INTERACTIONS BETWEEN FORESIGHT AND DECISION-MAKING

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Abstract

Decisions in a policy context are more complex than a single choice to be made. Changes in policy and policy implementation rarely result from a linear process of generating research, laying out policy options, choosing between them, and evaluating the implementation of the selected leading option. Decisions must be made in dynamic and increasingly rapidly changing environment, yet today’s decisions constrain future decisions. It is insufficient for the correct decisions to be made in the correct order - they also must be made at a precise moment in real time.

Changes in policy come through a process of iterative interactions among three flows of activity: defining the problem, identifying solutions, and achieving commitment for action. Each individual flow of activity can only indirectly and incrementally impact the changes in policy. Changes only occur when all these flows converge, presenting a window of opportunity for innovation. In a nutshell, a strategic problem setting is linked to a plausible solution meeting the test of political consensus. Foresight is a way to deal with this in a systematic way.

The core idea beyond Foresight is that creating a shared vision leads to a shared awareness, making decision-making possible when the time has arrived to take action. The quality of its outcome highly depends on the efficient and effective construction of shared context that enables issue-specific knowledge creation through a process of argumentation (dialogue). In practice, there is often a missing institutional link between the above described interactive process and the formal decision-making process. Foresight exercises need to better institutional embedded in terms of clarity of purpose, sense of urgency and legitimacy in order to prevent the interactive process from becoming meaningless and useless in the formal decision-making afterwards. Foresight will never replace the decision-making process but it may improve its quality by establishing commitment among stakeholders, by preventing implementation issues, and overall by increasing the democratic content.

Keywords: Policy Change, Decision-making, Foresight practice and impact

1 Introduction: uncertainty and change

Globalisation results into increased flows of goods, resources, people, information and ideas over larger distances with interactions operating at various scales (Young et al., 2006). The growing interferences and pace of changes are increasing the necessity for new forms of knowledge in order to underpin policy change and innovation. Issues such as demographic change, competitiveness, energy, environmental problems, social inclusiveness and equity all have long-term implications. Coherent and co-ordinated thinking about the future is essential in
this increasingly complex global environment. However, the certainties about society are dissolving and there is little guidance on how to act. Individuals and organizations are forced to take standpoints and to make choices on the basis of uncertain knowledge and diverse opinions (Höijer et al., 2006). This complexity challenges the capacity of humankind to learn from experience and to create a shared vision of a better world (Welp et al., 2006).

Foresight is a way of thinking about the future, of identifying opportunities and threats that may arise over the coming years and decades (Berkhout et al., 2002). In respect to the globalisation of a fast-moving world, the complex relationships between endogenous and exogenous processes are easier to conceptualise than to identify via quantitative assessments (Young et al., 2006). And as there is anyhow limited understanding on how different social and economic developments are interacting, debating and shaping the future become more crucial these days in order to successfully guide scientific and technological developments, and to contribute to an improved quality of life (von Schomberg et al., 2005).

A foresight exercise in the context of underpinning a decision making process is even more complex. First of all, this is because many relationships often follow a non-linear pattern in the long term although they might seem to have developed continuously in retrospect (van Notten et al., 2005). Secondly, as the future is unknown, different and often conflicting stakeholder perspectives on how the future may unfold can be legitimate. As a result, performing a Foresight exercise is not simply a matter of collecting and analysing data in the traditional sense (van’t Klooster & van Asselt, 2006). As a systematic and inclusive approach, Foresight offers a way of handling critical issues of innovation, reflexivity and framing within the analysis of policy change in socio-economic systems (Berkhout et al., 2002).

Foresight practice covers a broad range of different approaches and techniques and involves to a varying degree expertise, creativity and interaction. Practice refers to problem solving or opportunity realizations through the application of appropriate knowledge and skills in a particular context. In general, Foresight practice can be defined as a systematic, participatory, future intelligence gathering and medium-to-long-term vision building process aimed at present-day decisions and mobilising joint actions (HLEG EU Developing European Foresight, 2003). More specifically, De Smedt (2005) describes four central characteristics.

