Principles for Responsible Innovation

Building the trustworthiness of innovation

Consultation Draft

January 2016
Summary

What is Responsible Innovation about?

New technologies and innovations can, potentially, help solve some of the problems of our age or just give us some interesting new products. They might also bring with them new challenges. History shows that innovation often brings winners and losers, or divides opinion - what some consider a great breakthrough, others view as a disastrous development. Who’s responsibility is what in these complex areas is very difficult to navigate.

The aim of Responsible Innovation (RRI) is to stimulate the use of these powerful technologies for social benefit, whilst also being much more mindful than previously about the wider social, ethical, environmental, cultural or economic impacts that come with them. But because each area of innovation is different (eg a technology like biotech has different issues to nanotech; or innovations like Drones different to phones for example), Responsible Innovation doesn’t seek to dictate what issues are or are not important. It focuses on helping people consider what is understood as ‘responsible’ in their own area, and what new behaviours are required to embed this new ‘responsive’ approach into research and innovation strategy.

What are these Principles for Responsible Innovation for?

1. Inspire a ‘race to the top’ mentality for social innovation
   We would like to use the debate they inspire to stimulate a ‘race to the top’ mentality, to motivate companies, and research institutions to think in more transformative ways about research and innovation, whilst also considering more carefully the positive and negative impacts of the fruits of their labours. In addition we hope to open a conversation with policy makers, research funders and NGOs about the impact their behaviours have on the ability of these institutions to embed responsibility in their vision and practices.

2. Provide a framework to help build trustworthiness & confidence
   Organisations have told us they would like a common framework to help understand what Responsible Innovation means for them and ‘how to do it’. These Principles give what we believe are the four critical areas for organisations to consider and some pointers about the processes which may help them understand the particular issues are important to them, together with some ideas of desirable behaviours.

What does Responsible Innovation look like?

We have decided not to use a one-line definition, (though here are the most common ones) but consider what RRI might look like if it was embedded in society and working well.

1. The deliberate focus of research & the products of innovation to achieve a social or environmental benefit.
2. Which assesses and effectively prioritises the social, ethical, environmental and cultural impacts, risks and opportunities, both now and in the future, alongside the technical and commercial.
3. Involves the consistent, ongoing involvement of society, from beginning to end of the innovation process, including the public & non-governmental groups, who are themselves mindful of the public good.
4. Where oversight mechanisms are better able to anticipate and manage problems and opportunities and which are also able to adapt and respond effectively to changing knowledge and circumstances.
5. Where openness and transparency are an integral component of the research and innovation process.
Why is it important now?
Innovation as the critical driver of future prosperity

Virtually all business sectors cite innovation as a primary route to their future prosperity - ⅔ of companies in a recent EU Innovation Barometer survey have introduced at least one innovation in the last 3 years.

Governments too see innovation as providing the route to improved growth and prosperity, with most countries having plans to stimulate innovation in both companies and the public sector. For Europe as a whole, the ‘Innovation Union’ project (‘an action packed initiative for an innovation-friendly Europe’) trumpets innovation as ‘...our best option to get the European Economy back on track’. An ‘Innovation Union Scoreboard’ tracks a broad range of innovation indicators including R&D expenditure, patents, business innovation and educational standards and aim at helping countries work out their strengths and weaknesses to promote future growth directions.

…but it’s complicated

Competitiveness has many strands
The World Economic Forum Global Competitiveness Report of 2014 cites ‘Technology Readiness’ (the agility of the society to adopt technology to enhance productivity) and ‘Innovation’ (the ability to realise R&D gains) as key pillars of a country’s competitiveness, though they also cite the importance of the interconnection of these metrics. A focus on just one aspect of innovation is not enough, a more rounded approach is needed.

Global trends provide new risks & opportunities for innovators
The direction of innovation is also stimulated not just by perceived commercial or social opportunities, but by new risks and changing trends in societal attitudes. The World Economic Forum Global Risks Report catalogues annually the key areas which are of most concern to leaders of business, government and civil society globally. Shown below are the underlying trends which underpin the 2016 risks and demonstrate a changing landscape for researchers and innovators which provide interesting opportunities and new risks:

<table>
<thead>
<tr>
<th></th>
<th>Ageing population</th>
<th></th>
<th>8</th>
<th>Rise of chronic diseases</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Changing landscape of international governance</td>
<td></td>
<td>9</td>
<td>Rise of cyber dependency</td>
</tr>
<tr>
<td>3</td>
<td>Climate change</td>
<td></td>
<td>10</td>
<td>Rise of geographic mobility</td>
</tr>
<tr>
<td>4</td>
<td>Environmental degradation</td>
<td></td>
<td>11</td>
<td>Rising income &amp; wealth disparity</td>
</tr>
<tr>
<td>5</td>
<td>Growing middle class in emerging economies</td>
<td></td>
<td>12</td>
<td>Shifts in power</td>
</tr>
<tr>
<td>6</td>
<td>Increasing national sentiment</td>
<td></td>
<td>13</td>
<td>Urbanisation</td>
</tr>
<tr>
<td>7</td>
<td>Increasing polarisation of societies</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The responsibilities associated with the rapidly changing innovation landscape was also highlighted at the World Economic Forum 2016 meeting of the great and the good at Davos around theme of ‘mastering’ this ‘Fourth Industrial Revolution’. The themes of Responsible Innovation - technology for empowerment, focus on societal benefit, wider understanding of risk and citizen involvement are at the heart of how businesses and research organisations are urged to respond.
Business is now more complicated
Globalisation is increasing competition for players of all sizes. Even relatively small companies are seeing a need to cater for varying preferences and value sets; offer a variety of options, sizes, which is dictating a need for flexibility which adds another dimension of complexity to the picture.

“Rather than thinking of a primary national market broken into three to five value segments, tomorrow’s strategist must comprehend a world where offerings may vary by city within a country, as well as by distribution channel and demographic segment, with ageing and income inequality necessitating increasingly diverse approaches.”

Society is more assertive, less forgiving
Add to the picture the increasing erosion of trust between society and institutions, with quite pronounced variations in expectation and trust in business worldwide⁴ - and European countries the least trusting of their own governments and business⁵ - and the job of an innovator is made still more complicated.

Our own analysis of recent public dialogues⁶, together with the most recent Edelman Trust Barometer 2015 special report on Trust and Innovation in Business⁷ shows that citizens feel that the pace of development and change in business is too fast by a 2-1 margin. But also that stakeholders and the public are often sceptical about the motivations of all groups - for example (our text) - governments “are they so busy trying to curry favour with business they’ll let profit trump safety?”; businesses - “are they just trying to part me from my money - where’s the benefit to society?”; it is even true of scientists, who are among the most trusted - “are they doing it for the accolades, just to prove they can?”

The influence of ‘society’ is increasing all the time, from the impact of public disapproval - such as the varied reactions in different countries to fracking, GM plants, nuclear power - to the impact of their approval - the adoption of mobile phones, the rise of organics, science in cosmetics, the ‘medicalisation’ of food and the growing public involvement in many countries in the shaping and delivery of public services.

The visibility of societal trust and distrust in all institutions is now amplified by the proliferation of social media outlets and mainstream media attention making today’s concerns more present to policy makers and business and escalating concerns among citizens themselves. Where societal dissent previously had to be expressed by direct actions, it was therefore easier to ignore those naturally smaller numbers than now, when critics can be galvanised in their millions in a matter of hours.

The **World Economic Forum Global Risk Report** outlines the significant impact of the ‘(Dis)empowered citizen’ on global stability and connection of empowerment and disempowerment with the trends and risks it raises and the ability of governments and businesses to respond in an effective and timely manner.

**Values clashes, conflicting priorities and trade offs are here to stay**
One of the defining characteristics of this more volatile innovation landscape is this diversity of views, which may often be irreconcilable. Though many don’t care either way, for some a certain technological solution is a great breakthrough and a sign of progress, for others it is an affront to their values and the things they hold dear - the genetic modification of plants is the classic case. The use of social media and the still important influence of the NGO or civil society organisation, often helps to amplify one perspective over another, while industry silence and the confrontational approach of some politicians does little to inspire trust.
What is galling to many is that the very innovations that some consider irresponsible\(^8\) e.g. biofuels\(^9\), palm oil, GM, nuclear power often started their life as someone’s view of a responsible solution to a difficult problem. They become viewed as irresponsible because of unforeseen (perhaps only by some) or unknowable consequences which are only subsequently identified. Similarly conflicts in priorities may result in an unpopular trade off - such as balancing low energy bills, sustainable supply and decarbonisation which may be behind decisions on renewables vs fracking or nuclear power. Or disagreement about impacts, effectiveness, risk or governance drive both positive and negative responses - eg ICT, organics, food irradiation, nanotechnology, synthetic biology and robotics. These fast moving issues, often with no clear ‘right thing to do’ adds a layer of complexity to doing business which is relatively new.

