

October 2019



Icelandic society 2035–2040

Economic, environmental,
regional, and demographic
developments

Prime Minister's Committee for the Future

Government of Iceland
Prime Minister's Office



Introduction

On 12 June 2018, the Prime Minister appointed the Committee for the Future regarding challenges and opportunities stemming from technological changes. The appointment of the Committee was in line with the Cabinet's intentions, as the establishment of such a group is stipulated in the Government platform. The Committee, which comprises 11 Members of Parliament, is chaired by Smári McCarthy. Other members are Líneik Anna Sævarsdóttir (vice-chair), Logi Einarsson, Gunnar Bragi Sveinsson, Þorsteinn Víglundsson, Andrés Ingi Jónsson, Bryndís Haraldsdóttir, Halla Signý Kristjánsdóttir, Inga Sæland, Lilja Rafney Magnúsdóttir, and Njáll Trausti Friðbertsson. Working with the Committee are two staff members from the Prime Minister's Office: Unnur Brá Konráðsdóttir and Pétur Berg Matthíasson.

The project timetable for coming years, presented at the end of 2018, included three agreed topics to be addressed in 2019. This summary report discusses, among other things, the first of these topics: societal developments over the next 15–20 years, with emphasis on economic, environmental, regional, and demographic factors and their impact on Treasury revenues and expenditures. The objective is not to carry out an in-depth analysis of individual factors but to identify major drivers that will shape society and to present proposals aimed at reducing uncertainty and enhancing the likelihood of a favourable outcome. This will create the foundation for deeper analysis later on.

The authorities have attempted to a limited degree to map likely long-term trends out systematically, as such efforts are vital to creating a stronger foundation for policy formulation in important areas. Furthermore, such analysis is a necessary element in ensuring that short-term decisions are consistent with medium- and long-term targets and prospects. With sound analysis, for instance, it is possible to assess the impact of the Fourth Industrial Revolution on key economic sectors and identify opportunities for development. It is also possible to forecast what types of education, skills, and knowledge will be needed to guarantee continuing social well-being and prosperity in a changed environment. All of these factors go hand-in-hand.

The Committee considers it important to examine a variety of scenarios and assess the probable long-term impact of these factors on the domestic economy; for instance, how public revenue and expenditure priorities will develop in this context, including the effect on public entities' operating performance, financial position, and obligations. This approach lays the foundation for stronger and more comprehensive long-term fiscal policy formulation.

This summary report provides broad coverage of a number of topics. It is based on questions posed to experts and the general public, the answers to those questions, and a review of the relevant scholarly literature. Although the period under scrutiny extends from 2035 through 2040, results of this study can be expected to provide a fuller description of the ongoing process that we will see materialise gradually over time.

Naturally, it is impossible to predict the future with absolute accuracy, but if we prove to be incorrect, our goal is to be incorrect in the most constructive and useful way possible.

The Committee's conclusions and proposals

Below are the conclusions and proposals of the Prime Minister's Committee for the Future, based on the information presented in this summary. The Committee for the Future considers it important that the authorities consider these findings as they set policy and pass legislation in coming years, bearing in mind that smaller changes implemented now could mitigate the need for more sweeping changes in the future.

In this summary, it can be seen that external drivers are likely to have a major impact on developments in Iceland in coming decades, with both positive and negative implications. The authorities' responses and the handling of internal drivers will ultimately have a strong effect on how society develops.

The main tack that should be taken with respect to the drivers deemed most important in this summary is a high degree of flexibility: in the economy, in education and employment, and in residence and lifestyle choices. The changes that lie ahead could lead to a variety of scenarios in the future, depending on how the authorities respond.

