

Science and Technology Policy and Action Plan 2014–2016



Foreword by the Prime Minister

*Vísindin efla alla dáð,
orkuna styrkja, viljann hvessa,
vonina glæða, hugann hressa,
farsældum vefja lýð og láð;
tífalda þakkir því ber færa
þeim sem að guðdómseldinn skæra
vakið og glætt og verndað fá
viskunnar helga fjalli á.*

*Science gives strength to every action,
builds energy, spurs the will,
brings hope, invigorates the mind,
renders prosperous the people and the land;
tenfold thanks be therefore given
to those who tend the bright, divine fire
and who stoke it and shelter it
On Wisdom's sacred mountain.*



The above lines are from a poem by Jónas Hallgrímsson that was dedicated to the French naturalist Paul Gaimard and recited on the occasion of a reception given in his honour in Copenhagen. Best known for being Iceland's most highly regarded poet, Jónas Hallgrímsson was also one of the nation's best scientists during his lifetime; a naturalist who hungered for knowledge and who saw the scientific endeavour as an inexhaustible way to "...uncover nature's wonders, previously unknown to all,..." Hallgrímsson was the herald of a new cultural and scientific era, to some extent the symbol of things to come in a country which for most of its history had conditions of life so harsh that its inhabitants lived on the brink of famine. However, more widespread education, better technology and increased knowledge have turned Iceland into a bountiful and thriving country. Iceland therefore owes a great debt to advances in science and technology.

Looking back on the 175 years that have passed since Jónas Hallgrímsson dedicated his poem to Gaimard, it is easy to point to examples of how technological inventions and new knowledge have contributed to improving the quality of life of the Icelandic people. In some cases, minor technological changes sufficed to make a difference. In 1883, teacher Gudmundur Hjaltason wrote an article in the periodical *Nordanfari*, pointing out that a great amount of time was being spent on repairing traditional Icelandic sheepskin shoes, and that much of that time could be saved by replacing such shoes with imported boots and clogs. Furthermore, since shoe repair was typically done by women, better footwear would in particular improve the situation of women and allow them to spend more time off work.

Complementing the major transmutations of society, small changes of this kind have contributed to the creation of the world we live in today. Today, the utilisation of science and continuous technological change have become an integral part of our daily lives and a prerequisite for welfare and growth. Therefore, the concept of innovation refers not only to companies that are sometimes called high-technology firms. For the sake of promoting diversity in the economy, a well-functioning health system, the rational use of natural resources, and first-class education institutions, innovation must be present in all parts of the economy, both in the public sector and in private companies. This is the main rationale behind the Science and Technology Policy presented in this document. I would like to express the hope that this recently adopted policy and action plan will considerably strengthen innovation and development in Iceland and have a positive and lasting impact on economic growth and standards of living. This is in keeping with the Government's emphasis on promoting innovation in all economic sectors.

The Government's policy statement underlines the need to boost productivity, and one of the prerequisites for sustainable growth is the creation of an environment that stimulates innovation in the enterprise and in the public sector. Moreover, current business conditions must be improved to allow companies to grow in the domestic market and create new and interesting job opportunities capable of attracting young and well-educated people.

The action plan which now has been adopted comprises 21 actions which provide a key to the strengthening of research and innovation in Iceland. Each action is made the responsibility of either a ministry or a public institution, and the cost of each action has been assessed. The plan features vastly increased contributions to competitive funds, as well as measures to facilitate investment by companies in research and innovation, but also to make the results achieved by such investment more visible through the use of a special information system, boost recruitment, and introduce more streamlined and efficient mechanisms in the public administration. These actions are meant to provide support for a modern labour policy and a forward-looking education policy in line with the Government's strategy.

This is the first time that the Science and Technology Policy Council draws up a special action plan featuring specified responsible parties, a cost analysis and fixed time limits. On its side, the Government has agreed to provide funding for the plan, subject to the budgetary process and parliamentary approval.

Sigmundur Davíð Gunnlaugsson

1

Growth and economic value creation

Increasing the impact of science and innovation funding

1.1. Increase science and innovation funding as a percentage of Gross Domestic Product (GDP), so as to reach 3.0 per cent of GDP by 2016.

Actions

1. Achieve a ISK five billion increase in private investment. Create an environment that encourages companies to increase their contributions to research and innovation. The main focus will be on tax incentives. This action is coordinated with actions 1.7, 1.8, 1.10 and 3.2.
2. Increase public funding of competitive funds by ISK 2.8 billion, divided into an increase of ISK 800 million in the 2015 budget and of ISK two billion in the 2016 budget.*

*Subject to the budgetary process and parliamentary approval.