We believe that attention to the processes and behaviours outlined in these Principles is the best way organisations have of underpinning their innovation processes to build the trustworthiness of their approach and the confidence of stakeholders in their innovative products and services.

**It’s tough in the spotlight - but ‘default to silence’ doesn’t help**

As social media amplifies public scrutiny it puts politicians, business leaders and even academic researchers right in the spotlight. Expectations about increased transparency mean many are unused to and unprepared for this level of scrutiny about their use of technology and R&D activities. They find it tough to respond effectively to the increasing cacophony of different, sometimes conflicting, voices focused on them and their policies, organisations or products. It’s genuinely difficult to make decisions in this context, with few clear paths to consensus and seemingly always disappointing at least one vocal group of important stakeholders who make their concerns abundantly clear to the world.

However, the current ‘default to silence’ approach\(^10\) to the use of many emerging technologies may have worked in the past, but increasingly seems to be the very least helpful strategy. Not simply because it fails to answer the questions of those with concerns, but because it makes business to business customers nervous, governments and NGOs suspicious, and reduces confidence in a technology.

Our business-led project ‘**Building Confidence in New Technologies - what stakeholders expect and how companies can respond**’ explores the information and communications expectations of investors, NGOs, retail buyers and the public. Though initially there was much concern about the disclosure of competitiveness issues the project found that there was much common ground about expectations, with a focus on veracity of health, safety and environmental impacts and a focus on social, not just commercial benefit.

**‘Trust is not a message, it’s an outcome’**\(^11\)

The focus of RRI is building the trustworthiness of technology innovation and, as the Practitioners Guide 2016 from the European Industrial Research Management Association suggests\(^12\) it “**asks industry to be more broadly accountable for the consequences of the innovation it undertakes**’. This document is about helping individuals and organisations work with their stakeholders to deliver research and innovations which benefits society, without causing more problems than they solve.

---

\(^8\) irresponsible

\(^9\) biofuels

\(^10\) default to silence

\(^11\) Trust is not a message, it’s an outcome

\(^12\) asks industry to be more broadly accountable for the consequences of the innovation it undertakes

“…new technologies, such as the Internet or emerging innovations will not bear fruit if regulatory mechanisms at the international and national levels cannot be agreed upon.”

WEF 2015 Risk Report - forward Dr Klaus Schwab.
History of the initiative

- Initially developed by multi-stakeholder steering group and wide consultation process in UK, EU & US in 2006-8 as The Responsible Nano Code - designed for businesses using nanotechnologies
- Funding constraints meant no infrastructure to promote, though adopted by Nano Industry Association, a project partner
- It soon became clear that the issues were common to all innovations, particularly technology innovation. Responsible Research and Innovation as a term become more widely used
- 2014/15 Re drafted and consultation on Principles for Responsible Innovation began (unfunded). Principles honed from 8 to 4. Broadening potential audience to research institutions and business.
- Future? Depends on interest and funding!
Principle One

Research and Innovation for social value

Research & innovation which considers value in a more holistic way - considering social, ethical, environmental, cultural & economic benefit.

‘How great to be here, now. Doing more with less is a great stimulus for innovation – we are at the start of what will be a glorious age’

James Dyson, entrepreneur

Why are you doing this? Who will benefit? Is it worth it?

Public views expressed in Food Standards Agency Citizen’s Forums on Nanotechnology & Food

“We need a much richer picture of the benefit over other options – not just sales patter”

Civil Society Group

“Is it just about profit? Or the fun of new science?”

Concerns expressed in various public consultations on new technologies

“Innovation is society in the making.”

Pierre-Benoît JOLY
Senior Research Fellow INRA/SenS and IFRIS, Paris

What are the benefits?

“Innovation is society in the making.”

Is it just about profit? Or the fun of new science?

Concerns expressed in various public consultations on new technologies

“We’re fed up of fighting my way through impenetrable science from companies to find the benefit to my customer.”

Retail technology specialist

“Please don’t bring us pointless products using a technology for the sake of it, which doesn’t bring a benefit and where you clearly haven’t thought through the risks. But do use new technologies to solve some of the big problems we all face in a way which offers real benefits and is safe to use – we are desperate for those.”

Retailer

“Please don’t bring us pointless products using a technology for the sake of it, which doesn’t bring a benefit and where you clearly haven’t thought through the risks. But do use new technologies to solve some of the big problems we all face in a way which offers real benefits and is safe to use – we are desperate for those.”

