



Finland's economy and innovation sector

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The Finnish economy

At the beginning of the twentieth century Finland was a poor agrarian country with a gross domestic product per capita less than half of that of the United Kingdom and the United States, world leaders at the time in this respect.

Finland has enjoyed strong economic progress over the past decades. In the early 2000s it is a small industrialized country with a standard of living ranked among the top twenty in the world. The country stands out for high-level education and skills, environmental quality and personal security. Inequality in Finland, as measured by the Gini coefficient of disposable income, is among the lowest in the OECD. Nevertheless, the Finnish economy has been hit hard by several shocks, in addition to the global economic slowdown. Electronic exports, demand for paper and exports to Russia have collapsed. The resulting lowered economic growth potential coupled with tougher international competition and an ageing population continues to challenge the Finnish (Nordic) economic and social model.

Currently, the economy is weak and public debt is rising. Gross government debt has increased from below 40% of GDP before the 2008 crisis to above 60% of GDP in 2015.

General government debt is set to continue to rise until the early 2020s, when it would peak slightly above 70% of GDP, according to EIU.

Government spending as a share of GDP is the highest in the OECD. Following a GDP growth of 0.5% in 2015, the EIU forecasts an average annual expansion of 0.5% in 2016 and 1.3% in 2017-20, driven primarily by private consumption and investment.

EIU estimates that the general government deficit, narrowed from 3.2% in 2014 to just below the 3% threshold of the EU's Stability and Growth Pact (SGP) in 2015, will attend 2.7% in 2016. Budget measures and spending cuts are likely to reduce the shortfall further in 2016 to 2.1% of GDP, with the deficit forecast to narrow to -0.1% by 2020. According to the EIU forecast, government consumption will contract by 0.2% in 2016 before returning in 2017 with an average of 0.4% per year in 2017-20. Weak domestic demand and economic uncertainty led to a 2.6% fall in gross fixed investment in 2014, followed by a 1.1% contraction in 2015.

Consumer confidence and spending has gone up since April as the Finns have felt that the threat of unemployment has decreased. During the month of April, consumers have taken out more loans and bought more durable goods than in previous months. The consumer confidence indicator (CCI) stood at 9.8 in April.

The main domestic financial vulnerability relates to high household debt, which reached 67% of GDP in 2015. Many Finns enjoy consumer loans of up to €70 000. Since the beginning of the year, there has been a 12% increase in personal recovery proceedings for civil bankruptcy and the personal insolvency register has now reached 371 800 persons. Heavily indebted households are vulnerable to higher interest rates, losses in income or falls in housing prices. At the same time, there is no sign of a housing bubble, as housing prices have been broadly flat for more than a decade.

Unemployment has steadily increased since the crises in 2008 (around 5%) and has reached a peak in 2014, remaining stable for over a year at around 10%. In March 2016, 273 000 people were unemployed in Finland. However, the unemployment rate for those aged under 25 grew by 15% in 2014 and has currently 23.8%. The objective of the governments is to bring the current employment rate of 68%, up to 72%, with its structural reforms and employment package.

As a small and open economy, Finland is very dependent on exports. The renewed EU sanctions against Russia have reduced exports to this region. Over the past three years, the value of export goods to Russia has fallen by roughly half, subtracting 1.5% from Finnish GDP and resulting in a permanent market share loss. Overall, Finnish exports have gone down by 20% compared to pre-crisis levels. The appreciation of the euro against the Swedish krona and the Russian rouble has only added to the precarious situation of Finnish exports. According to Invest in Finland, Finland's exports of goods amounted to €55.8 billion in 2014. The major export groups were basic manufactures (e.g. wood products and metals); machinery, equipment and transport equipment; chemicals and related products; and mineral fuels. In 2014, other EU member countries accounted for 57% of Finnish exports of goods and 58% of imports of goods.

In 2015, imports contracted by 0.4% and the OECD forecasts a return to growth in imports in 2016, of 1.3%, and on average 1.6% for the 2017-20 period, in line with the modest recovery in domestic demand. The total value of imports for 2015 was €57.6 billion and the main import product groups were machinery, equipment and transport equipment and mineral fuels. The current account balance moved from a surplus of nearly 4% of GDP in 2007 to a deficit close to 2% in 2011. At 1% of GDP in 2014, the current account moved into surplus in

2015. Following an estimated full-year surplus of 0.2% of GDP in 2015, EIU forecasts a slight increase in the current-account surplus, to 0.6% of GDP, in 2016, edging up to 0.9% by 2020. According to the EIU, the annual inflation is expected to pick up to just 0.3% in 2016, and an average rate of 1.6% per year in 2017-20. In March the year on inflation rate was 0.0%.

