



Helsinki-Uusimaa  
Regional Council



# THE HELSINKI-UUSIMAA REGIONAL PROGRAMME 2.0

Vision • Strategic Priorities • Objectives and Measures

**Publications of the Helsinki-Uusimaa Regional Council A 40 - 2018**  
**ISBN 978-952-448-489-3**  
**ISSN 2342-3781**

Translation: Tiina Sjølvgren  
Layout: Anni Levonen  
Illustrations: Raquel Benmergui

Helsinki 2018

**Uudenmaan liitto // Nylands förbund**  
**Helsinki-Uusimaa Regional Council**

Esterinportti 2 B • 00240 Helsinki • Finland  
+358 9 4767 411 • [toimisto@uudenmaanliitto.fi](mailto:toimisto@uudenmaanliitto.fi) • [uudenmaanliitto.fi](http://uudenmaanliitto.fi)

# THE HELSINKI-UUSIMAA REGIONAL PROGRAMME 2.0

DESCRIPTION SHEET .....	4
PREFACE .....	5
A REGION IN A STATE OF FLUX AND TRANSFORMATION.....	6
Drivers of change .....	6
Population.....	8
Urbanisation.....	8
Jobs and economic activities.....	9
Strengths of the Helsinki-Uusimaa Region .....	11
Helsinki-Uusimaa Region in Europe .....	12
Regional comparisons.....	13
VISION .....	18
Helsinki Region 2050 – Cool & the most Vibrant region in Europe .....	18
STRATEGIC PRIORITIES.....	19
Human Wellbeing and Competence .....	20
Successful and Responsible Business .....	20
Climate-aware and Diverse Region.....	20
OBJECTIVES AND MEASURES .....	21
Human Wellbeing and Competence .....	22
Objective 1: Competent Future Inhabitants .....	23
Objective 2: Strength through International Connections .....	25
Objective 3: Best Wellness Services, Active Inhabitants .....	26
Objective 4: Safety and Security through Solidarity .....	28
Successful and Responsible Business .....	29
Objective 5: Growth and Exports through New Technologies.....	30
Objective 6: Business from Circular Economy.....	32
Objective 7: International Competence and Investments .....	34
Objective 8: Vitality from Start-ups and SMEs.....	36
Climate-aware and Diverse Region .....	38
Objective 9: Carbon-neutral Helsinki-Uusimaa Region by 2035 .....	39
Objective 10: Safe and Sustainable Helsinki-Uusimaa Region.....	42
Objective 11: Positive Experiences and Care from Nature.....	45
Objective 12: Easy and Reliable Mobility.....	46
MONITORING AND MEASURING.....	49
Equality, equitability and inclusion as core values.....	49
Phenomena to be monitored and indicators .....	50
PREMISES OF THE HELSINKI-UUSIMAA REGIONAL PROGRAMME .....	57
Regional government reform will change the national operating environment .....	58
APPENDICES.....	60
Appendix 1 – Smart Specialisation Strategy.....	60
Appendix 2 – Financial sources for implementation of the Programme .....	61
Appendix 3 – Summary of the Environmental Report.....	62
REFERENCES.....	63

# DESCRIPTION SHEET

**Title of publication**

The Helsinki-Uusimaa Regional Programme 2.0 – Vision • Strategic Priorities • Objectives and Measures

**Published by**

Helsinki-Uusimaa Regional Council

**Report authors**

Liisa Hyttinen and Lauri Kuukasjärvi

**Title of series and publication no.**

Publications of the Helsinki-Uusimaa Regional Council A 40

**Year of publication**

2018

**ISBN**

978-952-448-489-3

**ISSN**

2342-3781

**Language**

English

**No. of pages**

65

**Abstract**

The Helsinki-Uusimaa Regional Programme 2.0 was built in active cooperation between The Helsinki-Uusimaa Regional Council and The Centre for Economic Development, Transport and the Environment for Uusimaa (ELY), along with municipalities, business life, universities, research institutes and organisations. The Programme includes a vision for 2050 and strategic priorities for 2018–2021. And it provides a basis for the strategy work carried out as a part of the health, social services and regional government reform project for the Helsinki-Uusimaa Region 2019.

The Helsinki-Uusimaa Regional Council is responsible for the regional planning and development, in keeping with the Act on Regional Development and the Land Use and Building Act. When building the Programme, the strategic plans and priorities of the municipalities have been taken well into consideration. As a result, it is a steering instrument for municipalities, the regional authorities and the Regional Council itself, and when the programme was drawn up, its impact was also ascertained. That is why attention has also been drawn to the fact that the Metropolitan Area and other Helsinki-Uusimaa Regions will use their own starting points to create vitality. Naturally, different areas of the region differ considerably from each other, and consequently their attractiveness and competitive assets are based on different strengths. Therefore, it is very important for each area to recognise its own strengths in order to retain or increase its attractiveness.

