Science, Technology and Governance in Norway

Case study no 2: Controversy over institutional structure and design in Norwegian governance of science and technology[1]

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[1]   This study is a reworked version of paper presented at the EASST conference in York, August 2002.

Recent innovations in the institutional structure of governance of science and technology

Several institutional innovations bearing on the governance of science and technology have taken place in Norway since the late 1980s. In 1990, three national committees for research ethics were established, – for medicine and health research (NME), for science and technology (NENT) and for the social sciences and the humanities (NESH), respectively. Their organisational model was the Committee for Research Ethics for Medical Research that had been set up in 1978 by the medical sub-committee of what was then a separate research council for (primarily) university research (NAVF). As such, they were a part and an extension of the internal governance structure of science policy, set up as a preventive measure to ensure public confidence in science' upholding its ethical standards and commitments. However, its role for enhancing public awareness and debate on research ethics issues was emphasized, and two of the new committees soon took initiatives based on broad interpretations of the scope of research ethics, venturing far into general research policy (NEM) and technology assessment (NENT). NENT became a strong promoter of technology assessment at an early stage, and organized a major technology assessment project on salmon aquaculture in Norway. It also promoted the adoption of technology assessment approaches pioneered by the Danish Board of Technology, and was one of the initiators and organizers (together with the Advisory Board of Biotechnology) of a lay technology assessment conference in 1996 on GM food, seen as an experiment to get hands-on experience with this type of technology assessment. The conference was a success, and facilitated the later establishment of the Technology Assessment Board.

A key institution in the Norwegian governance structure for biotechnology is the Norwegian Biotechnology Advisory Board. This was established in 1991 as part of the regulatory structure of genetic technology that emerged from the political process in the *Storting*, the Norwegian Parliament, between 1987 and 1994.[2] A key component of its mission is to promote informed public debate on biotechnology issues. It has published a large number of reports addressed at the general public and schools, and organized numerous public conferences on all topical issues in biotechnology. It was a supporter and co-organizer of all three lay conferences that have been organized in Norway on gene technology issues (two on GM food, and one on stem cell research) – in partnership with the research ethics committees and, for the last two conferences, the Norwegian Board of Technology.

The Norwegian Board of Technology

A third institutional pillar of the governance structure of science and technology for which a concern with open, public debate and broad participation is important, was put in place in 1999 with the establishment of a technology assessment board on the Danish model. This turned out to be a protracted process in which a number of competing conceptions of and approaches to technology policy and assessment had to be sorted out through a controversy over its institutional design and structure.

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[2]   See case study 1

Phase 1: 1994 – 1996

The first extensive parliamentary debate about the desirability of lay and public debate-oriented type of technology assessment took place in the spring of 1996 following a private proposal in the *Storting* put forward in 1995 by a representative of one of the centre parties (then in opposition) that a broad commission on IT policy issues should be established. At the time when the *Storting* discussed this proposal the Minister of Trade and Industry of the Labour Government had recently published a report on information technology policy. A committee in the *Storting* criticized this report as being far too narrowly focused on scientific and industrial aspects alone, while issues of democracy, social access, power, and personal integrity were hardly addressed. The committee emphasized that this radical technology raised issues that should be submitted to a far broader debate both in thematic and participatory scope than the government report envisaged by the report. On these premises, a majority in the Storting, members of the Labour Party included, proposed that a technology assessment agency, possibly on the model of the Danish Technology Board, might be appropriate, and should be considered. The close links of the Danish Technology Board to Parliament were emphasized, and the task to prepare a report on whether such an institution should be established in Norway, and if so, what type of institution it should be, was untypically assigned to the administrative committee of the Storting itself. According to normal constitutional practice, the task to prepare such a proposal should have been forwarded to government.

The debate that followed on the institutional affiliation of the new technology assessment agency was no doubt influenced by the ongoing controversy on what was seen by the opposition in the *Storting* as Government's ´manipulation' of the work of one expert committee whose recently published report on 'green taxes' was debated in *Storting* at the same time. Thus, conventional assumptions that the work of such committees appointed by Government are predominantly expert-based and hence basically 'neutral' had been questioned, and the idea came up in the debate that Parliament should establish an apparatus of its own, independent of Government, for preparing debate on specific issues in Parliament.

