Responsible Innovation

An International Inventory of Research Activities and Knowledge Dissemination Pathways

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1. The responsible innovation program

In 2008, the Dutch Organization for Scientific Research (NWO) has launched the subsidy program 'Responsible Innovation – Ethical and Societal Exploration of Science and Technology' (abbreviated as MVI in Dutch). The program has been described by NWO as follows:

> "The MVI program focuses on technological developments for which we can expect that they will have an impact on society. On the one hand, those developments concern new technologies (such as ICT, nanotechnology, biotechnology and cognitive neuroscience), and on the other, technological systems in transition (for example agriculture and healthcare). The MVI program contributes to responsible innovation by increasing the scope and depth of research into societal and ethical aspects of science and technology."[1]

Furthermore, the MVI program builds on research that has already been done, such as the so-called ELSA-research of technology (ethical, legal and social aspects). The innovative and distinctive elements of the MVI program are:

- *An interdisciplinary character*. It aims at close collaboration between researchers in the humanities and the technological and social sciences.
- *A proactive attitude*, dealing with the ethical and social aspects in an early stage of innovation. The program takes a 'make' or design perspective; MVI-research should not only result in an analysis and understanding of a particular problem, but also contribute to the design of solutions – design in a broad sense, including institutional arrangements. The idea is that social and moral values are being incorporated in the design of technologies and institutions.

[1] http://www.nwo.nl/mvi

- *An international orientation and context*. It involves not only Dutch innovation projects, but innovation projects in other countries or parts of the world as well. The research explicitly devotes attention to the global context and aspects, and in particular those that are relevant to developing countries.
- *Social valorization*. Already during the preparation of the research proposal and the research itself, interaction with relevant stakeholders should take place and explicit attention should be paid to the dissemination of research results. The idea is that MVI-research should have an impact beyond the academic world.

2. Scope and limitations of this inventory

Commissioned by NWO, we[2] have made an international inventory of research activities and knowledge dissemination pathways on the subject of responsible innovation. The purpose of this inventory is to enable NWO to make connections between existing research activities and the activities of the MVI program, in order to ensure the added value of the MVI-program and to prevent an unproductive overlap of activities. For the inventory we have, firstly, interviewed members of the program committee and advisory board of the MVI-program, and senior staff members of the 3TU.Center for Ethics and Technology. And secondly, we have done additional desk research, often starting from the information provided to us by the interviewees. The interviews were divided in three main sections. In the first section, the interviewees where asked about research groups and research centers regarding responsible innovation they are familiar with, have contact with or cooperate with. In the second section, the interviewees where asked about knowledge dissemination pathways and networking activities such as conferences, journals, websites and courses in ethics for engineering students. And in the third section, the interviewees where asked about their opinions and value judgments regarding responsible innovation.

Data in the appendices
The collected data on research groups/centers, other relevant organisations/groups, conferences and journals is summarized in tables (see appendices A, B, C and C). In the left column of each table, the research groups and centers, conferences and journals are presented. And in the above row of each table 13 categories are presented. The first eight categories represent the clusters of concrete technological developments of the MVI program. These eight categories are: (1) biomedical research, (2) healthcare sector on the move, (3) animals, nature and environment, (4) virtual reality, (5) observation society, (6) neurotechnology, (7) human enhancement and (8) functional food. The 4 categories thereafter represent the 4 ethical and societal backgrounds questions of the MVI program. These four categories are: (1) insecurity about opportunities and risks, (2) value(conflicts) and culture, (3) governance, and (4) internationalization and global justice. The fifth and final category 'sociopolitical and economic' is a rest category which is concerned with societal, political or economical aspects of technology in general. The final row of each table states the number of hits of each category. However, note that the amount of hits does not have any statistical value, for several reasons. Firstly because the information in the tables in based on what could be found on the websites of the

[2] The interviews and desk research have been done by Richard Heersmink, this essay is a joint production.

groups and centers, conferences and journals, which was not always complete or accurate. Moreover, when it says in the table that The Hastings Center does research about 'biomedical research', 'the healthcare sector on the move' and 'animals, nature and environment', it means that this is explicitly stated (or could be deduced from information) on their homepage. However, this does not mean that it is out of the question that some research about - for example - 'functional food' or 'governance' takes place at The Hastings Center, since underlying pages about past and present activities as well as the personal pages of individual staff members have not been taken into account. Finally, classifying information on websites in this way leaves room for differences of opinion on the best interpretation. The same procedure was followed for the conferences and journals. So the number of hits mentioned in the appendix per topic should be seen as a rough indication only.

Limitations of this inventory

In addition to the limitations already mentioned above, the reader should also take note of the following:

- The inventory was made during the summer holidays within a limited time frame of 8 weeks, which means that only 20 persons were interviewed[3] and websites were scrutinized to a limited extent (see above).
- Of the 20 people interviewed, 9 were a member of the 3TU.Ethics centre and hence it is to be expected that the information found is biased towards ethics. Ethics does play an important role in the MVI program. However, other disciplines are also very relevant to MVI and probably insufficiently covered in this inventory.
- This inventory focused very much on research (research groups, academic conferences, scientific journals), largely leaving out relevant 'initiatives' that are more on the side of policy and social action (such as social movements, NGOs, semi-government organizations, etc).

The results should be interpreted with these limitations in mind. This report presents only a first exploration and a first indication of which research activities and knowledge dissemination pathways exist.

In the remaining sections of this essay we will try to analyze the collected data. We will start out with the research groups/centers. We will then continue with the knowledge dissemination pathways and networking activities (conferences, journals, websites and courses in ethics for engineering students). After that we will try to discuss the value judgments and opinions of the interviewees. We will then go on with pointing out the relation of the MVI program with other programs. And this essay will end with a concise conclusion and some recommendations.

3. Research groups, centers and other organizations

When the interviewees where asked for research groups and research centers concerning responsible innovation they are familiar with, have contact with or cooperate with, most interviewees found it hard to name groups or centers that deal explicitly with responsible innovation. Usually the interviewees started to philosophize

[3] On Thursday July 16, I've sent emails to 46 persons. In week 33, I sent reminders to persons who were out of office or forgot to respond. Four of them replied that they thought themselves that they were unable to give adequate answers. Four were out of office till after the deadline of the project. One pointed out that he had been ill and did not have enough time. Two indicated that they would send back the questionnaire by email, but never did. And the rest just did not respond to my emails.

about the definition of responsible innovation and than came to the conclusion that they know what 'responsible' and 'innovation' means, but 'responsible innovation' is a new concept for most of them. However, most interviewees continued to name groups and centers that conduct research which is somehow related to responsible innovation, mainly in the fields of ethics and technology, law and technology, policy and technology and science and technology studies (STS). Most groups and centers that were mentioned are concerned with ethics and technology and are located mainly in Northern Europe and the Northern America. There is probably a bias here, because most interviewees are ethicists from Northern Europe or Northern America (see previous section). The groups and centers which were mentioned most often are The Hasting Center in the USA, the Uehiro Center for Practical Ethics at Oxford University in the UK, the Centre for Applied Philosophy and Public Ethics (CAPPE) in Australia, the philosophy department of the Royal Institute of Technology in Stockholm, Sweden, and the 3TU. Center for Ethics and Technology in the Netherlands. See appendices A and B for a list of all the groups, centers and other organizations.