Criteria by which to measure success

Measurements by Statistics Iceland for 2016 showing a contribution to scientific research and innovation corresponding to 3 per cent of GDP.

Schedule

In 2015, funding to be increased by ISK 800 million and preparations to begin for the setting up of tax incentives for companies to increase their investment in research and innovation. In 2016, funding to increase by two billion. By that time, tax incentives should be in place to encourage increased private investment in research and innovation across the country, amounting to a total increase of ISK five billion from the 2013 figure.

Cost assessment and funding

In order to achieve these objectives, the Government must increase its contributions to competitive funds by ISK 800 million in 2015 and by ISK two billion in 2016, or by a total of ISK 2.8 billion.

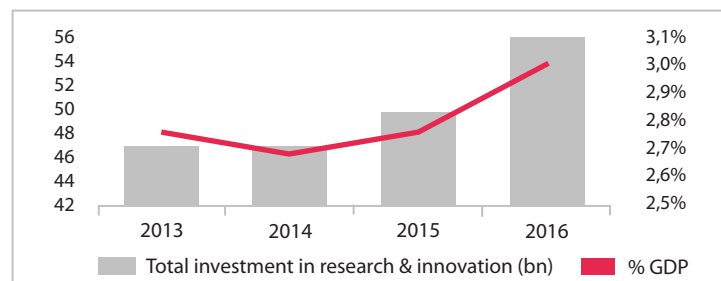


Figure 1. Investment in research and innovation, 2013 to 2016.

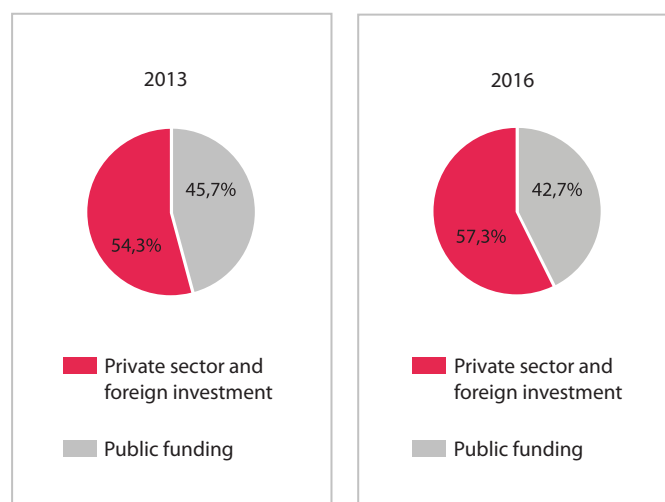


Figure 2. Origin of investment in research and innovation.

- 1.2. Strengthen the financing of the Icelandic higher education system so as to reach a level that is at least comparable to the average of the OECD member states by 2016, and the average of the Nordic countries by 2020. For this purpose, higher education institutions and their individual units will be categorised according to their respective roles and their academic strengths in an international context.

Statistics on public funding for the tertiary level shows that spending on higher education in Iceland is a similar percentage of GDP as in the OECD member states on average. However, the annual contribution per student is under the OECD average. Furthermore, OECD figures show that many countries rely heavily on private contributions, mainly the students' own contributions in the form of tuition fees. An examination of the Nordic countries specifically shows that while the percentage of private funding is low, just as in Iceland, this is compensated for by a much higher total contribution from public funds. Thus, Iceland can be said to have chosen the same mechanism for the funding of its higher education institutions as the other Nordic countries, leading to the conclusion that the Nordic average is a more appropriate point of reference than the OECD one. For this reason, the principal objective of the action will be to raise the public contribution to the level seen in the other Nordic countries by 2020.

Action

Draw up a plan for the financing of tertiary education until 2020, based on the objective that funding should reach a level similar to that of the OECD countries by 2016 and that of the other Nordic countries by the end of the period.

A number of actions will contribute to an increase in higher education funding over the next two years: (a) Action 1.1 on increased contributions to competitive funds, which will strengthen the financing of scientific activities within higher education institutions; (b) Action 1.5 on the recognition of fixed overhead costs; (c) Action 1.6 on tax incentives for companies; and (d) Action 2.4 on incentives for companies, research institutions and higher education institutions to enter into partnerships with higher education institutions. One of the objectives of both latter actions is increased cooperation between private companies and higher education institutions on research-based education.

The Ministry of Education, Science and Culture has started the process of gradually raising contributions for each price group of higher education students. The Science and Technology Policy Council considers these actions to be important for the objective of strengthening higher education funding, and pledges its support for them.

Criteria by which to measure success

Product: Plan drawn up.

