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Bringing Responsible Innovation to Life

Public hysteria about technology - where's the evidence?

Hilary Sutcliffe - March 2014

Public hysteria about technology - where's the evidence?

It's a widely held view that the public is anti-technology. Attitudes are often described as 'hysterical', 'irrational' and 'emotional'. This week the media reports the European Science Chief, Anne Glover as saying antipathy to GM 'a form of madness'! Some policy makers, scientists and business people have suggested that the public's fear of technology is holding back science, slowing innovation, preventing technologies from reaching their potential.

But what if that's not true? What if an incorrect perception of public views of technology is leading policy makers and businesses to make erroneous judgements about innovation pathways? What if they themselves are negatively affecting the development of specific technologies and applications in response to a public attitude that isn't the reality for the vast majority of people and in anticipation of a backlash that looks unlikely to materialise?

There will always be disagreement about policy directions, it is the nature of a democracy, it happens in every area of life, and will never go away. But as Ann Glover says on BBC Radio 4 programme The Life Scientific her job is to provide evidence on science to help policy makers. It appears to me that policy makers should consider and respond to the *evidence* on public attitudes to contentious areas of science more carefully, rather than rely on their perceptions of what the public thinks to shape their approach.

This brief paper explores why the evidence points to the public having a much more thoughtful and nuanced view of technology than is generally perceived and begins to explore how research and innovation can be better aligned with public's values, views and behaviours.

Public dialogues show interest and support with reasonable caveats

Analysis of 14 of the public dialogues which have been conducted in Europe from around 2005-11 (in areas such as nanotech, stem cells & synthetic biology),[1] showed that the public are far from hysterical and most are interested and excited about how these technologies are being used. They have concerns about safety to people and the environment; about how the technology is being used and desires that it is deployed not just for company profit, but for social benefit.

Pretty much the same concerns that many scientists, policy makers, civil society groups and businesses themselves often have if my work in nanotechnologies is anything to go by.

The most recent UK 2014 Public Attitudes to Science data (14 March 2014[2]) shows that the public in the UK are more positive about science than EU citizens as a whole, with 71% agreeing that 'science and technology makes our lives easier, more comfortable and healthier' against 66% in the EU from the Eurobarometer. The UK is also increasingly more accepting of change than the US and Australia according to MORI Global Trends survey quoted in PAS2014.

It is interesting that despite the dramatic increase in new technologies such as nanotech, ICT, biotech and others, the UK PAS 2014 survey shows that people have become less concerned about the potential harmful effects of science in the last 25 years and less likely to feel that science is making our lives change too fast. This mainly reflects the attitudes of younger generations, though in addition they are more sceptical about benefits of science vs harms, though this does not appear to greatly impact on their support.

Attitudes to GM not 'hysterical' either!

Even attitudes to GM, where it all started, appear to have been misinterpreted.[3] At the height of the initial discussions in the late 1990's and 2000's, research found "*the persistence of a number of entrenched views about the public shared by numerous policy actors which are not supported by our analysis of the views of ordinary citizens as expressed in the focus groups.*" The thoughtful questions about risk, benefit, control and the effectiveness of institutions asked by citizens were rarely, if ever, answered, or answers are given to questions that they are perceived to be asking, (e.g. in relation to lack of understanding of the science) but not actually asking!

The recent interventions in the UK (2013/14) by Environment, Food & Rural Affairs Minister Owen Paterson appear to fall into the same trap. Again the more nuanced questions the public are asking are not being answered and the focus of policy attention is still on perceptions of the risks and deficits of understanding of the science.

Attitudes to GM in 2014 are surprisingly positive, given the decades of furore and seemingly relentless negative focus of media attention. 58% answer yes to the question 'are GM crops necessary to increase food production?' with 20% neutral, and 80% feel that no agricultural technologies should be ruled out to help increase world food production. That's a lot of support for a supposedly taboo technology! It would be interesting to compare these stats with answers to similar blanket questions about public support in other less contentious areas, such as the use of enzymes in washing powder, additives in food or organic farming for example.

