Trust

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Introduction

Welcome to this special issue of EuroScientist on Trust!

There is no better time to revisit trust issues than during a lingering recession. In such period, trust is put to the most stringent test. And those with the decision making power in the publishing industry, the wider economy, politics and policy have yet to improve their relationship to those they are trying to impress, should they finally be awarded the share of the trust they are courting.

As an attempt to explain the various causes of the ebb and flow of trust, we first explore trust towards academic publishers. Specifically, we look at the attempts by academic publishers to restore trust among the scientific community by offering web-based technologies that offer tangible benefits to researchers. Besides, looking at another facet of the trust equation in publishing, we also focus on the international efforts to get all clinical results to be published—regardless of whether they are positive or negative.

In addition, we focus on the issue of trust towards institutions. A unique testimony from the president of the International Press Association in Brussels gives an account of the intense lobbying taking place there. Further illustrating the point, is an investigative piece exploring how multiple pressures from stakeholders and within the Commission have hampered the regulatory progress towards introducing greater transparency in nanotechnology legislation.

Getting one step closer to society, the issue of public trust in science is also explored. Ortwin Renn, risk guru from the University of Stuttgart, explains how effective risk communication strategies can help restore public trust in many areas of life. This piece is complemented by a perspective on how public perception of science’s ties to economic and political interests leads public mistrust in science.

And finally, don’t miss our editorial, which should give you food for thought to reflect on the nature of trust.

Enjoy reading this special issue and don’t forget to share it!

The EuroScientist team

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Unscientific elements of Trust trivia

By Sabine Louët

Published on EuroScientist: www.euroscientist.com

Everything you always wanted to know about Trust but never dared to ask

Imagine that trust was the object of scientific studies. It would display characteristics that are not always obvious to the naked eye. As one of the most complex aspect of human interactions, it may require a multi-disciplinary approach to uncover its many facets.

From the perspective if a chemist, trust is one of those elements that are ubiquitous in our surroundings. Its place on the periodic table could be among the rare earth family. Indeed, it is distinguished it for its scarcity, as it is not found in high concentrations, even though it is distributed widely around many parts of the globe.

Theologians would agree with chemists that there is an all pervasive spiritual dimension to trust — it has that ethereal characteristic. Perhaps, trust is one of the many expressions of what Christian theologians would refer to as the holy spirit, arguably omnipresent in our daily dealings. But that’s a question of belief. Just like religion, trust requires a certain level of faith in others to be present.

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Despite the apparent robustness of trust as described by theologians, material scientists may point out that trust is prone to be brittle, like graphite. However, in some cases, where its components are aligned in an orderly manner, Trust can be as hard as diamond.

Quantum physicists would argue, however, that would make it so difficult to pin trust down. It can be neither here, not there. And every time someone tries to measure the level of Trust around, it never yields the same results. The probability of findings trust is never absolute. But it is higher in confined environments.

Luckily, population ecologists would come to the rescue of physicists with their views. They would see trust as emerging from growing colony of individuals. All that is required is that they share a joint sense of purpose or have a shared interest in the overall survival of its own species.

Going one step deeper, geneticists would attribute the very essence of trust lies to a series of up and down-regulated genes that interact together in a carefully orchestrated manner in humans. They may also find that in some it is attributed to recessive genes, which may explain why it is not necessarily expressed in all members of the general population.

To truly understand how trust fits in society, we cannot ignore the unprecedented insights provided by Big Data analysts focusing on complex human interactions. Their interpretation of trust will be counter-intuitive. They will find that the ability to forget trusting relationship is only dependent on the individual, not on the nature of their social network.

Finally, evolutionists would have it that those who are unable to operate on the basis of trust are doomed to be the last of their generation.

Now, we leave EuroScientist readers with all this food for thought to get to reflect of the nature of trust in their own experience.

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The virtual road to recovering trust in academic publishing

Time for more radical changes in science publishing

By Arran Frood

Published on EuroScientist: www.euroscientist.com

Innovative technologies designed to assist the research community could help overcome mistrust in science publishers

Real life is often more colourful than the most imaginative drama. The unfolding scientists versus publishers saga is no exception. It features the discovery of fake journals; dodgy ‘peer review’ papers; an ideological war over open access; metrification; copyright claims; bloated profits; submission and conference boycotts; subscriptions cancelled.

Weapons-grade mudslinging between academics and scientific publishers has become common practice in the last ten to fifteen years. It is serious. People have been criminalised, and then committed suicide. Others have got rich on the basis of work funded by the taxpayer. But the fierce opposition may be receding, facilitated by technologies designed to improve the way the scientific process works, and providing scientists with tangible benefits.

Unequal relationship
The ongoing opposition between the two protagonists is like a match between many clones of David versus a handful of Goliaths. In the blue corner is the modern stressed academic. “Will perform science for food” read their funding-hungry tweets typed while trying to get the last experiments into a top-ranking journal. Well, top-ish.

In the red corner: the oligarch of publishers. Milking the boom in online publishing for all its worth; locking up work they did not fund from its own creators. Then, selling it back to the world at inflated prices for a product—the humble PDF—that pays little homage to the skill and ingenuity of the original work.

If only it were so simple. Perhaps 10-15 years ago it was. But for all the mistrust that has built up in the research community against science publishers, some people are seeing real signs that the battleground is changing. “Over the last five years I think the story has changed considerably from all the gripes on pricing, open access so on. There’s a different conversation going on,” says Tracey Brown, managing director of Science about Science, a policy discussion and research advocacy organisation based in London, UK. “There’s been a huge evolution in response to the increasingly interactive research climate.”

Now, open access is on its way to being the new normal in science publishing. And technology looks to be the key driver. The publishing landscape is simmering with new spin-outs and start-ups, networks and funky web tools. Some will inevitably be successful, and could come to redefine how scientists interact with each other. They could even alter the way researchers interphase with the publishers that bring their work to the global audience. It could go as far as bringing a new trust to a relationship fraught with virtual fisticuffs.

**Technology-driven publishing**

The problems began with the internet. When digital publishing arose, the scientific community began to ask what value publishers were adding to the process. In theory, the web’s early proliferation of blogging and publishing platforms should have resulted in the democratisation of the sector. Instead, the biggest science publishers’ turnover went from millions to billions of Euro and the criticisms mounted.

Reforming the relationship between scientists and publishers is a work in progress. One of the ways to restore trust has been to try and improve on the peer-review system. While some like ScienceOpen bet on post publication peer-review, others prefer pre-submission peer review. The second approach has seduced Springer, headquartered in Germany. Springer journals work with Peerage of Science, which is a slightly different way of approaching peer review, based on a pre-journal submission peer-review system. And BioMed Central is working with another similar initiative called Axios Review.