Schedule

Work to begin in the second quarter of 2014 in the context of the budgetary process.

Cost assessment

Costs are those involved in the work contributed. The action will not give rise to any additional costs.

Responsible party

Ministry of Education, Science and Culture.

- 1.3. Increase competitive financing as a percentage of the funding of higher education and research institutions to approximately one-third of total funding by 2016. Introduce financial contributions based on performance assessments, as a complement to open competitive funds.

Action 1.1 is dedicated to this objective. It calls for an increase in contributions to competitive funds by a total of ISK 2.8 billion until 2016, and for contributions to remain at that higher level. This investment will increase the percentage of competitive funding from 18 per cent in 2014 to 27 per cent in 2016, see Fig. 3.

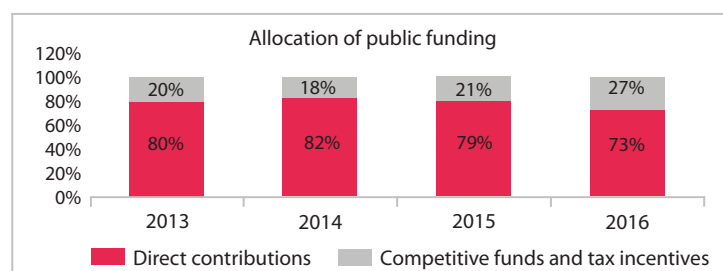


Figure 3. Allocation of public funding for research and innovation, 2013 to 2016.

- 1.4. Create a transparent financial environment for higher education and research institutions, clearly linking contributions to performance and quality benchmarks.

This objective is the focus of Action 4.1 on the development of a comprehensive information system on the results of scientific research and innovation. The system provides key statistics on the results of research and innovation activities.

- 1.5. It must be ensured that rules applied by Icelandic competitive funds regarding indirect costs and own contributions are aligned with international developments, such as within Horizon 2020.

Action

Recommend to the boards of public competitive funds¹ that their award criteria be aligned with international criteria, in particular those of the EU Framework Programme for Research and Innovation (Horizon 2020), which entails a recognition of fixed overhead costs at a rate of 25 per cent.

Criteria by which to measure success

Coordinated rules established no later than in time for the 2016 award period.

Schedule

Start in the second quarter and finish before the end of 2015.

Cost assessment

This action does not give rise to direct costs.

Responsible party

Ministry of Industries and Innovation in consultation with the Ministry of Education, Science and Culture.

- 1.6. Use the tax system strategically to encourage private companies and individuals to invest in scientific research and innovation.

Companies wishing to obtain a tax deduction for contributions to research and innovation under Act No 152/2009 must apply for a confirmation of such contributions to Rannís. The total number of confirmed applications was 78 in 2010, 118 in 2011, 136 in 2012, and 140 in 2013. Most of the companies receiving confirmation are small; thus, 113 of the 140 companies receiving a confirmation in 2013 were small enterprises. According to information provided by Rannís, the vast majority of companies applying for confirmation—between 89 and 95 per cent in the period concerned—are based in the capital region. The Science and Technology Policy Council emphasises the importance of offering a tax deduction for research and innovation costs. Given the proven results of the current arrangement, it should be promoted more extensively among companies and institutions across Iceland.

Action 1

A campaign should be launched to increase awareness of the reimbursements available for investment in research and innovation. The campaign should be directed at companies and institutions. In addition, the application deadline should be moved to 1 October each year.

Criteria by which to measure success

The number and the geographic distribution of companies applying for a tax deduction for investment in research and innovation.

Schedule

Work on creating promotional material to begin in June 2014. In the run-up to the annual application deadline, a special effort should be made to promote tax deductions for contributions to research and innovation. The promotional effort may be carried out in collaboration with companies/higher education institutions and research institutions.

Cost assessment

Costs are those involved in the work contributed, in addition to the cost of creating the promotional material.

Responsible party

Rannís.

¹ These funds are as follows: the Icelandic Research Fund, the Technology Development Fund, the Infrastructure Fund, the Agricultural Productivity Fund, the Strategic Research Programme, the Student Innovation Fund, the Archaeology Fund, the Non-Fiction Writers' Fund, the Energy Fund, the New Jobs Initiative, the Research Fund to increase the value of fishery products, the Icelandic Fisheries Project Fund, funding for transport research (Ný sýn report, pp. 54 to 59).

1.6. Use the tax system strategically to encourage private companies and individuals to invest in scientific research and innovation.

