

Mapping Innovation and Societal Engagement

- Responsible research through a care ethics perspective

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Mapping Innovation and societal engagement

Deliverable 3.3. - WP 3

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Executive summary

This report is a research-based deliverable (WP3) in the RE:ERUA project aiming to foster societal engagement through Responsible Research and Innovation within the European Reform University Alliance (ERUA). It takes inspiration from existing EU guidelines (e.g. www.great-project.eu and www.fottris-h2020.eu) and research within the field of RRI (e.g., Gianni et al. 2019, Owen, 2019, Pellé 2019; Stilgoe et al., 2013; von Schomberg, 2013) with specific focus on societal engagement and social innovation, thus particularly contributing the aim of 'Science with and for Society' objective of the European Commission's Horizon 2020 programme.¹ *'A key part of RRI is concerned with people's engagement and participation in the research process. As noted by the European Commission, this will bring a 'better alignment' that will ensure research and innovation carries that crucial ingredient of responsibility'* (Commission Recommendation (EU) 2018/790 of 25/04/2018).

Often responsibility is defined as *"a transparent, interactive process by which societal actors and innovators become mutually responsive to each other with a view on the (ethical) acceptability, sustainability and societal desirability of the innovation process and its marketable products (in order to allow a proper embedding of scientific and technological advances in our society)"* (Von Schomberg, 2011:9). This definition is rather generic and has at least two limitations. (1.) It does not reflect how responsibility in research is affected by the link between the individual researcher and its organizational framework. (2.) It is oriented towards technological outputs that do not take citizenship and its empowerment into account in aiming for '(ethical) acceptability, sustainability and societal desirability'. Nevertheless, this report draws on the widely accepted dimensions of responsibility, transparency, anticipation, responsiveness, reflexivity and inclusion.

We address some of the limitations of the generic definition by analysing different expressions of responsibility through the additional lens of care ethics (e.g. Puig de la Bellacasa 2017, Tronto 1993) and subsequent social innovation (SI). Here we lean on the democratic stream of SI research, which emphasizes the importance of collective processes that can deepen democracy while fostering ideas through multi-stakeholder collaboration (Moulaert & MacCallum, 2019).

Findings are discussed in the institutional context of the European Reform University Alliance (ERUA). Defining an institution and its practices as reform is not a simple matter. ERUA has made the following attempt: *'As Reform Universities we continuously question and transform our institutions. We foster the critical function of the modern university by reflecting upon, assessing and advancing alternatives to current models. We do so by drawing upon the diverse experiences and backgrounds of the university community, which embody the diversity of the society around us, and encourage and allow all to participate in shaping the future of the university.'* (<https://erua-eui.eu/mission/>). Some would simply categorize reform as creating

¹ See <https://ec.europa.eu/programmes/horizon2020/en/h2020-section/responsible-research-innovation>.

something “new”. However, in the traditions of several of the universities and specifically emphasized by respondents in this research study, *reform* also implies critical thinking, challenging norms, hegemonic power structures and not least engagement in the empowerment of both students and stakeholders. It is in this spirit this report is written.

The report is based on a mixed-method approach including scientific reviewed literature, 35 in-depth interviews with societally engaged scientists from various fields and a quantitative survey (N=109) answered by scientists across the alliance. Central analytical findings have been synthesised from the empirical material that are deduced from research in RRI; i.e., concerns and experiences with internal governance and infrastructures framing work conditions, mutual learning, bringing research into teaching, and engagement and collaboration with various stakeholders and the public.

The three analytical chapters are focusing on what scientists define by responsible research, how they develop and conduct their research practices and why they do so. The research question guiding the study has been formulated as follows: *How is responsible research experienced and conceptualized by researchers in the alliance, and how do organizational infrastructures affect these experiences? How do the ways researchers in the alliance conduct responsible research affect the outcomes of their research?*

Introducing the analysis of RRI the study also draws on what responsible research is to researchers. How do they conceptualize responsibility? This thematic axis addresses the need to reconceptualize responsibility in research, which becomes clear when conceptualizing responsibility through the lens of care ethics.

Why do researchers engage in responsible research?

Here we focus on researchers' subjective aspirations and ways they get affected by the research problems they engage with. This section discusses the link between subjective motivations, interests, and concerns of the researcher and their sense of responsibility. The responsibility dimensions dominant in this section are **anticipation**, **responsiveness** and **reflexivity**. The subjective perspectives and motivations of the individual researcher affect what they define as responsible research. They engage in collective negotiations and collaborative networks with peers and external stakeholders to translate the subjective perspectives to concrete research projects. Some also consider stakeholder and end-user involvement as important dimensions of why they conduct responsible research. Others reflect on the importance of challenging existing norms and values, especially as being part of a Reform University. At times scientists are oriented towards caring with and for society and global concerns, but subjective perspectives can also be oriented towards based criteria such as merit systems and fame. Often it is a mix.

How do researchers conduct responsible research? What is the role of methodologies and stakeholder engagement? How do cultural and organizational settings, including working conditions, affect responsible research? What are responsible research drivers and barriers? This section dives deep into the empirical material and highlights common and diverging approaches, contexts and related issues. The responsibility dimensions addressed in this

section are **inclusion, transparency, reflexivity**. Findings from the study show that institutional infrastructures and cultural and disciplinary traditions can create obstacles to how researchers can conduct responsible research. Their interdisciplinary communication channels, institutional logics and merit systems seem to hold on to objectifying and instrumental conceptualizations of the role of scientific knowledge and its impacts. Lack of resources and acknowledgement at times silence socially innovative and engagement efforts that exist among researchers in the alliance. At least scientists report that they are not supported sufficiently.

Impact is a concern for researchers in the alliance. In this part of the analysis, the report highlights different impacts identified by researchers, mostly in relation to societal engagement, but also how institutional practices and approaches to impact measurement influence the way researchers view and exercise responsibility through research. The responsibility dimensions addressed in this section are **reflexivity, inclusion and anticipation**. Researchers mention more commonly recognized impact indicators, such as publications and quotation numbers as impact, but responsibility is more addressed when they reflect on the importance of creating lasting impact for participants beyond project limits, creating meaningful collaborations and changing mindset through research process. Non-academic ways of research dissemination and creating dialogical relations in teaching practices are also viewed as important ways of creating impact. Although institutional support structures vary in different universities, researchers emphasize that often these ways of impact creation end up being carried out mostly out of their own enthusiasm and motivation.

Conclusion:

The findings of this report shows that the aim of balancing economic gains and social concerns through RRI is not so simple. Subsequently, RRI is potentially a term that should be reoriented towards a greater orientation towards how infrastructures in scientific institutions can support matters of care towards 'living as well' as possible' with the aim of challenging the approach to societal and global concerns to be solved only through economic growth solely, but rather including a democratic and regenerative approach prioritizing social innovation.

The research-based report contributes with a specific add-on to both RRI definitions and to recent discussions of alternative excellence in ERUA by bringing in researchers' perspectives and disciplinary backgrounds, which inform how ethical concerns and methodologies are developed in their research practices. Also, the analysis concludes that responsibility should be balanced in infrastructural measures to ensure that the connection between outputs of research and its methodological processes are stringent, such as including work conditions, early career staff and stakeholder knowledge sharing and network support. These contributions are central to the strengthening of a reform identity in the alliance.

We believe that we thus provide an approach to responsible research that acknowledges relationality and interdependency, contributing to a (re-)conceptualization of certain aspects of RRI that more explicitly focus on bridging between economic interests and social concerns. This happens amidst calls to transition from understanding of research as efficiency-based indicators and quantifiable outputs towards the creation of responsible and reflective relations with research participants, be it human or more-than-human.

Recommendations

Management

EU

1 Introduction

Description of the scope and structure of the report

This report is a mapping of responsible research practices in the European Reform University Alliance, carried out through a mixed-methods research approach including an online survey (quantitative) in-depth interviews (qualitative) and a literature review. It is deliverable 3.3. of the Re:ERUA work package in responsible research and societal engagement, but it is also a research report that makes a conceptual contribution based on a thorough analysis of rich empirical material that expands current notion of RRI. It is thus of interest for researchers interested in responsible research and innovation; for university management to see what type of responsible research their research staff is involved in and how they can better support RRI; for policy makers to reflect on the potentials research across disciplines as contributors to social change processes. Those who are not interested in the theoretical underpinnings and empirical analysis might want to reduce their reading to the executive analysis and the recommendations.

The framing of this deliverable is based on the ambition of the alliance to work with more interdisciplinarity, stakeholder involvement and societal engagement. The five universities involved and included in this report are Roskilde University in Roskilde, Denmark, Konstanz University in Germany, Paris 8 Saint-Denis in France, the New Bulgarian University in Sofia, Bulgaria and the University of the Aegean in Greece. All were founded in the second half of the 20th century in order to promote alternative models of higher education as well as research. What the five universities share is interdisciplinary structures, the wish to foster collaboration between disciplines and with external stakeholders (they each have open laboratories and collaboratories), in order to foster university-society collaboration and to address contemporary challenges (ERUA report: What is a Reform University Today?). Such characteristics are closely linked to the different dimensions of responsible research and innovation (RRI), the key analytical tool used in this report. Reform ideals and reality however do not always align and are harder to maintain in a context of neo-liberalisation of higher education and the rule performance criteria. Hence the report analyses RRI practices within ERUA as well as institutional, structural and cultural challenges and barriers. Adding a lens of care ethics to RRI in the context of reform turns out to be a significant conceptual extension. It connects reform ideals to practices and expectations of researchers to be responsible beyond standard procedures of research ethics and good governance of research practices as they connect scientific practice to concerns of sustainability, social change and empowerment.

Box: Aim and objectives of WP3

The aim of WP3 is to drive RE:ERUA to foster the engagement for Responsible Research and Innovation (RRI) of all sectors' organizations (like NGOs, policy makers, universities, business organisations, industry associations, science funders, researchers, etc.) and citizens through good governance, mutual learning, agreed practices and multi-actor and public engagement initiatives in research and innovation.

This mapping has followed a methodological approach based on three dimensions. First, we conducted a literature review defining a point of departure on responsible research and societal engagement. Second, we then carried out in-depth interviews on the lived and specific experiences of researchers at various stages in their academic careers and from a broad range of disciplines (N=35, from 4 different scientific backgrounds (natural science, social science, humanities, technical/engineering) and representation from all levels (PhD to full professor), with an 50/50 gender balance).² Third, based on initial findings we then developed an online survey to qualify the interview findings. The respondents have been answering

questions on conducting responsible research with a specific focus on collaboration with partners from civil society, public and private sector. This approach can in the social sciences also be called bottom-up. Central analytical findings have been synthesised from the empirical material that directly relates to the overall themes deduced from research in RRI; i.e., concerns and experiences with internal governance and infrastructures framing work conditions, mutual learning, bringing research into teaching, or engagement and collaboration with various stakeholders and the public.

The research questions guiding the analysis of this report are:

How is responsible research experienced and conceptualized by researchers in the alliance, and how do organizational infrastructures affect these experiences? How do the ways researchers in the alliance conduct responsible research affect the outcomes of their research?

These research questions are broken into three thematic axes and an impact section, which structure the analysis. This framework is intended to guide the thinking of responsibility dimensions in research through the concept of care ethics. In this report it will serve to explore how framing different dimensions of responsibility in three stages of RRI (why, how and impact) through care ethics can strengthen, enrich and re-think what responsibility in research means in lived experiences of researchers. This means that the reader will find that different dimensions of responsibility are more salient than others in different stages of research.

1. **Why** do researchers engage in responsible research? Here we focus on researchers' subjective aspirations and ways they get affected by the research problems they get engaged with. This section discusses the link between subjective motivations,

² see overview of interviewee's gender, scientific background, level of seniority and code in the Appendix

interests, and concerns of the researcher and their sense of responsibility. The responsibility dimensions in this section are: Anticipation, responsiveness and reflexivity.

2. **How** do researchers conduct responsible research? What is the role of methodologies and stakeholder engagement? How do cultural and organizational settings, including working conditions, affect responsible research? What are responsible research drivers and barriers? This section dives deep into the empirical material and highlights common and diverging approaches, contexts and related issues. The responsibility dimensions addressed in this section are: Inclusion, transparency, reflexivity
3. **What impact** does responsible research create? In this part of the analysis, we focus on different impacts identified by researchers, mostly in relation to societal engagement, but also how institutional practices and approaches to impact measurement influence the way researchers view and exercise responsibility through research. The responsibility dimensions addressed in this section are reflexivity, inclusion and anticipation.

After the analytical conclusion the report presents its recommendations:

4. **Recommendations** to the university management and decision-makers affecting research policy and practices. This report is relevant for researchers that are interested in RRI. Likewise, it provides with important insights to university management about how socially engaged scientists express barriers to conduct societally engaged research and provide ideas how to improve their infrastructures and framework. The recommendations are also for policy makers to qualify already existing ambitions of improving measures and practices of responsible research in their policies and funding calls.

Depending on your interest as a reader, you can choose to only read the executive summary, and recommendations or extend your reading further.

Core concepts: Responsibility, care ethics, social innovation

What is the role of scientific knowledge and universities in society today? Scientific knowledge allows us to develop new technologies, solve practical problems and make informed decisions addressing societal challenges. But to appropriately address societal challenges, to ensure engagement from citizens, civil society, policy makers or business, or to achieve practical use of scientifically generated knowledge, decision makers and research institutions must become more aware of the importance of engagement and involvement of stakeholders. Not only in relation to research dissemination and the output of research or technological development,

but also in its outset and methodologies³. Hence, we argue that the role of scientific knowledge goes beyond the mere answer to societal problems, and we explore responsible research orientations within the European Reform University alliance (RE:ERUA).

'As reform universities, a key motivation to map our trajectory towards the engagement approach is its potential to sharpen our critical edge, which is a core mission for each ERUA member. Collaboration with non-academic stakeholders is a crucial source of renewal and creativity for us and a means to assess existing processes and priority areas of development, test new ideas and ensure that we are indeed contributing continuously to the advancement and prosperity of society.' (<https://erua-eui.eu/re-erua>).

Defining an institution and its practices as reform is not a simple matter⁴. Some would simply categorize reform as creating something “new”. However, in the traditions of several of the universities of the alliance, *reform* also implies critical thinking, challenging norms, and hegemonic power structures and not least engagement in the empowerment of both students and stakeholders. It is in this spirit this report is written.

Thus, the role of scientific knowledge is not only about paving the way for innovation as an answer to societal and environmental needs. Innovation can also be conceptualized as the by-product of research. Historically, innovation has largely been understood as development of technical solutions to problems, not necessarily embedded in stakeholder needs and detached from social relations. Thinking about scientific knowledge production in reform institutions we favour the notion of facilitating and creating social innovation. It refers to practices that educate, change behaviour, socialites, and conditions of lives, and that contribute to the creation of more sustainability. Explicitly focusing on social innovation adds the ambition to connect researchers' practices with stakeholder involvement and critical thinking. Needs are arising from outside the university that can best be addressed collectively. Researchers have a repertoire of engaging and reflective methodologies that can be used to anticipate the empowerment of target groups, that invite critical thinking and engagement. They can generate new problem definitions, tools that become part of solutions and new social relations.

In this light science contributes to the functioning of democracies and innovation and helps countries to address crises on a global scale. To ensure that science continues to contribute significantly to knowledge production, and the development of solutions to create more sustainable futures, it must address its challenges. Namely that the global world is increasingly digitalized and resulting in echo chambers and fragmentation. Thus, changing the role of society in relation to its significance for politics, civil society and people in general. The core theoretical concepts underlying the analyses of this report seek to provide with a framework for discussing the redefinition of science in society through responsibility, care and social innovation.

³ Reference to EU commission on involvement of stakeholders

⁴ Reform university as defined in XX ERUA report.

Responsibility

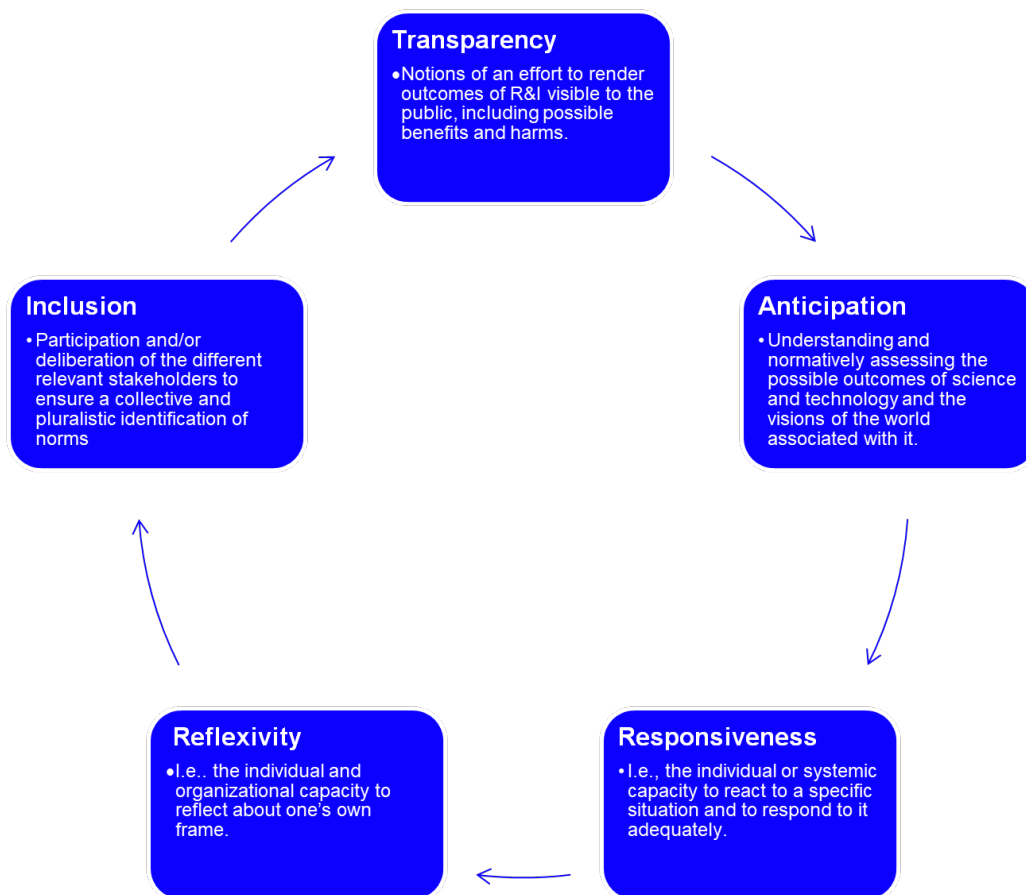
Conceptualizing responsibility in research is not new. Gianni, Reber and Pearson (2019) investigate conceptual underpinnings as well as actual possible tools from a research and innovation perspective. Instead of trying to prevent risks of research and innovations according to traditional top-down procedures, the authors suggest, that it is now time to turn towards more positive processes in order to make a co-construction of the future that we want and therefore decide what the right impacts are (Gianni 2015; Kuhlmann et al. 2016; Maesschalck 2017; Owen et al. 2013; Von Schomberg 2013 in Gianni et al. 2019).

The adoption of the word 'responsibility' entails a wide range of meanings covering different layers of societal regulatory codifications (Gianni 2016; Vincent et al. 2011; Pellé & Reber 2015, 2016). In this way, responsible practices are not relegated to political processes anymore but are ascribed to all actors involved in the development process (Fisher & Rip 2013). Furthermore, besides its individual origins, often reducing its scope to legal competences (Ricoeur 2000), responsibility has more recently assumed a proactive, positive and collective understanding which changes its overall sense in the scope of RRI (Jonas 1984; Grinbaum & Groves 2013; Stahl et al. 2013; Owen et al. 2013 in Gianni et al. 2019).

The European Commission describes RRI as a 'comprehensive approach of proceeding in research and innovation in ways that allow all stakeholders that are involved in the processes of research and innovation at an early stage (A) to obtain relevant knowledge on the consequences of the outcomes of their actions and on the range of options open to them and (B) to effectively evaluate both outcomes and options in terms of societal needs and moral values and (C) to use these considerations (under A and B) as functional requirements for design and development of new research, products and services' (European Commission, 2013:3). Key focus areas are stakeholder engagement, gender equality, ethics, open access, governance and science education and a number projects have been funded under the H2020 'Science with and for Society' stream along those thematic lines. An often-quoted point of departure of responsible research and innovation (RRI) is that it is "*a transparent, interactive process by which societal actors and innovators become mutually responsive to each other with a view on the (ethical) acceptability, sustainability and societal desirability of the innovation process and its marketable products (in order to allow a proper embedding of scientific and technological advances in our society)*" (Von Schomberg, 2011:9). This definition is rather generic and has at least two limitations. (1.) It does not reflect how responsibility in research is affected by the link between the individual researcher and its organizational framework. (2.) It is rather oriented towards technological outputs that do not take citizenship and its empowerment into account in aiming for "(ethical) acceptability, sustainability and societal desirability".

Often responsible research and innovation is referred to through five processual principles:

Graphic 1: Responsibility dimensions, adapted by Owen (2019)



We will get back to the five principles as they are guiding the analysis. However, before doing so, we will explore and explain how care ethics can both give visibility to existing responsible research practices in the alliance and explicitly consider that research today increasingly has a normative responsibility to ensure participation in the development of sustainability.

Care ethics in responsible research

Following Albertson et al. (2021; 292), there is an urgent need for “commitment to care” in responsible research – transition from transactional to relational responsibility, from focus on technological advancement and economic growth to acknowledging material interdependency (between world regions, people, and life forms). Hence, care ethics approach to RRI calls for new kinds of relationships between researchers and research participants (Sylvestre et al, 2018., Tolbert et al. 2018) as well as between more-than-human elements involved in research processes (Latimer & López Gómez 2019).

The philosopher Jonas (1979/1984) proposes the argument that the technological and scientific development implies a need for increased responsibility for humanity that is much

greater than at other times in the history of humanity. Following the concern for global sustainability philosopher, anthropologist and sociologist Bruno Latour warns us that until we reframe our thinking to acknowledge the Earth and its elements as valuable agents and participants of shared solutions, the global problems cannot be adequately addressed. (Latour, 2018). What is also referred to as *human exceptionalism* (Latour 2018). Latour invites for an inclusive, reflective process that respects interdependency. Thus, it is not about sympathy or harmony or agreement. Responsibility in this respect is about acknowledging that we are dependent on so-called 'natural' agents. (ibid. 87). Interrelatedness is in Latour's writings not new, however his approach to heterogenous, associative networks are not excessively drawing on how humans through personal and particular orientations can come to take responsibility for the non-human material world. The ethics of care is by several scholars suggested to be a way to go (Bellacasa 2017; Flower & Hammington 2022, Pellé 2019). Tronto and Fischer define care as:

"a species activity that includes everything that we do to maintain, continue, and repair our 'world' so that we can live in it as well as possible" (Tronto, 2013: 19).

