

## Ethics in action

Citation for published version (APA):

Smolka, M. H. (2022). *Ethics in action: Multi-sited engaged ethnography on valuation work in contemplative science*. [Doctoral Thesis, Maastricht University]. Maastricht University. <https://doi.org/10.26481/dis.20221011ms>

### Document status and date:

Published: 01/01/2022

### DOI:

[10.26481/dis.20221011ms](https://doi.org/10.26481/dis.20221011ms)

### Document Version:

Publisher's PDF, also known as Version of record

### Please check the document version of this publication:

- A submitted manuscript is the version of the article upon submission and before peer-review. There can be important differences between the submitted version and the official published version of record. People interested in the research are advised to contact the author for the final version of the publication, or visit the DOI to the publisher's website.
- The final author version and the galley proof are versions of the publication after peer review.
- The final published version features the final layout of the paper including the volume, issue and page numbers.

[Link to publication](#)

### General rights

Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

- Users may download and print one copy of any publication from the public portal for the purpose of private study or research.
- You may not further distribute the material or use it for any profit-making activity or commercial gain
- You may freely distribute the URL identifying the publication in the public portal.

If the publication is distributed under the terms of Article 25fa of the Dutch Copyright Act, indicated by the "Taverne" license above, please follow below link for the End User Agreement:

[www.umlib.nl/taverne-license](http://www.umlib.nl/taverne-license)

### Take down policy

If you believe that this document breaches copyright please contact us at:

[repository@maastrichtuniversity.nl](mailto:repository@maastrichtuniversity.nl)

providing details and we will investigate your claim.

## Chapter 7

no distinct post-market phase, she suggests that the governance of these technologies requires continuous monitoring and reviewing. She concludes that the implementation of governance frameworks like R(R)I and the modulation of midstream socio-technical integration need reinterpretation as context demands.

In the context of clinical trial research, efforts to steer socio-technical integration processes should span all stages of a trial. Randomised-controlled clinical trials are usually run in three stages: (1) the trial is designed and its procedures are fixed in the clinical trial protocol; (2) the trial is conducted as prescribed by the protocol; (3) once the data are collected and verified, they are analysed according to a pre-specified analysis plan (Friedman et al. 2015). Departures from the trial protocol are considered as possible sources of bias and thus largely avoided. Although I have shown in chapter 3 that the implementation of a protocol involves tinkering and *ad hoc* decision-making, possibilities for inflecting socio-technical integration in the second and third stage of a clinical trial are limited. The timing of my STIR study (in the middle of the second stage) might be one of the reasons why the scope of midstream modulations in the Silver Santé Study was relatively small in comparison to previously published STIR studies on more exploratory technoscientific practices (Conley 2014; Flipse et al. 2014; Schuurbiens 2011). If STIR is deployed as a means to generate practical modulations in clinical trial research (rather than in its original design as a mode of research), the midstream should be conceptualised so as to include all three stages of a clinical trial.

### 7.4 Impact paragraph

As methodological reflections on the relation between engaged research and science governance reveal, this dissertation is permeated by the agenda to combine scientific with social impacts. Therefore, the requirement for candidates seeking to attain their doctoral degree at Maastricht University to attach an impact paragraph to their dissertation appears almost redundant here. Hence, instead of enumerating the impacts of this dissertation, I use this paragraph to go one step back and reflect on the different meanings of impact as well as the difficulties in assessing it. For instance, I recognised a tension between scientific impact measured in journal publications and social impact in terms of contributions to science governance. My interest in publishing the results of my STIR studies was sometimes at odds with my 'activist' interest in exploring STIR's potential to serve as a form of soft science governance, stimulating reflexive and practical transformations of technoscience. Although all participants had agreed that STIR dialogues were used for academic publications without revealing their identity, one of them admitted that this aspect of our interactions made him reluctant to openly share his decision-making processes, concerns, fears and wishes, knowing that our conversations were recorded.