Furthermore, of the 8 clusters of concrete technological developments of the MVI program, 'biomedical research' (39 hits) is the most researched topic, followed by 'animals,
nature and environment' (35 hits), 'healthcare sector on the move' (24 hits), 'observation society' (23
hits), 'virtual reality' (23 hits), 'neurotechnology' (9 hits), 'human enhancement' (9 hits) and
'functional food' (6 hits). Of the 4 ethical and societal backgrounds questions of the MVI program,
'governance' (47 hits) is the most researched topic, followed by 'internationalization and global
justice' (19 hits), 'insecurity about chances and risks' (7 hits) and 'value(conflicts) and culture' (3 hits).
And finally, the category 'sociopolitical and economic' has 42 hits.

4. Knowledge dissemination pathways

Conferences

When asked for conferences on responsible innovation the interviewees found it difficult to explicitly name conferences that deal with this topic. However, they could easily mention some conferences related to responsible innovation. Most conferences that were mentioned are about ethics and technology. We made a distinction between annual and incidental conferences. Regarding annual conferences, the most often mentioned conferences are the 'Society for Philosophy and Technology (SPT)' and the 'Ethicomp' conferences (see appendix B for all the conferences). Furthermore, of the 8 clusters of concrete technological developments of the MVI program, 'biomedical research' (7 hits) is the most covered topic at annual conferences, followed by 'healthcare sector on the move' (6 hits), 'virtual reality' (5 hits), 'observation society' (5 hits), 'animals, nature and environment' (4 hits), 'neurotechnology' (3 hits), 'human enhancement' (3 hits) and 'functional food' (1 hits). Of the 4 ethical and societal backgrounds questions of the MVI program, 'governance' (9 hits) and 'insecurity about opportunities and risks' (9 hits) are the most covered topics at annual conferences, followed by

'internationalization and global justice' (8 hits) and 'value(conflicts) and culture' (1 hit). And the category 'sociopolitical and economic' has 2 hits.

The most often mentioned incidental conferences are the 'Moral Responsibility: Neuroscience, Organization & Engineering' and the 'Ethics, Energy & the Future' conference, both are held at the TU Delft. Furthermore, of the 8 clusters of concrete technological developments of the MVI program, 'biomedical research' (5 hits), 'virtual reality' (5 hits) and 'observation society'(5 hits) are the most covered topics at incidental conferences, followed by 'animals, nature and environment' (2 hits), 'neurotechnology' (1 hit), 'healthcare sector on the move' (1 hit), 'human enhancement' (0 hits) and 'functional food' (0 hits). Of the 4 ethical and societal backgrounds questions of the MVI program, 'governance' (9 hits) is the most covered topic at incidental conferences, followed by 'internationalization and global justice' (4 hits), 'insecurity about opportunities and risks' (2 hits) and 'value(conflicts) and culture' (1 hit). And the final category 'sociopolitical and economic' has 4 hits. Off all the annual and incidental conferences there was almost no interaction with policy makers and practitioners.

Journals

When asked for journals on responsible innovation the interviewees found it difficult to explicitly name journals that deal with the topic. They could, however, easily mention some scientific journals related to responsible innovation. The journals that were mentioned most often are: Bioethics, Nanoethics, Techné, Medicine, Healthcare and Philosophy and Journal of Business Ethics (see appendix C for a list of all the journals). Furthermore, of the 8 clusters of concrete technological developments of the MVI program, 'biomedical research' (23 hits) is the most covered topic in scientific literature, followed by 'healthcare sector on the move' (13 hits), 'animals, nature and environment' (11 hits), 'observation society' (10 hits), 'neurotechnology' (10 hits), 'virtual reality' (9 hits), 'human enhancement' (9 hits) and 'functional food' (0 hits). Of the 4 ethical and societal backgrounds questions of the MVI program, 'governance' (22 hits) is the most covered topic in the scientific literature, followed by 'insecurity about opportunities and risks' (10 hits), 'internationalization and global justice' (8 hits) and 'value(conflicts) and culture' (2 hits). And the category 'sociopolitical and economic' has 21 hits.

Websites

When the interviewees where asked for websites they visit or know about regarding responsible innovation, the majority answered that they do not really know or visit websites on the topic. Some of them answered that they visit websites of the research institutes or conferences they mentioned. Others mentioned news websites on science and technology such as www.scitechdaily.com, which is an American news website on science and technology that contains links to other news websites on the topic. But the overall tendency was that they do not visit websites on responsible innovation. See appendix D for a list of websites of all the research groups and centers, conferences and journals.

Courses

Many interviewees where able to mention 1 or 2 universities at which engineering students are being taught in ethics. And most of the interviewees are involved in teaching ethics for engineering students themselves. The majority of these universities is in Northern Europe and a small number in the USA. Furthermore, there is also a

summer school 'Responsibility & Engineers of the Future' for PhD students in engineering held at the TU Delft. And 4 Master's related to responsible innovation were mentioned during the interviews. The first is a Master's in Law and Technology (University of Tilburg). The second in ICT and Security (cooperation between University of Twente, University of Tilburg and Technical University of Eindhoven). The third is a Master's in Philosophy of Science, Technology and Society (University of Twente). And the fourth is a Master's in Governance, Sustainability and Cultures of Innovation (University of Maastricht). It is important to take into account that more attention was paid to other parts of the inventory (such as the research centers) and more relevant educational program may exist. For a list of all the universities see appendix F.

5. Value judgments and opinions

The faces of responsible innovation

When asked for the 5 most important researchers in responsible innovation or persons they associate with responsible innovation, the large majority mentioned a number of ethicists or ethicists of technology like Deborah Johnson, Carl Mitcham, Helen Nissenbaum and Seumas Miller. It is very likely that this was the case because the majority of interviewees are ethicists. Furthermore, many persons mentioned Jeroen van den Hoven, which is not surprising considering the role he has played in the MVI-program. Some people from other fields were also mentioned, like Larry Lessig (law), Arie Rip (STS) and Amartya Sen (economics). Overall, the impression was that the interviewees found it difficult to mention people who are explicitly working on responsible innovation. However, some interviewees mentioned Batya Friedman and Neil Gershenfeld, both are researchers that try to take into account social values when designing technology (for all the answers see appendix H).
A selection of the answers:

- *"On the one hand, I think of scientists and engineers who bring about new technologies that help to improve the state of affairs (such as e.g. ecologically tested materials and products that help to spare resources and to diminish environmental risks and health hazards, and enterprises that make certain standards available to the poorer parts of the world). On the other, I think of ethicists who critically consider the state of affairs and on technical innovations. They have an eye on new products, asking whether they are sustainable, fulfill the standards of safety, satisfy the needs of the users, contribute to a just society and raise new philosophical questions (for the latter, think for instance of innovations in the neurosciences)."*
- *"Einstein and Oppenheimer, because they developed the nuclear bomb and afterwards they addressed the moral issues."*
- *"From my personal perspective, it would mainly be scholars in bioethics, but the label does not really fit them. Further, I think of people doing research in environmentalist institutions such as the Leipzig Center for Environmental Research. However, I do not know the big names there."*
- *'TERI Instituut in India, Amartya Sen, Martha Nussbaum, Jeroen van den Hoven, Wim Dubbink.'*
- *'3TU Ethics, Simon Rogerson of the Center for Computing and Social Responsibility, Carl Mitcham, Dick Sclove, Deborah Johnsson, Batya Friedman, Helen Nissenbaum, Andrew Light.'*

- *'Neil Gershenfeld runs the center for bits and atoms at MIT. He takes an ethical stand on developing nanotechnology that aims at social justice, reducing scarcity for everyone.'*

A journal on responsible innovation?