- The future cannot be foreseen. Foresight incorporates complexity and uncertainty and is designed to produce multiple images of possible futures.
- Foresight focuses on dialogue and includes multiple perspectives at different levels of interaction. The process brings together different stakeholders in promoting a non-adversarial, strategic conversation.
- Foresight involves both analysis and subjective judgement. It therefore requires a sound methodological approach and stakeholder participation to enable new and creative insights.
- Foresight is based on the fact that the future can be shaped by human choice and action. It can reduce the effect of short-term conflicting issues hindering co-operation.

Being action-orientated is one of the core features often mentioned in promoting Foresight as a policy instrument. In reality, little evidence of direct impact by a Foresight exercise on the actual decision making is found. Most evaluations focus on the process of a specific Foresight exercise, but much remains to be done in understanding and measuring impact, particularly on
longer term (Georghiou & Keenan, 2006). This could be driven by the fact that it is not common to integrate in-depth analyses of the decision-making process in Foresight evaluations.

The aim of this paper is to promote dialogue on the actual impact of Foresight on decision-making. The paper reflects on policy analysis conceptualisations and explores the core problems concerning the effectiveness of Foresight to support policy changes. The hypothesis is that Foresight needs to be better institutional embedded in terms of clarity of purpose, sense of urgency and legitimacy so that the interactive process does not become meaningless and useless in the formal decision-making. As mentioned above, there is limited written documentation in Foresight literature concerning the effects of Foresight on decision-making. Yet, literature on policy research and policy analysis reveals a broad spectrum on policy instruments and the decision-making process.

The paper begins in Section 2 with a brief overview of the process of policy change and the nature of decision failure. Central in this section is the question why evidence is a necessary, but not a sufficient, condition for any decision-making process. In Section 3, the interactions between Foresight and decision-making are discussed and three complementary perspectives on policy change are proposed. These perspectives can be used to evaluate the effectiveness of Foresight as a policy instrument. This is followed by a discussion in Section 4 on how Foresight could be better institutional embedded to improve its impact. Finally conclusions are summarized in Section 5 recommending a systematic analysis of the proposed perspectives on Policy change to provide more robust insights on how Foresight practice can be improved.

2 Concepts

2.1 Policy change

A society is characterized by the problems and solutions on the political agenda. In this context, a policy is defined as a formal statement giving the relationship between information input and resulting decision flows. Most policies are complex and dynamic in nature. External and internal developments change continuously, causing shifts in problem perception and priority setting. Often it is not clear what the real causes are and different competing policy options are on the table. Specific policy instruments have an indirect and incremental impact on the desired policy change. Developments in science and technology, for example, have a strong potential to influence social change. There are, however, many reasons why the practical use of technology and scientific knowledge varies widely between countries. Societies differ, economies differ, and governments deal with international scientific developments in different ways through the policies they pursue (Timmermans, 2001).

Policy change can be described as a series of intellectual activities embedded in a broader social process. Often people believe that policy problems are objective conditions, and that their solutions can be simply identified by determining what the facts are in a given case. This rather naive view of the nature of policy problems fails to recognize that some facts are often interpreted in markedly different ways. Hence, the same policy relevant information can and often does result in conflicting framing of a problem by different stakeholders. This is rather because of competing assumptions for social change than because of inconsistent facts (Dunn, 2004).
Policy problems and solutions are social constructions - they are not simply objective givens but are the result of social processes (Schneider & Ingram, 1997). Change in policy and policy implementation involves the cognitive and normative beliefs of stakeholders, the resources available to them, and the coalition building for supporting a particular image of the problem and its possible solutions (Sabatier & Jenkins-Smith, 1993). It can be useful to visualize this process as a series of sequential steps. In this linear model the policy process is divided into different steps: i.e. the problem definition, the analysis of alternative solutions, the adoption of a solution, and its testing and evaluation. Each step is treated as temporally and functionally distinctive. The model is most useful as a heuristic for identifying times and places where different tactics for influencing policy start to play. But, the downside is that this model is oversimplifying and as such not optimal to understand policy change.