Both of these initiatives can be described as standalone peer review platforms, and get the thumbs up from Bjoern Brembs, a neurobiologist at the University of Regensburg, Germany. “Journal-independent peer review is something I really like and there are a whole bunch of initiatives already offering this service.” The Episciences Project is a similar effort, launched in 2014 by Jean-Pierre Demailly from the University of Grenoble, France, and mathematician colleagues which reviews preprint papers deposited on open archives such as arXiv or HAL.

Brembs has been a critic of mainstream publishers, and has signed up as an editor to a new initiative to increase trust in scientific publishing via study pre-registration, where publishers are bound to accept papers before results are in, thus preventing the bias in favour of positive results. He says it’s too early to say if it’s worked. “It’s hard to say. The mistrust goes much deeper than that. Pre-registration will ever only work for a subset of works, and will take time for wide adoption, at least in the short term.” He adds that the concept is being discussed and some articles have been published after pre-registration.

**Time for more radical changes in science publishing**

Yet, all of these improvements may not be enough. The science community is clearly hungry for new techs that are genuinely useful and not fancy-looking profiteering. When solutions that genuinely improve the overall scientific process come on-stream, the trust should return.

Some believe past friction among scientists and publishers has led to healthy discussion. “I think it’s good to take a step back and ask ‘Is this working? Is this the best it can possibly be?’ and I think that discussion is being stimulated...
by new web and other related technologies,” says Tim Hannay, managing director of Digital Science, a London, UK-based spinout from the German-owned Nature Publishing Group launched in 2010. Its aim is to change not just publishing but the way science is done by nurturing new software-centric startups.

However, Hannay sees the fight as less between scientists and publishers. Instead, he believes it is more about the progressive and conservative forces in each camp. There are factions in each camp who pine for change and those that favour the status quo.

Importantly, he says, it is incumbent on publishers to understand researchers’ needs. “Quite a lot of people in scientific publishing that don’t really know about science, or doing science,” says Hanney, who came to publishing from the lab bench. “It’s important to understanding the needs of researchers and how they are evolving.” To this end, he claims his company is investing in software startup businesses that are almost exclusively founded by researchers—and not by people straight out of business school. This is because the latter would not see the shortfalls in the software, for example, that researchers are using.

New adventures in publishing

However, Digital Science is not the only innovator in town trying to shake trust back into the scientists-publisher relationship. Back in 2007, two neuroscientists started Frontiers. The project started out of frustration at having to hand over articles—including copyright—to publishers who do little more than publish a PDF. “We didn’t trust publishers, so we wanted to build the ideal system,” says Frontiers co-founder and CEO Kamila Markram. It aims to found a more community-oriented publishing operation; an open access publisher run by, and for, networks of researchers.

To restore trust altruistic notions can help. “As a publisher you have to think like a scientist, you have to deliver, you have to give back,” adds Markram, who is also a neuroscientist at ETH Zürich, the Swiss Federal Institute of Technology. And giving back has included adding author- and article-level metrics. “We were the first to provide article level metrics, and now everyone is adopting them,” says Markram. “The journal appropriated the whole impact game for themselves through the journal impact factor, so we wanted to bring it back to the research paper and the author.”

Frontiers also further increased trust by deconstructing the peer review process to make it more transparent, going one step further than previously mentioned initiatives. They introduced open peer review, with reviewers being no longer anonymous; an approach also used, for example, for the BioMed Central BMC journal series. Article reviewers could no longer hide behind anonymity, to bring trust from transparency. Why should they not be acknowledged, Markram asks, when they are putting so much unpaid work in? They also required all reviewers to accept a paper before it was published. “As a reviewer you know you will be named on the paper, so you only want your name on good papers,” Markram explains.

Despite this, most papers are published, 80% Markram reports. The acceptance rate is even higher than at mega journal PLOS ONE. The latter adopts the ‘impact-neutral review’ where valid science is always published, and rejected on technical grounds only. The success of the Frontiers model, in 2013, led legacy publisher Nature Publishing Group to buy a 30% stake in Frontiers, making it look a somewhat less the renegade set up it was.

Scientist-centric solutions

Going one step closer in gaining the trust of the community of scientists, Frontier launched a new research network, called Loop, in January 2015. The idea is that it avoids the ‘walled garden’ aspect of social networks—as is the case with Academia.edu and ResearchGate—where all the action takes place in one domain. Instead, Loop is designed to work across different websites; akin to the way Google+ pops up in web searches, and lets you know if your connections are also fellow subscribers to a channel on YouTube, for example.

“Loop is completely integrated into the Frontiers publishing platform [and now Nature.com] so we’re really linking into an essential part of research life – publishing,” says Markram. She explains that everyone from authors to

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reviewers can see the bio, publications and connections of peers in the network. For an example, see the Loop page of her husband, Human Brain Project supremo Henry Markram.

What might make Loop different is that the software can be tagged onto other websites, such as library and university pages. And Markram says the first announcements on this will come in March 2015. “It’s very simple and almost trivial, but it’s never been done in this way before,” she says. “Right now you go to Google, the university website, an article, but there’s nothing coherent. We’re trying to connect these different places, the goal being to maximise the discoverability and visibility of researchers.” Time will tell if similar forward-thinking initiatives will proliferate.

Going the distance

Away from the peripheral publishers and startups, Tracey Brown of Sense about Science says that after years of criticism, mainstream publishers are taking the lead in new initiatives. She cites AllTrials, a campaign to have the data from all clinical trials to registered and reported, regardless of positive results, as an example that is supported by publishers PLOS and the BMJ. In this field publishers are really looking at whether traditional articles are really the best way to report on clinical trials, and for scientists to replicate results. “With the technological possibilities that are coming forward, in services such as big data they are leading the way rather than following.”

Against the backdrop of this evolving landscape is the announcement of a merger between Springer and Macmillan Science, which publishes Nature. This will create a publishing giant with 13,000 employees and an annual turnover of around €1.5 billion. Cynics will see this as an obvious manoeuvre to consolidate their dominant position and complain that you cannot trust a company that turns over more than a billion euros a year. This leaves the spinoffs and start-ups merely as fig leaves to mask industrial-scale profiteering from the research machine. They will ask what is really different about a series of journals that accept 80% of submissions and then sells part of its shares to a major player.

In this context the issue of trust is more than ever on the agenda. Hannay thinks that publishers will soon find themselves in position of huge unknowns in their own industry’s future. “The right way to do it is to adopt a scientific mindset, be intellectually curious, not afraid to experiment and have ‘failures’, with the confidence that you will come up with the answers in the end,” he says. “Publishers need to be more like the scientists they serve and then we’ll all be better off.”