When asked if a new scientific journal, specialized in the area of responsible innovation would be useful, the answers ranged from "*not sure*" to "*yes, provided it does not turn into a political platform*." However, none of the interviewees enthusiastically answered yes to the question. The large majority is rather skeptical about such a journal. One of the interviewees answered that a journal on responsible innovation would be welcome, but that:

> '*it would be difficult to cover all the topics about responsible innovation in one journal without being to diffuse*. […] *perhaps there should be a number of journals focusing on (a) innovation and human subjects, (b) innovation and the environment and (c) innovation and dangerous technologies like (bio)weapons, for example*.'

Another interviewee also answered that journals have to be relatively well focused and that:

> '*ethical and societal aspects of technological development projects could include almost anything given that hardly any aspect of European life is unrelated to technological progress. It is unclear to me what the journal would encompass. Would it be a Journal of Technology Assessment? Dealing with particular technologies only?*'

A third interviewee wondered:

> '*if there is going to be a journal on responsible innovation, what would its topic be? Ethics, politics, policy science or technology assessment? I would prefer to publish an article on responsible innovation in a specific journal on nano- or biotechnology than in a journal on science and technology studies, where it does not really happen. […] I think the topic responsible innovation is too vague for a journal. Researchers would prefer to publish in specific journals*.'

And a fourth interviewee answered:

> '*perhaps, but probably there are already journals that cover this topic.'*

The overall tendency was that there is no need for a scientific journal on responsible innovation, because other journals cover the topic. Some of interviewees, however, where less skeptical and had some useful suggestions. One proposed an alternative for a scientific journal on responsible innovation, namely '*a newsletter, for example on www.SSRN.com[4], containing information about research concerned with responsible innovation*.' Another suggestion was to publish a journal in which the focus lies on the questions of what responsible innovation exactly is and how to organize it, including case studies (for a list of all the answers see appendix F).

Furthermore, when the interviewees where asked in which journals they would like to publish their results on responsible innovation, the majority indicated that they want to publish in scientific journals like, for example, Science, Technology and Human Values or Risk Analysis. However, most of the interviewees argued that publishing in journals, bulletins or newspapers that are being read by engineers, policymakers, companies and the general audience will reach a much broader audience. Some interviewees argued that in this way the articles will have a stronger impact on

[4] Website of Social Science Research Network.

society by raising awareness on the topic. One suggestion was to establish '*an online English bulletin on responsible innovation for a broader audience, published by NWO*.' Some examples that were given by the interviewees on how to reach the right audience are local and national newspapers such as NRC and the Financieel Dagblad. Furthermore, some of them mentioned a number of magazines like Elsevier and Intermediar. But, perhaps most importantly, according to some interviewees, results on responsible innovation should be published in journals such as Science, New Scientist and Nature, which would increase the dialogue between scientists and philosophers/ethicists. And finally, one of the interviewees mentioned The Journal of Ethics as good way to reach a broader audience of ethicists, to raise awareness on responsible innovation amongst ethicists. For a list of all the answers see appendix G.

6. MVI and its relation to comparable initiatives

MVI and corporate social responsibility

In Dutch the program is called 'Maatschappelijk Verantwoord Innoveren' (abbreviated as MVI), a deliberate variation on the Dutch phrase 'maatschappelijk verantwoord ondernemen', which is usually translated in English as 'corporate social responsibility' (CSR). But whereas CSR is a well-established concept, MVI or responsible innovation is a new one. It could be interesting for NWO to compare the history and current status of both fields. For example, many interviewees found the concept 'responsible innovation' too broad and vague to establish a journal. CSR, however, also has many different aspects, like environmental care, corporate charity, accountability to stakeholders, good governance, community involvement and sound labor conditions. Yet Emerald Insight does publish the Social Responsibility Journal, the official journal of the Social Responsibility Research Network. What is more, CSR is not only an accepted research area, it is a well-known concept, applied and debated by all sorts of stakeholders of companies. Since the MVI program emphasizes social valorization much more than other NWO programs, the challenge is to spread the word about 'responsible innovation' not only in the research community, but also in the outside world. Ideally, CSR and responsible innovation should be perceived as closely linked: for companies that are in the business of innovation, responsible innovation should be a core component of CSR. See appendix J for some websites of research groups, centers, and journals on CSR. These are just a couple of sources that could easily be identified on CSR, an extensive inventory was not made. It might be beneficial for NWO to look further into parallels and differences between MVI and CSR.

Initiatives comparable with the MVI program

During the desk research we came across a number of initiatives that are, in one way or another, comparable to the MVI program. The first is the *Designing for the 21th Century* initiative with Professor Tom Inns as Initiative Director, located at Duncan of Jordanstone College of Art & Design, University of Dundee. This grant program aims at (1) 'promoting the formation of new communities and networks of design researchers, practitioners and end-users of design, (2) building shared understanding of theoretical concepts, cultures, languages and methods within different design communities, (3) stimulating new ways of design thinking that will meet the challenges of designing for 21st Century Society and (4) supporting leading edge research that is self-reflective, socially aware, economically enterprising and

internationally significant'.[5] Although there are similarities with the MVI-program such as an emphasis on socially aware design, multidisciplinary research and an international setting there are differences as well. The Designing for the 21th Century initiative takes a broader perspective on design. It also includes topics like art, group creativity in design and new media.

The second program comparable to the MVI program is the *Innovative Partnerships for Development (IPD) Program* of the Danish government. This program supports partnerships that advance Strategic Corporate Social Responsibility (CSR), and partnerships that advance Socially Responsible Innovation. 'The objective of the IPD Program is to promote better working and living conditions for employees, their families, the local community and society at large by advancing strategic Corporate Social Responsibility (CSR) and Socially Responsible Innovation, targeting the population at the Base of the Pyramid (BoP) through innovative partnerships in developing countries.'[6] More specific, the program aims at reducing poverty by promoting economic growth and social development in developing countries and has a strong emphasis on human rights and labour conditions. The MVI program also aims at developing countries, but it is only one element of the whole program. Furthermore, the IPD program does not have an academic research component.