Action 2

Set up a working group composed of members representing the Science Board, the Technology Board, the Prime Minister's Office, the Ministry of Industries and Innovation, and the Ministry of Finance and Economic Affairs to develop a tax incentive scheme. The working group should base its work on the experience of other nations of the operation of such schemes, and should submit its proposals for a tax incentive scheme to the Science Board and the Technology Board. The proposals should be discussed by the Science and Technology Policy Council in the autumn of 2014 with a view to introducing the necessary legislative changes in the spring of 2015.

The following questions should be discussed by the working group:

- Whether new tax incentives should be created to encourage individuals and companies to make financial contributions to funds supporting research and innovation, or to higher education or research institutions.
- Whether the upper limit on reimbursements to companies for investment in research and innovation pursuant to Act No 152/2009 should be raised.
- Whether foreign experts hired by companies, institutions or higher education institutions should be given the possibility of a temporary tax deduction.

Objective

To increase financial contributions by individuals and companies to funds supporting research and innovation, or to higher education or research institutions.

Criteria by which to measure success

Contributions by individuals and companies to competitive funds in the field of research and innovation.

Schedule

See Action.

Cost assessment

Costs are those incurred in relation to the work on proposals for a tax incentive scheme.

Responsible party

Ministry of Finance and Economic Affairs (chairs the working group).

1.6. Use the tax system strategically to encourage private companies and individuals to invest in scientific research and innovation.

Action 3

A tax deduction should be created for companies providing financial support to students in Master's or doctoral programmes who carry out projects in collaboration with them. This action is supported by Action 2.4 and supports Action 3.1.

The repayment of student loans constitutes a considerable burden for young people, but at the same time the cost of operating the Icelandic Student Loan Fund is a burden on the Icelandic State. Several advantages may accrue from students' and companies' cooperating on Master's or doctoral projects.

A working group should be established with the participation of members representing the Science Board, the Technology Board, higher education institutions, Business Iceland, the Ministry of Finance and Economic Affairs, and the Ministry of Education, Science and Culture. The working group should be given a mandate to develop proposals for a tax incentive scheme for companies providing financial support to Master's and doctoral students who carry out projects in cooperation with the companies. The working group should submit its proposals to the Science Board and the Technology Board before 1 October 2014. The proposals should be discussed by the Science and Technology Policy Council in the autumn of 2014 with a view to introducing the necessary legislative changes, as well as changes to the rules of the Student Loan Fund, in the spring of 2015.

Objective

To increase the investment by companies in research and innovation.

Criteria by which to measure success

The number of companies providing financial support to Master's and doctoral students carrying out projects in cooperation with the companies.

Schedule

See Action.

Cost assessment

The action should be designed so as to allow the costs incurred (loss of tax revenue) to be offset by a drop in the contribution to the Student Loan Fund. The net cost should thus be negligible.

Responsible party

Ministry of Finance and Economic Affairs.

Increased investment in innovative enterprises

1.7 Introduce tax incentives in order to increase investment in innovative enterprises.

A committee led by the Ministry of Finance and Economic Affairs has submitted a report on this to the Minister. The committee has prepared a set of proposals and presented them to the Minister, who intends to incorporate them in a legislative bill to be introduced in Parliament in the autumn. According to the proposals, individuals are to receive a tax deduction for investing in unlisted innovative companies, in a manner similar to schemes currently in place in Sweden and Finland. Tax incentives are generally believed to promote investment in research and innovation. The Science and Technology Policy Council supports the work that has already taken place and considers it to be important for the success of Action 1.1.

1.8 Create an environment for active trading of shares in innovative companies.

Action

Set up a working group composed of members representing the Science Board, the Technology Board, the Association of Innovative SMEs, the Ministry of Finance and Economic Affairs, and the Ministry of Industries and Innovation. The working group should be led by the member representing the latter Ministry and should receive a mandate to draw up proposals on ways to improve the access of innovative enterprises to venture capital and create a platform for active trading of shares in innovative companies.

The working group should consider the possibility of listing innovative companies on a share trading platform which is subject to simpler requirements than would apply in the case of listing on a stock exchange.

The working group should submit its proposals to the Science Board and the Technology Board before 1 February 2015. The Science and Technology Policy Council should discuss the proposals in the spring of 2015 with a view to introducing the necessary legislative changes in the autumn of 2015. This action supports Action 1.7.

Criteria by which to measure success

Proposals submitted by the working group.

Schedule

Proposals to be submitted to the Science and Technology Boards before 1 February 2015.

Cost assessment and funding

Committee work contributed by the staff of the public administration and by interest groups. No direct costs are involved for the State.

Responsible party

Ministry of Industries and Innovation.

