

Public Engagement: Benefits and Challenges

Interview with Prof. Steven Yearley

Q. Why is public engagement relevant to science and technology studies, and what impact is it supposed to have?

A. In a way which is relatively uncritical or unreflective about the nature of science one could have a straightforward, positivistic view of science, and roughly have this idea that although there are some things about which you want the public to have a strong say, like voting in elections, or deciding on major infrastructural developments, there are other things where you want to leave that question to a scientist or a technologist or a doctor. Science and technology studies opened up a less rigid distinction between the things that are properly scientific and the things that are open to opinion, leading to the consideration that if there is a judgment to be exercised about things that follow some kind of mechanised, algorithmic method, then there's much more scope for public participation and oversight, or a role for the public in how that judgment might be exercised. A different sort of argument, which is often these days called the argument about post-normal science, from **Silvio Funtowicz and Jerry Ravetz**, considers that something is 'post normal' when a) there are such high societal stakes about getting something right that there are unusual levels of public interest in what the scientists say, or b) when a thing is so controversial or maybe uncertain, that the thing depends very much on which scientist you happen to ask. Therefore if the judgment depends on which scientist you choose, you would want to have more public inspection of the methods by which the scientists are

selected. From the 1990's we've seen an increased number of projects aiming at testing this augmented role of the public. At the same time, Funtowicz and Ravetz presented their idea about public engagement as finding a complementary role for public participation, and they talked about this idea of what they called **extended peer review**. Within the disciplinary boundaries, the best way to certify the quality of knowledge is to have peers that are knowledgeable about the subject. But if you've got a problem which is massively cross-disciplinary, and where there are big public stakes involved - well why wouldn't you have citizens engaged in the peer review, so that you could have an extended notion of what peer review might be about, and an extended notion of who the peers would be?

Public engagement is not about replacing the scientists with the public but finding a complementarity and in some way producing research that is high quality, thanks to that.

Q. What are the critical elements that lead to success or failure of public engagement when addressing pressing societal issues?

A. There is no single best answer to this, there are probably several good answers, and there is often a bad answer. The idea of the "ordinary member of the public" who would participate in a study possibly doesn't exist, because everybody has an angle, or a bias. There are various ways of doing public engagement,



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and which way you adopt partly depends on the issues you are looking at and the kind of objectives your project has. There have been great ventures in public engagement by scientific bodies lately, and I think **the GM Nation initiative can be a very interesting case to mention here**. The organisers of the GM Nation were trying to involve the ordinary people of Britain and get a randomized sampling of participants. This raised a lot of concerns about citizens screened out because they were considered to already have a view, and therefore a bias. So "what do you go for" when involving the participants? In this specific case the idea was to identify a lot of people having a stake or an interest, assuming that having that interest leads those people to develop some kind of 'instinct' based on their interest or experience. It was often said for example, that in the GM debate mothers of young children were maybe acutely interested because they were responsible for what somebody else, their babies, ate. If you thought that that was important, then you would want in your sampling to have a lot of

them, therefore creating a hypothesis-driven stratified sampling. The same goes for minority groups that might have a particular interest in the debate, or maybe people that follow a particular diet for religious or cultural reasons: you might want more of them as a percentage of the population involved because of the acute interest they have in the outcome of the debate. So, in the end a good methodological approach could be to identify a purposefully stratified sample, and then within that framework random sampling is often a good way to proceed.

Q. *How best do we engage the public in science and technology issues? Which are the main challenges to take into account?*

A. Engagement is a word that sounds like it is a two way thing: I engage with you and that means I listen to what you have to say, whereas **engagement has kind of slipped in the last ten years into a new euphemism for merely communicating or often ‘educating’**. The motivating idea of engaging people is to have people engaged back with you and attract people to this world of engagement as worth talking about participation. Engagement often needs to be asymmetrical. Just because you want to have an engagement group doesn't mean you presuppose from the start that they are all equal in all terms, but you've got to presuppose that they have an equal right to have a say about something. I think there should be an iterative way of having a reasonable discussion of the things that allows people to have a good experience, enjoy this engagement, and have an open opportunity to talk about those things. **In extended peer reviews the idea is not to get rid of scientists and replace them with the public; rather, engagement with the public genuinely opens up new questions or new kind of insights.** You need to have some form of dialogue opportunity to learn and satisfy the public curiosity, avoiding a sort of premature form of engagement, where the danger would be that people who know more about the topic can come across as being insincere.

Q. *Can you tell us about your experience, and the impact that public engagement had on your research work?*

A. While at the Stockholm Environment Institute, I had the chance to work on urban air quality models and public engagement. In the late 1990s, early 2000s, at the European level, the regulation of urban air quality changed from essentially having a monitoring station in a city that would provide an answer to the question “how many days did it exceed the permitted air quality thresholds?”- to a novel methodological approach using a computer simulation of what the air quality across an urban area would be. The problem with the previous approach was that the emission level was only measured in one or maybe two places, so that there wasn't much of a notion of what the spatial distribution of the air quality was in reality. In Sheffield, UK, for example, one of the cities we were looking at, a key air monitoring point was placed in a pedestrianized area, an area that by definition cars couldn't get very close to. With the adoption of the new approach, some companies provided software that the cities could install in order to gather information about traffic patterns, meteorological conditions, wind direction and so on. With this information a model was created that would give the local authorities an overview of the air quality in the city monitored. With our project we proposed to involve community groups in the city in thinking about the quality of this new