Retailer
Key questions about benefit:

(NB: Whilst benefit is usually promoted, it is often the scientific, technical or commercial benefit, not the social, environmental benefit which is the starting point for innovation)

○ What problem exists in the world which our research/technology/product area can contribute to improving on?
○ How could our research/technology/product innovation contribute to a better world (socially, environmentally, economically)
○ Do others agree with the problem and the solution? Will all stakeholders consider this a benefit - or may others disagree?
○ What is the robust science or evidence behind these benefit claims? How have we substantiated benefit and effectiveness claims?

Behaviours which may demonstrate responsibility:

○ Stated innovation aspirations and strategy begins with social and environmental problem solving, not simply academic or commercial goals.
○ More rounded Benefit Assessment and mapping processes are used to generate a deeper understanding benefit in relation to current or alternative solutions
○ Benefit and effectiveness claims are evaluated and underpinned by clear evidence - using science, social science and stakeholder involvement to demonstrate benefit parameters and residual concerns
○ Processes which involve wider groups of stakeholders are undertaken. These may be to co-create solutions with stakeholders, to listen to their views or to explore any concerns they may have.
Principle Two
Explore potential impacts

Consider, assesses and effectively prioritise the potential social, ethical, environmental, cultural and economic implications and impacts - in use & misuse, from research to reuse

“They all probably have it under control, but we don’t know what they are doing, so can’t factor either confidence or risk into our analysis.”

Investor at MATTER event

“No-one expects individual companies to necessarily do it alone. But potential problems need thinking about together with competitors, retailers and other potentially other industries”

Retail technology specialist

“In every act of creation and innovation there exists the potential, also, for our undoing.”

Lord Robert Winston
“Bad Ideas; an arresting history of our inventions”

“Will profit trump safety? What’s the system for managing risks?”

Concern expressed by members of the public in dialogues

“Are their wider social, ethical, environmental, cultural or economic impacts?”

“We want to hear about how they are thinking about the wider implications of what they do”

Institutional investor

“If we don’t factor in the politics we have nothing. This goes to the heart of governance”

Policy maker MATTER consultation

“What about the social impacts - who will it affect? Who will it advantage or disadvantage?”

Civil Society Group

“We want to know companies have anticipated risks. Acting as if they don’t exist is unhelpful.”

Institutional investor
Key questions about impact:

**NB:** In some areas of innovation a single organisation will not be able to address some of these key issues alone. The responsibility to consider and address these may lie with all stakeholders, including companies, governments, shareholders, NGOs, consumer groups, academics, business associations, media and the general public. The aim of this principle is to stimulate organisations to consider what part they may play and how they may engage with others to develop appropriate responses to important issues.

- How can we understand the potential social, ethical, environmental, cultural & economic risks, impacts and influences of our research or innovation?
- Who do we need to involve, and how, to get a clear picture?
- What can we do ourselves to mitigate negative impacts, what needs the help of others?
- What can we do to positively influence greater responsibility in others?
- What metrics can we use to evaluate our performance and demonstrate trustworthiness?
- What do we do if some people don’t support or agree with our assessment of benefit, risk and impact and our understanding of our responsibility and responses?
- How is new knowledge factored in to our processes and the design of final products?
- What are we doing to monitor that this is still the case with the innovation in use in society?

Behaviours which demonstrate responsibility:

- Process design which includes collaborative initiatives - partnerships and community or charitable projects or stakeholder involvement - that specifically considers wider impacts
- Openness about results of such collaborations and priorities and decision making in this regard
- Development of evaluation processes or impact metrics
- Clear commitments on EHS and wider impacts arising from impact assessment processes
- Ongoing, ‘self-critical’ monitoring programmes of innovation in use
“Investors need to ask more of companies about the long term technological changes that could affect them and what they are doing to combat/embrace these changes. We hope companies respond with a more open and strategic approach”

Institutional investor

“The values, concerns and issues raised by stakeholders are respected and responded to and they are proactively involved in the innovation process and its governance. They are themselves mindful of the public good.”

Principle Three
Involvement of stakeholders

Communication and stakeholder involvement

“Investors need to ask more of companies about the long term technological changes that could affect them and what they are doing to combat/embrace these changes. We hope companies respond with a more open and strategic approach”

Institutional investor

The vision for the project and its intended outcomes shift. The limitations of narrow thinking and pet assumptions may be challenged or revealed. The improvement work to be done will be on a better track and people involved more confident in the benefits.