Sabatier’s Advocacy Coalition Framework asserts that change in policy and policy implementation is better conceptualised as a series of interactions between groups of people in contrast with a series of transitions between stages (Sabatier and Jenkins-Smith 1993). Over time, periods of incremental change are the norm. However, when conditions are right, a significant social change can be observed (Wood, 2006). This is in line with Kingdon (1995), who suggested that realities of policy making are better captured by a focus on the flow and timing of policy action. In this model, streams of problems, solutions, and politics move independently through the policy system. Occasions arise where these three streams are joined. Policy change can be defined as an overall system behaviour that comes out of the interaction of many flows of activity. It cannot be predicted from knowledge of what each component of a system does in isolation. Net, principles of this model are:

- Changes in policy and policy implementation are rarely the result from a linear process of generating research, laying out policy options, choosing between alternatives, and evaluating the implementation of the selected option.
- Rather, changes are the result from a process of iterative interactions between three streams of activity: defining the problem, suggesting solutions, and achieving commitment for action.
- Changes occur when these three streams converge, presenting a window of opportunity to effectively drive decisions.

Opposite to these change processes are a number of processes that promote policy stability. Two key processes, highlighted in the policy analysis literature, are path dependence and closed networks (Howlett & Ramesh, 2002). Path dependence refers to how current decisions are influenced by the institutional and behavioural legacies of past decisions. Closed networks refer to policy stability promoted by the ability of existing key policy actors to prevent new members from entering into policy debates and discourses. Under normal policy conditions, the agenda space allocated to an issue is dominated and controlled by the formal system. Alternative visions and innovations are systematically excluded to maintain risk-averse development characterized by incremental change.
2.2 Evidence for policy

A policy becomes important once effectively used as a scorecard to support decision making processes (Mead, 2005). The purpose is not simply to provide a basis for making efficient decisions, but also to provide knowledge needed to improve the practice of democracy. The overall idea is to promote human development by reasoning how to achieve an improved society. This concept of policy analysis can be traced back to the earliest thinking by Harold Lasswell who understood it as a form of reasoning about how to reach public goals (Dunn, 2004). Policy analysis is a problem-solving discipline and is distinct from purely academic research, mostly seeking theoretical knowledge. It is also distinct from a policy-orientated inquiry, with a limited scope and mostly done to inform a specific decision. Policy analysis supports decision making by identifying ways of thinking about society and policy change.

Policy analysis tools can be used to structure policy problems and to provide evidence to underpin decision making. This recognition relates to Lasswell’s belief in the importance of acquiring maximum rational judgment of the elements involved in policymaking and Hoppe’s view that, in producing viable policy recommendations, the policy analysis process should mobilize the best available evidence in the desire to tackle problems on the political agenda successfully (Geva-May, 2002). But decision-making occurs within a web of interacting forces and evidence comes from a variety of sources at different timings (see also table 1).

- Understand the policy environment and how it is changing.
- Appraise the likely effects of policy changes to underpin choices between different options.
- Demonstrate the links between strategic direction, intended outcomes and policy objectives to show that there are clear lines of arguments and evidence between them.
- Determine in a participatory process what kind of action is needed to meet the strategic goals or intermediate objectives.
- Develop a shared awareness of the problems at stake and work out a joined action plan.
- Communicate the quality in breadth and depth of the evidence base to meet the open political agenda.

Table 1. Dimensions of evidence for policies (after Shaxson, 2005).

Evidence is a necessary, but not a sufficient, condition for any decision-making process. People’s understanding and interpretation change, new research results come in and new ways of using and interpreting information are used. It is clear that the ways policies are developed, implemented, monitored and revised are always shaped by the broader social and political context. Understanding how policy problems and solutions emerge over time and how they influence social change remains a major challenge.
2.3 Stakeholder participation

Policy research highlighted that, whilst being a form of participation, representative democracy has significant deficiencies. This is because it presents the majority view and it is therefore limited with respect to the range of values and preferences that it can elaborate. A general definition of public participation is the practice of involving members of the public in the agenda setting, decision-making, and policy-forming activities of organizations responsible for policy development (Rowe & Freyer, 2005). The stakeholders are members of the public, who own the problem or challenge under discussion and have a stake in the future. Stakeholders can be individuals, informal groups or well established organisations. The decision-makers include politicians and others - who are interested in demonstrating political support for the process. The decision-makers also include agencies or government departments playing a role in the development of programs or in the allocation of funding to development projects.