And the third is the *Crucible - Research in Interdisciplinary Design* network of the University of Cambridge. 'Crucible is a research network within and around the University of Cambridge. Its purpose is to encourage interdisciplinary collaboration of technologists with researchers in the Arts, Humanities and Social Sciences (AH&SS). The main focus of this collaboration is on design as a meeting point for widely differing research disciplines. Crucible activities include the establishment of new research programs, training of researchers, input to policy bodies, and identification of suitable funding sources for research in interdisciplinary design. Crucible provides both a scientific and organizational framework for this research.'[7] What Crudible clearly has in common with MVI is its focus on interdisciplinary research and design. However, it is less clearly focused on important and urgent social and ethical dilemmas that society faces nowadays.

7. Conclusion and recommendations

Conclusions

In this essay an overview was given of research activities and knowledge dissemination pathways on the topic of responsible innovation. Twenty scholars where interviewed in a period of 8 weeks and the outcome of the interviews was used for further desk research. The overall tendency during the interviews was that the interviewees found it hard to name research groups and center, conferences, journals or websites that explicitly deal with responsible innovation. However, most interviewees where able to mention groups and centers, conferences and journals that are somehow related to responsible innovation, mainly in the fields of ethics and technology, law and technology, policy and technology and science and technology studies (STS). Furthermore, all of the 8 themes with respect to concrete

[5] http://www.design21.dundee.ac.uk/Initiative/Initiative_Overview.htm

[6] http://www.um.dk/en/menu/DevelopmentPolicy/BusinessCooperation/PublicPrivatePartnerships/

[7] http://www.crucible.cl.cam.ac.uk/

technological developments and 4 ethical and societal backgrounds questions of the MVI program, are covered within at least some research groups or centers. As could be expected, the research focus of these centres and groups does not neatly match the MVI categories, but rather cut across them. So a centre may on the one hand cover only a part of a specific theme as described in the MVI program text and on the other hand address more than one theme.The same is true for conferences and journals.

When asked for the 5 most important researchers in responsible innovation or persons the interviewees associate with responsible innovation, the large majority mentioned a number of ethicists or ethicists of technology like Deborah Johnson, Carl Mitcham, Helen Nissenbaum and Seumas Miller. Two engineers were mentioned that are taking into account social values when designing technology: Batya Friedman and Neil Gershenfeld. When the interviewees where asked whether there is a need for a academic journal on responsible innovation, the large majority answered no. Furthermore, most of the interviewees argued that results on responsible innovation should be published in journals, bulletins or newspapers that are being read by engineers, policymakers, companies and the general audience, thereby reaching a much broader audience. In this way the articles will have a stronger impact on society by raising awareness on the topic. And finally, three related programs where found during the desk research, which are: Designing for the 21st Century, The Innovative Partnerships for Development Program and Crucible - Research in Interdisciplinary Design network.

Recommendations
The specific recommendations to the steering committee of the MVI grant program of NWO have not been included in the public version of this report.

Appendices

A. Table of research groups and research centers
B. Other relevant organizations and groups
C. Table of conferences
D. Table of journals
E. List of websites
F. Courses in ethics for engineering students
G. Academic journal on responsible innovation?
H. Journals for publication of results
I. The faces of responsible innovation
J. Corporate social responsibility
K. Names of interviewees

Appendix A. Research groups and centers

Table A. Research groups/centers	Biomedical research	Healthcare sector on the move	Animals, nature and environment	Virtual reality	Observation society	Neurotechnology	Human Enhancement	Functional food	Insecurity about opportunities and	Value(conflicts) and culture	Governance	Internationalization and global	Sociopolitical and economic
3TU. Center for Ethics and Technology (cooperation of the philosophy departments of the Technical University of Delft, University of Twente and the Technical University of Eindhoven), Netherlands	•	•		•	•	•	•	•	•			•	•
Applied Philosophy Group, Wageningen University, The Netherlands	•	•	•					•					
Berkman Center for Internet and Society, Harvard University, USA				•							•		
Center for Computing Professionals and Social Responsibility, De Montfort University, UK				•	•								
Center for Information Policy Research, University of Wisconsin, School of Information Studies, USA				•							•		•
Center for Nanotechnology in Society, Arizona State University, USA													•
Centre for Applied Ethics, Linköping University, Sweden	•	•	•									•	
Centre for Applied Philosophy and Public Ethics (CAPPE), Australia	•		•	•	•						•	•	
Centre for Enquiry Into Health and Allied Themes, Mumbai, India	•	•											•
Centre for Research and Innovation Management, University of Brighton, UK											•		•
Centre for Technology, Ethics and Law in Society, King's College London, UK	•	•		•	•	•	•				•	•	
Cesagen Research Center, Lancaster University and Cardiff University, UK	•	•	•				•				•		•
Chinese Academy of Science and Technology for Development, China											•		•
CIGA Centre: Technology, Law, Ethics and Society, Padua University, Italy	•		•								•		
Consortium for Science, Policy and Outcomes, Arizona State University, USA			•								•		•
Danish Research Unit for Industrial Dynamics (DRUID), Denmark											•	•	•
Department of Innovation Studies, University of	•										•		•

Utrecht, The Netherlands													
Table A. Research groups and research centers	**Biomedical research**	**Healthcare sector on the move**	**Animals, nature and**	**Virtual reality**	**Observation society**	**Neurotechnology**	**Human Enhancement**	**Functional food**	**Insecurity about opportunities**	**Value(conflicts) and culture**	**Governance**	**Internationalization and global**	**Sociopolitical and economic**
Department of Landscape Ecology, Ernst Moritz Arndt University of Greifswald, Germany			•										
Department of Law, London School of Economics, UK				•	•						•		
Department of Media, Culture and Communication, New York University, USA				•							•		•
Department of Medical History and Ethics, Vilnius University, Lithuania	•	•											
Department of Philosophy & Religion Studies, University of North Texas, USA			•					•					
Department of Science, Technology, and Policy Studies, University of Twente, Netherlands	•	•			•						•		•
Department of Science, Technology, and Society, University of Virginia, USA			•		•						•		•
e@Law, Leiden University, The Netherlands				•	•								
Environmental Evaluation Unit, University of Cape Town, South Africa			•										
ESRC Centre for Genomics in Society, University of Exeter, UK	•	•	•				•				•		•
Ethox Centre, Oxford University, UK	•	•										•	
European Parliamentary Technology Assessment Council	•	•	•	•	•	•	•	•			•	•	•
Faculty of Law, University of Oslo, Norway				•	•						•		•
Fraunhofer Gesellschaft, Germany													
Future of Humanity Institute, Oxford University, UK	•		•			•	•		•			•	
German Reference Centre for Ethics in the Life Sciences, North Rhine-WestPhalian Academy of Sciences and Humanities, Germany	•		•										
Hastings Center, USA	•	•	•										
Humanistic Informatics Department, University of Bergen, Norway				•						•			
Industrial Engineering & Innovation Sciences, University of Eindhoven, The Netherlands											•	•	•
Innogen, University of Edinburgh and The Open University, UK	•	•	•				•				•		•
Institute for Ethics and History of Medicine, Albert Ludwigs University, Freiburg, Germany	•										•		