He took the view that our dialogues could have been more productive if they had not been “exploited” for academic publishing.

Trade-offs between different forms of impact indicate that evaluating research achievements involves careful reflection on research processes. Applying one of the main insights of this dissertation to my own research, I seek to discuss and evaluate its impacts within the context of locally configured practices, where balancing acts between different ways of doing good research become apparent. Along these lines, this impact paragraph elucidates challenges in assessing the outcomes of STIR and presents strategies deployed to address these challenges. I also add suggestions for how to improve practical efforts in contributing to science governance through STS engagement research. Finally, I highlight what STS engagement research and contemplative science can learn from each another on the basis of this dissertation. To ensure that this impact paragraph is aligned with the regulation governing the attainment of doctoral degrees at Maastricht University, I list additional impacts (publications, presentations, educational activities) in table 7.

Table 7. Scientific and societal impact in numbers of publications, presentations, teaching and science communication activities

CATEGORY	REFERENCE	DESCRIPTION
	Smolka, Mareike. 2022. "Making epistemic goods compatible: Knowledge making practices in a lifestyle intervention RCT on mindfulness and compassion meditation." <i>BioSocieties</i> . <a href="https://doi.org/10.1057/s41292-022-00272-w">https://doi.org/10.1057/s41292-022-00272-w</a> .	Publication based on chapter 3
	Smolka, Mareike. 2021. "The Ethnographic Patchwork Quilt: A post-publication methodography." <i>The Sociological Review</i> . <a href="https://doi.org/10.51428/tsr.djop2330">https://doi.org/10.51428/tsr.djop2330</a> .	Blogpost on co-constructing ethnographic knowledge with research informants
	Smolka, Mareike. 2021. "Why does controversy persist? Paradigm clash, conflicting visions and academic productivity in the aesthetics of religion." <i>Science as Culture</i> . <a href="https://doi.org/10.1080/09505431.2021.1918077">https://doi.org/10.1080/09505431.2021.1918077</a> .	Article written in the context of the PhD research, which was ultimately not included in the dissertation.
	Smolka, Mareike, and Sebastian Vörös. 2021. "Writing Life: An Interview with Sebastian Vörös." <i>Somatosphere</i> . <a href="http://somatosphere.net/2021/writing-life-sebastian-voros-mareike-smolka.html/">http://somatosphere.net/2021/writing-life-sebastian-voros-mareike-smolka.html/</a> .	Interview with a philosopher of mind, science, and religion working in contemplative science
	Smolka, Mareike, Erik Fisher, and Alexandra Hausstein. 2021. "From Affect to Action: Choices in Attending to Disconcertment in Interdisciplinary Collaborations." <i>Science, Technology, &amp; Human Values</i> 46(5): 1076–1103. <a href="https://doi.org/10.1177/0162243920974088">https://doi.org/10.1177/0162243920974088</a> .	Publication based on chapter 5
	Smolka, Mareike. 2020. "'Confer-ring' at contemplative studies conferences: Conference ethnography in a time of COVID-19." <i>Conference Inference. Blogging the World of Conferences</i> . <a href="https://conferenceinference.wordpress.com/2020/10/11/confer-ring-at-contemplative-studies-conferences-conference-ethnography-in-a-time-of-covid-19-mareike-smolka/">https://conferenceinference.wordpress.com/2020/10/11/confer-ring-at-contemplative-studies-conferences-conference-ethnography-in-a-time-of-covid-19-mareike-smolka/</a> .	Blogpost on conference ethnography at online contemplative science events
	Smolka, Mareike. 2020. "Generative Critique in Interdisciplinary Collaborations: From Critique of and in the Neurosciences to Socio-Technical Integration Research as a Practice of Critique in R(R)I." <i>Nanoethics</i> 14(1): 1–19. <a href="https://doi.org/10.1007/s11569-019-00362-3">https://doi.org/10.1007/s11569-019-00362-3</a> .	Publication based on chapter 4
	Smolka, Mareike. 2019. "Towards better science and modesty in the Cognitive Science of Religion and Contemplative Science?" <i>Verkündigung und Forschung</i> 64(2): 142–150. <a href="https://doi.org/10.14315/vf-2019-640208">https://doi.org/10.14315/vf-2019-640208</a> .	Book review of contemplative science and cognitive science of religion literature
	Smolka, Mareike. 2018. "'Sticky business' inspires: Enacting ethics by adding syrup to laboratory life." <i>EASST Review</i> 37(4). ISSN: 1384–5160.	Review of the annual conference of the European Association for the Study of Science and Technology 2018
	Smolka, Mareike. 2020. "Che fine ha fatto? Khenpo A Chös Regenbogenkörper." Contribution to the Night of Museums 2019. Centre for Cultural Research Lübeck, Germany. <a href="https://www.zkfl.de/vermitteln/zkfl-in-der-museumsnacht/smolka.html">https://www.zkfl.de/vermitteln/zkfl-in-der-museumsnacht/smolka.html</a> .	Critical reflection on contemplative science research presented at the Night of Museums 2019 in Lübeck, Germany
	Smolka, Mareike. 2018. "'Cosmonaut for a night': The experiences of a Silver Santé volunteer." <i>Point of view</i> . Silver Santé Study, The Medit-Ageing Project. <a href="https://silversantestudy.eu/points-of-view/">https://silversantestudy.eu/points-of-view/</a> .	Interview with a participant in the Age-Well trial for the public website of the Silver Santé Study
	Smolka, Mareike. 2017. "Responsibility in the Silver Santé Study means caring for others." <i>Point of view</i> . Silver Santé Study, The Medit-Ageing Project. <a href="https://silversantestudy.eu/points-of-view/">https://silversantestudy.eu/points-of-view/</a> .	Summary of Master thesis on responsibility in meditation research for the public website of the Silver Santé Study
Publications for wider publics		
Publications for humanities and social science (STS) audiences		
Publications for humanities and social science (STS) audiences		