Forecast summary						
(% unless otherwise indicated)						
	2015 ^a	2016 ^b	2017 ^b	2018 ^b	2019 ^b	2020 ^b
Real GDP growth	0.5	0.5	1.1	1.3	1.3	1.5
Industrial production growth	-1.1	0.5	1.9	2.4	2.0	2.3
Gross fixed investment growth	-1.1	0.8	1.9	2.0	1.8	1.8
Unemployment rate (EU standardised measure)	9.4	9.1	8.8	8.5	8.1	7.7
Consumer price inflation (av; EU harmonised measure)	-0.1	0.3	0.9	1.8	1.9	1.9
Commercial bank average lending rate	2.0	2.0	2.1	2.2	2.3	2.5
Government balance (% of GDP)	-2.7 ^c	-2.1	-1.3	-0.7	-0.5	-0.1
Exports of goods fob (US\$ bn)	61.3 ^c	58.2	62.9	66.9	69.2	72.5
Imports of goods fob (US\$ bn)	58.5 ^c	54.6	59.2	63.8	66.0	69.2
Current-account balance (US\$ bn)	0.5 ^c	1.4	1.7	1.7	2.0	2.5
Current-account balance (% of GDP)	0.2 ^c	0.6	0.7	0.7	0.8	0.9
Exchange rate US\$:€ (av)	1.110	1.095	1.093	1.110	1.153	1.180
Exchange rate US\$:€ (end-period)	1.089	1.090	1.100	1.125	1.170	1.190
Exchange rate ¥100:€ (av)	1.343	1.260	1.251	1.264	1.297	1.308
Exchange rate €:£ (av)	1.378	1.319	1.305	1.288	1.249	1.231

^a Actual. ^b Economist Intelligence Unit forecasts. ^c Economist Intelligence Unit estimates.

The Finnish financial situation

The European Central Bank's (ECB) asset purchase programme and near zero interest rate have alleviated the financial burden of households and firms. In particular, mortgage interest rates have followed policy rates down. The financial system has withstood the downturn well. Access to credit has remained relatively easy, even though it has tightened somewhat for small companies as the downturn lingered.

As the Finnish banking system is strongly interconnected with those of other Nordic countries, it is vulnerable to shocks occurring in the region, which calls for continued tight co-operation between Nordic regulators and supervisors. Such co-operation will become even more important if Nordea, which accounts for about 30% of Finnish bank loans and deposits, goes ahead with its plan to convert its Finnish subsidiary into a branch. Additional capital requirements have been imposed on four systemically important financial institutions since January 2016. While these institutions already meet the new capital standards, the decision brings Finnish capital requirements close to those of other Nordic countries, which is crucial to avoid regulatory arbitrage within regional banking groups. The banking system is strong and there is no sign of asset bubbles. However, some structural features of the banking system make it vulnerable in the event of an international liquidity crisis.

The level of taxation in Finland is among the highest in the OECD, reflecting an extensive welfare system. Finland has already been moving in the direction of a more growth-friendly tax system in recent years, with cuts in corporate income tax rates (the current corporate tax rate is 20%, down from 26% in 2010), an increase in the share of indirect taxes in total

taxation and increases in recurrent taxes on personal immovable property. Nevertheless, the tax wedge on labour remains among the highest in the OECD with 51.6%. Meanwhile, Fitch Ratings downgraded Finland from AAA to AA+ in March, citing weak growth, struggles in stimulating the economy and demographic challenges.

Reasons for Finland's economic downturn

Some Finnish products have become less demanded on world markets, notably electronic products (as Nokia missed the “smartphone revolution”) and pulp and paper (as a consequence of the development of digital media and increased competition from other countries). The decline in manufacturing of wood and paper started around the turn of the century and has cut GDP by around 0.75% since 2007. However, the problems are not confined to a single company or industry but are rather based on the composition of Finland's exports. Almost half of the country's exports are raw materials and production supplies used in manufacturing and a further third are investment goods.

