Results and Impact of national Foresight studies
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Results and impact of national Foresight studies

- Foresight studies have significant impact on the design of national innovation systems
- National innovation performance seems to be influenced long term by Foresight studies
- Foresight studies are used as an instrument to prepare nations for meeting future challenges
- Foresight-Studies contribute
  - to enhanced industry-science relationships
  - the cooperation and coordination of administrative and political institutions and actors
  - provide a useful tool for university strategy development
- Foresight studies are used as radar by industry to identify societal feelings and development trends
A Foresight study is a participative process between actors from academia, business, government and other societal non governmental organizations with the aim to identify and assess potential future developments in science, technology, business and society.

- Long term focus
  - Time horizon between 10 and 30 years
  - Time horizon differ according to topic discussed
- Open and interdisciplinary discussion and communication
  - Exchange between actors from policy administration, industry, science and society
  - Interplay assessment between science, technology, economy, culture and social impacts is crucial
  - Network strengthening to implement results later
- Systemic approach
  - Integrative approaches with different instruments and methods
  - Match of diverging interests and aims
- Consensus:
  - Get all parties on board
- Commitment:
  - Clear responsibilities for studies and result implementation
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34 countries studied; 4 countries in-depth research

In depth desk research
- Belgium
- Australia
- Austria
- Belgium
- Bulgaria
- Canada
- China
- Cyprus
- Czech Republic
- Denmark
- Estonia
- France
- Greece
- Hungary
- Iceland
- Israel
- Italy
- Japan
- Korea
- Latvia
- Lithuania
- Luxembourg
- Malta
- Mexico
- Netherlands
- New Zealand
- Norway
- Poland
- Portugal
- Romania
- Slovak Republic
- Spain
- Sweden
- Turkey
- United States

On site visits
- Finland
- Ireland
- Germany

Telephone interviews
- UK

The following statistical analysis is based on a written survey. Figures shown in charts are based on calculations from questionnaires returned. The answers vary between 28 and 32 usable questionnaires. For reasons of simplicity the numbers of responses are not displayed for individual questions / statements. Remarks or comments added do not state the source of origin to respect authors anonymity.
Foresight studies were assessed in OECD / ERA countries

Evaluation criteria

- Which impact did the Foresight have?
  - Impact
  - Sustainability
- What was the motivation to conduct Foresight?
  - Initiator position in NIS
  - Motivation for Foresight
- How are Stakeholders involved?
- How are resources allocated?
- Which experiences were used?
- How were Foresight instruments and methods selected and used?
- Which fields did the Foresight aim at?
- What is the degree of independence of the conduction institution?
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Foresight studies target on public bodies mainly

Target audience

- Government departments / ministries
- Funding agencies / bodies
- Government agencies
- Public research organizations
- Universities
- Research associations
- Firms
- Intermediary organizations
- Trade bodies / industry associations
- Trade unions
- General public
- Non governmental organizations

Share of Foresight studies where target audience was very important or not important at all

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Ambitions to conduct Foresight studies are high

The Foresight study was initiated ...

- to identify key investment fields for research (either public or private)
- to strengthen national competitiveness
- to encourage future-oriented thinking
- to establish a Foresight culture
- to determine resource allocation of national research spending
- to promote innovation
- to provide a platform for long term risk and opportunity assessment
- to build consciousness
- to develop networking

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**Positive effects of Foresight studies**

**Networking of participants**
- Experts/stakeholders brought together and working together towards a common goal
- The study brought private sector representatives and academicians around the same table to form R&D vision
- Interaction between human sciences and natural sciences
- Bring together stakeholders from different fields
- Met warmly by high-level scientists and company CEO’s

**Stimulation of dialogue**
- Open discussion & some changes in way of thinking
- Promote long-term thinking
- Stimulate future orientation
- Global Perspective independent of organization
- Enthusiasm of involved parties to think and conceptualize about the future

**Influence on policy / innovation**
- Positive impulse for innovation
- New governance
- Influence on public investments and trajectory development
- Direct contribution to policy making
- Increase of democracy in decision making

**Varied**
- Costs corresponded to the benefits gained
- Useful results
- Steep learning curve, teaching programme at university
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But there were also negative experiences