**Table 7. Scientific and societal impact in numbers of publications, presentations, teaching and science communication activities**

CATEGORY	REFERENCE	DESCRIPTION
Presentations for humanities and social science (STS) audiences	12/2021	“Ethics in Action in Contemplative Science.” Presentation to the Science and Technology Policy research group at the School of Social Sciences and Technology. Technical University Munich, Germany.
	09/2021	“Insights into MUSTS Practices of Collaborative Research.” Presentation at the Association for Studies in Innovation Science and Technology – United Kingdom Annual Conference. Online.
	05/2021	“Conflicting epistemic goods, informal care practices, and multiple research objects in a clinical trial on mindfulness meditation.” Presentation at the Nordic Science and Technology Studies Conference. Online.
	03/2021	“Generative Critique in local productions of sleep apnea: Destabilising standard ways of interpreting curves, categorising health vs. illness, and doing research ethics.” Presentation at the Chronic Living International Conference on quality, vitality and health in the 21 <sup>st</sup> century. University of Copenhagen, Denmark.
	08/2020	“From Affect to Action: Choices in Attending to Discomfort in Interdisciplinary Collaborations.” Presentation at the Joint International Conference of the European Association for the Study of Science and Technology and the Society for Social Studies of Science. Online.
	11/2019	“Engaged ethnographer meets non-participant observer: on the production of normativities in writing and doing research.” Presentation and discussion with Dr. Bas De Boer at the Ethics and Politics of Emerging Technologies network meeting, Maastricht University, the Netherlands.
	08/2019	“STIRring up clinical research and contemplative science: on the production of bias and ‘good’ meditation research.” Presentation at the Centre for STS-studies, Aarhus University, Denmark.
	06/2019	“Studying emotions in meditation research: ethics and epistemology entangled?” Presentation at the Transdisciplinary Conference on BIAS in Artificial Intelligence and Neuroscience. Nijmegen, the Netherlands.
	12/2018	“The Meditating Brain in Context. Eliciting Ethical Reflections in Neuroscientific Meditation Research.” Presentation in the research colloquium organised by Alfred Nordmann. Institute of Philosophy, Technical University Darmstadt, Germany.
	11/2018	“STIR intervention and ethnography in the Silver Santé Study.” Presentation at the Ethics and Politics of Emerging Technologies network meeting, University of Twente, Enschede, the Netherlands.
	07/2018	“Controversy in the Aesthetics of Religion: When religious studies go cognitive, visions on how to study religions clash.” Presentation at the International Conference of the European Association for the Study of Science and Technology. Lancaster, United Kingdom.
		Presentation based on chapter 5
		Presentation based on chapter 3
		Presentation of ethical practices and conundrums related to the incidental finding of the obstructive sleep apnea syndrome in Age-Well participants of the Silver Santé Study
		Presentation based on chapter 5
		Methodological discussion on engaged STS research
		Presentation on the social construction of bias in contemplative science
		Presentation on the social construction of bias in contemplative science
		Presentation on STIR in the Silver Santé Study
		Presentation on STIR in the Silver Santé Study
		Presentation based on the article published in <i>Science as Culture</i> (Smolka 2021), which was not included in the dissertation.

