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Norwegian National Research Foresight: Case Study of an ICT Foresight Project

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Purpose

The brief presents results from a case study of a foresight project conducted by the Research Council of Norway in the field of information and communication technology (ICT) in 2004. The main aim of the foresight project was to provide insight into the challenges facing Norwegian ICT research in 2015.[1]

[1] The findings presented here are the result of a case study conducted by the author and do not represent the official evaluation of the foresight project by the organizers and project owners.

Widening the Debate on the National Research Agenda

In autumn of 2002, the *Research Council of Norway* (RCN) launched a comprehensive foresight project as a response to an international evaluation of the Research Council. The evaluation had recommended launching a foresight process to initiate a "wider than normal debate about priorities and empower more parts of society in relation to the national research agenda" (Arnold et al. 2001).

The comprehensive foresight project was a first attempt to use a participatory approach by involving a large number of stakeholders representing research and industry. Five separate foresight projects were organized, covering the areas of ***aquaculture, clean energy systems, material technology (nanotechnology), biotechnology and ICT***. Between thirty and forty external participants were invited to participate in each of the five projects. The project was described as a "development and strategy project" with both "theoretical and method-oriented objectives" (RCN 2006). It was part of a larger organisational process designed to serve as a new way of informing strategy processes and to help detect possible new research areas of crucial interest to the RCN and to national research development.

Organizing Foresight

Between 2002 and 2005, five foresight projects were conducted. They were headed by project groups consisting of ten to fourteen members, who were responsible for the design, conduct and results of the projects. They included both RCN staff and representatives of research institutes, universities and private companies invited by virtue of their professional backgrounds, experience and perspectives. Responsibility for the projects was thus distributed among different actors within and associated with the RCN. The five project groups had to report to the line management of the three divisions of the RCN and received guidance from a cross-divisional management group. The comprehensive foresight project was also required to meet the expectations of three boards overseeing the three divisions

(see RCN 2010). All five projects used scenario building as their common method, but the approaches were organized slightly differently in each case.

Case Study: Foresight on ICT Research

The foresight project on ICT research was to achieve closer cooperation between public and private actors and to inform a new large-scale programme on ICT research.[2] This process lasted from mid September 2004 to January 2005. During September and October of 2004, two two-day workshops were organized involving forty participants. The main activities of the workshops included

- discussing driving forces that will influence the sector over the next twenty years;
- developing scenario models and drafts about how these driving forces will influence developments over the next twenty years;
- developing larger scenarios based on these drafts; and
- preparing strategic recommendations.

The workshop groups delivered six scenario drafts to the foresight project group. Two workshop groups had focused on **"*surveillance*"** and a **"*warden society*"** in which the need for security leads to new ICT solutions. A second group contributed the idea of a **"*user society*"** in which ICT research is completely user-driven and geared towards entertainment. Group 3 had focused on a **"*competence society*"** in which research priorities are set on a national basis and aim at improving competence among all citizens. Group 4 had focused on the ***regional aspects*** of social and technological development. Finally, Group 5 had concentrated on developing an idea about researchers being **"*out of sync*"** with the rest of society and living in an ivory tower, indifferent to social developments around them.

Research out of Sync, Consumerism and R&D Policies

After the first two-day workshop with forty participants, the project group together with two consultants with narrative skills conducted six meetings over the course of three weeks to establish three coherent scenario stories. Here several issues emerged. The scenarios were meant to address the question of how ICT research should be conducted in the future and how it might improve long-term decision-making in the RCN. Six scenarios were deemed too many while three based on distinct storylines were considered sufficient.

A first scenario called **"*The Spirit of the New ERA*"**[3] was developed. Here, ICT development would become part of a state-governed strategy giving priority to national research. According to the facilitator, this scenario could create a "marketing effect" for the RCN.

A second scenario, called **"*eConsuming Norway*"** focused on consumerism, short-term solutions and applied ICT research, using ideas from two scenario drafts. Finally, elements from groups 1 and 5 formed the basis for a third scenario called **"*Out of Sync*"** showing the entire ICT research community as out of step with societal development and being only interested in furthering basic research. The workshop scenario drafts were thus ordered into stories that were assigned different roles in ICT research policy.

Challenging the Scenarios

Several challenges emerged in the process of writing scenarios about the future of ICT research. First of all, the ***lack of attention to future technological development*** in the scenarios was addressed several times, and some group members asked for a technology scenario to be added. Second, the scenario "The Spirit of the New ERA" was repeatedly criticized for its obvious focus on a ***strong state-governed research policy***. Third, the scenarios were supposed to be ***evaluated by different stakeholder groups***, such as the project group itself, the workshop group of the forty participants that had contributed the original ideas, and the different organisational units in the RCN (see organisation).

The scenarios were thus meant to be relevant to a wide range of processes outside the foresight project. This was a challenge that influenced the discussions during the writing phase but did not necessarily contribute to developing the stories themselves during the meetings. The main writing activities were conducted by four group members who were RCN employees, hired consultants and the facilitator in between meetings. The writing process resulted in the three scenarios described above.

