D3.3 Framework and resources for a professional development workshop for academic staff to support the integration of RRI in Higher Education curricula

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Introduction
Responsible Research and Innovation is a cross cutting strand of Horizon 2020 and is described as a process whereby

...societal actors (researchers, citizens, policy makers, business, third sector organisations, etc.) work together during the whole research and innovation process in order to better align both the process and its outcomes with the values, needs and expectations of society. (European Commission, 2014)

The question remains as to how we can build capacity amongst future researchers and innovators and cultivate the knowledge, skills and values that will support a more socially responsive research and innovation culture. In response to this the Enhancing Responsible Research and Innovation through Curricula in Higher Education (EnRRICH) project has developed, piloted and evaluated numerous resources to support the development of these competences in higher education (HE) students. These resources include a curriculum design tool to embed RRI in the curriculum (Tassone and Eppink, 2016), teaching resources to prompt debate among early stage students (Hally et al., 2017), and exemplar pilots of how to embed RRI in programmes of study (Hally et al., 2018), amongst others.

In accompaniment to these resources the project team developed and piloted professional development activities with Higher Education staff to familiarise them with RRI and support them to integrate RRI in their programmes. This report provides an overview of the professional development activities or workshops organised by EnRRICH members, identifies the key learning from the pilots and proposes a framework for professional development activities focussed on integrating RRI in the curriculum.

This report is primarily targeted at units which support staff development relating to teaching and learning such as teaching and learning centres or academic development units. The framework presented in this report also has resonance for research units wishing to develop capacity among research staff. It can also be used by Science Shops, entities which provide independent, participatory research support in response to concerns experienced by civil society. The community-based research approach facilitated through Science Shops has been identified by the EnRRICH project team as uniquely suited to supported the embedding of RRI in Higher Education curricula.

The report is comprised of four sections. The first section is a review of all the professional development trials completed by the EnRRICH members. The second section uncovers the key learning from the various trials. The third section proposes a framework for the professional development activities. The fourth section outlines concluding comments and recommendations.

1. Summary of EnRRICH professional development trials
The majority of EnRRICH partners were involved in coordinating of staff professional development activities reaching a wide audience within their institutions and also within their own countries. The trials involved student teachers, teaching/academic staff, research staff, administrative staff, Science Shop personnel, senior management within the EnRRICH partner institutions and beyond. External stakeholders such as industry representatives, second level teachers, policy makers and civil society organisations also participated in some trials. The trials are summarised below (Table 1) and will be discussed briefly in the below text to unpack similarities in approach.
Table 1 Overview of professional development trials coordinated by the EnRRICH members

