Iceland

Iceland is a Nordic island country with an open economy and a high standard of living. After the 2008 financial crisis, which severely affected the economy, Iceland is currently in the eighth year of robust economic growth, with low unemployment and inequality rates compared to OECD standards.

Over the last decade it has diversified towards knowledge services and manufacturing to complement its resource based sectors, notably fisheries and metallurgy. In 2015, the service sector accounted for more than 70% of GDP, while industry, including the emergence of software production and biotechnology applications, accounted for 21%. Recent years have also seen a tourism boom, underpinned by significant wage increases in 2015 and the resulting boost in private demand. Labour productivity is above the OECD average, but recently declined slightly.

A Science and Technology Policy and Action Plan (2014 2016) was issued with a focus on: human resources and recruitment; boosting the share of competitive funding; co operation and efficiency; and the impacts and follow up of public research. A new Science and Technology Policy and Action Plan (2017 2019) will be issued in May 2017. The new Science and Technology Policy and Action Plan (2017-2019) will be issued in May 2017. In January 2014, Iceland became the first non EU country (together with Norway) to be associated with the EU Research and Innovation programme Horizon 2020.

Hot Issues: Improving overall human resources and skills

By OECD standards, Iceland’s 15 year olds perform relatively poorly in science, and graduation rates at doctoral level in science and engineering are relatively low. The policy for S&T emphasises masters and doctoral education and funding for young researchers, as well as increasing the number of science and engineering graduates. The Icelandic Research Fund for Graduate Students merged with the Icelandic Research Fund in 2013, and their financial capacity to support doctoral education and post-doctoral training was increased. The GERT initiative (Enhancing Education in the Natural Sciences and Technology) started in 2012 as a public-private partnership involving the central government, local authorities and industry federations with the aim of interesting young people in the field. In 2014, the Minister for Education, Science and Culture introduced a new white paper on educational reforms. The white paper focused mainly on improving young people’s literacy skills, but also on reducing secondary school drop-out rates and on expanding vocational education and training. Also, the Quality Assurance Framework for Higher Education is undergoing revision following the completion of a first cycle of reviews of all HEIs in Iceland. The Minister aims to introduce a new policy for Higher Education and Research that focuses on improving quality throughout the higher education and research community as part of the 2017 Budget, in accordance with new legal framework for more transparent and long-term fiscal policies on the national level.

Improving transfers, returns and impact of science

Technology transfer in Iceland is supported upstream by strong industry-science linkages through research grants and contracts, but the universities and PRIs do not patent their research results. Iceland gives high policy priority to increasing co operation between HEIs, PRIs and companies in order to enhance the system’s efficiency and the quality of its output. In 2015, as part of an overall increase in public investment in STI, the Technology Development Fund, which supports R&D that promotes innovation in the private sector, introduced a major change by broadening its funding support to all stages of the R&D and innovation process, from initial conceptualisation and basic research through to the marketing of innovative products.

Encouraging business innovation and innovative entrepreneurship

Although BERD decreased from 1.33% of GDP in 2011 to 1.23% in 2014, Iceland remains at the

OECD median in terms of business R&D intensity and technological and non technological output. Most business R&D activities are concentrated in knowledge-intensive services and high-technology manufacturing sectors. Iceland's favourable business environment and low domestic energy prices make it an attractive location for industrial investments and energy-intensive projects such as aluminium smelters, data-storage centres and high-tech industries. Competitive grants and tax incentives are the most important instruments in the policy mix for business R&D and R&D driven innovation. The tax incentive scheme provides a maximum of 20% reimbursement of companies' R&D costs through a rebate. Recently introduced, the total of the tax incentive scheme doubled from USD 4 million PPP (540 million Icelandic kronur, ISK) to USD 8 million PPP (ISK 1.1 billion) between 2011 and 2014. The Ministry of Finance is preparing a new tax incentive initiative aimed at encouraging individuals to purchase stocks in small high-growth companies.

Strengthening public R&D capacity and infrastructures

Iceland has a strong science base. The levels of public R&D expenditure to GDP and academic publications in high-impact journals are at the top of the OECD area. However, universities and PRIs have suffered severe, ongoing budgetary cuts since the onset of the crisis in 2008. Research expenditures at universities and PRIs dropped from 1.25% of GDP in 2009 to 0.79% in 2014. The STI policy has aimed both to increase the share of competitive funding in total STI funding from 20% in 2014 to 27% in 2016 and to promote the use of performance indicators in allocating block funds. In addition to the existing tax incentive scheme, new schemes for investors in SMEs are being developed. University funding as a share of GDP is to reach the Nordic average by 2020. As for research infrastructure, the Infrastructure Fund was established in 2013. It builds on and extends the role of the former Equipment Fund. In 2014, a Working Group for Research Infrastructures was established to implement parts of the Action Plan adopted by the Science and Technology Policy Council, with the aim of developing proposals on how best to strengthen the research infrastructure.

