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## FinnSight 2015 – A National Joint Foresight Exercise

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### Purpose

*In 2005, the Finnish government took a decision in principle on the development of a national strategy. This decision spurred the two main funding agencies – the Academy of Finland and the Finnish Funding Agency for Technology and Innovation (Tekes) – to carry out FinnSight 2015, a joint foresight exercise that would provide inputs to this strategy, foster collaboration between these funding agencies and promote foresight and innovation activities at large. Towards these objectives, FinnSight 2015 engaged ten expert panels to identify key driving forces and characterized focus areas of competences, assisted by extensive deployment of Internet-based tools for collaborative work and intensive deliberations at facilitated workshops.*

### Improving the Quality of R&D

In comparison with many other countries, Finland has had an active and varied foresight scene, characterized by numerous activities that have been initiated by several key actors of the research and innovation (R&I) system. Yet, many activities notwithstanding, there have been no foresight exercises on a scale that would match the scope and the level of ambition of large-scale national exercises elsewhere. This may have been because Finland is a small country: thus, some results from even seemingly isolated foresight activities can be brought to bear on policy making even in the absence of formal coordination because some of the experts are likely to participate in several such activities. Furthermore, the overall institutional and organisational structure of the Finnish innovation system has remained largely unchanged for some time. As a result,

there has been less need for establishing national thematic priorities that would transcend the boundaries of individual organisations or go beyond the processes of thematic priority setting that are carried out within specific science and technology policy instruments, such as research and technology programs.

This situation changed in April 2005 when the Finnish government (the Prime Minister and government ministers) took a decision in principle on the structural development of the public research system at large. In this decision, the government emphasized that the research system is to be developed in its entirety, with the aim of improving the quality and relevance of research and development activities. The government also noted that key measures towards this end will include the establishment of shared priorities, the strengthening of the national and international profile of research organisations, and the establishment of selective decision processes based on foresight. Furthermore, this decision obliged the Academy of Finland and



the Finnish Funding Agency for Technology and Innovation (Tekes) to deepen their collaboration in the context of funding activities and other R&I instruments with the aim of enhancing the impacts of public R&I funding and facilitating the formation of larger research units. Finally, the decision stated that the Science and Technology Policy Council should develop by the end of June 2006 a national strategy for establishing Strategic Centres of Excellence in Research and Innovation.

## Process Design and Expert Engagement

### Top Down Approach

The initial preparations of FinnSight were started in early 2005 at a time when the government's decision was known to be forthcoming. At this stage, the President of the Academy of Finland and the General Director of Tekes agreed that they would launch a joint foresight exercise and that the foresight deliberations would be carried out by expert panels. The initial intent was followed by establishing a project organisation. The steering group consisted mostly of civil servants from the top management of the funding agencies. In addition, a so-called core group was appointed, with responsibility for the planning and methodological support of the exercise. It was assisted by the steering group that provided guidance through its discussions and decisions on key matters (e.g., approval of project plans, definition of panel titles, and appointment of panel chairpersons).

### Social, Economic and Technological Issues

The delineation of foresight panels was an iterative process where the core group explored some alternative rationales for choosing panel titles, even in view of international experiences, and developed a tentative proposal that was debated by the steering group. After extensive discussions, the steering group established ten panels:

1. Learning and Learning Society
2. Services and Service Innovations
3. Well-being and Health
4. Environment and Energy
5. Infrastructures and Security
6. Bio-expertise and Bio-society
7. Information and Communications
8. Understanding and Human Interaction
9. Materials
10. Global Economy

## New Tasks for Funding Agencies

In effect, the government's decision ascribed new tasks to the Academy of Finland and Tekes. These two main funding agencies for basic and applied technological research took the initiative to launch a joint foresight exercise that would provide informational inputs to the shaping of the national strategy and also other strategic planning processes.

### Cross-cutting Theme: Global Economy

Notwithstanding, the panellists were explicitly encouraged to deliberate how they would construe the scope of their panels. Two further aspects in the definition of panels are noteworthy:

- The tenth panel on global economy had a horizontal role so that it supported the other panels by collecting statistical data on R&I systems and economic forecasts.
- The delineation of panels combined several complementary rationales. First, some panels (e.g., Information and Communications) were partly driven by the comparatively strong global position of Finland, while others (e.g., Materials) were linked to rapid advances in generic sciences and their application. Second, a deliberate decision was taken not to establish panels based on traditional industry clusters (i.e. forest industries, construction). Third, some panels (e.g., Service and Service Innovations) had rather new and evocative titles.