Conclusive remarks

Table 7. Scientific and societal impact in numbers of publications, presentations, teaching and science communication activities

CATEGORY	REFERENCE	DESCRIPTION
	08/2021 "Towards a compassionate academy and a compassionate open science." Keynote with Dr. Marieke Van Vugr, Dr. Zoltan Dienes, Annika Lübbert, Dr. Wolfgang Lukas, Dr. Enrico Fucci, Dr. Mary Rees, Dr. Frank Schumann and Susannah Deanne at ESRI 2021. Online.	Presentation based on manuscript co-authored with contemplative scientists and scholars, which proposes practical strategies to introduce compassion-related values in academia
	08/2021 "Cultivating Contemplative Science Identities through STIR Practitioner Dialogues." Poster with Dr. Erik Fisher at ESRI 2021. Online.	Poster based on chapter 6
	07/2021 "Tracing Collaborative Reflection Moment-to-Moment: Bringing Science & Technology Studies to Contemplative Science and Vice Versa (Preliminary Results)." Presentation with Dr. Erik Fisher at Mind-Brain-Mindfulness Intercity Seminar. Online.	Presentation based on chapter 6 for contemplative scientists who participated in the presented research
	11/2020 "The Mindful Researcher: Transforming Academia from Within." Presentation with Dr. Wolfgang Lukas at CRC 2020. Online.	Contribution to a presentation of the Mindful Researchers Initiative which seeks to align contemplative science with contemplative values
	10/2020 "Ethnographic insights into Medit-Ageing: Preliminary reflections on six months of fieldwork." Presentation at the European Consortium Meeting of the Medit-Ageing Research Group. Online.	Presentation for the European consortium of the Silver Santé Study on preliminary results of the first and second phase of fieldwork in the Age-Well clinical trial
	08/2020 "Digital conference ethnography at ESRI 2020. An inquiry into technological mediation of academic community building." Poster at ESRI 2020. Online.	Poster introducing theory and objectives of conference ethnography at contemplative science events
	10/2019 "Ethics in Action: Engaged Ethnography in the Silver Santé Study." Poster at CSS 2019. Fürstfeldbruck, Germany.	Presentation providing an overview of the dissertation
	02/2019 "Ethics in Neuroscience: Creative solutions to ethical challenges in the Silver Santé Study. Preliminary results." Presentation at the Biomedical Research Institute Cyceron. Caen, France.	Presentation for the Silver Santé research team on preliminary results from the first phase of fieldwork and STIR in the Age-Well clinical trial
	07/2018 "The meditating brain in context: eliciting ethical reflections on neuroscientific meditation research." Presentation at ICM 2018. Amsterdam, the Netherlands.	Presentation providing an overview of the dissertation
	01/2018 "Le cerveau en méditation. Des défis éthiques de la recherche sur la méditation en neurosciences." Presentation at the Biomedical Research Institute Cyceron. Caen, France.	Presentation for the Silver Santé research team introducing theory, method and objectives of ethnographic fieldwork and STIR in the Age-Well clinical trial
	07/2017 "Responsibility in Neuroscience: A case study on ethical boundary-work in conventional and unconventional cognitive enhancement research." Poster at ESRI 2017. Fraueninsel Chiemsee, Germany.	Presentation of Master thesis results on responsibility in meditation research