Effective participation in international programmes

1.9 Increase participation in international competitive programmes and international markets.

Action

Legislation pertaining to the competitive funds administered by the Science and Technology Policy Council should be reviewed to enable the boards of these funds to lay down a strategy for increased participation in international competitive programmes and expansion into international markets. Moreover, the funds' boards should be authorised to allocate financial resources to partnerships already approved by the boards. Finally, the funds should be authorised to make payments to their foreign partners, where appropriate.

Criteria by which to measure success

Updated legislation.

Schedule

Process to be completed by the second quarter of 2015.

Cost assessment and funding

Costs are those involved in the work contributed. The action will not give rise to any additional costs.

Responsible party

Ministry of Education, Science and Culture in consultation with the Ministry of Industries and Innovation.

1.10 Increase the provision of support and consultancy to innovative enterprises aiming for international markets.

Action

A working group should be set up with a mandate to improve and simplify services and consultancy provided to those applying to foreign funds, and bring all such services under one umbrella.

Services and consultancy are currently provided to applicants to foreign funds by a large number of official bodies, including Rannís, Innovation Center Iceland, the Icelandic Regional Development Institute, and various ministries. The authors of a report entitled Opportunities for Growth (*Tækifæri til sóknar*) recommended that all these services be brought together, and shortly thereafter services in relation to programmes operated by the Ministry of Education, Science and Culture were transferred to Rannís.

It is hereby proposed that a working group be set up under the leadership of the Prime Minister's Office with the participation of representatives of the Ministry of Education, Science and Culture and the Ministry of Industries and Innovation. The group should be charged with task of bringing services and consultancy provided to applicants to foreign funds (including Horizon 2020) under one umbrella. Thus, a single office providing services in relation to international cooperation programmes and serving scientists and companies all over the country should become operable in 2015. The working group should present the results of its work to the Science and Technology Policy Council.

Criteria by which to measure success

Services related to international cooperation programmes provided in one place.

Schedule

Process to be completed by the fourth quarter of 2015.

Cost assessment and funding

Organizational change. No costs.

Responsible party

Prime Minister's Office.

1.11 Draw up an action plan for Iceland's participation in international research programmes, in particular where the Icelandic participation must be financed through contributions from public funds.

Action

The boards of the Research Fund and the Technology Development Fund should develop an action plan for Iceland's participation in international programmes financed through contributions from public funds. A draft plan should be submitted to the Science and Technology Boards before 1 February 2015.

Criteria by which to measure success

Existence of a plan.

Schedule

Plan to be completed before 30 June 2015.

Cost assessment and funding

Costs are those involved in the work contributed. The action will not give rise to any additional costs.

Responsible party

Rannís.

2

Human resources

A goal-oriented and diverse education system from the primary to the tertiary level

- 2.1. Strengthen the cooperation of higher education institutions and industry with schools at the compulsory and upper secondary levels to ensure the best possible integration between the education system, communities and businesses across the country.

The Action Plan serves this objectives on several levels. Action 2.4 will make it easier for companies to take advantage of research-based education projects. Action 2.5 calls for a strengthening of doctoral programmes and efforts to increase recruitment, including by focusing on the collaboration of research institutions, businesses and higher education institutions.

It is important for businesses across the country to participate actively in innovation and research in order to improve their competitive position. Action 1.6 will increase the investment by companies in research and innovation and improve access by graduate students to projects which reflect the challenges faced by companies.

- 2.2. Raise the number of students graduating from scientific or technical programmes or from vocational schools.

In recent years, a considerable effort has been put into increasing students' interest in technical and scientific subjects and in the trades, including through GERT (an action plan to stimulate interest among 10 to 15-year-olds in science and technology)², the Day of Education organised by Business Iceland, the IT Conference, SkillsIceland, BOXIÐ (a competition for upper secondary students testing their practical skills)³, the Design Competition for engineering students, the Science Workshop at the University of Iceland⁴, a forum where university students educate upper secondary school students, *Verk- og tækninám – nema hvað!* (an initiative by the Federation of Iceland Industries)⁵, the Upper Secondary Schools programming competition, the Compulsory Schools innovation competition⁶ and the Compulsory Schools LEGO design competition⁷.

The Science and Technology Policy Council supports the work currently underway. It is important for the funding of scientific, technical and trade programmes to keep pace with the increasing number of students attending those programmes. Action 2.7 on a strategic programme for recruitment goes hand-in-hand with the above objective.

- 2.3. Review the structure of compulsory and upper secondary education with a view to lowering the average graduation age and reduce dropout rates.

