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Debate 2.0 – From Peer Review to Crowd Review

ABSTRACT

So-called "prosumers" in today's web 2.0 mindset will increasingly expect companies as well as research institutions to open up for a true dialogue with the public. The demand for transparency and a direct, unmediated discourse is fundamentally changing the way enterprises and organizations communicate about science and innovation. As much as social media might shake the business foundations of the publishing industry to the core and as much as it may alter journalism as we know it, there is also a high potential of bringing the society back into science and innovation. Especially when it comes to potentially controversial technological developments, the right public discourse may create transparency and thus build up trust in innovation, promote general readiness for technological change and accordingly accelerate the diffusion of new products in the market. Since media images of public debates tend to be afflicted by a high degree of complexity, new visualization methods and new journalistic skills are needed. Therefore the author suggests an interaction model for future innovation communication that addresses the demand for public discourse in all four stages of the value chain: science, ideation, innovation and diffusion.

1. Deduction

Self-perception and expectations of science and innovation communication have radically changed within the last five decades. What might be the next “trend” after the assumed “enlightenment” of the 1950's, the Public Understanding of Science and the Humanities in the 80's, the demand for more transparency and commercialization of science in the 90's, and the attempt to build trust and confidence between science and society through dialogue at eye level? The demand for further methodological developments is increasing, especially with regard to an interactive two-way communication, supported by recent internet technologies, widely known as “social media”. In contrast to an outdated understanding of passive “media audiences” the booming online platforms have significantly transformed science and innovation communication. “Scienceblogs” in Germany, for instance, already reaches more unique users than the three biggest popular science publications on the market. Among the most relevant 20 titles in Germany, there is not a single one that has not lost between 20 and 40 percent in sold circulation within the last 10 years, as the author himself has shown in a recent media analysis (Gerber 2009:1).
Theses changes towards a much more interactive, collaborative communication between innovators or scientists on the one side and customers or users on the other side come into play in all the stages along the value chain:

Stage 1 (see 2.1) – Science
How can people inform themselves about complex subjects today, in the time of Web 2.0? Mere dissemination of knowledge about science & technology clearly is not enough any more and is proven to be an outdated concept. A possible solution lies in public “science debates”.

Stage 2 (see 2.2) – Ideation
How can interactive web technologies foster ideation and fit-to-market of future products? Possible solutions lie in communication strategies of "listening and discussing" instead of "sending and talking".

Stage 3 (see 2.3) – Innovation
How can innovation processes within organizations / institutions or within innovation

networks be supported by discourse technologies? Possible solutions indicate the use of debate tools and for knowledge management.

Stage 4 (see 2.4) – Diffusion

How does innovation communication affect technology diffusion in the time of Open & User Innovation? Interaction may give credibility and create transparency.

2.1 Interaction in Science

Just how dangerous is the concentration of „Bisphenol-A" in children's dummies? How much do we really know about when volcanic ash is dangerous for jet engines? What evidence do we have that speculators on the financial market were directly involved in the escalation of the EU currency crisis – and not merely the bearers of bad tidings which only became so visible when the magnitude of governmental mismanagement in the EU member states became clear?

The honest answer to such questions is: we don`t know. However, the reference to uncertainty should be no excuse for simply ignoring existing knowledge. Not knowing something often means that readily available information is not being used because it is simply too widely dispersed. Even experts often have trouble maintaining an overview. This is doubly true of the general public. In order to make discourse about complex social and political themes with a scientific background more manageable and accessible, the project[1] "Debate 2.0" at the *innokomm* Research Center is developing new formats for moderated and visualized online debates. This involves targeting researchers, journalists and political pressure groups and inviting them to take part. Since the format also allows for controversial viewpoints, not only is the current state of knowledge clear, but also the entire trial and error process within science is made accessible in a structured way to the public. Alongside the official experts basically everyone has the opportunity to put forward arguments and evidence.