Whereas Nokia accounted for some 4% of Finland's GDP in 2000 and employed around 25.000 people, the introduction of the Apple iPhone and Android devices into the market brought this down to 0.5% of GDP in 2013. The recent restructuring following the acquisition of Alcatel-Lucent will entail a cut of €900 million and up to 15 000 layoffs (1 300 in Finland) leaving only 6 850 Nokia employees in Finland. In order to cover the severance pay, Nokia intends to apply for EU funds. The ministry of Employment and the Economy is currently preparing the application to be submitted in autumn this year.

Following the integration of the former Nokia Siemens Networks, the divestment of both Nokia's Devices & Services (mobile device business) and [Here](#) (digital maps division) as well as the acquisition of Alcatel-Lucent, Nokia is now focused on network equipment and wireless technology. Nokia's new goal is to become a world-class provider of 5G and cloud services.

Government policies and structural reforms

On the 5th of April 2016, the government announced its ambitious programme to restore competitiveness and fiscal sustainability through budgetary measures and structural reforms. The new austerity measures focus on additional spending cuts in the welfare, healthcare, education and defence sectors. Infrastructure investment will be aimed at boosting long-term growth.

The government's programme aims at permanent annual savings of €4 billion (about 2% of GDP) by 2019 and is set to lower public debt to about 70% of GDP by 2030. The fiscal consolidation plan foresees €3.2 billion of spending cuts and also contains one-off increases in public investments of €1.6 billion by end-2018. The main planned spending cuts concern social benefits, education and research. As many benefits are universal, the impact of cuts will be spread widely across the population, while strong social safety nets protect the most vulnerable.

The employment package combined with the changes and cuts to the unemployment insurance are expected to promote growth and increase the employment rate to 72% by 2020 while creating 110 000 new jobs, according to the Minister of Justice and Employment Jari Lindström. To this end, €700 million will go towards a number of job-creating

infrastructure projects, such as the construction of light-rail lines in Helsinki and Tampere, a high-speed rail connection between the southern cities of Helsinki and Turku, and maintenance work will begin on the strategically important highway network linking cities in the south, the midlands and the north of the country. The government will also strengthen the student college grants system, and invest €105 million in a new education and research programme that will focus on improving digital learning environments in schools and colleges.

On the other side several measures are put in place to promote employment and growth. The removal of incentive traps will be done to tighten unemployment benefits and to make working more profitable. For example, the obligation to accept work will be tightened and regional mobility will be increased. Unemployed persons will also be subject to a stricter obligation to participate in all services promoting employment. The use of unemployment benefits will be expanded so that they could be used for mobility allowance, start-up grants and wage support. This will allow unemployed persons to use their unemployment benefits for promoting employment instead of serving as income. In 2017 and 2018, regional trials of a customer-based employment service will be conducted. In the trials, the responsibility for providing public employment and business services will be shifted to the regional actor. The goal is to support the establishment of future autonomous areas. The implementation of a new “Work reference service” will be investigated (providing a work reference would mean performing short-term work for a potential employer). The growth enterprise employment programme supports growth enterprises by providing them with skilled labour. In the programme, educated experts who have been unemployed for a long period can be hired by growth enterprises through training, apprenticeships or an employment subsidy. Unemployment benefits for self-employed persons will be developed. Changes to the unemployment benefit system are being prepared for the purpose of promoting full and part-time self-employment.

The previous Government Programme and Government Action Plan already included the reform of public employment administration, work-related immigration, terms of employment and local bargaining.

Additionally, the government had proposed a social contract, which included an increase of 5% in working time for the same pay. This would have speeded up the catch-up in cost competitiveness, but the social partners have so far failed to reach an agreement. In the absence of an agreement, the government is pushing forward measures to shorten annual leave, convert two public holidays into unpaid holidays, reduce sick-leave benefits and cut employer social security contributions.

The announced cuts of €200 million will among other things reduce the maximum duration of unemployment benefits from 500 to 400 days for most claimants. Introducing mandatory job search and reporting from the beginning of the unemployment spell combined with a more gradual sanction regime would be an effective and low-cost way to shorten unemployment for those who have good re-employment prospects. Lengthening the trial period for new hires, loosening restrictions on fixed-term contracts for assignments shorter than a year and easing a requirement to offer employment to earlier laid-off employees, as proposed by the government will make it easier to hire, as it will increase opportunities to test the capabilities of new hires and reduce the risk and cost associated with lay-offs. More should be done to ease regulations on individual dismissals, as they make companies reluctant to hire, notably young and small firms.