<table>
<thead>
<tr>
<th>Name of Institution</th>
<th>Name/Context of Staff Workshop</th>
<th>Target Audience</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cornivus University of Budapest (CUB), Hungary</td>
<td>The establishment of micro-communities to share RRI best practice</td>
<td>Academics and researchers</td>
<td>A peer support micro community design to work on a particular RRI policy agenda and share best practice</td>
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<td></td>
<td>Committee for Responsible Management Education</td>
<td>Academics and researchers</td>
<td>Mapping the interest for RRI and civil society organisations (CSOs) projects and identifying programmes where RRI trials may take place</td>
</tr>
<tr>
<td>Dublin Institute of Technology (DIT), Ireland</td>
<td>Workshop to staff taking the postgraduate diploma in teaching and learning</td>
<td>Academics and researchers</td>
<td>Introduction to RRI and link with community-based learning and community based research</td>
</tr>
<tr>
<td></td>
<td>Lunchtime workshop exploring relevance of RRI</td>
<td>Academics and Civil society organisations</td>
<td>Workshop on how to conceptualise and assess their work coordinating community-based research projects with students through the lens of RRI</td>
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<td></td>
<td>Swapshop (pre-conference workshop on implementing HEI in curricula)</td>
<td>Academics and science shop unit staff from US, South Africa, Canada, Ireland.</td>
<td>Workshop exploring Responsible Research and Innovation (RRI) as a framework to examine, and positively change both curriculum-based collaboration and organisations, using a DIT RRI PhD project as a case study to trigger exploration.</td>
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<td></td>
<td>Workshop introducing staff on the MA in Higher Education/MSc in E-learning Technologies to RRI/CBR/CBL.</td>
<td>Academics</td>
<td>Workshop introducing RRI/CBR/CBL to staff undertaking the MA in Higher Education/MSc in E-learning Technologies</td>
</tr>
<tr>
<td>IrsiCaixa Living Lab for Health at IrsiCaixa, Spain</td>
<td>RRI Training sessions for research and academic staff as well as project managers and policy makers</td>
<td>Research and academic staff, project managers, policy makers, CSOs, industry representatives, and high school teachers</td>
<td>Introduction of RRI to the audience followed by three participatory workshops to move from theory to practice. Participants end the training reflecting about ways to integrate some aspects of RRI into their daily work and projects</td>
</tr>
<tr>
<td>University College Cork (UCC), Ireland</td>
<td>RRI Awareness building session among Post-Doctoral researchers</td>
<td>Postdoctoral researchers</td>
<td>Raise awareness of RRI among the Post-doctoral cohort in UCC so that they can incorporate it in to their teaching and supervision of students</td>
</tr>
<tr>
<td></td>
<td>RRI Staff Workshop in neighbouring higher education institution, Waterford Institute of Technology, Ireland</td>
<td>Researchers, academics and administrators</td>
<td>Relate RRI to attendees’ disciplines by sharing RRI teaching resources such as the EnRRICH Tool. To build capacity among this cohort so that they can integrate it into their teaching and learning settings</td>
</tr>
<tr>
<td></td>
<td>Teaching and Learning session on RRI for Postgraduate Student Teachers</td>
<td>Student Teachers</td>
<td>Draw student teachers’ attention to RRI so that they can use it in their own teaching practice.</td>
</tr>
<tr>
<td></td>
<td>RRI and Pathways towards Impact at Research Development Away-day, College of Medicine UCC</td>
<td>Researchers, academics and supervisors</td>
<td>Seminar on RRI including the introduction of various tools to explore RRI learning so that it can be incorporated into research and student supervision</td>
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<tr>
<td></td>
<td>Staff/Lecturer Training</td>
<td>Academics</td>
<td>Introduction to RRI, sharing of resources so that teachers can adapt for their own use</td>
</tr>
<tr>
<td><strong>University of Vechta (UoV), Germany</strong></td>
<td>Competence-based Teaching and Learning in Higher Education, for staff at the Northern Technical University, Ecuador.</td>
<td>Academics</td>
<td>Exchange and discussion of different forms of cooperation between civil society organisations and scientists in the research process. Each lecturer also developed an individual plan for their own participatory research project</td>
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</tr>
<tr>
<td></td>
<td>Science Shop, Swap Shop</td>
<td>Academics and researchers</td>
<td>Promoting the concept of RRI at the University of Vechta</td>
</tr>
<tr>
<td></td>
<td>Competence Oriented Higher Education, Universidad de Antioquia</td>
<td>Academics</td>
<td>An exploration of the RRI concept and the possibilities of research-based learning with partners from practice</td>
</tr>
<tr>
<td></td>
<td>Community-based research as a learning approach: Introducing RRI in the Curricula, workshop for staff at the Belarusian State Pedagogical University Minsk, Belarus</td>
<td>Deans and other administrative staff, academics</td>
<td>An exploration of the RRI concept and the possibilities of research-based learning with partners from practice</td>
</tr>
<tr>
<td><strong>Vrije Universiteit Brussel (VUB), Belgium</strong></td>
<td>Responsible Research &amp; Innovation (RRI): What’s in it for me?</td>
<td>Research staff</td>
<td>A lunch time seminar series designed to raise awareness among researchers about RRI; how they can incorporate it into their practice, supervision and teaching</td>
</tr>
</tbody>
</table>