To give an example: in the run-up to the US presidential elections, researchers analysed 171 TV interviews with the candidates, amounting to 2975 questions. Only 6 of those dealt with

1 See http://innokomm.eu/DEBATE.html

"climate change" (and 3 with "UFO"s). This was one of the major "reasons why" it came to the "science debate" – generating more than 800 Million page impressions – with dozens of further debates mushrooming in all areas of technology.[2]

Is this just an American phenomenon? What relevance does science have in European politics, European media, and in the general public? In his analysis of prime-time news in European TV shows Bienvenido (2008) showed not only an increase in number and airtime of science-related stories (by the factor 4 since 1989), but also that there were only 45 Sci-Tech topics among the 2676 news stories analyzed within two weeks (less than 2% compared to e.g. to 9,7% with crime topics).

Within the *innokomm* study "WK-Trends" the author of this paper also analyzed the general elections in Germany 2009 trough the most comprehensive survey among science journalists, science PR, and science centers, as well as among scientists and experts in communication research. The unambiguous result: less than 1 out of 9 people believed that the relevance of science during the campaign had increased compared to the previous election. (Gerber 2009:2).

From a theoretical point of view, research on interactive debates on science and innovation is based on or linked to sociological theories of Market Diffusion, Symbolic Interactionism, Trust Creation and Media Democracy by Rogers[3], Blumer[4], Luhmann[5] or Veld[6] to name just a few. The research is also linked to concepts for decentralizing decision making through e-collaboration, e-democracy, computer-supported cooperative work, deliberative democracy and collaborative innovation networks, as discussed for instance by Malone[7], Gloor[8], Friedmann[9], Norris[10], Hilbert[11], Davies / Gangadharan[12] and Noveck[13].

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2 See Shawn Lawrence Ottos's keynote presentation at the 2009 Nobel Conference: http://www.sciencedebate2008.com/www/index.php?id=71 (min. 25-26)

3 For more info about the five stages of technology adoption see Rogers, Everett M. (1962). Diffusion of Innovations. Glencoe: Free Press.

4 For more info about Symbolic Interactionism see Blumer, Herbert (1969). Symbolic Interactionism: Perspective and Method. Berkeley: University of California Press.

5 See Luhmann, Niklas (1968). Vertrauen: Ein Mechanismus der Reduktion sozialer Komplexität. Stuttgart: Enke [translated into English in 1979 as "Trust and Power", published at Wiley]

6 Veld, Roeland (2009). Knowledge Democracy: Consequences for Science, Politics, and Media. Berlin: Springer.

7 See Malone, Thomas (1997). Is "Empowerment" Just a Fad? Control, Decision-Making, and Information Technology. Sloan Management Review 23, 38, no. 2.

8 Peter Gloor is a scientist at MIT Sloan's Center for Collective Intelligence. For further information on Innovation Networks see Gloor, Peter (2005). Swarm Creativity: Competitive Advantage Through Collaborative Innovation Networks. Oxford UP.

9 Friedman, Will (2006). "Deliberative Democracy and the Problem of Scope". Journal of Public Deliberation, Vol 2, No 1.

Taking this transdisciplinary challenge into account, a successful realisation of the "Debate 2.0" project will need to achieve the following:

1. "Debate 2.0" works with the new technology of Online Deliberation. The common goal of this technology, which is being developed by international project partners, is to eliminate well-known and empirically documented forms of discourse malpractice in online discussions. For DEBATE 2.0 it is essential to empirically analyse how, independent of contexts, certain features and settings of Online Deliberation technology affect desired results. Previous scientific findings on this subject are comparably scattered and brought together in an interdisciplinary approach. The first step will be to systematically analyse the technical differences between available software tools for their suitability for different use cases.

2. For public discourse about science, technology and innovation new methods and editorial formats are being developed and tested. Established methods of cooperation management and group moderation are being carried over to the area of Online Deliberation. It is already becoming clear that these new types of discourse need skilled moderators with journalistic experience and qualifications.

3. Subsequent implementation of these newly developed methods is a part of the project. Since the involvement of scientists, journalists and political pressure groups is the mainstay of the project, success depends upon the complete support of political and scientific organisations.

   At the EU Conference "Media for Science" (May 2010) the project was presented for the first time. The capabilities of the tools described were demonstrated

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[10] See Norris, Donald F. (2007). Current issues and trends in e-government research. Hershey: Cybertech Publishing.