Moreover, the entrepreneurship package supports enterprises in different stages of their development, improves their conditions for business and eliminates barriers, according to

the Minister of the Economic Affairs Olli Rehn. The recently adopted additional measures for the entrepreneurship package place a special emphasis on supporting small enterprises.

Strengthening competitiveness is one of the most important key projects of the government based on measures destined to enhance internationalisation services, strengthen the funding instruments of businesses, reduce regulation and permit processes, and open the market for competition. Minister for Foreign Trade and Development Lenita Toivakka explains that within the export sector, Team Finland has developed services for different types of enterprises over the past few years. Furthermore, the government is also strengthening Team Finland in countries whose economic importance to Finland is growing. The entrepreneur support package will be used to lower the threshold for hiring the first employee by means of wage support, start-up grants or other incentives. Further changes, made to the unemployment benefit system should promote self-employment.

Innovation vouchers can be used by small and medium-sized enterprises to acquire the best possible outside expertise and support for their needs (f.e. a joint project with a research institute). The Open Innovation Bank System (OIBS) accelerates the more effective utilisation and commercialisation of innovations and patents. It brings together the creators of research-based ideas and users of new solutions. The recruitment of foreign experts will be streamlined. The granting of residence permits based on start-up entrepreneurship is made possible and benefits, among others, the fast-growing field of Health care technology. A national genome and cancer centre will be established and the functions of public biobanks consolidated. The aim of more effectively using genome data is to bring more investment and top research to Finland. The measure for promoting the platform economy on the e-commerce roadmap and the Crowdfunding Act being drafted by the Ministry of Finance also serve the needs of small start-up enterprises.

Additionally, the government has initiated the social welfare and health care reform, set to come into force in 2019. The permanent annual savings target for the reform is €3 billion (about 1.5% of GDP) by 2029 relative to the no-policy action baseline.

Moreover, in September 2014, the pension reform was passed and some of the key elements include gradually raising the lower pension age limit from 63 to 65 years and linking it to longevity thereafter. The option to extend unemployment benefits until retirement for those who are unemployed at the age of 61 should be closed.

Overview of the stage of the various reforms:

IMPLEMENTED REFORMS/MEASURES	REFORMS/MEASURES IN THE PIPELINE
<p><u>4 bn consolidation package</u>: some 90% already specified in the budget or in the spending limits decision; political commitment to find and specify the missing 10%.</p> <p><u>Pension reforms</u>: 2005 reform took effect in 2010, 2015 reform takes effect in 2017; pension system is sustainable.</p> <p><u>Municipalities reform 2005-2011</u>: obligation to organize services together; municipalities in deficit to balance their finances either by their own or under the crises procedures specified in the Municipalities Act; from 444 municipalities in 2004 to 336 municipalities in 2012.</p> <p><u>Deregulation of bus transport</u>: started in 2014, full liberalization expected in 2018.</p> <p><u>Deregulation of shop opening hours</u>: fully liberalized from January 2016.</p>	<p><u>Social and health care reform to cut expenditure growth by 3 bn by 2029</u>: preparation under way, implementation expected in 2019; guided, coordinated and supervised by a special intra-government organization.</p> <p><u>Cut in public sector obligations by 1 bn in the long run</u>: preparation under way, implementation expected in 2019.</p> <p><u>Deregulation of rail transport, haulage, taxi</u>: implementation expected in 2017.</p>
MEASURES SUPPORTING GROWTH AND JOBS	MEASURES TO SUPPORT GROWTH AND JOBS
<p><u>Moderate wage agreements in 2014-2016</u></p>	<p><u>Moderate wage agreements beyond 2016</u>: to be agreed in autumn 2016 at the latest.</p> <p><u>Deregulation of settling wages locally</u>: preparation/agreement under way with social partners.</p> <p><u>Transferring social security paid by employers to employees</u>: preparation/agreement under way with social partners.</p> <p><u>Cut in unemployment benefits</u>: duration, level and sanctions under scrutiny.</p>

The Finnish innovation sector

Finnish innovations include the text message (SMS), lactose free dairy products, Xylitol tooth friendly sweetener and the Linux computer operating system, to name but a few.