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model. We then identified stakeholder groups of people representing a particular area of the city, or stakeholders groups with relevant information, like the cycling groups, very interesting to us because their members spent quite a lot of time on the road, and were directly exposed to fumes in a way that car drivers weren't. We also involved groups of people interested in urban pollution, public health and more. What we did was to get them to operate as extended peer reviewers, and to

analyse how well the model was grounded in terms of being tied back to knowledge about emissions, and what were the assumptions behind the model. We did this on a kind of speculative basis; we thought that this would be interesting, but we didn't quite know what would come out of it. It turned out that people had very smart things to say about this. For example, one of the things that came up was that the model was very sensitive to vehicle data, but it couldn't count every day how many buses plus cars were driving in that particular area, for example. Some of the buses might have had an old diesel engine that would produce a lot of emissions, and the routes that one bus company served, might have ended up having many more emissions than the routes that the other bus company served. The input to the model, instead, was based on the idea that each bus was an average bus, whereas the cyclists who talked to us happened to know, and so out of this, we could say that the people were functioning in some way as extended peer reviewers. **What they often had, was access to knowledge that was in some ways at the same level as the knowledge that was presupposed by the model, but which was often complementary to that model.** They had information that was relevant to the assumptions of the model. The other thing was that they had knowledge about the sociological or the societal assumptions that were underpinning the models, since one bit of key information we discovered was that people had knowledge about the other big sources of pollutions, like industrial plant, car stations and so on, which had to get a permit from the precursor of the Environment Agency. These are inspected by either people from the Environment Agency or by people from the Local Authority. The people from the agencies couldn't assume that people broke the law about the emission, so the models routinely assumed that people went to up to their emission limits, but didn't surpass them. So the model had to model what came out of the chimneys. Their assumption was that companies were run by ‘rational economic men’ who wouldn't under-emit. They also assumed that people would not want to get punished and

so wouldn't break the law. However, many of the community groups provided us with different information about the level of emissions simply from working in factories or by pointing out the fact that they don't put on their washing on a Friday because the sheets get dirty; "Because there are excess emissions on Friday evenings or bank holidays when the inspectors don't work". Again then, the model was deficient because it could not incorporate the sociological information. As one of the key outcomes of this project, the idea of a mobile detection facility monitoring pollution in problematic areas of the cities was proposed, and finally, the public involved in the study were able to use public pressure to promote a new policy recommendation. In a way this exemplifies Funtowicz' and Ravetz' point about having an extended peer review, but it also shows that **public engagement is not about replacing the scientists with the public but finding a complementarity and in someway producing research that is high quality, thanks to that.**

Q. *Projects leading to innovative products/prototypes are often funded through Public-Private Partnerships or Pre-Commercial Public Procurement schemes. In this case, how and at which stage could public engagement help taking decisions on how much funding has to be allocated to specific topics, and how much public engagement can influence the topics selected for the funding?*

A. I think this is a very interesting point but I don't feel as strongly positioned to comment on this, compared to some of the other things that I have said. All of those arguments from maybe ten, maybe twelve years ago, about trying to move engagement upstream, were based on the attempt to avoid having innovations being rejected once there has been a lot of public investment in them. Having public engagement taking place earlier on would allow us to identify if there are misgivings that can either be addressed, or the programme stopped, rather than wasting all the money, or having to then try to use marketing techniques to win over a sceptical public. Upstream engagements should allow you to visualise or envision

what drawbacks of innovation might override the advantages. However, there is a sense in which, the more you try to move upstream, the more speculative the whole thing inevitably becomes. The motivation behind upstream engagement is to have an early analysis of the innovation, but the earlier you get in the less sure you are about what kind of products there might be, or what kind of risks there would be. In a sense, the whole debate then becomes rather speculative. If you look at areas where we think of innovation as rather routine and successful, in IT or mobile phones for example, then many of the conceivable concerns we might have now, nobody really thought about before - for instance, "Is it a good idea to have a phone next to your head?". If you're concerned about that, then let's just adjust the handset. Today it would seem ridiculous to try and limit

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the production of mobile phones for that.

The concept of **Responsible Innovation** in this sense is a very attractive one, everybody wants responsible innovation, who wants irresponsible innovation? **It contains a tension between the responsible and the innovation, however it doesn't tell you how to resolve that.** There might be people concerned that this would be a term that puts too much of a brake on innovation in a moment in which Europe is not a competitive enough economy. I suspect there is not an answer that is going to work in the same way for IT, as for novel medicines, synthetic biology, and so on. Exactly where the balance between responsibility and innovation lies, I think, varies greatly depending whether you're talking about IT, smartphones, something that is concerned with privacy, or innovative medicines. So although I can see the appeal of the term, I think that it almost hides most of the argument, rather than bringing it to the forefront.