Presentations for contemplative scientists

**Table 7. Scientific and societal impact in numbers of publications, presentations, teaching and science communication activities**

CATEGORY	REFERENCE	DESCRIPTION
Educational STIR events for students, researchers and professionals	01–12/2022	“Socio-Technical Integration Research Seminar Series 2022.” Organisation with Dr. Erik Fisher, Cynthia Pickering and Lync Peate. Online.
	04/2022	“Socio-Technical Integration Research.” Workshop at Arizona State University, Tempe, United States.
	02/2022	“From FAIR to FAIRI: Open Science principles in qualitative research.” Presentation to metascience research group chaired by Don van Ravenzwaaij at the Faculty of Behavioural and Social Sciences, University of Groningen, the Netherlands.
	11/2021	“Critical Neuroscience for Psychologists.” Interactive Online Workshop organised with Dr. Flora Lysen. University Bonn, Germany.
	10/2021	“FAIR Interviews & Focus Groups in Qualitative Social Science Research.” FAIR Coffee Lecture. Maastricht University, the Netherlands.
	05/2020	“Socio-Technical Integration Research.” Workshop at University College Maastricht. Maastricht University, the Netherlands.
	11/2019	“Socio-Technical Integration Research.” Poster with Erik Fisher at a conference of the network for integrated research. Leipzig, Germany.
	08/2019	“Socio-Technical Integration Research.” Workshop at Interacting Minds Centre, Aarhus University, Denmark.
	05/2019	“Socio-Technical Integration Research.” Workshop at University College Maastricht. Maastricht University, the Netherlands.
		STIR workshop for Bachelor students in the course “Innovation in Society.”
		Presentation on FAIR principles in STIR studies based on chapter 6
		Workshop on STIR and critical neuroscience scholarship for students and researchers from psychology and neuroscience
		Presentation on FAIR principles in STIR studies based on chapter 6
		STIR workshop for Bachelor students in the Research Methods course trajectory
		Poster on the STIR method for a network of researchers involved in collaborative research
		STIR workshop for researchers from the cognitive sciences, anthropology and other disciplines
		STIR workshop for Bachelor students in the Research Methods course trajectory

### 7.4.1 Evaluating STIR achievements

Although Yaghmaei and Van De Poel's (2020) edited volume on the *Assessment of Responsible Innovation* explores promising approaches to assess the effects of R(R)I activities, the literature on evaluating the achievements of sociotechnical collaborations is still in its infancy (Fisher 2019a). Studies analysing such collaborative projects mention the struggles in assessing outcomes in terms of how science and innovation trajectories are modulated, but postpone the development of evaluative methods and practices to future research (e.g., Aircardi et al. 2018; Åm and Sørensen 2015; Pansera et al. 2020). Studying the evolution and effects of interdisciplinary R(R)I initiatives at a synthetic biology centre in the UK, Pansera et al. (2020) conclude: "The impact on daily routines, practices and outcomes within the Centre remains elusive and as yet unquantified. Measuring responsiveness, impact and outcomes remains an area for significant development in this respect" (p. 404). The language of measuring, however, is rather unsuitable for sociocultural interventions, since measurement presumes the existence and validity of a pre-existing yardstick and a uniformity or at least comparability of impact. Uniformity and comparability apply to pre-designed interventions with rigidly executed plans and narrowly delineated outcomes, but are largely absent from open-ended collaborations whose effects are often difficult to detect, let alone quantify (e.g., enhanced reflexive awareness, increased sense of agency). Consequently, the goal of evaluating achievement should not be measuring impact, but assessing learning.