Stakeholder participation and interdisciplinary approach are both considered to be key drivers beyond improving evidence base and social support (Enserink, 2003). The overview of the variety of evidence needs for policies (see table 1) reflects the diversity and dynamic behaviour of the evidence base to support decision-making. Bulkeley & Mol (2003) summarises the arguments in favour of a more participatory approach as follows:

- It helps bridging the gap between a scientifically-defined problem and the experiences, values and practices of actors who are at the root of both cause and solution of such problems;
- Participation helps clarifying different, often opposite, views and interests regarding a problem. It makes problem definitions more adequate and broadly supported;
- Participation has an important learning component for the participants, being reflected in the enhanced quality of, and the support for decision-making.

From a theoretical view, stakeholder participation is a concept with lots of potential to improve decision-making. But practice with stakeholder interactions also reveals some negative sight effects. Key question is the problem of ensuring wider participation by stakeholders with different backgrounds.

2.4 Decision failures

Decisions are to be made in dynamic and increasingly rapidly changing environment, yet today’s decisions constrain future decisions. In the knowledge society, the data download on a broad range of subjects is endless but the translation into knowledge and appropriation by the politicians is a struggle point. Decision-makers do not have enough time to read, understand and synthesize the data material on complex developments and their impacts. However, they cannot afford to wait until all the impacts, risks, and opportunities have been clarified before they come to decision-making. Correct decisions must not only been be made in the correct order - they must also be made at a precise moment in real time.

Decision failure is more common then people often tend or wish to believe. Some decision-makers always expect good results and ignore the possibility that make a good decision outcome change. If a decision-maker get caught up in decision failure, most often they reveal as
little as possible. Additional it is also difficult to separate good decisions with bad outcomes from bad decisions with good outcomes. Anyhow, research on decision debacles in organizations reveals high levels, even up to fifty percent, of failure in day to day decision-making (Nutt, 2004).

Decision failures occur in two overarching categories: i. simple explainable errors or mistakes and ii. unexplainable or unexpected decision errors. The first category refers to the possibility that the decision-maker was unable to make the decision. This category of inevitable errors denotes the statistical necessity that some random error will occur. Decision failures that occur in the second category are more important because there is seemingly no logical explanation for the decision failure. The unexpected happened and the mental model turned out not to be robust enough (Chermack, 2004). There are four potential contributors or watch-outs, each independently or combined contributing to decision failures, namely i. bounded rationality, ii. tendency to consider only external variables, iii. stickiness and friction of information and knowledge, iv. mental models including decision premises or policies (see also table 2).

- Bounded rationality
  Decision-makers cannot effectively cope with all of the available information and alternatives.

- Neglecting internal variables
  Decision-makers have a tendency to think of all variables as exogenous. Decisions that consider only exogenous variables overlook critical inputs from within the organisation or system.

- Stickiness and friction of information and knowledge
  Stickiness refers to a characteristic of information and is associated with the cost of its transfer between or among people. Friction can be described as the nuances and double-checks that occur in the social interactions in work processes. Frictionless knowledge would initially be more efficient and less sticky, but would also allow for a drastic increase in decision errors. The loss of friction will allow many errors to continue that were previously prevented during the course of social interaction.

- Mental models
  Individuals include and exclude information based on their mental models. Often, people make decisions based on nothing else.