Mid-fight verdict: draw; reigning champion looks in favourable position to retain title.

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When negative data files patients by publication omission

By Anthony King

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Publication of negative trial results are as valuable as positive ones for healthcare professionals

Half of all clinical trials never see the light of day. The complicit combination of keen clinicians, medical journals and bottom-line driven pharmaceutical industry has not served patients well. All clinical trials must be registered and published in full if healthcare professionals are to make a fully informed decision of what care to provide patients. Yet it is not just stringent regulations—or indeed their enforcement that are needed—but rather handing ownership of clinical data back to patients themselves.

Millions of patients took part in such trials thinking that they were helping others, but they were misled. If a drug company does not like the results of a trial, it can hide them from doctors and patients, so that a drug’s true worth or side effects remain hidden. “This situation is a massive betrayal of patient trust,” says Sile Lane at UK science advocacy group Sense about Science, located in London.

“The idea that people are volunteering for research, putting themselves at risk, and then that is not being used by anyone or being made available to researchers is just disgusting,” says Lane. Her organisation is involved in the All Trials campaign – this is also led by the Cochrane Collaboration, a global independent network of researchers,
professionals, patients, carers, and people interested in health, James Lind Initiative, a patients, carers and clinicians partnership and open access journal PLOS and in the USA by Dartmouth’s Geisel School of Medicine and the Dartmouth Institute for Health Policy and Clinical Practice. The AllTrials petition has been signed at the time of writing this article by 82,682 people and 540 organisations.

Meanwhile, the current situation leaves a doctor prescribing a drug on best available evidence, not knowing whether this drug is really the best option or if they have been deprived of half of the data. Studies show that trials with positive results are twice as likely to be published as negative results. “Comparisons of trial protocols with published papers have shown widespread selective reporting” says Peter Gøtzsche, director of the Nordic Cochrane Centre based in Copenhagen, Denmark. “The benefits of drugs have been much over-rated.”

Long term campaigning

The issue has been the object of continuous efforts by WHO to increase transparency on clinical trials by establishing the International Clinical Trials Registry Platform (ICTRP) in 2005. They also proposed that the findings of all clinical trials must be made publicly available, as far back as 2008. Implementation remains tricky as this platform remains voluntary.

Medical journals have also favoured compulsory registration of all clinical trials. And since July 2005, journals that adhere to the guidelines of the International Committee of Medical Journal Editors (ICMJE) will consider reports of clinical trials only if the trials were registered before patient enrolment began.

In the wake of these international efforts, UK-based Sense about Science has helped lead the international AllTrials campaign for the last 2 years; the organisation is part of a growing band of activists, doctors and scientists pushing for all clinical trials to be published in full. In all, 130 organisations have signed up to the campaign. The campaign is demanding that planned clinical trials should be registered, with a summary of the trial protocol, before the first participant is recruited; a summary of results should be publicly available where the trial was registered, within one year of completion of the trial; trial sponsors or others who produce a full report for marketing authorisation or any other purpose should make this publicly available.

“All science that happens and then no one knows about it or no one can repeat it is not science done properly,” says Lane. “Scientists and researchers must have access to scrutinise the data independently.”

Clinicians’ complicity

The trouble is that scientists, publications and industry are part of the problem. Blame falls upon trial investigators, who fail to publish negative results, journals that push for only positive trials, and the pharmaceutical industry, especially, according to Roberto Frontini, president of the Brussels-based European Association of Hospital Pharmacists (EAHP). “They have hidden data because it would compromise the sales of new drugs and that is really unethical,” he says. This is not an ethical nicety. It contravenes the Declaration of Helsinki, guidelines for the ethical behaviour of researchers.

Gøtzsche does not mince his words either. He compares big pharma to criminal enterprises and says the tobacco and drug industries have much in common. “The morally repugnant disregards for human lives is the norm,” is what he writes in his book, Deadly Medicines and Organised Crime: How big pharma has corrupted healthcare. “The business model of big pharma involves organised crime,” says Gøtzsche. “It also involves cheating with research. If we get access to the data, we would be able to show when the companies cheat and this would harm their sales while benefiting the patients and our national economies.”

To conceal unwanted findings, all sorts of statistical “tricks” have been used by the industry. These include ending a trial early, reporting on one outcome that was not the primary outcome you had set out to study and focus on subgroups. GSK notoriously failed to reveal trials showing the drug Paxil (paraoxetine) was ineffective for treating depression in children. And trials that revealed it increased risk of suicide. Another example is that of an unpublished study in the 1980s, which could have predicted that anti-arrhythmic drugs should not be given to patients who had
a heart attack – perhaps 100,000 people died unnecessarily as a result. French pharmaceutical company Servier was also confounded by the French judicial system in 2010 for underplaying the potential heart-related adverse effects of Mediator (benfluorex), prescribed off-label for obesity. These are just a few examples, among many.

**Campaigning successes**

The All Trials campaign has notched up some wins. Lane explains that clinical trials regulation was being discussed in the European Parliament when the campaign began. But the focus was on decreasing red tape with nothing about data transparency. Thousands of supporters wrote to MEPs and health ministers during 2013. And a new law, due to come into force in 2016, will now include rules on clinical trial transparency. Specifically, all drug clinical trials in Europe will have to be registered before they begin. And a summary of the results will have to be published on the register within a year of the trial’s end. Meanwhile, information in clinical study reports will no longer be considered commercially confidential.

Lane says some companies have responded better than others. For example, GSK and Johnson & Johnson (J&J) handed over clinical trial data on pharmaceutical research to a group at Yale University, in Connecticut, USA, called The Yale University Open Data Access (YODA), which is running research projects on those and giving access to independent researchers. “GSK, J&J and Bristol Myer Squibb have been leading the way,” says Lane. “At the other end are companies like AbbVie and InterMune, which both sued the European Medicines Agency a few years ago to keep trial data hidden.”

However, those campaigning for greater transparency and accountability, like the AllTrials campaign, are not just about getting trials registered and all data published from here on in. Even if this were achieved, trials and data for the vast majority of drugs we use today could still be kept in the dark. “Some of the retrospective data is going to be difficult to access, and there can be legitimate reasons why some [historical] data is never going to be made available,” says Lane, “but this old information is still really important.”

And it is not just industry that needs to put pedal to the metal. “The big health funders across Europe have skeletons in their cupboards,” she adds “so taking steps to go back through projects they funded and see what resources are needed to make the information available.” In this respect, researchers though have a valuable contribution to make too. A study published in the *New England Journal of Medicine* found that 62% of administrators at all 122 accredited medical schools in the USA said it was okay for a clinical trial agreement between academics and industry sponsor to be confidential.