Following a "learning-oriented evaluation approach" (Klaassen et al. 2020, 230) to collaborative sociotechnical integration, Fisher (2019a) notes several challenges in tracing and documenting learning outcomes, here reflexive and practical changes in technoscience. Given that changes in practice often develop over time, documenting such development requires qualitative approaches that are highly attentive to contextual details. Such approaches are not only labour-intensive, but can also potentially distract from actual collaboration. As mentioned above, I experienced a tension between recording STIR dialogues for subsequent analysis and establishing a productive collaborative relationship. To handle such tensions and trace the effects of STIR over time, I followed a longitudinal approach to documentation in the Silver Santé Study. The collaborative project was designed as a two-phase STIR study: the first phase lasted four months and involved regular STIR dialogues with Silver Santé researchers; the second phase took place one year later when I spent three months with the research team to trace the effects of the first phase. The time investment helped establish a relationship of trust between me and my collaborators, which facilitated reflexive learning and enabled me to generate context-sensitive, ethnographic data on our interactions as well as their effects.

Even if such effects can be detected, it remains unclear whether they solely result from the collaboration or from any other factors and processes unfolding in a technoscientific space at the same time (Fleischer 2015). For example, while Silver Santé researchers were engaging in regular



STIR dialogues with me, they were also participating in a graduate course on research ethics and integrity. One could thus question whether the reflexive change documented in chapter 5 – shifting from a conception of ethics strictly related to the treatment of study participants to a recognition of ethics in empirical data – resulted from STIR or from the graduate course. To reduce such ambiguity, I discussed the nature and origin of any changes I had observed with my collaborators. In doing so, I adopted Mertens's (2009) approach to transformative research and evaluation, according to which those at the centre of transformation – here the embedded SSH scholar and her technoscientific collaborators – should also be central to its evaluation. However, collaborating parties may disagree with each other as to the origin or significance of transformation (e.g., Åm and Sørensen 2015). I navigated such disagreements by asking my collaborators to read and comment on excerpts from my dissertation. In careful negotiation and co-creation processes, we revised my analyses and ultimately agreed on a shared account.

Given that the evaluation of collaborative R(R)I projects is vulnerable to contestation and social desirability biases, the question poses itself whether one can possibly define their success or failure. In answering this question, I follow proposals for a processual understanding of success in critical collaboration (Evans et al. 2021) and co-laboration (Niewöhner 2021). Accordingly, success is not defined in terms of outcomes of an engaged research process (e.g., the number, scope and significance of deliberate modulations in STIR). Instead, one should ask whether the process was good (e.g., complying with the ethos of engagement in STIR: methodological rigor, ethical transparency and careful listening). Along these lines, Evans et al. consider the creation of a space for discussing alternative framings of problems, decisions and objects as a positive effect of critical collaboration in and of itself. Based on this understanding of success, this dissertation reinvokes the longstanding call in STS engagement and practice improvement research to open up “reflexive spaces” (Iedema and Carroll 2011): discussion fora where conventional approaches, opinions and practices as well as their underlying assumptions are made available to reconsideration and revision. Rather than asking what we can achieve in such spaces, we should think about how they can be designed, established and preserved.

#### ***7.4.2 Suggestions for opening up reflexive spaces***

The call for reflexive spaces needs to be reiterated since managerial reforms of the university system expected to increase output and efficiency through auditing and ranking structures (Fochler 2016a; Shore 2008) continue to curtail time, space and resources for reflection across academic fields and disciplines (Felt 2017a). Chapter 6 made evident that contemplative science is equally affected even though meditative practices and contemplation on the wider purpose of research are defining features of its scientific ethos. In parallel, Van Oudheusden and Shelley-Egan (2021) recently emphasised the urgency of reflexive questioning of science and technology development in light of their contested roles in the COVID-19 pandemic, climate change debates and the emergence of ‘post-truth’ politics. Therefore, it is all the more

## Chapter 7

important that engaged STS scholars reinforce their practical efforts in establishing, expanding and protecting reflexive spaces. This thesis makes three suggestions to work into this direction.