Networking of participants

- Difficult to bring together all sorts of people and experts who are both specialist and generalists and are capable of being really objective and forward-looking, not focusing on their own interests
- Difficult to select expert panels representing all stakeholder groups
- Tricky to provoke the participant to extend their mind set over 10 years and longer
- Difficult to reach a common framework of communication between different scientific fields
- Aggressive position of some stakeholders seeking to dominate and influence the experts and working group

Influence on policy

- Delay in using foresight results for new policy
- Insufficient integration of results and analyses
- Policy makers does not necessarily adopt what experts suggest
- Secret political opposition by some senior members of government
- Decision-makers only superficially involved in actual foresight work
- Negative attitudes in government and academia

Varied

- Over budget and over time
- Too high expectation of echo in NIS
- Too many projects at one time
- Impacts necessarily indirect, not acknowledged
- Lack of methodology competence
- Lack of continuity in the funding to conduct a refinement of the results
- Lack of ability to market the results to industry
- Lack of adequate external consultants support
- Foresight culture needs time to develop. People are not familiar with this sort of thinking and methods
- General negative attitude because only accurate and precise predictions were acceptable
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High level of satisfaction with Foresight studies – follow up studies planned

- Goals were not achieved at all
- Goals were met fully
- Costs exceeded benefit
- Benefits outweighed costs

- No other Foresight initiatives planned or conducted: 16%
- Other Foresight initiatives planned or conducted: 84%
## Approaches to measure effectiveness and efficiency

### Effectiveness
- Project Management Procedures
- (Empirical) evaluation
- International evaluation
- Overall assessment
- Some indicators of impacts and Delphi participation rate
- Thematic panels’ feedback
- Accomplishment of the formally set goal in terms of specifying research areas
- No exact measurement, but visible reactions:
  - positive comments by the European Commission
  - creation of a National Foresight Committee after the project
  - increased public awareness on Foresight

### Efficiency
- Project management & monitoring, followed up by review
- Personal and formal information obtained from client and stakeholders
- Overall assessment
- Assessment of change in basic research culture, without metrics
- Comparing with cost of similar projects in other countries
- Benefits not measurable; for everyone to decide
Impact on different policy areas

Impacts on science policy:
- Establishing Strategic Centers of Science, Technology and Innovation
- Establishment of significant basis
- Input to research strategy documentation

- Technology policy
- Science policy
- Innovation policy

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Public authorities on national level most often use results

- Used by national governments
- Used by research funding bodies
- Used by public research organizations
- Used as input for private industry
- Used by regional governments
- Used by universities

share of Foresight studies that were very important or not important at all for stakeholders

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Outputs of Foresight studies have different impact on policy making

- List of key technologies
- Policy recommendations
- Research and other priorities
- Analysis of trends and drivers
- Forecasts
- Technology roadmaps
- Scenarios

Share of outputs that influenced policy making and strategy building significantly or were of minor relevance or not important at all for stakeholders:

- 0% 20% 40% 60%

[Diagram showing the impact of outputs on policy making]
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Significant strong correlation between Foresight and GSII

Correlation is significant at the 0.01 level (2-tailed).**
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**Arguments Pro Foresight studies**
- Foresight suitable for long term innovation technology and research policy definition
- well suited tool for universities and PRO to define strategies
- combination of bottom up and top down approach to identify long term R&D investment fields
- increased cooperation between science and industry and also administration (esp. among different administrative bodies)

**Arguments Contra Foresight studies**
- uncertain nature of Foresight results
- resistance of stakeholders if used with misleading interpretation by policy makers (intention of budget cuts)
- often self confidence of scientists proves barrier (pride of academics)
- investment in human resources needed to handle such complex projects
- interest of stakeholders often unknown
Conclusion

• Foresight studies are becoming increasingly popular with strong impact on priority setting and policy making
• Foresight studies are considered one but still highly effective and efficient instrument to shape and design the national innovation system
• So far NIS framework conditions are rarely considered in Foresight studies
• Focus of Foresight studies increasingly shifts from pure scientific and technology trend watch towards identifying societal challenges thus combining bottom-up and top-down approach
• Multiple side effects (indirect effects) are caused by Foresight studies though these are not measurable in quantitative terms
• Further long term work is necessary to quantify and prove the impact of Foresight studies on the national innovation performance
Thank you for your attention!

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