The vision is “Helsinki Region 2050 – Cool & the most Vibrant region in Europe”. The strategic priorities for the Regional Programme are Human Wellbeing and Competence, Successful and Responsible Business, and Climate-aware and Diverse Region. Each priority covers four objectives and each objective also includes measures to implement the Programme. The objectives determined for each priority can be used to consolidate the wellbeing of the inhabitants along with the success of the region, regardless of which scenario identified in the future analysis of 2016 seems to be most probable for the future.

Open-minded partnerships, operating models and science, as well as art and technology are the cross-cutting themes of the Programme. It includes a comparison of the Helsinki-Uusimaa Region and some other European regions (Stockholm County, the Capital Region of Denmark, Hamburg and North Holland). Among others, social wellbeing, financial competitiveness and innovations are being compared. It also includes the priorities and key measures of the Regional Smart Specialisation Strategy. By focusing funds on excellence, the competitiveness of the region can be improved considerably. Furthermore, the Smart Specialisation Strategy is closely linked to the Europe 2020 strategy and to those policy and financial instruments supporting it.

The Programme is carried out with the help of a more detailed, and annual Regional Implementation Plan. The Implementation Plan is a tool to channel European structural funding, and national funding allocated to the region.

**Keywords**

Regionl development, Helsinki-Uusimaa, Helsinki-Uusimaa Regional Council, Strategic planning, Vision, Goals, Actions, Climate smart, Versatile, Region, Success, Responsibility, Business, Wellbeing, Inhabitants, Measurement, Follow-up

**Övriga uppgifter**

A pdf version of the publication can be found on our website: [www.uudenmaanliitto.fi/julkaisut](http://www.uudenmaanliitto.fi/julkaisut). The publication is published both in Finnish and in Swedish.

# PREFACE

The Helsinki-Uusimaa Regional Programme 2.0 covers a period from 2018 to 2021. It was drawn up in keeping with the Act on Regional Development and Administration of Structural Fund Operations (7/2014) and guidelines issued by the Ministry of Economic Affairs and Employment. The Programme is intended to steer development of the entire region and allocation of resources to different parts of the region and for various purposes. Covering the entire region, it is a joint programme carried out through measures taken by various parties. The region's robust growth must be directed on the basis of a shared vision and in an economically, ecologically, socially and culturally sustainable manner.

While the Helsinki-Uusimaa Regional Programme is intended to help discharge the region's current functions, it also involves an element of preparation for changes being introduced by the forthcoming regional government reform. It provides a basis for the strategy work carried out as a part of the health, social services and regional government reform project for the Helsinki-Uusimaa Region 2019.

The Programme was built in active cooperation with local authorities, higher education institutions, NGOs and public authorities. Its foundation was in the future analysis for the Helsinki-Uusimaa Region, which was conducted during 2016 to identify the region's key general change factors and create alternative scenarios for the future. In the end, the Programme came down to three strategic priorities, each covering four objectives.

These strategic priorities – Human Wellbeing and Competence, Successful and Responsible Business, and Climate-aware and Diverse Region – form the framework for the Programme. While these are the key areas of the region's future, they are also global sustainable development goals.

Preparation of the Helsinki-Uusimaa Regional Programme 2.0 involved diverse discussions of key current and future phenomena including the most relevant of these as part of development policies, objectives and measures for the years to come. The Programme's core contents are covered in

the descriptions of the three priorities and twelve objectives. Each objective also includes measures to implement the Programme. In the course of the multi-step cooperation process, various parties also raised points that deserve attention as part of regional development efforts.

The European Union is changing, and preparations of programmes for the next funding period are ongoing. It is important for the Helsinki-Uusimaa Region to embark on a systematic effort to influence the themes and contents of various EU programmes, in order to ensure that these can still be used to further benefit regional development.

The focus of regional development on urban areas has been raised to the forefront, in particular on the initiative of the City of Helsinki. While the Helsinki-Uusimaa Regional Programme was being drawn up, it was concluded that urban development policy is important for the entire region; in addition to the Helsinki Metropolitan Area and the so-called KUUMA municipalities girdling the Metropolitan Area, it also has a bearing on conditions for development and success in the eastern and western parts of the Helsinki-Uusimaa Region.

