OUTLOOK (2005-2015) ? an ICT Foresight exercise directed by the Research Council of Norway (RCN)

Contents

Background

In autumn of 2002 the RCN launched a comprehensive foresight project as a response to an international evaluation of the Research Council. The evaluation had recommended to initiate foresight to invite to a ?wider than normal debate about priorities and empower more parts of society in relation to the national research agenda?. This recommendation led to the initiation of the ?Foresight project CREATE?. The project was described as a ?development and strategy project? with both ?theoretical and method-oriented objectives?. 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.

For information about the Norwegian research system see Norway's National Profile on ERAWatch.

Responsibility

The foresight project CREATE 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 organised, 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 projects were headed by foresight project groups consisting of ten to fourteen members, which 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 CREATE project was also required to meet the expectations of three boards overseeing the three divisions. All five projects used scenario building as their common method.

See also Practices:Scenario Building

Single case study of ICT foresight project OUTLOOK

The following account is based on a PhD thesis delivered to the University of Oslo in March 2010 which is currently being reviewed by a PhD committee. It is a single case study of the ICT foresight project conducted by the RCN in 2004, based on first hand observation of the process. This process lasted from mid September 2004 to January 2005. The narrative includes three issues of foresight approach and scenario development which address participation, scenario writing and evaluation as experienced in the foresight project on ICT.

Participation and open approach

In July 2004, two months before the first workshop meeting, the organisers of the foresight project sent out an invitation to about forty potential participants. The invitation was sent out to representatives of public and private research institutes, university professors, business leaders, ministry officials and representatives of public institutions, such as the central tax office, the post office and hospitals. The invitation implied that the foresight project was not directly about ?technology foresight?, involving anticipating the development of certain areas like artificial intelligence or virtual reality. Its aim was rather to help define the research priorities to be included in the new ICT research programme ?placing Norway at the forefront of ICT development and the application of ICT-based knowledge to innovation and interaction?. Further the invitation stated that the participants were required to contribute to an open and constructive dialogue. They should not be regarded as official representatives of certain economic or sectoral interests, but participate by virtue of their own competency and creativity.

In September 2004 the first workshop dedicated to scenario building was conducted by a hired foresight facilitator with comprehensive experience in leading participatory exercises. The forty participants were asked to work in six groups which had been designed and arranged beforehand. Scenario ideas were collected based on an open approach.

The participants were asked by the facilitator to collect as many driving forces as possible. Driving forces (df) could be trends, events, factors, and big actors, in short, anything that might influence the future. Later, after the ideas had been compared and discussed within the groups, the groups were asked to develop each two scenario models, for example scenario axes models, choosing from the driving forces collected within the groups. This resulted in a high variety of df, models and combinations of df among the groups. This very open approach to both collecting driving forces and developing first scenario models shows that the exercises were not meant to establish consensus about the most important df, but rather to cover as wide a perspective on the future as possible.

Scenario writing

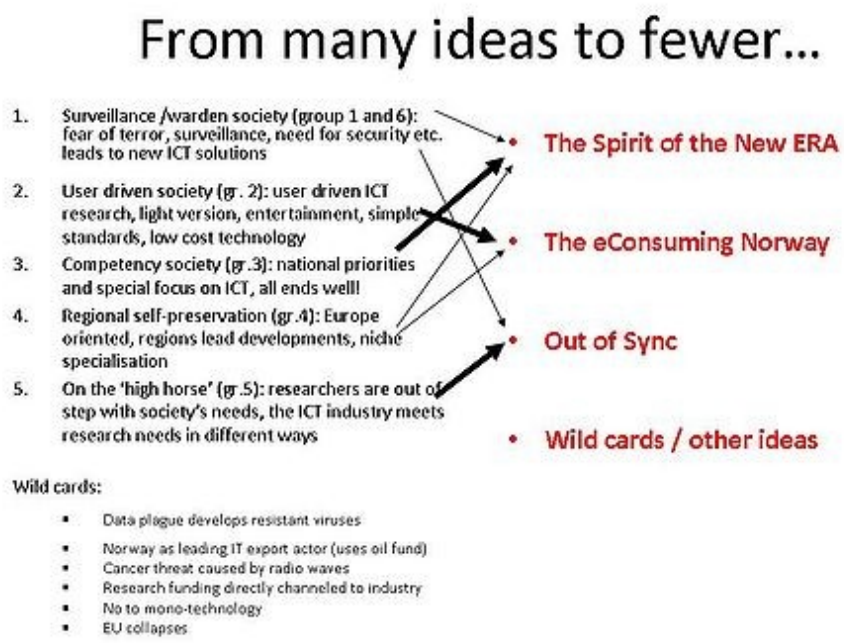

Figure 1: Organising six scenarios into three, model developed by foresight facilitator

The six workshop groups delivered six scenario drafts to the project group. Groups 1 and 6 had focused on ?surveillance? and a ?warden society? in which the need for security leads to new ICT solutions. Group 2 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 made on a national basis geared towards 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. In addition to these main themes, ideas representing discontinuity had been assembled under the heading ?Wild cards/other ideas?. These were, according to the three project members who systematised the six scenario drafts into three scenarios, not relevant enough for the creation of scenarios (see Figure 1).