Table 2. Four contributors to decision failure (after Chermack, 2004).
3 Interactions between Foresight and Decision-Making

3.1 Perspectives on policy change

Change in policy and policy implementation is often facing uncertainty and political controversy. Although the social process is essential for the policy change, it is the ability to make decisions when the time has arrived to take action that will make the difference. Three complementary perspectives are proposed here to analyse the essentials of decision-making. The first perspective - window of opportunity - is related with the dynamic behaviour of policy change. The second is related with the role of politicians in the decision-making and the third reflects on the characteristics of evidence on the decision-making. Strictly speaking, none of these perspectives are entirely accurate in their explanation of the decision-making. But a multi-level analysis based on these perspectives can provide more insights on why some policy processes made a difference and others not.

3.1.1 Window of opportunity: convergence versus divergence

System dynamics are used in many disciplines - such as economic, social and environmental science - to describe complexity and change processes. Policy change can be seen as a dynamic, non-linear process involving a diverse range of stakeholders and giving rise to both positive and negative feedback. Complexity refers to the intricate relationships that arise from the interaction of agents capable in adapting to and evolving with a changing environment. As mentioned earlier, policy change can be defined as an overall system behaviour that is the result from interactions between different flows of activity. In this model, streams of problems, solutions, and politics move independently through the policy system. Each individual flow of activity can only indirectly and incrementally impact the changes in policy and policy implementation. Changes emerge when these three streams converge; presenting a window of opportunity for effectively driving decisions (Wood, 2006). This approach emphasises the importance of barriers and incentives. Institutional structures, for example, can act as barriers in the way they promote conventional and risk-averse thinking and exclude new ideas and experiments on the political agenda. On the contrary, increased knowledge flows are important as incentives for policy change because they can act as a catalyst of change by raising awareness amongst the stakeholders and by confronting the decision-makers with new ways of thinking.

3.1.2 Role of politicians: centralised versus decentralised

There are inherent tensions between traditional, more pluralist forms of public participation and new deliberative democratic processes. These innovative processes challenge existing roles of the politicians. But the appreciation of these processes depends largely on the ongoing position taken towards the role of politicians in general. Hendriks (2002) makes an abstraction of a politician's role by describing two opposite positions: a more centralised and top down steering approach versus a more facilitating and networking approach. For each of these two opposite approaches he also describes a hard and soft variant.
Centralised: proponents of powerful politics are in favour of the classic notion of representative democracy. Politicians are elected and represent the public interest and take precedence. The hard variant stands for a strong centralised leadership with a strong concentration of the decision power, while the soft variant tolerates more interactive consultation.

Decentralised: proponents of the modest role of politics are in favour of a facilitating role for politicians in decision-making. The hard variant stands for politicians who only steers and intervenes when and if necessary, but remains on the sidelines otherwise. The soft variant is more managerial oriented and is in favour of politicians who are limiting their selves to network management: politicians as a creator of preconditions and rules of game, as a process facilitator.

In reality the role of a politician is dynamic and deviates depending on internal and external developments such as the actual political agenda setting, temporally coalitions, discontinuities and so one. Still, related to a certain moment in time and with respect to a certain policy, a specific politician can be distinguished as the key responsible for decision-making. As a result, the role of the politician can be positioned on the axis of centralised versus decentralised.

3.1.3 Characteristics of evidence: descriptions of the real world versus descriptions of ways of thinking about the real world

In an evidence-based perspective, the role of a policy is to resolve contradictions between the society and its environment. Societies, however, are complex systems of interacting elements and are influenced by their external environment. In order to assess and resolve organizational issues, politicians and policy analysts form abstractions of these systems in the form of mental models. Mental models can be described as the lenses through which people see the world and they incorporate the biases, values, and beliefs of people. In a more managerial context, mental model are the ideas and conceptions about the organisation today, how it has been and will be developing on the short term, and likely some ideas about where the organisation is heading for on the long term.

Mental models are highly subjective and are depending on the world-views, as well as on the historical knowledge regarding the situation. This implies that models are not descriptions of the real world, but rather descriptions of ways of how to think about the real world. But often in the decision-making process only descriptions of the real world are articulated as evidence. Many have speculated that the key to improve decision-making lies in being conscious and aware about the nature of the mental model, i.e. being a description of perception rather than description of reality (Schwartz, 1991).