Especially pp.203-223: Kubicek, H. / Westholm, H. (2007). "Scenarios for future use of e-democracy tools in Europe."

[11] Hilbert, Martin (2009). "The Maturing Concept of E-Democracy: From E-Voting and Online Consultations to Democratic Value out of Jumbled Online Chatter", Journal of Information Technology & Politics. 6:2, 87-110.

[12] Davies, Todd / Gangadharan, Seeta P. (2009). Online Deliberation: Design, Research, and Practice. Centre for the Study of Language & Information / University of Chicago Press.

[13] Noveck, Beth (2009). Wiki Government: How Technology Can Make Government better, Democracy stronger, and Citizens more powerful. Brookings Institution.

experimentally[14]. Amongst others a discussion card was offered with the question "Communication failure or information deficit: Is there really such a thing like this?" Parts of the conference (e.g. "Web 2.0 and new trends in science communications") were reconstructed using dialogue cards. The official document of conclusions for the EU Conference was also presented as a dialogue card. A documentation for the entire prototypes exists online[15].

2.2 Interaction in Ideation

One of the web 2.0 technologies currently coming into question is "Debategraph"[16], a creative commons / open knowledge project. This technology has recently been applied for instance by CNN[17], BBC[18], The Independent[19] and even the Open Government Initiative of The White House[20]. The platform could almost be called the "Wikipedia of the Debates".

Other tools like "Deliberatorium" by Mark Klein[21] have been tested successfully within groups of several hundred participants (see Klein, 2008). The results of the debates are far more effectively and efficiently documented than in comparable collaboration environments like wikis or forums. Again, the aim is for large distributed groups to "efficiently arrive at well-founded conclusions concerning responses to complex challenges like climate change" (Klein, 2009).

However, such tools and methods are not only applicable to science debates but also to the process of generating ideas for new products and technologies or possible improvement for existing products, as originally suggested by Hippel (1986 / 2005) and his concept of "Lead Users".

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14 See http://mediaforscience.explorat.de

15 See http://innokomm.eu/resources/MFSF_Map-Documentation.pdf

16 See http://debategraph.org or a video demo at http://www.youtube.com/watch?v=32InMNjO4tQ for further info. Among the countless other software tools that could be applied to this task are: Mind Map / Mind Meister / Xmind, Compendium, Cohere, BCisive / Rationale and many others. The differences lie in their online/offline capability, interactive functions, collaboration etc.

17 See http://www.youtube.com/watch?v=eIlCFbmInPg&feature=player_embedded

18 See http://news.bbc.co.uk/2/hi/technology/7827112.stm

19 See http://www.independent.co.uk/environment/climate-change/mapping-the-contours-of-climate-change-1640886.html

20 See http://www.whitehouse.gov/blog/Open-Government-Brainstorm-Collaboration-in-Action

21 Mark Klein is a researcher at the MIT Center for Collective Intelligence.

The above mentioned project (“Debate 2.0”) will investigate, how companies can use an open in-house innovation culture as well as an external communication approach of "listening and discussing" for making use of the high potential of unheard ideas and suggestions for improvements by both employees as well as customers and (potential) users.

2.3 Interaction in Innovation

The objective of 2.2 is just as relevant for the innovation process as it is for the ideation, if we take into account how innovation is viewed since Chesbrough (2003) introduced his concept of “Open Innovation”: suppliers and partners, customers, users and even competitors are increasingly integrated into the value chain.

Apart from almost “classic” web 2.0 technologies like blogs and wikis, there is a mostly unexplored potential for the use of Online Deliberation in the context of an “enterprise 2.0”, which also requires investigation as to the chances of increasing the efficiency of knowledge management in the innovation process.

More importantly, if used for a public debate on controversial technological developments, deliberation technology bears the potential of fostering innovation in terms of building trust in new developments, thereby promoting society’s readiness for change and accordingly the diffusion or even adoption of these technologies in the market. Possible opponents of innovations may become much more cooperative if they were involved in certain opinion-making processes (e.g. on regulatory issues). They might even be encouraged to publicly state their point of view in detail, so that the pros and cons of a controversial issue can be discussed openly and balanced as neutrally and unemotionally as possible.

