



Swedish Technology Foresight

Royal Swedish Academy of Engineering Sciences
Swedish National Board for Industrial and Technical Development
Foundation for Strategic Research
Federation of Swedish Industries

BUILDING the Foresighted Society will require a desire for change among Sweden's politicians, interest organizations and business sector, as well as radical reforms in our schools, universities and research community.

Dedicating itself to multidisciplinary experimentation and lifelong learning, Sweden should invest and focus its resources in those fields of technology where it is already established and has good potential to be a global leader.

Sweden is already world-class in information technology (IT), the new biology and materials technology. By building further on these strengths, and especially by combining them, Sweden can perform successfully amid tougher international competition.

These are the fields in which Sweden can lay the foundations for profitable new companies and generate the resources for tomorrow's prosperity.

The purpose of the Swedish Technology Foresight project is not to plan the future. That is impossible. Our purpose is to plan for a future that we cannot know very much about. By increasing and widely disseminating knowledge today, we will improve our capacity to handle the rapid changes that will be needed in a borderless, always-online world.

What do we know about the world of 20 years from now?

Always online, with infinite memory

Arguments about bandwidths and transmission speeds are but a memory, and in its electronic form, memory is nearly infinite.

Bacteria build

Aided by genetic engineering and an exact knowledge of their genetic material, microorganisms function as chemical factories, efficiently manufacturing substances like fuels (for example hydrogen), plastic raw materials and specially adapted surface coatings.

Miniature motors

Bioelectric devices – electronic components made with biological building blocks – can be turned out in very small sizes.

Medicine builders

The art of efficiently processing large quantities of genetic information is an increasingly important tool in developing new pharmaceuticals faster and cheaper.

Atomcraft

Nanotechnology is a kind of "atomcraft" in which individual atoms are used as building elements, for example to produce motors a fraction of a millimeter in size and create entirely new materials.

Individually tailored products

New technology, simulation and the ability to create specific characteristics from the molecular level up enable manufacturers to build individually adapted products directly – everything from household appliances to circuit boards, cars or foods.

Bionic humans

An implanted computer chip can reinforce nerve signals, bringing to an end some types of paralysis or allowing the use of an effective prosthesis. Even today they can help some deaf people to regain their hearing, and experiments are underway to create artificial "eyes" wired directly to the vision center of the brain.

New technologies will stimulate old industries

IT and biotechnology are creating an upswing in Sweden's traditional forest product industry, which can manufacture wood with completely new characteristics. Advanced sensors micro-manage whole farms, resulting in maximum crop yields and minimum energy consumption.

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SYNTHESIS REPORT FROM SWEDISH TECHNOLOGY FORESIGHT



A SYNTHESIS REPORT FROM
THE SWEDISH TECHNOLOGY FORESIGHT PROJECT

The Foresighted Society

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ABOUT THE SWEDISH TECHNOLOGY FORESIGHT PROJECT

Swedish Technology Foresight is a national project aimed at creating insights and visions about technological development over the next ten or twenty years. It is also aimed at identifying worthwhile strategies in education, research and development that may help promote the advancement of Swedish society.

During 1999, more than a hundred experts – women and men of all different ages from the private business sector, research community and public sector – worked in eight panels, studying and discussing their respective Foresight sectors.

The eight Foresight sectors

1. *Health, medicine and care*
2. *Biological natural resources*
3. *Society's infrastructure*
4. *Production systems*
5. *Information and communications systems*
6. *Materials and material flows in the community*
7. *Service industries*
8. *Education and learning*

The project has three objectives

- To strengthen a futures-oriented approach in companies and organizations
- To identify areas of expertise with potential for growth and renewal in Sweden
- To compile information and design processes for identifying high-priority areas in which Sweden should build expertise.

Global, national and regional

Similar Foresight studies are underway around the world. People have begun to realize the need for common visions in a country and its regions. How can we – and how do we wish to – promote growth in Sweden? And how people living in different regions help to shape positive development in their part of the country?

To start this process, regional conferences are being organized around the country. They will give all parts of Sweden an opportunity to learn some of the findings of the Swedish Technology Foresight project. These findings will help give the discussion at the regional level a long-term perspective, about 10–20 years.

We will present new ideas and try to inspire the formulation of a vision at the regional level. We are providing background information in the form of reports, web sites and resource persons for continued discussions about the future.

Technology Foresight work is a continuous process. Our findings will now be disseminated and applied. Everyone in Sweden with an interest in future-oriented issues will then carry this process forward.

analyses of Sweden's areas of expertise, improvement needs, consequences for various fields of technology and science, strengths and weaknesses, threats and opportunities – nationally and regionally.

The shape of these in-depth and follow-up studies will be up to the players in the Swedish business sector and public sector to decide.

Recurring Technology Foresights?

In Sweden we should carry out a comprehensive national Technology Foresight fairly regularly, as a number of other countries do. In general, such a process should have the same purpose as the current one, but we should naturally be open to changes in our working methods. Among other things, all the lessons – positive and negative – from the current Technology Foresight should obviously be taken into account, along with the lessons continuously being learned from similar processes in other countries. This may apply, for example, to such fundamental issues as how much time to budget completion and how best to utilize this time, especially considering that the most insightful people tend to have little time.

The interval between recurring Technology Foresights at the national level should probably not be much shorter than five years, but perhaps not so much longer either.

Evaluation

The lessons from the implementation of Swedish Technology Foresight have been followed up on a continuous basis by an Evaluation Committee, which will report its observations and conclusions to the four organizations that ran the project. This evaluation will focus on the actual process, not the findings of the project's work.

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