Although there are now enough regulations in place in Europe and in the USA, according to Frontini, what will be needed is implementation. An independent US audit published in the *British Medical Journal* in 2012 showed that only one in five trials had met the compulsory reporting requirement to be posted within a year of completion on clinicaltrials.gov a measure in place since 2007. Despite this fact, according to Sense about Science, no fine has ever been levied against any company or researcher for failing to post results.

**Misconduct by omission**

In Europe, some believe that one solution is for all university contracts should follow the same format and forbid gagging clauses. This is the point made by British author Ben Goldacre in his book *Bad Pharma*, who is also involved in AllTrials. Also, he thinks that all professional bodies should deem the failure to publish trial data as research misconduct. And he believes that all research staff involved in any trial on humans should be jointly and severely liable for ensuring that it is published in full within one year of completion.

He goes through examples of how industry favours researchers, who know how to play the game. And the game is marketing not science. There are indications that companies tend to spend more on drugs that are not so effective. As he writes: “Marketing, therefore, one might argue, exists for no reason other than to pervert evidence-based decision-making in medicine.” He quotes some estimates that the pharmaceutical industry spends twice as much on marketing as research and development, with about € 50 ($60) billion in the USA alone.
With free access to all data on a treatment, many eyes can perceive potential problems with statistics or flaws in methods. And there are already examples of this situation, where an independent researcher uncovered a link between a drug and serious side effects. This is important because doctors rely on meta-analyses and industry literature to help them make the best decisions. “Doctors and pharmacists don’t have enough time,” says Frontini, “so we rely on reviews. If the negative data is not published, then these reviews show only the positives. And all the reps will go to doctors with the published data and say this is a fantastic drug. They don’t lie; they show you the data, but there are lots of examples where after many years the evidence turned out to be the opposite [to what was published].”

**Given ownership of the data back to patients**

Gøtzsche does not believe we are on the way to fixing the problem of industry hiding and distorting drug trial data. “No company is genuinely interested in sharing data,” he says, “They only do it, hesitantly, because we have forced them to do it, and they set up all sorts of obstacles for getting access, which is not access in my opinion.”

Industry should not own the trial data. “Patients run an unknown risk by participating in trials and it is therefore obvious that companies cannot own trial data. They belong to all of us, which is also the view of the former European ombudsman and other lawyers I have spoken to. Anything short of this is unacceptable exploitation of patients and society,” he says.

He argues that the whole set-up is topsy-turvy. And industry needs to be shoved back from trials. “We need a major culture change where we see clinical trials as a public enterprise done for the public good and performed by independent academic institutions,” he explains, “The industry could still pay for trials but should have nothing to do with them.”

“This could break the vicious circle where drug companies choose investigators that have long-standing relations with the drug industry and don’t ask uncomfortable questions.” He cites the European Society of Cardiology’s estimate that university centres could perform drug trials for about one-tenth the cost of industry trials where there are numerous for-profit middlemen who tack on hefty surcharges.

**The transparency struggle continues**

Those involved in the All Trials campaign say patients should be clear about the trial that they are participating in and should interrogate any consent form to make sure that their participation will make a difference.

Gøtzsche notes the fact that advertising and PR firms are now running clinical trials in Europe and the USA is a clear sign that companies do not see marketing and research as separate silos. In his book, he writes that a patient consent should read as: “I agree to participate in this trial, which I understand has no scientific value but will be helpful for the company in marketing their drug. I also understand that if the results do not please the company, they may be manipulated and distorted until they do, and that if this also fails, the results may be buried for no one to see outside the company.”

“Finally I understand and accept that should there be too many serious harms of the drug, these will either not be published, or they will be called something else in order not to raise concerns in patients or lower the sales of the company’s drugs.” This might seem an exaggeration, but the pharmaceutical industry has some of the heftiest criminal fines ever paid out by commercial companies on its ledger. Whether this situation can indeed be reformed, remains to be seen.

Photo credit: wr52351 on Flickr
Institutions, no longer trustworthy

Mistrust towards policy makers, not misplaced
By Ann Cahill
Published on EuroScientist: www.euroscientist.com

Lobbying powers are winning the battle of influence, leaving citizens with little alternative but to seek greater accountability from European institutions.

Generally, journalists are stuck in the middle, caught in a tsunami of information coming from all sources. It has become a lot more complex in recent years. Once people get hold of your contact details in Brussels, the bombardment never stops. There are briefings and counter-briefings, tip-offs and been frozen out, one-to-ones and press trips, and dozens of daily press releases and reports to try to decipher if you are interested. It might be a tad simplistic, but certainly when I started out the world of journalism was divided into two kinds of stories — those citizens needed to know to play their role in the democratic process, and those that were merely intended to entertain.

That world has passed. The goal-posts have been changed in the old competition to make the important interesting and the interesting important. It is about persuasion rather than informing. Now citizens are children in a sweetie shop choosing their favourite sweets and the media competes to provide whatever they wish. The filters journalists
once used to choose which stories to concentrate on have been breached and now go far beyond the old fashioned idea of ‘news value’.

**Spin doctors kingdom**

Skilled media and public relations officials armed with the results of focus groups and psychologists pick the choicest piece of information. They then flesh it out to ensure it forms a cohesive whole, trot out a selection of supporting facts and figures and send it out, oven-ready, to the news ‘operative’ in the media.

Fashion and fads dictate more than ever before what is newsworthy. Vested interests are using all the machinery at their disposal to ensure that their judgement is the one that becomes the accepted, common-sense one. Their view, their product, their service becomes the answer to whatever question, whatever problem is posed.

For this is not just a game of who can get the most media exposure. The media is just one facet for the players. The Chinese-wall between lobbying and public relations in professional companies is less than paper thin — something clearly evident in centres of power such as capital cities, Brussels and Washington.

With consultations, advisory groups, expert committees, representative associations, business bodies, non-governmental organisations, supporting consumer groups, exhibitions, conferences, debates, prizes and awards now all part of the political decision making process, the media as well as the politicians and public are part of the target audience to achieve a very specific end.

**Scientists caught in the big manipulation game**

There are tasty little stories, expert analysis on demand and prestigious advocates-for-hire willing to provide op-ed pieces for willing media. It can be game, set and match for the most skilful and wealthiest interest. Science is frequently included in the weaponry of advocates and opponents. Once seen as objective by citizens wooed by its magic, with each piece of research having an automatic QED attached in people’s minds, it too has become just another armament in the game.

Now scientists are trotted out—lances in hand like Medieval knights—to battle face-to-face as part of the backdrop to creating the perception that all is well, and the solution is to hand. They are asked to present the definitive answer to what are frequently in effect cultural questions or issues that should be a matter of personal choice. These issues are difficult in themselves for any government to rule on. And so offer a fertile space for professionals to use their skills and offer neat answers.