The whole concept of the public's roller coaster acceptance of technology, sometimes referred to as the 'wow-yuck trajectory' has been shown to be flawed in relation to GM as well as nanotechnologies; it is likely to also be the case with Food Irradiation also[4]. The idea that the public is excited by technology, (wow), then concerned about social or environmental issues and so turn on the technology to its detriment (yuk) is false; the reality is much more complex, the public much more thoughtful and nuanced in their views and behaviours than is often ascribed to them.

Another pet theory, media hysteria about new technologies driving public attitudes, also bites the dust according to academic research into nanotechnologies. Analysis of media in relation to nano shows no hysteria and in fact an almost sycophantic 'pro-technology' bias according to analysis of media coverage in the EU and US[5]. Anecdotal evidence also suggests that the balance of coverage pro vs anti-GM may also not be quite as polarised as is perceived.

But fear of public backlash steers policy and business behaviour in nano

Nanotechnologies have been widely studied and is the technology we know best, so the examples below are taken from this area, though we believe they provide useful lessons for other technologies and the approach to GM may be comparable in many ways.

In nano there is little evidence of the general public turning away from nanotechnologies, but there is evidence of companies anticipating that they will and acting accordingly.

The recent requirement by the cosmetics directive to include (nano) on the ingredient list of nano-enhanced cosmetics has also been met with no interest or resistance from the public and it appears likely that sales have been unaffected - including those nano branded like Nano Blur, given rave reviews here by the 'techno phobic' Daily Mail!. "*The industry was expecting a deluge of complaints and a huge backlash from the public when the directive came in and readied themselves for the onslaught. The trade association didn't receive one single call.*[6]" There may be reasons other than support or not for nano behind this lack of interest - perhaps labelling on cosmetics is not a 'go to' place for information, as it is with food; or perhaps cosmetic ingredients are pretty incomprehensible to start with so a (nano) addition was barely noticeable. In addition there was little interest from the popular media about the change. However, the mismatch between the perception and reality is still interesting.

In Germany, companies stopped using nano as part of the marketing of some products, in anticipation of a backlash, (but still using the nano component in the product). Research on public responses to this from the German NanoKommission shows that the public concluded that either '*The nano bit didn't work, so they took it out*' or '*There wasn't any nano in there after all and they've been made to take it off the label*.'[7] There appears to be no evidence of sales increase or decrease in relation to one or other strategy, (though no official research has been done).

Civil society stakeholders are unimpressed with this move though, which appears secretive and even suspicious and seems likely to fuel discontent among policy makers and civil society actors about company behaviours in this regard.

Further anecdotal evidence of companies turning away from nano was revealed by our recent consultation[8] in which companies asked ingredient suppliers for alternatives to nano enhancements specifically because of concern about public attitudes. Yet the many public dialogues on nanotechnologies show no evidence of the need for this concern.

This doesn't mean however that there hasn't been concern expressed in these dialogues about some of the safety issues relating to nanotechnology and some high profile interventions from specific groups in certain EU countries raising important issues. But I suggest that the responses of businesses and policy makers have been inappropriate and that a greater focus on the trustworthiness of the system, the products enhanced by nano and the benefits they bring would have been a more constructive response than silence.

What could be the effect of an erroneous perception?

If policy makers and business incorrectly perceive public attitudes to be anti-technology, (a phenomenon described as 'nano phobia phobia'[9] in relation to nanotech by respected academic Professor Ari Rip) - how might that influence their actions differently than if a focus on responding to evidence was the taken?

It is human nature that if our view of the world is threatened, or we feel that our values are being disrespected we respond very differently than to those who's values we feel we share.

This is a simplistic summary, but perhaps this perception of a hostile public in relation to technologies stimulates a series of actions which make things worse. This will hold as true for members of the public or NGOs as it does for policy makers or business where a values clash is at the heart of the issues.

If this is the case, or even only perceived as the case, responses narrow. Simplistically, we might:

(a) initiate a confrontational exchange to illustrate to others the errors of their ways

(b) keep quiet and hope the issue goes away

(c) walk away from the discussion all together rather than become involved in what we perceive as a no-win situation - perceived also perhaps as an abdication of responsibility.

In this area of emerging technologies, the '*confrontational strategy*' appears to further inflame debate and polarise attitudes, reducing the likelihood of a constructive way forward, (like Rt Hon Owen Paterson's recent tirade against his perception of public attitudes to Golden Rice.)

