1. The overall impact model

The purpose of this note is to describe the impact model developed by Tekes (Finnish Funding Agency for Technology and Innovation) as well as to review shortly the feedback of evaluation practices to the management of Tekes. The model was originally published in June 2006.

Tekes started an internal project in 2005 to collect information contained in a number of evaluation reports, qualitative and quantitative analyses and econometric models on the impact of public R&D&I financing then available together to build an overall framework for impact analysis. The work was restricted to main theories which present a mixture of evaluation and economic models. The approaches utilized in the development of the impact model include:

- additionality (input, behavioral, output) as expressed for example by Luke Georgiou,
- knowledge spillover, and
- new growth theory in which the main inputs are education and technology.

On the basis of these components, an overall impact model of the innovation process was developed. The impact model includes four parts: investments, results, direct effects and impacts on the national economy and society.

![Innovation is a profitable investment for the future](image-url)

**Figure 1. Impact Model**

---

As shown in Figure 1, the first level in the impact model is R&D&I investments. One of the goals of Tekes is to give incentives (by funding) to its customers for increased investment in R&D&I and thus the first level is in this sense also an input additionality level. This level also involves other forms of activation of present and new Tekes clients.

The second level of the impact model describes the results, i.e. behavioral changes taking place inside the firms, universities and research institutes as a result of public R&D&I funding and other Tekes activities. A public innovation agency usually wants to encourage more innovative and strategic behavior among its clients. Tekes has targets to stimulate its clients to create new knowledge, competences and business models as well as networking which in turn give rise to spillovers to other actors benefiting the Finnish economy and society as a whole.

The third level concerns the innovative firms and renewal of business, i.e. whether public R&D&I funding increases company outputs, and if this in turn improves their overall business performance. This level also involves industrial dynamics, for example, utilization of information technology for the enhancement of productivity and efficiency of public services.

The fourth level analyses the impacts of public R&D&I financing on the economy and society as a whole. Interactions of macroeconomic policies and the role of innovations have socio-economic connections that are mostly missing from the evaluation context. Topics in this case involve, for example, the effects of diffusion and accumulation of technology, R&D spillovers and intangible capital on the national economy or the utilization of technology or innovations to enhance various societal policies.

2. Impact of Tekes activities

Impact analysis has been integrated thoroughly into Tekes activities. The impact analysis is carried out at several levels:

A. The Ministry of Employment and the Economy manages Tekes by making use of a set of indicators measuring the Tekes objectives (see Figure 2).
B. Tekes monitors and evaluates results and impacts of each R&D&I project it finances. For monitoring purposes, Tekes gathers data on each R&D&I project at the initial and final stage as well as three years after the project has ended. Ex-ante evaluations are conducted internally by technology experts. Selection and follow-up criteria are given centrally. Over 20 different parameters are defined which can be used to make analyses with different profiles. The monitoring system is updated overnight so it has a real-time status. The impact indicators by the Balanced Score Card (BSC) are based on the monitoring data. Ex-post monitoring taking place three years after the end of the project and focuses on success, additionality, direct and indirect effects and quantitative data.
C. External researchers conduct various kinds of impact assessments based on Tekes’ project portfolio.
D. Tekes commissions external evaluators to evaluate all its technology programmes and the activation process. An evaluation can cover an individual programme or instrument, or a number of programmes belonging to the same field of technology or a cluster or having similar goals or other common denominator. The approach supports the development of technology programme concept itself, allows stronger recommendations and conclusions and also gives feedback for policy design. Other benefits of thematic technology programme evaluations include the enhancement of understanding of the sector specificity and generality of different impact mechanisms and the creation of learning platforms for exchanging good practises.
E. Tekes utilises international benchmarkings and studies (OECD, EU and national level studies) and peer reviews on the technology and innovation policies of different countries.
Figure 2. Impact of Tekes activities

The impact analysis has largely influenced the development and management of operations inside Tekes. Impact analysis reveals the effectiveness of operations, provides information on success and assesses the legitimacy of policy actions. Awareness of the eventually upcoming evaluations may invigorate the planning and execution of operations which in turn diminishes risks, increases the success factor and productivity. Impact analysis also contributes to the public awareness on specific policies or issues. With the help of impact analysis and data gathered from evaluations, peer review level data and results can also be incorporated into scientific literature.

Further information:
markus.koskenlinna@tekes.fi
anna-maija.rautiainen@tekes.fi