On one hand, if an action, a service, a product is causing the economy harm, a government could be justified in taking action. On the other hand, any action the State takes may in the end be seen as creating alternative problems, little wonder regulation is a mess.

**Policy-making quagmire**

The civil servants involved in the process have to manage the politics. And we have some examples of how this can appear to leave the bureaucrats relying on Machiavellian action. A classic example, is the EU’s REACH directive. It was designed to offer citizens the optimum safety in a world that surrounds people with a diversity of chemicals that have not always been tested comprehensively or as the cocktail they create in the life of a modern person.

But research turned up by toxicologist Thomas Hartung, at the time working as head of the European Centre for the Validation of Alternative Methods (ECVAM) at the Joint Research Centre in Ispra, Italy, was suppressed. It was showing far more animals would need to be used in testing as a result of the more stringent rules in REACH. This, doubtless, was in the knowledge that such emotionally charged information would be used by those with a vested interest to kill REACH.

The German European Commissioner for Enterprise and Industry, at the time, Günter Verheugen, said at the time that REACH would not be ethically viable if it required excessive additional use of animals. The ethics of exposing humans to chemicals that were not as comprehensively tested did not appear to be an issue.

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The legalising of soft drugs such as cannabis is another case in point. These are accepted as playing a malevolent role in some people’s mental health, causing businesses to lose productivity. On the other hand, being banned contributes to soft drugs’ scarcity and lack of control and so contributing to crime. The argument can be made for legalising it with the added value of having the trade contribute to the State’s coffers.

Alcohol is another typical example. It contributes to 3.3 million deaths or 5.9% of deaths globally a year. There was a 240% increase in liver disease between 1995 and 2007 in Ireland, my own country, where ironically we have the highest abstinence rates in the EU.

Broken system, yield skepticism

This is all serious stuff, especially if you are a victim. Does it justify a ‘nanny state’? Will education about its safe use and dangers appease our feeling of needing to do something? Does the state and society confine itself to just tackling addiction? And where is the line between addiction and simply spending a boring retirement in a mindless stupor or alleviating pressure or simply being the life and soul of the party?

Of course who pays for research should not influence either the scientist or the public perception. But experience shows that he who pays the piper expects to call the tune. As demonstrated in an era when pharmaceutical companies do not want to publish their studies, or publish them selectively; when questions as well as answers are changed in Eurobarometer studies; or when scientists are plainly for hire, this may not be the place to start. When the battle is on to continue not to have to list the ingredients of alcohol or of cigarettes clearly displayed so consumers know what they consume, one has to wonder what is to hide, and why?

Basically the system has broken down, the old world has disappeared giving rise to a deep and unbridgeable divide between the professionals and the citizens. There, vested interests manipulating a political class fed on buzz-words, the latest fad, or their own greed for power or wealth.

The scientists are at one another’s throats and many are at war with the decision makers — see the latest open letter supported by EuroScientist and published in Nature, escribed thus: “Scientists from different European countries describe in this letter that, despite marked heterogeneity in the situation of scientific research in their respective countries, there are strong similarities in the destructive policies being followed. This critical analysis, highlighted in Nature and simultaneously published in a number of newspapers across Europe, is a wake-up call to policy makers to correct their course, and to researchers and citizens to defend the essential role of science in society.”

The increasing scepticism of citizens towards their main-steam politicians is evident at every election. Meanwhile, the results of allowing the market alone to dictate policies are also evident in the obesity, diabetes and decreasing mortality rates. Journalism as a provider of the tool to help citizens to understand how they are being governed — information — is in decay.

When vested interests spend millions of Euro to sway politicians and policies to their advantage, then there are alternative questions to be posed before we are entitled to insist that policies be science-based. The scientists and their employers must first ensure that their science is not policy-based.

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Suspicious paralysis over new nanotechnology labelling and registry

By Dino Trescher

Published on EuroScientist: www.euroscientist.com

The battle of influence between industry and environment protection and consumer organisations impacts nanotech transparency rules

Brussels is a lobbyists’ paradise: the city is counts approximately 20,000 of them. Their influence is as far reaching as to affect the regulation of nanotechnologies. For example, in the debate pertaining to the introduction of compulsory labelling and the implementation of a nanotech product register. These are designed to inform consumers and authorities which industrial products contain nanomaterials. Their introduction requires new legislation that has been the object of intense debates over the past few years between the European Commission, industry, consumer representatives and environment protection organisations. The Commission has been so slow to move that it has been accused of blockading the regulatory process.

Typically, political pressure works in favour of greater regulations of nanotechnologies. However, it appears that industry lobbyists manage to neutralise such trend by making their voice heard in the right places. It led a group of environmental protection NGOs to denounce the Commission’s bias towards industry’s economic interests. The Commission is accused of disregarding environmental health and safety concerns and the public right to know. As a result, there are concerns that the political decision in relation to the forthcoming nanotech transparency legislation may not be based on evidence and on the precautionary principle.

Addressing public concern with transparency
Nanotechnology is one of the six key technologies the Commission has deemed decisive for this century. For years the European Parliament has been pushing for more transparency in the market for nanomaterials. As the Commission alone has the right to propose new laws the ball lies squarely at its feet. Yet, the Commission is not taking action. Out of frustration over stalemate in Brussels, four EU member states have taken matters into their own hands. They are either introduced compulsory registration of nanomaterials or are in the process of doing so. France was the first country in the world to do so, followed by Belgium, Denmark and Norway.

Nanomaterials offer technological opportunities, which consumers also gain from, according to the website of the European Consumer Association (BEUC). It recognises that nanomaterials have, however, been tested too little before being marketed. BEUC therefore demands “better” regulation and more transparency for consumers.

These demands are also echoed by environment protection groups. “Society is worried about nanomaterials,” says Vito Buonsante, law and policy advisor, health and environment, of ClientEarth in Brussels, Belgium. “Citizens have a right to be able to find out where these substances are present,” he says. Unlikely support comes from Christa Klass, an MEP representing the Christian-Democratic Group, CDU. “It doesn’t hurt the consumer to see something labelled ‘nano.’ “If people know it won’t do them any harm then there’s no problem, and if they don’t want to buy nano products, it enables them to make that decision,” she explains.

While the Commission fails to act, nothing happens. Instead, we just see another round of reports being issued. The Directorate General for Internal Market, Industry, Entrepreneurship and SMEs (DG industry), recently published an evaluation which compares the costs and benefits of a Europe-wide register in November 2014. It is a key doments on which some of the regulatory decisions will be made. This is not really a new approach. UBA, the German Environment Agency has devoted time and effort to the same question in a 142 pages report published in March 2014.

