

A SYSTEMIC APPROACH TO KNOWLEDGE SOCIETY FORESIGHT. THE ROMANIAN CASE

Expert 1A Dan GROSU

Executive Agency for Higher Education and Research Funding

Abstract

The paper presents issues related to a systemic approach for the development of foresight studies. Necessary steps are identified and most common methods are analyses, with their weakness and straits. The authors make a point in underlining that foresight is not about methods, but about management of change. Four meta-strategies of change are described. Change as an organizational process has been studied within a framework of change management, including three types of strategies: Information-driven strategies, Values-driven strategies, and Power-driven strategies. Later, Relationship-driven strategies were added (Miles, 2002). Each of these meta-strategies approaches the planning and implementation of change from different philosophical assumptions. In the end, the design of a Romanian project for the development of a National Foresight Exercise in S&T is presented.

People, organizations, companies and countries need to plan for the future. Families make budget plans. Business and industry employ technology intelligence gathering tools and mathematical modeling to inform their strategic planning. Governments develop plans for local, regional, and national level plans. Most strategic planning exercises focus on relatively short terms, as they are usually tied to production requirements or budget cycles. In particular, government planning is linked to annual budget cycles and policies that reflect the span of a government's term in office.

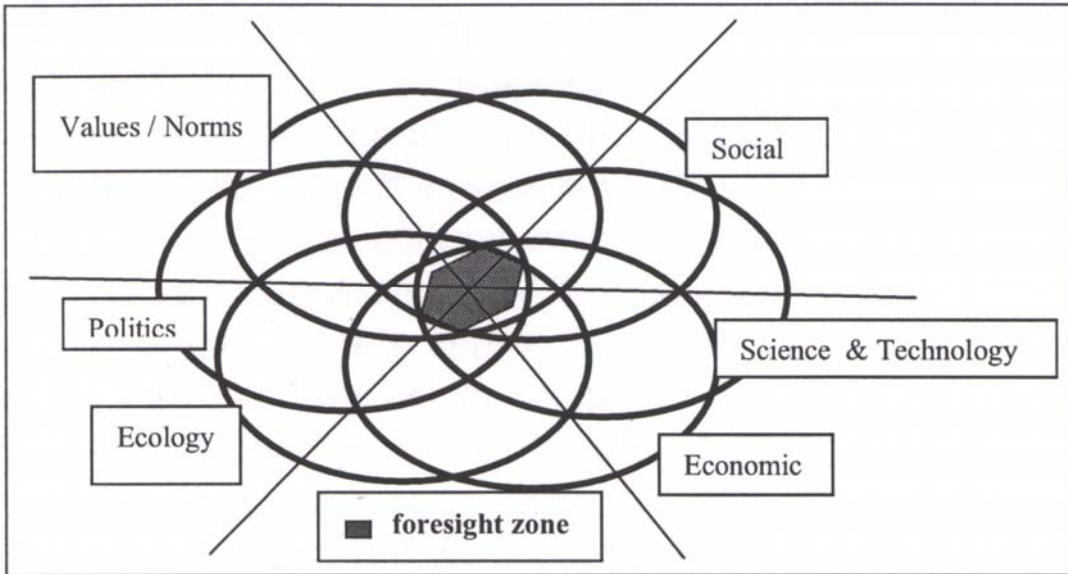
The term "Foresight" is used to describe a type of planning exercise that takes no less than 10 years, going beyond the business planning horizon.

Technology Foresight looks at existing and future science and technology to identify emerging change factors, and the types of scientific research and technological development likely to yield the greatest economic, environmental and social benefits [1]. The best Foresight planning is socio-economic, drawing on expertise and representation from across the scientific, academic, public sector, private sector and consumer communities.

Foresight does not claim to predict the future. Instead it seeks to identify plausible prospects for change through a structured examination of

what could emerge from foreseeable developments related to R&D and how these might affect the society. Foresight provides planners and decision-makers with a process and a product to help identify potential links between present day policies and actions and future outcomes. Its value lies in the attempt to capture broadly based thinking on a long-range time horizon. It can help policy-makers and planners make earlier identification of possible threats and opportunities by illustrating how barely recognizable trends (“weak signals”) can have important consequences in the future. Governments and organizations with the ability to recognize the link between these “weak signals” and potential threats or opportunities can make better R&D choices, develop contingency plans, and become more effective in their decision-making.