The societal changes and responses to them can be encapsulated in four scenarios:

Table 1. Changes and responses

	Limited response	Major response
Slow and gradual change	The societal structure stops changing and stagnates where it is now. Economic sectors such as tourism reach equilibrium or contract. The population continues to age. Responses to climate change are not as expected. Public expenditures grow, while revenues remain unchanged. GDP growth is weak.	Societal changes resulting from technological advances will be slower, but responses to climate changes and demographic changes will be strong, mitigating the problems that arise. This will strengthen both society and the economy.
Rapid change	Climate change, demographic developments, and the Fourth Industrial Revolution contribute to a contraction in core economic sectors, a rise in the elderly population, and unemployment. The probable result of this is a protracted contraction and brain drain.	In spite of climate change and demographic developments, value creation is maintained as the Fourth Industrial Revolution takes hold, through worker retraining and emphasis on education and the knowledge industry.

It is clear that, under this scenario, more policy action is preferable to less action. With this in mind, the Committee proposes the following:

Education

1. As before, a strong educational system will play a key role in the development of individuals' personal competency and in safeguarding Iceland's competitive position. Emphasis must be placed on core knowledge, skills, and competencies that each individual can build on lifelong, and that can form the foundation for a wide range of jobs.
2. Consideration must be given to flexibility and whether core education and continuing education should be merged into a single flexible educational system based on enabling people to add new skills and knowledge at their own pace throughout their lives. This would bring increased opportunities to respond to changes in the labour market. An element in this could be the establishment of a comprehensive system for the assessment of real competencies, which will cover all educational levels and the entire labour market, with emphasis on real competency assessment in line with targeted learning outcomes in the labour market or in educational curriculum guides. Job-seekers should always have the opportunity to learn new skills.
3. It is important that a larger share of each year group learn trades and take vocational studies of various types and that a larger share specialise in science, technology, engineering, art, and mathematics (STEAM). Teacher training in this area must be emphasised.
4. The need for human resources and skills must be analysed on a regular basis, and collaboration between the labour market and the authorities on a long-term vision for the evolution of the educational system must be increased.



Labour market

5. Clearer goals must be set for job creation in the capital area and in regional Iceland; for instance, in the form of a comprehensive innovation, labour market, and industrial policy. The growth opportunities created with technological changes, particularly in high-tech sectors, should be mapped out.
6. The need for skills in the Icelandic labour market should be analysed on a regular basis; for instance, by requesting that the Organisation for Economic Cooperation and Development (OECD) assess Iceland's skill needs, as has been done in Norway.
7. It is important that legislation keep abreast of developments in the labour market and the gig economy, so that individuals' rights are protected without compromising innovation.
8. Metrics for Iceland's competitive position must be defined, based on developments abroad and on economic development objectives. These metrics could be used to evaluate the success of economic development measures such as innovation policies, competitive funds, tax concessions, and other economic incentives.



Finance and the economy

9. Government revenue generation must be subject to continuous review in light of changed tax bases, increased globalisation, and changes in the labour market. This applies, for instance, to energy switching, the sharing economy, the gig economy, and individuals' cross-border jobs.
10. Iceland's pension system puts the country in a unique position to address changing age demographics. It is of vital importance that the pension funds' risk diversification efforts be successful, including through foreign investment, with particular consideration given to the small size of the Icelandic economy and to long-term fiscal risk.
11. Economic stability – exchange rate and interest rate stability in particular – is a major determinant of Icelandic firms' competitive position. Measures to ensure economic stability are, and will continue to be, an ongoing priority for the authorities. Economic diversity and sustainable resource utilisation are key elements in this stability in the long run.