Many researchers in the alliance seem to reflect this need. Here is an example:

"... I take responsibility in the way Haraway is putting it: to develop an ability to respond to the present crisis. To try to think it, to see how we can react. Not only in a rational way, but you are always also embodied as a spectator, and if you become a participant even more. [Responsibility is to develop] how we can invite spectators to become more responsible and to think of their responsibility" (researcher, political science and arts, Paris8, April 22)

However, as previously stated, responsibility has to a great extent been focusing on technological and scientific innovation. With the imperative of responsibility for humanity that Jonas (1979/1984) is defending, we are adding a global and metaphysical conception of responsibility, e.g., in relation to work towards creating more sustainability, or to further social equality and well-being, just to mention a few global concerns that scientific knowledge attends to. This calls for an approach to responsibility in research that is not merely oriented towards how research outputs solve societal problems based on certain conditions of responsibility but addresses the intensions that are driving and supporting the conducted research (Bellacasa 2011, 2017). Following Bellacasa (2017, 2011) and Tronto (2013) responsible research has two dimensions:

1. Acknowledging the way researchers' personal perspectives are affecting their motivation, choices, and methodologies in conducting research.
2. Reminding us that research is always imbedded in contextual, institutional, and not least political traditions and prioritisations.

However, following (Bellacasa 2010), despite the strong emphasis on personal and subjective ethico-political change practices, we need to rather think of care as a collective ethico-political

commitment – transforming *'ways of doing at the level of personal everyday life, not individually but in connection to a collective'* (ibid, 157). Hence, care as a deeply relational practices with interdependency as a ground for sustaining human and more-than-human life, calls for transforming subjective values and affects into collective processes of social change. The focus on care as a collective process brings it in close dialogue with the concept of social innovation and its emphasis on *'collective processes which lead to social change'* (Moulaert & MacCallum 2019; 32). Groves (2010; 7), similarly, approaches care perspective on responsible research as a *'collective experience of reflexive uncertainty'* – the need to mobilize affects, worries and uncertainties about the present and the future in a collective process of caring research.

Responsibility from a care ethics perspective precisely acknowledges that responsibility comprises many different types of activities (including the development of science, technology, and innovation). It is characterised by the *intentions* behind the actions that seek to *'maintain, continue, and repair our "world"'* in order to *'live in it as well as possible'* rather than the *conditions* for responsibility or objective outcomes to achieve (Pellé 2019, 270), and the intentions are not merely technical but morally defined (Tronto 2013).

Responsible research as embodied practice where an important dimension is for researchers to work with and acknowledge the interdependence with the world in which they conduct their studies is thus also linked to participatory and deliberative principles in political processes, as it enables inclusion of 'different voices', fundamental to defining a democratic society (Tronto, 1993). This approach goes hand in hand with defining care as *'an affective state, a material vital doing, and an ethico-political obligation'*. Bellacasa (2017, 42) argues for adding affectivity and the understanding of care for our common futures as an affective normative dimension in the practices and outputs of research. Researchers need to pay attention to not only *for whom* one cares, *'but also "Who cares", "What for?", "Why do 'we' care?", and mostly, "How to care?"'* (Bellacasa, 2011, 96).

Asking *'what we are encouraging caring for?'*, Bellacasa (2011; 92) urges the researcher to not only study how care is enacted in the practice under study, but also to think about our own care and concerns; what worlds we, as researchers, want to question, encourage, and strengthen through our research. For example, rather than focusing on stabilizing matters of fact, Bellacasa (2011) likewise argues that: *'[matters of] "concern" alters the affective charge of the thinking and presentation of things with connotations of trouble, worry and care'* (87).

Thus, in contrast to a backward-looking conception of responsibility as a set of obligations and formal rules to follow, Tronto adopts an anthropological perspective according to which our responsibility to others is something *'flexible, rooted in political motivation, cultural practices and individual psychology'* (Tronto, 1993: 132). Both the things that we do or that we don't do make us responsible for taking care of a need. In other words, once needs have been identified (attentiveness), someone or some group must take the responsibility of meeting those needs (Pellé 2019, 271).

Connecting responsibility and care is thus about acknowledging that we need to think in new ways about the role of science. The task is not only to develop technological innovation in order to create sustainable futures, but also that engagement with the ones in need is calling for new ways of defining the ethico-political obligation that scientists and science carry. This requires that investigations of responsibility go beyond instrumental measures and their focus on data management, laboratory guidelines, informed consent etc. There are also the dimensions of why and how researchers engage with their personal matters of care and not least their professionally developed methodologies of engagement. The researchers reflect their values and choices of research topics and methodologies often oriented towards producing scientific knowledge that focuses on concrete actions repairing our world so *'all beings can live as well as possible in it'* (Tronto & Fischer 1990).

We should bear in mind that care in relation to responsible research is not about researchers having individual virtues: *'Caring is not an individual virtue, although certain virtues may help sustaining it. Rather, caring is a relational state or quality, and it requires distinctive contributions from carer and cared for'* (Noddings 1989; 237.) Responsible research is therefore about attending to other beings' needs. Not attending to needs of others (deliberately or not) would be a moral failure (Pellé 2019; 270). In addition, if care-based relationships demand that we take care of others' needs, this does not mean that we should forget our own needs. As argued by Gilligan's (1982) seminal work, beneficial care implies good self-care, which includes following interests and instincts, shaped by context and character.

In the below graphic the interrelation between responsibility in research and care is mapped out. It draws on the five commonly used responsibility dimensions.

Table 1: Responsibility in a care ethics approach, adapted from Tronto 1993, 2013, Collet et al. 2018

Responsibility dimension	Phase of Care	Explanation of phase	Moral element associated with phase
Transparency	Caring about	noticing/recognising people's needs	Attentiveness
Anticipation	Caring for	once the need is recognised, it is necessary to take responsibility to ensure that people's needs are met concretizing how this can be done.	Responsibility
Responsiveness	Care giving	the actual hands-on physical work of caring for people	Competence
Reflexivity	Care receiving	responding to the care by the receivers of care	Responsiveness
Inclusion	Caring with	the reiteration of the process of care, where habits and patterns of care emerge through time	Trust and solidarity

This framework is intended to guide the thinking of responsibility dimensions in research through the concept of care. Following Dupret and Brunet (2022), it will serve to explore how framing different dimensions of responsibility in three stages of RRI (why, how and impact) through care can strengthen, enrich and re-think what responsibility in research means in lived experiences of researchers. This means that the reader will find that different dimensions of responsibility are more salient than others in different stages of research.

Transparency (an effort to render outcomes of R&I visible to the public, including possible benefits and harms); care is about entering a reciprocal and equally based dialogue with the affected parties, making clear the different (locally imbedded) interests and values of all involved.

Anticipation (Understanding and normatively assessing the possible outcomes of science and technology and the visions of the world associated with it); which requires a process of adaptive learning, integrated and embedded into and around research and innovation itself. It is about trying to imagine what value research contributes to others and our common world - resembling caring about - caring about the future, linking with next generations and other beings. It invites moral pluralism, but not relativism, as the common normative goal which is caring about a common future.

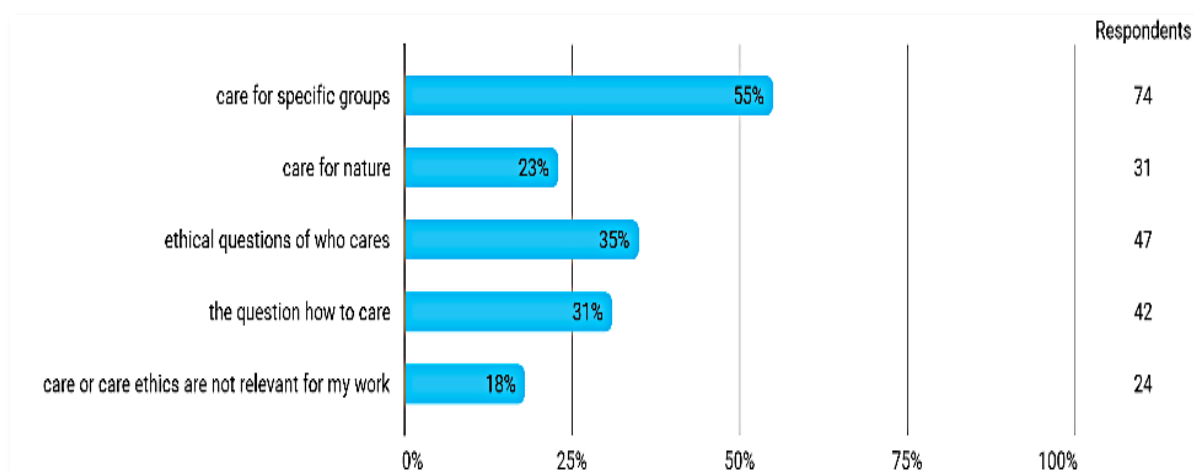
Responsiveness is about creating organizational infrastructures, that makes researchers able to be aware of how to take care of plurality of knowledges (i.e., the individual or systemic capacity to react to a specific situation and to respond to it adequately) is about taking care off - the quality of having a reaction to something or someone, especially a quick or positive reaction.

Reflexivity (i.e., the individual and organizational capacity to reflect about one's own frame), and a commitment to opening the purposes, motivations, intended (and unintended impacts) of techno-visionary science and innovation to reflection and deliberation, where consensus is not necessarily the goal.

Inclusion- participation and/or deliberation of the different relevant stakeholders to ensure a collective and pluralistic identification of norms, (i.e., knowledge co-production and inclusive deliberation), which is also about listening to others (stakeholders and non-humans) (Grunwald 2011, 2012; Guston, 2014; Owen et al., 2012, 2013b; Pellé 2019; Stilgoe et al., 2013; von Schomberg, 2013)

We argue that care is (and should be) a strong driver of conducting responsible research for sustainable futures and our WP3 survey shows that indeed it already is:

Graphic 2: Survey data. Which elements of care matter in your work? (select all that apply)



Social innovation and social change

Should the role and specific identities of reform universities be to become better at societal engagement? Should there be an institutional commitment to responsible research and innovation oriented towards sustainable futures and the well-being of humanity? This would be a step further than “just” being societally engaged. It is an engagement in creating the foundations for reflexivity and inclusion and thus empowerment, which is part of the criteria of the more recent definitions of responsible research (Owen 2019).

In 2018, the European Commission recommended that Member States set and implement clear policies to reward a culture of collaboration and of sharing of knowledge and data (Commission Recommendation (EU) 2018/790 of 25/04/2018). At the same time, the European Strategy 2020 refers to ‘*innovative education, training and employment*’ (EU, 2010,18) in relation to creating opportunities for deprived communities. In addition to creating employment the Commission also sees potential of SI to contribute to better service provision.

However, the EU’s understanding of SI has been criticised for staying ‘*within the framework of the existing economic order*’ (Moulaert et al., 2017, 25), rather than focussing on empowerment through social transformation. This critique extends to research on SI funded by the EU, which in recent years has tended to favour economic or market-economic interpretations of social innovation, adopting a view on social entrepreneurship also prevalent in policy and public strategies that is more entrepreneurial than social, favouring social business over social and solidarity movements (2017; 19). This definition has been criticised by researchers who tend to see social innovation as critical response to the innovation age, addressing the negative side effects of the ‘extractive technology-based economy’ (Gianni et al., 2019, 2), which also triggered a decade and more of management-driven public sector reforms’ (Avelino et al., 2017).

Conceptual notions of social innovation can focus on organisational processes and outcomes or include broader notions of social change. The field's boundaries are therefore blurry. A common denominator might be that SIs are social *'in both their ends and their means'* (Nicholls et al., 2015; BEPA, 2011), pointing to the origins of SI mainly in the third sector and its overlap with private, state and market spheres. It contains an element of agency, the assumption that people can shape and design their environment, supported by societal resources like participatory decision-making structures, access to education, and technological progress, combining an actor and structuralist perspective. Like RRI, social innovation has a normative and a functional reading. The normative approach considers social innovation as a tool for societal engagement and social change, while the functional stream examines the tools of social innovation processes.

Broadly referring to solving social problems through new social relations and new ways of combining resources the concept has been used to describe collective initiatives that work towards improving opportunities for people threatened by exclusionary processes or looking for alternative futures (Martinelly, 2013), as well as a tool to analyse organizational and social change. Defining the concept further, Hulgård & Shajahan define the three characteristics of SI as the satisfaction of human needs, social relations, and empowerment or socio-political mobilization by people trying to fulfil their needs, stressing the participation of the target groups of SI in the innovation process (2013; 93). Equally stressing the role of participation is Howaldt et al.'s (2015) observation that the tools of social innovation are ideas, socially generated, that need collective implementation, adaptation, and configuration. Moulart et al. (2017) see the locus of SI in bottom-up organisations, social economy and social movements, driving social, cultural and educational emancipation. *'Social innovation is an ethical approach to social change. (...) a solidarity-based approach to building community and society(...) SI is first and foremost innovation in social relations based on values of solidarity, reciprocity and association'* (Moulart & MacCallum, 2019).

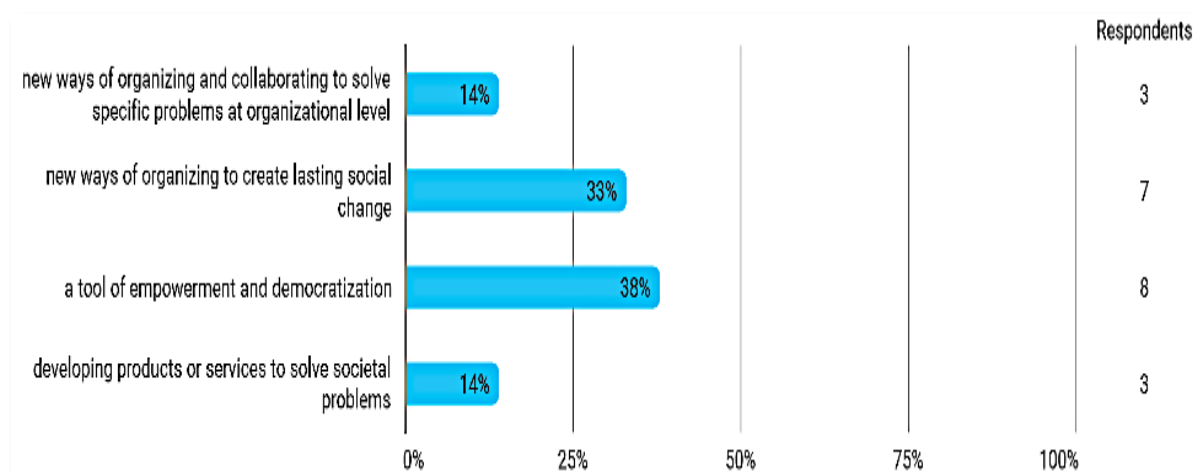
In this perspective social innovation is a driver of democratically driven social change, despite employing a terminology used in relation to economic development, i.e. Schumpeter's work on innovation. A conceptualisation formulated by Howaldt & Schwartz from a social change perspective that combines organisational level and societal level perspectives, defines social innovation as:

A **'new combination and/ or new configuration of social practices** in certain areas of action or context; **Prompted by certain actors or constellations of actors** in an intentional targeted manner; Developed with the goal of better satisfying or **answering needs and problems** than it would be possible on the basis of established practices'. It is 'social to the extent that it is **socially accepted and diffused** throughout society or in certain sub-areas'; finally, 'transformed (depending on circumstance) and ultimately **institutionalized as new social practice** or made routine' (2017: 167).

Our positioning within the research field of social innovation is based upon the democratic tradition, addressing societal problems through the engagement of citizens, civil society organisations, and/ or public and private sector stakeholder in social innovation process for

more equitable socio-economic and ecological outcomes. In responsible research, this includes approaches to societal engagement that involve new ways of organizing and empowerment of participants by including them in research projects through different types of methodologies. It is also driven by ethical and partly political considerations (the normative aspect), and several related tools reflected in RRI's five dimensions of responsible research and innovation (transparency, anticipation, responsiveness, reflexivity, inclusion) that must be negotiated, implemented and practiced at organisational/ institutional level, working towards a variety of impacts that are problem-solving and social change oriented. This position is also prevalent among participants in the WP3 survey on responsible research who work with the concept of social innovation:

Graphic 3 : Survey data. Do you define social innovation mostly as (select 1)



2 Methodology

Based on a literature review a systematic empirical data study was carried out. The study has applied a mixed method approach (Johnson et al. 2015), combining in-depth qualitative interviews with an online (quantitative) survey and a review of scientific literature. A mixed method approach reconciles the differences between qualitative research characterized by socially constructed realities and lived experiences and quantitative research characterized by literature review gap, and generalizability, validity and reliability. It integrates quantitative and qualitative research as loosely coupled systems where this research study, has a weighting on the qualitative in-depth researcher's narratives, while the quantitative data has added to supplement and give additional validity to the qualitative study by offering wider and somewhat generalized perspectives to the qualitative analysis.

During the desk study and interview guide development we started recruiting informants, based on reviewing research profiles, WP3 board member recommendations and snowballing. The interviewees are researchers within a broad range of disciplinary fields who apply various methodologies to engage with society and societal concerns. The objective was to obtain

qualitative insights on existing practices of excellence and innovative research projects on social innovation and societal engagement. While conducting interviews with 35 selected societally engaged researchers from the alliance universities, we also launched an online survey to be distributed widely throughout the alliance with the support of communication support units in the respective universities.

We then engaged in thematic analysis, this report is the result and final deliverable 3.3. The entire process has been carried out with input and feedback by the WP3 board and WP3 expert group.

The qualitative interviews

We performed 35 in-depth interviews across the 5 alliance universities. They carry out research in sustainable farming, economic forecasting, the empowerment of women in Asia, in social media participation, social robotics, cooperative transport, shipping and transport, food systems, pollution and plant invasion, philosophy, archaeology, circular economy, cultural sociology and much more.⁵

Table 2 : Overview of empirical material in the qualitative interviews

Universities	Gender	Title	Scientific field*
Roskilde University: 7 interviews. 3 male, 4 female	Male interviewees: 18	Professors: 12 (including 1 interim professor)	Social Sciences: 15 Natural sciences: 8 Humanities: 6
Paris8 University: 4 interviews. 1 male, 3 female	Female interviewees: 17	Associate Professors: 10 Assistant Professors: 10 (including 2 lectures, 1 post doc, 1 impact officer)	Technical/ Engineering 6
New Bulgarian University: 7 interviews. 5 male, 2 female		Ph.D.-students: 3	
Konstanz University: 9 interviews. 5 Male, 4 female			
The Aegean University: 8 Interviews. 4 male, 4 female			

*Please note that many researchers work in interdisciplinary departments, research groups or projects. Many have been trained in specific disciplines but collaborate daily with colleagues from other fields.

⁵ See the appendix for a full overview of interviewee backgrounds.

Obstacles

The interviewees were sent an invitation to participate in an interview where they were asked to describe their experiences of working for a reform university⁶ and how they relate to the concepts of Responsible Research and Innovation (RRI). We asked the interviewees to exemplify their notion of RRI through an ongoing or recently finished research project. The selection of researchers was based on whether they would see themselves as conducting societally engaged research, the sample is therefore biased towards researchers from disciplines that use methodologies with stakeholder engagement. However, we argue that no matter the academic discipline, there are ethical care concerns that are relevant to address that go beyond the standard RRI measures.

Also, it turned out to be a challenge for some of the interviewees to relate their answers to one active project, as many researchers work with a portfolio of projects. Their answers give a particular insight into not only the methodologies of research but also how work conditions are affecting the conditions of scientific knowledge production. Also, language barriers and conducting interviews online with a limited access to body language and contextual fine-tuning was at times resulting in more superficial and brief exchanges and answers. Even though the five universities have agreed to collaborate in ERUA and RE:ERUA as reform universities, they differ in geographical, institutional, cultural, political, historical and not least pedagogical traditions. These differences may have resulted in occasional misunderstandings between interviewer and interviewee. However, as the drafts of insights and findings are shared in the board and in the expert group, it has been possible to account for those in the final version of the analysis and report.

Quantitative survey

Inspired by findings in literature review and qualitative interviews and extensive input by the board members and expert group the electronic survey on responsible research with focus on societal engagement and social innovation within the Alliance, has been broadly disseminated throughout participating institutions.

The survey was coordinated by Roskilde University (RUC) and carried out across the European Reform University Alliance between 8 and 24 June 2022. The questionnaire was developed in close collaboration with WP3 board and expert group members who provided valuable feedback during the preparation stage. The survey was shared with the help of the WP3 board members, each institution was responsible for sharing and advertising, based on a description of the survey's purpose, information on data handling and a link to SurveyXact provided by the RUC team. We also invited all participants in the qualitative interviews to share the survey but do not know who of them did.

⁶ ERUA report (2021) "what is a reform university today" -part 1 education, part 2 - research. On the one hand the universities depart from "challenging traditional forms of education" and research to address "contemporary challenges", challenge narrow disciplinary research and open up to inter- and trans-disciplinary research, open the universities to the outside world (p.19)

Universities chose different ways of sharing the survey link, using the university newsletter (RUC) and departmental (RUC) or university wide (KU) mailing lists, social media platforms (Paris 8, NBU, AEU) and targeted mailing (AEU).

Numbers: 108 participants completed the survey, 97 partially completed it. Participants who completed the survey (108) were from all academic positions, with 9 non-tenured and 15 tenured junior researcher positions. 61% of them have been working in academia for more than 10 years, 57% have professional experience outside academia. 52 of the 108 have a background in Social Sciences, 35 in the Humanities, 8 in Natural Sciences, 8 in Engineering and 5 in Art and Design.

Of those who completed the survey participation was as follows per university:

RUC	15
NBU	32
AEU	18
Paris 8	27
KU	20

We therefore do not consider survey results as representative.⁷ However, findings from the survey support findings from the qualitative analysis and serve as visual illustrations.

⁷ Many online surveys have suffered low response rates following the pandemic as too many such requests have been circulating since the lockdown. Also, it is always possible to discuss the bias of who are the people that are actually finding the time to respond online surveys, and how this may skew answers. The survey results are coupled with other empirical material and research-based knowledge from the literature review and offer relevant insights in tendencies that highlighted in the interviews as well.