Institute for Information Law, University of Amsterdam, the Netherlands				•	•						•		
Table A. Research groups and research centers	**Biomedical research**	**Healthcare sector on the move**	**Animals, nature and**	**Virtual reality**	**Observation society**	**Neurotechnology**	**Human Enhancement**	**Functional food**	**Insecurity about opportunities**	**Value(conflicts) and culture**	**Governance**	**Internationalization and global**	**Sociopolitical and economic**
Institute for Prospective Technological Studies, Seville, Spain											•		•
Institute for Science, Ethics and Innovation, University of Manchester, UK	•	•	•								•	•	
Institute for Science, Innovation and Society, Oxford University, UK			•		•	•					•		•
Institute for the History of Medicine and Science Research, University of Lübeck, Germany	•												
Institute for the Study of Science, Technology and Innovation, University of Edinburgh, Scotland	•	•		•	•						•		•
Institute of Social Sciences: Environmental Sociology, University of Stuttgart, Germany			•						•				
Institute on Information, Telecommunications and Media Law (ITM), Westfaelisch Universitaet, Muenster, Germany				•	•						•		•
Interdisciplinary Center for Bioethics, Yale University, USA	•	•	•										
Interdisciplinary Centre for Law and ICT, University of Leuven, Belgium				•	•						•	•	
John L. Peters Society, Oklahoma City, USA											•		•
Law, Science, Technology and Society, Free University of Brussels, Belgium				•	•						•		
Lawrence Berkeley National Laboratory's ELSI in Science, University of California, USA	•		•		•						•		•
Leuphana University of Lüneburg, Germany			•							•	•		•
Lund University Centre for Sustainability Studies, Sweden			•								•	•	•
Nanotechnologies for Tomorrow's Society Program, University of Leuven, Belgium													•
Novel Tech Ethics Research Team, Dalhousie University, Canada	•	•				•						•	
Philosophy Department, Lancaster University, UK	•	•	•								•		•
Philosophy Department, Royal Institute of Technology, Stockholm, Sweden	•	•			•				•				

Research and Information System for Developing Countries (RIS), New Delhi, India	•										•	•	•

Table A. Research groups and research centers	**Biomedical research**	**Healthcare sector on the move**	**Animals, nature and**	**Virtual reality**	**Observation society**	**Neurotechnology**	**Human Enhancement**	**Functional food**	**Insecurity about opportunities**	**Value(conflicts) and culture**	**Governance**	**Internationalization and global**	**Sociopolitical and economic**
Research Centre on IT and Law, University of Namur, Belgium				•	•						•		
Research Ethics and Gene Technology Program, University of Wollongong, Australia	•		•										
Science Policy Research Unit (SPRU), University of Sussex, UK			•								•	•	•
Technology and Society Studies, Maastricht University, The Netherlands			•	•						•	•	•	•
Technology Assessment Research Unit, University of Namur, Belgium				•	•						•		
Technology, Innovation and Society program, Helmholtz Association, Germany													
TILT, Tilburg University, The Netherlands	•			•	•						•		
UEHIRO Center for Practical Ethics, Oxford, UK	•	•	•			•						•	
United Nation University-Merit, Maastricht, The Netherlands											•	•	•
United Nations University, Tokyo, Japan			•								•		•
Value Sensitive Design Department, University of Washington, USA				•						•			
Vanderbilt University Center for Ethics, Tennessee, USA			•	•								•	•
W. Maurice Young Centre for Applied Ethics, University of British Colombia, UK	•	•	•								•		•

Appendix B. Other relevant organizations and groups

Table B. Other relevant organizations and groups	**Biomedical research**	**Healthcare sector on the move**	**Animals, nature and environment**	**Virtual reality**	**Observation society**	**Neurotechnology**	**Human Enhancement**	**Functional food**	**Insecurity about opportunities**	**Value(conflicts) and culture**	**Governance**	**Internationalization and global**	**Sociopolitical and economic**
Center for Engineering, Ethics and Society, the National Academy of Engineering, USA													
Council for International Organization of Medical Sciences, Geneva, Switzerland	•								•				•
European Group on Ethics in Science and new Technologies, Brussels, Belgium											•		•
Institute for Technology Assessment and Systems Analysis, Germany			•	•	•								•
International Association for Environmental Philosophy			•										
International Bioethics Committee	•	•									•		
Max Planck Society, Germany													
Nano2life Program of the European Network of Excellence in Nanobiotechnology	•												•
Nuffield Council on Bioethics, London, UK	•		•				•				•		•
Office for Human Research Protections, Department of Health and Human Services, U.S.	•										•		
Rathenau Institute, The Hague, Netherlands	•	•	•	•	•	•	•	•			•		•
Number of hits of groups, centers and other organizations	**38**	**23**	**36**	**25**	**22**	**8**	**8**	**5**	**5**	**4**	**49**	**19**	**42**

Appendix C. Conferences

Table C. Incidental Conferences	Biomedical research	Healthcare sector on the move	Animals, nature and environment	Virtual reality	Observation society	Neurotechnology	Human Enhancement	Functional food	Insecurity about opportunities & risks	Value(conflicts) and culture	Governance	Internationalization and global	Sociopolitical and economic
Computer, Privacy and Data Protection, Brussels, Belgium, 16-17 January, 2009				•	•						•		
Energy & Responsibility: A Conference on Ethics and the Environment, The University of Tennessee, 10-12 April, 2008			•						•		•	•	
Ethics, Energy & the Future, TU Delft, The Netherlands, 24-26 June, 2010			•						•			•	
Forum on Philosophy, Engineering, and Technology (FPET-2010), 9-10 May, 2010													
Genomics and Identity Politics Workshops, University of Exeter, Lancaster University and The University of Edinburgh, UK, March 2008 - September 2009	•										•		•
Governance of New Technologies: The Transformation of Medicine, Information Technology and Intellectual Property, University of Edinburgh, March 29-30, 2009	•	•		•	•						•	•	•
International Conference Towards Knowledge Democracy Consequences for Science, Politics and Media, Leiden University, Netherlands, 25-27 August, 2009										•	•	•	•
IT Law Challenges in a Changing World: Global, Virtual, Open & Outsourced, Paris, France, 2008				•	•						•		
Mapping the Genomic Era: Measurements and Meaning, Cardiff City Hall, UK, 7 – 9 October 2009	•										•		•
Moral Responsibility: Neuroscience, Organization & Engineering, TU Delft, 24-27 August, 2009	•					•							
Prime Life Summer School, Nice, France, 7th – 11th September, 2009				•	•						•		
Tilting Perspectives on Regulating Technologies, Tilburg University, 17 December, 2008	•			•	•						•		
Number of hits	**5**	**1**	**2**	**5**	**5**	**1**	**0**	**0**	**2**	**1**	**9**	**4**	**4**