Selected Highlights: New challenges

In spite of the sharp economic slowdown, Iceland's green productivity increased almost twice as fast as in the OECD as a whole over 2006 13. Electricity production and house heating are provided entirely by renewable resources, especially by geothermal and hydro energy. In 2016, Iceland was ranked among the top 10 greenest economies in the world by the Global Green Economy Index. As a leading player, it focuses on clean natural environments and the sustainable use of energy, as well as national and international education on sustainability. The geothermal sector has become one of the major pillars of Iceland's global position and its foreign policy. The Green Economy initiative was implemented in 2012 with the objective of meeting the increasing demand for sustainable solutions on a global level, and at the same time creating the momentum for economic growth that the country needs. It also aims to make the public sector a role model for the green economy. The concept of sustainable development has been integrated in the statutory missions of public institutions, and green procurement practices are being encouraged. The aim is for green national tenders to reach 80% of all public procurement tenders by 2020. Economic incentives are provided through the Green Competitive Fund, the Green Venture Capital Fund, and Incentives for Initial Investment in Iceland by foreign investors. Under the Icelandic chairmanship of the Nordic Council of Ministers in 2014, the three-year NordBio programme was initiated to stimulate innovation and economic growth while reducing the strain on the environment in the Nordic countries. Specifically, it aims 1) to strengthen the supply of knowledge that is beneficial in policy-making in economic and environmental affairs by increasing collaboration in research, development, and innovation, 2) to strengthen innovation in energy efficiency, food safety and public health, and 3) to facilitate increasing the Nordic supply to food markets in order to meet the growing need for food by the world's growing population.

STI policy governance

The evaluation and monitoring of performance are key features of the framework for S&T policy. Iceland is seeking to improve both the evaluation of science and innovation by implementing a current research information system (CRIS) as well as industry statistics related to research, exports, value creation and innovation. The STI system was evaluated under the umbrella of the European

Research Area and Innovation Committee (ERAC) in 2014. The main findings showed that taking no or limited action in the STI policy area is not an option if Iceland's government wants to secure its future economic growth and societal well-being. The government should put STI higher up the political agenda, organise a parliamentary discussion on STI, listen to and hear the stakeholders' views, take stock of the current and previous reviews, design a roadmap with tasks and responsibilities, and take action.

Innovation in firms

Iceland's regulatory and administrative environment has been rated less conducive to entrepreneurship than the OECD median. Red tape and entry barriers in the network and transport sectors impede market competition for products. In addition, firms' access to capital and debt funding has been hampered by major reforms of the financial sector aimed at reducing the risk of default, by the extensive fiscal consolidation to reduce the public debt, and by the capital controls set in place as a result of the severe flight of capital during the crisis. Policy attention has recently been paid to strengthening equity funding and improving the environment for an effective stock market for growing companies. A working group was established in 2013 to consider tax incentives for individuals who purchase stocks in small growing companies. This issue was also raised in a recent government policy and action plan for entrepreneurship and start ups, with a deadline for implementation in 2017. Public support for innovation is generally generic in nature, and there are few targeted instruments, e.g. centres for start ups.

Clusters and regional policies

Clusters have been an important part of Iceland's policy, and networking and cluster-related initiatives have been in effect since 2004. A notable example is the aluminium cluster established by over 30 companies and institutions. In response to the growing demand for training, knowledge-sharing, benchmarking and implementing best practices, a so-called Centre of Cluster Excellence was established in late 2015 to serve as a knowledge hub for clusters, practitioners and policy makers by increasing knowledge about clusters, providing training and workshops, and co ordinating the academic and business relations of the country's clusters.

Globalisation

Owing to its small size and remote location, Iceland lacks world-class universities that attract talent and knowledge assets. However, the Times Higher Education World University Ranking lists the University of Iceland as one of the world's top 250 universities, six ICT infrastructures are highly developed, and Iceland is strongly integrated in global academic networks: 66% of its scientific articles are produced with foreign co authors. The business sector is less well integrated, as shown by co patenting data, but it is still above the OECD median. In addition, while Iceland previously received significant international S&T investment, foreign R&D funding dropped in the wake of the crisis from 12.1% to 5.4% of BERD between 2009 and 2011, but remained at 8 9% of public R&D expenditure. Iceland has announced better support for applications for external funding, both nationally and internationally, and for enhanced Icelandic participation in foreign programmes. Support will also be provided to firms seeking markets abroad. In the longer term, Iceland's international competitiveness for highly skilled workers as well as its need to increase international collaboration on research infrastructures are considered likely future policy concerns.

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RTA: http://innovationpolicyplatform.org/STICharting/RTA.htm?iso=IS [4]
Other STI Outlook Resources: e-Outlook Homepage [5]
STIO Highlights [6]
Printable Iceland 2016 Country Profile [7]
STIO Country Profiles Reader's Guide [8]
Methodological Annex to the 2016 OECD STIO Country Profiles [9]

Prior STIO Country Profiles: 2014 [10]
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