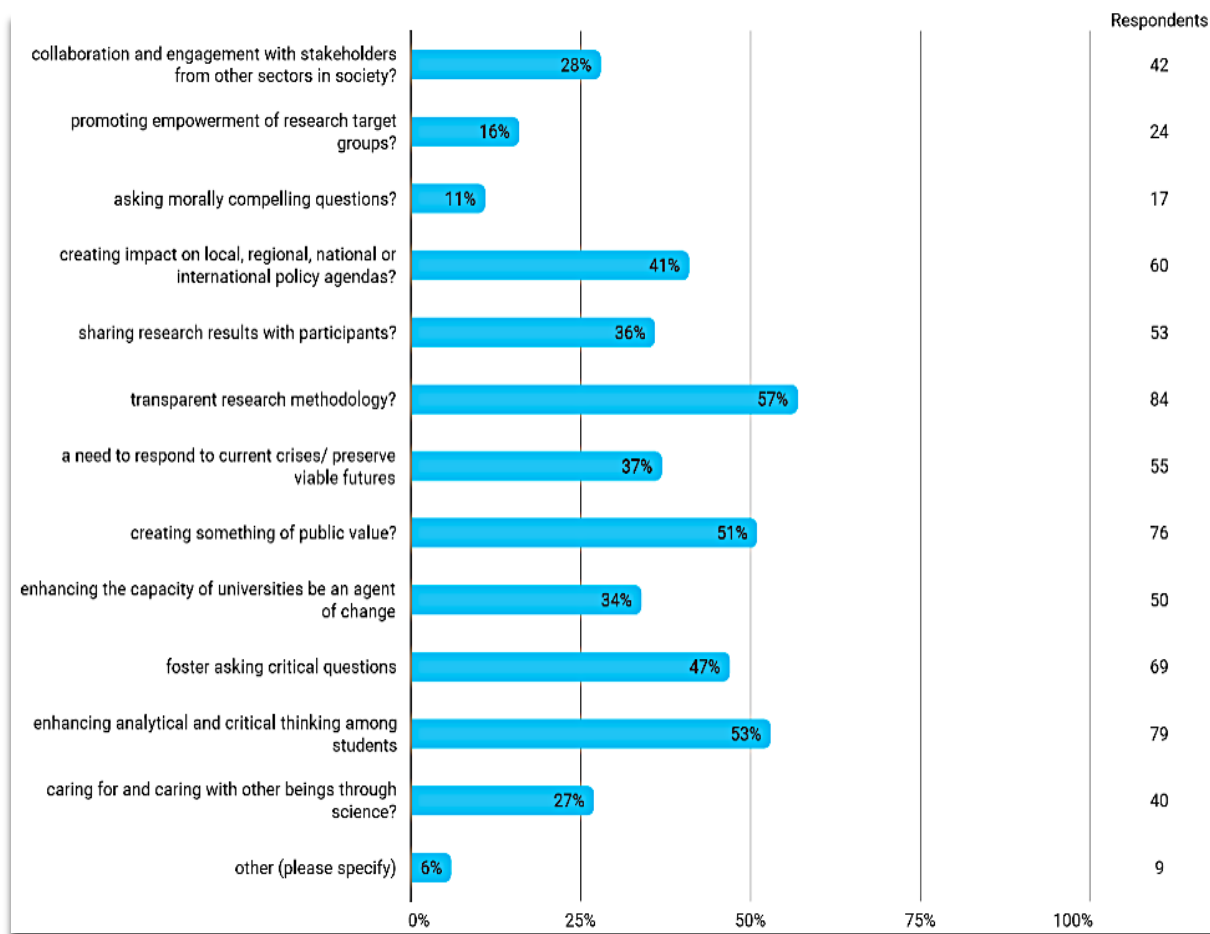
3 Analytical framework

The study of RRI in the alliance started with a literature review, where dimensions of responsibility in research were mapped. The five dimensions that are most agreed upon also frames, as earlier mentioned, the analysis of this report. Adding to this point of departure we have, as social scientists with expertise within social innovation, organisation and work life also applied an explorative research approach in aiming to challenge and adjust these responsibility definitions by taking on board the lived experiences of the researchers in the alliance through the theoretical lens of social innovation and ethics of care.

The analysis is organised through three dimensions: *Why*, *How* and *Impact*. Firstly, we build on increasing calls of re-thinking responsible research from a care perspective (Groves 2015) by going beyond normative regulations and highlighting the affective and situated dimension of research practice (Puig de la Bellacasa 2010). Hence, the *Why?* dimension aims at exploring and extending the need for responsible research from a care perspective. However, following (Puig de la Bellacasa 2011), care should be understood not only as value-based, but as a material doing, as “ethically and politically charged practice” (ibid, 90). Thinking of care as a practice allows us to think of how to generate care. Hence, the *How?* dimension explores the ways responsible research from a care perspective unfolds in and beyond universities. In the dimension of impact, we aim at understanding how caring responsibility in research can generate effects in society.

What do you understand by the notion of responsible research?’ Researchers most often expressed that their research and its outcomes should not cause harm to participants (people and nature), that researchers must be truthful to their findings, and a sense of duty to give something back to society. As will become evident in the analysis, these main characteristics translate to a large extent to the five dimensions of responsibility transparency, anticipation, responsiveness, reflexivity, inclusion, and related understandings of care. Not all dimensions of responsibility are relevant in each phase of the research process. Not all researchers weight responsible practices in the same way, depending on personal motivations in their roles as researchers and partly on disciplinary background. Finally, not all aspects of responsibility mentioned can be implemented by researchers due to institutional or logistical constraints. Hence the conducted interviews also shed light on aspects worth taking notice of when wanting to finetune what responsibility in research should be.

Graphic 5: Survey data. What most characterises responsible research? (select up to five)



Transparent research methodology (57%), enhancing analytical and critical thinking among students (53%) and creating something of public value (51%) were the most selected characteristics. Asking morally compelling questions (11%) and promoting the empowerment of researched target groups (16%) were the least important. Other suggestions included thinking about the possible positive and negative consequences of the research and how it can be used/abused by other stakeholders; giving voice to underrepresented communities, challenging people and institution with social power positions with knowledge; and complying with research ethics.

Overall, the understanding of responsibility in research by researchers through interviews and survey is on an overall level corresponding with commonly agreed upon research-based definitions of responsibility in research. However, defining responsible research is also proved to be closely linked to the personal researcher perspective, where personal motivation and not least professional training background (in disciplines) and the institutional frame, support and not least merit systems. Also, the responses of the researchers juxtapose definitions of responsiveness in the scientific literature as it is here often oriented towards how the institutional capabilities of change among stakeholders can be supported, and not considering the infrastructure and organisation of the researchers themselves. Lastly, even if RRI is also

addressing inclusiveness, reflexivity and anticipation, these dimensions are in the researchers' narratives nuances in more or less collaborative, participatory and empowering ways.

Therefore, the question of why researchers conduct the research as they do, how they do it in their disciplinary and institutional contexts, and how impact can be conceptualized, becomes central to our analysis of responsibility.

Why do (responsible) research? – connecting researcher/research

We introduce the *why* as level of analysis because we frame responsible research as being related to both social innovation as societal engagement and to care ethics. Societal engagement and the normative understanding of social innovation starts with citizens who can be both private and somewhat passive persons and execute active citizenship by going to cast their vote, engage in civil society, join a demonstration, lobby governments – as private citizens and as professionals. The same applies to researchers. We do not 'leave the engaged citizen at home when we go to work'. Our active citizenship in the workplace might find expression in the choice of career path, in the way we engage in organisational questions and with colleagues or how we take work-related experiences back to our private lives and 'process' them further.

Similarly, we are caring persons wherever we go, embodied through our social relations, and shaped by interests and pursuits, which are situated but often tied to universal questions of relationality that underly our identities as citizens living together in collectives that are regulated by shared norms and cultural practices and most people – including researchers – are more or less affected by the global crises surrounding us. The "*why*", thus, relates to peoples' capacities, anticipations and reflexivity that makes us choose certain knowledge questions and research approaches, where we must translate personal interests and ideas into ethical approaches and the willingness to reflect and adapt. Being ready to pursue this path might explain choosing the career of the researcher, driven by opinions and curiosity but with a willingness to learn. Hence the personal and the professional identity of the researcher are connected, linking to value perceptions, working conditions, who I want to be in the world, and what keeps us spinning forward 'against the odds' (Dupret & Pultz 2021, Green 2016).

What we might call the social dimension of research is increasingly getting acknowledged and qualified within the EU (E.g. ERA policy agenda 2021-2027 framing the importance of close collaboration with society in research and innovation in conducting responsible research, European Commission 2019). However, it is yet to be seen how it relates to the development of their research methodologies, the topics they are concerned and care about and not least how they engage with society. We start our analysis with the question *why* people chose to be researchers in the first place and *why* they work with specific knowledge questions.

However, we also must mention that not all researchers are primarily driven by a sense of responsibility arising from concern or the wish for driving change. They can also be driven by curiosity, fame, citations etc., with responsibility largely reduced to methodology. At the same

time, curiosity also has a normative dimension, e.g., when fed by questions of injustice, intolerance, or inequality. Thus, focusing on the motivations to do research - and in a responsible way – is an important first step. We do so by drawing on examples from the empirical data that essentially give an idea of the variety of motivations and underlying identity issues that constitute the *how*.

Conceptually, this section draws on three dimensions of RRI:

The notion of **anticipation** could mean to have a realization in advance, before initiating a research project. One could argue that we as researchers have an intuition for science outcomes that becomes a driver for shaping a research project in our minds, prior to actually realising it on paper. This intuition could be described as a hermeneutical way of collecting, understanding, and creating knowledge based on the foreknowledge or prescience from our previous experiences and systematic schooling in science/research creation. It is the driver to engage in research because we believe it will yield an outcome that can help us take responsibility to act. It is the beginning of **caring for** someone or something.

The notion of **responsiveness** in research refers to the development of competences that enable us to develop actual hands-on ways of addressing societal needs. Here, we link it to certain motivations for becoming a researcher, one of them might be the wish to be able to do something, including **giving care** to people or planet.

The notion of **reflexivity** in RRI refers to the individual and organizational capacity to reflect about one's own frame. Arguably, this process begins with curiosity, the readiness to ask questions and to pursue a knowledge interest that might confirm our prescientific ideas or challenge them. There is also an element of extending care to ourselves and our wish to contribute (**care receiving**).

It should be kept in mind that in this section dealing with “why” of researchers the responsibility dimensions are oriented towards the researcher's perspective.⁸

⁸ When focusing on social innovation and societal engagement through research, it makes sense that many of the responsibility dimensions are relational and that research methodologies and outputs are to be related to how anticipation, reflexivity and responsiveness is not merely a matter of researcher perception, but part of implied stakeholders perceptions and experiences as well. These aspects are relevant to dig into in the analytical section on “how”, researchers conduct responsible research.

Table 3: Overview of responsibility and care dimensions when defining Why to conduct RRI

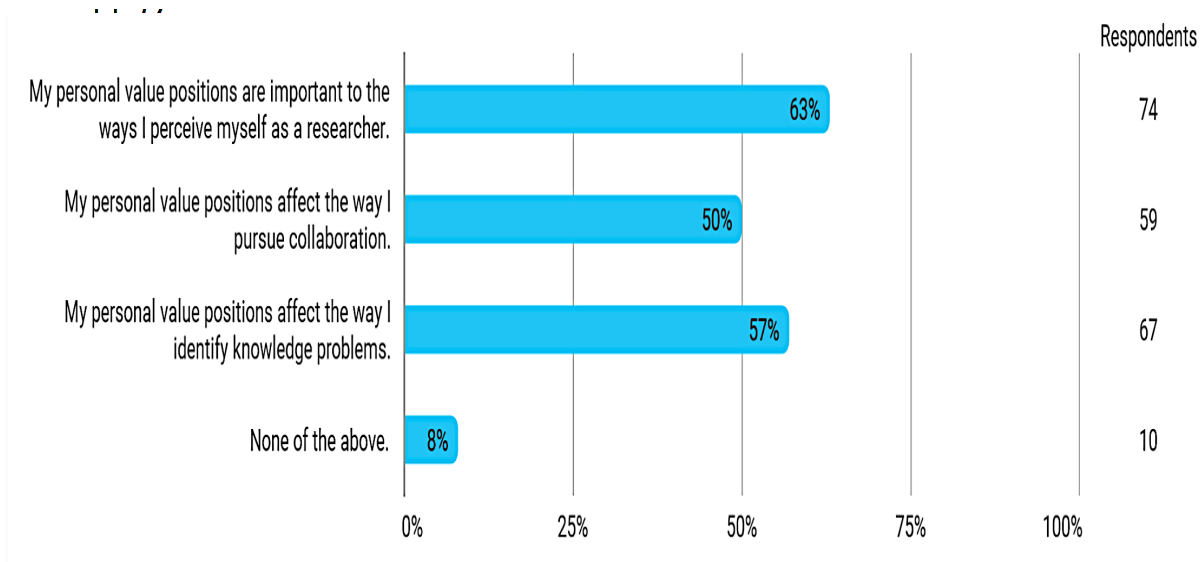
Why conduct RRI? drivers and barriers		
<p>RRI – responsiveness towards others Individual capacity to react to a specific situation and to respond to it</p>	<p>Care giving Interest in developing actual hands-on ways of caring for people/living beings</p>	<p>Societal engagement Interest in addressing needs and problems collectively, aimed at social change</p>
<p>RRI – Anticipation of researchers Understanding and normatively assessing the possible outcomes of science and technology and the visions of the world associated with it.</p>	<p>Care for Once the need is recognised it is necessary to take responsibility that people's needs are met</p>	<p>Societal engagement Addressing how the ways the solutions to societal needs are anticipated collectively, aimed at social change</p>
<p>RRI – Reflexivity of researchers individual capacity to reflect about one's own frame, triggered by curiosity as a part of the research process and outcome</p>	<p>Care receiving Extending the frame through enabling the experience of being a participant, making ourselves available to critique of process, responding to the care given</p>	<p>Societal engagement Engaging in critical thinking aimed at social change through/ as part of society.</p>

What unites many researchers interviewed is curiosity and the belief that knowledge is a driver of change. This belief can be deeply rooted and fundamental, linked to concerns for a more sustainable world (Latour 2018, Bellacasa 2017). This is e.g., expressed by a social science Associate Professor at Roskilde University (RUC) who conducts research on circular waste management and who stated that working towards sustainable solutions is a fundamental drive for all his work, making work meaningful. Supporting sustainable development is seen as a personal responsibility, using waste minimization and recycling as a tool. The concern for sustainability interlinks with the wish for academic recognition, giving meaning to the choice of career.

Another natural science professor at RUC working on plastic and chemical pollution explained how concern for the environment shapes family life, bridging private and professional interests. A biology professor from Konstanz University (KU) was already interested in 'saving the world' and how to tackle climate change as a child. Both researchers wanted to engage in environmental studies to reach the goal, but in order to dive into climate change from the beginning one of them chose biology instead and loved it so much he remained in this field of research. The wish to use science for positive outcomes for the world is what we understand as anticipation in RRI, linked to a deeply rooted ethical concern to care in general.

In the survey, 74% of participating researchers stated that personal values are important to their professional self-perception, affecting the way they identify knowledge problems. Half of the respondents link personal values to the way they pursue collaboration.

Graphic 6: Survey data. How important are personal value positions in your research? (select all that apply)



Moving from the general to the more specific level of caring through science, that is still situated in the question of *why* being a researcher refers to choosing a discipline and specific knowledge problems. Building on personal interests and values we make professional choices that enable us to respond to specific challenges that we want to engage in and give care to. One example is a post-doctoral researcher in development economy, development policies and political economy at KU, who addresses the difficulty of identifying potential beneficiaries of social protection schemes in Bangladesh, as there is a lack of data that can help identify these eligible. Another example is a professor of Dance at Paris 8 who got tired of a perceived lack of awareness of social problems in the dance world. She turned towards building dancers' practices and ways of sensing the world as legitimate knowledge that tackles social problems, pushing for a different understanding of what dance can contribute within the field of science and in relation to social change. In the researcher's view, research should **respond** to needs or emergencies where at times embodied knowledge and interrelations are the most appropriate way and methodology to invite people in vulnerable situations or from deprived backgrounds to express their needs, wishes, or experiences.

The wish to respond to societal challenges through alternative research methodologies is also mentioned as important motivation by a professor and teacher in cultural technology and communication at the University of the Aegean (AEU) on Lesbos Island. Her work on the use of technology in cultural heritage is driven by an interest in fostering dialogue. The use of digital technology as a research methodology can be a way to reach out to distant stakeholders that otherwise would not have a voice in the research. It is also a way of conducting research that

is disseminated in different ways to society, using comprehensible language, thus increasing and exercising **responsiveness**, as a dialogue needs a counterpart, with the potential to discover collective ways to care (**care giving**) and innovate (**societal engagement**).

A young Assistant Professor within the field of Administration and Management at New Bulgarian University (NBU) considers care for the environment as the key aspect of responsibility. This researcher believes in multi-stakeholder consortia: *'I love working with practitioners, it's my thing. ... I like to see the future, to prepare projects for that, to be several steps ahead.'* Hence her enjoyment of working on developing strategies for soil regeneration, building economic modelling and forecasting technology. Another AEU researcher, professor in Sociology who studies *'underdog communities'* in Greece and specifically on the islands, is driven by the worry for democracy. In the interview he refers to an explosion of mistrust in Greece in 2013. *'People were ready to give up their freedom to find a leader who will lead them to salvation'*. These examples express an **anticipation** that is a strong motivator to engage with stakeholders.

The motivation can also be general curiosity combined with a long-standing passion for a specific topic. An Assistant Professor in Sociology from KU named curiosity and a keenness to learn and be open-minded as the motivation to enter research. He mentioned openness to be challenged on what he thought he knew (**reflexivity**), and the wish to contribute to public debate by introducing a more nuanced perspective, giving voice to people who are otherwise unheard (**responsiveness**). Passion not only for a specific topic but also for the tools chosen to address it can even become an aspect of self-care (**care receiving**). As a NBU Assistant Professor points out: *'Personally, I feel that I am doing things at work that are unique, data analysis makes me feel calm, I open an excel sheet when I am stressed.'*

The wish to increase personal **responsiveness** and **reflexivity** towards own practices and conceptualizations can also be pursued by deliberately choosing to work in a reform university. Another associate professor in Social Work from NBU trained as a psychologist expresses being enchanted by the idea of reform university and more collaboration, even though it was still a work in progress. He moved into community life with a project involving adolescents as community health promoters in the early 2000s. This became the basis of his PhD project, looking into the vulnerabilities that are the result of collaboration between academics and civil society.

A RUC professor in Agronomy with a focus on organic farming stated that he came to RUC because he wanted to work in collaboration with practitioners, an unusual practice within the natural sciences. Starting within the traditional natural science paradigm where research creates generic solutions, he realized over time that listening to farmers gave him more insight into regenerative farming (which was the focus of the research project) than *'just'* feeding the farmers with pre-defined information. This was an important learning take-away from engaging with stakeholders, as learning from the soil became a joint project showing that sustainable futures are environmentally and socially interrelated and contextualised. RUC's problem-oriented approach enabled the kind of responsible research he wanted to do, and it determined the continuation of this particular professional career. *'My motivation was that if it couldn't become collaborative, I wouldn't continue. This was not possible in a classical university.'*

Summing up on 'Why'

Although responsible research for some researchers has mostly to do with methodological transparency, it was widely expressed that *'doing good'* on a societal level, both in terms of contributing to social change and to sustainable futures in general is of importance.. Furthermore, several researchers described great innovative approaches in engaging with relevant stakeholders, not only in the outputs and dissemination of the project results, but also in the problem formulation and the ongoing methodologies of their research projects, where personal motivation and experiences are important drivers in creating stakeholder relations, coining important matters of care to pursue and not least in how reflexivity, responsiveness and anticipation is sparked from a subjective perspective and channeled into the research relations and ways of engagement. Often the role of scientific knowledge described as source and tool of reflection and incentive for action to change status quo, departing from a personal perspective of how the world is developing. For some, reform universities appeared as specifically suitable institutional contexts.

Table 4: Care and responsibility dimensions identified in motivation for practice

Responsibility dimension	Phase of Care	Identified practices
Anticipation	Caring for once the need is recognised, it is necessary to take responsibility to ensure that people's needs are met concretizing how this can be done.	Researchers' personal motivation, embodied knowledge, interrelations and previous experiences (in and outside academia) influence how needs are identified as matters of concern and subsequently their orientation in research and their choice of research questions and methodologies.
Responsiveness	Care giving the actual hands-on physical work of caring for people	Some are actively choosing to work in a reform university in order to be able to conduct cross-disciplinary work, and research that (and is supported to) challenge hegemonic power structures
Reflexivity	Care receiving	Researchers' self-reflection on own positioning as a collaborative researcher both resulting in revisiting own methodologies and rethinking self-care as part of an interconnectedness with the world one is investigating and actively choosing a place of working where this seemingly is possible
Social innovation as societal engagement	Researchers as concerned citizens who use knowledge to pursue social change	

How to do responsible research?

In this section we analyse how interviewees link responsibility to the research process, to efforts of dissemination as part of societal engagement strategies and to institutional and cultural frameworks that can be supportive or not in RRI.

Responsibility is linked to care and to social innovation conceptualised as societal engagement in several ways: research processes and methods that **include** participation and deliberation with different stakeholders (other researchers/ disciplines as well as from other sectors) can be understood as **caring with** each other for a specific topic, which helps build trust and maybe even solidarity around a certain issue, given the process follows a **transparent** approach that recognises different stakeholders' needs and interests (**caring about**). This can be a question of ethics: how to interact with respondents or study participants (citizens or nature, 'all living things' Bellacasa 2017), how to make sure they won't experience harm. There are also questions of collaboration with other researchers from different countries or disciplines, with partners from civil society, the public or the private sector.

Another important aspect of responsibility is **transparency** in relation to research objectives and methods, but also in terms of sharing and disseminating knowledge. Paying attention to people's needs and contexts through reciprocal dialogue makes interests and objectives clearer and demonstrates the situatedness of active responsibility that is concerned with **caring for** specific issues. This care shows itself in attempts to share knowledge with wider audiences that are needed to instigate social change and that are part of societal engagement strategies that often come from a place of personal motivation.

Responsibility can also show itself in dynamic research methodologies that evolve and change throughout the process. This contains an element of **reflexivity** of all participants, being open for critique of own frames and assumptions, opening possibilities for change that benefit participants and maybe society (**care receiving**). *'What is considered as "good practices" does not only rest on an individual basis; it has to be settled through collective processes that allow for fair discussion'* (Pellé 2017:273).