Thus, the issue that took precedence in the Parliamentary debate on technology assessment was that of *institutional affiliation* by which the majority emphasized in fairly explicit terms that the new institution should 'belong' to the *Storting* rather than Government or the 'state' more diffusely. While the issue was phrased in terms of the 'independence' of the new institution, it became clear that this meant more than anything else that it should be beyond the scope of direct, governmental instruction, while at the same time retaining some proximity to and privileged relationship with the *Storting* itself. However, the report presented in October 1996 by the *Storting* committee for administrative affairs opposed the idea of an institution formally organized as an agency of the *Storting*. It discussed, however, this formal issue only, and not any of the substantial issues of what type of institution it should be. On this formal issue, the committee proposed that normal constitutional practice be followed according to which the proposal to establish a technology assessment institution should be sent to the Government for further elaboration, adding, however, the proviso that the government should in this specific case submit its detailed proposal to the Storting for approval. The majority of the administrative committee and the *Storting* as such, considered – finding support in the reorganization of the Danish Technology Board in 1995 – that the unique requirements of such an institution could be met without having to go to the extreme of establishing a new institution directly affiliated to Parliament. According to the committee, the main concerns involved could be accommodated within the extensive scope for independence accorded already in normal practice to several governmental institutions, in particular within the domain of science policy (such as the

Research Council of Norway (RCN, *Norges forskningsråd*), the Advisory Board for Biotechnology (*Bioteknologinemnda*) and the research ethics committees).

Phase 2: 1996 – 2000

Internally, the Government assigned the task of preparing the proposal of a new technology assessment agency to the Ministry of Trade and Industry, a choice seen by many as unfortunate and inappropriate, given the premises from the Parliamentarian debate from which it originated in which the Danish model for fostering lay participation and broad public debate had been emphasized. Despite the many references to the Danish Technology Board in the debate in the *Storting*, these premises were not very specific, and representatives of the Labour Party which was then in Government had already taken explicit reservations about the appropriateness of the Danish model in the debate in the *Storting*. Thus, beneath the general, but diffuse consensus in Parliament that some type of new, independent technology assessment agency would be useful, clear differences among the political parties could be detected, – and subsequently emerged. The coalition that often recurs in Norwegian science and technology between three centre parties and the Left Socialist party remained committed to the Danish model, emphasizing democracy, lay participation and scepticism of the neutrality of (governmental) expertise. A variant of the same coalition had been formed and exerted strong influence on the process that led to the establishment in the early 1990s of the legal and regulatory framework of Norwegian biotechnology policy (see Case Study 1) in which a restrictive regulatory policy with a strong emphasis on ethical concerns was put in place. The position of the Christian-Democrat party may be seen as crucial, having made ethics in general and a strong role for ethics in the policy framework of biotechnology, core parts of its overall political profile. This party enjoyed a key political position throughout the 1990s when all governments have been minority governments. Its position as a potential coalition partner both to the left and the right, partly explains the centrality of science and technology policy, and in particular of ethics – or ELS aspects – in biotechnology in general (party) politics.

The technology assessment issue thus rekindled a more general political configuration, in which this 'sceptical' coalition became pitted against the more 'pro-active' technology policy faction, whose main protagonist is the Labour Party, most often joined by the Conservative Party, while the right populist progressive party is posited in a less pre-committed and predictable role. The reservations voiced by the Labour Party in Parliament as to how the decision by the *Storting* to establish a technology assessment agency should be interpreted were transformed in the governmental report prepared by a group of civil servants under the leadership of the Ministry of Trade and Industry into a proposal in which the pro-active role of the new agency was emphasized, and a solution indicated by which the RCN would be assigned overall responsibility. The report was finalized in December 1996, but its proposals were perceived as politically inadequate, and the Government hesitated in presenting them to Parliament.

However, after the general election in the autumn of 1997, a new Centre government replaced the Labour Party Government. The deadlock of the issue of technology assessment agency was then soon resolved. Governmental responsibility for the issue was transferred from the Minister of Trade and Industry to the Minister for Education and Research, and the establishment of a Danish type of technology assessment agency was proposed in the autumn of 1998 as part of the budget for 1999. This met with no opposition in the *Storting*, and the Norwegian Board of Technology was formally established in April 1999. The new institution was set up in the same localities as the research ethics committees and the Advisory Board for Biotechnology, and the

administration of the research committees temporarily took on its administrative functions until a permanent infrastructure could be put in place.

