

# Sustainable innovation – in every sense

*Innovation is especially important in today's world, for a multitude of reasons – as a way of building and retaining competitiveness, securing future potential, and pushing developments forward. Innovation is also critical for the environment, and for helping business and society weather the kind of economic turbulence the world has been seeing recently. In all of these cases, innovation needs to be sustainable if it is to deliver on its promise.*

**F**inland is committed to being at the forefront of development and a dynamic environment for business and people. The country's track record in recent years shows that it has succeeded in many areas, whether in terms of national competitiveness, business innovation, equality of opportunity, sustainable development, economic prosperity, or well-being.

No country, Finland included, however, can hope to remain at the front of the field without constant development work and strong networks nationally, regionally, and worldwide. It is probably not surprising then that the importance of international networks has been particularly highlighted in Finland's new national innovation strategy – as has the importance of focusing on users in R&D.

Finland has proved an excellent location for testing out new ideas, new products, and new services, as most Finns are very positive towards new things and keen to try them out. This has seen the emergence of a 'Living Lab' environment, where users, companies, research institutes, universities, and public institutions are coming together to an increasing extent to form dynamic problem-solving communities.

## **FLEXIBILITY AND COMMITMENT**

Finland has a population of only a little over five million, of which one in five live in and around the capital, Helsinki. This small size has its benefits, but it is not the only reason why things tend to get done quicker and with less 'fuss' than in many other places. There is just simply less bureaucracy and more networking.



**No country can hope to remain at the front of the field without constant development work and strong networks nationally, regionally, and worldwide. Photo courtesy of Tekes.**



The new Genelec 5040A is an extremely compact active subwoofer designed to provide an accurate and dynamic bass response down to 35 Hz. It includes a remote volume control for adjusting an entire sound system, and controls for guaranteeing excellent room integration.

## Combining excellence in technology and design

Finland has built up a strong reputation for good design, and iconic products – such as Fiskars orange-handled scissors, Marimekko fabrics, and Artek furniture designed by Alvar Aalto – are familiar both to those with a special interest in design and everyday consumers. Finnish designers are playing an increasing role in industrial design today, and many companies are giving a more central role to design in their product development processes.

Awards such as the Fennia Prize, organised and sponsored by Design Forum Finland and the Fennia Group of insurance companies, are helping promote this trend. A number of the companies featured in HighTech Finland have been recognised in the competition over the years, including KONE, Nokia, Suunto, and Tiolat.

This year's Fennia Prize Grand Prix went to Genelec for its 5040A active subwoofer, and Metso Automation was one of those to receive a Fennia Prize, for its kajaaniPaperLab automatic paper testing unit.

Genelec is the world's leading manufacturer of studio monitor loudspeakers, and the 5040A – by the company's R&D team and renowned industrial designer Harri Koskinen – is a compact unit that breaks with conventional solutions by mounting the speaker driver and controls out of sight on the base and using an enclosure produced using a new method employing deep-drawn steel and die-cast aluminium. The form is repeated in miniature in the remote control unit.

Like Genelec, Metso is also a world leader in its segment, in this case papermaking machinery. Good industrial design is a well-established product development priority at the company, and its updated kajaaniPaperLab takes automated paper testing to a new level in terms of flexibility and cost-effectiveness. Its modular design ensures compatibility with older systems, simplifying integration with paper machines of all sizes. Its easy-access interface enables users without special laboratory skills to begin testing after only a short period of training.



### Finland in the top 10

- Second-most competitive country in the EU and number one in R&D, innovation, and sustainable development (Lisbon Review 2006)
- Sixth-most competitive country globally in 2008 (WEF, The Global Competitiveness Report, 2008-2009)
- Top of the 2005 Environmental Sustainability Index in terms of air and water quality, scientific and technological excellence, and environmental governance (Yale and Columbia Universities: 2005 Environmental Sustainability Index)
- Second-best performer worldwide in terms of gender equality (WEF: The Global Gender Gap Report 2008)
- Second in the Well-being of Nations Index (The Well-being of Nations. A Country-by-Country Index of Quality of Life and the Environment)
- First among OECD countries for excellence among young people in the sciences, and second in mathematics and reading (OECD, Programme for International Student Assessment PISA 2006).