Throughout history Finns have always seemed to find a way to turn unfavourable odds to their advantage. Maybe it comes from centuries of being on the fault line between East and West or maybe it's just "Sisu" good old-fashioned perseverance and determination. The plunge of Nokia that released a mass of talented people, and the simultaneous success in the mobile gaming sector, such as for example Supercell, encouraged many to jump into the startup game. In addition, universities started to emphasize entrepreneurship instead of only producing raw material for big companies and great startup events like **Slush**, Arctic15 and Polar Bear Pitching increased the appreciation of entrepreneurship. These changes combined with the germination of different kinds of incubators and accelerators and even some new venture capital funds, have created the Finnish start-up ecosystem and turned Finland into one of the leading innovators in Europe. Additionally, while credit standards for SMEs have been tightened somewhat elsewhere, access to finance has remained easy since the 2008 financial crisis, compared to most other European countries. Innovative firms can benefit from substantial public funding.

According to the 2014 Innovation Union Scoreboard, which provides a multi-dimension comparative assessment of EU countries' research and innovation performances, Finland is among the innovation leaders, along with Denmark, Germany and Sweden. Although its performance has declined somewhat since 2012, business and government R&D expenditures are among the highest in the OECD as a share of GDP. Compared to the European average, Finnish researchers more actively participate in the international scientific publications (EU = 100, Finland 415). Companies invest resources in research and development activities (EU = 100, Finland = 178). The number of completed doctoral degrees exceeds the EU average by 159, and the foreign income received from licenses and patents exceeds the EU average by 158. While Finland has a strong public research sector, universities and public research institutions perform less well than those of other leading

countries in filing for patents. The low level of R&D and patents in non-ICT sectors is one of the main weaknesses of the Finnish innovation system, and is reflected in the inability of other industries to compensate the decline in ICT output. Other areas in which Finland could be stronger are the numbers of doctoral students coming to study from outside the EU and the low level of knowledge-intensive service exports. Higher education is currently fragmented, with many inefficient small research units. Consolidation is necessary to create larger centres of excellence, with a higher profile, which would favour integration in international research networks (i.e. Aalto University). Collaboration on innovation of both large firms and SMEs with higher education or research institutions is among the strongest in the OECD.

Today, the government of Finland views entrepreneurial activity as the bedrock of Finland's competitiveness and is committed to providing companies with the world's best operating environment. Hence, Finland has consistently developed its innovation policy and one of the strengths of the Finnish innovation environment is the active and successful dialogue involving companies, research institutes and the public sector. In September 2013, the Finnish government adopted a Resolution on Comprehensive Reform of State Research Institutes and Research Funding, which focuses on building up multidisciplinary, high-level research of significant societal relevance and research in support of government decision making. The resolution covers reorganisation of public research institutions, reallocation of some public research funding to competitive research funding, and creation of a new, strategic research funding instrument within the Academy of Finland to support long-term research on challenges facing Finnish society. Moreover, the government is creating special funds to raise equity capital and enhance the risk-taking capacity of businesses, notably start-ups and growth firms. It is also in the process of strengthening Team Finland, which brings together a range of government-funded organisations to support exporters and promote Finland's brand name. On the other hand, the overall budget for tertiary education will be cut by about 4% and the budget of the Finnish funding agency for technology and innovation (Tekes), which already shrank by about a quarter in real terms since 2010, will be reduced further by about a third. Over the years (2010-14) direct government R&D funding declined by about 14% in real terms and further cuts are planned over the current parliamentary term. However, a one-off package of €1.6 billion to fund key projects in 2016-18 ought to encourage innovation, in particular through investments in clean technologies, digitalisation and health.

The Government's innovation policy focus areas include environmental and energy business, the mining industry and the forest and bioeconomy sectors. The paper industry is renewing itself as well, focussing on markets where Finland has a comparative advantage over emerging economies because of the type of wood fibres it produces, and pursuing environmentally-friendly strategies, including the development of bio-energy from by-products. Relative to the population, Finland is the world's leading researcher in the energy and environment field. More than 40% of the Finnish public R&D funding goes into the energy and environment sector, and more than a third of public R&D investments are made in cleantech. In addition to these, the Government emphasises the service sectors as sources of growth. Opening up of public databases is progressing and general goal of Finnish innovations is to spread widely to the benefit of society.