The how is also related to RRI governance, shaped by institutional culture and set-up, dominant paradigms, and discourses. As Pellé states, *'one of the normative tasks of a responsible R&I governance will be to promote the flourishing of care relationships between R&I actors by different means: appropriate conceptual frameworks which put a theoretical emphasis on interdependence and relationships instead of abstract and only backward-looking responsibility (such as liability or blame)'* (Pellé and Reber, 2015, 2016), training and education to make the need for caring practices in R&I widely acknowledged and an institutional design that allows caring relationships to be established between funders, scientists, companies, incubators, local communities and citizens' (Sander-Staudt and Hamington, 2011).

From a societal engagement and social innovation perspective we include the formation of new relations and/ or networks that come together to initiate research and change processes based on a collective notion of good, while taking pluralism into account – which is not only a

strategic or methodological approach but arguably also already the beginning of an outcome. This also includes research-based teaching that involves students in ongoing projects.

For quite a few interviewees, responsibility made them at first think of standard procedures, such as transparency in relation to data use and informed consent, while a broader view of responsibility is not at the forefront of their work. Some even admitted that they had never thought in terms of responsibility. They 'discovered' new aspects of responsibility through aspects of caring and engagement in reflections and dialogues of the interviews, but typical academic motivations (curiosity, keen to be the first to know, to discover, and acknowledgement) and outputs like writing books or conducting good teaching remain main drivers for this group of interviewees' work.

Table 5: Overview of responsibility and care dimensions when defining how to conduct RRI

HOW?						
RRI- inclusion (process)	Caring with (process)	RRI – transparency	Caring about	RRI – reflexivity	Care receiving	Societal engagement
Methods of Participation and/or deliberation of the different relevant stakeholders	The processes of building trust and solidarity over time	an effort to render outcomes of R&I visible to the public	Paying attention to/ recognizing/ identifying people's needs through reciprocal dialogue, making interests and objectives clear	Individual capacity to reflect about one's own frame (dynamic development of methodology in interaction with stakeholders) - create collective code of conduct through methodology	Extending the frame through enabling the experience of being a participant, making ourselves available to critique of process, responding to the care given	Forging new social relations, collectively initiate research and change processes

RRI, care and societal engagement in research methodologies throughout ERUA

Throughout the interview process it became clear that there is a huge variety depending on discipline in what ways researchers are thinking about and practicing responsibility and societal engagement. One area that all interviewees associate with responsibility is methodology. Study respondents engage in a broad range of collaborations with a variety of stakeholders, using a broad range of methods that they have described as responsible and more or less innovative, but that also present particular challenges. In this section we analyse

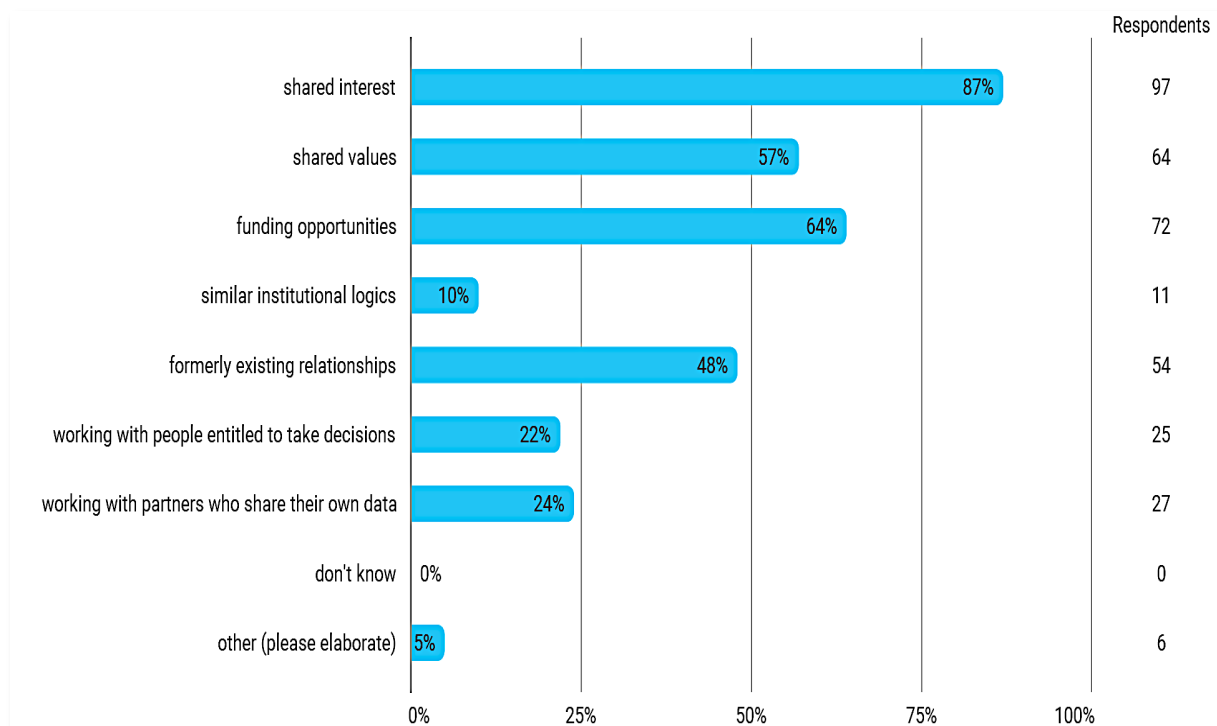
RRI, care and societal engagement expressed in research methodologies based on a synthesis of examples of projects that ERUA researchers are engaged in to exemplify the variety of ways responsibility is taken but also the challenges related to it, some of which can be addressed through institutional support, but many of them depend on personal commitment to making it work. Our analysis also shows the reflexivity researchers bring to the table about the limits of responsibility and they handle them.

Transparency about ethical concerns and limitations of chosen methodologies

Data management is an important aspect of responsibility. An assistant professor from AEU researching and teaching in environmental management and policy uses a lot of digital tools in his work, like free satellite data. Given the wealth of data in the information age, being **transparent** about the use of data is a key concern of research ethics. Also, a post-doctoral researcher in media studies at KU foremost sees responsibility in the handling of data. Doing research on social media communication she is concerned with questions of anonymity as well as sampling. Also, social media users only display parts of their identity online, so there is a layer of concern for their integrity as humans. In the context of current research on anti-vaccination posts she is looking into self-regulation and escalation of conflict, but she cannot do more than count statement types, as she needs to keep people's anonymity intact. *'We have the responsibility of people's content'* and how it is represented in research. There is hence a personal and a societal dimension of responsibility that has to do with **inclusion** and **reflexivity**. In the case of the social media researcher this can be exercised by engaging in dialogue with other disciplines about methods, as her research per se does not involve other stakeholders.

The selection of participating stakeholders is indeed another concern. Doing randomized control trials for instance can be criticized for a lack of both transparency and inclusiveness, as it randomly invites some people to participate and others not, as one researcher pointed out. A KU Assistant Professor in Sociology refers to responsibility in research process as involving people without harassment, **in a transparent way**, working eye-to-eye level and generating trustworthy data. Mostly doing quantitative surveys he is moving towards mixed methods, including the programming of an app as a tool to gather statistical data from non-academic partners over time.

Graphic 7: Survey data. Drivers in collaboration. (select all that apply)



External collaborations challenges communication and professional boundaries

Working with external stakeholders entails translation challenges. What might be of interest to academics might seem irrelevant to practitioners – at least the ways research questions are formulated. This is what a KU Biology Associate Professor, studying the impact of climate change on plants, usually through lab experiments generating data on plant changes, experienced with a project on invasive species in Konstanz. The academic language did not resonate with the city administration, and it was challenging to explain the urgency of the issue to potential participants. It shows the importance of **transparency**, which requires the ability to explain what is going to happen and why, essential to achieve a situation of a joint **caring about**, which needs reciprocal dialogue, making interests and objectives clear.

An Associate Professor working in the field of risk assessment and regulation of chemicals and plastic pollution at RUC recently completed a project based on citizen science with 57.000 Danish school children who helped to collect plastic on Danish beaches, helping to create a huge data set on plastic pollution. He spent 6 months developing protocols using a citizen science approach. Societal engagement is often a time-consuming affair. The research team had to develop a scientific protocol complying to scientific standards, but in addition create a methodology that was in sync with the world view and communication level of the target group, in this case fourth graders. It was a challenge how to make and describe categories that complied to both logics (laboratory standards and school children's practices). The development of the methodology and the communication material was organized as an iterative process. This type of development design process resulted in co-created protocols, explanatory videos etc., and the researcher also ended up concluding that rigid scientific

protocols didn't comply with reality, e.g., as kids found plastic that wasn't inside the defined geographic sample when roaming the beaches. Sometimes **reflexivity** shows limits of methods, but for academic purposes one still must navigate a trade-off: citizen science must be hands on and understandable, methods must be ready to incorporate their own limitations. Something this professor solved with big data sets, where small deviations from protocols don't cause issues.

Another method that took a lot of time to prepare was a field experiment run by a postdoctoral researcher in development studies from KU. It required getting different stakeholders (e.g., a ministry, dozens of municipalities) on board and keeping them engaged throughout pilot and review phases. The research was **inclusive** and **caring about** people's needs in the sense that problems were identified, and ideas developed in collaboration with NGOs in the field through reciprocal dialogue, even though aligning interests took some time and **reflexivity**. Participating municipalities were identified through the involvement of a Ministry, and current and future beneficiaries recruited as additional participants. This process took a huge amount of time. Participants need to understand exactly what the trial is about and how they can benefit, which requires the ability to translate a complex scientific method into understandable words.

An Associate Professor in Agronomy at RUC with a focus on organic farming and adaptation to climate change has thought a lot about both cross and trans-disciplinary work to ensure **inclusiveness** through communication during the research process: *'The analysis should always be exchanged and verified with the stakeholders. «How to enter a village» is a methodology widely used in the global south, we use it when working with farmer groups and collective learning. The research usefulness should be evaluated by them.'* Adding **inclusion** and **reflexivity** allows reiteration of care processes that can change habits over time, making room for transformative change through collective innovation processes.

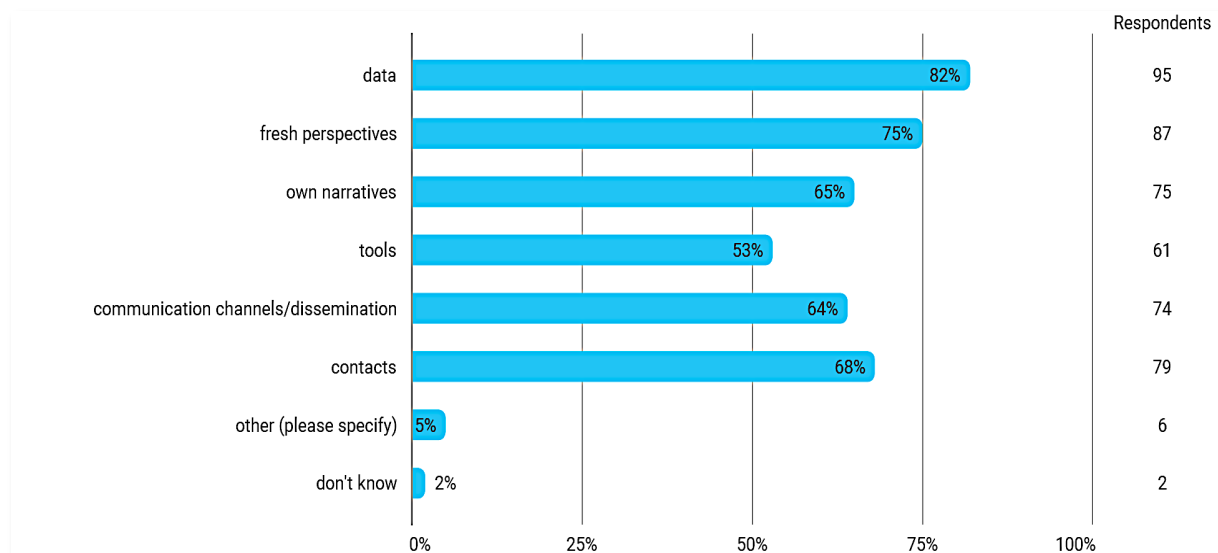
However, the complexity of collaboration processes also creates challenges. The same researcher also reports that participants (farmers and researchers) stayed to some extent disconnected through their different roles and objectives. A core part of responsibility in research is the ongoing relation building that is necessary to provide trust to ensure that the collaboration and knowledge exchange is for all stakeholders' benefit. It requires a lot of personal commitment to the process to make it work, using a lot of additional time to build personal connections and communication channels, building trust before entering critical discourses to enable a sense of caring together (**caring with**). *'I was still a university professor all the way, but also created different layers in the personal relations, reducing the walls in the different parts of the knowledge system.'* The approach was also **transparent** in the sense that farmers got to read and approve all meeting minutes. This overall participatory research approach is unusual and as the professor points out, somewhat innovative in the natural sciences. The team decided to take this cross/trans-disciplinary approach both out of personal motivation, but also in the acknowledgement of the need to innovate new methodologies to create impact. Also, this research project and the collaboration with farmers was developed out of a sense of responsibility to soil and preservation of local farming communities through

regenerative farming. It underlines the researcher's way of including an awareness of sustainability into the research questions and methodologies.

Despite communication challenges that come with collaboration across disciplines and sectors the benefits for societal impact are bigger. An Associate Professor in Economics and Finance at NBU who works mostly with statistics and modelling reveals that methodology is maybe the only aspect of research that he relates to responsibility. Currently researching the economic impact of healthy soil in farming as part of a large EU-funded project which includes experiments and applied research, this researcher mostly works on building a decision-making tool that includes economic and social factors of soil health and soil recovery strategies. Despite many translation challenges when they try to explain what data they need to agro-economists, the positive aspects of collaboration dominate, as they also come to understand different practices, inviting **reflexivity**. Each new methodology is innovative in statistical approaches, as it always includes developing criteria to include. It is '*exciting and challenging*', especially if it should turn into a tool for practitioners like in the soil health project. The researcher will develop a decision-making tool that can simulate different outcomes of how to make decisions that support soil recovery. Outcome simulations are complex but based on simple enough questions that users can address easily, allowing **inclusion** and **caring with** other stakeholders for soil health and thus the sustainability of farming.

The survey also asked about the advantages of participatory and collaborative research:

Graphic 8: Survey data. In your experience about collaborative research, with what can different stakeholders contribute? (select all that apply)



Being a member of a larger research consortium can be a challenge in terms of agreement of objectives and tools, but it also offers the comfort of the group. This can be different for researchers working on their own. For a RUC PhD student working on transnationalism in the Somali diaspora, research is a form of **caring with** by sharing people's truths based on their life experiences that can create a sense of inclusion in society through sharing: '*We can shed*

light on aspects that aren't the norm'. However, for the researcher this requires building trust-relationships with their interviewees. Trust is paramount to the success of this PhD project, but it blurs boundaries between **caring for** the subject matter and **caring for** and **with** the individuals involved through the research methodology, but also at times blurring the boundaries between inclusion through research and **inclusion** through the establishment of personal connections that were the result of research. *'They started inviting me to weddings and dinners and I no longer knew where the line went.'* The researcher also experienced sexual harassment and inappropriate proposals. Some blurring of boundaries might come with ethnographic research, but to this researcher it was important that the university has helped her **reflecting** on her approach from a perspective of ethics. She reports now being better able to *'also highlight your own biases and standpoints - that forces the reader to understand that there is a sender – an author behind the project with their own values and perspectives – not 'just' a scientist'*. This is a clear example of intersections between the why and how of responsibility. Researchers doing ethnographic research who have a lot of intensive and close stakeholder engagements interact in ways that put personal relations, emotions and ethics at stake.

Working with inclusive and reflexive methodologies requires extra time

An associate professor in working life studies from RUC discusses working life problems with employees in case organizations to co-decide areas of intervention, embarking on a **reflexive** methodology that applies reflections and solutions from one group to another, testing frames and extending them to other contexts (**care receiving**), responding to an invitation by the Danish financial sector who wanted to understand specific aspects of working life conditions. The collaborative aspect even sometimes leads to abandoning interventions when they are evaluated by the employees as making no make sense, adding transparency to the process, which generates trust in the method.

Applying inclusive methodologies requires out of the box thinking

In a form of action research, a professor in dance from Paris 8 has worked with a group of dancers and a group of somatic practitioners to develop practices for people who experience social exclusion. They developed research actions involving bodily movement to heal trauma and engage in positive ways with the world. This methodology practices **inclusivity** as it involves vulnerable groups and engages them in their bodies in new ways. Also, the action research methodology involves interaction with practitioners and researchers in mutual **reflexivity** about the bodily experience and how it affects being in the world and in interrelations. Another way of engaging with society is by offering a teaching and research lab that is open to both students and practitioners. It works with formats led by practitioners that invite bodily participation with the goal of critical deconstruction, as it challenges the traditional connection of status (professor), role (guiding students), function (providing education), potentially offering a platform of joint **care receiving** and **reflexivity** by inviting knowledges that are not usually considered at university. Similarly, a colleague Associate Professor in theatre studies with a background in political science, encourages performers to combine

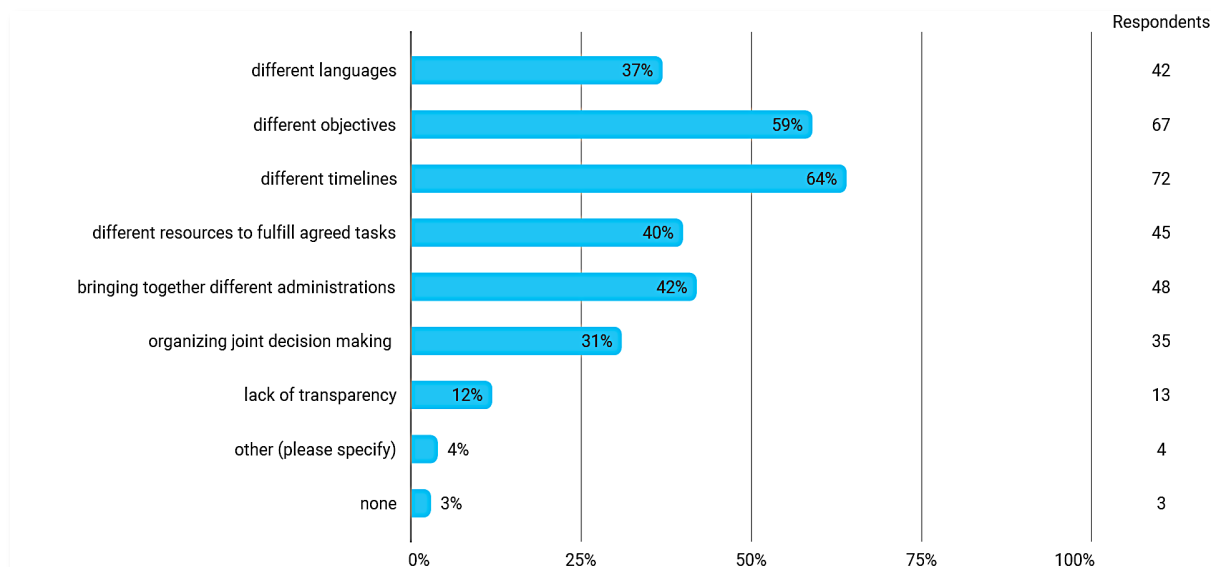
research, art and action, challenging knowledge to go beyond discourses through embodied experiences that result in new ideas, thus co-defining concepts together with participants and audiences, combining practice with research to explore the reaction to the confrontation with climate change, conceptualised as utopia.

An Associate Professor in Financial Management and Engineering at AEU works with information systems and networks on questions of how to adapt technology to industry and societal concerns. Working with multiple stakeholders has, in this researchers' words, become the task of engineering: *'In engineering one has to respond more and more to societal needs, different from before, when concerns were efficiency, economy, fast growth.'* Today, technology is increasingly used to protect humans and nature. In his ongoing research he brings together stakeholders to create technology-supported ecosystems that prevent maritime pollution crisis, starting with the creation of tools that can model, produce simulations, and visualize them to be able to alter policy and to provide an incentive to react and adapt. In a university driven innovation lab, they develop a mechanism that can detect environmental crisis in the ocean early – maritime pollution knots and how they move, like jellyfish or alien species, which affect all maritime users and species, building a system that gathers all information needed for early diagnostic, mitigation, and adaptation. This project brings together researchers from environmental science, biology, IT and systems, engineering, environmental agencies, policy makers, and NGOs (**inclusiveness**), even though the researcher did not specify how the various stakeholders are involved throughout different stages since the beginning of the project in early 2022 (**reflexivity**).

However, he did specify some of the challenges: *'All disciplines have their own approaches to science, it starts with the challenge of harmonising the description of objectives, translating between different academic audiences. Integrating data and technology is needed without integrating too much, so each discipline can still use it, decouple and scale. The challenge is keeping heterogeneity and yet work together.'* It needs detailed roadmaps, dialogue, and the willingness of participants to engage with other methods and motivations, so everyone can understand the process (working towards a **caring with**).

Challenges in collaborative research were also indicated in the survey, foremost the fact that different stakeholders might have different timelines (64%), different objectives (59%) or the challenge of bringing different administrations together (42%). As additional challenges participants offered different understandings of concepts, the high dependency of collaboration success on the researcher or experiences of 'scientific imperialism', understood as pushing an agenda instead of participating as equals.