Economic and population growth places emphasis on continuous monitoring of challenges involved in mobility, transport and logistics. The ease and comfort of the movement of people and goods are important, not only in terms of economic development and quality of life, but also from the perspectives of the environment and wellbeing.

Regional identity is highlighted as part of areas such as tourism development. During the process of drafting the Programme, it was noted that the Helsinki-Uusimaa Region encompasses several identities linked to a specific city district, municipality or village, language, archipelago or geographical location. The region would do well to diversify its efforts relating to regional identity with a view to communicating a more distinct identity for the forthcoming new regional government.

Ossi Savolainen  
Regional Mayor

# A REGION IN A STATE OF FLUX AND TRANSFORMATION

## Drivers of change

Globalisation, climate change, digitalisation and demographic changes are drivers ushering advanced societies at an accelerating pace towards transformation of the economy and work. This period of transformation is also increasing insecurities in many different sectors both in Finland and around the world.

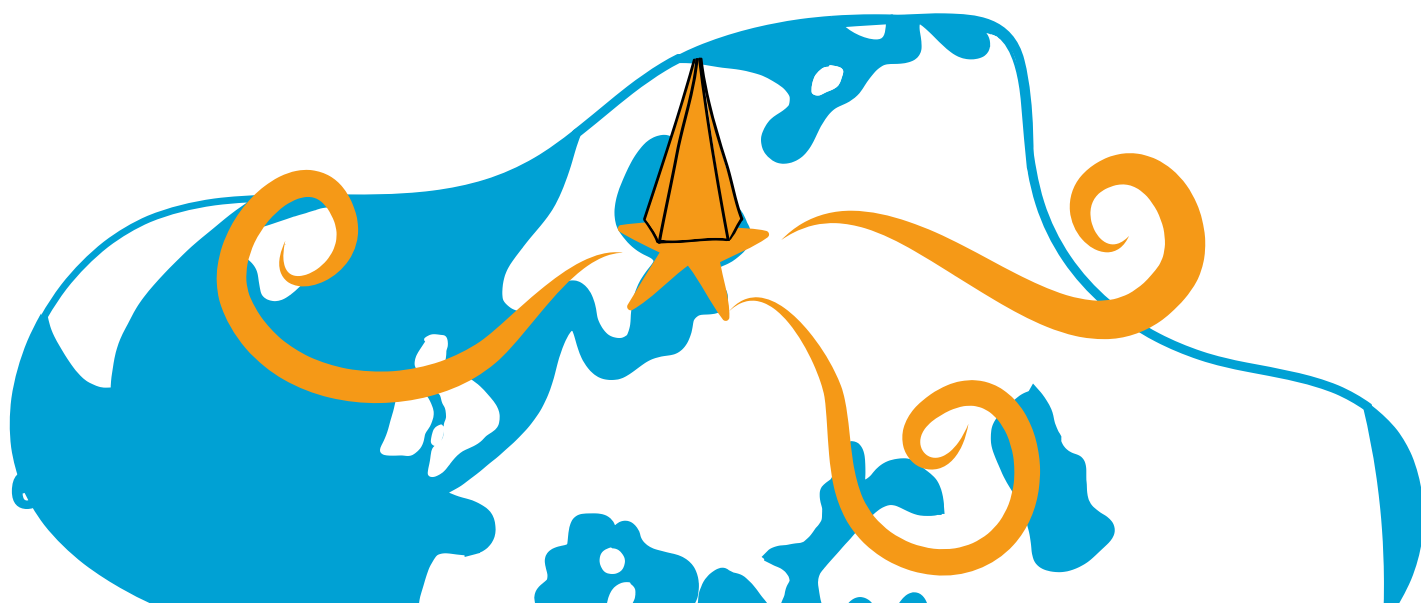
Globalisation has transformed the political and decision-making environment. States and regions are now operating in a path-dependent world, where their decisions are also influenced by remote global players. Goods and services, manufacturing and people, as well as capital and processes are moving in an almost unlimited manner, which has diminished the opportunities for states and regions to influence and steer politics. The Helsinki-Uusimaa Region is one of the 272 regional players in Europe that also operate at a global level. As the largest region in Finland, the Helsinki-Uusimaa Region should play an active role to work for the benefit of its own future and for the whole of Finland. However, democracy, national sovereignty and globalisation are factors that are often challenging to reconcile. In addition, nationalism and populism may slow down the progress of globalisation.