A scientist who is working on something where you can anticipate certain kinds of usages is already implicated in some of the moral concerns or ethical/regulatory debates about how that thing is used. I don't want to say that every conceivable use of an innovation is already the responsibility of the person who invented it, but on the other hand, it doesn't make any sense to say, "I just invented it, I'm not responsible for what people do with it". Having more sophisticated insights into which regulatory structure works and which doesn't, what ways of bringing things to market work and what ways don't, is not exclusively a moral or ethical issue, it's also something that is an empirical issue. Therefore one could see public participation or public engagement as a way to address those empirical, as well as the ethical issues, of innovations.

Q. *Could you tell us something about your book on participation in science, technology and decision-making?*

A. The idea is that the book will be about exactly the things we have been talking about in this interview: why do we think it's a good idea for citizens to have a say on technical issues? In short the book is intended to demonstrate to those not trained in the social sciences (engineers, natural scientists etc) the benefits of public engagement, by discussing the common objections and providing case studies where it proved a boon, either at the uptake or the refinement stage. The idea is for people to learn not just guidelines, but the "spirit" of successful public engagement through the case studies.

Recent ProGReSS

!KHWa TTU – PROGRESS RETURNS TO SOUTH AFRICA



ProGReSS outreach activity in Africa is not over!

SASI, the SAN, ProGReSS and the South African Department for Science & Technology met again on September 1 for a follow up of the workshop [SAN Knowledge and Innovation](#) held in Kimberley in March 2014.

One of the most challenging aspects in RRI best practice is to allow end users to become innovators; makers of innovation and knowledge, not just beneficiaries.

With this new workshop, ProGReSS collected further inputs from the SAN community on how western innovation systems can engage them in projects of responsible and societally desirable innovation.

At the workshop, a documentary was started with interviews of the delegates. Our film-maker student from UCLan, Amy Dean (ProGReSS YouTube Channel), was part of the ProGReSS team to record a documentary film on using the South African plant Buchu in innovations. The San have held traditional knowledge on the Buchu for decades and a benefit sharing agreement with a South

African company has now been signed. The team also visited the company and elders in a local village.

On their return to Cape Town, the second part of the workshops with marginalised communities took place, expanding ProGReSS's outreach activities beyond the holders of traditional knowledge to small scale farmers as seed innovators. Policy makers, researchers, an NGO, African farmer representatives and two national ministries (Department of Science and Technology; Department of Environmental Affairs) jointly discussed how innovation in the food sector can address a pressing societal challenge: food security.

The filming of interviews at the Progress !KhwA ttu workshop and in other locations in South Africa was successfully concluded, and the film is expected to be released on our [YouTube Channel](#) in January 2015.

Once again, a warm "thank you" to the SASI team for excellent co-ordination of meetings!



GLOBAL INCLUSIVE INNOVATION – PROGRESS BEIJING MEETING MINUTES

How are economic development and growth shaping innovation across the world, and how can innovation be encouraged to tackle new socially focused objectives and challenges in different economies?

With the Beijing meeting [Reaching all Sectors of Society with RRI: Global Inclusive Innovation](#) ProGReSS continued exploring the RRI criterion of societal desirability by identifying and examining sister concepts from emerging economies. The team found that the concept of "inclusive innovation", as used in South

Africa, Brazil, China and India, is especially relevant if RRI is to be a model for responsible innovation globally.

Pressing societal issues such as ageing in were also widely discussed in this meeting, alongside gender equality, and propoor innovation.

The minutes of the meeting can be accessed here:

www.progressproject.eu/wp-content/uploads/2014/10/ProGReSS_Beijing-meeting-minutes.pdf

RRI - THE WIKIPEDIA PAGE

On August 18, the comprehensive Wikipedia page on RRI that the ProGReSS team had set up and submitted was accepted and finally published!

You can access and contribute to our RRI Wiki page at http://en.wikipedia.org/wiki/Responsible_Research_and_Innovation

RRI AND END-USERS

A new report of the ProGReSS Outreach Work Package, D4.2 *RRI and End-users* describes how responsible and societally desirable research and innovation is linked to the challenges of end-user engagement, and especially to the challenges of the inclusion of the most marginalised groups in society into the innovation process.

The involvement and, moreover, the engagement of end-users in particular, and the society in general (meaning the public and civil society stakeholders), is a necessary path towards the implementation of RRI, making innovation with and for end-users and society more effective, ethical and societally desirable.

Two cases in which inclusive innovation has been made possible through the engagement of end-users as innovators are presented: innovations in the medicinal field, based on the knowledge of the Southern African San people mediated through an NGO (SASI), and grassroots innovations in India.

The full report can be accessed [here](#).

RRI FUNDER REQUIREMENTS MATRIX

ProGReSS deliverable D5.2, *RRI Funder Requirement Matrix*, represents a major factfinding mission in comparing science funding strategies in Europe, the US, China, India, Australia and South Africa. A convergence of innovation systems requires exchange of information, especially on how resolving major societal challenges is achieved through science funding strategies.

On the basis of the information produced in our WP3, the three RRI criteria ethical acceptability, sustainability and societal desirability, (von Schomberg 2013) are mapped against the requirements innovators must fulfill to obtain funding.

The full report can be accessed [here](#).