### Addressing the Intertwined Components of Research & Innovation

Because FinnSight was a foresight process of two funding agencies with different but complementary roles in the R&I system, it was imperative to achieve a proper balance in addressing the intertwined components of research (of key concern to the Academy of Finland) and innovation (of key concern to Tekes) in the R&I system. This, together with the large differences in the funding processes of these funding agencies, implied that the external expert panels should have full autonomy in their future-oriented deliberations and that they should be composed in a balanced manner. In addition to scientific fields and technological areas, other dimensions of balance also had to be addressed (e.g., gender issues and representation of geographical regions).

The balanced composition of the panels was ensured by appointing researchers and six industrialists onto each panel (whereby the Academy of Finland would propose the researchers and Tekes the industrialists). Each panel had two chairpersons, one from academia and one from industry. The responsibilities for reporting the panel results were delegated to these two chairpersons, who, unlike other panellists, received a modest financial compensation for this duty.

The foresight process – which was designed by the core group and approved by the steering group – was based on panel-centric work where each panel would have three half-a-day meetings. In addition to the panel meetings, three additional meetings were held among the twelve panel chairpersons with the aim of enhancing the exploration of panel interfaces and ensuring that the panels would proceed in a sufficiently coordinated manner. These three meetings were held (i) before the first panel meetings where the chairpersons met and resolved questions concerning the objectives of the exercise; (ii) after the second panel meeting where the panel chairpersons presented early results to each other and discussed panel interfaces; and (iii) after the third meeting where they sought to identify synergies at these interfaces (see Figure 1).

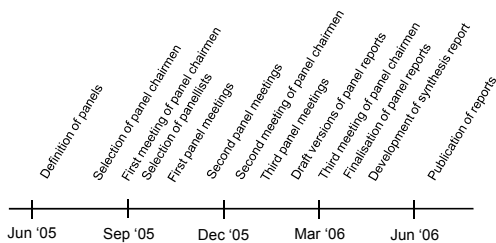


Fig. 1: Schematic outline of the schedule of FinnSight 2015

### Driving Forces and Focus Areas Serve as Key Analytical Concepts

The following key concepts were employed in FinnSight:

- A driving force was defined as an event or a development that could contribute to the realization of changes with significant implications for future R&I activities.
- A focus area of competence was defined as a community of collaborating actors that (1) create or apply knowledge that is based on R&I activities and (2), by doing so, seek to respond to societal and industrial needs.

### Panellists Specify Driving Forces

To engage the panellists before the actual panel meetings, the panellists were requested to propose, comment, revise and assess driving forces beforehand and focus areas of competence through the Internet before the panel meetings. The resulting proposals were collated into a compilation document that was made available to the panellists. Using the 1-to-7 Likert scale, the panellists were invited, again through the Internet, to assess (i) the probability of each driving force (i.e., how likely was it that the change would unfold as described?)

and (ii) the significance of the factor (i.e., how significant was this driving force for future R&I activities?). Apart from their ratings, the panellists were also asked to provide verbal comments to justify their assessments. In each panel, this prior consultation process resulted in a collated panel meeting background document that contained some 30 to 50 driving forces as well as numerical assessments and written comments on them. The first panel meetings were facilitated by the two chairpersons, who had plenty of liberty in guiding the workshop discussions. In most panels, the discussions were captured by building MindMap® charts.

In the same vein, before the second panel meeting, the panellists were requested to submit 3-5 proposals through the Internet questionnaire for focus areas of competences. The resulting proposals were then subjected to an Internet-based assessment so that the other panellists could evaluate the focus areas with regard to (i) the current level of expertise in Finland (i.e., how strong a basis do Finnish actors have in the development and application of knowledge pertaining to this focus area of competence?) and (ii) the future demand for this expertise (i.e., how strongly will the generation of knowledge in this focus area of competence respond to the societal and industrial needs in 2015?). In addition, the panellists were requested to indicate their opinion of whether the focus area was among the most important third, the second most important third or the least important third out of all the focus areas they identified. Practically all panels started the assessment phase of focus areas only after additional proposals had been generated in the course of the discussions at the second panel meeting.