Table C. Annual Conferences	Biomedical research	Healthcare sector on the move	Animals, nature and environment	Virtual reality	Observation society	Neurotechnology	Human Enhancement	Functional food	Insecurity about opportunities	Value(conflicts) and culture	Governance	Internationalization and global	Sociopolitical and economic
American Society for Bioethics and Humanities	•	•									•		
Annual Conference of Association for Practical and Professional Ethics	•	•		•	•	•							
Annual Conference Technology Assessment, Institute of Technology Assessment, Austrian Academy of Sciences													
Annual Meeting of the International Association for Environmental Philosophy			•						•			•	
Annual Meeting of the Society for Social Studies of Science	•	•	•	•	•	•	•	•	•		•		•
Annual Meeting of The Society for the History of Technology													•
Annual Research Conference of The Society for Risk Analysis Japan									•		•	•	
Bi-annual Conference of the "Netzwerk Technikfolgenabschätzung" (in German)													
Conference of The European Association of Centers of Medical Ethics	•	•										•	
Ethicomp 2010				•	•				•		•		
European Conference on Philosophy of Medicine and Healthcare	•	•					•						
Informing Decisions Through Risk Analysis									•		•	•	
International Conference of Computer Ethics and Philosophical Enquiry				•	•						•		
International Conference on Clinical Ethics and Consultation	•	•											
SEFI Annual Conference 2009													
Society for Risk Analysis Conference, Risk Analysis: The Evolution of a Science									•		•	•	
Society for Risk Analysis Europe Annual Meeting									•		•	•	
SPT 2009 Converging Technologies, Changing Societies	•		•	•	•	•	•		•		•	•	
Twenty-Second Annual Environmental Ethics Conference: Energy Alternatives for the Twenty-First Century			•						•			•	
Number of hits	7	6	4	5	5	3	3	1	9	0	9	8	2

Appendix D. Journals

Table D. Journals	Biomedical research	Healthcare sector on the move	Animals, nature and environment	Virtual reality	Observation society	Neurotechnology	Human Enhancement	Functional food	Insecurity about opportunities and	Value(conflicts) and culture	Governance	Internationalization and global	Sociopolitical and economic
Bioethics	•	•				•	•						
BMJ, Lancet	•	•											
Cambridge Quarterly of Healthcare Ethics	•	•											
Creativity and Innovation Management											•		•
Developing World Bioethics	•	•				•						•	•
Environmental Ethics			•									•	•
Ethics & International Affairs											•	•	•
Ethics and Information Technology				•	•								
Ethik in der Medizin	•	•											
European Journal of Innovation Management											•		•
Futures										•			•
Genomics, Society and Policy	•										•		•
Hastings Center Report													
IEEE Technology and Society Magazine													•
Industry and Innovation											•		•
Innovation: The European Journal of Social Science Research			•								•	•	•
Innovations											•		•
International Journal of Entrepreneurship and Innovation Management (IJEIM)											•		•
International Journal of Innovation Management (IJIM)											•		•
International Journal of Innovation Science						•					•		•
International Journal of Management Innovation Systems				•	•						•		•
International Journal of Technology and Human Interaction													
International Review of Information Ethics				•	•								
Journal of Agricultural and Environmental Ethics			•									•	•
Journal of Applied Philosophy	•		•	•	•	•	•				•		

Table D. Journals	Journal of Business Ethics
Sociopolitical and economic	
Internationalization and global	
Governance	
Value(conflicts) and culture	
Insecurity about opportunities	
Functional food	
Human Enhancement	
Neurotechnology	
Observation society	
Virtual reality	
Animals, nature and environment	
Healthcare sector on the move	
Biomedical research	

Journal of Information, Communication & Ethics in Society				•	•								
Journal of Medical Ethics	•	•				•	•						
Journal of Pharmaceutical Innovation	•												
Journal of Risk Research	•	•	•						•			•	
Journal of Technology Management and Innovation											•	•	•
Law and Philosophy											•		
Medicine, Health Care and Philosophy	•	•				•	•						
Nanoethics	•		•						•				
Nanotechnology, Law and Business											•		
Neuroethics	•					•							
New Genetics and Society	•		•										
Philosophy, Ethics, and Humanities in Medicine	•	•					•						
Poiesis & Praxis	•		•	•	•	•	•						
Policing and Society									•				
Policing: A Journal of Police and Practice									•				
Research Policy											•		•
Risk Analysis	•	•	•						•			•	
Risk Management									•				
Safety Science									•				
Safety Science Monitor									•				
Science and Engineering Ethics	•	•	•	•	•	•	•		•		•		
Science and Public Policy											•		•
Social Studies of Science													
Studies in Ethics, Law and Technology	•	•			•						•		
Techné	•						•		•				
Technikfolgenabschätzung - Theorie und Praxis											•		•
Technological Forecasting and Social Change										•			•
Technology in Society													
The Ethicomp Journal				•	•								
The Journal of Law, Medicine & Ethics (JLME)	•	•											
Number of hits	**22**	**13**	**11**	**9**	**10**	**10**	**9**	**0**	**10**	**2**	**22**	**8**	**21**

Appendix E. List of websites

- Social Science Research Network (SSRN) is devoted to the rapid worldwide dissemination of social science research and is composed of a number of specialized research networks in each of the social sciences.
  Website: www.ssrn.com
- Globethics.net is a global network of persons and institutions interested in different fields of applied ethics. It offers access to resources on ethics, especially through its leading global digital library on ethics. In addition, it facilitates collaborative web-based research, conferences, online publishing and active sharing of information. Globethics.net aims especially at increasing access to ethics perspectives from Africa, Latin America and Asia. It strengthens global common values and respect of ethical contextual diversity.
  Website: http://www.globethics.net/web/guest/home
- SenterNovem stimulates, sustainable economical growth by bridging between market and government in a national and international level. SenterNovem gives advice to companies, governments and knowledge centers. SenterNovem is an agency of the ministry of economical affairs.
  Website: http://www.senternovem.nl/sn/index.asp
- Ethics Updates is designed primarily to be used by ethics instructors and their students. It is intended to provide resources and updates on current literature, both popular and professional, that relates to ethics.
  Website: http://ethics.sandiego.edu/
- News website on science and technology
  Website: www.scitechdaily.com
- Portal for different bioethics groups worldwide
  Website:
  http://www.bioethics.gr/document.php?category_id=66&document_id=284
- Links to ethics centers worldwide
  Website: http://www.indiana.edu/~appe/links.html
- List of ethics centers
  Website: http://www.vanderbilt.edu/CenterforEthics/othercenters.html
- Website of the Netzwerk der Deutschsprachigen Technikfolgenabschätzungs-Community
  Website: www.Netzwerk-TA.net
- Newsletter of INSEIT. INSEIT was created in 2000, with the goal of promoting and facilitating scholarship. education, discussion, and debate, and other activities, on the ethical issues in and surrounded by information technology. The Society will be distinctly devoted to normative issues and will address ethical issues in and surrounding: The design and development of IT; the use and deployment of IT; distribution of IT.
  Website: http://www4.uwm.edu/sois/cipr/inseit.html