When designing your own staff development activity there are several resources that you can draw upon:

**Good practice examples**
Prior to EnRRICH and similar projects, e.g. RRI-Tools, NUCLEUS, HEIRRI, there was a notable lack of teaching resources and guidance on how to incorporate RRI in higher education curricula. The EnRRICH project sought to address this gap and began by identifying institutional best practices in existence in partner institutions. These examples were, in many cases, not formally labelled or identified as RRI, but were collated through the EnRRICH project as a first step towards the development and trialling of teaching resources and pedagogical approaches to embed RRI in HE curricula. These good practice examples were often used in staff professional development activities by the EnRRICH members, and can be accessed online (Buckley and Clemens, 2016).

**Peer exchange and discussion**
In designing professional development opportunities for staff, many EnRRICH members began by sharing their own experiences of initiating discussions around responsible research and innovation in the classroom drawing. In many cases the workshop participants were already engaged in this work with students and the Swap Shop methodology (see Appendix A) was used to share these teaching practices in a reflexive way. Swap Shops are purposefully created opportunities to share and exchange knowledge and best practice on a particular topic or theme (Healey and Roberts, 2004), and Swap Shops were run by the majority of the EnRRICH partners.

**Utilise a curriculum development tool, the EnRRICH tool for Educators**
These initial pilots were very engaging for participants and succeeded in familiarising staff with the concept of RRI as well as providing them with inspiration with regards to what is possible. However, it became clear that additional supports were required to support the purposeful design or redesign of modules or programmes to embed RRI. The EnRRICH members developed a curriculum design tool,
the EnRRICH Tool for Educators in order to meet this need (Tassone and Eppink, 2016). This tool articulated three education design principles and a competency framework (see Appendix B). It is a powerful resource to use in staff development activities and highlights the range of options available to educators to incorporate RRI in the classroom, from a light to a deep approach.

2. Analysis and key learning from staff professional development trials

In examining the various approaches adopted by EnRRICH members to develop and deliver staff workshops, they largely fell into three categories which will be considered in turn.

2.1 RRI capacity building and resource sharing

A common approach among all EnRRICH members in the staff professional development activities was to engage in peer exchange of good practice. Institutions such as UoV and WU hosted Swap Shops where EnRRICH members and/or guest speakers brought their experience of building RRI proficiency among students and the different and related means of doing so. A Swap Shop is essentially the creation of a safe learning environment where peers can share their best practice example of, in this case, integrating RRI (or related elements of RRI such as engaged research), including key tools and resources (Healey and Roberts, 2004). Participants can ask questions, relay their own experience and ultimately build their capacity to model something similar in their own context.

Many EnRRICH project members are also involved in or have close links to their institution’s Science Shops. In many Swap Shop sessions examples and case studies about Science Shop projects were shared and explored among peers. In the example of UoV, visiting EnRRICH members shared their experiences with UoV staff which facilitated the exchange of knowledge and expertise across countries and institutions. Similarly, EnRRICH UoV staff travelled to international HE institutions to facilitate RRI professional staff development and subsequently gained a different cultural appreciation for what could be trialled, new ideas for designing RRI curricula, suggestions for how to do things differently etc. The Swap Shops presented a valuable opportunity to exchange tools and resources developed as part of EnRRICH to help impart the principles of RRI and to bring to light potential opportunities and obstacles experienced by individuals in doing so.

A further step taken by EnRRICH members was to source and design tools and resources to support them in the exploration and appreciation of RRI in the classroom. These tools and resources, for example a cautionary tale exemplifying a research project with adverse outcomes, were designed to stimulate students’ thinking and orient them to pertinent issues, structures and processes in their fields that underline the necessity for an RRI framework/approach. It is these type of tangible, experiential resources and tools that are shared in the Swap Shops and which supported the wider integration of RRI in EnRRICH member institutions. An EnRRICH report entitled ‘Resources for Enhancing RRI understanding and prompting debate on societal issues in the curriculum for early stage students’ (Hally et al., 2017) shares many of the leading tools and techniques practised within EnRRICH to kick-start discussions and heighten awareness of RRI among students and researchers.