### Systematic Panel Coordination to Achieve Synergies

The coordination of panels was supported by three meetings for the panel chairpersons. At the first meeting, the President of the Academy of Finland and the General Director of Tekes presented the objectives of FinnSight to the panel chairpersons, who could pose questions of clarification and also had a chance to meet each other. At the second chairperson meeting – which was held after the second meeting of the panels – the panel chairpersons presented tentative results from their panels to the other chairpersons. At this meeting, some cross-cutting topics with connection to several panels were identified so that they could be explored further in the third panel meetings. The last meeting of the panel chairpersons was held after the third panel meetings. At this one-day meeting, much of the attention was devoted to the synergies at the panel interfaces.

### Expert Panels Elaborate Focus Areas

All panels identified about six to ten focal competence areas. For each of these, they elaborated the underpinning scientific and technological bases, relations to emerging societal and industrial needs, with illustrations of future possibilities (see examples in Table 1).

Apart from the ten panel reports, a synthesis report aimed at a general audience and policy makers was drafted and also translated into English, Chinese and Japanese.

**Table 1: Examples of focal areas of competences identified by the panels.**

<i>Panel</i>	<i>Examples of focal competence areas</i>
Learning and Learning Society	Neurological, cognitive, motivational and social basis of learning Practices of life-long learning, the education system and informal learning Civic skills and competences, life control and social innovations
Services and Service Innovations	Business competence in services Culture and adventure services Renewal of public services
Well-being and Health	Physical exercise and nutrition research Mental health and substance abuse research Home care and telecare technologies
Environment and Energy	Operation of ecosystems Water systems and water cleaning technologies Smart sensors and new energy conversion and storage technologies
Infrastructure and Security	Environmental know-how and technology Logistics know-how and security of supply management Integration know-how
Bio-expertise and Bio-society	Complete use of renewable natural resources Development of bioproduction Measurement methods and diagnostics Management and modelling of biological knowledge
Information and Communications	Sensor technology applications Data mining, analysis, management and retrieval Bio-information technology
Understanding and Human Interaction	Assessment and management of global risks Impacts of business globalisation on national economies Management of innovation processes

## Finnsight's Synergies with the Strategic Centres for Science, Technology & Innovation

In 2006, the Science and Technology Policy Council referred to FinnSight in its comprehensive report, which contained numerous proposals for the development of the Finnish research and innovation system. Also, in the same month when the results of FinnSight were published, the Science and Technology Policy Council took steps towards establishing Strategic Centres for Science, Technology and Innovation in fields that are important to the future of Finnish society, business and industry. These centres – which are organised as non-profit companies owned by the state, research institutes, universities and private companies – will establish new ways of allocating resources to research activities in accordance with research plans that are jointly developed. Although the establishment of these centres cannot be attributed to FinnSight, the results of FinnSight were published at an opportune moment for the development of the strategic research plans for these centres. Also, some FinnSight panellists have contributed to establishing these centres, thus creating informal links between FinnSight and the centres.

Within the two funding agencies, the Academy of Finland and Tekes, FinnSight has served to inform their respective strategies. FinnSight has also served as a source of information for various regional and organisational strategy processes in Finland. It has aroused international interest as well, considering that references to FinnSight reports have been made in documents published in Japan, South Korea and Canada and by the European Commission.

## Sources and References

Salo A., Brummer V. and Könnölä T. (2009). Axes of Balance in Foresight – Reflections from FinnSight 2015, Special issue on the 3rd International Conference on Future-Oriented Technology Analysis, Technological Analysis & Strategic Management, Vol. 21, No. 8, 987–1001.

FinnSight 2015 project website: <http://www.finnsight2015.fi/>

**About the EFP:** Policy professionals dealing with RTD, innovation and economic development increasingly recognize a need to base decisions on broadly based participative processes of deliberation and consultation with stakeholders. Among the most important tools they apply are foresight and forward looking studies. The EFP supports policy professionals by monitoring and analyzing foresight activities and forward looking studies in the European Union, its neighbours and the world. The EFP helps those involved in policy development to stay up to date on current practice in foresight and forward looking studies. It helps them to tap into a network of know-how and experience on issues related to the day-to-day design, management and execution of foresight and foresight related processes.