After the first two day workshop with forty participants, the project group together with two consultants with narrative competencies conducted seven meeting over the course of three weeks to establish three coherent scenario stories. Here several issues emerged. The scenarios were meant to address the question how ICT research should be conducted in the future and support better long term decision-making in the RCN. Six scenarios were deemed too many, while three would have to deliver inherently different stories. According to the project group elements from scenario drafts 1, 3 and 4 could be combined to create a first scenario called ?The Spirit of the New ERA?. In this scenario, ICT development would become part of a state-governed strategy giving priority to national research. The title of this scenario would create a ?marketing effect? for the RCN.

Elements from ideas 2 and 4 could be combined into a scenario focusing on consumerism, short-term solutions and applied ICT research. Finally, elements from scenario drafts 1 and 5 could form the basis for a scenario showing the entire ICT research community as out of step with social developments and concentrating entirely on basic research without considering societal needs. Thus the workshop scenario drafts were ordered into stories that were assigned different roles in addressing ICT research policy.

Outcome of scenario writing process

There were several challenges emerging in the process of writing scenarios on 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 ?Spirit of the New ERA? was criticised repeatedly 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 forty participants which had contributed with the original ideas, and the different organisational units in the RCN (see responsibility). This demanded from the people writing the scenarios that they would reflect many criteria, such as a traditional textual form, using parameters which RCN employees were familiar with, as well as preserving some of the ideas collected by the workshop participants.

The scenarios were thus meant to be relevant to many processes outside the foresight project. This was a challenge which 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 participants, RCN employees, hired consultants and facilitator, in between meetings. The writing process resulted in the three scenarios suggested above; modified and rewritten during the writing stage.

Evaluation

The scenarios were then presented in the second and final workshop, again conducted with forty participants, where they were evaluated regarding their strategic relevance. Here some of the uncertainties which had emerged during the writing stage resurfaced during collective discussions. However, the participants identified possible contributions of the three scenarios to research strategies and the development of a large ICT research programme. The scenarios could direct strategic thinking as a strong policy scenario (Spirit of the New ERA), a scenario to be avoided (Out of Sync) or an ?unclear scenario? (The eConsuming Norway) open to different interpretations which could imply several strategies concerning future research investment.

The final evaluation of the scenarios as relevant contributions in developing a new ICT research programme was conducted by the foresight project group. The project group was also responsible for developing the first call for proposals for the new ICT research programme. Here the question whether the scenarios included enough focus on technology became the most important criteria deciding on the usefulness of the scenarios. The project group, consisting of RCN employees and external ICT experts, reassembled in four meetings to discuss the completed scenarios? significance for the goals and possible research topics of the new ICT programme.

The external experts argued that there was not enough information on technological developments in the scenarios. According to a RCN employee centrally involved in the process, however, the scenarios were meant to induce changes - changes in 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 organised in a different way. New combinations of research to foster innovation, as well as novel social contextualisation should move to the forefront to meet the challenges written into the scenarios. Yet according to other group members it was especially important to highlight the aspect of generic ICT research in the research proposal, 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 created scenarios. The scenarios did therefore not influence the programme proposal published early in 2005. They were evaluated as irrelevant.

Benefits of the foresight project

The project contributed to a discussion of possible future developments in ICT research including a broader group of stakeholders than had been the case in earlier developments of national ICT programmes. Material produced during the scenario process was published on the RCN websites and followed up by evaluations of the entire CREATE foresight project and a conference summarising the first foresight effort regarding national research policy. In this respect, people were involved in a learning process and the scenarios were presented in relevant publications as well as at regional workshops using foresight approaches. Following this project the RCN has initiated and funded several foresight activities especially in the area of regional innovation. Large scale strategic foresight focusing on the development of the RCN itself, however, has not been conducted since.

Summary: Challenges of foresight aimed at identifying national research priorities

The main challenges which have been highlighted here concern participation, scenario writing and evaluation. The particular context, conditions and conduct of the foresight project show that these were specific challenges. Yet they also correspond with more general questions about conducting foresight. Therefore a short and final comparison with other perspectives on these issues.

Participation

The participation of representatives of powerful research organisations in the development of priorities in national research policy presents 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 this was avoided by asking participants to put their sectoral or economic interests aside during the foresight workshops. This however, led again to uncertainty among the participants about how to employ their expertise in developing relevant scenarios. Ensuring quality, relevance and representativeness can thus be seen as a challenging balancing act for organisers of foresight processes.

Scenario writing

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 does thus not reach the wider professional and academic research arena. According to van Notten (2005), the process of writing scenarios can dilute or sophisticate collected scenario ideas. Foresight activities are often structured around a core group of key actors with the responsibility for choosing topics treated, scenarios written and recommendations given (Rask 2006). Thus scenario writers do not only collect and re-present scenario ideas. They are also scenario *authors*, employing their narrative competence, personal style and perspectives. This presents a challenge in foresight aiming at representing the broad variety of participants? perspectives and ideas.

Evaluation

According to Dannemand Andersen and Borup (2006) the managers of national research programmes are in a situation where they must secure support for specific decisions about national research priorities. In this context there is great uncertainty about how to implement foresight exercises within research councils. Foresight can be understood simply as output that policy-makers need to become *more informed*, and thus have a loose relationship with decision-making (Brown et al 1999). Scenarios introducing ideas about socio-technical change can become irrelevant if research priorities are developed according to an understanding of progress based on advanced scientific research. In this respect, foresight exercises aiming at identifying national research priorities are faced with the difficulty of combining insights about potential change with the demand for immediate decisions about investment in key research areas.

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