Phase 3: 2000 - 2002

This does not, however, end the story of the convoluted political birth of the board. The centre government resigned in March 2000 and was replaced by a new minority government from the Labour Party. As part of its discussion on the distribution of political responsibilities between ministries it debated a proposal to transfer a substantial part of the science policy portfolio from the Ministry of Research and Education to the Ministry of Trade and Industry. The most important consequence of this proposal would be the transfer of responsibility, both administrative and budgetary, for the RCN, distributing the equivalent of 25 percent of all public research funding, i.e., the bulk of discretionary public research funds. Although such a transfer may not be unheard of internationally, it was radical and surprising in a Norwegian science policy context, and sustained the perception of the Labour Party as a party that placed innovation policy at the core of science policy. In support of this perception, the RCN that by this time had largely overcome its paralysis following the major re-organization in 1992–93 of the research council system, had emerged as a high-profile innovation policy agency with an uncompromising and increasingly influential pro-science and technology policy voice. The internal debate in the Government on science policy portfolio became a battle of political giants between two strong ministers of the Government. While the Minister of Trade of Industry emerged as the overall 'loser', as the RCN remained under the Minister for Education and Research, her defeat was softened somewhat by the transfer of political responsibility for Norwegian EU research and for the Technology Assessment Board that had been established one year earlier.

In a report of May 2000 on IT policy issues, the Minister for Trade and Industry informed parliament about her intention to redefine the mission and redesign the structure of The Board of Technology. The main consideration was the transformation of the Board from being what it saw as an institutional stronghold of technology scepticism and conservatism into an agency that would join the policy efforts to promote technology. The reorientation of the Board from a scepticist to a pro-active technology agency was soon framed in terms of the unfulfilled need in Norwegian science and technology policy for 'technology foresight', thus profiting from an ongoing science and technology policy debate in which the lack of organized technology foresight in Norway was addressed as one of its characteristics – and deficiencies. This was actually also one of the conclusions of an international evaluation published in December 2001 of the RCN, here, however, as a criticism of the Council. In addition to defining a more proactive mission for the Board in terms of its taking up technology foresight the Government wanted to extend the number of members to allow for more technologists to be appointed, and to relocate its administration from the centre of Oslo to the University of Science and Technology (*Norges teknisk-naturvitenskapelige universitet*) in Trondheim, 'the technology capital' of Norway.

Normal constitutional practice is that organizational issues within government are no concern of Parliament. The Government claimed accordingly that it was constitutionally authorized to make decisions about the organization of the Board without approval by Parliament, and changed the Board's terms of reference in November 2000. At the same time, the Ministry of Trade and Industry sent a letter to the Board, announcing the Government's decision to relocate the administration of the Board to Trondheim.

However, the prehistory of this particular institutional issue in the debates in the *Storting* precluded it from being settled according to normal constitutional practice. The Board had itself protested against the intended changes from the beginning of the process initiated by the Labour Government in spring 2000. Its protest that the changes would amount to a fundamental 'change of mission' was eventually supported by a majority in the *Storting* when, in December 2000, it refused to accept the Government's decision to change the terms of reference and move its administration to Trondheim. Government would instead have to present a separate White Paper to the *Storting* on the organization of the Board of Technology.

At this stage, however, many disagreements between the Board and Government on the wording of its terms of reference and the number of members had been overcome. The Board responded in August 2000 to the draft proposal by the Government of its new terms of reference by presenting a draft of its own. Here, however, the initial resistance of the Board to the notion of foresight had been reassessed, and it acknowledged that a forward-looking stance is justified and in itself not incompatible with the independence which must underpin its critical role and emphasis on lay participation and public debate. The terms of reference adopted by Government in the November decision was almost to the letter those proposed by the Board. The membership issue had also been redefined as non-essential, given the high proportion of technologists among the members already appointed. Only the relocation issue remained, indicating that the core of the controversy was the issue of the institutional affiliation and loyalty of the Board to the *Storting*. It may also be seen as the remaining symbol issue for the *Storting* to state its non-compliance with the 'arrogant' approach of the Labour government, when in 1998 it had challenged the majority decision in the *Storting* that the board should be a Danish model assessment agency.

The Government declared that it was not willing to renege on its position on the relocation issue. It did not, however, rush the issue, and no White Paper had been forthcoming at the time of the general elections in the autumn of 2001. The Labour government then resigned as a result of these elections, and was replaced by a new, centre-right coalition with the same Christian Democrat politician as Prime Minister as the centre government coalition in office between 1997 and 2000. Thus the table had been turned, and when the White Paper finally appeared in March 2002 the centre-right government had removed the relocation proposal while the changes in the terms of references and membership composition that had already been determined by the Labour Government in November 2000 were confirmed.