The Ministry of Education, Science and Culture has for some time been working systematically on finding ways to shorten upper secondary programmes leading to the matriculation examination. According to the new National Curriculum Guide for upper secondary schools (2011), studies leading to the matriculation examination should average between 200 and 240 upper secondary level units, with 200 units corresponding to three years of studies. Upper secondary schools have been given until the autumn of 2015 to issue their individual curriculum guides within the framework of the new National Curriculum Guide and adapt their teaching to those guides. Moreover, the Ministry of Education, Science and Culture is currently drafting a White Paper on education reform which will emphasise the shortening of upper secondary programmes leading to the matriculation examination.

The Science and Technology Policy Council supports the Ministry of Education, Science and Culture's efforts to shorten the duration of upper secondary programmes.

The Ministry of Education, Science and Culture has over the past few years looked into ways to reduce early school leaving in upper secondary schools, by systematically inquiring after the reasons for dropout in

² <http://www.si.is/upplýsingar-og-utgafa/skyrslur-og-rit/nr/9564>

³ <http://boxid.ru.is/>

⁴ <http://visindasmidjan.hi.is/>

⁵ <http://www.si.is/malaflokkar/menntamal-og-fraedsla/verk--og-taekninam---nema-hvad/>

⁶ <http://nkg.is/>

⁷ <http://firstlego.is/>

order to help schools tackle and reduce the phenomenon. A project is currently underway to develop methods by which to screen for students at risk of early school leaving, with a view to reduce dropout. The results and an evaluation of the project are due to be released in the spring of 2014.

The Science and Technology Policy Council supports the Ministry of Education, Science and Culture's actions to reduce early school leaving in upper secondary schools.

Robust recruitment in scientific research and innovation in Iceland

- 2.4. Encourage increased collaboration between higher education and research institutions and businesses on research-based graduate education, in particular at the doctoral level.

Action

Issue a description of rights and obligations in relation to the collaboration of higher education institutions and businesses/research institutions on doctoral education.

The Ministry of Education, Science and Culture should appoint a working group composed of three to five members representing higher education institutions which have been accredited to offer research-based graduate programmes. The group should define the role of each participant in a collaboration on graduate studies. A description of rights and obligations in relation to any such collaboration should be issued. The description should not be limited to the roles of the higher education institution and its partner (whether a business or a research institution), but should also cover and elucidate the role of the student and his/her tutors. The group should consult with social partner representatives. The description should be made available on the websites of the higher education institutions for the benefit of those interested in starting a partnership between higher education institutions, businesses and/or research institutions on doctoral projects. Furthermore, higher education institutions should act as intermediaries for projects defined by companies and for students' suggestions for projects.

Criteria by which to measure success

Product: Publication on the websites of the higher education institutions.

Schedule

To be completed by 31 January 2015.

Cost assessment and funding

Costs are those involved in the work contributed. The action will not give rise to any additional costs.

Responsible party

Ministry of Education, Science and Culture.

- 2.5. Increase funding for doctoral studies with the aim of achieving, by 2016, full financing of 200 doctoral positions by Icelandic competitive funds. The emphasis should be on supporting first-class doctoral projects, selected on the basis of project quality, student merit, and the competence and strengths of the project partners.

Action

Strengthen the funding of doctoral studies to achieve, by 2016, full financing of 200 doctoral positions by Icelandic competitive funds. The financing of doctoral studies should be based on project quality, the competence of the partners, and their collaboration.

Criteria by which to measure success

Information from Rannís on the number of doctoral students receiving funding from Icelandic competitive funds.

Schedule

First quarter of 2016.

Cost assessment and funding

Part of the increased funding of competitive funds.

Responsible party

Rannís.

2.6. Ensure the international competitiveness of the Icelandic labour market for those engaged in scientific research and innovation.

Action

The time required by the Directorate of Immigration to process applications for residence and work permits by non-EEA residents with special skills should be reduced to a maximum of six weeks.

Current legislation allows for the issuing of residence and work permits to persons with specialist competence who are already in the possession of a work contract (Act on Foreigners, No 96/2002 and Foreign Nationals' Right to Work Act, No 97/2002). In 2013, the so-called average processing time for issued permits was 40 days (ranging from a single day to 182 days), with 167 permits being issued. This action proposes to reduce the processing time for applications to a maximum of six weeks from the reception of a complete application.

Criteria by which to measure success

The time required to process applications for a residence permit from persons with special skills being no longer than six weeks according to information from the Directorate of Immigration.

Schedule

Application processing time reduced to six weeks: fourth quarter of 2014.

Cost assessment and funding

Modified priorities at the Directorate of Immigration, unless increased funding is obtained.

Responsible party

Ministry of the Interior.