The '*keep quiet*' strategy can result in accusations of secrecy or hypocrisy, again provoking a confrontational exchange. (The apparent secrecy of companies around their use of nanotechnologies has certainly been inflammatory in their relationships with NGOs and policy makers, with as yet uncertain consequences.[10])

The '*walk away*' strategy is unhelpful in making progress in any discussion or action plan. (As with policy makers walking away from using GM or companies walking away from using nanotech rather than engaging with the issues which arise from their use).

But those we feel share our values get a different treatment. We listen to them more, respond more thoughtfully, and even if they disagree markedly with us on some things we can find a way to put that aside and find common ground and move forward.

Is there a lesson here?

What next in relation to new technologies?

- Is there a mismatch between the evidence of what the public feels about the new technologies and the views of policy makers and business? Would further evaluation of the attitudes and responses of policy makers, business and publics be useful?
- There will always be diversity of opinion and a portion of the public and of civil society groups who feel strongly that certain technologies in certain areas should not be used at all. Is responding appropriately to different sets of values even possible where they are so diverse, probably even incompatible? How can it be done more fairly? If it's not possible then what?
- In what way would the trustworthiness of policy, business, civil society & media need to be developed to generate the trust to make this more equitable?
- What opportunities, channels and skills, do policy makers, businesses, civil society groups the media and the public need to listen and respond to each other more effectively?

END

This was prepared by Hilary Sutcliffe to stimulate thinking around the direction work of MATTER in the future. It does not, necessarily, represent the view of MATTER Steering Group, or associates.

Endnotes:

[1] What does the public want to know about company use of new technologies? Analysis of existing public dialogues http://www.matterforall.org/pdf/MATTER-What-does-the-public-want-re-nano-Final.pdf

[2] Public Attitudes to Science 2014 Ipsos Mori for UK Government http://www.ipsos-mori.com/Assets/Docs/Polls/pas-2014-main-report.pdf

[3] Public Perceptions of Agricultural Biotechnologies in Europe 2001
http://www.keine-gentechnik.de/bibliothek/basis/studien/eu_studie_akzeptanz_biotech_011201.pdf

[4] Ari Rip Folk Theories of Nanotechnology, Science as Culture, Vol 15 Dec 2006
http://www.academia.edu/652619/Folk_Theories_of_Nanotechnologists

[5]

Media and nanotechnology

General comparison- US vs non-US
http://www.vtt.fi/inf/pdf/tiedotteet/2010/T2559.pdf

Germany
http://www.bfr.bund.de/cm/350/risk_perception_of_nanotechnology_analysis_of_media_coverage.pdf
See page 103

Austria, Germany, Switzerland comparison
http://www.nanowerk.com/spotlight/spotid=28564.php
http://epub.oeaw.ac.at/ita/nanotrust-dossiers/dossier037en.pdf
Frogheart blog http://www.frogheart.ca/?p=9028

USA

http://www.rsc.org/chemistryworld/News/2011/November/23111102.asp
http://scx.sagepub.com/content/31/2/139.short
http://scholar.harvard.edu/scheufele/publications/food-nanotechnology-news-coverage-patterns-and-thematic-emphases-during-last-

US/UK
http://www.lexology.com/library/detail.aspx?g=956200f2-86fe-4c2f-b05e-5361ec7a849b

Opposite view, no citations, no examples
http://www.nanotech-now.com/columns/?article=333

[6] Conversation with nano industry specialist

[7] Unpublished findings of the German NanoKommission research, anecdotal from consultation component of CEFIC LRI project. LRI-S2-IOM: Foresight study on introduction of new technologies; the case of nanotechnology, To be published May/June 2014

[8]Unpublished findings of the German NanoKommission research, anecdotal from consultation component of CEFIC LRI project. LRI-S2-IOM: Foresight study on introduction of new technologies; the case of nanotechnology, To be published May/June 2014

[9]Unpublished findings of the German NanoKommission research, anecdotal from consultation component of CEFIC LRI project. LRI-S2-IOM: Foresight study on introduction of new technologies; the case of nanotechnology, To be published May/June 2014

Conversations with policy makers and ngos in other circumstances