The UBA report concluded that between 38,000 and 58,000 businesses would be affected by the introduction of a European ‘nano-register’; which represents about 5% to 8% out of a total of 770,000 companies surveyed. More than half the 4.1 million expected notifications would relate to varnishes, paints and dyes. Nanoparticles are often used as filler materials in these products. It is used to increase scratch resistance, as an additive for air purification, as UV protection, or for special effects, such as iridescent paints.

Alleged regulations blockade

When investigating why the Commission does not act – despite political pressure from several sides – leads to mentions of the word ‘blockade’. DG Industry shares jurisdiction with DG Environment. The fact that these two directorates have difficulty reaching agreement came to light back in 2011. At the time, it came to defining what constitutes a nanotechnology, which was to form the very basis of regulation, as initially reported by nanomagazin.net.

It was months before the DGs started entering negotiations. It is an understatement to say the outcome equated to ‘a sell-out’. At the time, Henrik Laursen, an official from the Chemical Unit at DG Environment diplomatically referred to the agreement finally reached as a “political” settlement. Neither industry nor environmentalists nor consumer protection groups are pleased with the definition. Industry complains the definition is so broad that even dust from the Sahara would be encompassed. Meanwhile, consumer groups and environmentalists both regard the definition as too broad.

Although an agreement was reached back then, there is still no sign of a positive outcome when it comes to new labelling rules and the introduction of a registry to enhance transparency of nanotechnology products.

The trouble is that DG Industry apparently still sees its role as “...to minimise the demands of regulation on businesses,” says Carl Schlyter, a member of the European Parliament representing the European Green Party, “even though a sustainable business model can only function when accompanied by the trust of consumers.” Schlyter is both a member of the European Parliament and was vice-chair and a member of the European Parliament Committee on the Environment, Public Health and Food Safety.
These claims are further compounded by Brussels insiders. Two well-informed Brussels sources, who wished to remain anonymous, have independently claimed that two employees of DG industry have placed a spanner in the works. Allegedly, the delays may be partly linked to the involvement of Otto Linher, the deputy head of the EC’s Chemicals Industry Unit, at DG Industry and of Finnish delegate, Maila Puolamaa, policy officer at the European Commission. Both hold responsibility for nanotechnology; but they do not occupy the highest positions in the hierarchy of the DG for Enterprise and Industry.

However, Linher does not want the extended time period it took to come to an agreement over nanotech regulations to be perceived as a blockading mechanism. “There are discussions here in the Commission over whether or not a register makes any sense,” says Linher. Instead, he sees it as a matter of a “normal decision-making process.”

Evidence-based policy

Before introducing a register, an objective cost-benefit analysis is required. In Linher’s view, the evaluation of UBA, the German Environment Agency, of the effects of nanotech is too imprecise. According to the UBA, within the space of five years implementing compulsory registration would cost the paint industry around 6–10 million working hours, the similarly heavily affected paper industry about 3–4.5 million hours and the textile industry around 1–2 million hours. And Linher believes that the figures relating to the costs amount to “speculations.”

The total cost to industry would equate to an estimated €2.3 billion, as calculated by Carolin Kranz, senior manager corporate and governmental relations from the German chemical company BASF, based in Ludwigshafen, Germany. By comparison, the turnover of German companies with nanotechnology-based products came to €14.3 billion Euros, in 2011. This lead such industries to legitimately question how much is gained by introducing transparency measures. Yet, it is the Commission’s latest evaluation of the cost of a register that will be taken into account. A register designed to make the use of nanomaterials transparent would give rise to costs of between €3,000 and €10,000 with respect to every nanomaterial, and also cost businesses two to three working days, says Marco Camboni, senior consultant with the British independent consultancy, RPA, in Norfolk, UK. He was the author of the evaluation on the effects of a register commissioned by the EC. These estimated costs are inflated, according to Tatiana Santos senior policy officer chemicals and nanotechnology of the European Environmental Bureau, Brussels, Belgium. She says she discovered they were lower when she inquired into the matter with the French authorities.

However, these costs all come as a result of companies having to characterise their materials. ClientEarth’s Buonsante, counters by saying they would have to do that anyway. In fact, businesses already perform checks on the substances they manufacture. However, in the case of nanomaterials they would need to define additional parameters. For instance, it could hinge on the specific surface area or the length of the nanofiber, as toxicity can depend on such variables.

Administrative quagmire

Besides additional costs and expenditures, the ambiguous nature of regulations are also the butt of most industry complaints. Christophe Zunève, REACH & CLP Manager at the speciality chemical manufacturer Clariant France, says that during the first year of the French nano-register the reports cost him a month’s work.

In addition, repeated difficulties in communication could arise. For instance, this could happen when the material has been purchased externally and incorporated into a product. “What should you register it as in such cases?” asks Zunève, adding that there is no standardised methodology for analysing nanomaterials. For example: different methods of measuring particle size actually produce different results. Zunève is furthermore anxious that hackers could break into the database and get hold of trade secrets.

Other in industry representatives concur. “Registers have a negative impact on innovation,” chips in BASF’s Claudia Kranz. She describes measures to increase transparency in the realm of nanotechnology as “activism.” She also believes a register would not serve to promote transparency both because it would be extremely difficult to implement, and also because it would be far too broad in scope. “You don’t hear concern being expressed that...
hazards result purely from issues relating to physical size,” says Kranz. “We are asking ourselves why there are moves to put nanomaterials under scrutiny while other, perhaps more poisonous materials, are not being scrutinised.”

Choosing the right format for a register is, moreover, a question of examining the various options. The registers already introduced by some EU member states indeed indicate that the rules can be very varied. They can serve to inform the consumer, the authorities, or both. Linher expressly mentions another option: no regulation. He believes the outcome “…could go any way”.

### Regulatory process

The intense industry lobbying appears to be having an impact. Linher, at least, seems impressed: “Costs in the billions really does amount to a very powerful argument,” he says. By way of comparison, he states this represents a tenth of the actual costs resulting from the EU regulation concerning chemicals, known as REACH. This regulation requires manufacturers and importers to make toxicological data about their chemicals available to the authorities. Prior to implementation the chemical industry fought vehemently against the introduction of REACH.

Linher argues that despite the high costs involved, no toxicological information would be forthcoming; only information concerning which products contain nanomaterials. “You have to ask whether the costs are proportional to the benefits,” he adds. This echoes an argument previously given by Steffi Friedrichs, director general of the Nanotechnology Industries Association, an active Brussels ‘nano-lobbyist’.

So is it above all the interests of industry that are leaving their mark on the new official EC commissioned evaluation? That is what is suggested by the report’s opening thesis: namely that it is not generally accepted that there is too little information about nanomaterials. Amongst the stakeholders, it is industry alone, which refuses to accept this.

