Social Robustness and the Mode 2 Diagnosis

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The Hansen and Kurath articles in the December 2009 issue have public engagement as their topic, and mobilize the notion of 'social robustness' as discussed by Helga Nowotny, one of the Mode 2 authors (see Nowotny et al. 2001). Janus Hansen used it as a link with public engagement and offered a plea for comparative studies which he located in a conceptual critique of the Mode 2 thesis. Monika Kurath decided to use her version of the notion of 'social robustness' to evaluate attempts at regulation of, and engagement with, nanosciences and nanotechnologies, conjuring up ratings for each of the cases she described.

Social robustness

Monika Kurath (2009: 90) assumes that the notion of social robustness is linked to the authors of the diagnosis of the Mode 2 of knowledge production, but the notion and the practice have a longer history. In particular, learning in and through controversies can be mapped and evaluated in terms of social robustness (see Rip 1986 and the literature referred to there). It applies to science-internal as well as science-external criteria of quality, and offers a comprehensive approach. Drawing on Stirling et al. (1999) and (Rip 2001), the approach can be formulated in three steps.

First, solidity of scientific achievments as well as of outcomes of controversies is a matter of alignment of findings, arguments, perceptions, interests, and dominant values – and circumstances. Quality and validity are *made*, and the 'robustness' of such constructions shows in its resiliency with respect to disturbances and interventions. The eventual alignment creates a repertoire of considerations which are difficult to go against (see the example of the smoking-health link, below). In that sense, the outcome is robust, even if it can be undermined when new arguments, interests, or values unravel the existing alignment.

Second, robustness resides in the combination of consolidation and well-articulated alignment. The smoking-health link, for example, was strongly implicated in the prohibition of smoking in some USA states around 1900, the argument being that smoking is what morally depraved individuals do (so it must be prohibited) and will lead to diseases (as punishment for their sins). This not very well articulated alignment broke down in and after the first world war, when the cultural aspects of smoking cigarettes shifted. Citizen groups started to send cigarettes to soldiers because the cigarette was an "indispensable comfort to the men." Moral associations now became positive, the cigarette being identified with "quiet dignity, courage, and dedication above all." (Troyer and Markle 1983, p. 40-41) In contrast, by the 1970s, after extended controversies, the smoking-health link had been

articulated in great detail, and cultural shifts (for example, the attempt to link smoking with individual freedom) could not undermine the "edifice" that had been constructed. (Rip 1986)

Third, antagonistic (and in general, agonistic) struggles provide coordination and learning: they force actors to articulate the merits of their position, to search for arguments and counter-arguments, to commission special research, to interact with more actors. Of course, such struggles can also lead to impasses, when parties limit themselves to mutual labeling the other as contemptibly wrong.

One can turn the understanding of agonistic alignment dynamics into ways to do better. This is how one can understand Nowotny et al.'s call for social robustness: they want to do better by strengthening the input of society ("speaking back to science"). However, this "doing better" is then reduced to interaction with and acceptability to publics, as Hansen and Kurath do as well. There is little attention to the question *why* this would contribute to doing better.

Other approaches to "do better" could be entertained. A concrete example is the SocRobust project (Larédo et al 2002), which developed ways to extend the horizon of managers of techno-scientific projects so as to improve eventual embedding of the (modified) projects in society. Constructive Technology Assessment (cf. Schot and Rip 1997) has the same overall goal, and has by now developed effective and reflexive ways to broaden techno-scientific developments, e.g. nano-sciences and nanotechnologies, starting with the immediate and secondary "enactors" of innovations (Rip and Te Kulve 2008).

Implications of the broader approach

One implication of this approach is that 'social' is superfluous as a qualifier: robustness is always social. The qualifier serves to push interactions with society, but that may background other important aspects of robustness, depending on circumstances. It may also induce shifts, as when Kurath (e.g. 89) focuses on robustness of governance, rather than of knowledge or innovations. She creates five dimensions on which to rate exercises in regulation and engagement. The added value of this evaluation, which are only tenuously connected with the Nowotny et al concept, is not clear because they are not operationalized sufficiently to allow the reader to recognize why the scores are given. Sometimes, the rating expresses enthusiasm about intentions rather than actual outcomes, for example with the UK NanoJury – which was a failure, I would argue, but is now rated highly by Kurath.