INTERNATIONAL RESEARCH NEWSLETTER

Two RRI sister projects, ProGReSS and RESPONSIBILITY have been invited to contribute an article to the prestigious INTERNATIONAL RESEARCH newsletter of the European Commission. The ProGReSS contribution to the September 2014 Issue can be accessed here:

<http://ec.europa.eu/research/iscp/index.cfm?pg=newsletter>

PROGRESS AT ESOF2014

The first five RRI projects funded by the European Commission came together for ESOF2014. "The premier science event of the year" gathered 4,500 delegates in Copenhagen from 21 – 26 June 2014. Queen Margrethe II and President of the EC Barroso opened the proceedings.

Together with Karen Fabbri (the RRI project officer from the EC) and Hilary Sutcliffe, the 5 Co-ordinators took part in a panel on RRI moderated by BBC science journalist Quentin Cooper.

A short film of the panel will soon be made available by the ProGReSS project. Follow our [news](#) for updates!

RRI SHORT STORY COMPETITION FOR YOUNG STUDENTS

Dissemination as engagement to create a culture of RRI: the ProGReSS short story competition will be launched on December 1! The competition will offer young science students (14-18 years old) the opportunity to tell us how discoveries and inventions have improved – or could improve - their own life and community.

Each partner in the ProGReSS consortium will establish and keep contact with one or more national schools advertising the initiative and will then provide the co-ordinator and the Dissemination Panel with the English translation of the winning national story submitted, which will then enter the global competition.

The winner of the competition will receive a 350 Euro cash prize and the runner-up a 150 Euro cash prize. Their stories will be featured on the ProGReSS web site (www.progressproject.eu).



Head of Afrikaans Mr Egbert Nieuwoudt (right) to coordinate ProGReSS short story competition together with SASI (Hennie, center, and Jan-Len, left) at the Kimberley Diamantveld High School

Partner news



Dr Sachin Chaturvedi

Dr Sachin Chaturvedi is the new Director-General of RIS

Our RIS colleague [Dr Sachin Chaturvedi](#) has been promoted to the highest post in his organisation, which in itself is a high-profile Asian think-tank attached to the Indian Ministry of External Affairs. He is now the Director General of RIS! Sincere congratulations from everybody!

Dr. Sachin Chaturvedi is currently Director-General at the Research and Information System for Developing Countries, a think tank with the Government of India's Ministry of External Affairs. Until recently, he was a Global Justice Fellow at the MacMillan Center for International Affairs at Yale University. He works on issues related to development cooperation policies and South-South cooperation. He has also worked on trade and innovation linkages with special focus on WTO.

Providing Life-Saving Medicines to the Poor

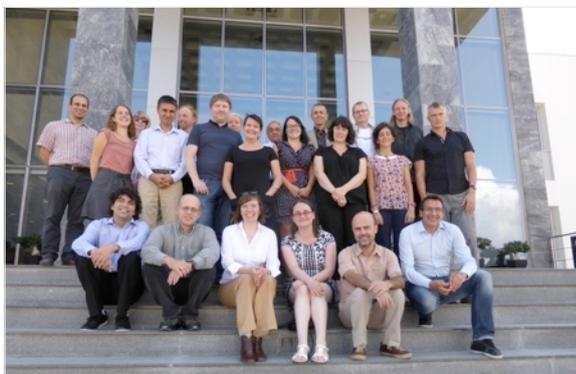
On June 6, Professors Thomas Pogge (UCLan) and Aidan Hollis (University of Calgary) presented the REWARD project at the UNESCO headquarters in Paris. REWARD is a European Research Council-funded project that aims to use ethics research as the steering force to determine which performance-based reward tools for pharmaceutical innovation are the most promising, through a collaboration of ethicists, lawyers, economists and statisticians, with experts in medicine, science and technology policy and gender studies.

More info: <http://en.unesco.org/events/towards-global-justice-providing-life-saving-medicines-poor-thomas-pogge-and-aiden-hollis>

Responsible-Industry meeting in Cyprus

On September 11-12 UCLan Cyprus hosted a meeting of one of the RRI sister projects, Responsible-Industry. Portrayed in the picture below are members of the project consortium and members of the Advisory Board.

The Responsible-Industry project is designing an Exemplar Implementation Plan of Responsible Research



and Innovation (RRI) in Industry to demonstrate how industry can work productively together with societal

actors and integrate principles and methodologies of RRI into research and innovation processes.

More info: <http://www.responsible-industry.eu>

Science, Innovation and Society: achieving Responsible Research and Innovation.

ProGReSS co-ordinator Prof. Doris Schroeder was invited to take part in the "Science, Innovation and Society - Achieving Responsible Research and Innovation" conference organised in Rome on November 19-21 under the auspices of the Italian Presidency of the Council of Europe. During this conference instead of six RRI action points, seven were named. Point 7 was "Global Trends in Science in Society".

More info: <http://www.sis-rri-conference.eu/>

Exploring "Responsibility" in Research and Innovation from a European Perspective

Our colleague Stephan Lingner is the author of two new contributions to the dissemination activity in our ProGReSS project presented at:

- The S.NET 6th Annual Meeting: Better Technologies with no Regret? Society for the Study of Nanoscience and Emerging Technologies, held in Karlsruhe (Germany), on 21-24 September 2014, with the presentation *Exploring "Responsibility" in Research and Innovation from a European Perspective*. The conference Programme and Abstract Book can be accessed at http://www.itas.kit.edu/english/events_2014_snet.php
- The launch of the new EA Profile. EA European Academy of Technology and Innovation Assessment, Bad Neuenahr-Ahrweiler (Germany), 1 October 2014, with the poster *ProGReSS – Promoting Global Responsible Research and Social and Scientific Innovation*.