3.2 Objectives of Foresight

Objectives of foresight practice are broadened over the last decade. They moved away from a limited focus on technological developments to an entire society. The interactions of foresight and policy change are to be placed in broad societal perspective (von Schomberg et al., 2005). Foresight does not only deal with the collections of data and models, it also involves the interaction of stakeholders, their ideas, values and capacities for possible action. Objectives of
Foresight to underpin policy change are related to formal output, such as policy recommendations, but also to the process of conducting a Foresight. De Smedt (2005) gives an overview of a series of different objectives where Foresight is helpful to underpin policy change (see table 3).

<table>
<thead>
<tr>
<th>Process objectives</th>
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<tbody>
<tr>
<td>Enhancing dialogue and strategic conversation within (new) social networks</td>
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<tr>
<td>Stimulating a group learning process</td>
</tr>
<tr>
<td>Enhancing knowledge integration</td>
</tr>
<tr>
<td>Developing a guiding strategic vision and a shared sense of commitment</td>
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<table>
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<tr>
<th>Output objectives</th>
</tr>
</thead>
<tbody>
<tr>
<td>Structured and validated information on long-term social and economic developments.</td>
</tr>
<tr>
<td>Identification of solutions to complex problem areas</td>
</tr>
<tr>
<td>Defining priority areas for policies on system innovation</td>
</tr>
<tr>
<td>Improving today’s decisions and actions in the view of long term goals</td>
</tr>
<tr>
<td>Providing opportunities for experiments and inter-organizational co-operation</td>
</tr>
</tbody>
</table>

*Table 3. Objectives where Foresight is helpful to underpin policy change (after De Smedt, 2005).*

### 3.3 Evaluating of Foresight

The Foresight objectives become a primary focus in a conventional program evaluation, mostly in terms of achievement but also in terms of appropriateness. Foresight as practice has its focus on the methods and structures used. These may be evaluated both in their own terms and in terms of whether they were fit for purpose. But assessing the effects of Foresight requires an understanding that it is just one of the influences on public policy. To be effective it needs to be tuned into the strategic behaviour and cycles of policy and economic actors (Georgiou & Keenan, 2006). The given that a conventional process evaluation measures mainly activity and not its significance supports the fact that a broader perspective is needed to understand the effectiveness of Foresight on the decision-making. Three complementary perspectives on policy change are proposed to analyse the interactions between Foresight and decision-making. In combination these perspectives can be used as an analytical framework to make a more in depth evaluation. The guiding questions are summarized in table 4.

<table>
<thead>
<tr>
<th>Guiding questions for assessing the effects of Foresight.</th>
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<tbody>
<tr>
<td>How can Foresight present a window of opportunity to drive effectively policy decisions?</td>
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<tr>
<td>How can Foresight enhance the legitimacy for policy action and the trust-worthy-ness of the decision-makers?</td>
</tr>
<tr>
<td>How can Foresight provide evidence to decision-makers empowering the stakeholders involved?</td>
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</table>

*Table 4. Guiding questions for assessing the effects of Foresight.*
4 Improving Foresight practice

4.1 Sense of urgency

Using only problem solving methods in complex problems creates a risk for solving the wrong problem. As mentioned above, mental models are a concept attempting to explain the way we frame our experiences in the world and from which we draw our assumptions about situations and alternatives. Individuals include and exclude information based on their mental models. Often, people make decisions based on nothing but their own mental model. Framing and reframing in the context of decision-making is related with the practice of problem-structuring. Problem-structuring methods are meta-methods – they are about problem solving and therefore should be applied prior to problem solving.