The on-going structural change in the ICT sector has increased the supply of competent labour in Finland and this pool of skilled workers has attracted the attention of international companies and resulted in major investments. In the future, investments in the ICT sector are expected to focus particularly on automotive electronics and software, smart traffic,

health and wellbeing technology, game industry, wireless technology, industrial internet, cyber security and data centres.

Finland's strong industrial base, know-how and excellent availability of wood raw material provide a good platform for bioeconomy and other cleantech investments. In spring 2014 the government adopted strategies on cleantech and bio-economy. The goal is to accelerate growth, create new businesses and renew traditional industries through innovation. According to a survey by the Research Institute of the Finnish Economy, Finland has 1600 cleantech companies. SMEs and micro companies make up the majority of the total (70%) while large and giant companies comprise less than third of the whole (30%).

The longstanding use of economic instruments, especially taxation, to promote green growth, has reduced greenhouse gas emissions intensity considerably since 1990, but it is still the third highest in the OECD because of the importance of energy intensive industries, the cold climate and long transport distances. The share of clean and nuclear energy in energy supply is one of the highest in the OECD. Further increases are planned and supported by policy, notably within biomass, wind, biofuels and nuclear power. In 2014, total R&D spending on energy technologies amounted to nearly 0.12% of GDP, the highest among OECD countries, with the largest share devoted to renewables and energy efficiency. The private sector accounts for around 70% of total energy R&D expenditure.

Finland is obliged to reduce domestic emissions by 16% by 2020 under the EU Effort Sharing Decision. Furthermore, it has pledged to reduce domestic emissions by 80% by 2050. However, they may shift comparative advantages, accentuating the need for structural change. The OECD recommends therefore, additional measures should target environmentally harmful subsidies and tax expenditures, and enhance the efficiency of environmental regulation and direct support.

Health technology is the largest export segment of Finnish high tech and the U.S. one of the main export destinations in this field. They operate in highly specialized fields such as imaging, patient monitoring, diagnostics and non-invasive measurement technologies as well as digital health solutions and modern hospital technology, says the minister for Employment and the Economy Olli Rehn. Digital health, personalized medicine and healthcare as well as scientific research in areas such as cancer and brain diseases are among the areas where Finnish knowhow is world-class. Interestingly, these are corresponding to areas where need for new innovations and solutions is in high demand. As pharmaceutical industry and research institutes are looking for more effective ways to do research utilizing big data and advanced analytics, the combination of biobanks, the relatively isolated Finnish gene pool, extensive healthcare registries and innovation friendly regulations create an internationally very competitive innovation ecosystem.

Statistics sources: OECD, EIU, Bank of Finland, Finnish Ministry of Finance, Ministry of Employment and the Economy.

The different innovation actors and agencies

The formulation of national Finnish science, technology and innovation policies has been assigned to an expert body, the [Research and Innovation Council](#), which is chaired by the Prime Minister. Nearly 80% of governmental R&D funding is channelled through two ministries, the Ministry of Education and Culture and the Ministry of Employment and the Economy. These ministries are the foremost organizations responsible for science and technology policies.

The innovation system is composed of incentives systems and parties that plan or implement them, such as Tekes (The Finnish Funding Agency for Technology and Innovation), VTT (Technical Research Centre of Finland) and The Academy of Finland. Those agencies distribute research funding in Finland with open, competitive schemes.

Recognising the importance of bringing entirely new businesses to life, Tekes has launched "[New Knowledge and Business from Research Ideas](#)" as a new type of funding for public research, allowing scientists to explore an idea not only in the research phase but also in terms of its transformation into new businesses through commercialization.

Tekes – the Finnish Funding Agency for Innovation

Tekes is the most important publicly funded expert organisation for financing research, technological development and innovation in Finland. Tekes finances company R&D projects as well as projects in universities and research institutions. Tekes promotes a broad-based view on innovation: besides funding technological breakthroughs, Tekes emphasises the significance of service-related, design, business, and social innovations. Tekes works with the top innovative companies and research units in Finland. Every year, Tekes finances some 1,500 business research and development projects, and almost 600 public research projects at universities, research institutes and universities of applied sciences.