Latest RRI news

The European Bioeconomy: Making the concept a reality

To become more effective, the European Bioeconomy Strategy can now rely on the European Bioeconomy Observatory pilot website. Through the Observatory, the European Commission will gather and present data about the development of the bioeconomy. Adopted by the European Commission in 2012, the European Bioeconomy Strategy is built on three pillars: investments in research, innovation and skills; reinforced policy interaction and stakeholder engagement; and the enhancement of markets and competitiveness in bioeconomy.

More info: http://europa.eu/rapid/press-release_MEMO-14-568_en.htm

Science to the rescue: the big tech transfer myth

Huge faith is put into Science, Technology and Innovation as drivers of economic development in low and middle income countries, and the example of the Asian Tiger economies is brought up as the evidence for it. However, a Kirsty Evidence article claims that “contrary to popular belief, there is little evidence to suggest that public investment in research was a major factor in the economic development of the Asian Tigers”.

More info: <http://kirstyevidence.wordpress.com/2014/10/08/science-to-the-rescue-part-2/>

Battle between NSF and House science committee escalates: How did it get this bad?

Unprecedented: Washington, D.C. congressional staffers have been screening material relating to 20 research projects that the National Science Foundation, NSF, has funded over the past decade, with the aim to find evidence for an alleged misused of taxpayer money.

More info: <http://tinyurl.com/kle3mll>

NGOs are the heart of human rights work

Attending an NGO meeting taking place during the 27th Human Rights Council, UN High Commissioner for Human Rights Zeid Ra'ad Al Hussein praised the constant work done by NGOs and civil society actors for the respect of human rights: “The fate of the planet relies on such a small number of people,” he said. “You are just a small fraction of humanity, and yet you do so much.”

More info: <http://www.ohchr.org/EN/NewsEvents/Pages/HCMeetsNGOs.aspx>

Londoners give up eldest children in public Wi-Fi security horror show

London: the European law enforcement agency Europol set up an experiment exploring the dangers of public Wi-Fi use in which careless users of the hotspot agreed on a “Herod clause” included in the terms and conditions, according to which “the recipient agreed to assign their first born child to us for the duration of eternity”.

More info: <http://tinyurl.com/pg3ujhc>

A call to those who care about Europe's science

“The policy-makers and leaders of an increasing number of nations have completely lost touch with the reality of research” writes Amaya Moro-Martin. A protest is reaching several European capitals and an open letter to sign has been created to ask for a change in the austerity measures that will implement further budget cuts to research in Europe.

More info: <http://www.nature.com/news/a-call-to-those-who-care-about-europe-s-science-1.16086>

Responsible Research and Innovation in Action

What RRI means in practice? On his blog Jack Stilgoe lists 13 examples of “interesting developments” that might become RRI technologies and defines RRI as “a work-in-progress, as are science, politics and society more broadly. This means that RRI is necessarily experimental and open-ended”.

More info: <http://jackstilgoe.wordpress.com/2014/09/16/responsible-research-and-innovation-in-action/>

What could be the negative impacts of Responsible Innovation – some ideas?

Is there a negative impact of Responsible Innovation and if yes, what could that be? Hilary Sutcliffe's blog examines which aspects of RRI could turn into discouraging factors for its implementation in Industry, from constrained creativity to excessive regulatory precaution.

More info: <http://www.matterforall.org/what-could-be-the-negative-impacts-of-responsible-innovation-some-ideas/>

Why 'societal desirability' does not work as a concept for business

A commentary by Hilary Sutcliffe



Hilary Sutcliffe is the Director of [MATTER](#), member of the External Advisory Board of the University of Michigan Risk Science Centre (USA) and of the Advisory Board of the Institute of Innovation Research Manchester Business School, University of Manchester.

I read two ProGReSS reports with interest, not least because there is so little research done on the role of Industry in Responsible Innovation:

[RRI - Best Practice in Industry RRI and End-User](#)

Both reports were interesting and informative and, unusually in the land of FP7, written in clear and succinct language without the use of jargon. However, the documents (and the ProGReSS project itself) focuses on the concept of 'societal acceptability' as one of the key themes of Responsible Research and Innovation.

Thanks for sending your two industry deliverables. They are both excellent and some of the best things I have seen coming out of FP7 RRI projects to date - congratulations to you and the team.

Hilary Sutcliffe.

I have always been apprehensive of making this the central tenet of RRI because though it works well in relation to publicly funded research it

has much less resonance in one key area - the business community.

Businesses will say - "What else do we do all day, but seek to launch societally desirable products, without that focus we would have no customers!"

Many businesses undertake significant amounts of market research, which could also be called, 'public dialogue' asking people what they think about an issue or a problem, the solution that the company has proposed and asking their views on all aspects of the product before launching it to ensure it is as 'societally desirable' as it can be.

Much of the debate about societal desirability is about 'who decides whether an innovation is desirable'.