For a formal definition of technology foresight, one might consider Martin and Irvine (1989): foresight is a tool or set of tools used “*to survey as systematically as possible what chances for development and what options for action are open at present, and then follow up analytically to determine to what alternative future outcomes the developments would lead*” [2]. This definition refers to a product oriented type of foresight and does not capture the dimension of human involvement in the design and implementation. So, we’d much rather go with Harper’s definition that foresight is “*a systematic, participatory, future intelligence-gathering and medium-to-long-term vision-building process*” [3]. As Loveridge puts it, foresight is „*a marriage of intuition, science, anticipation of value/norm shifts that cause changes in personal expectations and a sensitivity to developing trends in society, [...] Foresight activity falls into the fuzzy region that fills the ground where the six themes: Social Technology Economics Ecology Politics and Values/Norms intersect as shown in the Venn diagram below, [a.n. figure no. 1] Foresight then is highly interactive, influencing and being influenced by the interrelationships in the STEEPVset*” [4].



*Fig. no. 1 Venn diagram
Source: Loveridge D., Foresight*

Strategies of foresight

Foresight is about change. Change as an organizational process has been studied within a framework of change management, including three types of strategies: Information-driven strategies, Values-driven strategies, and Power-driven strategies. Later, Relationship-driven strategies were added [5]. Each of these meta-strategies approaches the planning and implementation of change from different philosophical assumptions. These relates to the understanding and control of foresight impacts within the STEEPV analytical frame [6].

Information-driven strategies rely on the principle that people are rational and willing to change. The implementation of the strategy works like this: the result of a foresight study is put forward by the management group, who justifies the change by pointing out the relation between the foresight rationale and the chosen methods. Also, the level of participation needs to be underlined. The belief is that decision-makers, strategy planners, and the public will understand the need for change. Even though the whole approach is focused on data, a variety of communication strategies are used to move things forward.

Values-driven strategies are based on the assumption that change is based on people's perception on what is good and bad. Change is motivated when individuals identify some level of dissatisfaction with the current situation due to fundamental value clash. The task of the foresight practitioner is not to find the right information for strategic decision support, but to find relations between values of the individuals and values of the environment. Thus the search preferable futures becomes as

important as the result itself and the involvement of as many members of the system is the underlying principle. The primary assumption is that intelligence is social rather than rational. Change extends beyond the development of common understanding at a rational level, to include personal meanings and values of the members.

Power-driven strategies emphasize the negative outcomes should change not be implemented. Both the process and the product of foresight are understood in the context of the international system, therefore they depend on the understanding of the inter-action with other international entities. The two primary sub-strategies in this approach include the use of legitimate power to promote change and the use of economic incentives as a strategy to motivate support for change initiatives. Although this type of strategies appear to be negative, they are mostly combined with strategies of the first two types with effective results. But we should also notice that this is a rather risky approach to foresight, for many things can go wrong: the society might not be ready for the foresight process, the implementing organization might not be prepared fully, political decision makers ordering the foresight exercise might lose their job.

Relationship-driven strategies seem to be related to a distributed model of foresight exercise. A distributed model of foresight is embedded at multiple levels within the innovation system. Its main drivers are self-organizing and bottom-up, while multi-level governance provides starting points. The assumption for relation-driven strategies is that once change is accepted in one point of the innovation system, foresight exercises are more likely in related areas.

Systemic thinking of foresight

Foresight requires the willingness to constantly examine long-range options, to consider alternative possible futures and confront them with our established paradigms, and to define objectives within the framework of a vision which describes the future we most want to create. So, the emphasis is here on the idea of *alternative futures*: the idea that “the future” cannot be predicted, but *alternative futures* may be imagined, explored, and assessed. But, in order to define a set of alternative futures, one must first determine *trends of change* and *emerging issues* we can observe now. So, foresight begins with identifying possible changes in societal, individual, technological, economic, environmental, political, and regulatory systems. Changes in the macro environment will affect the internal environment and any decisions or actions with regard to a critical issue.