First, scientists, policy makers and engaged scholars alike need to accept that creating and preserving reflexive spaces takes time. Without an engaged scholar charged with facilitating reflexivity, scientists usually do not take the time to confront and articulate complexity inherent in everyday work practices (cf. Iedema and Carroll 2011). Becoming aware of value conflicts embedded in such complexity tends to slow down the work flow, since it actuates scientists to find ways for resolving or living with such conflicts. Preparing, documenting, and following up on the shift from awareness raising over deliberation towards a change in behaviour also takes time – in fact, I was in regular contact with Silver Santé researchers from 2017 to 2020 and have continued to discuss my research analyses with them throughout 2021 and 2022. Time is thus not only an investment on the part of the collaborating scientists but also on the part of the engaged SSH scholar for whom extended periods of ethnographic fieldwork and interdisciplinary collaboration become increasingly difficult to integrate with academic duties and strict timeframes of (PhD) projects (Günel et al. 2020).

Taking the temporal dimension of reflexive spaces into account, I suggest that STS engagement researchers make common cause with Slow Science (Stengers 2018) and Slow Innovation (Steen 2021) movements. In this way, they could appeal to policy makers to reward careful engagement across disciplinary divides and socially responsive science instead of attending to the putative need for speed and efficiency. In doing so, they need to keep in mind that pace is one value that must be balanced against others, especially in crises like the COVID-19 pandemic when the speedy development of vaccinations became more important than upholding traditional standards of peer review (Bak-Coleman and Bergstrom 2022). My call for slowing down is thus a matter of selective deceleration, which involves efforts to find the “‘appropriate’ pace” (Woodhouse 2016, 267) in each context of research and innovation.

Second, calls for “open innovation” and “open science” under Horizon Europe (Robinson et al. 2020, 209) and in the revised framework of RI by Owen and Pansera (2019) should become equally relevant to STS and R(R)I scholars. I propose to adapt and apply FAIR principles (Findability, Accessibility, Interoperability, Reusability)<sup>16</sup> to our data management practices. To put the proposal into practice, I cooperated with a data steward for humanities and social science research to make the STIR data pertaining to chapter 6 not only FAIR but FAIRI. By adding the principle of ‘interpretability’ to the acronym, I acknowledge that qualitative social science data needs to be published together with extensive data documentation including detailed information about the community under study, the positionality of the researcher(s)

---

16 <https://www.go-fair.org/fair-principles/>

and the research practices to reveal how the research process and its wider context shaped the data. Making STIR data FAIRI enhances transparency and accountability so as to avoid hidden value advocacy (Kropp 2021, 124; Thoreau 2011). Whether an ethical issue was brought up for discussion by the embedded scholar or her interlocutors can easily be verified if recordings or transcripts of STIR dialogues are openly accessible. Moreover, such transcripts could be used for future research – for example, to integrate data across STIR studies or to re-analyse dialogues through alternative theoretical frameworks – and for teaching novices how to analyse midstream modulations. In that sense, data collection in reflexive spaces should follow FAIRI principles to ensure that what is happening in these spaces is transparent and will likely contribute to future reflexive work.