Wageningen University facilitated a number of professional development workshops for academic staff throughout the year. Staff members were provided with the opportunity to learn about RRI and how they could integrate it into their own practice in 4 separate sessions. As well as building staff awareness and knowledge of RRI over time, the four individual sessions allowed space for reflecting on RRI material and how it interacts with their particular style of teaching and or supervision. It also
provided the opportunity for staff members to trial the integration of RRI in the classroom (e.g. presenting a challenge grounded in the Sustainable Developments Goals (SDGs) and asking students to explore the particular SDG through the lense of the RRI process requirements) and then seek feedback from peers and EnRRICH members in later workshop sessions. Wageningen University also had a mix of stakeholders participating in their professional development workshops including policy makers, educators and researchers creating a unique opportunity for different positions, contexts and experiential knowledge to be brought to bear. Policy makers therefore could hear, first hand, the experience of educators and researchers in operationalising RRI in academia. Similarly, educators and researchers gain an understanding of the political landscape impacting policy development to support RRI and related concepts, e.g. Science Shops, in higher education.

2.2 Establishment of RRI networks or Communities of Practice

The approach taken by EnRRICH members in building RRI staff capacity within their respective institutions was similar. The majority of workshops and seminars were one-off, independent sessions. One exception is the example of the Corvinus University of Budapest (CUB) Business School which developed a community of practice in the form of a ‘micro-communities’ initiative to initially share RRI theory and resources and then to continue to facilitate best practice sharing and peer support. In CUB the attendees split into 5 groups and each adopted a particular RRI policy agenda to work on. The RRI policy agendas, as defined by the RRI-Tools project (2015) are governance, science education, open access, gender equality, public engagement, and ethics. The resulting ‘micro-communities’ were focussed on examining how their chosen policy agenda could be integrated into their teaching and research, and on exchanging ideas around designing assessment and module objectives so that they could explicitly explore the particular policy agenda.

The experience of EnRRICH members has been that RRI can be quite an abstract concept and the perceived vagueness of RRI has made it challenging to inspire both students and educators to adopt RRI within their teaching and research. Through the ‘micro-communities’ initiative, CUB EnRRICH staff have established an incubator-like environment in which their colleagues have peer support to explore key concepts of RRI and practice reflexivity in their personal experience in relation to practicing and integrating RRI into their module/programme. Moreover, the ‘micro-communities’ initiative facilitates learning across different members of faculty allowing for the cross-pollination of interdisciplinary knowledge, thereby it serves as a model on how to build staff capacity around RRI. As each group works on a particular policy agenda such as gender equality or governance, these learnings can be shared with the other groups. This exposure to, and exploration of, other policy agendas is important as the policy agendas and process requirements are not standalone concepts and should be considered within the wider scope of RRI. The existence of the ‘micro-communities’ thus facilitates this exploration and interaction with all the important pieces of RRI theory.

Similarly, the work of the UCC EnRRICH team aimed to establish a supportive network for the adoption of RRI among research and academic staff in UCC. The UCC EnRRICH team developed strong visibility among researchers and academics through, for example, the roll-out of two prominent workshops for the ‘Post-Doc Hub’ (a training programme for post-doctoral researchers run by the UCC human resources department), and building strong linkages with the university’s Office for Research and Innovation and its various research officers. This work included attending and speaking at several seminars (e.g. Research Integrity workshop), the UCC EnRRICH team became a supportive resource for
research and academic staff wishing to position their funding proposal in an RRI framework or become more fluent in RRI processes and systems.