Fig. no. 2 Systemic approach to foresight

Developing foresight studies involves four primary activities of foresight and futures thinking, each one with its own range of methods and techniques, data-oriented or process-oriented:

1. *Identifying change* involves collecting baseline data and patterns of change in the past, in order to identify cycles, trends, or emerging issues. Foresight involves structured anticipation of technologic, economic and social developments and needs [7].

2. *Considering the impacts of change* means assessing the relative impact or probability of future changes, evaluating what impact their effects has on us, confronting changes with an established paradigm. At this stage, the market perspective is enhanced by inclusion of the social dimension, meaning the concerns and inputs of social actors, captured during the first stage [8].

3. *Imagining alternative futures* relies on scenario building and analysis in order to explore opportunities and threats, to imagine our preferred future. „*Scenarios are plausible representations of the future based on sets of internally consistent assumptions, either about relationships and processes of change or about desired end-states*” [9].

4. *Visioning preferred futures* requires explicit definition of long-term goals, and the values that contribute to them. As Smith and Mason put it, future studies „*findings should be presented with great care and in a way that is relevant to organizational strategies and goals*” [10]. This step is crucial, since only by paying the outmost attention to scenario communication one can expect a powerful impact on stakeholders. But a future study cannot be produced independent of the following two activities:

5. *Planning and implementing*, which depends on the commitment from the highest levels of the organization to act upon the results of a future study.

6. *Monitoring and evaluating* inputs, outputs, outcomes, and impacts of change in order to determine that new future studies are needed.

These six activities are related and should be performed progressively

and on regular basis. Once a team has devised the strategies to implement the vision, progress must be evaluated, creating a full circle of foresight activities, in an infinite loop.