Graphic 9: Survey data. Challenges in collaboration (select up to five)

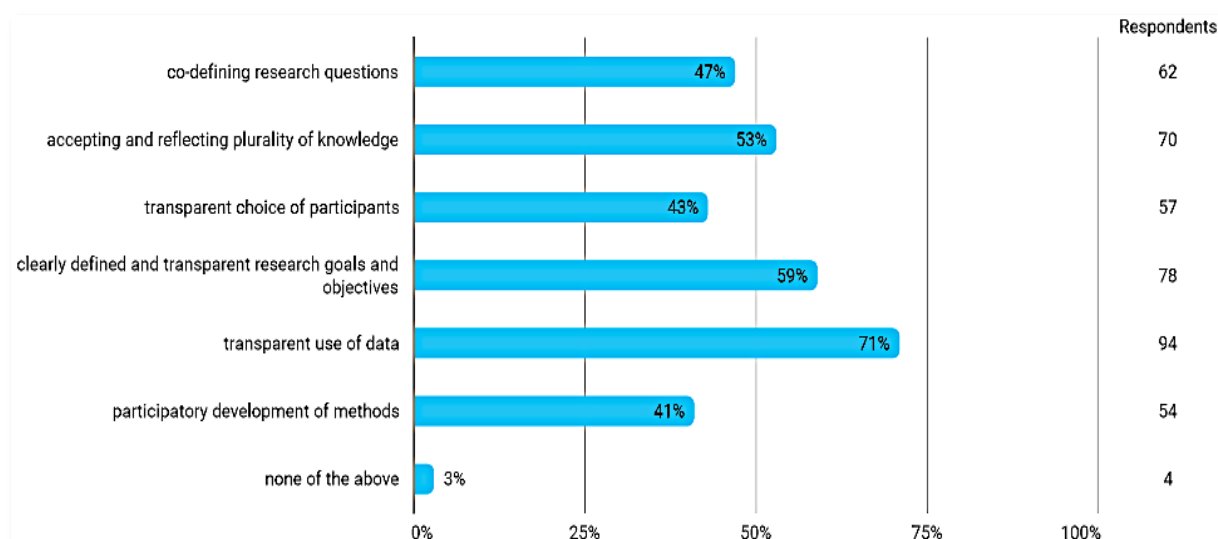


A KU Biology Professor studying the impact of climate change on plants ventured into a project where he worked with the local community to study drivers and consequences of invasive plants imported from foreign countries. Interested in the effects of global warming on imported plants, they mapped the origins of the plants in local gardens and are identifying which species might be problematic in the future. Part of the research approach were workshops and seminars to inform about their findings, trying to make the research process **inclusive** and raising awareness. The project involved Konstanz residents, the area, the local environment, the NGO who is co-contractor of the project and the local administration of the town, more specifically the mayor and people responsible for city planning. This kind of community engagement is relatively rare in Konstanz, even though the promotion of regional relevance is part of the university's efforts of connecting research and society.

Such innovative and somewhat experimental approaches need institutional support, and we will come back to this aspect later in the analysis. Innovative methodologies in relation to societal engagement also require researchers to transgress the boundaries of their disciplines and related methods, like a researcher from RUC that investigates plastic and chemical pollution and how open science impacts pollution regulation. To that end, he now supervises interdisciplinary PhDs on pollution and societal engagement (the impact of micro-plastic, citizen science and civic engagement, reduction of plastic in health care, problems related to micro plastics).

Transparent use of data, clear communication and participatory methods were also a concern of survey respondents:

Graphic 10: Survey data. Which of the following are methodological concerns (select all that apply)



Responsibility and care in societal engagement strategies

Many researchers in the study stated that an important aspect of responsible research is to give something back to society. This attitude is particularly prevalent in the social sciences and humanities, but increasingly also in engineering and information technology as well as in environment related natural science research. In a shared understanding of **inclusiveness** this means either engaging stakeholders in such a way that they take something from the research process or producing knowledge that can inform society of potential problems and how to overcome them. Working in inter- and transdisciplinary projects is the most common strategy to combine research and dissemination as a trigger for social and systemic change.

An Associate Professor within the field of law and IT programming from the Science and Technology Department at Paris 8 is working on the use of technology for empowerment. In this researcher's view, there is a moral requirement to integrate human rights in technical solutions, hence he pursues a bottom-up approach in the work on social inclusion and anti-discrimination, using open-source technology, working with social economy in the St. Denis area in a lab that involves research and teaching. Students work with local organisations and find technical solutions for them. In their research projects they work directly with citizens and relevant organisations.

Structures and political contexts matter

Collaboration towards social change depends on stakeholders and structural conditions involved. An Assistant Professor in Agriculture Economists from AEU researching and teaching in environmental management and policy, works with a number of stakeholders in a project focussed on the white rabbit population on Lemnos, an invasive species that does not have natural enemies on the island and thus poses a real concern to farmers. Despite opposing

interests among them (farmers vs. environmentalists) they are working towards practical solutions that integrate interests, taking an ecosystem and **caring about** approach. Tracing the rabbits with GPS to estimate spread and size of the rabbit population as well as the damage caused over time, the team also wants to change attitudes in the local population about the rabbit. One idea is to change perception from the rabbit as a pest towards thinking about it as (culinary) resource and even object of local pride – by coming up with new and traditional recipes. Unfortunately, the local administration, which essentially compensates farmers for the damage caused by rabbits while having restrictive rules in place for the use of rabbit meat, is not yet on board. The researcher hopes to bring different stakeholder interests together throughout the project, so it leads to collective innovation that is problem-solving oriented (**societal engagement**). An Associate Professor in Environmental Innovation at RUC is pushing for changes in public procurement practices to include sustainability concerns, showing how it can be done through collaboration with municipalities and private sector.

Sometimes research-based solutions suffer from political context. An Associate Professor for Telemedical Solutions from NBU focusses on e-health for people with disabilities, its availability and accessibility. One challenge is to overcome the reluctance of parents and therapists to trust technology in medical care, which might also be linked to a lack of trust in Bulgaria's social welfare system in general. One approach is to develop therapy software together with parents, combining **transparency** and **inclusion**, nudging parents towards an understanding that researchers are **caring with** them for the well-being of their children.

Barriers to societally engaged research approaches sometimes lie in institutional logics, e.g., of research funding institutions. For the researcher within development studies field at KU for example, it was difficult to obtain research funding due to her juniority (the research was for her PhD) while being the driver of the project. The professor in dance at Paris 8 had a hard time fundraising for the project on dance and somatic practice as it is an unusual and maybe even not sufficiently acknowledged research field. She struggled with **transparency**, as the field of somatics in relation to embodied and everyday dimensions lack theoretical foundation, which according to the professor also inhibited her political message and legitimacy.

Communication challenges

Research and collaboration-driven societal engagement depends on information sharing. Going beyond good communication with research participants – which is a challenge, as pointed out above – social and systemic change needs broader public awareness and understanding, confronting researchers with the challenge to find ways of disseminating research-based knowledge and solutions outside academic platforms. We will get back to this demand later, as it is a challenge that almost all researchers interviewed struggle with.

Engagement through teaching

Societal engagement through RRI is also exercised in research-based teaching. An Assistant Professor in Sociology in KU's History and Sociology Department combines teaching and

research in sustainable behaviour and consumption by young people as part of a seminar on service-learning. Collaborating with local schools, university and school students jointly developed a survey taken by 1000 school students, extending research-based learning to participants outside academia and the university. Similarly, the chemical pollution researcher from RUC worked with schools on teaching materials related to plastic pollution, which took the research team more time than the actual data collection period (3 weeks). Teachers received sampling kits and protocols from each project, so they can redo the data collection again later, a stipulation by the funders, whose objective is to involve school children in mass experiments every year to trigger societal engagement.

An Associate Professor in Philosophy at KU's Department for Politics also supports that research and teaching must interact, following Humboldt's idea of unity of research and teaching. Interested in developing a philosophy of experience, she conducts critical and analytical research to address everyday problems in their contexts. Doing mostly conceptual work, this researcher does not collaborate much with others in research but with students. An Archaeologist teaching in Cultural technology and communication and the use of digital tools in cultural heritage at AEU, is interested in dialogue as the underlying logic for collaborative writing and dialogic teaching. She explores the potentials of digital tools to keep students engaged outside the classroom in digital, potentially caring and innovative communities, while being critical about platforms. Albeit teaching oriented and driven by the experience of online teaching during COVID-19, online platforms create new dialogic spaces and dynamics, which use more than language in dialogue (like memes or emoticons), but also oral exchanges, expanding repertoires of sharing research. Essentially, it is research looking into the inclusiveness of digital tools and their currency in societal engagement, practiced through dialogical teaching. **Societal engagement** here is to remind participants of the value of democratic discourses through experience.

As indicated in the section above, researchers who seek societal engagement through responsible research and/or care practices need institutional support, particularly through support of inter- and transdisciplinary or sometimes unusual research methodologies, provided they are in line with ethical standards, and through support with the dissemination of research findings that can culminate into proposals for solutions to social and sustainability challenges.

Institutional dissemination support

An Assistant Professor in Sociology at KU's History and Sociology Department, tries to create non-academic publications as much as possible with the aim to engage with a wider public, including policy papers, specialised reports for stakeholders based on research findings that involved high-profile stakeholders like the Chamber of Commerce in a project on migrant integration in German companies. When dissemination is not part of project's budget, he does it for free or tries to engage PhDs. KU's Excellence Cluster helps researchers included in the cluster with other publications like press releases, something that according to this researcher is hard to find elsewhere in Germany. Excellence Clusters are supportive to their members,

also PhDs in the Cluster have 4 instead of 3 years, which gives them more time to deliver quality, offering a 'dream environment' to find collaborations (internal and with other universities), time between idea formulation and project implementation is short – but this is all due to great financial resources of the Cluster and support is not available to all researchers in the institution.

An Assistant Professor in Economy from NBU mentions sharing findings with non-academic audiences so it can contribute to practical problem-solving as the most important dimension of responsible research. She also underlines the importance of dissemination as transdisciplinary alliance, with policy makers, civil society, and academics sharing knowledge together. At the same time the interviewee brings this up as a barrier: *'There is no established communication and collaboration between academics, business, civil society and public sector, it can be difficult to reach relevant practitioners. It is also difficult to communicate the right way for each sector and academics cannot tell the public sector what to do.'* A researcher and lecturer in Finance and Economics at NBU develops statistical models that are *'too complex for lay persons to understand'*. At the same time, they are designed to serve public interest, they can benefit nature, communities, or specific groups. They are also publicly financed through EU research funding, and it would be desirable to make them accessible to practitioners. Translation work is needed, and this researcher suggests that universities should investigate ways of sharing access, through further collaboration, fundraising or education as a form of ongoing **societal engagement**. Some researchers have started activities or organisations outside the university to find ways of sharing and **caring about**, creating more **transparency** and use for their research findings.

Rearranging the workplace

Sometimes it is also working conditions or the physical workplace that influence the potential for care and responsibility. An Associate Professor at AEU's School of Engineering is a fervent supporter of interdisciplinary work. He would like to further facilitate this through a more dynamic creation of new disciplines and research centres that form around issues for certain periods of time and work more in collaboration with other universities in order to *'create cognitive incentives and overcome cognitive limits'*. In relation to physical space this would mean braking down the walls and creating more open spaces, replacing desks by round tables. Instead, a researcher within the field of Cultural Technology and Communication informs us, AEU misses a shared staff identity as people travel a lot and when they are on campus, they work all the time. In the process of AEU becoming an open university, they fear that the government will move them online and take away buildings to save money, except when working with local students and communities. Being an increasingly digital university puts specific conditions and challenges to societal engagement and especially **inclusive responsibility** through research.

Another issue raised is support in dealing with negative psychological consequences of the content of research very much connected with the *why* of conducting research. There are topics of research that people shy away from, for ethical reasons, but also because it might be

too hard personally. The KU social media communication researcher suggests *'We shy away from researching topics that could cause trauma, e.g. with ISIS, I knew I couldn't handle being exposed to certain content. Therefore, you don't see media scholars researching child pornography. All these [violent groups, red.] of course have media practices. So, I wonder if there could be a way of psychological support, so that these kinds of domains could be researched.'* Relations between RRI and organizational, regional, institutional cultures and practices

Relations between RRI and organizational, regional, institutional cultures and practices

In ERUA participating universities share the focus on interdisciplinarity. Otherwise, each institution has its own history and culture, more or less open to working with external stakeholders, more or less embedded in local or regional contexts, privately or publicly funded, with different levels of national and European research funding. This partly influences possibilities for responsible research in relation to actual care (for communities or planet) and societal engagement (e.g., applied science and problem-oriented vs. foundational research).

Paris 8 prides itself in being strongly engaged in its surrounding community of St. Denis, hence working at the frontier between art and university, crossing institutional and cultural boundaries as an exercise of **inclusion** and **reflexivity**, as the Professor of Dance does. It is a process of **caring with** and **receiving care** that might be special to this university.

NBU is a private university which appears to be important in a national context with low levels in trust in public institutions. A researcher on tele-medical solutions for non-vocal children feels that NBU being a private university enhances trust by civil society in some research fields like medical technology. An Assistant Professor from the Department of Administration and Management considers NBU an institution that gives more freedom in research and teaching than other Bulgarian universities. However, researchers also have to bring in money and publish, which from an institutional perspective might be more important than **caring for** and **with** communities.

Like other universities in the Alliance, KU is small compared to other universities in the country. Researchers interviewed here underline the value of short communication channels and responsiveness within the university, also towards junior researchers, with less of an experience of hierarchy than in other German universities. While academic publications and funding are also the most important career drivers at KU, an Assistant Professor from Sociology reports a lot of verbal appreciation for responsible research involving external stakeholders. It is important to note that in Germany Universities of Applied Science are more engaged in applied research, which is generally less appreciated at universities.

RUC calls itself a problem-oriented and critical university. According to an Associate Professor in Environmental Innovation within the field of circular economy and planning it has an openness to creativity, supporting a wide range of methodologies thanks to the interdisciplinary set-up of departments that fosters innovation and methodological freedom. However, the

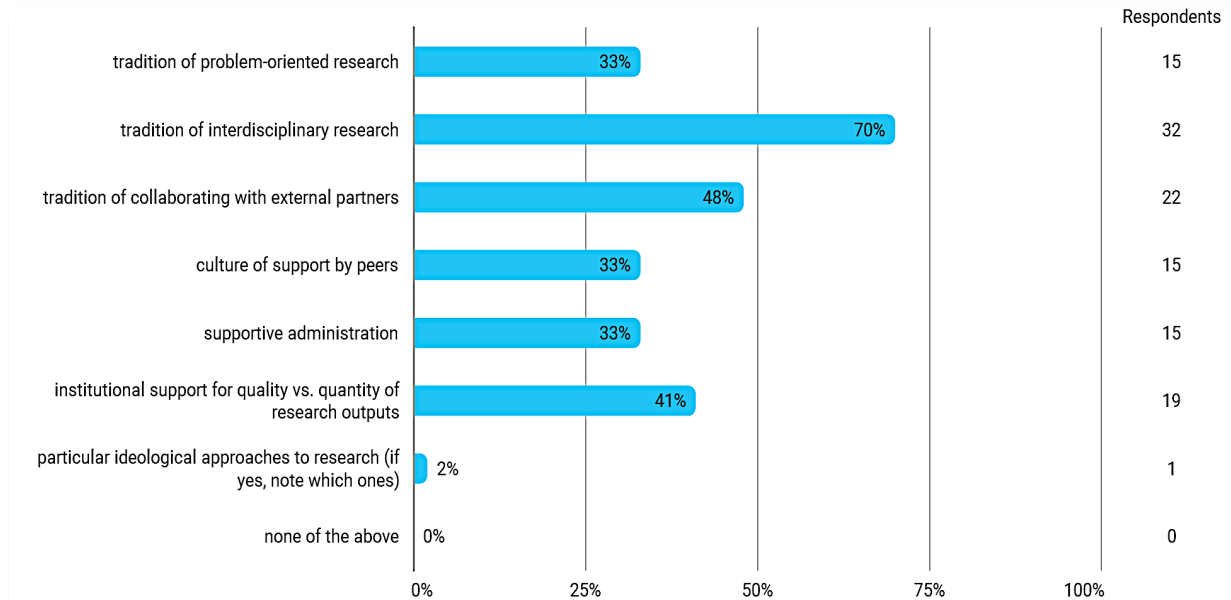
problem-oriented philosophy at RUC based on interdisciplinarity has suffered, according to a Professor within Agronomy: *'I'm more critical about the possibilities of truly working cross-collaboratively in this university today. Back then (8 years ago) we had more time, we used more time discussing, we trained curiosity and asked questions. In classical university settings you would remain quiet. It is more difficult to convince. Focus is more on individual performances. Openness and respect (at RUC) are nice and productive. The management needs to keep the courage to keep this openness.'* Institutionally there should be new ways of evaluating scientists. *'It is not fair that we are pushed to work with co-design/ co-creation (with external stakeholders) but not acknowledged accordingly.'* An Associate professor within the field of Environmental Studies and Epidemiology reminds us that it has also become more of a requirement to show the value of research. *'We become more dependent on external funding which is putting pressure on us in terms of expectations not only from university but also donors, we must be very aware of that.'*

AEU is a peripheral university, with younger staff than average and interdisciplinary departments, spread across islands. According to a researcher on Cultural Technology and Communication this facilitates idiosyncratic features, impacts the way the departments interact and how the university interacts with local communities. Situated on the islands, students come from different backgrounds and people live there temporarily, creating communities not found elsewhere.

Asked in the survey if participants agreed that working in a reform university promotes responsible research, 25% of respondents selected 'not sure', 32% chose 'somewhat' and 35% 'yes, definitely'. Elaborating on their position, one participant wrote that the university is reform in its historical framework but that people in it feel the same pressure of mainstream science metrics. Another one wrote that they didn't know that they work in a reform university. Such statements echo what interview participants shared. This shows that ERUA members must reflect and communicate on this aspect of their institutional identity.

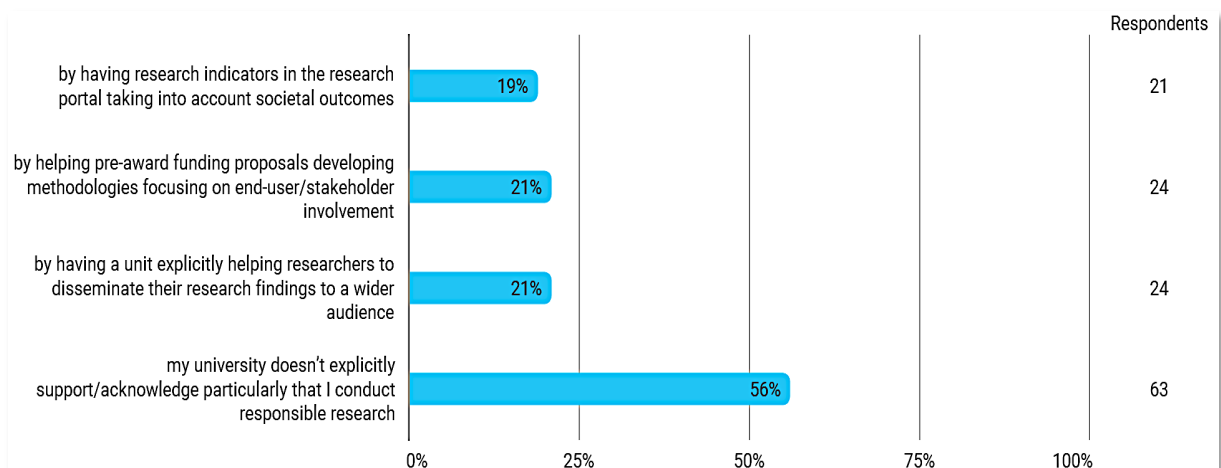
However, positive aspects as described to their workplaces in relation to RRI are the following:

Graphic 11: Survey data. what factors of the reform university workplace are supportive of responsible research (select up to three)



And yet, at least when it comes to supporting collaborative research, institutional support is not explicit.

Graphic 12: Survey data. In what ways does your university administration acknowledge responsible research with the explicit focus on societal engagement and collaboration with external stakeholders? (select all that apply)



Summing up on the 'How'

Table 6: responsibility and care dimensions in research process

Responsibility dimension	Phase of care	Identified practices
Transparency	Caring about	Research ethics: use of data, openness in collaborative process about methods and objectives; Sharing knowledge concerns through reciprocal dialogue; Ongoing translation of process and findings
Reflexivity	Care receiving	Adapting methodologies through dialogue (with other disciplines and stakeholders) Critical inquiry
Inclusion	Caring with	Stakeholder participation in research design and process; Stakeholder selection; Relation-building
Social innovation as societal engagement		Establishment of new relations and multi-stakeholder knowledge coalitions; Connecting research and teaching

Responsibility and research are linked and yet somewhat detached, at least in Western research ethic traditions that pride themselves in objectivity. Therefore, transparency of methods is important. Impact in the form of innovation is desired, but researchers cannot visibly take sides. And yet we have argued earlier that researchers are also citizens with opinions and passions, which influence their objective research codes of conduct. The best we can do is being open about it. As a sociologist from AEU put it: *'It is important to be honest with the people we interview, and we should state our own values in our research reports. It shows that we care, but also that we try to be responsible by being transparent in our methods.'*

Clearly participatory **methodologies** are considered by many an important driver of RRI, more so in the social sciences but increasingly in technology and environmental fields as sustainability concerns are taking centre stage in political discourse and research alike, with a shift to research funding for cross-disciplinary alliances etc. Many researchers we interviewed value **inclusivity, transparency and reflexivity** in research and dissemination, often driven by personal motivation, which infuses notions of **caring with, for and about** others and themselves (care receiving). However, challenges are multi-fold:

- It can be difficult to obtain institutional support for outside the box approaches. The example of designing a survey with school students on sustainable consumption (KU) for example showcases some of the typical barriers when it comes to working with other stakeholders (**inclusion**). It was time-consuming to

define the terms of cooperation and to convince schools to participate. The format was supported but not exactly cherished by the university department.

- Working in inter-disciplinary teams means working with familiar methodologies for some, but outside the box approaches for others, which requires collaborative deliberation for everyone's satisfaction. This requires **reflexivity** but can lead to **caring with** and **care receiving** within the team, building trust.
- Sometimes **reflexivity** shows limits of methods, but for academic purposes one still must navigate a trade-off: citizen science must be hands on and understandable, methods must be ready to incorporate their own limitations. Something that the RUC researchers collecting waste with fourth graders solved with big data sets, where small deviations from protocols don't cause issues.

The interviewed researchers engage in a broad range of collaborations with a variety of stakeholders, using a broad range of methods that they have described as responsible and more or less innovative, but that also present challenges.

- **Inclusiveness** is harder when involving policy makers at a higher level, due to time constrictions. Explaining to municipalities why extending their own frame of consideration through active participation can be a benefit (becoming a **care recipient** through **reflexivity**) can also be difficult at first.
- Working with external stakeholders entails translation challenges. What might be of interest to academics might seem irrelevant to practitioners, showing the importance of **transparency**, which requires the ability to explain what is going to happen and why, essential to achieve a situation of a joint **caring about**.
- Working with inclusive and reflexive methodologies requires extra time, which must be reflected in funding and intitutional allocations of teaching/ research hours.

Societal engagement through research dissemination needs professional support. Researchers do not necessarily know how to prepare suitable materials and how to meet the press. They also rarely have time and institutional support.