Over time, the UCC EnRRICH staff received more requests from staff seeking RRI expertise and specifically assisted in the writing of two separate funding proposals, which were subsequently awarded (H2020 Marie Marie Skłodowska-Curie, and Health Research Board, Ireland). This work locally also connects to the Cork team’s ongoing work with Campus Engage (www.campusengage.ie), the national body responsible for advancing civic and community engagement in Irish higher education institutions. The learnings from the EnRRICH project were regularly disseminated through frequent interactions and engagements with Campus Engage and its various working groups (comprised of higher education and CSO employees throughout Ireland). Campus Engage working group members were able to borrow and build upon best practice RRI learnings from both UCC and DIT EnRRICH members, helping to grow an organic community of practice at a national level.

In Dublin Institute of Technology, an open invitation was sent out in Autumn 2015 to community partners and academic staff actively involved in community-based research to a lunchtime workshop exploring RRI as a lens/framework for conceptualising and assessing their work coordinating community-based research projects with students. The workshop ended with a discussion of what supports could help those who attended (academic staff and a CSO partner) to develop their RRI/CBR practices in the curriculum. Building on the ideas generated, those attending have become actively engaged in further EnRRICH pilots and activities, such as developing ‘promising practice’ and exemplary practice case studies, presenting at the 7th Living Knowledge conference on RRI, developing and securing funding for an RRI PhD project, co-delivering a swapshop on RRI at the IARSLCE conference, and putting forward their CBR/RRI modules for peer assessment by Corvinus University Budapest (as part of WP6), thus building a committed community around RRI.

Many other EnRRICH project members such as VUB created more informal communities of practice within their institutions to make the practice of awareness building and integration of RRI more visible and public within their institutions. They did this through organising regular, visible sessions with staff throughout the duration of the EnRRICH project, creating a collegial environment in which staff felt supported to explore, query and revisit RRI in their teaching and research practice.

2.3 Framing of staff development activities

While all EnRRICH partners sought to engage staff with the concept of RRI, oftentimes this was done in an oblique way. The workshops and professional development activities were framed so as to appeal to a wide range of staff. These frames could be a pedagogical practice or a key concern relating to Higher Education.

The EnRRICH members conducted a series of pilots within modules and programmes (Hally et al, 2018) and it is apparent that certain pedagogical approaches are particularly suited to supporting RRI integration. These include problem or inquiry-based learning, project-based learning, research-based learning, integrative learning, and community-based research. All of these begin with identifying a challenge or question and involve students working to resolve the question, sometimes in partnership with community organisations, e.g. community-based research. Many trials involved students working in interdisciplinary groups. Any of these pedagogical approaches could serve as the frame for a staff development activity. There are research methodologies that resonate well with RRI such as participatory research, photovoice, etc, and these can also be the frame for engaging
with staff. Or the focus could be on graduate attributes such as citizenship, collaboration, critical thinking. There are multiple ways of bringing staff together to the same point and RRI lens can provide a useful lens to examine and develop teaching practices.

The EnRRICH members framed their staff development activities under a number of topics such as sustainability, gender, research integrity, open access, research impact. RRI has been described as an umbrella term that captures a wide range of policy agendas, thus any of these topics can provide a jumping off point for engaging staff in professional development. The focus then can broaden out to include other considerations such as how to ensure future researchers and innovators work in ways that are inclusive, responsive, anticipatory and reflexive.

There are broader considerations regarding how to motivate staff to engage in professional development activities. For example, is the topic aligned with promotional criteria, related to national or disciplinary professional development frameworks, part of continuing professional development ethos at department or school level, supportive of the attaining of an award etc. These can also be considered when designing your activities, but are beyond the scope of this project.

3. Framework for Professional Development of Staff
The emerging framework for professional development of staff draws on the learning from the EnRRICH pilots, particularly the pilots that became sustained activities among staff and or where there was a clear commitment from participants to reorient their teaching activities towards RRI.