2.7. Increase recruitment through special campaigns.

Action

A new strategic programme for recruitment in scientific research and innovation should be launched. The programme should be focused on strengthening international competitiveness, and should include an emphasis on innovation in science, technology and the trades, and on cooperation between the education system, research organisations and businesses.

Criteria by which to measure success

Allocation of resources from the strategic programme for recruitment in the first quarter of 2016.

Schedule

First quarter of 2016.

Cost assessment and funding

The current strategic programme expires in 2015, and will be replaced by a new one from 2016. Funding has been secured in the Government budget.

Responsible party

Ministry of Education, Science and Culture.

3

Collaboration and efficiency

Active collaboration between business and research and education institutions

3.1. Revise the organisation and framework of the Icelandic science and innovation system, simplify the relevant legislation and move toward increased integration. Organise mergers between higher education institutions, research institutions and research centres, where appropriate.

The Science and Technology Policy Council supports the work conducted by the Ministry of Education, Science and Culture on the merger of tertiary-level institutions, considering that strong higher education institutions are a prerequisite for an efficient research environment. The same consideration applies to research institutions, giving rise to the following proposals:

Action

A framework legislation on research institutions should be adopted with the objective of increasing their interaction with each other, with higher education institutions and with businesses.

This will provide a better overview of their activities and strengthen the ties between the research carried out and official policy.

Decisions on the size of individual institutions and minimum requirement standards should be based on the conclusions of the project management group appointed by the Ministry of Finance and Economic Affairs to review the State's institutional system.

Public funding for research and innovation—other than through competitive funds—should only be provided to institutions that:

- Submit information on the results of their research and innovation activities into a central information system.
- Conduct research and innovation in collaboration with other parties. In each three-year period, at least 10 per cent of the institution's operating funds should be generated by its collaboration with businesses or other research or higher education institutions;
- Show responsibility with regard to their finances.

Criteria by which to measure success

Updated legislation.

Schedule

Adoption by Parliament in the autumn of 2015.

Cost assessment and funding

Costs are those involved in the work contributed. The action will not give rise to any additional costs.

Responsible party

Prime Minister's Office.

- 3.2. Increase the number of funding opportunities and incentives promoting collaboration between educational institutions, research institutions and industry.

Action

Recommend to the boards of public competitive funds⁸ that cooperation between higher education institutions and other educational institutions, research institutions and other public institutions and/or businesses be evaluated positively when reviewing applications. This proposal supports objectives 2.2, 1.1 and 1.5. Enhanced cooperation between educational and research institutions and businesses will increase the latter's involvement in research and innovation and support the practical application of research by industry.

Criteria by which to measure success

Application by competitive funds of award criteria promoting collaboration.

Schedule

In place before the first round of awards in 2016. The 2015 budget should contain provisions for the necessary increase in contributions to competitive funds.

Cost assessment and funding

No costs.

Responsible party

Science and Technology Policy Council

- 3.3. Define projects that require long-term funding and ensure that they receive funding and can be applied in research and innovation.

The Ministry of Education, Science and Culture should appoint a working group on research infrastructure. One of the tasks of the group should be to map out which projects require long-term funding, such projects being referred to as supervision projects. The group is to deliver a report in early 2015, containing proposals on (a) how to decide on the order of priority of supervision projects; (b) ways to ensure that Iceland meets its international supervision obligations; (c) whether a more cost-efficient arrangement for supervision can be found; (d) ways to secure more funding for long-term supervision projects. An intermediate report should be submitted to the Science Board and the Technology Board of the Science and Technology Policy Council.

Criteria by which to measure success

Product: achieved/not achieved.

Schedule

Final report to be presented at the Science and Technology Policy Council's first meeting in 2015.

Cost assessment and funding

Costs are those involved in the work contributed. The action will not give rise to any additional costs.

Responsible party

Ministry of Education, Science and Culture.

⁸ These funds are as follows: the Icelandic Research Fund, the Technology Development Fund, the Infrastructure Fund, the Agricultural Productivity Fund, the Strategic Research Programme, the Student Innovation Fund, the Archaeology Fund, the Non-Fiction Writers' Fund, the Energy Fund, the New Jobs Initiative, the Research Fund to increase the value of fishery products, the Icelandic Fisheries Project Fund, funding for transport research (Ný sýn report, pp. 54 to 59).

4

Results and follow-up

Improved evaluation of the quality of research and innovation and of the economic value created

- 4.1. Develop a comprehensive information system on the results of research and innovation, in collaboration with higher education institutions, research institutions and industry.