7 things involving patients brings (in developing solutions) - David Gilbert

“Patients often have the guts, insight, imagination and freedom from institutionally limited thinking to ask ‘what if...’? They also widen the array of options for improvement and change.

7 things involving patients brings (in developing solutions) - David Gilbert

“I think they are scared to talk about it, because they are worried we will react badly,” explained one. “But it could provide the key to some of the future value for the company, so we really want to know how these technologies can help them.”

Investor

“We need a better understanding about the HSE testing companies do - or don’t do - before bringing products to the market”

Civil Society Group
Key questions about stakeholder involvement…

- Who are the stakeholders in relation to the research or innovation process?
- How do we involve them, including critics, in exploring the issues of benefit, risk and governance with us?
- How do we ensure that our stakeholder involvement processes are free of jargon, technical or specialist language, patronising phrases or sales language? Where this is essential, how are we clarifying meaning?
- How will we respond effectively to their concerns?
- What do they want to know about our research and innovation in use?
- What if they don’t agree with us or each other - what is our strategy?
- What impact have they had on our research and innovation processes and outcomes?

Stakeholder involvement can take many forms for many purposes. The aim is to positively influence the research and innovation outcomes

- How do we demonstrate the trustworthiness of this process?

Behaviours which demonstrate responsibility

- A clear stakeholder mapping and involvement strategy & plan
- Stakeholder involvement processes at key stages in the research and innovation process
- Demonstration that stakeholder concerns and considerations have been considered and responded to in the research and development process
- Continued responsiveness to stakeholders in governance and through monitoring of the innovation in use and beyond
**Principle Four**

**Governance and transparency**

Demonstrating trustworthiness is at the heart of governance. Oversight mechanisms anticipate and effectively manage opportunities and problems and can be made to adapt and respond quickly to changing knowledge and circumstances.

"..the slightly plaintive question ‘How can we restore trust?’ is on everyone’s lips. The answer is pretty obvious. First: be trustworthy. Second: provide others with good evidence that you are trustworthy.”

Baroness Onora O’Neill

"We are sympathetic with worries about competitiveness, but how can we trust unsubstantiated assertions we can’t verify?"

Civil Society Group

"Show your workings - it’s like Year 5 Maths - it’s not enough just to come up with the answer, you need to show how you got there to give us confidence that you know what you are doing!"

Corporate Transparency & Year 5 Maths Blog post Hilary Sutcliffe

“Trust is not a message, it’s an outcome”

Robert Philips, Jericho Chambers
Key questions about Governance and Transparency

NB: Companies are particularly concerned about the impact on competitiveness of transparency initiatives. Our consultation among stakeholders exploring ‘What’s fair to ask, what’s fair to share’ found that though there were differences, the gap in expectations of stakeholders and willingness of companies to share information was not as wide as many expected. In addition anecdotal evidence talking to all types of organisation shows that a more daring approach to innovation has paid off for them in terms of reputational effect and trust of stakeholders, including policy makers.

- How do we demonstrate the trustworthiness of our approach and processes?
- How are internal stakeholders empowered to contribute to governance of innovation? EG: what support mechanisms, incentives, training, access to information, time & space for reflection, communications and leadership do we provide to help them embed these commitments?
- What do our external stakeholders expect of us in governance and transparency? What is the evidence and how do we respond and how do we manage conflicts?
- How do external systems of governance and law support our aspiration and our approach? How are they a barrier? What is our role in affecting change?
- How can we be bold in using transparency to demonstrate our commitment to Responsible Innovation? What might this entail?

Behaviours which demonstrate responsibility

- Clearly stated commitments to strong governance and transparency
- The senior management team is accountable for managing innovation strategy and for these commitments. They have the necessary understanding and training to allow them to do so effectively.
- Aspirations are backed up by evidence - (Eg may include among others: openness about the use of a technology; sharing negative and positive research findings; Open Access to full research findings; back up of benefit, effectiveness & safety claims with evidence; openness about the priorities around wider impacts; transparency about issues around regulation and lobbying; on pack & owned media communication re RRI etc?)
- Stakeholder involvement processes are undertaken at key stages, including honesty about management of conflicts in stakeholder views and the impact on strategy.
- Ongoing monitoring, with feedback loops, into positive and negative impacts of innovation decisions. These are fed into senior management decision making.
What happens next!