Research, development and innovation funding is targeted to projects that create in the long-term the greatest benefits for the economy and society. Tekes does not derive any financial profit from its activities, nor claim any intellectual proprietary rights.

VTT - Technical Research Centre of Finland

During the state visit, the ongoing collaboration between VTT and LIST will be formalized by the signature of a MoU.

Established in 1942 with a national mandate in Finland (under the Ministry of Employment and the Economy), VTT is part of Finland's innovation system. VTT is the leading research and technology company in the Nordic countries. VTT use its research and knowledge competence to provide high technology services for its domestic and international customers and partners. VTT serve both private and public sectors. VTT has been granted an [ISO9001:2008 certificate](#), and its environmental system is certified in accordance with [ISO14001:2004](#).

The innovation process

- VTT is a multitechnology company, creating new innovations by combining different technologies.
- VTT helps its clients and partners turn technologies into business opportunities.
- VTT's strategic research and wide-ranging expertise, can create technologies that are globally competitive. VTT supports innovation through its forecasting activities, which explore the opportunities presented by future technology and generate visions about future markets and business opportunities.
- Innovation also includes new services, processes, organisational structures, business models, brands, marketing channels and many other areas. On the other hand, innovation can arise from new applications or markets for existing technologies.
- Research at VTT generates inventions, software and other protectable technologies, some of which are transferred to the client according to contract terms, while others are added to VTT's IPR assets.
- VTT offers patent rights and other technologies for business use. Technologies can be purchased outright or licensed on agreed terms. They can assist businesses to

turn technologies into commercial assets through tailor-made development projects and commercialisation reports.

- Their technologies can also play a key role in the launch of new spin-offs or joint ventures.

VTT Group in 2015

Turnover: €272 million
Personnel: 2 470
President & CEO: Dr. Antti Vasara

Academy of Finland

The main focus of the Academy of Finland is in the multifaceted advancement of professional research career options, the establishment of cutting edge research environments and the utilization of international opportunities.

Sitra, the Finnish Innovation Fund

A third development agency funded by the government is Sitra, the Finnish Innovation Fund. Sitra is an independent public fund which under the supervision of the Finnish Parliament promotes the welfare of Finnish society. Sitra's responsibilities have been stipulated in law.

Finnvera

Finnvera is a specialised financing company governed by the Finnish State. Finnvera has official Export Credit Agency (ECA) status and it provides businesses with loans, guarantees, venture capital investment and export credit guarantees.

Team Finland

The Team Finland network promotes Finland and its interests abroad: Finland's external economic relations, the internationalisation of Finnish enterprises, investments in Finland and the country brand. At the heart of the Team Finland network are three Ministries – the Ministry of Employment and the Economy, the Ministry for Foreign Affairs and the Ministry of Education and Culture – together with publicly funded bodies and Finnish offices abroad, including Finland's diplomatic missions, the offices of Finpro and Tekes, and national culture and science institutes. The Team Finland operating model brings together key actors in these fields both at home and abroad. The actors are guided by shared goals annually approved by the Government.

Finpro

Finpro helps Finnish SMEs go international, encourages foreign direct investment in Finland and promotes travel to Finland. Finpro is a public organization consisting of [Export Finland](#), [Visit Finland](#) and [Invest in Finland](#). 300 professionals work in 36 Trade Centers in 31 countries and 6 offices in Finland.

In Team Finland, Finpro manages almost 40 significant Growth Programs such as Cleantech Finland, Food from Finland and FinlandCare. Through the Growth Programs, Team Finland helps hundreds of Finnish companies enter the international market and attracts investments from around the world to Finland.

Innovation stakeholders visited and met during the state visit

Aalto University

Aalto University is a future-oriented multi-disciplinary institution intent on exploring the potential of new technologies and methodologies in and across the fields of architecture, art, design, economics and engineering. Aalto was established in 2010 by merging The Helsinki School of Economics, Helsinki University of Technology and The University of Art and Design Helsinki with the bold ambition to redefine the role and function of modern universities. Otaniemi, the campus of Aalto University campus, is also called the "Silicon Valley" of the north.

EIT Digital Helsinki

Since 2010, EIT Digital is a leading European open innovation organisation, a so called "Knowledge and Innovation Community" of the European Institute of Innovation and Technology (EIT). Their mission is to foster digital technology innovation and entrepreneurial talent for economic growth and quality of life in Europe. Their innovation and education activities are organised around pan-European co-location centres where students, researchers, engineers, business developers and entrepreneurs come together to drive the digitalisation of society.