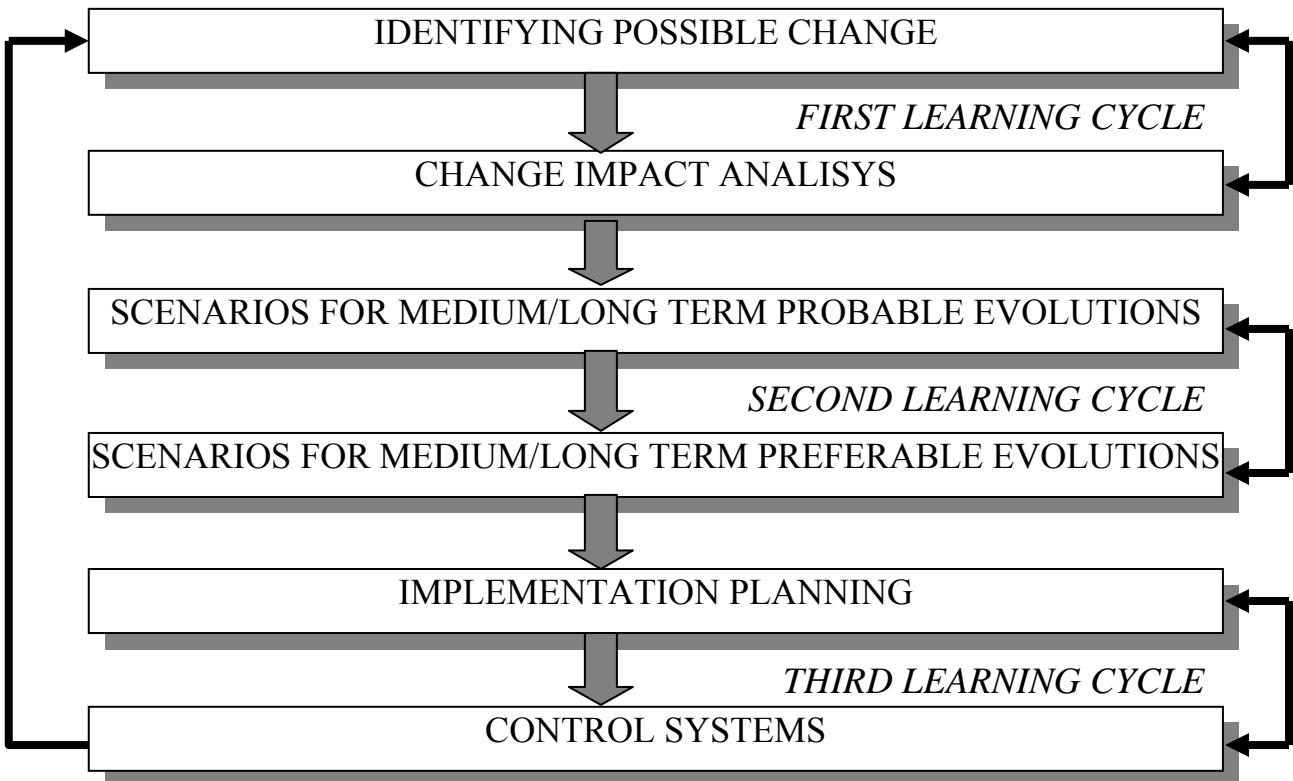


Fig. no. 3: Foresight infinite loop

Romanian national foresight exercise

Romanian National Foresight Exercise is embedded in a strategic project of the Ministry for Education and Research, meant to produce the RDI National Strategy for the period 2007-2013. The project is run by a Consortium, coordinated by the National University Research Council and composed of 26 Universities, National RDI Institutes, Romanian Academy Institutes and Centers, S.M.E. While defining the context in which the project was created, one should mention that a set of base documents preceded: "The Industrial Policy of Romania and The Action Plan for the Implementation of Romania's Industrial Policy"; "Policy and Strategy Paper sustaining the State Budget Proposal for 2005 and the perspective 2006-2013"; "Rise of economic competitiveness and the developing of knowledge-based economy". But, even though nominated as a priority of national importance, research did not make the object of a profound evaluation or long term policy until now. Considerable experience was gathered in regard to funding through research grants or programs within the National Plan for Research, Development and Innovation, but no institutional restructuring or re-evaluation of the research management system took place. For a long period of time, emphasis was put almost exclusively on maintaining the existent system: the leading concept at institutional level was "survival", and the main issue was that of funding.

Parallel funding of different institutes and companies was practiced, without raising the issue of the economic efficiency of the outcomes. As a result, research in Romania is extremely fragmented.

Preparing the National Foresight Exercise, a project aimed at producing methodologies and procedures for defining strategic objectives and priorities of Romanian scientific research and technological development was developed by the National University Research Council. At that point, the European context of foresight was taken under close scrutiny. In spite of their importance for European policies, development of foresight exercises has not reached the same level of integration and convergence as other fields of political action. As a matter of fact:

- foresight activities are very weak or non-existent in some EU member states;
- European policies are neglected in national foresight exercises;
- there are very few inter-national connections of foresight exercises.

The project's design was defined according to the general structure of a foresight exercise and the following list of major objectives resulted:

- To identify the problems of the National RDI system of Romania.
- To define the set of strategic and specific objectives for the RDI system of Romania in the period of time 2007-2013.
- To develop the National RDI Strategy, structured upon the elements of a strategic planning, for the period of time 2007-2013.
- To develop the NRDIP-II and to outline other programmatic instruments.

Project activities time-table had to take into account proper resource planning and the specific nature of foresight technologies. Using foresight methods and techniques requires an open project structure, in order to be able to bring together a large spectrum of significant actors, besides Consortium members. In the process of strategy elaboration through foresight techniques, a significant number of experts (more or less 800), representing specific scientific domains, need to be consulted. This will include research management and marketing, innovation and knowledge transfer experts. Some results will be subject to expert cross-analysis and/or examination and debate, involving relevant stakeholders. Also, international experts need to be consulted.

So, why do we need all this mess? The fact is that foresight techniques are best guarantees against the risk of elaborating unbalanced and, in many cases, unemployable strategies, representing one-sided views of either the specialists, the financing circles or the potential end-users (industry representing a major target). So, while planning project activities, specific foresight methods and instruments were adopted, in order to analyze

existing situations, establish visions, elaborate scenarios and proposals for action plans.

The very fact that a National Foresight Exercise will take place is, in itself, a result of the project. Organizing structural consultations of experts will induce a transformation of the way scientific research is conceived. A foresight exercise produces scenarios that are fulfilled while they are constructed, for the experts that are taking part in the foresight exercise are representing the most important research institutes, implementing research programmes and projects. The main task will be to convince decision makers to use results obtained this new approach. The foresight exercise is a learning process, which stays unfinished without this last lesson.

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