This is a draft of the Principles for Responsible Innovation. Though components of them have been the subject of widespread consultation and it is based on academic and action research of our own, we are now undertaking a widespread consultation to explore whether or not they have a role and if so, in what form.

We also hope to develop further research into ‘Radical Transparency’, what it may encompass and the potential benefits of companies and society.

How you could contribute:

Give us feedback on this document

We are seeking written submissions and hope to be able to hold events to generate stakeholder input. You can contribute either anonymously or formally. Please email your comments on this document to hilary@matterforall.org

Join our ‘Cohort’ of organisations helping refine these Principles

Following the consultation a group of volunteer companies has expressed interest in piloting these Principles and giving us practical feedback on it’s usefulness.

If you are a company and would like to participate in this pilot, or if you are a non-business stakeholder and would like to contribute please contact hilary@matterforall.org

If you are a Funder and would like to support this work, please get in touch.

Development of an Evaluation Framework

An Evaluation Framework has been drafted and will be finalised following the consultation and pilots to help both companies and stakeholders assess the extent to which they are operating according to these Principles.

Evolution to incorporate into existing initiatives

We would also like to consult with those who administer existing frameworks, such as the Global Reporting Initiative, B Corp, Global Compact and others. It is preferable to us that this is not yet another stand alone initiative, but is incorporated into existing good practice. Could you help with that?

Adapt these Principles for others involved in the innovation process

We hope also to develop these principles further, to be applied to other stakeholders, particularly governments, researchers and NGOs.

Who is funding this?

The work on this document and research around it is the culmination of many years work. We are hoping to get further funding to take the principles out to wider consultation and to help pilot the Principles and finalise the Evaluation Framework and undertake a programme of consultation with existing initiatives. If you are a funder or would be interested in co-funding this initiative please email hilary@matterforall.org. Please!
About MATTER

MATTER is a the leading independent think tank working on Responsible Innovation in research, business and policy. We focus on three areas:

- Create collaborative activities which help society, companies and policy makers understand what ‘responsible innovation’ means in real life – how it can act as a catalyst for innovation without shying away from the exploration of where it could cause more problems than it solves.

- Facilitating multi-stakeholder collaborations and debates, usually with companies, policy makers, civil society groups and the general public to help improve innovation, technology development, governance and safety assessment, whilst also ensuring the safe, effective and appropriate use of technology.

- Exploring practical approaches to focus technology on social benefit in a market driven world

About Hilary Sutcliffe

MATTER director Hilary Sutcliffe has been involved in various ways with a number of multi-stakeholder initiatives around emerging technology governance in business, innovation, human rights and corporate responsibility.

She focuses on improving participation in debates about governance and social and ethical issues relating to technology; multi-stakeholder involvement process and connecting people and ideas to create better solutions to complex problems.

Her background is in corporate responsibility, stakeholder involvement and communication for a variety of organisations in the UK and New York.

Hilary sits on the World Economic Forum Global Agenda Council on Nanotechnology; the UK Synthetic Biology Governance Working Group; the University of Sheffield Responsible Innovation Management Group; the External Advisory Board of the Institute of Innovation Research Manchester Business School, University of Manchester.

She was previously a Non-Exec Director of EIRIS (the Ethical Investment Research Service); a member of Amnesty International UK Business Group and involved in the RSA Inquiry Tomorrow’s Company.

Please contact hilary@matterforall.org if you would like to know more about our work
References

1 Robert Winston, Bad Ideas, An arresting history of our Inventions, Transworld Publishing 2010

2 Thanks to many individuals and organisations who have contributed directly to the development of these Principles over the last 10 years, from the initial Responsible Nano Code steering group, to the various EC Framework 7 projects, businesses (particularly Ecover who’s simplification of our Principles for their own purposes (which we were not involved in) was particularly helpful.

3 McKinsey Quarterly 50th Anniversary Edition, Management Intuition for the next 50 years


6 MATTER What does the Public Expect from companies using innovative technologies http://www.matterforall.org/what-does-the-public-expect-from-companies-using-innovative-technologies/


8 MATTER blog on Irresponsible Innovation http://www.matterforall.org/whats-irresponsible-innovation/

9 ResAgora Case Study When ‘responsible’ becomes ‘irresponsible’: biofuels in the USA and Brazil http://res-agora.eu/assets/MIOIR-1-Stage-1.pdf

10 Consultation by MATTER for CEFIC Foresight Study on Governance of New Technologies publication 2015

11 Robert Phillips, Jericho Chambers on BBC Radio 4 In Business programme Trust in Me, January 2015