Can Change be Progress?

The scenarios were presented in the second and final workshop, again conducted with forty participants, where they were evaluated for their strategic relevance. Some of the uncertainties resurfaced in the discussions that had already emerged during the writing stage.

The external experts argued that there was not enough information on technological developments in the scenarios. However, according to a RCN employee centrally involved in the process, the scenarios

[2] The case study discussed here is based on firsthand observations of the process, including participatory workshops, meetings of the ICT foresight project group, the process of writing scenarios and the final evaluation of the scenarios in relation to the development of the ICT research programme.

[3] ERA stands for European Research Area

were meant to ***introduce change*** – change in ways of thinking about ICT research, the future and strategy.

Not all ICT research could succeed in Norway, so some of it, basic, applied or industrial, would have to be scaled down or organized in a different way. New combinations of research to foster innovation as well as novel social contextualization should move to the forefront to meet the challenges spelled out in the scenarios.

Yet, according to other group members, it was especially important to highlight the aspect of generic ICT research in the research programme in order to "push the whole research field and ***contribute to progress*** within ICT research". This focus on generic ICT research, such as micro-technology, infrastructure and distributed applications, had not been considered in the scenarios. Because the scenarios failed to provide ideas on technological development, the stories sounded unconvincing to the ICT experts. Their strategic interests were first and foremost geared toward *enhancing competence* and *scientific progress* not *social change*.

The request to reconsider the relevance of the scenarios and to base the research proposal on a notion of *change* rather than *progress* was clearly considered too risky an investment.

The scenarios did therefore not influence the programme proposal published early in 2005. The committee evaluated them as irrelevant for informing the new programme in their present form.

Learning from Challenges

The main challenges highlighted here concern participation, scenario writing and relevance. The particular context, conditions and implementation of the foresight project show that these were challenges related to the specific context. Yet, they also have more general implications for foresight practice.

Difficulties in Involving Prominent Actors

The participation of representatives of powerful research organizations in the development of priorities in national research policy represents a challenge for foresight organisers. When participants are asked to actively promote their interests in a foresight process, those who do not receive sufficient attention will find it difficult to mobilise resources and make their voices heard (Salmenkaita and Salo 2004). Therefore, organisers should attempt to police attempts to push sectoral or individual interests (Cuhls and Georghiou 2004). In the ICT foresight project described above, participants were asked to put their sectoral or economic interests aside during the foresight workshops. This, however, led to uncertainty among the participants about how to employ their expertise in developing relevant scenarios. Ensuring quality, relevance and representativeness is thus a challenging balancing act for organisers of foresight processes.

How to Ensure Representativeness in Scenario Writing

Foresight activities are often structured around a core group of key actors assigned responsibility for choosing the topics treated, scenarios written and recommendations given (Rask 2008). Foresight literature addressing the scenario writing stage is mostly prescriptive and discusses possible or optimal approaches depending on which areas scenarios are meant to inform, i.e. strategic planning, research policy or public debates on future technologies. Empirical knowledge about the negotiation of scenario writing seldom enters the wider professional and academic research arena. The case study shows that scenario writers not only collect and re-present scenario ideas. They are also scenario *authors*, employing their narrative skills, personal style and perspectives. This poses challenges to foresight in terms of representing the broad variety of participants' perspectives and ideas.

Foresight and R&D Policy

According to Dannemand-Andersen and Borup (2006), the managers of national research programmes are in a situation where they must muster support for specific decisions about national research priorities. In this respect, there is uncertainty about how to implement foresight exercises within research councils. Foresight can be understood simply as a type of output for *better informing* policy-makers and thus as standing in a loose relation to decision-making (Brown et al. 1999). Scenarios introducing ideas about socio-technical change run the risk of becoming irrelevant if research priorities are developed according to an understanding of progress as the advancement of scientific knowledge alone.

A final question arises about the initial goal of the ICT foresight project to perform a "policy foresight" instead of "technology foresight" exercise. Claiming that the objective of the foresight project was to produce a "policy foresight" study, so it seems, may have been a strategy to avoid reducing the discussion of priorities to issues of technological progress and development only, while allowing to include notions of societal change.

Yet according to the foresight project leader, it had been especially important to highlight the aspect of generic ICT research in the research proposal in order to advance ICT research. The research programme itself was meant to take societal issues into account but was not aimed at applied research. The original objective of the foresight project on ICT, with its broad focus on *socio-*

technical speculations rather than *technological extrapolations*, presented something of a quandary. The scenarios were meant to contribute to "increasing the quality of research priorities", but the need for generic and basic ICT research was not to be excluded from this process. In this respect, the foresight process discussed here shows the difficulty of combining insights about potential change gained from foresight exercises directed at the future with the demands of making decisions about investments in key research areas today.

Sources and References

The brief presents issues of scenario development discussed in a PhD thesis currently being reviewed by a PhD committee (June 2010). More information on the foresight project and the PhD thesis can be acquired by contacting the author.

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