Environment and society

12. Systematic efforts must be made to fight climate change, including energy switching, better energy utilisation, sustainable energy production, and sustainable food production. We must combat all types of environmental pollution and preserve biodiversity. We must continue our work on reclamation (of land, wetlands, etc.) and ecosystem protection.
13. In all instances, resource utilisation must be sustainable, and it is important to aim at efficiency and product quality rather than volume. Technological changes can create threats to the environment but can also bring opportunities for more systematic, environment-friendly resource utilisation.
14. Energy production is one of the foundations of Icelandic society, and it is essential that efforts to produce renewable energy and use it efficiently be successful. Improved utilisation must be considered as important as further harnessing.
15. The impact of automation on regional Iceland and on fragile communities must be better mapped out, particularly to include the opportunities that lie in telecommunications and the challenges entailed in outsourcing services to providers outside the immediate community.
16. Changes in the age distribution of the population and changes in cross-border migration create societal challenges that must be addressed. These changes also entail numerous opportunities that should be utilised systematically.
17. The impact of changes in the labour market and the impact of migration on labour market-related rights and accrued social rights of individuals – disability benefits, childbirth leave, educational grants and subsidies, student loans, and health insurance – must be monitored. We must be on the watch so as to ensure that all individuals can benefit from these rights in some way.

Committee for the Future

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Methodology

The methodology on which the Committee has relied is based in part on recommendations from the OECD, which held a workshop with the Committee in November 2018. The approach is based on a short definition of a specified topic, which in this case is Societal, economic, environmental, regional, and demographic developments and their impact on the Government's financial position.

The description of the topic was as follows:

Developments in society, as regards economic, environmental, regional, and demographic factors, can have a profound impact on Government revenues and expenditures in the decades to come. The authorities have attempted to a limited degree to map likely long-term trends out systematically, as such efforts are vital to creating a stronger foundation for policy formulation in important areas. Furthermore, such analysis is a necessary element in ensuring that short-term decisions are consistent with medium- and long-term targets and prospects. For example, what impact will the Fourth Industrial Revolution have on key economic sectors and opportunities for development? What education/competency/knowledge is necessary to ensure continuing societal welfare and prosperity, and how do changes in the population affect public revenues and expenditures in various areas, such as the social welfare system?

It is important to examine a variety of scenarios and assess the probable long-term impact of these factors on the domestic economy; for instance, how public revenue and expenditure priorities will develop in this context, including the effect on operating public entities' performance, financial position, and obligations. This approach lays the foundation for stronger and more comprehensive long-term fiscal policy formulation.

Alongside the description of the topic, the Committee presented questions designed to elicit analysis, information, and proposals from stakeholders, Government entities, and the public. These questions, which can be found in the appendix, are the foundation for the Committee's summary. The Committee contacted a number of parties and encouraged them to participate or invited them to meet with the Committee. Those who met with the Committee included representatives from the Confederation of Icelandic Employers, the Icelandic Federation of Labour, and the Association of Local Authorities in Iceland. Furthermore, the topic and questions were uploaded to a consultation portal in early February 2019, for presentation to the general public and all those interested in the issue. A total of 15 statements were received.

Main drivers of development

The following analysis of the internal and external drivers in various areas is based on the data and information the Committee has acquired, as well as information and analysis submitted to the Committee by stakeholders and through the consultation portal. It is assumed that the drivers listed below will have a strong impact on developments in specified areas during the period 2035–2040.

The term **external drivers** refers to global factors arising from societal development, natural processes, or world trade, all of which are naturally beyond the control of the Icelandic authorities and Icelandic society. These are the factors that we must actually learn to live with, respond to, or try to mitigate.

Internal drivers are all of the factors that are under direct control of the Icelandic authorities or Icelandic society. Even though the external drivers may come to have a profound effect on developments in certain areas, we can take decisions that shape them. As a result, they are the factors that we must examine closely and then decide how to shape.