Foresight is a multi-level process that includes methods of problem structuring as well as problem solving methods. Foresight approaches recognize the need to understand the system and to identify the trends, issues and events that are critical. By breaking out the uncertainties, Foresight give decision-makers a view on what is actually driving the system and on the underlying structural relationships and on new emerging trends (van der Heijden, 2005). However, when a Foresight exercise is able to expand the conflict by reframing an issue in such a way that it mobilizes previously apathetic stakeholders, it is able to increase the sense of urgency. Sometimes, this initiates a self-fuelling system of positive feedback absorbing the attention that would normally have gone to other actors and issue areas. As said, this is a system that fuels itself and provides windows of opportunities to drive policy decisions till, ultimately, the resource advantage of the formal system is overcome and a new equilibrium with widened array of interest has been established (Wood, 2006).

4.2 Clarity of purpose

The role of politicians in policy issues can change over time. The complexity of policy choices prompts higher level of stakeholder participation. But the growing dependence of politicians to the other stakeholders can erode the trust-worthy-ness of the politicians. Foresight affects the process of institutional change not only by providing legitimacy to some forms of political action, but also by shaping the actors’ perception of their interests as well their strategies (Dimitrakopoulos, 2005). It is important for a Foresight process to involve politicians prior to the start. The lack of commitment of politicians may lead to the emergence of parallel processes: the traditional negotiations between strong power groups and the Foresight process. To be effective, Foresight needs a clear role and position in the policy process and the participants, including the decision-makers, should be aware of their (new) role. It is therefore important that politicians must play an active role in the confirmation of the process design and the communication of the purpose. Moreover Foresight can give policy-makers an opportunity in achieving visibility and leadership by talking the role as Foresight ambassador.

In practice there is often a missing institutional link between the interactive process and the formal decision-making process (Edelenbos, 2005). Lacking coordination and feedback between Foresight and the existing policy and decision-making arenas may result in difficult institutional confrontations. Politicians need to be taken along in the Foresight process and should become familiar with the arguments and ideas used. This may result in productive linkages between the Foresight process and the decision-making. Although politicians make their own assessments,
they can use the insights from the interactive process for decision-making (Edelenbos, 2005). Hence, when the Foresight is conducted successfully they can choose for a less centralised approach and can act as a facilitator in the policy network.

4.3 Legitimacy

Decision-makers are limited in their capacity to collect and process information, to generate all feasible alternatives and to assess possible consequences. Information is a collective, rather than a private good and due to increased knowledge creation and complexity, answers concerning policy change have a short life-span. Cooperative rather than competitive strategies for knowledge production and use are required if legitimate recommendations for the decision-making are to be achieved (Dunn, 2004). Although statistical analysis and modelling are important, they merely form instruments to underpin uncertainty analysis of the main driving forces. Intuition and creativity are just as important as rational reasoning. The idea is to compose a language based on robust evidence that can be shared by different stakeholders so that they can develop and present coherent messages and options to decision takers.

Different components of robustness for research in a policy context are well described in Shaxson (2005). The different components are credibility, reliability, transferability, objectivity and empowered-ness (or rooted-ness). Table 5 gives an adjusted overview of the components of robustness of evidence with a strong emphasis on the implications for a Foresight process. Overall it is essential that the evidence within the recommendations for the decision-making should be perceived to be robust and, equally that stakeholders feel empowered by participating in the process.

- Credibility
  This relates to the processes of analysing and synthesising information, often referred to as internal validity. Credible evidence relies on an analytical rigour throughout the processes of data collection and analysis, and on clear presentation of the conclusions.

- Reliability and transferability
  This refers to the source of data and the purpose and context of data collection. It is particularly applicable when analysis is based on benchmarking or on pilot studies.

- Objectivity
  This refers to reducing bias in the evidence base. Uncertainty analysis is extremely important in this context.

- Empoweredness
  Different evidence may have different meaning and value to different stakeholders. Important is that all the viewpoints have been negotiated, both in framing the question and in gathering the evidence. Essential is that the results should stimulate action and empower people to act.

Table 5. Components of robustness of evidence (after Shaxson, 2005).
4.4 Guiding questions for evaluation

Table 6 summarizes the issues to improve Foresight practice by articulating three critical questions for evaluation a Foresight exercise. A systematic analysis of the proposed perspectives on Policy change will improve better understanding of Foresight as a policy instrument. These understandings will eventually lead to more robust insights on how Foresight practice should be advanced.