- Several researchers from the natural sciences reported lack of attention for their findings in pollution or climate change related changes in local environments because the findings lack 'a story'. As academics grasp small phenomena that add to knowledge in a given field, newspapers need something more spectacular to report. Hence temptation is large to choose research with a higher conventional impact factor and better for press-releases.
- Reform universities had to mainstream to some extent. As one RUC researcher said in relation to RRI: *'In the RUC model we had the ideas, in principle easy to*

take up by management. But the culture within science and ourselves as researchers, we are dreaming of the prestigious citations.'

- Societal engagement to some extent depends on university type – ground research vs. applied science institutions. KU for example is a highly academic, research-focused university. Practical solutions, according to some researchers, are not the objective, and the university is not very engaged with its local environment. However, in 2017 KU introduced the Transfer in Teaching team, which facilitates the integration of research projects with teaching in both BA and MA programmes, which also always includes collaboration with external stakeholders, frequently using exhibitions as medium. The goal is to connect students, teachers and outside world.

Societal engagement at times requires collaboration with public or private sectors, which either suffer from inertia, lack of legitimacy to act or participate or lack of financial incentive, keeping any ambition of care through responsible research locked in private aspirations and academic loops.

- The example of a PhD student at AEU working on a project to reverse environmental depletion through the white rabbit invasion of an island depends on the involvement of higher level of administration which is not yet represented in the project, as proposed solutions require changing regulations concerning meat consumption.
- Respondents from Greece raised the lack of funding from the private sector to implement technological innovation. *'Many research projects just create new research questions, not concrete practical solutions. We provide designs for deliverables, that's a problem, we are lacking complementary funding, e.g. from the private sector, public funding cannot produce products, only pre-products and concepts.'*

The four biggest barriers to RRI are the pressure to publish in academic journals, the overall increase of workload in academia, insecurity of careers, and to obtain funding - for non-mainstream topics, new interests, one has not yet much published on, or as a junior researcher.

- According to a RUC researcher the pressure to produce more counters responsible research, *'the focus on mass vs. quality is a path where we might stop asking the right questions'*. A NBU researcher hopes that attitudes towards research and publications will *'shift away from producing unnecessary publications, towards delivering to needs of society, linked to ethics'*. Fundraising is done based on individual CVs more than on collectives. They both describe the right to do responsible research (relevant to society) as something one must fight for.
- Going the extra mile in non-academic dissemination (personal motivation) is easier when in a permanent position, yet it is mostly junior researchers who show

the interest to share findings with wider audiences. In this perspective researchers would be more prone to conduct stakeholder engagement and inclusive research with more stable positions.

- Thinking outside the box and coming up with untraditional approaches or research in off-mainstream fields leads to a constant lack of funding, so a lot of voluntary engagement based on passion is required. As an AEU researcher stated: *'Economical issues are easier to understand for people, and it takes a lot of the funding that could be focused on more pressing matters – that is responsibility in the scientific field.'*
- Societal engagement through responsible RRI is also exercised in research-based teaching

Researchers who seek societal engagement through responsible research and/or care practices need institutional support with the dissemination of research findings that can culminate into proposals for solutions to social and sustainability challenges.

- Some believe that responsible research is part of the reform university agenda, like an Associate Professor at RUC with a background in anthropology who uses longitudinal studies to study mental health impacts on young people. Describing her approach as part of a RUC attitude they said: *'It is in mine and my fellow researchers' DNA to perform active and delicate research'*.
- Most study participants engaging in dissemination outside academic channels do so in their free time with no to minimal institutional support. In the case of early career researchers this can be detrimental to their career development, even though quite a few express the strong wish for giving back to society. This can have negative effects on researchers' own identity as responsible researchers.

The impact of RRI

Here we address the impact of responsible research practices. This section investigates outcomes that benefit participants (including researchers), collaborators, society and/ or nature, hence looking inside and outside academia. *'An overall distinction in the mapping of effects of research is between academic and society-oriented effects'* (Pedersen, 2017). This means that a distinction is made between results of research disseminated within or outside science. The academic effects are described as a function of the impact of the research in the scientific literature, while the socially oriented effect must be found in society, the economy, culture and the private and public sector. A central point is *'that the effects of the project's activities are typically multifaceted, that is to say, they can be found within both types of effects'* (SIV impact report, p.5). While internal impacts relate to the synergy of research and teaching, new inter-disciplinary alliances or changes to institutional trajectories, external impact can be

harder to trace. The mapping report is just the first step towards developing an understanding of 'the forces unleashed by our activities' (Re:ERUA project description pp13).

On an individual level impact is understood as changes in personal attitudes, perceptions, or competences. On an organizational level and from a policy and societal perspective, impact is about changes in organisational or institutional practices, discourses that challenge the status quo, alter power relations, or simply create new ideas, knowledges and relations. We investigate the drivers and barriers to create those changes.

Responsible research with a view to societal impact touches upon several responsibility dimensions and facets of care: there is **anticipation** of new knowledge generated by research, shaped by epistemologies that work with problems identified from specific perspectives. If such knowledge interests lead to new shared understandings and practices for the benefit of people or planet, we are **caring for**. **Inclusive** research processes can reveal shared or pluralistic values and norms that can albeit lead to a collective adaptation of habits or understandings over time (**caring with** others). This adaptation of new habits or understandings can also lead to individual or organizational questioning of frames (**reflexivity**), which can also be understood as a form of **care receiving**, as it allows us as citizens or organizations to change our frames of reference by actively using research outcomes.

Together, these impact dimensions are contributions to social change agendas, some of which can be considered social innovation - as defined in the conceptual framework - as they aim for lasting changes that empower people and communities, generate new ideas and/ or approaches based on research and practice that challenge the status quo, and sometimes co-create new socially accepted and / or institutionalized practices.

Table 7: Overview of responsibility and care dimensions when defining impact in relation to RRI

Impact	
RRI – anticipation	Awareness of possible outcomes of science and visions of the world attached
Caring for	Take responsibility to ensure that people’s needs are met now and in future
RRI- inclusion (outcome)	Result of Participation and/or deliberation of the different relevant stakeholders A collective and pluralistic identification of norms
Caring with (result)	New habits and patterns of care emerge over time. (Long-term relationships that can generate change and create collective pluralistic norms)
RRI – reflexivity	The individual and organizational capacity to reflect about one’s own frame (on an individual, collective, organizational, institutional level)
Care receiving	Extending the frame through actively engaging with the findings of research and using them.
Societal Engagement	Empowerment of people, developing and implementing new ideas, critically challenging status quo, co-create new socially accepted and / or institutionalized practices

Impact based on research collaborations and findings occurs at various levels and through a variety of channels. In the following, we draw on examples of research projects that interviewees shared as exemplary for their responsible research practices.

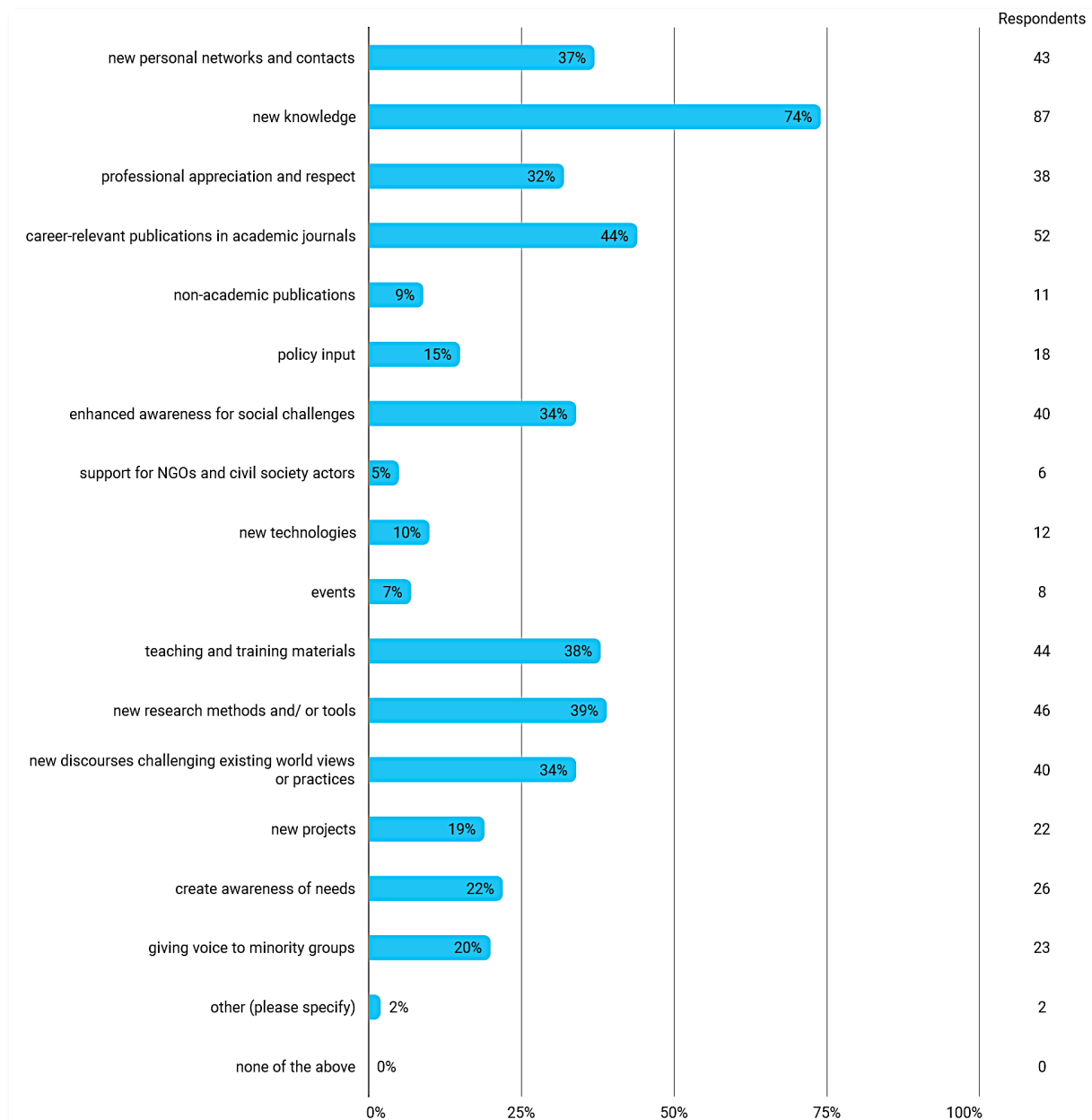
Impact on research participants, including researchers

Impact on research participants, including researchers themselves, is manifold. It ranges from reflexivity-based improved understanding of knowledge problems and methods to altered understanding of issues or self-perception of participants to gaining hands on support, tools or new networks through research projects.

KU's postdoctoral researcher in Development Studies made the experience that even though it was difficult to get municipalities on board for her field experiment in Bangladesh on identifying eligible social welfare recipients, some public officials started sharing the **anticipation** of positive outcomes and the collaboration became one based on trust in goal, method, and potential, partially driven by the new relationship (**caring for**). Arguably one outcome is **reflexivity** (of the researchers who understand the limited outcome of the method that subsequently re-adjust and develop new research methodologies, participants from municipalities who have gained an understanding of issues around identifying potential beneficiaries of social services), but part of reflexivity is also understanding that the research is only one step towards social change.

A Social Science Assistant Professor at RUC did a longitudinal study with students with mental health issues in higher education. She describes the impact of **reflexivity** on researchers and participating students: *'Listening to their problems [...] it sometimes brings a new perspective – both to the project, but also to the participant students' life. Some of them say 'nobody ever asked me this – It makes me think in a new way'. Some react very strongly to being listened to and to some of the questions asked – because many have never really felt heard.'* Being part of the research process has the impact of **receiving care**. Through the ongoing process of gathering research data there is a strong engagement with a vulnerable group, giving them voice and subsequently developing together with them new agency practices, which is a way of making use of the research in its process before having research findings. This feeds into the ambition of the project to instigate cultural change and empowerment. Similarly, in her interdisciplinary performance art and social science approach, a Dance Professor from Paris 8 combines research, art and action to find new ways of engaging between humans and the non-human world in order to develop increased awareness and sensitivity. Through performance, itself a process of **reflexivity**, human participants 'are changing their perceptions of the world and each other which is necessary in terms of changing attitudes towards respecting the non-human world and creating more sustainability'.

Graphic 13: Survey data. What types of impact do you associate with your own research? (select up to five)



An Associate Professor from NBU developed a programme for parents with autistic children, using an experimental setup that involved children, parents and therapists using digital tools (inclusion). His vision for e-health is 'to introduce extra services easier to use, accessible for more people'. His team is starting to get recognition and more interest by parents to participate, which he ascribes to transparency, free access to the tools and a promise for improvement of skills (care receiving). This project potentially also changes professional practices and institutions as it involves new ways of learning and organizing activities with children with autism (responsiveness).

Impact on students through research-based teaching.

Within academia impact is also research-based teaching. The way some researchers involve students in research or engage in teaching inspired by their own research interests impacts the students' experience and arguably challenges typical student anticipation of being learners rather than co-producers of knowledge. It gives them hand-on experiences of working with specific methods, groups of practitioners or real-world challenges and gives them tools to become critical and informed investigators and societal actors. Being immersed in research processes or being accepted as beholder of valid knowledge adds a layer of **care giving** and **care receiving** to the impact of research-based teaching. It also leads to **societal engagement** of students by transforming views through experiences that adds to the responsible research dimensions **inclusion, reflexivity and anticipation**.

The following two examples challenge the status quo of typical academic teaching, in method and in teacher-student relations. With a group of dancers and a group of somatic practitioners, a Professor of Dance at Paris 8 developed practices for people who experience social exclusion. She also started an MA seminar to share experiences and practices between students and practitioners, giving a chance to a small group of students to challenge their own understandings of social exclusion. Based on student and practitioner feedback who experienced the approach as both **care giving** and **care receiving** she concludes that this form of teaching provides the micro-place for social transformation.

An AEU Archaeologist interested in technology and social media seeks to change the teacher-student frame of education and teaching working with dialogue rather than lectures on the one hand, and with video, sounds and emoticons on the other, letting students use their own most used forms of communication. This more creative, dialogical way of teaching empowers students in the sense that it legitimizes their communication methods while inviting critical thinking and engagement.

An Associate Professor at Department for Politics and member of the Excellence Cluster on Social Inequality at KU is convinced that teaching creates the biggest societal impact. Bringing a critical and engaged approach to teaching she sees herself as motivator. *'Many alumni end up in advisory positions or politics. I have been running a lecture on democratic innovation, now the first graduates are starting to implement Germany's first citizen councils.'*

Impact on internal institutional practices

Impact on university structures or cultures is relatively low, except when research is done specifically on institutional practices, like RUC's Social Science Assistant Professor's study on students with mental health issues, which is now being used on official boards at the university. This project brought **anticipation** and the wish to **care for** a specific group of students to fruition through changed institutional practice, a form of research-based **innovation** which also

required **reflexivity** of university boards and administration and their willingness to review existing practices, not only of researchers and study participants.

A topic raised in many interviews was the issue of translation – preparing research findings in a way that is accessible and useful to non-academic stakeholders. As mentioned in the previous section, most universities cannot offer much support here and it is left to individual researchers to find ways of translating and presenting, so research outcomes can create impact after the research process has ended. Research institutions have some resources, but they tend to be limited to writing press releases shared on university websites or the occasional public event. An Associate Professor in Sociology and Anthropology at KU reports of a good experience of research translation as part of a project on the financialization of commodities, leading to the question how universities *'can step up their game in how they handle communication with the public, the private sector, NGOs and businesses.'* In his experience, universities hesitate with seeking publicity when research findings are perceived as controversial. However, some institutes are more interested in external communication than others. The KU Research institute on Literature Art and Communication has a particular support and strategy with the focus of public knowledge sharing. They support researchers and do themselves initiate podcasts, media events, debates etc.

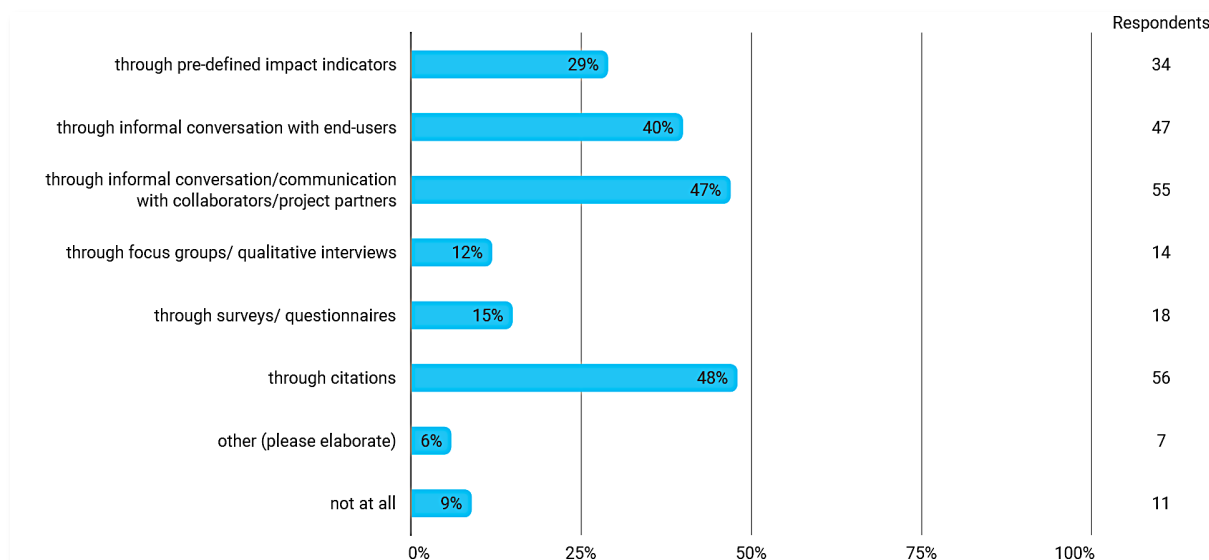
However, challenging the status quo through critical research is an important task for RRI, and it seems that all ERUA member institutions can improve on public relations and communication for research projects that do not have a dissemination budget from external funders. Even if external funds increasingly requires specifically that research projects provide different types of outputs that are accessible to a broader audience and stakeholders, university infrastructures have so far only to a limited extent institutionalized this development. Such a change requires not only institutional **anticipation** that research should reach into society, but also actual responsiveness that includes the means to do so. This is not only a question of resources and concrete support practices but also one of policy. An Associate Professor in History at NBU stated: *'Universities should have a visible portfolio of how they relate to various social agenda points and express their research-based positions. Instead, universities are seen by politicians as objects of prestige, but not as collaborators towards social change by teaching critical skills.'*

Impact on society

Societal impact can refer to discourses that challenge the status quo, alter power relations, or simply create new ideas, knowledges and relations. Researchers in some fields are solution-oriented, e.g., those working on digital solutions for pollution, threats to bio-diversity or e-health. Others develop tools for schools, day-care facilities, private sector and/ or municipalities.

Being asked how researchers measure the impact of their research both interview and survey participants presented a mixed bag, ranging from counting citations to informal follow-up talks.

Graphic 14: Survey data. How do you measure your impact? (select all that apply)



Causality is an issue. KU's post-doc in Development Studies concludes that her project in Bangladesh generated new knowledge and awareness, but in order to evaluate impact they had to develop new proxies to even be able to establish that. But the **anticipated** outcome, finding ways to **care for** more people's needs, is not there yet. **Societal engagement** in this example is still visible through the successful challenging of the status quo and the awareness of some policy makers who were part of the project.

Some projects result in creative forms of dissemination that can reach wider audiences, e.g., the Professor in Performance's addressing climate change at Paris 8. Used as **reflexive** methodology it produces a form of sharing performance-based research results in a form of deliberative dissemination, offering concrete or pragmatic utopias to tap into. A Paris 8 Associate Professor in Science and Technology was part of a group developing a digital tool to protect those at high risk from COVID-19 without infringing on personal data, hoping to increase acceptance. Working with French health associations and a hospital in Africa the project aimed at citizen empowerment with a wish to integrate human rights to technical solutions by providing an open-source tool that helps protect at risk groups. **Societal engagement** is expressed in a bottom-up approach and the ethical drive to **take care** of people without exposing personal data to government control. The source code for the application is available online but it is not clear if and how it is used. Both projects thus reach out to audiences outside the participants, but how they impact society is not measured in ways that are instrumentalized by conventional systems.

Others educate audiences directly, e.g., RUC's Associate Professor with the Mass Experiment in fighting plastic pollution, working with Danish school children. He developed teaching

materials for the schools that can be re-used and they involved young students directly. Here the RRI dimension of **inclusion** means working directly with the future stakeholders in solutions for global warming in an innovative and fun approach, while producing reliable data that can be used in further research open source. RUC's Associate Professor in Environmental Innovation claims to have created new understandings of both the economic and environmental future of sustainable construction work through an inclusive process that involved relevant cross-sectorial stakeholders who were willing to engage in collective and pluralistic identification of norms and solutions. A RUC Associate Professor in Work Life Studies described being engaged with society through employees and employers in the financial sector with whom they conducted experiments to improve sustainable work lives, challenging participating organizations to reflect on their own frame and use this **reflexivity** to develop and implement new ideas.

In another example of societal impact through inclusive methodology an Associate Professor in Agronomy brought together Danish organic farmers in a project on soil health which they see as a tool to challenge the status quo in two ways: by challenging conventional food production and agriculture and by having instilled the idea of collaboration among organic farmers through the project's methodology of inclusivity. Both impacts contain an element of **caring with** others for soil health and **caring for** each other in surviving as organic farmer in a competitive environment. Whether the network forged throughout the research process will last cannot be known, hence impact might be short-lived and not go beyond creating a moment of awareness of shared interest and collective potential. However, even with longitudinal studies these types of long-term impacts are difficult to measure, and project funding often does not comply with the time it takes to build up deep relations and changes in cultural mindsets. This is also the case for the Assistant Professor in Agriculture Economy at AEU with his project on countering the white rabbit invasion on Lemnos, who engages in a co-creative process which might or might not result in sustainable alliances beyond project duration.

External dissemination is a key approach to generating societal impact. A Professor of Digital Governance at AEU who is part of a project on new models for ICT governance, does research on new ways to develop entrepreneurship in digitalization and sustainable development. Involving students, market actors and other sectors in their platform-based research they also share findings through videos in order to reach wider audiences. The project has a strong focus on the needs of society and the future (**caring for**), the entire set-up is impact-oriented, hence full of **anticipation** to find answers to socially relevant questions, posed by students and other stakeholders in an open process.