Table 2. Drivers and their impact on various pillars of society

	External drivers	Internal drivers
Labour market	<ul style="list-style-type: none"> ▪ Developments in artificial intelligence and automation ▪ Technological developments 	<ul style="list-style-type: none"> ▪ Technological regulatory framework ▪ World trade and globalisation ▪ Access to expertise ▪ Education and skills
Environment	<ul style="list-style-type: none"> ▪ Climate change ▪ Technological developments ▪ Oil prices 	<ul style="list-style-type: none"> ▪ Greenhouse gas emissions in Iceland ▪ Pollution ▪ Energy switching
Regional development	<ul style="list-style-type: none"> ▪ Energy production, transmission, and prices ▪ Technological developments 	<ul style="list-style-type: none"> ▪ Urbanisation ▪ Attitudes/views on residence ▪ Regional policy ▪ Agricultural policy ▪ Fishing industry ▪ Infrastructure ▪ Tourism
Demographic developments	<ul style="list-style-type: none"> ▪ Age distribution of the population ▪ Global growth of the middle class ▪ Technological developments ▪ Global population growth ▪ Migration 	<ul style="list-style-type: none"> ▪ Health ▪ Immigration ▪ Family policy ▪ Educational policy ▪ Pension system

External drivers

Developments in artificial intelligence and automation

Advances in artificial intelligence (AI) and related technologies in recent years will revolutionise many parts of society. The effects can already be felt in jobs and production in a number of sectors.

Technological developments

The past several years have seen rapid technological developments, and it can be assumed that there will be further changes in various parts of society — changes that will affect Iceland.

Climate change

Further global heating will affect various natural and social systems.

Oil prices

GDP growth in the 20th century was based in large part on unsustainable harnessing of fossil fuels. These energy sources will not support the needs of the 21st century. As economies around the world switch from fossil fuels, we can expect temporary challenges, including increased price volatility, during the switch to more environment-friendly energy sources.

Energy production, transmission, and prices

Increased demand for energy and developments in global fuel prices may lead to cost increases, which could bring with them various societal changes.

Age distribution of the population

The age distribution of the population will change as the number of older people increases, with all of the implications this could have — specifically to include increased strain on healthcare and social systems.

Global growth of the middle class

The growth of the middle class in Asia and Africa will have various effects on world trade, tourism, project financing, and geopolitics.

Global population growth

Over a period of less than a decade, the global population will rise from 7.7 billion to 8.5 billion. By 2050, it is estimated that there will be approximately 10 billion people living on Earth. For the most part, population growth will be concentrated in a few countries, and it could have a major impact on the implementation of the United Nations (UN) Global Goals for sustainable development in the areas where population growth is greatest.

Migration

Conflict around the world, developments in population, and ever more severe repercussions of climate change may give rise to increased migration as people seek out peaceful countries where the direct year-by-year effects of climate change are less pronounced.



Internal drivers

Technological regulatory framework

Technology is advancing by leaps and bounds, but in order for society to benefit from this, there must be a clear regulatory framework that incentivises further development while protecting individuals from negative impact.

World trade and globalisation

Globalisation affects more than international investment and lending. The most prominent aspect of globalisation is cross-border trade in goods and services. Yet in the past few years, many large countries have imposed trade restrictions such as import duties and import volume quotas.

Access to expertise

The need for certain types of expertise is increasing, and the authorities can take action to improve access to the most qualified workers through incentives, tax concessions, or even priority processing for foreign experts.

Education and skills

The public sector could prepare the ground, for example, with a systematic assessment of the labour market's long-term need for skills, education, and personnel; with targeted support to meet those needs; and with structured steps to support high-tech development, transfer of knowledge and technology, and innovation.

Greenhouse gas emissions in Iceland

Greenhouse gas emissions, which are the direct responsibility of the Icelandic authorities, increased by 2.2% between 2016 and 2017 but have been relatively stable since 2012 despite measures aimed at controlling them. This is due in part to the increased number of tourists in Iceland and to an overall rise in consumption.

Pollution

Air pollution monitoring has been stepped up markedly, and now a number of pollutants are measured around the country. The measurement network is densest, however, in greater Reykjavík. There have also been major advances in measurement technology and access to measurement data, with increased emphasis on near-real-time access online.

Energy switching

Energy switching entails measures to increase the share of renewable energy sources used in Iceland. This applies equally to measures focusing on land, air, and sea.

Urbanisation

Densely populated communities continue to grow, with various implications and strain on services in those areas. Furthermore, rural communities will be increasingly on the defensive as their population falls.