Similarly, Hansen (71-72) claims that "the image of 'social robustness' captures well the overall ambition of most public engagement processes whatever their specific format. The aim of most public engagement processes – at least according to their self-understanding – is to draw in various ways upon the experiences, knowledge and concerns of 'ordinary people' in order to develop science and technology in better accordance with the broader values and goals of the societies into which they are introduced." However, most exercises in public engagement are symbolic: "See, we have engaged", and not interested in better development of science and technology.

This is a critique of Hansen and Kurath, but also a stepping stone towards a critique of Mode 2. Hansen offers a lead into this, because his comments about the Mode 2 diagnosis are general and conceptual, not depending on the nature of public engagement exercises and their institutionalization. His key point is that the Mode 2 approach "fails to distinguish analytically between changes in the mutual interaction between

societal subsystems and changes occurring in the organisations producing and governing innovation." (p. 73) His reference to Luhmann here is less important than his subsequent attempt to capture what is happening by introducing the notion of 'resonance' between societal subsystems, and the idea of organizations having to operate in different contexts (with different 'codes') at the same time. The Mode 2 diagnosis can then be positioned as a specific cross-section of this complex constellation, focusing on moves of organizations to accommodate new contexts. However, Hansen does not develop this further because he is more interested in cross-national comparisons, and mobilizes ideas of Jasanoff to indicate dimensions of comparisons.

Mode 2 revisited?

What if one develops the multi-level perspective further? Should one revisit the Mode 2 diagnosis even if by now the original energy of the diagnosis has been spent? The ongoing changes discussed under the heading of Mode 2 are real, but the claim that they add up to a new regime is doubtful (especially in its triumphant version of the original 1994 publication). The claim of Mode 2 became a policy fashion (Rip 2000), but the policy agendas have moved on. But it was also an attempt to diagnose ongoing transformations. Even when one disagrees with the diagnosis, one can still learn from the attempt.

This is where Hansen's criticism of the Mode 2 diagnosis as empirically located at the level of organizations, rather than at the societal level where de-differentiation is claimed to occur, is valuable, independently of the reference to Luhmann. More relevant for an evaluation of the diagnosis of a Mode 2 Society (Nowotny et al. 2001) is Ulrich Beck's work on reflexive modernization (Beck et al. 1994). Many features of Mode 2 are instances of blurring of boundaries, a

key dimension of reflexive modernization. While Beck's programmatic diagnosis of first and second modernity (broadening his 1992 diagnosis of the risk society) is just as triumphant , and thus analytically disappointing, as in the original Mode 2 diagnosis, there is also an understanding of re-institutionalization as the reflexive construction of new boundaries and differentiations (Beck and Lau 2005, contra Nowotny et al (2001: 17) somewhat superficial critique).

There have been interesting empirical studies in Beck's DFG-funded Sonderforschungsbereich which show the interactions between the societal and organizational levels (see <www.sfb536.mwn.de>, cf. also Beck and Lau, 2005). With Pierre Delvenne, I have contributed to such empirical analyses by tracing changes in science institutions like funding agencies and Parliamentary TA organizations, and positioning them as instances of an overall pathway of reflexive modernization (Delvenne 2010, Delvenne and Rip submitted).

The question about the value of the Mode 2 diagnosis (revisited) then shifts to a broader question about new regimes of knowledge production that might emerge under changing societal circumstances and challenges. A key entrance point to address this question is how conditions and requirements for societal robustness of knowledge production are changing, and what the responses are from within the established system of (scientific) knowledge production, and from without. In Rip (2000) I offered a plea to postpone stabilization (i.e. a lock-in in a new regime) and be willing to entertain heterogeneity. This was a process argument, but based on the substantial diagnosis that the emerging regime of 'Strategic Science' would get locked-in prematurely. One normative evaluation included in this diagnosis was how techno-scientific promises lead to a focus on competi-

tion through (fast) innovation, which then backgrounds alternative innovation dynamics of 'collective experimentation' (Joly et al. 2010). These arguments still apply.

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