Ultimately it will not be DG Industry officials in charge of nanotechnology who decide whether the Commission draws up draft legislation on a register for nanomaterials. Nor will they decide how it looks if the decision is positive. Linher emphasises that “The decision will be taken at the level of the Commissioners and the Cabinet.” When asked, Linher confirms that the Commissioners will make their decision on the basis of the official evaluation of the effects of a register. But he adds that the politicians remain free to go for an option other than the one recommended in the report.

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Ebbing public trust in science

EuroScientist Interview: Ortwin Renn: Managing people’s risk perception to build trust

By Sabine Louët
Published on EuroScientist: www.euroscientist.com

Building trust requires communicating the value and limitations of risk assessment

“Trust is a very precious good. … Trust takes a long time to gain trust and takes very little time to loose it.” That’s according to Ortwin Renn, a professor for environmental sociology and technology assessment at the University of Stuttgart, in Germany. “For that reason, I think, it is very important to invest in activities that have the potential to build trust.” One of the major prerequisites is honesty about what science can do and what it cannot do. He adds: “We cannot dissolve uncertainty. We have to be sure we don’t give the impression that we can predict everything,” but he still believes we can give directions and orientations of how to characterise and handle uncertainty.

Building people’s trust through science hinges on providing them with an understanding of the constrained power of risk analysis. And Renn knows a lot about risk. He is the dean of the Economic and Social Sciences Department, and director of the Stuttgart Research Center for Interdisciplinary Risk and Innovation Studies. He also heads the non-profit company DIALOGIK, a research institute for the investigation of communication and participation processes in environmental policy making.

Read this post online: http://www.euroscientist.com/trust/
In the past, he served on the panel on ‘Public Participation in Environmental Assessment and Decision Making’ of the US National Academy of Sciences in Washington, DC from 2005 to 2007, on the German Federal Government’s ‘Commission on Energy Ethics after Fukushima’ in 2011 and from 2012 to 2014 on the Scientific Advisory Board of EU President Barroso.

In this interview with *EuroScientist*, Ortwin Renn discusses facts and facets of risk predictions.

He reveals how, in the case of the Ebola outbreak, for example, accurate risk assessment can help to avoid panic and have the right precautions in place. He says: “If you have much better understanding of the risks, their causes and their consequences, this helps us to inform policy-making and, in the end, save human lives.”

But he cautions that although risk assessments have been instrumental in saving people’s lives, that there are always exceptions to the rule and the future will always have uncertainty. A cautious approach is therefore required because “There are always exceptions, which is very difficult in risk communication.” Hence people’s trust can be affected by their understanding of the assessment of risks provided. “What we need to tell people that science cannot overcome this ambiguity with what will happen in the future.”

However, he believes, “Science can help us to have less errors that we can avoid absurd or highly unlikely events, but it cannot prevent errors from happening.” He then concludes: “It’s important that we don’t oversell the potential of science in shaping the future.”

*Video and cover text by Arran Frood*

Photo credit: Acatech
Science dilemma: between public trust and social relevance

By Hans Peter Peters

Published on EuroScientist: www.euroscientist.com

Public mistrust stems from science own portrayal of ties to economic and political interests

The number of citizens paying deference to science and accepting scientific results outright as ‘truth’ is decreasing. Public attention to scientific fraud and misconduct in the past years may have boosted a critical perspective on science. But the questioning of scientific authority is more deeply rooted and long-term. It is widely assumed that scientists often take controversial positions and that these positions may be biased by scientists’ self-interests. Or that they are tainted by their anticipation of political, economic or ecological interests. Therefore, public trust is no longer afforded to scientists and scientific organisations uncritically.

However, public opinion surveys regularly show that trust in science is much greater than trust in politics and economy. That has been the case, in the past decade, with the various Eurobarometers studies, including surveys on responsible research and innovation, biotechnology and risk issues, for example. The main difference between the perception of science, politics and economics is not in line with their ascribed competence, as one might expect. Particularly, given that the key societal function of science is to provide socially-relevant and valid knowledge. Instead, the main difference in public perception is pertaining to their orientation towards the common good.

There is thus an apparent contradiction between wide-spread scepticism of scientists as public experts and positive evaluation of science as a field. This calls for a clear distinction between general trust in scientific institutions and context-specific trust in scientific actors in concrete situations. It is likely that both levels of trust are interrelated. Indeed, general trust or distrust will serve as a starting point to reflect on trust in specific actors in specific contexts.
By contrast, trust assigned or declined in specific contexts will over time inform general trust ratings. But still, general trust in science institutions and situation-specific trust in concrete scientific actors result from different forms of reasoning.

**Truth versus power**

People view the scientific ideal of seeking the truth. The relatively high-level of general trust in science is probably inspired by such perception. The logic of science—aimed at discovering the ‘truth’— is perceived to be particularly compatible with the common good. In contrast, the logics of politics and capitalistic economy—aimed at gaining ‘power’ and ‘profit’ – are perceived as being less compatible with the common good.

They imply social competition between actors, creating losers and winners. This is because the distribution of power and profit is a zero-sum game; the distribution of knowledge is not. Power and profit are thus seen as being related to partial interests – of companies, labour unions or political parties, for example – rather than to the common good.

Public self-presentation of science focusing on the competitive character of research may therefore erode an essential basis of public trust in science: the conviction that science serves the common good. So does the public perception of science’s outcomes, especially when it reveals close interdependencies with economy and politics.

**Shifting science reputation**

Public opinion surveys regularly show that trust in scientists varies with their affiliation. Trust is higher for scientists in academia than for scientists in industry. This has been shown, for example, in Swedish data from the VA Barometer 2014/2015. Media users who read articles or see films that refer to scientific experts or scientific knowledge often express critical thoughts. These thoughts often illustrate the negative connotation in people’s mind of collaborations between science and industry when it comes to fostering trust in scientific expertise.

The obvious conclusion is that science should maintain more distance to economy and politics. However, it is not a realistic solution of the trust problem. This is because the societal merits of science largely depend on the use of scientific knowledge in economy and policy-making. And making knowledge effective in these fields requires close interactions of science with them. Maintaining distance to these fields would perhaps avoid problems with trust. But it would also decrease social relevance and utility of science – leading to another potential image problem. The necessary interdependencies with economy and politics hence result in unavoidable trust problems.

What are the conclusions for the public self-presentation of science? To demonstrate societal utility, science must point to compliance with external expectations; including those from economy and politics. But it must also emphasise its identity and avoid giving the impression of being exploited. Mastering this dilemma in a delicate balancing act is one of the major challenges for science and its public self-presentation.