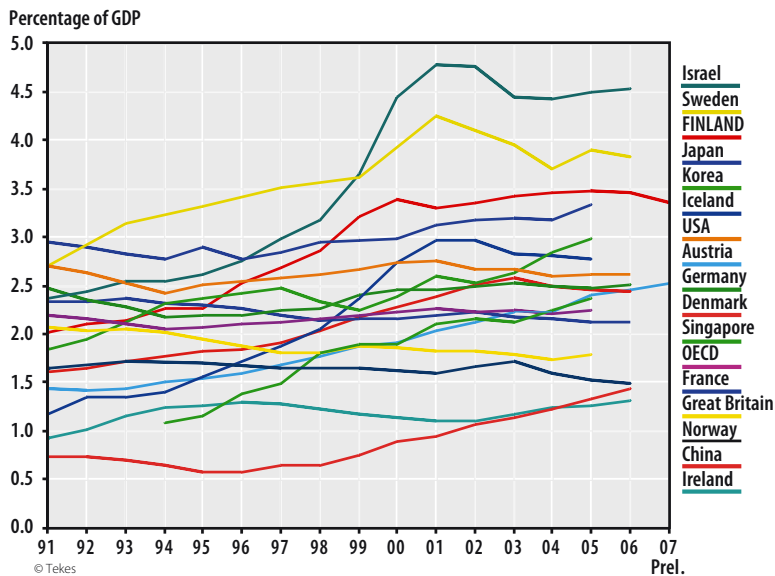
Flexibility, openness, efficiency, networks, commitment, and mutual trust are also very characteristic of Finland's innovation environment. Public funding organisations, such as Tekes, the Finnish Funding Agency for Technology and Innovation, for example, work closely with companies and universities to shape a common strategy for the future.

Tekes provides funding and networks for a wide range of R&D&I (research and development and innovation) projects, both public and private, and promotes cooperation between the business and academic communities. Any company based in Finland can apply for this funding or join any of the initiatives and programmes coordinated by Tekes.

The importance of a comprehensive approach to the way Finland envisions its future is emphasised by Tekes' Director General, Veli-Pekka Saarnivaara.

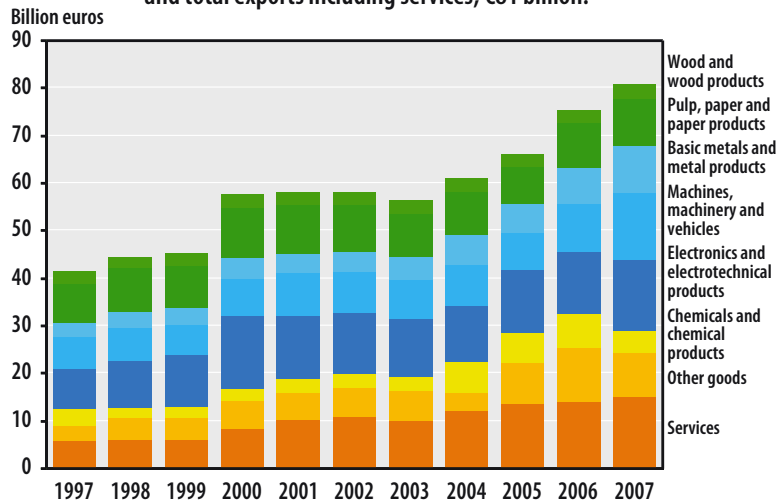
"Technology, services, and business expertise are all essential to the mix. Simply being the best in

### R&D investments in various OECD countries



### Finnish exports by industry

Finnish exports of good totalled €66 billion in 2007, and total exports including services, €81 billion.



© Tekes The exports of services in 2007 are estimated by the Bank of Finland. They include transportation, travel, insurance and financial services.



## Strengths of Finland's innovation environment

### Cooperation

- Excellent links between universities and the business world
- Extensive networks linking large, medium-sized, and small companies
- Dynamic public-private partnerships

### Expertise

- Large number of skilled researchers and experts
- Extensive investments in knowledge infrastructure
- Excellent education system

### Commitment

- Wide-ranging public- and private sector investment in R&D and innovation
- Widespread belief in trust and transparency.