Appendix F. Courses in ethics for engineering students

At the following universities engineering students are being taught in ethics:

- RWTH Aachen University (Germany)
- Basel University (Germany)
- Norwegian University of Science and Technology (Norway)
- Aarhus University (Denmark)
- Technical University of Lisbon (Portugal)
- Karlsruhe University (Germany)
- De Montfort University (England)
- Wageningen University (Netherlands)
- University Maastricht (Netherlands)
- University of Buffalo (USA), course on ethical principles and practical ethics for PhD students in science
- Virginia Commonwealth University (USA), 'there is very good course on research integrity and research ethics for students'
- University of Utrecht (Netherlands), ethics for veterinary medicine students
- Virginia Tech (USA)
- Royal Institute of Technology (Sweden)
- Cambridge (UK)
- Technical University of Eindhoven (Netherlands)
- Technical University of Delft (Netherlands)
- University of Twente (Netherlands)
- In the future there will be courses in ethics for students at the Graduate Schools of the 3TU. Centers (Netherlands)

- Summer school 'Responsibility & Engineers of the Future'. In August 2009 the philosophy department of TU Delft will host a summer school for PhD students in engineering from the IDEA League, a network of five leading European universities of technology and science. In an intensive 3-day program, PhD students will be introduced in the ethics of technology and develop their skills of ethical reasoning. Special attention will be paid to the issue of responsibility.

- Master in Law and Technology, University of Tilburg (Netherlands)
- Kerckhoffs Master in ICT and Security, cooperation between University of Twente, University of Tilburg and Technical University of Eindhoven (Netherlands)
- Master in Philosophy of Science, Technology and Society, University of Twente: a Master for students with a Bachelor in engineering (Netherlands)
- Master in Governance, Sustainability and Cultures of Innovation, University of Maastricht (Netherlands)

Appendix G. Academic journal on responsible innovation?

Question: Do you think there is a need for a academic journal on the topic responsible innovation? If so, what would be the goal of this journal?

- *'In the field of the responsible innovation of medical technologies, this would be interesting.'*
- *'Not sure.'*
- *'Yes, but it would be difficult to cover all the topics about responsible innovation in one journal without being to diffuse. Perhaps there should be a number of journals focusing on (a) innovation and human subjects, (b) innovation and the environment and (c) innovation and dangerous technologies like (bio)weapons, for example.'*
- *'Nowadays, new journals are meant to be relatively well focused, at least according to information I have from editors of university presses. Ethical and societal aspects of technological development projects could include almost anything given that hardly any aspect of European life is unrelated to technological progress. It is unclear to me what the journal would encompass. Would it be a Journal of Technology Assessment? Dealing with particular technologies only?'*
- *'If there is going to be a journal on responsible innovation, what would its topic be? Ethics, politics, policy science or technology assessment? I would prefer to publish an article on responsible innovation in a specific journal on nano- or biotechnology than in a journal on science and technology studies, where it does not really happen. Furthermore, I wonder whether there will form a community of researchers around responsible innovation. I think the topic responsible innovation is too vague for a journal. Researchers would prefer to publish in specific journals. Also, I don't think that responsible innovation will become a clear and distinct research area.'*
- *'Yes, provided it does not turn into a political platform – we have enough of those. To develop methodologies for the responsible evaluation of by way of creating scenarios for possible ways things will play out – without casting judgment.'*
- *'I don't think that we need a journal on responsible innovation, but a newsletter on e.g., www.SSRN.com containing information about research concerned with responsible innovation. Furthermore, I don't really care in which journal the results are published, as long as they are published it is okay. So it doesn't have to be published in Nanotechnology, Law and Business, but it could also be published in a thematic issue of a journal.'*
- *'I don't think that there has to be a journal on responsible innovation. There are already so many journals.'*
- *'There are already many journals, but sure.'*
- *'Perhaps, but probably there are already journals that cover this topic.'*
- *'Don't know/perhaps, existing journals would probably suffice.'*
- *The interviewee begins his answer with saying that articles on responsible innovation could also be published elsewhere. An article on value sensitive design, for example, could be published in Engineering Ethics. Later on in the interview the interviewee argues that it would be useful to have a journal on responsible innovation. However, the profile of that journal must be made clear. According to the interviewee, the profile must be: how to organize responsible innovation? What precisely is responsible innovation? And it should*

contain case studies. Furthermore, the interviewee thinks that launching a journal on responsible innovation would give a boost to the field.

- *'Perhaps an online English bulletin of NWO for a broader audience.'*
- *'Yes – the issue has a place in many journals but does not belong to the core of their scopes. It would be quite good to have a journal specifically dedicated to responsible innovation.' Goal: (a) publish original research articles from the field (e.g. good or best practices, case studies etc.) (b) offer a space for proposing and discussing new methods (deliberating, designing, producing, selling etc. responsible innovation) (c) give the demand side (stakeholders, the public) a space for expressing their expectations'*
- *'No. Firstly, there are opportunities to publish an article on MVI in existing journals. Secondly, the field MVI is too small to dedicate a journal to it.'*
- *No. There are already many specific journals. It think it is difficult to clearly define the scope of a journal on MVI. There are a lot of general philosophy magazines and a lot of specific ones. MVI is somewhat in between.'*
- *'Maybe. Bridge the different approaches of the various disciplines.'*
- *'Perhaps, but it would be very difficult to make such a journal. For example, before you want to publish the first issue you need to have sufficient submissions for at least 2 or 3 years. Researchers prefer to publish in an already established journal with a higher impact factor, which would be difficult for a starting journal. It will take at least 10 years for such a magazine to have a high impact factor. Perhaps you could start with a special issue in, for example, Policy Research and then see what the impact will be.'*
- *'No, I think that the topic of responsible innovation is too broad for a journal.'*
- *'No, there are already journals which are specialized in topics regarding responsible innovation, such as Nanoethics and Engineering Ethics. I don't think we need a broader journal. '*

Appendix H. Journals for publication of results

Question: In which journal(s) would you like to publish your results on responsible innovation?

- *'Bioethics, but also in philosophy journals that have a broader and more general scope.'*
- *'BMJ, Lancet.'*
- *'Specific scientific journals, but also in regional and national newspapers.'*
- *'NRC, Elsevier, Intermediar, Science, Nature.'*
- *'Publications on responsible innovation have to influence society and not necessarily science.'*
- *'Results on responsible innovation have to be published in journals for engineers and companies.'*
- *'In journals for technical or policy sciences.'*
- *'Risk Analysis, Journal of Risk Research, Bioethics, Journal of Applied Philosophy.'*
- *'Specific journals like Science, Technology and Human Values, but also in journals such as Nature and Science because then you reach the right audience.'*
- *'Science, New Scientist, The Scientist and Nature, because this would increase the dialogue between scientists and philosophers/ethicists.'*
- *'Engineering Studies.'*
- *'Specific journals or in a online Engels bulletin of NWO for a broader audience.'*
- *'Journals close to engineering sciences (which should be more open to responsible innovation.)'*
- *'Science, Technology and Human Values.'*
- *'Risk Analysis.'*
- *'Research policy.'*
- *'Science, Technology and Human Values.'*
- *'Ethics, because this would reach a broader audience of ethicists. And the Financieel Dagblad, because this would reach entrepreneurs and other relevant stakeholders.'*

Appendix I. The faces of responsible innovation

Question: Who do you associate with responsible innovation?

