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Foresight — balancing between increasing variety and productive convergence

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Abstract

Extensive involvement of social actors and perspectives is an increasing trend in foresight. Simultaneously, however, the theoretical literature suggests that there is a trade-off between increasing variety and productive convergence. The paper examines, through a sample of recent foresight exercises, how European foresight balances between variety and convergence. The findings support the existence of a trade-off, and suggest that it can be classified in two sub-categories: one between involvement and instrumentality, the other between creativeness and stakeholding. The study offers several options for reconciling and counterbalancing the mutually exclusive inclinations in the organising of foresight.

Keywords: Balancing, Foresight; Governance of science and technology; Productive convergence; Requisite variety; Science-society dialogue; Trade-offs

1. Introduction

Science-society dialogue raises elementary issues of democracy and effectiveness [1]. Developing such dialogue in *foresight*, however, puts current methodologies and approaches to the test. In recent years, there has been a turn from positivist, rationalist and technology-focused foresight towards more system-focused and socially oriented approaches; attention is increasingly being paid to extensive participation by social actors and effective communication [2–4]. Recent definitions of foresight recapitulate the shift

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of foresight paradigm toward a 'hybrid forum' that fuses different epistemic and social perspectives [5–8]. Barré [7], for example, defines foresight activities as "policy-making processes, in which collective learning is developed in the S&T (Science and Technology)-related area via interaction between industrial, academic, governmental and social actors". Along with the stress on an increasing variety of actors and perspectives, however, it has become necessary to ask what its implications for foresight are, as an effective tool for policy-making.

The increase in the number of actors and in the varieties of expertise involved in decision-making related to science and technology has engendered strong charges and defences [9–13]. In a discussion on 'normative theory of expertise', for example, Collins and Evans [9] argue that a tendency to dissolve the boundary between experts and the public has replaced the 'Problem of Legitimacy' with the 'Problem of Extension.' By the latter they mean the indiscriminate extension of technical decision-making rights. They call for the limits of such extension, which they see as risking technological paralysis. Wynne [12], on the other hand, has reminded us that scientific advice is often about the framing and imposition of public meanings. According to Wynne [12, p. 411], the proper participants in such issues are "…in principle every democratic citizen...". Setting aside extreme positions, Rip [11], referring to recent background studies [14,15], makes a reasoned case that there is a *trade-off between increasing variety and productive convergence*. According to this view, 'requisite variety'[1] is needed in order to make the product (e.g., a decision, a plan) sufficiently articulated and robust; too much variety, however, may hinder the reaching of temporary closure necessary to create a product. Rephrasing the trade-off argument, the productivity of 'hybrid forums' increases with heterogeneity up to a point where it becomes too difficult to deliberate and productivity is reduced [16].

Previous notions of how foresight is done point to the potential difficulty in developing science-society dialogue. *Science-society dialogue*, according to a recent definition, refers to deliberation on the future role of science and technology in the society, engaging experts', stakeholders', and decision-makers' "… knowledge, assumptions, values, wishes and visions" [17, p. 13]. Since the latter tend to vary with one's role in society, there will be substantial difficulties in defining appropriate participants for such dialogues. It is likely to be difficult to engage such actors, whose expertise or political influence is instrumental to productivity and implementation of the results. If engaged, they are apt to have a strong personal stake in the outcome of the foresight process, at the cost of displacing divergent perspectives. If such actors cannot be engaged, the outcome of foresight, done by a variety of not fully familiar or less influential actors, may prove unproductive, or lack robustness. Recognizing such issues, foresight managers may be tempted to rely on actors who represent the most established fields of expertise and interests. The development of science-society dialogue is hampered by the *Scylla* of variety and the *Charybdis* of alignment and convergence.

An intriguing observation about national foresight exercises conducted in European countries is that science-society dialogue is generally welcomed, but without much empirical data on how it performs in that particular context.[2] The necessity of ensuring democratic validity, and the potential of increasing acceptability and accelerating the process of implementation are examples of the rationales for such

[1] 'Requisite variety' refers to the degree that the heterogeneity of the outside world is captured in the setup of a 'hybrid forum,' or 'microcosm,' such as foresight. According to Rip et al. [16], requisite variety can also focus on worldviews, and thus offer 'cognitive representation.'

[2] How science-society dialogues have been conducted at different levels (e.g., regional, sectoral, international) and geographic contexts of foresight is an interesting question, though out of the scope of this paper.