The framework is based on two approaches, namely ‘learning through critical dialogue’ which is a signature pedagogy of teacher development (Parker et al., 2017) and ‘reflective practice’ (Schon, 1983) whereby teachers are encouraged to review and reflect on their professional practice. These combined approaches inform the design of the framework. The workshop resources include the EnRRICH tool (Tassone and Eppink, 2016) and the teaching resources developed in the EnRRICH project (Hally et al., 2018; Hally et al., 2017).

The participants are encouraged to critique the notion of RRI in the workshops and relate it to their own disciplinary areas or experiences of research to date. They are then encouraged to share good practices in their own area that support the development of the RRI competences identified in the EnRRICH tool, drawing on the Swap Shop approach. Using the exemplar case studies, they are encouraged to reflect on how these teaching activities, and RRI more generally, might intersect with their particular style of teaching or supervision.

Using the process requirements, the participants consider where there are opportunities in their existing modules and programmes to purposefully develop students’ RRI proficiency. This is a useful starting point prior to the introduction of the EnRRICH tool (see Appendix B) when teachers are asked to follow a series of prompts to redesign or develop a programme of study for their students. The participants are encouraged to trial this (re)design with students, to reflect on the implications for their practice and to evaluate student learning with the EnRRICH competency framework (Appendix B).

The framework for staff development is thus composed of both face-to-face and practice-based activities (see Figure 1). The goal is to encourage extended engagement with the topic that goes beyond the initial workshops and, subsequently, to develop a community of practice that enables members to critically discuss, share reflections and advance the practice.
4. Conclusions and recommendations

The integration of RRI in higher education curricula is undoubtedly linked to staff’s familiarity with RRI principles and concepts. The challenge is ensuring RRI is of relevance to Higher Education staff and to support them to adopt RRI in their teaching and research activities, should they wish. The findings from the EnRRICH project indicate that a significant amount of work is required to create an environment conducive for the successful and sustainable integration of RRI in the curricula. A conducive environment extends far beyond designing and delivering one-off staff workshops and includes making staff members with RRI experience and knowledge visible and accessible to other staff members. Building communities of practice within and beyond institution and country boundaries assists in demystifying what is meant by ‘RRI in the curricula’ and helps ensure that the best practices in the integration of RRI are widely available and well known.

The work of the EnRRICH project and previous RRI projects such as RRI-Tools have made significant advances in the creation of materials, resources and tools for staff members to utilise in their teaching and research concepts. These resources alone, however, are not enough to safeguard the continued integration of RRI in HE and, as illustrated in Figure 1, should serve as only one part of institutional approaches to embed RRI in conjunction with other supportive structures such as an RRI community of practice. Reflection-on-practice (Schon, 1983) is essential to embed this approach in teaching and this can be encouraged through a well-functioning community of practice. There are a range of pedagogical approaches and research methods that align well with RRI, however the Science Shop approach is uniquely suited to developing RRI competence in students.

Beyond the EnRRICH project, groups such as the Living Knowledge (LK) network will continue to support the integration of RRI in the curricula. In addition to producing regular newsletters, the LK network holds a biennial conference, where attendees can learn and exchange best practice ‘RRI in
the curriculum’, particularly through sharing the experiences of new and established Science Shops throughout Europe. Readers and those interested in following the development of RRI in the curricula can connect with Science Shops in their own countries and can also monitor the activities of national entities such as the National Co-ordinating Centre for Public Engagement (UK) and the aforementioned Campus Engage (Ireland).