Action

Funding should be provided for the creation of an information system on the results of research and innovation. The system will provide an overview of research and innovation activities and facilitate the assessment of the level of activity and of the quality of research carried out in higher education and research institutions. The system will also lessen the burden of these institutions as regards their inner administration, including by providing information about the use of human resources, teaching activities and the level of finance received from funds. Any requirements or needs analysis should take into account the points of view of higher education institutions, research institutions, administrative bodies and businesses across the country.

This is a key action of the plan and is connected, amongst other things, to Action 3.1 and other actions outlined in Section 4.

Criteria by which to measure success

Introduction of the information system in higher education and research institutions that receive public funding.

Schedule

Requirements analysis and cost assessment to be completed by autumn 2014. Funding provided in the 2015 Government budget. Implementation to begin in 2015 and complete in 2016.

Cost assessment

ISK 70 million

Responsible party

Ministry of Education, Science and Culture.

- 4.2. Evaluate the quality and the results of research and innovation activities in line with international criteria. The different traditions and objectives of different academic disciplines should be taken into account, and an assessment should be carried out of the diverse results of research and innovation. Examine whether there is a need to reorganise the Quality Board for Higher Education and to expand its role so as to cover research carried out at higher education and research institutions.

Action

Quality assurance arrangements should be reviewed in consultation with stakeholders⁹.

The Quality Board for Higher Education was set up in 2010 and operates on the basis of the Regulation on Quality Assurance of Teaching and Research, No 321/2009. The Board's appointed term ends on 9 July 2014. The Quality Board has now completed its review of five higher education institutions, with two further reviews to be carried out during 2014 and 2015. Plans call for the first round of quality reviews for all seven higher education institutions to be completed in the autumn of 2015.

Work has been initiated at the Ministry of Education, Science and Culture to look into the experience gained through the Quality Board's activities over the past four years and assess future options, including whether to expand the Board's role so as to cover research carried out at higher education and research institutions.

Criteria by which to measure success

Reappointment of the Quality Board.

Schedule

New Quality Board to be appointed by 1 July 2014.

Cost assessment and funding

The action does not give rise to any specific costs.

Responsible party

Ministry of Education, Science and Culture

⁹ The results of this action are connected to Action 4.1 on a comprehensive information system on the results of research and innovation activities, and Action 4.4 on the improvement of statistics. Both latter actions are prerequisites for a stronger quality assurance system.

- 4.3. Evaluate on a regular basis the distribution of public funding for research and innovation, and respond to differences in the participation of individual groups by providing targeted information and appropriate motivation.

Data collected by Statistics Iceland on research and development expenditure and on innovation levels in companies will provide the necessary information about the distribution of public funding (Action 4.4). Furthermore, it is crucial to provide all scientists—regardless of gender, academic discipline and other background variables—with equal access to contributions from competitive funds, the situation of young scientists being a special concern in that regard. It must be ensured that procedures to gather information about applicants and grantees are in place so as to allow these factors to be assessed.

Action

Recommend to the boards of public competitive funds that they collect information about applications from and allocations to individual groups, so that low participation by particular groups can be remedied.

Criteria by which to measure success

Availability of information about applicants and grant awards, including their gender, age, academic field, and area of residence, as well as the type of institution.

Schedule

Information to be available following the 2015 award period.

Cost assessment and funding

The action does not give rise to any specific costs.

Responsible party

Science and Technology Policy Council

- 4.4. Improve statistics on the Icelandic economy with regard to research, the economic value created, export, and innovation, and use statistics to continuously improve education, science and innovation activities.

Action

Ensure that Statistics Iceland regularly carries out surveys of research and development expenditure, and of companies' innovation levels.

In 2014, Statistics Iceland took over from Rannís the responsibility for gathering and processing data on research and development expenditure and on innovation levels. This task takes the form of two surveys, each of which is carried out every two years in collaboration with EUROSTAT: one is a survey of research and development expenditure, and the other measures innovation levels among companies (Community Innovation Survey–CIS). Statistics Iceland must be given sufficient resources to carry out these surveys on a regular basis.

In 2014, moreover, Statistics Iceland started producing business statistics. This is accompanied by the creation of a business register for statistics purposes, and the statistics include information on the operation of businesses broken down by sectors and regions, as well as so-called short-term indicators, which will provide monthly or quarterly information about such factors as turnover, production, import prices, employment, etc. The compilation of business statistics has been funded in full, and is therefore not covered by this action.

Criteria by which to measure success

Regular surveys of research and development expenditure, and of companies' innovation levels.

Schedule

Actual data collection to begin in 2014.

Cost assessment and funding

The annual cost will be ISK 18 million.

Responsible party

Statistics Iceland.