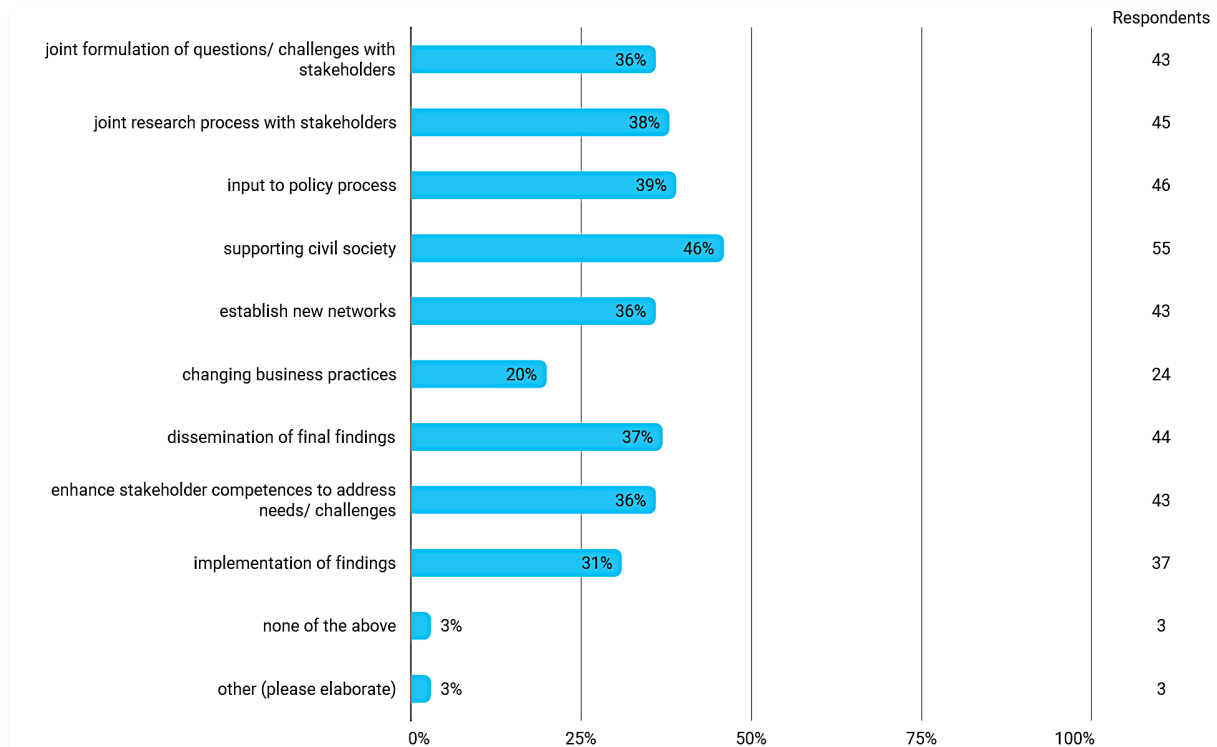
Traditional academic publications of course also matter, citations indicate interest within the academic community and give legitimacy to political decisions. A KU Associate Professor in Biology working on pollution and plant invasion exemplifies impact through a combination of academic and public sharing of findings. Based on a study of the effects of climate change on invasive plants and their interaction with local plants the project can provide knowledge on what happens with the plants and species if some of these predictions of temperature-rise actually happen. In addition to that he participates in a global database on invasive species. It provides data that has been tested in experiments and they get many citations. However,

'acknowledgement and publications are important but it is not something you can quantify. It is difficult to quantify impact that way – it is important to be published – that way it is easier to directly see the impact.' What is easily quantifiable impact however does not lead to societal engagement and change. He also talks to the media whenever he can, and luckily, anything related to climate change attracts attention, at least when results are clear and clearly communicated. In this specific case, the university helps with press releases, funded through the Excellence Cluster. RRI communication needs extra funding. It also needs public interest. Not all research is on 'mainstream' or 'hot' topics and not all findings are clear enough to fit into a headline.

Another KU researcher, an Assistant Professor in Sociology affiliated with the Excellence Cluster on Social Inequalities also underlines the importance of communication of research results in the media. He views this as an important aspect of empowerment, adding the voices of groups otherwise unheard to public discourse, which is a form of **caring for** both minorities and democratic discourse. Like many other interviewees this researcher keeps track of his citations and publications but trying to keep track of other impacts is hap-hazard at best. This might have different reasons, like lack of time to follow up and/ or lack of institutional recognition of other forms of societal engagement and hence lack of systems. This might differ between ERUA universities and even between university departments. While a former Associate Professor at the Limnological Institute at KU has the impression that societal engagement was bad for his career due to the trade-off between time used to publish vs. time used to disseminate outside academic channels, some departments at RUC have at least started to review research impact indicators, maybe in order to respond to a growing frustration with the publish or perish culture, which poses a threat to critical research.

There is also a difference between researchers' own ideas of impact. While some believe in cross-sectorial collaboration or dissemination for multiple audiences, others believe in impact through purely scientific work and outreach. Sometimes impact is already understood as result of research processes as well as based on research findings.

Graphic 15: Survey data. In terms of societal impact, what aspects are most important to you? (select all that apply)



Impact as voluntary work?

Societal impact through external dissemination depends to a large extent on individual researchers' willingness to go the extra mile, either by communicating with media and other audiences in their spare time, by being engaged as citizens in civil society or through other income-generating practices, thus wearing different hats that impact each other and societal engagement practices. While researchers on temporary contracts might have to worry about academic publications and citations, those tenured or with Professorships are freer in their choices of engagement, as in countries like Germany they are civil servants. As a KU Political Science Associate Professor states: *'Many people feel under pressure all the time, but it is only for recognition'*.

The development of specific technology while trying to get acceptance through relevant stakeholder engagement is another way of generating impact through responsible research and innovation. In a project studying the effects of transport systems on the marine environment, an Assistant Professor in the Department of Shipping, Transport and Trade at AEU works on building and restoring a sea-based wind-turbine near one of the Greek islands that will help generate clean water. The project involves local citizens, public officials, researchers, students and industry to increase acceptance, viewing **societal engagement** as a task and responsibility of publicly financed research. An Assistant Professor from the Department of Administration and Management at NBU involved in EU-financed research on

soil health, is working on forecasting software that will suggest soil health strategies, including financial aspects. It is a work in progress that involves researchers from different disciplines and countries, as well as farmers. In both cases the approach from a care perspective leads to RRI from a place of caring for nature, gaining trust and legitimacy for new technology is generated through caring with other stakeholders – or maybe it is just a win-win.

Impact is political!

Coming back to ‘hot’ topics, a statement by a PhD student in Social Robotics at Paris 8 reminds us that impact also depends on societal interest. While climate change and sustainability are topics in mainstream political and social discourses, issues that concern most minorities are not. Using artificial intelligence to help children with cognitive challenges overarching questions are: ‘How do we understand learning – and how do we understand individual learning? What is the role of AI in education? How do we educate children with learning disabilities?’ While questions of inclusion have become more present, disability is still a minority concern. And while AI is being used in more and more areas, there is still a lot of doubt about this technology amongst the public. Here the challenge is back with research and HE institutions how much they want to push controversial or minority topics by supporting such research and the dissemination of results, showing uninhibited care for all topics where knowledge production is a key ingredient of innovation.

Summing up on impact

Table 8: Dimensions of responsibility and care in research impact

Responsibility dimension	Phase of Care	Identified practices
Anticipation	Caring for	Translating researcher’s motivation to care for the social value to other parties and institutions, to create collective understanding of the importance of care.
Reflexivity	Care receiving	Mutual learning in the research process to reflect or modify research practices and create more meaningful processes of care receiving. Using participatory and experimental methods such as action research or arts-based methods change researchers’ and participants’ worldviews and attitudes Developing dialogical and reflexivity-focused student-teacher relations, replacing purely lecture-based approach
Inclusion	Caring with	Changing practices and challenging the status quo through meaningful collaborations with stakeholders and engaging in mutual processes of transformation by caring with each other. Anticipate new types of vulnerability and engage participants exposed to new, yet invisible vulnerabilities, e.g. future generations expected to face the climate change effects Attempting to keep track of the initial impact and to re-engage participants after the project is officially finalized.

Societal engagement	Societal engagement often creates important but intangible impact that can be hardly traced with existing measurement indicators. It includes changing attitudes and status quo, as well as creating inclusive and lasting interdisciplinary and inter-epistemological collaborations.
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To summarize, besides more commonly used visions of RRI impact such as creating new knowledge or technologies, applying the care concept demonstrated that impact can be perceived and created by researchers also from an ethico-political care perspective (Bellacasa 2017). Speaking about impact, respondents commonly evoke the three dimensions of responsibility – anticipation, reflexivity, and inclusion, which in the responsibility-care framework correspond to caring for, care receiving and caring with.

Firstly, impact related to the reflexivity dimension – ability to affect and be affected by mutual learning in the research process and be able to reflect or even modify research practices to create more meaningful processes of care receiving where involved stakeholders or end-users get the possibility to respond to the research output. Reflexivity relates to often intangible facets of impact which can be summarized as ability to approach research processes as a quest for better ways of communication and relation-building and trust over a long time between researchers and participants. Secondly, impact is understood as the inclusion dimension – changing practices and challenging the status quo through meaningful collaborations with stakeholders and engaging in mutual processes of transformation by caring for each other and acknowledging mutual interconnectedness through involving non-human actors, e.g., natural resources as equal agents in research. Finally, the perception of impact is strongly related to the anticipation dimension (caring for). The ability to create meaningful impact is associated with translating researcher's motivation to care for the social value to other parties and institutions, to create collective understanding of the importance of care. In other words, although on a discursive level there is strong focus for inclusive dissemination or societal engagement in research, institutional practices often do not have clear support structures, and researchers often have to engage in responsible research out of pure enthusiasm and personal motivation for their research topic.

While we found numerous examples of the above-mentioned impact dimensions in the researchers' narratives, it is also important to note that there are limitations.

The inclusive research process does not guarantee change in practices, and it is difficult to conclude that social innovation happens on this basis, at least not immediately. Also, in spite inclusion in research processes, this can happen at different stages and with different purposes in the research process. Researchers and their partners must develop and agree on impact indicators and find ways of tracing impact over time. The timeline of research projects and their funding conditions at times do not allow for such tracking. Finally, when researchers engage and develop societal engaging impact on various levels, they at times run into the paradox that they comply with the university and EU ambitions of engaging with society through their research but that they do not have the infrastructural support or merit systems that support the building of collaborative research, or timely/long term engagement. Lastly, the definitions of impact applied are not always in sync with the merit systems, where researchers at times define impact together with the professional practices of their stakeholders that hold a deep professional knowledge. The study shows that several researchers engage through

collaborations with stakeholders and end-users with impact definitions that address people's attitudes, well-being and cultural understandings with culture changing effects as a potential (so-called deep scaling effects rather than upscaling effects) that are not necessarily easily measured.

4 Conclusion

The analysis shows a high degree of responsible research activity among the researchers interviewed for this mapping. Responsibility is a driver and motivation for the pursuit of research and particular knowledge problems, it affects chosen methodologies and stakeholder engagement, dissemination activities and sometimes engagement outside the university. Overall, special attention should be put to how the subjective dimensions are often not accounted for in RRI definitions. Numerous researchers highlight how they are affected by societal and global challenges like the climate crises, the fragmentation of communities through technological development, poor mental health issues etc. These concerns in turn influence their choice of research questions and methodologies. Likewise, numerous researchers point to the interconnections between the organisational infrastructural dimensions and their ability to conduct their research in responsible ways. They express that limited research support systems, short work contracts, misleading excellency requirements may influence their ability to e.g., engage with external stakeholders in their research methodologies and outputs.

The analysis shows that different dimensions of responsibility seen through a care ethics perspective are prevalent throughout different phases of the research process, which we divided in the why, the how and impact sections.

The responsibility dimension of **responsiveness** is mostly visible in the earliest stage of research, the individual motive tied to care ethical concerns and interests, experienced in private, professional and public sphere, like a concern for nature, for future generations, a strong sense of justice or embodied experiences like health concerns, exclusion, or activism. Coupled with curiosity such motives trigger research careers and the choice of certain topics. **Reflexivity** is the only responsibility dimension that is truly visible in all stages of the research process, as the concern for problems translates into specific actions. In the earliest stage it results into self-care by taking action During the research process reflexivity becomes more interactive, e.g., by adapting research methods based on stakeholder feedback or dialogue or by using critical methodologies that continuously question the framing of the chosen approach. It can involve fine-tuning it throughout the impact stage, where both research-based teaching invites students to critically reflect with and through research, or engagement with stakeholders and their reflexive feedback on process or output in the care receiving dimension feeds into mutual learning and challenges the status quo. This leads to formulating ideas for implementation across sectors or turning the classroom into dialogical spaces.

Transparency and **inclusion** are strong responsibility dimensions in the how phase. This is where transparent research methodology and objectives as well as ongoing communication

and openness about the research process are indicators of responsibility practiced through caring about the opinions and needs of other participants. These dimensions are partly embedded in research ethics and as such part of the trade of the researcher. However, in participatory research it both requires a different mindset acknowledging our interconnectedness and including both human and non-human actors as collaborative agents in the research. Also, it requires additional competences and investments, such as the willingness to facilitate dialogue across disciplines or sectors or the time for regular stakeholder consultations. Inclusion of multiple stakeholders in research design and process, combined with transparency, creates a process that facilitates trust and solidarity building in a shared effort. Challenges here are stakeholder selection and the willingness and capacity to foster, nurture and maintain relations throughout the research process and beyond, extending the responsibility dimension of inclusion to the impact phase. Here trust and solidarity are maintained through a sense of meaningful collaboration and ongoing dialogue beyond a research project, while anticipating future vulnerabilities like those of the future generation.

The why and impact stages of responsible research are structured by an underlying sense of **anticipation**, starting with the willingness to act towards social change which results in a collective understanding of the initial individual care concern – which results in ideas for solutions, sometimes formulated by matters of care.

Societal engagement. Looking at responsible research throughout the three phases of the research process we see social innovation unfolding in various ways. Departing from an understanding of social innovation as social change achieved in a collective and participatory process, we can trace social innovation as societal engagement back to individual motives of researchers to use responsible research in a care ethics perspective as a tool for social change. We then see it in efforts to forge new relations through participatory methodologies, setting the potential foundations for collective change processed through critical and reflective knowledge production. While researchers might use new insights directly in their teaching, turning the classroom into a space for social change or take their insights to networks or activities outside their academic lives, other stakeholders can do the same, thus challenge the status quo and push for new institutional practices that take into account the cultural, situated and embodied practices that also are required in deep scaling.

This links to how we are to understand the role of reform universities as participants in social innovation. Even though some researchers in the study define reform as being up to date and innovative in a technological developmental sense, others strongly relate to sustainable, social change and challenging power structures that goes hand in hand with a care ethics perspective, which requires acknowledging scientific knowledge creation that takes marginalized knowledge into account and that focusses on how matters of concern for the future are to be in the midst of the role of science. In this reading, new practices, collectively implemented, can contribute to social change and transformation through the diffusion of innovation at subjective, local, organizational or societal levels. If we think about reform universities as one of the collective actors in social change processes, the five dimensions of RRI can be linked to SI as follows:

Transparency: Ethical concern for research practice is not only about data management, informed consent etc. Even though researchers in the study describe transparency as a way to make science understandable and usable for external stakeholders (availability, accessibility), it also contains the hassle to be inclusive and is therefore raising the Bellacasa (2017) question of why to care and how to care for ways of qualifying research questions and research relevance with a specific contribution to more sustainable futures.

Anticipation: Contains political aspects and again links to how and why researchers conduct the research they do and how they define their personal and professional engagement with social matters of concern. Anticipation is not isolated to the corridors of the university. It is both in technological design processes (Verbeek 2006) and in the development of social innovation (Moulaert & MacCallum 2019) suggested to involve the stakeholders in the process of the design of research questions, methodologies, and output of the research.

Reflexivity: Both reform and responsible research are critically addressing norms and power structures, both internally in university structures and externally addressing norms in society. Many researchers in the study argue for internal organisational change through better support measures in dissemination strategies and output measures, stakeholder involvement, better work conditions, different merit systems, more inclusive and flat hierarchies, respect for multi-disciplinarity. Also, quite a few of the researchers link research and teaching. Even if trans-disciplinarity is required to research wicked problems, and central to being reform, it is experienced as both challenging and nurturing. Also, it is not easy and not all have the competences to conduct trans-disciplinary research. When it is not a merit in performance criteria, it at times remains peripheral how the trans-disciplinary research is operationalized.

Inclusion: The acceptance of plurality of knowledge, inherent to collective SI process, is by some researchers practiced through their collaborative efforts with other disciplines and external stakeholders. However, they also express difficulties due to different expectations, lack of infrastructural support and lack of time as the inclusion requires long time relation building and trust.

Responsiveness: Reform universities as institutions are at this point part of the dominant performance paradigm. It is crucial to remember that reform universities started as social innovation to transform teaching and research- and could be considered that again?

All the above-mentioned aspects of responsibility in relation to social innovation investigated through the lenses of care ethics are important but cannot be said to be equally weighted in all individual universities of the alliance. RRI in relation to understanding and practicing oneself as a reform university very much is connected and not least affected by the different conditions and histories of each alliance member.

Taking the differences into account, our analyses show the multiple facets of how responsible research from a perspective of care affects individuals, organizations, and academic culture, with a strong wish to co-create solutions for wicked problems. This needs institutional support,

which could be the 'niche' defining reform universities. This in turn requires a 'cultural transition' in a context of competitive research and higher education landscape.

Before turning to recommendations how to work towards this cultural transition towards responsible research we would like to underline the theoretical contributions of the study. Is there a non-caring responsibility? Summarizing the theoretical contributions of this report, we draw on Bellacasa, Latour and Tronto's arguments that care as recognition of interdependency is indispensable for sustaining life. Hence there is a need to think how care, as a collective endeavor to mobilize our common vulnerabilities and affects, can be more pronounced in responsible research. At the same time, as Bellacasa points out, care is not necessarily comforting and rewarding, it can be draining and perplexing. We recognize that care as an approach to responsible research is a dynamic and often illusive dimension, which can be challenging to categorize in rigid terms. Hence, as the analysis demonstrates, it is not always easy to pinpoint if certain research practices are driven by caring and affective dimension or by responsibility as professional and ethical obligation. However, agreeing with Puig de la Bellacasa (2017), our aim and hope is that thinking and narrating with care about research practices, interpreting research practices and researcher's motivations as matters of care, often devalued, and rendered invisible, can trouble the established routinized understandings of what responsible research is and can be. Hence, it can be a first step not only to disclose invisible labors of care, but also to generate care (Bellacasa, 2017).

If we want to strengthen responsible research from a care perspective in the pursuit of societal engagement and social change, we must be aware of the many barriers that were mentioned by our informants. These are barriers that span institutional and socio-political levels. In their critique, researchers focus on the lack of organizational support structures and existing merit systems that do not provide incentives for stakeholder involvement and time-consuming development of new participatory methodologies. At the same time, researchers interviewed for this report were quite explicit about the importance of responsibility criteria like inclusiveness, responsiveness, and anticipation, which all require stakeholder engagement, and which are basic demands of a democratic understanding of social innovation.

In the following we try to formulate recommendations, both for reform universities who seem particularly suited to promote responsibility and societal engagement, and for national and European policy makers, who should consider universities as crucial participants in problem-solving, but who strangle this capacity through competitive performance criteria that threaten the role of research for social change. It should be noted that all the above-mentioned aspects of responsibility in relation to social innovation investigated through the lenses of care ethics are important but cannot be said to be equally weighted in all individual universities of the alliance. RRI in relation to understanding and practicing oneself as a reform university very much is connected and not least affected by the different conditions and histories of each alliance member.

5 Recommendations

In the following we formulate recommendations based on identified practices and related challenges. They comprise different levels of responsibility, from institutional organisation and practices to national cultures of higher education and research and EU level impact, which affect performance assessments, career structures and funding, which all affect the possibilities for RRI. We want to underline that the recommendations based on an understanding of responsibility enriched by both care and a democratic take on social innovation are of particular relevance in the context of reform universities. ERUA members have different origins and reform ambitions, but they share interdisciplinarity and an ambition to sharpen again their reform profile. Ignoring our recommendations would also diminish our claim of reform: to be critical and problem-oriented, to work together with other stakeholders, to value the diversity of disciplines by bringing them together in research where necessary, to be conscious of ethical concerns in research and practice and finally to be relevant in societal transformation processes.

Previous EU projects have formulated recommendations (e.g. <https://www.rri-practice.eu/> (2019)). In this report the recommendations are thus standing on the shoulders of previous RRI recommendations and specifically adding perspectives that are informed by the empirical material and theoretical approach of this study. As mentioned in the introduction we found that existing RRI definitions could benefit from (1) a qualified view on how responsibility is linked to the motivations, skills and aspirations of the individual researcher and how it bridges to the organizational framework and (2) not only focus on technological outputs but take the involvement of stakeholders and end-users and not least citizenship into account in truly empowering ways. As the report has shown, we have encountered these suggestions through a care ethics and democratic social innovation perspective and not least specific to the context of reform universities. The recommendations therefore also are to be read in this light.

The current understanding of RRI at EU level centers on the collaboration of diverse stakeholders during the whole research and innovation process with the goal to situate science as key partner in collective responsibility for a sustainable future. The six dimensions of RRI comprise multi-stakeholder engagement, governance, open access, gender equality, ethics and science education). Previous research revealed *'a lack of engagement with and reflection on how responsibility norms should be (re)configured to account for knowledge production that brings with it expectations of valorisation, commodification and economic and societal impact'* as well as *'very little evidence of systematic practices of knowledge co-creation and co-production'* due to a lack of resources, incentives, training, and engrained norms (Owen et al., 2019 pp.2). Our research adds an important dimension to the EU definition of RRI, namely that of care understood as ethical driver for individuals, as organisational incentive for universities and as underlying value in efforts to strengthen European societies and the EU's science and innovation policies that reach beyond European borders with their funding of research.

Recommendations for university management

1. Remove contradictions between RRI and excellence

Excellence criteria should be extended to include: 1. ethics, 2. work conditions, 3. social responsibility/innovation reflected not only in outputs but also in process.