In the commercial world of business, one could argue that the public decides, because if it is not societally desirable it will not sell. How does this decision process work? Either through the purse, i.e. the ability to purchase the product (or leave it on the shelf), or through the above mentioned 'public dialogue' or market research.

1. Societal desirability allows for 'business as usual' very comfortably

Bringing the concerns of stakeholders to businesses is an important task and one that I have been involved in for many years. In this process of co-operation and liaison, a discussion about developing 'societally desirable' products is not a problem which will resonate. On the contrary, it could allow them to think, 'this is about governments and not about us'.

What I am working on in the business context is **helping businesses consider their responsibilities in terms of their innovation strategy, the processes of R&D and the innovative products**

they bring to market. This includes their responsibility for social and ethical issues and the wider impacts of their products on the environment and human health. We aim to inspire and motivate companies to consider these issues as a fundamental part of *the way they innovate. This is not far away from the 'corporate responsibility' and 'sustainability' agendas, where such issues are widely discussed, but they are rarely applied in the context of their innovations.*

We want them to consider how they can innovate sustainably, perhaps leapfrogging incremental improvements to develop transformational approaches which as well as being profitable address sustainability goals.

There are probably two or three definitions of Responsible Innovation around. I use an adaptation of the Gro Harlem Brundtland (former Prime Minister of Norway, former Director General of the World Health Organisation, currently Special UN Envoy on Climate Change) definition for sustainable development:

"Responsible innovation is innovation that helps fulfil our needs and hopes without compromising the ability of others, now and in the future, to fulfil their own"

If businesses, in their efforts to innovate responsibly, concentrate on 'societal desirability' rather than 'sustainability', which is the focus of the above definition, business as usual can very continue comfortably. Besides, there is an additional complication. Societal responsibility in innovation may open up a new conversation.

2. Social desirability is in the eye of the beholder

We undertook a pilot consultation on what 'irresponsible innovation' means. Most of the responses we

received focused on innovations which started life as a responsible undertaking and then something went wrong. Some people think that genetically modified (GM) crops are the height of responsibility. For others, GM is the epitome of irresponsibility. Biofuels, carbon offsets, stem cell research, fracking, palm oil and sub-prime mortgages are all examples where agreement cannot be achieved on whether these innovations are responsible or not. The key aspect of Responsible Innovation is that **responsibility, including societal desirability, is in the eye of the beholder.**

Baroness Onora O'Neill said that, to address problems of trust, organisations should, "[first, be trustworthy, second, provide others with evidence of your trustworthiness](#)". I agree. The issue for responsibility in innovation is primarily one of demonstrating the trustworthiness of the process and products of innovation through a focus on societal benefit, good governance, including anticipatory risk assessment, rigorous health, safety and environmental testing, stakeholder involvement, and consideration of the impacts of the innovation on society.

Sustainability is therefore clearly relevant to Responsible Innovation. The focus of societal desirability is less easily envisaged in relation to consumer products. What does it mean in relation to washing powder? Cosmetics? Medicines? Energy sources? It looks as though we might need another definition for Responsible Innovation, at least in the business context; a definition that encompasses all the notions across the innovation landscape, but I do not know what it is yet!

Personally I do not like the term 'responsible' - far too worthy and focused on the risks rather than the opportunities for innovation. The term 'sustainable' leans too much towards just the environment without seeming to consider social and ethical issues as central. Let us hope that the EU-

funded RRI projects can come up with something better!

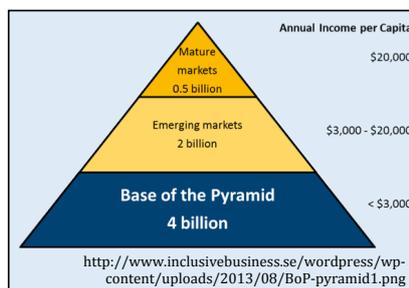
RESPONSE FROM DORIS SCHROEDER, CO-ORDINATOR OF PROGRESS



Thanks a lot to Hilary Sutcliffe, who is such a central figure in the Responsible Innovation dialogue in

Europe, for taking the time to read our Deliverables carefully and to formulate an excellent response.

Yes, businesses' response to the "societal desirability" criterion might very well be that they do produce societally desirable products, otherwise they would go out of business. But to stay in business, it suffices to produce goods that appeal to the upper third of the socio-economic pyramid, or possibly satisfy consumer demands in emerging markets (see figure below). Businesses can ignore the 4 million people at the bottom of the economic pyramid quite comfortably. But why should a definition of Responsible Research and Innovation do the same? **Why should a definition that deals with ethics and responsibility ignore more than half the world's population?**



Article 27 (1) of the *Universal Declaration of Human Rights* says that "Everyone has the right ... to share in scientific advancement and its benefits." Is it solely the task of governments to secure this right for citizens or do businesses have a role

to play? In the medical context, it has been accepted widely that pharmaceutical companies have a role to play. For instance, the UN Millennium Goal 8 Target 4 ("In cooperation with pharmaceutical companies, provide access to affordable essential drugs in developing countries") is directed at businesses not governments.

This still leaves the question of 'who decides what is societally desirable?', which was rightly singled out. The good news is that one does not have to answer this question for every single innovation. As Hilary rightly said, societal desirability is a more credible demand when using tax payers' money for research. Being guided by the Grand Challenges of humankind (e.g. climate change, extreme poverty) is one way of deciding.