- *'On the one hand, I think of scientists and engineers who bring about new technologies that help to improve the state of affairs (such as e.g. ecologically tested materials and products that help to spare resources and to diminish environmental risks and health hazards, and enterprises that make certain standards available to the poorer parts of the world). On the other, I think of ethicists who critically consider the state of affairs and on technical innovations. They have an eye on new products, asking whether they are sustainable, fulfill the standards of safety, satisfy the needs of the users, contribute to a just society and raise new philosophical questions (for the latter, think for instance of innovations in the neurosciences).'*
- *'Some of the IFIP working groups. I do not wish to give a list of persons' names.'*
- *'I can only speak for my own areas of work, e.g. responsible innovation requires incentives for pharmaceutical innovators to develop medicines according to the global disease burden and not purchasing power: Thomas Pogge, US and Aidan Hollis, Canada. Responsible innovation requires respectful use of traditional knowledge: Rachel Wynberg, South Africa and Sarah Laird, Canada. Responsible innovation requires benefit sharing with developing countries when their human resources are used (e.g. DNA samples): Fatima Alvarez-Castillo, Philippines.'*
- *'TERI Instituut in India, Amartya Sen, Martha Nussbaum, Jeroen van den Hoven, Wim Dubbink.'*
- *'Jeroen van den Hoven, Batya Friedman, Joel Rijdenberg, Larry Lasik, Arie Rip.'*
- *'Jeroen van den Hoven, Arie Rip.'*
- *'3TU Ethics, Simon Rogerson of the Center for Computing and Social Responsibility, Carl Mitcham, Dick Sclove, Deborah Johnsson, Batya Friedman, Helen Nissenbaum, Andrew Light.'*
- *'NWO, MVI program Jeroen van den Hoven.'*
- *'Einstein and Oppenheimer, because they developed the nuclear bomb and afterwards they addressed the moral issues.'*
- *'Dutch civil engineering.'*
- *'Researchers from TA, engineering ethics, STS, interested people from industry, stakeholders, society.'*
- *'Juergen Habermas, George Agich, Bowling Green.'*
- *'Erik Fisher and Armin Grunwald'*
- *'Senior staff of 3TU.Ethics, Batya Friedman, Helen Nissenbaum'*

Question: Who are the 5 most important researchers in responsible innovation?

- *'Sorry, but I cannot answer this question properly. From my personal perspective, it would mainly be scholars in bioethics, but the label does not really fit them. Further, I think of people doing research in environmentalist institutions such as the Leipzig Center for Environmental Research http://www.ufz.de/index.php?en=11382. However, I do not know the big names there.'*
- *'Jeroen van den Hoven, Andrew Light, Deborah Johnsson, Helen Nissenbaum.'*
- *'Nick Bostrom, Jeroen van den Hoven, Julian Savulescu (Uehiro Chair in Practical Ethics).'*

- *'Arie Rip, Andrew Feenberg, Bruna Latour, Alfred Nordman.'*
- *'Neil Gershenfeld runs the center for bits and atoms at MIT. He takes an ethical stand on developing nanotechnology that aims at social justice, reducing scarcity for everyone.'*
- *'Jeroen van den Hoven, Désirée Verweij, Seumas Miller.'*
- *'Very difficult to answer because the notion is a rather new one: Arie Rip, Ruud Smits, Lars Klüver, Christoph Hubig'*
- *Jeroen van den Hoven, Arie Rip, Helen Nissenbaum, Erik Fisher'*
- *'Jeroen van den Hoven, Ilse Oosterlaken, 3TU Ethics, WTMC (Arie Rip, Karen Bijsterveld)*

Appendix J. Corporate social responsibility

Research groups and centers

- The Corporate Social Responsibility and Business Ethics Research Group
  Website: http://www.fek.uu.se/forskning/index.asp?page=CEBERG
- The Oxford-Achilles Working Group on Social Responsibility
  Website: http://www.sbs.ox.ac.uk/research/Corporate+Social+Responsibility/
- Corporate Social Responsibility (CSR) and Ethics
  Website: http://www.insead.edu/facultyresearch/centres/isic/ecsr/
- CSR and Development Group
  Website: http://www.mdx.ac.uk/research/research-areas/corp.asp
- Center for Social Innovation at Stanford University
  Website: http://www.gsb.stanford.edu/csi/
- International Center for Social Corperate Responsibility
  Website: http://www.nottingham.ac.uk/business/ICCSR/index.php
- The Business & Human Rights Resource Centre
  Website: http://www.business-humanrights.org/Home

Journals

- Corporate Social Responsibility and Environmental Management
  Website: http://www3.interscience.wiley.com/journal/90513547/home
- Social Responsibility Journal
  Website:http://info.emeraldinsight.com/products/journals/journals.htm?PHPSESSID=a9bup5b21bijvfle7ga0v2v2g7&id=srj

Appendix K. Names of interviewees

Anonymous Interviewee
Philosophy Department

Dr. Marianne Boenink
University of Twente
Faculty of Philosophy

Prof. dr. Monica den Boer
Free University Amsterdam
Faculty of Social Sciences

Prof. dr. Philip Brey
University of Twente
Faculty of Philosophy

Prof. Dr. W.A. Dolfsma
University of Groningen
Faculty of Economics and Business Administration

Prof. dr. Armin Grunwald
Forschungszentrum Karlsruhe
Institut für Technikfolgenabschätzung und Systemanalyse

Prof. dr. Jeroen van den Hoven
Technical University of Delft
Faculty of Philosophy

Dr. David Koepsel
Technical University of Delft
Faculty of Philosophy

Prof. dr. Bert-Jaap Koops
University of Tilburg
Faculty of Law
TILT Law, Technology and Society

Dr. Otto Kroesen
TU Delft
Faculty of Philosophy

Dr. Ronald Leenes
University of Tilburg
Faculty of Law
TILT Law, Technology and Society

Dr. Martin Peterson
Eindhoven University
Faculty of Philosophy

Prof. dr. Joseph Pitt
Virginia Tech
Faculty of Philosophy

Dr. Ibo van der Poel
Technical University of Delft
Faculty of Philosophy

Prof. dr. Charles Raab
University of Edinburgh
School of Social and Political Studies

Prof. Dr. Stella Reiter-Theil
University of Basel
Institute for Applied Ethics and Medical Ethics

Dr. Sabine Roeser
Technical University of Delft
Faculty of Philosophy

Prof. dr. Doris Schroeder
University of Central Lancashire
Centre for Professional Ethics

Jan Staman, M.Law., M.Sc.
Managing director of the Rathenau Institute

Dr. Tjsalling Swierstra
University of Twente
Faculty of Philosophy