

Executive summary

Finland's economic and social development has been one of the great successes of the second half of the 20th century. Supported by continued investment in education, research and innovation, Finland achieved a widely acclaimed transition from a largely resource-based to a leading knowledge-based economy shifting towards high-technology manufacturing and knowledge-based services.

Finland was hit hard by the global economic crisis in 2009, and disruptive technological change contributed to the decline of Nokia's handset business and a sharp drop in exports of ICT goods. In the years to follow Finland lost ground *vis-à-vis* its peers in terms of productivity and competitiveness. Industrial restructuring entailed a steep decline in business R&D expenditure. However, Finland has important assets, including a wide range of innovation capabilities and proven ability for transition.

Recognise the continued importance of R&D, innovation and skills

During the recession, the widely shared consensus on the role of science, technology and innovation (STI) epitomised by the renowned Research and Innovation Council (RIC) has weakened. Cuts in public spending on R&D, especially funding for applied research, have exacerbated the drop in business R&D. The innovation agency's budget has been cut severely. This, combined with cuts at VTT and other research institutes, has opened a gap in funding for technology development and innovation needed to reinvigorate industry.

Although there have been commendable initiatives (e.g. regarding start-ups and entrepreneurship), STI policy seems to have lacked coherence and orientation in recent years. Nevertheless, education, R&D and innovation remain paramount for Finland's future economic and broader social development and standards of living.

Develop a new vision for Finnish research and innovation policy

To regain its dynamism along a new path of high and sustainable growth, Finland needs a new vision for STI driven by economic needs and societal challenges (including energy efficiency, population ageing and climate change). Governance has to be reinvented to generate a whole-of-government policy for innovation-enabling system transitions, involving the co-ordination and co-operation of national and regional actors. The RIC needs to play an important role in creating this vision through a wide-ranging consultative process, advanced foresight and road mapping.

Implementing the vision entails using new instruments to link a wide range of actors (knowledge producers, users, intermediaries and others) for addressing industrial innovation and societal challenges. Finland already has some activities in place that foreshadow the proposed new approach, but further policy experimentation will be needed. A new model for public-private partnerships (PPPs) will be required.

Foster innovation, productivity and diversification in the business sector

Public support to business innovation is comparatively low and should be strengthened according to clear objectives. Priority should be given to more “radical” innovation projects. Small and medium-sized enterprises (SMEs) – whose share in business R&D and propensity to export is low overall – need different kinds of support, from innovation grants to the promotion of innovation linkages with large firms, and access to test sites, demonstration facilities and research infrastructure.

Industry and cross-sectoral challenges require improved co-operation and stakeholder co-ordination through support for innovation road mapping and innovation agendas, cross-sectoral collaboration involving users and a new type of PPP for research and innovation, drawing lessons from the history of the SHOK funding instrument which was discontinued like the INKA innovative cities programme. Moreover, opportunities can be enhanced through innovation networks around public markets and demand-side programmes.

Diversifying the economy remains a central issue. Finland has a narrow range of industries in which it enjoys comparative advantage and needs to build new export strengths, while established industries extend their capabilities to compete in high value-added segments on international markets.

Enhance research addressing industrial and societal challenges

Funding for applied research and “enabling technologies” (e.g. biotech, nanotech, advanced materials, advanced manufacturing) aimed at supporting innovation capacity to address both industrial and societal challenges needs to be enhanced. Funding and novel (joint) operating models for VTT and other research institutes also need to be reinforced to maintain their quality and industrial impact, and address the “strategic research” needs of industry and intermediary stages of the innovation process.

The Strategic Research Council, and the Prime Minister’s Analysis Unit, represents an ambitious effort to strengthen knowledge-based decision making, particularly on societal challenges. To strengthen impact, Finland should consider encouraging close co-ordination with instruments and policies for the participation of innovation actors, including business enterprises, and more downstream innovation development. More attention should also be given to how research on societal challenges can be turned into concrete, viable and scalable solutions.

Complete the reform of higher education institutions and public research institutes

Governance reform and consolidation in both the research and education sector would help build a “critical mass” to create competitive research environments and efficient specialisation. Using different funding instruments, centres of excellence and other collaborative arrangements could encourage defragmentation and strengthen the research base. Better identifying the evolving skill needs would help align skills with demand.

Higher education institutions should be encouraged to develop strategies and to engage in knowledge transfer activities that contribute to economic and societal development. Reducing the performance-based share in institutional funding could improve higher education institutions’ use of strategic resources, while assessing social and economic impact could strengthen the “third-mission” of the Finnish research system.

Improve internationalisation of business and research

Further internationalisation is critical for the performance of a small open economy and innovation system. The internationalisation of firms and access to global markets is paramount to enhance innovation activity and firm growth. There is a large gap between the ability of large firms and that of SMEs to access markets.

New export niches require appropriate channels for innovative Finnish products and services to reach global markets. Maintaining a high level of global value-chain integration and attracting more foreign direct investment is critical, all the more so as the decline of large domestic firms in core industries has made it more difficult for many Finnish firms to access global markets. Both domestic and foreign-owned companies can play an important role in this regard.

International linkages are also an effective way to increase the returns of research. Currently, few foreign researchers come to work in Finland, and there is scope for improvement with regard to the extent to which Finnish researchers co-operate with their peers abroad. Finland's attractiveness could be increased by strengthening specialisation and excellence in key areas of research and innovation, and better global marketing of the best local skills and technology assets. Reducing the fragmentation of the higher education and research sector and further improving governance would be beneficial.

Further improve framework conditions for innovation and entrepreneurship

Finland provides generally favourable framework conditions that could facilitate the economy's renewal based on innovation and entrepreneurship. Recent reforms promote employment, entrepreneurship and economic growth and aim at reducing regulatory burdens for businesses.

There is still scope for rendering business policies and product market regulation more competition-friendly by encouraging vigorous competition, firm entry and easing cumbersome regulations in certain sectors. Labour market flexibility could be enhanced.



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