Whereas these public debates tend to be afflicted by a high degree of complexity that prevents the discourse from becoming truly transparent, their media images on the opposite are usually much too abstract to allow an in-depth exploration of the subject matter. The deliberation concepts described here solve this contradiction by providing the whole knowledge spectrum without confusing users with overwhelming complexity. Conflicting aspects are ordered and visualized in such a way that users are able to intuitively explore a certain subject in depth. Thereby, the so-called prosumers are being democratically

empowered to engage in the public discourse – almost at eye-level with experts and political decision-makers.

The key to a plurality of viewpoints lies in a well-balanced media image, which Kahan (2010) described as a "technique for mitigating public conflict over scientific evidence [in order to] make sure that sound information is vouched for by a diverse set of experts." Kahan also argues that "unlike commercial advertising […] the goal [...] is not to induce public acceptance of any particular conclusion, but rather to create an environment for the public's openminded, unbiased consideration of the best available."

In addition to objectifying and widening the public discourse, such debates should also facilitate direct responses by industries to governmental research and regulatory strategies and programs, thus improving technology transfer and market-orientation of publicly funded R&D.

2.4 Interaction in Diffusion

The most obvious application of online deliberation technologies would certainly be the integration of a public online debate within a marketing campaign to introduce a new product. If not provided by the vendor, supplier or innovator itself, but by a comparably neutral authority like a publisher, however, the potential of such debates goes far beyond a mere marketing impact. Nonetheless, future public online debates on innovation will (if they keep growing in terms of impact on both sales figures as well as policy makers) inevitably attract lobbyists and industrial pressure groups who will possibly feel tempted to exploit, manipulate or even instrumentalize the discourse. Therefore, especially in the last stage of the value chain, an independent moderation and community management is needed in order to research, validate and contrast certain facts, put these into the right context, initiate new discussions, and activate, approach and interview important players. Since these are actually all journalistic skills, this paper proposes a "new line of action" that could reinforce the demand for specialized (innovation) journalists capable of managing such interactive web technologies. Today, as authors and editors, they are mostly carrying "Science into Society", whereas in the future they will also be able to carry "Society into

Science". This is also in line with a proposal by the World Economic Forum. It's Global Agenda Council for the "Future of Journalism" issued a statement, demanding journalism to move from gatekeeping to a networked model, "where journalists […] bring sources and audience closer to each other, facilitating constructive interaction in society", as reported by Nordfors (2009) in his InJo blog.

3. Conclusion

Online Deliberation technologies offer a wide range of applications in all the phases of the value chain – from addressing science literacy to generating ideas and processing innovations more efficiently to fostering readiness for change as well as an "appetite for risk", as the World Economic Forum demanded in a recent statement, calling for an "attitudinal shift"[22].

Journalists, as neutral moderators and skilled researchers, could play a major role in these new contexts.

The challenge of applying deliberation technologies to science and innovation communication does not lie in re-inventing the wheel by developing yet another software tool without having the findings from communication research in mind. Instead, we need:

a) Empirical Research in order to find out which tools work best in which contexts. The existing body of research in this field is rather dispersed.

b) New methods for public discourse on science, technology and innovation. Established methods for cooperation management and group moderation have to be transferred to the realm of online deliberation.

c) Support from politics as well as from the main scientific institutions, in order to integrate such projects into the real process of defining the research and innovation agenda.

[22] See http://www.weforum.org/pdf/GAC09/council/innovation/default.htm

4. Outlook

The vision *innokomm* is working on together with its network partners, was recently and very accurately described by Mark Klein (2008) as:

„Today, governmental policy-making is complex, cumbersome, and slow. Experts can talk past each other, while experts and policy-makers have unproductive conversations. News media summaries are necessarily incomplete […] Imagine […] a new kind of on-line forum […], used around the world, by […] experts, policy analysts, legislators, and concerned citizens."

The *innokomm* project "Debate 2.0" is running from 2010 to 2012.

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