To modify Gro Harlem Brundtland's definition for the RRI context is an excellent idea. This definition considers even future generations. One would then hope that an RRI definition would consider everybody who lives today, as Article 27 does. **Perhaps we cannot agree on a short, punchy and single definition of RRI then.** To avoid irresponsible innovation through public dialogue requires different tools for businesses than for businesses to contribute to achieving Article 27, or UN Millennium Goal 8. One would hope that there is room for both, for a global perspective of RRI, which designs a framework for research and innovation that is linked to citizen's needs and humanity's challenges and for a European (or affluent country) perspective of RRI, which ensures that new emerging technologies are accepted by society and do not damage the prospects of future generations. The former would be pushed more strongly through publicly funded research, whilst the latter is relevant to all research and innovation; but categorically dividing the two will hopefully not be necessary.

Recent publications

Cimoli, M., Dosi, G., Maskus, K.E., Okediji, R.L., Reichman, J.H. (eds.). (2014). *Intellectual Property Rights: Legal and Economic Challenges for Development*. Oxford University Press. May 2014/2014.

Gilbert, N., Ahrweiler, P., Pyka, A. (eds.). (2014). *Simulating Knowledge Dynamics in Innovation Networks*. Springer: Heidelberg/New York.

Morrison, J. (2014). *Social License: How to Keep Your Organization Legitimate*. Palgrave Macmillan.

van Est, R., Walhout, B., Brom, F. (2012). *Risk and Technology Assessment*, in Roeser, S., Hillerbrand, R., Sandin, P., Peterson, M. (eds.). (2012). *Handbook of Risk Theory*, pp. 1067-1091. Springer Netherlands.

Hin, G., Haudebault, D., Raskin, K., Bouché, Pavie, X., Carthy, D. (2014). *Introduction to Responsible Innovation Criteria, a guide to entrepreneurs and innovation support organizations*. KARIM EU funded project, downloadable at goo.gl/L2SEZY

EUROSCIENTIST (2014). *Special Issue on Responsible Research and Innovation*.

More info at:

http://www.euroscientist.com/special-issue-rri-overview-print-edition/?utm_source=feedburner&utm_medium=feed&utm_campaign=Feed%3A+EuroscientistFeed+%28EuroScientist%29

European Commission General for Taxation and Customs. (2014).

Union Tax reforms in EU Member States. Tax policy challenges for economic growth and fiscal sustainability, 2014 Report, downloadable at http://ec.europa.eu/taxation_customs/resources/documents/taxation/gen_info/economic_analysis/tax_papers/taxation_paper_48.pdf

Proceedings from the PACITA 2013 Conference

Pdf file downloadable at

<http://pacita.strast.cz/en/outputs/outputs-list/proceedings-from-the-pacita-2013-conference-in-prague>

Jones, R. (2014). *Can innovation ever be responsible? Is it ever irresponsible not to innovate? Lecture at the launch of UCL new centre for Responsible Research and Innovation*. Pdf accessible at

http://www.softmachines.org/wordpress/wp-content/uploads/2014/11/responsibleinnovation_UCLNov14.pdf

Something to watch

“Health and education are as essential for economic growth as anything else, without health and education you cannot sustain development”, Africa International Forum 2014.

David Guston, *The Case for Responsible Innovation* - <http://tinyurl.com/l6eomr8>

Innovation Union, *The Future is Science* - <http://tinyurl.com/orf8xoo>

Sustainable Investing, *Five Videos to Watch* - <http://tinyurl.com/opw5kuz>

The OECD Development Center, *Africa International Forum 2014* -

<http://www.youtube.com/watch?v=ib57YABn7E&feature=youtu.be&a>

Upcoming events

Reported below, some highlights from the RRI related upcoming events list also available at the ProGReSS project Events page: <http://www.progressproject.eu/category/events/>

Responsible Innovation – exploring the interface of ethics, society and technological innovations, DelftX, November, 2014

Registration are still open for the Delft University of Technology on-line course on Responsible Innovation! This course discusses the concept of responsible innovation, its meaning and its significance by addressing the societal implications of new technologies and showing how we might incorporate ethical considerations into technical innovations.

More info: <https://www.edx.org/course/responsible-innovation-delftx-ri101x#U-8YW0ipXLD>

Transferring knowledge into solutions: Africa-EU policies for innovation systems addressing societal challenges, Entebbe, November 24-25, 2014.

Uganda's National Council for Science and Technology (UNCST), a CAAST-Net Plus partner, is hosting the first CAAST-Net Plus stakeholder forum. "The forum will focus on identifying viable policy options and mechanisms for transferring knowledge into solutions that synergistically address the global challenges of health, climate change and food and nutrition security," says UNCST Assistant Executive Secretary, Ismail Barugahara.

More info: <http://caast-net-plus.org/object/news/994>

EURAM, the 15th European Academy of Management annual conference, WARSAW, June 17-25, 2015

2015 EURAM edition includes a track on Responsible Innovation (track T_01-06) focusing among other topics on the characteristics and implications barriers of RI in the business context. A special issue of Journal of Responsible Innovation will be published based on a selection of the presented papers. Submission will be accepted from DECEMBER 1st 2014 till JANUARY 13th 2015.