EIT Digital invests in strategic areas to accelerate the market uptake of research-based digital technologies and to bring entrepreneurial talent and leadership to Europe.

EIT is proposing a Master's Programme in ICT Innovation, a European double degree programme connecting the technical and entrepreneurial education. It consists of five majors in different technical fields of innovation (Digital Media Technologies, Embedded Systems...). All majors are topped with Innovation & Entrepreneurship Minor, consisting of a Basic Course (business administration and economy), Business Development Lab Course (enabling the students to complete a full-fledged business development project), Summer Schools at different locations throughout Europe and a Minor Thesis following a specific technical task line.

Design Factory

Design Factory (DF) is one of the four Factories opened in 2008 on different campuses of Aalto University. The Factories (Design, Service, Media and Health Factory) are designed to facilitate new forms of collaboration in an environment where academic teams, researchers and students work together with companies and communities. At the same time they are also an experimental, flexible university structure that promotes the change in the Aalto University culture of operation and teaching by supporting interdisciplinary and problem-based learning and research. DF is a 3,000 square metre working environment. All facilities are designed for flexible use, with free interaction and prototyping made as easy as possible. DF employs a staff of 30 people. The purpose of the DF is to be a constantly developing environment for learning, teaching, research and industry co-operation related to product development & design. They propose:

- 37 courses organised by different faculties to 700 students challenged by real-life problems and interdisciplinary environment
- academic research
- 'home' for five companies, and partnerships with several others like Nokia, Kone, Aito, Bravo Media, Powerkiss...
- an event venue hosting over 10.000 visitors

Start-up Sauna (Accelerator)

Start-up Sauna accelerator helps promising early-stage start-ups to get ready for taking the next step, be it entering their market or raising a seed round of funding. Their coaches are some of the most talented serial entrepreneurs, investors and other industry experts in Finland. 173 companies have graduated from Start-up Sauna since 2010, rising more than 88 M\$ in funding. They have done over 100 coaching events in Nordics, Eastern Europe and Russia, which has given their coaches a good understanding of the problems and needs of an early-stage start-up from that region. Start-up Sauna is open for startups from all fields of business as long as the company has the potential to scale globally and a superb team that can deliver.

Slush

Slush is the focal point for start-ups and tech talent to meet with top-tier international investors, executives and media. In 2014, Slush brought together over 14.000 attendees and more than 3.500 companies for a two-day event. Slush is a non-profit event organized by a community of entrepreneurs, investors, students and event production professionals. Slush has grown from a 300-person gathering to become one of the leading events of its kind in the world. Yet, the philosophy behind it has remained the same: to help the next generation of great, world-conquering companies forward.

Vertical Accelerator

They try to combine deep design skills with wide industry understanding of the Health and Digital spaces. They help turning concepts into Minimum Meaningful Products (by opposition to MVP): fit for market, appealing to customers and delightful to users.

Vertical's goal is to help their clients find out who the user is, develop the product and find the right go-to-market channels.

Nordea Accelerator Programme (Nestholma Venture Accelerator)

Nordea start-up accelerator program is a free, intensive, three-month program in Helsinki. Run in collaboration with Nestholma Venture Accelerator, it focuses on new innovations for customer contacts, payment services and savings services.

During the program start-ups get a unique opportunity to work with and learn from Nordea's experts. They are looking for start-ups that have an innovative service or technology solution with international growth potential.

The accelerator takes advantage of Nestholma's "Lean Start-up-based" model developed to facilitate cooperation between start-ups and large corporations. The idea is to enable both the large and small companies to learn and find new business and partnership opportunities in collaboration. Read more in the [press release](#).

Me and MyCity, coordinated by the Economic Information Office (TAT)

Me & MyCity is a Finnish education innovation that has received international acclaim. Started in 2009, Me & MyCity is a learning concept aimed at school children, covering society, working life and entrepreneurship. The Me & MyCity learning environment is a miniature city where students work in a profession and function as consumers and citizens. The learning concept includes teacher training, learning materials for ten lessons and a day-long visit to their local Me & MyCity learning environment. In Finland, sixth-graders aged 12 to 13 participate in Me & MyCity under the direction of their teacher.

Veronique Clement