The importance of a comprehensive approach to the way Finland envisions its future is emphasised by Tekes' Director General, Veli-Pekka Saarnivaara. "Technology, services, and business expertise are all essential to the mix. Simply being the best in any one area is not enough."

any one of these areas alone is unlikely to be enough in today's world. Companies, and the country as a whole, need a broader base.

"Strong players with 'critical mass' and clusters of world-class expertise are essential. In a small country like Finland, this creates the need for clear strategic choices, with focus areas based on global opportunities, as well as the need for networking, both nationally and internationally – to turn ideas and research results into innovations and success."

### PROGRAMMES AND PEOPLE

Finland continues to be one of the world's most research-intensive countries. National spending on R&D currently runs at close to €6.5 billion a year, or 3.5% of GDP. Around 70% of this comes from the corporate sector and the remaining 30% from government.

The human element has not been overlooked either, as Finland has the highest percentage of people employed in research of any OECD country.

Building on previous and ongoing work done by technology programmes and other initiatives, Finnish companies and research institutes are now developing a series of new Strategic Centres for Science, Technology and Innovation to promote long-term R&D collaboration in a number of key areas.

These strategic centres are designed to offer participants new tools for carrying out joint research plans aimed at meeting application needs over the next five to 10 years.

"We believe that these centres will play an important part in ensuring that we respond and adapt to change when and where it's most important," says Erkki Virtanen, Permanent Secretary at the Ministry of Employment and the Economy. "They are also a good example of the potential of efficient public-private partnerships, involving industry, the academic community, government, and agencies such as Tekes and the Academy of Finland."

Finland has long been known for its forest industry know-how – from harvesting timber to

developing the chemicals that can make better paper from it – which probably explains why Forest-cluster was the first such centre to be set up. This has been followed by Tivit, addressing the needs of the ICT sector, and Fimecc, which is focusing on the metals and engineering area.

The latest to be established is Cleen, devoted to energy and the environment. Work on developing strategic centres for health and well-being and the built environment is now under way.



## Who's who in promoting innovation in Finland

### Ministry of Employment and the Economy, [www.tem.fi](http://www.tem.fi)

- Created by combining the Ministry of Labour and the Ministry of Trade and Industry, this new ministry became operational at the beginning of 2008.

### Tekes, the Finnish Funding Agency for Technology and Innovation, [www.tekes.fi](http://www.tekes.fi)

- Tekes is the main publicly funded expert organisation for financing and maintaining networks for a wide range of R&D&I projects, both public and private, and promotes cooperation between the business and academic communities, as well as between producers, suppliers, customers, and end-users.

### Sitra, [www.sitra.fi](http://www.sitra.fi)

- Sitra is an independent public foundation that operates under the supervision of Parliament and is dedicated to promoting the economic prosperity and future success of Finland.

### Finnvera, [www.finnvera.fi](http://www.finnvera.fi)

- Finnvera is a specialised financing company owned by the State of Finland with official Export Credit Agency (ECA) status that provides businesses with loans, guarantees, venture capital investment, and export credit guarantees.

### VTT Technology Research Centre of Finland, [www.vtt.fi](http://www.vtt.fi)

- VTT is the largest multidisciplinary research organisation in Northern Europe, offering R&D, testing, product approval, certification, information and venturing services that help customers create new products, production methods and services, and generate new business.

### Academy of Finland, [www.aka.fi](http://www.aka.fi)

- The Academy of Finland is the prime funding agency for basic research in Finland, with a mission to advance scientific research and its application, support international scientific cooperation, act as an expert organ in science policy issues, and allocate funding to research and other areas of science.



"Promoting competitiveness and innovation across a wide front has been one of the cornerstones of the Finnish success story, and will continue to be of critical importance into the future," according to Erkki Virtanen, Permanent Secretary at the Ministry of Employment and the Economy.

## Finland in figures

- Independent since 1917 and a member of the Euro zone since 2002
- Population: 5.3 million
- Sixth-largest country in Europe, with a surface area of 338,000 square kilometres
- Population density: 15.5 people per square kilometre.
- 188,000 lakes and 179,000 islands
- R&D as a proportion of GDP: 3.5%
- 21 universities
- Proportion of highly educated people in the general population: 28%

info

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