for introducing RRI.
- › Showcasing good RRI practices and excellence, for example by organising a competition or annual award.
- › Townhall meetings that reach large audience and promote transparency. Try also reverse Townhalls in which employees challenge the management.
- › Organise unofficial meetings with staff and management on how to implement changes.

Additional tools to help in RRI institutionalisation

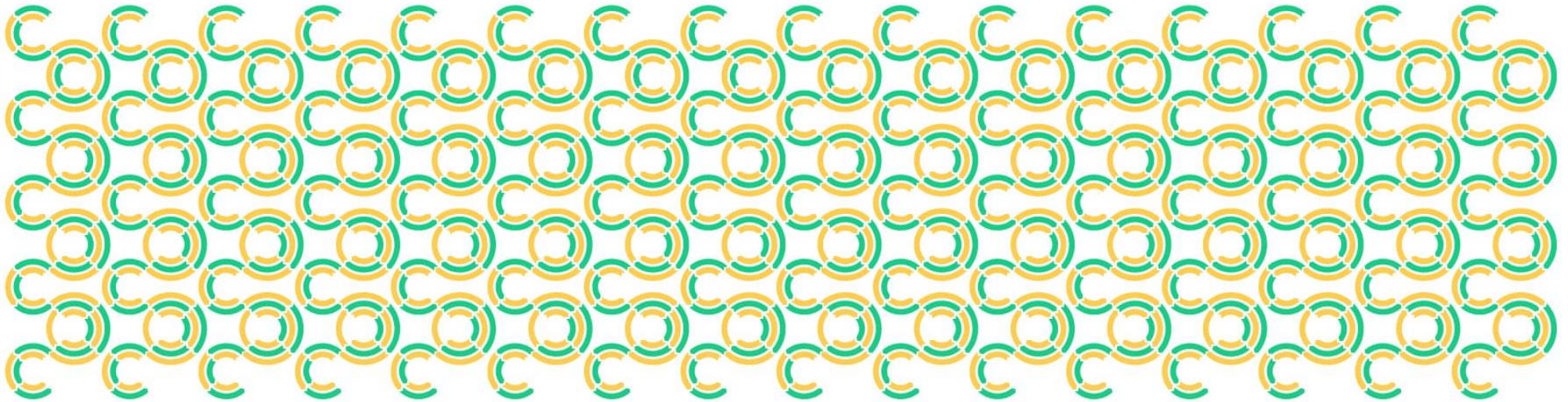
- › Getting started with RRI:
 - ❖ <https://rri-tools.eu/>
 - ❖ https://www.ecsite.eu/sites/default/files/quick_start_guide_in_rri.pdf
- › For managing change:
 - ❖ https://hr.berkeley.edu/sites/default/files/change_management_toolkit.pdf
- › For sustaining change:
 - ❖ <https://nyhealthfoundation.org/wp-content/uploads/2017/11/sustaining-improved-outcomes-toolkit.pdf>

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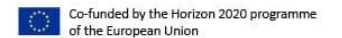
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