Third, after opening up reflexive spaces in interdisciplinary R(R)I collaborations, we need to think about how to keep these spaces open once the embedded scholar leaves a technoscientific space. To this end, several proposals for the institutionalisation of reflexive spaces have been put forward (e.g., Carroll and Mesman 2018; Pansera et al. 2020; Stahl et al. 2021). This dissertation contributes to this emerging body of literature by studying one such proposal empirically. Instead of assuming that the existence of a reflexive space depends on the presence of an embedded SSH scholar, chapter 6 explored the potential of STIR practitioner dialogues led by scientists to enable reflexive and deliberate modulations. Due to the positive results, I suggest that STIR practitioner dialogues could be a form of reflexive space that is more durable over time and scalable across institutions than collaborative sociotechnical integration approaches facilitated by SSH scholars. Integrating regular practitioner dialogues into organisational structures requires assigning roles and responsibilities to scientists for learning the STIR method, situating it in the particularities of a technoscientific environment and developing infrastructures that facilitate its regular use. External policy drivers, institutional incentives and peer dynamics rewarding such local leadership could catalyse the organisational integration of reflexive spaces (Pansera et al. 2020).

### **7.4.3 Mutual learning**

To conclude the impact paragraph, I acknowledge that impact is bidirectional (if not multidirectional). Rather than adopting a linear model of impact according to which it travels solely from social science research to the community under study and wider society, I am also interested in feedback loops from the community under study to STS (Bieler et al. 2021b). Inspired by the focus on mutual learning in critical participation and critical collaboration, I ask what contemplative science and STS engagement research can learn from each other. This dissertation indicates that STS engagement methods can learn from contemplative scientists' practical competences in performing valuation work: appealing to the values embedded in contemplative science's history (chapter 2) and making contradictory epistemic goods compatible (chapter 3). In turn, contemplative scientists can enhance their capacities

## Chapter 7

to reflect on the socio-ethical dimensions of their work – developing a heightened awareness of alternative ethics practices (chapter 5) and possibilities to resolve value conflicts (chapter 6) – by learning from STS engagement methods like STIR. To describe the bidirectionality of impact in more detail, I first elaborate on impact flowing from contemplative science to STS and, second, from STS to contemplative science.

Examining how different values are enacted and made to coexist peacefully in contemplative science helps STS engagement researchers diversify their methods for inflecting valuation work. More specifically, this dissertation suggests that engagement researchers seeking to advance R(R)I could pay more attention to the role of history in valuation work. While several R(R)I scholars have emphasised the relevance of reconstructing historical developments for anticipatory governance and knowledge production (Nordmann 2014; Wilsdon 2014; Zimmer-Merkle and Fleischer 2017), I consider folk histories as a promising anchor point for engagement. Folk histories are wider social narratives through which people commonly contextualise present-day behaviour. They manifest, transmit and perpetuate the norms and values guiding a community. The folk histories of contemplative science revolving around Francisco Varela and John Kabat-Zinn enable scientists to combine charismatic authority with scientific legitimacy. To critique such historical valuation work in a generative manner, methodological approaches need to be developed. For example, historical narrative-building workshops could bring alternative histories – either imagined or reconstructed – up for discussion to provoke reflexivity about the values embedded in historical accounts.

Although the envisioned engagement method seeks to stimulate and enhance reflexivity, it does not rely on the premise that contemplative scientists lack cognitive-emotional reflexive capacities. Instead, it recognises that reflexivity is generally conceived as an important skill and virtue among contemplative scientists. At contemplative science events, an early lecture by Varela (1979) was frequently invoked to paint a portrait of the ideal-type contemplative scientist. This scientist is not a “technician” (p. 6) for whom science is a matter of puzzle solving, but a “scientist *tout court*” (p. 7) for whom science is a form of personally transformative contemplation. For the scientist *tout court* ethical deliberations are part and parcel of scientific thought and practice. He or she must engage with questions, such as: Why do I perform this experiment? Is the experiment worth killing animals? What is its wider societal purpose and relevance? Who might care in the future about what I study now? While the ideal-type contemplative scientist embodies reflexive questioning, the real-life contemplative scientist is often deprived of enabling conditions, like time and space, for reflexivity to flourish. STS engagement can establish enabling conditions for reflexivity by providing tools, curating contexts and generating social dynamics that help contemplative scientists enact values and cultivate virtues, which they consider as foundational to their identity.