The key recommendations from this review of staff professional development pilots are:

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<tr>
<th>Recommendation</th>
<th>Details</th>
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<tr>
<td>Share responsibility for staff professional development activities between a few units including research offices, Teaching and Learning centres, Science Shops. RRI sits in the intersection of these different areas, and such collaboration will ensure a wider audience is reached more efficient use of time and resources.</td>
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<tr>
<td>Encourage staff engagement in professional development activities by careful consideration of how to frame the activity so it resonates with multiple audiences.</td>
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Appendix A: RRI Swap Shop methodology

1: Introduction

- Begin session with ice-breaker where participants engage in pair/share activity to discuss their expectations for workshop.
- Gauge background knowledge by asking people to indicate using thumbs up, down or to the side to indicate their current levels of understanding in relation to RRI.
- Provide a short introduction on RRI including rationale for RRI, key definitions and an overview of the RRI process requirements.
- Share concise examples of teaching approaches that resonate with the process requirements. Highlight how to put these into practice and lessons learned.

2: First swap (30 minutes)

Participants are asked to choose a process requirement and asked (a) to identify what you are already doing to encourage this in your course/teaching intervention and (b) what you would like to do.

Prompts for peer feedback
- What are your thoughts on what is shared?
- How might it be extended or enhanced to further incorporate the particular process requirement?

3: Second swap (30 minutes)

- Participants are asked to change group and choose a different process requirement to focus on using the same steps and discussion prompts used in the first swap.
- or
- Participants can stay in same groups but choose a different process requirement to focus on using the same steps and discussion prompts.

4: Large group discussion (20 minutes)

Report back on one case study shared in your group and provide a summary of the suggestions on how it could be enhanced/extended to incorporate the process dimension

Discussion prompts
- Which process requirements do you find the most applicable or most challenging generally?
- What are the opportunities and obstacles for addressing all four process requirements in a balanced way?
Appendix B: The EnRRICH Tool

THE ENRRICH TOOL

The 4 step approach to guide educators to revitalise curricula from a RRI standpoint

"Fostering Responsible Research and Innovation (RRI) in higher education curricula is about equipping learners to care for the future by means of responsive stewardship of scientific and innovation practices that address the grand challenges of our time in a collaborative, ethical and sustainable way. To orient higher education curricula towards RRI this tool provides 4 steps and related guiding questions for educators."

**STEP 1** Targeting your educational practices towards addressing societal challenges (e.g. Sustainable Development Goals)

*Education for society*
- What do you consider to be the underlying purpose of your program/module?
- What are societal challenges that your program/module is directly or indirectly addressing or can address (e.g. food security, climate action and wellbeing)?

**STEP 2** Connecting students to the real life societal context to learn how to navigate societal challenges

*Education with society*
- Does or can your institution facilitate an interplay between academia and society? And in what way (e.g., Science Shop project, Community-based learning)?
- Does or can your program/module equip students to address societal challenges academically and collaboratively with societal actors?

**STEP 3** Fostering students learning in terms of (new) ways of knowing, being and doing

*Whole person education*
- Does your program/module allow for learning across various learning domains (i.e., domains of learning related to knowing, being and doing)? And how?
- What do you consider to be possible added value and/or challenges of fostering learning across learning domains, in the context of your program/module?

**STEP 4** Applying the RRI competence framework to consider how to equip students to effectively participate in RRI processes

- Future-studies abilities
- Future-oriented ethical abilities
- Pro-activity & well-timed engagement
- Multi-perspective & inter-cultural communication
- Trans-disciplinary collaboration
- Openness & Transparency
- Self-awareness
- Situational awareness
- Social awareness & Empathy
- Ethical thinking
- Disruptive thinking

*Navigating complexity or wicked problems*
- Adaptability
- Agency
- Anticipation

RRI
- Responsiveness
- Inclusiveness
- Reflexivity

*an example...

- of engaging into "trans-disciplinary collaboration competence"

In a two-semester research-based transdisciplinary learning project students learn to collaborate in transdisciplinary teams addressing a real life problem in society. They collaborate with actors from different fields of practice and engage in mutual learning processes. The learning process includes:
- Understanding the real life problem from multiple perspectives, formulating and addressing research questions (knowing)
- Holding an attitude of collaboration towards various academic and societal actors (being)
- Negotiation and presentation of results for societal and academic use (doing)

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References