More info: <http://euram-online.org/conference/2015/>

IST-Africa 2015, Lilongwe, MALAWI, May 05-08, 2015

IST-Africa 2015 will bring together senior representatives from leading commercial, government and research organisations from Africa and Europe, to bridge the Digital Divide by sharing knowledge, experience, lessons learnt and good practice and discussing policy related issues. The event is part of the IST-Africa Initiative, which is supported by the European Commission under the ICT Theme of the 7th Framework Programme. The open Call for Papers closes on 12 December 2014.

More info: <http://www.ist-africa.org/Conference2015/default.asp?page=c4p>

International Symposium on Sustainable Systems and Technology (ISSST), Dearborn, MI (USA), May 18-20, 2015

The International Symposium on Sustainable Systems and Technology (ISSST) is the premier conference for research related to the sustainability of science and technology systems. The program covers the spectrum of issues for assessing and managing products and services across their life cycle, and the design, management, and policy implications of sustainable engineered systems and technologies.

More info: <http://issst2015.net/>

STEPS Centre Summer School, Brighton UK, May 11-22, 2015

Applications are now open for STEPS 2015 Summer School, to be held from 11-22 May at the Institute of Development Studies in Brighton, UK. The application form will close at 5pm GMT on Wednesday 28 January 2015. The STEPS Centre Summer School on pathways to sustainability aims to bring together an exceptional group of people who are exploring and developing ideas on pathways to sustainability.

More info: <http://steps-centre.org/about/steps-summer-school/>

Associated Projects

ProGReSS is associated with the Group of Six (Go6) RRI projects, recently launched FP7 Science in Society projects dealing with Responsible Research and Innovation (RRI) Governance. Together, we make up a critical mass of researchers taking forward RRI Governance in Europe, and beyond.

Res-AGorA: <http://res-agera.eu/news/>

RESPONSIBILITY: <http://responsibility-ri.eu/?lang=en>

GREAT: <http://www.great-project.eu/>

Responsible-Industry: <http://www.responsible-industry.eu/>

RRI Tools: http://www.ecsite.eu/activities_and_resources/projects/rri-tools

Project summary

Delivering European renewal relies heavily on the advancement of Responsible Research and Innovation (RRI) - that is, research and innovation which:

- is ethically acceptable,
- is sustainable by avoiding significant adverse effects, and
- drives towards the common good, i.e. societal desirability.

Especially the third aspect - societal desirability - is an underexplored aspect of RRI and it is the aim of the project to develop a strategy for fostering the convergence of regional innovation systems at the global level. The project aims to advocate a European normative model for RRI globally, using constitutional values as a driver to inform societal desirability.

ProGReSS concentrates on the underexplored and least converging part of RRI, namely achieving societal desirability. The project will link existing international

networks of RRI from all continents with European partners and societal actors to achieve the following objectives:

1. Link existing international networks of RRI with relevant societal actors on a global scale to focus innovation on societal desirability.
2. Complete a major fact-finding mission comparing science funding strategies and innovation policies in Europe, the US, China, Japan, India, Australia, and South Africa.
3. Advocate a European normative model for RRI globally, using constitutional values as a driver to inform societal desirability.
4. Develop a strategy for fostering the convergence of regional innovation systems at the global level.

WORK PACKAGES	KEY OBJECTIVES
WP1: Management	To ensure the smooth and effective running of the project in order to achieve the main objectives.
WP2: Innovation Systems	To ensure that the network’s deliberations and outputs are informed by and compatible with cutting edge research on innovation systems
WP3: Innovation for Society	Complete a major fact-finding mission comparing science funding strategies and innovation policies in Europe, the US, China, Japan, India, Australia and South Africa.
WP4: Outreach	To ensure that industry and end-user views are taken into account in the convergence roadmap.
WP5: Case Studies	To provide input to deliberations from three case studies with practical relevance for the notion of and the need for responsible research and innovation (RRI).
WP6: Dissemination	To communicate widely the findings and outcomes of the project while allowing stakeholders and policy makers to inject their perspective into the project.
WP7: Convergence roadmap	Develop a strategy for fostering the convergence of regional innovation systems at the global level.

ProGReSS consortium



Centre for Professional Ethics
University of Central Lancashire, (Uclan)
<http://www.uclan.ac.uk/>



Centre for Applied Philosophy
and Public Ethics (CAPPE)
Charles Sturt University (CSU)
<http://www.cappe.edu.au/>



TecNALIA Research & Innovation (TRI)
<http://www.tecnalia.com/>



Environmental Evaluation Unit (EEU)
University of Cape Town (UCT)
<http://www.eeu.org.za/>



Science & Technology Studies
Europäische Akademie (EA)
<http://www.ea-aw.org/>



South African San Institute (SASI)
<http://www.sasi.org.za/>



Institute of World Economics & Politics (IWEP)
Chinese Academy of Social Sciences (CASS)
<http://en.iwep.org.cn/>



Research and Information System
for Developing Countries (RIS)
<http://www.ris.org.in/>



Center for the Study of Ethics
in the Professions (CSEP)
Illinois Institute of Technology (IIT)
<http://ethics.iit.edu/>



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