Thus, six years after the proposal to establish a technology assessment agency was initially put forward, and three years after its actual establishment the Norwegian Board of Technology finally encountered somewhat stable political framework conditions. From a tumultuous political process of which it was the victim, it has emerged with a mission where the emphasis on lay participation and public debate has been reconfirmed, and responsibility for technology foresight added. The activities of the Board no doubt suffered although several projects were successfully completed during the time of controversy including two lay conferences, one on genetically modified food in 2000 – a follow-up conference of that held in 1996 on the same topic, and one on stem cells in 2001. In both cases, the media coverage was extensive, and the statements of the lay panels were used in the political process.

Remarks and reflections

How may the convoluted and idiosyncratic story about the politics of one small institution, even in Norwegian terms, be translated into a more general insight on precepts for the emergent

'new' – more transparent, more participatory, more accountable – politics of science and technology on a European scale?

Innovation and adaptation

The story of the establishment of the Technology Board is a story about institutional innovation to enhance accountability, public debate and civic participation in the governance of science and technology. It is *prima facie* a case of importation and adaptation of an institution explicitly modelled on the Danish Technology Board. References to this model institution and to Danish experiences with lay technology assessment abounded in the debate and played a key role for articulating and justifying the proposal to establish an independent institution that should foster lay participation and public debate in technology policy. Such references were often used to counter the attempts to create an institution that would deviate too much from this model. However, the process within which the Norwegian variety of this technology assessment agency was established and designed can hardly be adequately described as a simple implementation of given institutional and methodological models. As the story indicates, the 'model' – itself a selection customized for the Norwegian debate of features and experiences from the variegated Danish experiences and methodologies for technology assessment – were contextually amended, and had to be structurally adapted to the institutional structure of Norwegian parliamentarian governance, and its mission readjusted through a political process in which general approaches to science and technology policy of major players were pitted against each other, and to some extent redefined (through the 'compromise' over foresight).

Negotiated independence

As we saw, independence was a core issue in the debate over the institutional design and location of The Norwegian Board of Technology. While independence was seen as a constitutive feature of the Board, the issue became narrowed down to one of independence from a Government seen as capable of using and orchestrating experts and science and technology policy institutions for its own political purposes. In this case, some formal, eventually non-formal, but effective, link with the Storting would be the basis of its independent institutional position. Furthermore, it was also recognized that the independence envisaged would not in any case be 'pure'. Its actual implementation would imply some accommodation with the practicalities of budgets, nomination and appointment of members, formal reporting and administrative structure. More subtle institutional relationships of ownership and loyalties would also have to established, corresponding or not with formal structures. From these issues, various kinds of dependencies could emerge, creating opportunities for contention and venues for hegemonic influence. None of the players in the Norwegian debate questioned the premise that institutional independence was essential, but each player interpreted and appropriated that notion differently. As we saw, it was eventually agreed that the issue was not so much about the formal link to Parliament, as its location outside the scope of governmental instruction. However, while this requirement was not seen as necessarily incompatible with some form of formal link to government, the assumptions implicit in the original proposal by the majority in Parliament were seen to be violated by the interpretation that the Ministry of Trade and Industry used to underpin its proposal to make the Research Council the overall organizational framework of technology assessment. The particular type of independence the Council enjoys may functionally be the exact opposite of that envisaged by the new technology assessment agency. The independence of the latter would provide an appropriate institutional basis for assisting the Storting and the general public in becoming more aware of the political dimensions of science and technology. The independence of the Research Council may, on the other hand,

as a more traditional science and technology agency, may more easily fit into the governance framework within which de-politicization is seen as a pre-requisite for achieving its goals. This was, for example, how the international evaluation of the Council interpreted its independence (Technopolis, 2001). Framing its independence in New Public Management terms, the evaluation team saw the loosening of the Council's formal links with ministries as a pre-condition for its effective performance as strategic agent in the National Innovation System. The solution finally chosen for the Board of Technology combined minimal formal links to government through the Ministry of Research and Education with a recognition by Parliament (in the debate in the *Storting* about the 2002 White Paper) that it should assume 'some extent of ownership' of the Board.

The Parliamentary connection

One indicator of political normalization is the larger extent to which science and technology become topics for general public debate and issues in the general political process, one expression of which is their increasing role in the Parliamentary process. The institutional identity and functions of the Norwegian Board of Technology, as well as that of the other major institutional innovation mentioned earlier – the Advisory Board for Biotechnology – were largely determined by the political process in the *Storting*, and by the configuration of party politics in Norway during the 1990s. Both were established as a result of proposals that were initially put forward in the *Storting*, not by Government. While the Norwegian Board of Technology may still have to make a substantial impact on deliberations in the Storting, the Norwegian Biotechnology Advisory Board has established itself in a key position in the general political process about issues of biotechnology, i.e. through its key role in the regulatory framework of two laws that are regularly taken up in the Storting for re-evaluation and revision.