<table>
<thead>
<tr>
<th>Guiding questions</th>
<th>How can Foresight present a window of opportunity to drive policy decisions in an effective way?</th>
<th>How can Foresight enhance the legitimacy for policy action and the trust-wordy-ness of the decision-makers?</th>
<th>How can Foresight provide evidence to decision-makers empowering the stakeholders involved?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Institutional dimension</td>
<td>Sense of urgency</td>
<td>Clarity of purpose</td>
<td>Legitimacy</td>
</tr>
<tr>
<td>Contributors to decision failure</td>
<td>Institutional structures and decision premises are both limiting the convergence of activity flows</td>
<td>Limited transparency on political commitment and bounded rationality of decision-makers</td>
<td>Stickiness and friction of knowledge. Tendency to exclude internal variables</td>
</tr>
<tr>
<td>Key factor for success</td>
<td>Convergence of three flows of activity: defining the problem, identifying solutions and achieving commitment for action</td>
<td>Clear linkages between the Foresight process and the formal decision-making and recognition of the politician’s leadership by the stakeholders</td>
<td>Composition of a common understood language based on robust evidence.</td>
</tr>
</tbody>
</table>

Table 6. Overview of the guiding questions to assess and evaluate the effect of Foresight on decision-making

5 Conclusions

Policy changes are the results from a process of iterative interactions between three streams of activity: defining the problem, identifying solutions, and achieving commitment for action. The process of policy change does not begin with clearly articulated problems, but with a set of diffuse problems and issues. When a Foresight exercise is able to reframe an issue in such a way that it mobilizes stakeholders, it becomes able to increase the sense of urgency concerning the policy problem. This is a system that provides windows of opportunities to drive policy decisions till, ultimately, the resource advantage of the formal system is overcome and a new
equilibrium with widened array of interest has been established. In a way, Foresight can influence policy change by redefining problems and establishing new policy networks with a shared vision towards the future and commitment for action.

The role of politicians in policy issues changes over time. Foresight affects the process of institutional change not only by providing legitimacy to some forms of political action, but also by shaping the stakeholders’ perception of the sense of urgency. It is important that politicians must play an active role in the confirmation of the process design and the communication of the purpose. This may result in productive and clear linkages between the Foresight process and the formal decision-making. Although politicians make their own assessments, they can use the insights from the interactive process for decision-making.

To achieve legitimate recommendations for the decision-making, cooperative strategies for knowledge production are required. Foresight does not only deal with the collections of data and models, it also involves the interaction of stakeholders, their ideas, values and capacities for possible action. Stakeholder involvement may be facilitated by conceptualising the future as open and dilemmatic, and recognizing ambivalence as legitimate (Höijer et al., 2006). The purpose is not simply to provide a basis for efficient decision-making, but also to provide knowledge needed to improve the practice of democracy. Foresight can compose a common language among stakeholders based on robust evidence. Hence it is essential that the evidence within the recommendations for the decision-making should be perceived to be robust and that stakeholders feel empowered by the robust recommendations.

The interactions between Foresight, policy change and decision-making presented in this paper are designed to provide methodological insights on how to establish more effective Foresight practice. It enhances a richer view on how Foresight can be better institutional embedded in terms of clarity of purpose, sense of urgency and legitimacy in order to prevent the interactive process from becoming meaningless and useless in the formal decision-making afterwards. Foresight will never replace the decision-making process but it may improve its quality by establishing commitment among stakeholders, by preventing implementation issues, and overall by increasing the democratic content. Further research on the interactions between Foresight and decision-making based on a systematic analysis of the proposed guiding questions is recommended to improve better understanding of Foresight as a policy instrument. As such it will explore new ways to underpin policy change, by applying theory to state-of-the-art Foresight practice.

Acknowledgements

The author is grateful to the COST Action A22 network on advancing Foresight methodology for the inspiring discussions in WG3 Interactions between Researchers, Decision Makers and the Public.

References