Attitudes/views on residence

Will emphasis be placed on building up rural communities alongside the capital, or will residents choose rather to live in and strengthen densely populated areas?

Regional policy

The priorities of the Government to implement long-term regional and residence policy.

Agricultural policy

Will domestic agricultural production continue to be protected, or will such protection be phased out?

Infrastructure

Infrastructure refers to the core structure of society in the broadest context; i.e., transport, telecommunications, education, and healthcare.

Tourism

Will tourism grow even further, or will the growth rate ease and the associated impact diminish?

Health

Will emphasis be placed on local healthcare services, or will such service be increasingly centralised in the capital area?

Immigration

Will Iceland be known as a society open to immigrants, and one where immigrants are treated well? Will the authorities place restrictions on immigration to Iceland, or will they encourage people — especially those with special talents and qualifications — to settle here?

Family policy

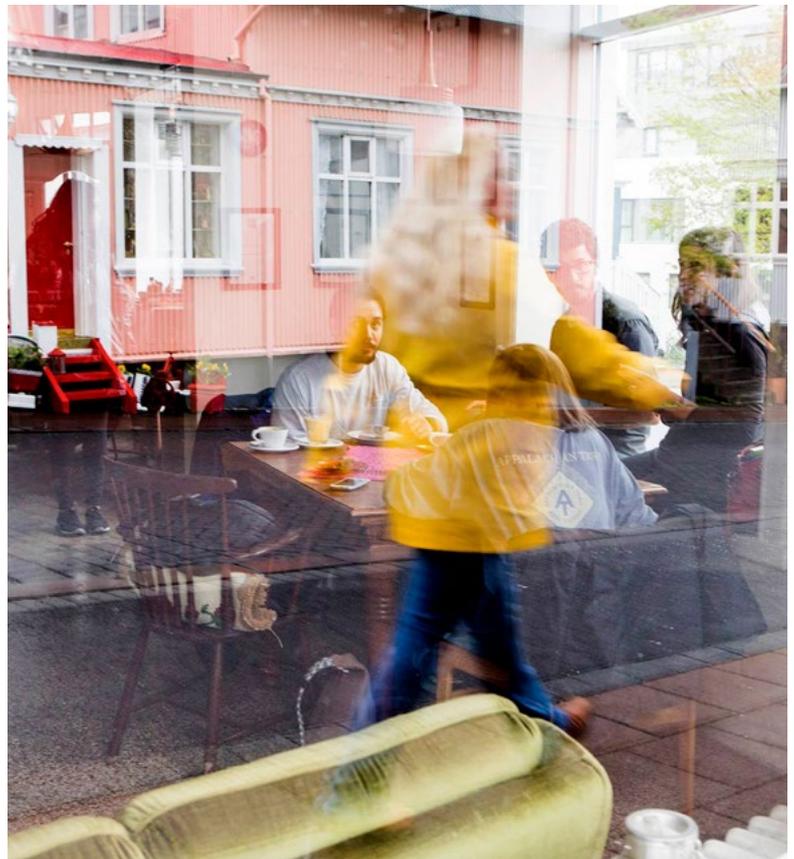
The main objective of family policy will be to incorporate the UN Convention on the Rights of the Child into all legislative framework and implementation. In this way, we can enhance the well-being of families with children and attempt to fulfil our international obligations regarding families and human rights.

Educational policy

Will increased funding be allocated to educational development nationwide? Will educational institutions merge and continue migrating towards densely populated communities? Will new teaching methods supplant older ones, and what impact will this have on the educational level of the Icelandic people?

Pension system

Iceland's pension system is based on a strong foundation where emphasis is on long-term growth and intergenerational trust. The Icelandic pension system will continue to be based on three main pillars: a) mandatory pension fund membership for all employed persons; b) full funding; and c) mutual pension insurance for fund members, with lifelong pension payments, and with insurance for fund members and their families against loss of income due to disability and death.



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