The design and institutional location of both these institutions are thus the results of processes in which the core institutions of representative democracy ('*democratie délégative*', Callon et al., 2001) were key players. While closely linked to the *Storting*, and thus being part of the Norwegian structure of Parliamentary governance, they simultaneously both fall within the category of institutions for enhancing 'dialogical democracy' (Callon, ibid). The structure and role of these kinds of institutions as part of this structure of governance may thus provide a venue for exploring how 'dialogical democracy' may supplement, enrich (ibid, 310) and interact with the processes and institutions of representative democracy. While phrasing the relationship between the two types of democracy in terms of supplement and enrichment, the analysis of Callon et al. in fact emphasizes their differences and contrasts, rather than their interlinkage and mutual support.

While the institutions of representative democracy – Parliaments, political parties etc. – may be deficient on several counts, part of the governance debate may also be how to devise strategies for *counteracting* prevailing processes of 'sub-politicization', by which, i.a., political issues are being submitted to formal-legal regulation (e.g. by European regulatives), and welfare tasks transferred to the market. Part of a strategy to counteract this erosion of the role of politics and the influence of the institutions of representative democracy may, for example, be to establish institutions that assist these political institutions in identifying the political stakes of the issues and articulate available political options. They may thus enhance the capacity of political institutions to bring back into the public-political sphere issues withheld from open scrutiny and properly political handling through processes of 'sub-politicization'.

Governance and politicization

The history of the establishment of the Norwegian Board of Technology can hardly be seen as a case of 'best practice'. The activities of the Board no doubt suffered severely from the party politics of which it became a victim, having to live with an uncertain future and self-identity for three years after its formal establishment. It may, then, inversely be seen as a case of 'bad practice' to be avoided at all cost, and its culprits being those who drew technology assessment into a process of party politics, the effects of which cannot be, according to some, but distortions and inefficiencies. However, if party politics – with its petty politicking and 'ignorance' about the finer points of technology assessment – was a source of conflict and confusion, it was also what gave the Board political centrality.

The history of the Norwegian Board of Technology concerned the political negotiations by which a completely new institution was fitted into the general structure of governmental-parliamentarian governance, the effects of which have become constitutive parts of its mission, institutional identity and location. Accusing politicians of having 'misunderstood' the true nature of democratic technology assessment, for example, bringing about its distortion in a process of 'politicized' implementation would be missing the point. Through the political implementation process key political concerns and sensitivities were incorporated into its structure, without which it runs a high risk of political marginalization and loss of commitment by the political institutions it is supposed to assist.

Foresight

In the political controversy over the Norwegian Board of Technology, 'foresight' became a key issue, and was first used by the Minister of Trade and Industry to frame the agenda for a re-organization of the Board established in 1998 as an institutional foothold for technology scepticism. As we saw, however, 'foresight' did not survive as a device for defining the fronts and options in the technology assessment debate. While the Board initially resisted the attempt to redefine its core mission in foresight terms, it eventually re-interpreted and appropriated the concept as compatible with its mission.

Foresight is often conceived as an organizing socio-political process by which the commitment, communication, concentration (on the longer term), consensus and coordination (the five 'C's of foresight, Ben Martin) among the key players may be created, by which foresight may in some sense become self-fulfilling prophesies. There cannot but be a small step from this explicit acknowledgment of the key role of social rather than purely technical-cognitive processes in foresight to some awareness of their inherent political dimension. Part of the conditions for creating the self-fulfilling dynamics of foresight processes is not only the social and cognitive coordination among the concerned parties in research, industry, consumer groups etc. Equally important is to create political commitment by the governmental-political partners to channel R&D resources from the public purse to the technologies and applications selected, and to create through political decision incentives and regulatory frameworks that may be conducive to the development of the technologies and applications that are prioritized.

As recognized by the technology foresight project of the Danish Technology Board (Teknologirådet, 1999), it is both possible and desirable to adopt a broader participatory approach to foresight than what is found in most countries' foresight activities. The report recommends that organized interest groups and NGOs should participate in TF activities in ways and to an extent which accords with the Danish traditions for involving lay citizens in technology assessment. The Danish report, as well as the mission of the Norwegian Technology

Board as re-phrased in the 2002 White Paper, at least provide the possibility of a more democratic and participatory approach to foresight, and an opportunity for participatory technology assessment to redefine itself in a more pro-active function within technology and innovation policy.

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