Even though most agree excellence in research is a strong adherence to principles of scientific curiosity, creativity, high quality standards, scientific integrity, ethical responsibility, societal accountability, ecological sustainability, and cultural inclusiveness, while promoting a strong dialogue with society the ways scientific excellence is measured are often criticized to not sufficiently nurture several of those dimensions. Often an overweight is put on the quantitative measures of excellence, e.g., citation measures, h-index and journal impact factors.

We invite university management and decision makers to rethink excellence through measures of social responsibility, societal engagement, and RRI from a participatory perspective. This includes a broader plurality of perspectives (parts of the world, languages published, diversity of knowledge bearers, etc.). The leading principle of excellence should furthermore be quality over quantity. Further, social sciences and humanities are disadvantaged in excellence evaluations, which are also the disciplines with most RRI and societal engagement concerns.

2. Management should conduct policy work to influence national funders and decision makers to integrate RRI criteria in expected impact sections (RRI practice)

Management should ensure that more RRI based criteria of merit systems can be levelled on national and international level.

For merit systems to change it is not enough to make changes within the local universities. University management should use available advocacy abilities to raise the issue of review of impact indicators in public research funding as well as with key funding foundations.

3. Develop assessments of societal engagement/double impact that better account for practice development and stakeholder involvement than existing (impact and merit) systems

Establish university working groups on how to include RRI and engagement indicators in internal assessment standards and include non-academic publications and communication that are part of RRI or societal engagement as indicators. This should involve representatives from diverse disciplines.

Currently there is a contradiction between merit systems and the collaborative, time-consuming, transdisciplinary and empowering methodologies that are required to conduct responsible research. Integrating RRI and care ethics indicators will need inter-disciplinary debate within universities, which could be facilitated as part of collaborative reform university projects. Collaborative research measures often come with a variety of challenges that are time consuming and demand special concerns from researchers.

4. Establish or increase infrastructural support for non-academic dissemination

Establish central or departmental PR & communications support available to all researchers with project funding.

There is wide-spread personal drive among researchers to create value and impact for others. However, researchers are not trained in writing non-academic dissemination materials, do not necessarily have the right connections to media and other outlets or lack connections to relevant decision-makers. It is also not sufficiently recognised in merit systems.

5. Develop RRI criteria for recruitment and career progression evaluation

Move on from excessive focus on citations and publications and find better ways to acknowledge non-academic publications and communication that are central to societal engagement research.

University management should review how to integrate RRI and societal engagement criteria in recruitment, career development, and performance assessment. Such principles can be used to review existing institutionalized expectations and performance goals in the context of reform university principles. This could ensure that evaluation criteria are in accordance with goals of more societally engaged research. This review should keep in mind that much of today's research is international and that researcher's credentials in terms of e.g., excellence will not be comparable to other universities. Here it is important that RRI and engagement performance acknowledgements do not hinder but enhance career opportunities and acknowledgement.

6. Establish institutional capacity to create space for cross-disciplinary exchange and RRI criteria

Create space for cross-disciplinary exchange among researchers from different disciplines and departments outside externally funded research projects.

Currently there is a lack of institutional capacity building for cross-disciplinary work, in relation to skills, knowledge, funding and infrastructure. Innovation and research oriented to resolve societal challenges require transdisciplinary collaboration and methodologies. Many researchers wish for societal engagement through their work and there is already quite some expertise how to do so. However, institutional support to develop cross-disciplinary competences is lacking. Cross-disciplinarity could become part of professional development courses within the university, there could be regular cross-disciplinary panel discussions, etc. Universities should consider allocating resources to develop and support cross-disciplinary exchange and research projects, working hand in hand with non-academic publication and communication support.

7. Develop tools to support RRI and societal engagement in early career training and research

Develop training and teaching modules on research ethics that include RRI dimensions and ethics of care for researchers. Develop guidance on research activism, and non-academic dissemination. Create a knowledge exchange of collaborative methodologies in research to increase stakeholders' role in developing anticipation and reflexivity and responsiveness.

Universities can tap into substantial knowledge in how to conduct responsible and engaged research. Many researchers also successfully bridge collaborative research methodologies with collaborative pedagogic approaches to increase reflexivity and awareness of responsibility. Such individual efforts can be systematized, also by adapting existing ethical guidelines to become not merely standardized measures of how to conduct responsible research but put into practice in researchers' communities, concrete projects and teaching.

8. Introduce regular work satisfaction and career development reviews that follow principles of responsibility and care ethics with staff, including researchers on temporary contracts and PhD students

To ensure responsible research at all levels of the university, the working conditions for staff with precarious positions should also be attended to following principles of responsibility and care.

HR divisions should provide supportive and caring work conditions for junior and senior both short term and long-term staff.

9. Develop tools to support RRI and societal engagement in teaching to ensure the reflexivity ecosystem internally in the university

Encourage student involvement in both research and teaching to ensure the nurturing of ecosystem of critical thinking and inclusiveness also internally

RRI and care principles should also be applied in teaching to ensure the nurturing of ecosystems of critical thinking, where dimensions of responsible research and innovation are suitable. Including students in research, courses on research ethics that include RRI and care ethics, dialogical teaching, also through involvement of responsibility dimensions and the involvement of students in cross-disciplinary communication of research are all tools to be considered.

10. Review RRI tools by the European Union (EU 2017) including specific care and engagement criteria linked to RRI in line with the reform nature

A special working group should be set up to develop RRI tools and guidance linked to care and engagement criteria when further developing the Reform identity.

ERUA and ReERUA projects offer an opportunity to collaborate on the establishment of RRI, care and engagement criteria and guidance in the specific context of reform universities, building on ReERUA outputs RRI mapping and database. This can also sharpen reform universities' profile nationally and at EU level. More concretely, this requires a review and extension of institutional norms and standards regulating research and evaluation in relation to RRI and care ethics criteria.

11. In accordance with a Reform University approach management should ensure democratic and inclusive governance among scientific staff

Democratic governance and inclusive decision-making structures are deeply rooted in some reform university histories.

Universities should revitalize such principles together with other universities that wish to engage and enhance the reform identity, in order to reflect their societal engagement goals in their governance infrastructure, so that it is consistently reflected in both teaching, research and organisational setup. Also, these organisational aspirations are making enforcing the possibility to engage in truly mutual learning and inspirational collaborations, and not least more equal opportunities for all researchers.

Recommendations for the EU

1. Qualify evaluation systems that acknowledge and approve societal engagement and collaboration

Where possible review or develop new research impact indicators based on responsibility dimensions from a care perspective

New or updated impact indicators should include research process inclusiveness and transparency, the working conditions of researchers involved, etc. They should also be mindful of necessary longer timeframes of trans- and cross-disciplinary projects and assess research output translation and knowledge brokerage measures.

2. National and EU research funding should strengthen social science and the humanities in multiple-stakeholder projects

Research funding applications should be assessed according to more transdisciplinary criteria in order to reduce natural science and technological innovation bias.

Social science and the humanities are under-represented in the EU evaluation process of research funding applications. At the same time researchers in those disciplines are the experts in helping to qualify projects with social innovation dimensions and to ensure the responsibility dimensions of inclusiveness, responsiveness, anticipation, and reflexivity.

3. The EU should ensure communication and exchange about RRI dimensions in research

EU institutions should forge stronger collaboration with university units that support stakeholder engagement on national and European level.

EU should ensure close communication with university units that support and strengthen stakeholder engagement and help establish those where they are missing. This would allow mutual dialogue and knowledge exchange about how responsible research dimensions can be embedded and translated into stakeholder involvement on a local, or regional, inter-regional and national levels.

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EU resources

- European Commission Recommendation (EU) 2018/790 of 25/04/2018 <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32018H0790>
- European Strategy (2020)
- Governance for REsponsible InnovATion (2016) <https://www.great-project.eu>
- Responsible Research and Innovation in Horizon 2020
<https://ec.europa.eu/programmes/horizon2020/en/h2020-section/responsible-research-innovation> .
- <https://rri-tools.eu/-/boosting-open-innovation-and-knowledge-transfer-in-the-european-union-independent-expert-group-report-on-open-innovation-and-knowledge-transfer>

7 Appendix

Background of people interviewed

Roskilde University		
Gender	Scientific background	Seniority
female	SS: Empowerment of children and youth with disabilities	Professor
female	SS: Mental Health children and youth	Professor
male	NS: Circular economy and waste	Associate Prof
male:	NS: Chemical pollution	Associate Prof
female	H: Transnationalism and mobility in Somali diaspora	PhD
male	NS: Sustainable farming	Professor
female	SS: Working life studies	Assistant Prof

Paris 8		
Gender	Scientific background	Seniority
female	H: Contemporary performance	Professor
female	H: Dance and performance	Professor
male	T&E: Blockchain, AI, technology for social empowerment	Associate Prof
male	T&E: Social robotics	PhD

New Bulgarian University		
Gender	Scientific background	Seniority
male	SS: Political Science and activism	Professor
female	T&E: Telemedicine, speech and language	Associate Prof
female	SS: Community health	Associate Prof
female	SS: Social and solidarity economy Eastern Europe	Associate Prof
male	SS: Management and cooperative governance	Associate Prof
male	SS: Economics and finance, risk management	Associate Prof

female	SS: Economic processes and forecasting	Assistant Prof
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Konstanz University		
Gender	Scientific background	Seniority
female	SS: Development economy in India & Bangladesh	Postdoc
male	H: German literature, Transfer in Teaching group	Associate Prof
female	H: social media and participation	Postdoc
male	NS: Aquatic physics, Sustainability group	Associate Prof
male	SS: Social movements, CSR, organisational, economic and political sociology	Assistant Prof
male	SS: Cultures of Economy	Assistant Prof
male	NS: Plant invasion, pollution & plastic pollution	Associate Prof
female	SS: Philosophy of experience	Associate Prof
female	SS: Political participation and representaion	Associate Prof

University of the Aegean		
Gender	Scientific background	Seniority
female	H: Digital Technology in cultural heritage	Associate Prof
male	SS: Cultural Sociology	Professor
male	NS: Agriculture Economics and local development	Assistant Prof
male	T&E: Digital Governance and Youth Entrepreneurship	Associate Prof
female	T&E: Shipping, Trade and Transport	Assistant Prof
male	T&E: Information systems and networks	Associate Prof
female	NS: Mathematical algorithms in finance	Professor
male	NS: Sustainability and Environment	PhD

SS: Social Science

NS: Natural Science

H: Humanities

T&E: Technology and Engineering

Qualitative interview guide

Methodology

The study is based on in-depth qualitative interviews with researchers across the ERUA Alliance. The interviews take a semi-structured question guide as point of departure. Semi-structured interviews are characterized by being centered around a few overall themes, while still allowing a wide room for interviewees to contribute with new paths and approaches to the conversation. The main objective of the interview study is to obtain qualitative insights on existing practices of excellence and innovative research projects on social innovation and societal engagement - both within civil society and the business sector.

The interview study consists of 35-45 in-depth interviews equally distributed among partner universities. As the study is qualitative the aim is to go deep and grasp the complexity of the phenomenon under study; diverse approaches to and understandings of 'responsible research'. Hence, the number of interviews reflects a striving for data saturation, and not a quantitative urge for reaching a representative number of interviewees. The research team from Roskilde University conduct the qualitative interviews but will continuously share findings and insights with the WP3 board. The data material will be subject for a thematic analysis, which will be discussed and validated by both WP3 board and the WP 3 expert group.

Interviewee selection criteria

The WP-team have agreed upon the following main criteria for screening and recruiting potential interviewees. The criteria are in line with and based upon the WP3 project description.

1. Approx. 8-10 interviewees from each partner university – representing both natural science, social science and/or the humanities, who are engaged in innovative projects on social innovation and societal engagement.
2. Selected by research area: (social) innovation, sustainability (social, environmental, economic), social impact, activism and/or social entrepreneurship.
3. Selected by research approach: qualitative research, cross-sectorial collaboration, action research, innovation camps etc.

Across interviewees we will strive to ensure variation regarding gender, junior/senior researchers and research projects characterized as e.g., extreme case/exemplary case/strategic case/deviant case.

Introduction

- Introductory information to participants about the WP and the concrete study.
- Regarding ethical issues, stress that data is for internal use only.
- A respondent acceptance form is to be signed.
- Shortly on the situation; an interviewer and a note taker + the structure of the interview.

Setting the scene

1. Please briefly describe your own background, current position and main research foci
2. How do you understand the notion of 'responsible research'? (Ask around the key dimensions: societal engagement, ethics, meta-responsibility and innovation)

Concrete examples

1. Please give an example of a specific research project or activities (within one or more of the following areas: Innovation, Social innovation, Sustainability –social,

environmental, economic), Social impact, Collective action, active citizenship, Social entrepreneurship, Social change or transformation)?

2. How was the research project initiated (response to project calls, industry needs, imposed by management, citizen-led or)?
3. Which actors were/are involved and how ?
4. Can you give an example of challenges, if any, that you have encountered? (as an individual/research organisation and how did you overcome them ?)
5. And how about best practices/surprising opportunities ?
6. How does working in a 'reform university' in any way support or foster responsible research and (social) innovation? (If the interviewee is aware that the university is characterized as such.)

Professional attitude

1. What does it mean to you as a private person and as a professional to conduct responsible research? (work identity)
2. How do you translate your approach to responsible research to other aspects of your work such as scientific communication, dissemination and teaching?

Methodology

1. Which research methodologies have you applied/are you applying?
2. Would you describe your methodological approach as innovative? If yes, how so? (What are you inspired by)

Value perceptions

1. How do you perceive the value of your research results/findings?
2. Who benefits (who can exploit) your research results/findings?
3. Who adds to this value creation? (The role of researchers, public, private and civic organizations)

Communication/dissemination

1. Please describe the network of actors that you are part of, and is important to your research?
2. How have shared/ are you sharing your research findings with your stakeholders? And with a wider audience?

Measurement/impact

1. How do you understand impact in the context of your research?
2. What are your current evaluation practices (if any)?
3. Are there outcomes that you see as specific to your ways of doing research? (if relevant discuss this in relation to work identity)

Future perspectives

1. Imagine five years from now – how do you see the future for what you understand by 'responsible research'?
2. What could support this/what could be a barrier?

Suggestions what else we should ask in relation to responsible research that we haven't covered?

Please suggest a colleague you find relevant for us to talk with.

Survey questions

Research for societal impact? Tell us about your research collaborations, notions of responsible research, and related drivers and challenges

Re:ERUA, a project of the European Reform University Alliance, wants to build a common engagement strategy, which involves rethinking research and innovation from the perspective of participatory and inclusive societal engagement, both through stronger inter- and transdisciplinary collaboration and through engagement with non-academic stakeholders before, throughout, and/ or after research research processes.

One goal of the Re:ERUA project is the **mapping of notions of responsible research** with a focus on (social) innovation and societal engagement within the European Reform University Alliance (ERUA). This includes understanding **perceived drivers and barriers** in order to work towards a common strategy of responsible research and innovation (RRI).

Please take 15 minutes to help us get a more detailed insight into different dimensions of responsible research, adding your perspective to those of colleagues who have participated in qualitative interviews prior to this survey. Your input is much appreciated.

The European Reform Universities Alliance (ERUA), one of the 41 European Universities alliances funding by the European Commission, is formed by the University of Paris 8 (France), Roskilde University (Denmark), University of the Aegean (Greece), Konstanz University (Germany) and the New Bulgarian University (Bulgaria).

In your opinion, is responsible research mostly characterised by (select up to 5)

- (1) collaboration and engagement with stakeholders from other sectors in society?
- (2) promoting empowerment of research target groups?
- (3) asking morally compelling questions?
- (4) pursuing social change?
- (5) transparency in study participant selection?
- (6) creating impact on local, regional, national or international policy agendas?
- (7) trust in ethical use of data?
- (8) sharing research results with participants?
- (9) transparent research methodology?
- (10) creating something of public value?
- (11) other (please specify) _____

Would you describe any of your own research activities as responsible research? (select one)

- (1) yes, definitely
- (6) somewhat
- (4) not sure
- (3) no
- (2) Please elaborate your position _____

In which of the following areas do you have experience with responsible research (select up to 5)

- (1) social innovation
- (2) technological innovation
- (3) political systems and public administration

- (4) communication
- (5) sustainability in a broad sense of the term (social, environmental, economic)
- (6) energy transition
- (7) social entrepreneurship
- (18) climate change
- (8) social movements/ activism
- (9) ethics
- (17) pollution
- (10) public or mental health
- (11) conservation and protection of natural resources
- (12) arts and design
- (13) social work
- (16) biodiversity
- (15) none of the above
- (14) other (please specify) _____

Do you define social innovation mostly as (select 1)

- (1) new ways of organizing and collaborating to solve specific problems at organizational level
- (2) new ways of organizing to create lasting social change
- (3) a tool of empowerment and democratization

What methodologies and methods have you applied when collaborating with non-academic stakeholders? (select all that apply)

- (1) action research
- (2) innovation/ design labs
- (3) simulation
- (5) ethnography
- (6) story telling
- (7) field experiments
- (8) case studies or focus groups
- (9) surveys
- (10) future workshops
- (12) hackathons
- (13) collective coding
- (14) crowdsourcing
- (11) other (please specify) _____
- (15) none

Do you agree that working in a reform university promotes responsible research? (select one)

- (1) yes, definitely
- (6) somewhat
- (4) not sure
- (3) no
- (2) Please elaborate your position _____

If yes, what factors are supportive? (select up to 3)

- (1) tradition of problem-oriented research
- (2) tradition of interdisciplinary research
- (3) tradition of collaborating with external partners

- (4) culture of support by peers
- (5) supportive administration
- (6) institutional support for quality vs. quantity of research outputs
- (7) particular ideological approaches to research (if yes, note which ones) _____
- (8) none of the above

To what extent do you agree with the statement that 'responsible research enhances acceptability, sustainability and societal desirability of (technological and social) innovation'? (select one)

- (1) strongly disagree
- (2) disagree
- (3) no opinion
- (4) agree
- (5) strongly agree

What stakeholders have you collaborated with? (select all relevant)

- (1) public sector
- (2) civil society organizations
- (3) citizens
- (4) industry/ business
- (5) researchers from other disciplines
- (6) no collaboration

Nature of collaboration (select all relevant)

- (1) joint identification of research/ knowledge problems
- (2) joint expertise report
- (3) joint implementation
- (4) shared governance
- (7) joint publication
- (8) joint production of tools/ databases
- (6) joint organization of event
- (5) none of the above

In your experience about collaborative research, with what can different stakeholders contribute? (select all relevant)

- (1) data
- (2) fresh perspectives
- (3) own narratives
- (4) tools
- (5) communication channels/dissemination
- (6) contacts
- (7) other (please specify) _____
- (8) don't know

Intensity and frequency of collaboration (select all relevant)

- (1) single encounters (e.g. in a workshop, data collection)
- (2) ongoing collaboration throughout the entire research process
- (3) extended collaboration post-research for dissemination
- (4) extended collaboration post-research for implementation
- (5) none of the above

Challenges in collaboration (select up to 5)

- (1) different languages
- (2) different objectives
- (3) different timelines
- (4) different resources to fulfill agreed tasks
- (5) bringing together different administrations
- (6) organizing joint decision making
- (7) lack of transparency
- (8) other (please specify) _____
- (9) none

Drivers in collaboration (select all relevant)

- (1) shared interest
- (2) shared values
- (3) funding opportunities
- (4) similar institutional logics
- (5) formerly existing relationships
- (6) working with people entitled to take decisions
- (7) working with partners who share their own data
- (8) don't know
- (9) other (please elaborate) _____

In your experience, are calls for research involving multiple stakeholders in research focused on (select one)

- (1) increased efficiency
- (2) addressing needs of society
- (3) both
- (4) not relevant

In terms of societal impact, what aspects are most important to you? (select all relevant)

- (1) joint formulation of questions/ challenges with stakeholders
- (2) joint research process with stakeholders
- (3) input to policy process
- (4) supporting civil society
- (5) establish new networks
- (6) changing business practices
- (7) dissemination of final findings
- (8) implementation of findings
- (9) none of the above
- (10) other (please elaborate) _____

How important are your personal value positions in your research? (choose all that apply))

- (1) My personal value positions are important to the ways I perceive myself as a researcher.
- (2) My personal value positions affect the way I pursue collaboration.
- (3) My personal value positions affect the way I identify knowledge problems.
- (4) None of the above.

What types of impact do you associate with your own research? (choose up to 5)

- (1) new personal networks and contacts
- (2) new knowledge
- (3) professional appreciation and respect
- (4) career-relevant publications in academic journals
- (5) non-academic publications
- (6) policy input
- (7) enhanced awareness for social challenges
- (8) support for NGOs and civil society actors
- (9) new technologies
- (10) events
- (11) teaching and training materials
- (12) new research methods and/ or tools
- (13) new discourses challenging existing world views or practices
- (14) new projects
- (15) giving voice to minority groups
- (16) other (please specify) _____
- (17) none of the above

How do you measure your impact? (select all that apply)

- (1) through pre-defined impact indicators
- (2) through informal conversation with end-users
- (3) through informal conversation/communication with collaborators/project partners
- (4) through surveys/ questionnaires
- (6) through citations
- (5) not at all

Are you aware of added value of interdisciplinary or trans-sectoral research you have been engaged in for (select all that apply)

- (1) academics
- (2) participating stakeholders
- (3) citizens
- (4) policy makers
- (5) public administration
- (6) professionals
- (7) civil society organisations
- (8) don't know

In what ways does your university administration/management acknowledge responsible research? (select all relevant)

- (1) by having research indicators in the research portal taking into account societal outcomes
- (2) by helping pre-award funding proposals developing methodologies focusing on end-user/stakeholder involvement
- (3) by having a unit explicitly helping researchers to disseminate their research findings to a wider audience
- (4) my university doesn't explicitly support/acknowledge particularly that I conduct responsible research

Nearly done! Now we just need some personal information.

Place of employment

- (1) Roskilde University
- (2) Paris 8
- (3) New Bulgarian University
- (4) University of the Aegean
- (5) University of Konstanz

Gender

- (1) female
- (2) male
- (3) non-binary

Position (select all that apply)

- (1) Post-doc
- (2) assistant/ junior professor
- (3) associate professor
- (4) full professor
- (5) tenured
- (6) non-tenured

Years of experience as researcher

- (1) less than 2
- (2) 3 - 5
- (4) 5 -10
- (3) more than 10

Do you have professional experience outside academia?

- (1) yes
- (2) no
- (3) somewhat

What is your disciplinary background?

- (1) social science
- (2) humanities
- (3) natural science
- (4) engineering
- (5) art and design

Thank you very much for your participation!