Impact of Technology Foresight

The Report assesses the evidence on the extent to which foresight activity generates impacts in terms of innovation policy and practice. As a strategic tool the impact of foresight on innovation performance/output is usually indirect by means of its effects on other innovation policy instruments. The report reviews the findings of evaluations of foresight in the innovation policy domain and assesses the lessons that these carry for the application of foresight and related approaches to innovation policy. There is a distinction between two main forms of foresight linked to policy. There is foresight for/in policy, relating to its advisory and strategic function, where foresight serves as a tool to inform and develop policy in any area or to "join up" policy across domains. Secondly, foresight as a policy instrument, relates to its instrumental role, where it serves as an instrument to implement budgetary, structural or cultural changes in the domain of research and/or innovation policy. Foresight can be and has been applied to a range of rationales, contexts, policy settings, sectors, domains and levels (including national, international, regional, local, city). The rationales and context dictate form, scale and focus and therefore the results and impacts of foresight activity are varied, with a general move away from large scale programmes, to more modest, discrete, often embedded processes as part of other strategy and policy development initiatives. Foresight's innovation policy-related rationales have evolved in line with innovation policy paradigms, reflecting systems of innovation and evolutionary economics thinking and responding to aspects of market or system failure. Corresponding to market or system failure, for example, foresight could be seen as reducing uncertainty by enabling creation and pooling of knowledge. Without an intervention firms might dissipate their technological efforts over too wide a range of activities and fail to achieve critical mass. A programme may also generate network externalities by bringing innovators into the framework of a common vision. Foresight also meets the classical criteria for correction of systems failures by addressing lack of linkages and fragmentation between innovation actors. The five generations of foresight provide a framework for significant shifts over time in focus, programme structure, actors and objectives which are in turn reflected in the evaluation criteria. The different generations of foresight address different types of knowledge and policy issues and involve distinct combinations of actors. While they emerged sequentially, the generations are ideal types which continue to co-exist. For example, first generation foresight is located in the domain of economic planning, while second generation seeks to address the market failure of insufficient cooperation between firms and the science base. Third generation foresight switches to a system failure rationale and the lack of bridging institutions. The fourth generation reflects a distributed structure for foresight. In recent years, fifth generation foresight has marked a growing polarisation of foresight approaches between short, one-off intensive foresight activity (often embedded) and on-going programmes, for example horizon scanning. Foresight which specifically targets innovation policy, can be designed to generate a range of impacts, including: (i) immediate impacts which are more easily detected and may become evident during the foresight process and by the time the foresight process is completed, (ii) intermediate impacts which are less easy to detect and take longer to surface, becoming evident some time after the foresight process is completed and (iii) ultimate/end impacts which are difficult to attribute, due to the time lag for impacts to surface, and given possible effects and counter-effects of other innovation policy measures. The Report reviews the experiences of a number of countries in Europe and worldwide which have undertaken national foresight activities related to innovation policy. The review focuses on those national programmes which have undergone some form of evaluation, ranging from international evaluation, light evaluation and self-review. The review highlights the fact that the extent to which formal evaluation has been undertaken is limited in terms of number and scope. The evidence base for innovation and related policy impacts resulting from foresight activity is limited, due to a number of factors. While bearing in mind that innovation systems failures and policy interventions differ from one country or sector to another, nonetheless some fairly consistent messages have emerged into when foresight can be usefully applied to innovation policy: When those sponsoring and/or implementing the exercise have sufficient standing to enjoy strong links at the highest level to policy makers responsible for innovation policy/system and are able to identify and address a set of current, emerging and furture policy needs/concerns. Where the exercise can attract and engage key players including those wielding power, interests, intellect, creativity and expertise relevant to foresight theme. Where the exercise is tailored to the needs of the policy maker and is able to adapt to those needs during implementation Where the policy context is sufficiently mature to take on more ambitious

structural/systemic foresight Where the implementing team are sufficiently competent to ensure a level of preparation and organisation When the results are developed through a clear and transparent process, and presented in a coherent way to the policy makers Where the exercise is synchronised with the policy cycle and is able to deliver policy advice on time to fit the policy makers needs. Where the evaluation criteria address the specific concerns of the policy maker. With these caveats, the Report concludes that evaluations provide some endorsement for the use of foresight in: Making an overall strategic review and direction of a national, regional or sectoral innovation ecosystem; Identifying priorities for research or innovation actions, again at multiple levels; Building common visions between innovation actors and/or stakeholders who may not be used to working together (e.g. industry-academic, procurer-supplier or different sectors in clusters); Making decisions more robust through exploration of scenarios or drawing in wider expertise; Increasing the likelihood of consensus by engaging a wider range of stakeholders through participatory elements.
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