**Academia represented as a business via PR**

Two trends nowadays imply long-term image problems for science: so-called ‘economisation’ and ‘trivialisation’ of science in the way it portrays itself to the public. Economisation of science results from academic institutions aiming to demonstrate good performance on economic criteria such as competitiveness, efficiency and utility. In the past, we have seen a growing weight of organisational public relations in the public communication of science.

This is not per se problematic. But it goes along with increasingly strategic orientation of science communication aiming at the promotion of organisational goals: legitimisation of resources, branding in education markets, R&D and health services, and representation of organisational interests in research policy issues.

Academic institutions representing their interest as stakeholder relying on strategic public relations is not only legitimate but unavoidable. Particularly in a media society, in which decision-makers and voters strongly respond to public visibility.

Interest-driven science communication may have unintended consequences for the public image of science, however. For example, according to the sociology of science, scientific achievements are developed in “scientific
communities,” which extend across organisational and national boundaries; organisational public relations tend to frame these achievements as ‘output’ of organisations, though.

Much further research is needed to fully understand the implications of increasing strategic communication for the public image of science and the public communication of knowledge. But we may speculate that scientific equipment, infrastructures and funding—as typical resources provided by organisations—will get more emphasis in public communication of science at the cost of covering the intellectual process of research.

And applications of science may become more important compared to scientific knowledge and research processes. This trend contributes to a shift in the public image of science. Thus, the public is associating it more with expected practical utility and less with intellectual enlightenment. This, in turn, may have implications for public acceptance of academic freedom.

Science made to appear trivial

Another issue is the Trivialisation of the way science portrays itself to gain public acceptance. It results from downplaying the specificities of scientific action and the esoteric nature of much of scientific knowledge. Instead, it is linked to emphasising the conformity of science with general social values, familiar working routines and popular culture. This strategy is guided by the assumptions that the social distance between science and everyday life represents a problem for trust. And that it hampers the recruitment of student for science careers.

The diagnosis is not completely wrong but the therapy is problematic. Fashionable communication formats in which the medium dominates over content contribute to the assimilation of science in the popular culture of adolescents. This is the case of Science Rap videos or the German Science Slam movement, for example. But they also spread a delusive image of science: that it is not hard work but “fun.”

Such an image of science, implicit in many infotainment formats, may irritate those citizens who have to work hard in their jobs and pay taxes that fund academic science. It also deceives students about the self-discipline required for a successful science career.

Towards more adequate self-portrayal

It is easy to understand the motivations leading to economisation and trivialisation in the self-presentation of science; but these trends are not without risk. Science should not to copy the communication strategies found in politics and economics. The relatively low trust ratings of economic and political institutions compared to science institutions suggest that the way they portray themselves has largely been ineffective in garnering public trust.

Instead, it is necessary to highlight the specific character of science—the creation of knowledge for advancing the common good—rather than to insinuate similarity with the economy or everyday life. The self-presentation of science has to focus on its principal product, which is knowledge. This means adopting a communication mode towards the public hinging on an explanatory and rational debating approach as default. This does not, however, mean that such communication mode is prescribed as involving mustiness, lack of humour or expert paternalism.

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Photo credit: Terry Johnston
Trust in science and scientists is not eroding in Europe

By Martin Bauer

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New insights on trust or public confidence towards science and scientists in Europe

The state of confidence and seeking reassurance of continued trust of science and scientists in society is the subtext of much consideration and concern. Trust is one of those things that happen between people and between people and institutions that only gets noticed when it is in danger of being eroded. Trust makes things easier and less costly; it calms the need to know; where there is trust we do not need to know everything, we take risks on trust; trust is risky, but we take it.

Trust is both a very ancient and a very recent concern. The ancient Greek philosophers considered trust in terms of Ethos and common sense. Relying on Ethos meant enjoying credibility and moral stature within the community the public speaker was addressing to be able to move anyone, however well put their argument. It seems that the same quest continues to preoccupy modern observers.

Do scientists and the scientific institutions have the necessary standing and reputation in the community? It is necessary to give their pronouncements of evidence the weight to carry the argument on controversial issues. And many such issues have animated the public debates over the past few decades. These include climate change, genetically modified crops, stem cell research, toxicity of chemicals, nuclear waste. The question is: is the public taking the scientists’ word for it? What else would the new EU quest for ‘responsible research and innovation’ (RRI) entail, if not seeking trust through acting responsibly?

Trust still present

But what is the state of trust in science and scientists across Europe? In my considered view there is little evidence that such trust is being seriously eroded. The debates over genetically modified crops, stem cell research, and nuclear
power might have given rise to concerns that science has lost its cultural authority in Europe. But there is little evidence to support such a conclusion.

Science and scientists are held in unchanged esteem as far as the evidence holds up. This is in contrast to across the Atlantic. There, long-term evidence shows that science and scientific institutions have lost the trust of the public. It applies differently according to party lines: Democrats continue to stand with science, while Republicans have become much more mistrustful since the 1970s. The partisan debates over climate change in the USA have contributed to these long-term changes, so have the religion-secularism split and a climate of general political polarisation.

The other place where public trust in the scientific-technological system has received a serious indent is Japan. The Fukushima nuclear accident of 2011 and its follow-up have done much to shake the seemingly unshakable trust in the technological systems. This trust has previously underpinned Japan’s post-war success story.

**European specificity**

However, across Europe there is little evidence of erosion of trust in science. You might take the old view, that Europe follows the USA in 5-years’ time; but this might no longer be so predictable. To the contrary, for example, in the UK trust in scientists has rising to a long-term high. This in a context of a to country that was a major exporter of public debates and doubt over modern science over the past 30 years; suffice to mention the *Public Understanding of Science report* of the Royal Society of 1985 and the *Loss of Public Confidence* report of the House of Lords of 2000.

In Britain, scientists now sit with the universally regarded medical doctors in public esteem. This has changed over the past 15 years. During that period, scientists have substituted the bishops of the church at the high table, when it comes to public judgement of ‘generally trusted to tell the truth’, as featured in the ipsos-MORI veracity index 2014. One might even argue that the public’s relation to science and scientists is entering a new phase: no longer one of trust, but one of public confidence. We tend to trust actors when we have a choice; we shop either here or there depending where we trust to find quality for a fair price. Without a choice—as with democracy, law enforcement and the judicial system in modern society—we can only be confident in their performance.

We might speculate that in the UK, science is now granted a position without an alternative, and giving or withdrawing public confidence in experts is the only option; for some this conclusion might be reached with a modicum of resignation even worry, as without alternatives, resistance is the only option. There is no concluding evidence as to whether this is also the case in the rest of Europe. Further research will be needed into this changing quality of trust and confidence in science and its institutions.

**Martin W Bauer**

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Photo credit: Alexander Whillas