Mitigation of and adaptation to climate change are steered through political decisions and

measures. This will have both direct and indirect effects on economic development. Heat, scarcity of food and lack of water, storms, heavy rains and floods will result in major costs and climate refugees around the world. Measures taken to mitigate and adapt to climate change have a bearing on transport, energy production, food, community structures, construction and material efficiency.

The Helsinki-Uusimaa Region can achieve positive economic and employment effects by making use of new intelligent environmental solutions and technologies. Climate-awareness changes consumer habits while also steering how the markets function. However, it is as yet difficult to foresee all the effects that the post-fossil economy will have on the economy and work. Domestically, global warming may improve growth conditions in agriculture and forestry. Then again, extreme weather phenomena and alien species may weaken production conditions. First and foremost, climate change boils down to the future of humanity and nature.

We have competence in new technologies, which is also being applied through smart specialisation. Examples include digitalisation, automation, robotisation, artificial intelligence, machine learning, augmented reality, virtual reality, the Internet of Things (IoT), and blockchain technology. Technological developments are fracturing economic logic from ownership to taxation, as well as the ways



and operating models of working. New ways of working are changing revenue-generation models and contractual practices in the world of work. As old occupations disappear, the future will also see the emergence of completely new occupations and sectors. The shifting foundations of the economy and work will influence people's wellbeing and, on a broader scale, the whole of society's welfare model and its structures. Even though these changes are considered to be inevitable in debates, the Nordic social model has – at least in the past – turned out to be very adaptable to changing circumstances. Segregation of the labour market has not been as pronounced here as elsewhere in Europe.

Demographic change, including the ageing population, will dramatically alter the dynamics of culture and the economy in the future. The demographic dependency ratio<sup>1</sup> will inevitably decline both in the Helsinki-Uusimaa Region and in Finland as a whole, as the native-born population grows older. The economic dependency ratio<sup>2</sup>, in turn, will have a significant impact on economic balance, including the sustainability gap. The demographic and economic dependency ratios are not independent of each other: if the demographic dependency ratio is poor or challenging, it is very likely that its economic counterpart is also the same.

The Helsinki-Uusimaa Region is a strongly international region. Its bilingualism opens up windows to Nordic cooperation while consolidating our international character. In addition, strengthening the use of English will contribute to implementation of the Programme's objectives and measures. As immigrants are typically young adults, immigration mitigates the deteriorating demographic dependency ratio. Non-native speakers<sup>3</sup> account for 12% of the population of the Helsinki-Uusimaa Region, which is home to 56% of Finland's non-native speakers. The relative proportion of non-native speakers is highest in the Helsinki Metropolitan Area (15%) and lowest in the Western Uusimaa Region (4.5%).

Regardless of immigration, the ageing population and deteriorating dependency ratio will continue to present challenges for the Helsinki-Uusimaa Region in the years to come. The most significant changes will be faced by the Western and Eastern Uusimaa Regions (Table 1), whereas the population structure is better in the Helsinki Metropolitan Area and its surrounding suburban municipalities, known as the KUUMA region. The younger population structure in the Metropolitan Area decreases the average age of the entire region. Nevertheless, the dependency ratio will also present a problem for the Metropolitan Area in the future.

Table 1: Proportion of the population aged 65 and over (%).

	2016	2040
Helsinki Metropolitan Area	15.8	20.6
Suburban KUUMA region	17.0	25.4
Western Uusimaa Region	23.3	31.7
Eastern Uusimaa Region	21.4	28.7
Helsinki-Uusimaa Region	16.8	22.5
Whole country	20.9	26.3

1 The demographic – i.e. population-based – dependency ratio measures the total number of children and those aged 65 or over in proportion to the working-age population.

2 The economic dependency ratio measures the number of employed people in proportion to those not in employment.

3 'Non-native speakers' refer to those whose native language is not Finnish, Swedish or Saami.

## Population

The Helsinki-Uusimaa Region comprises 26 municipalities and it is home to a total of 1.64 million people. A skilled population inhabits a high-quality living environment in a region that also has 300 kilometres of coastline with harbours and the only internationally significant airport in Finland. The region is of high national significance – more than one third of Finland’s gross domestic product is generated here. Although the phrase is trite, the Helsinki-Uusimaa Region truly is the entire country’s economic engine and logistical link to international markets.

One in three Finns hails from the Helsinki-Uusimaa Region. In 2016, the region’s population increased by 18,000 inhabitants. Out of the new inhabitants, 77% were non-native speakers. In 2016, 15,700 people moved to the Helsinki-Uusimaa Region from abroad while another 9,700 left the region to move abroad, amounting to a net immigration of 6,000 people to the Helsinki-Uusimaa Region. Speakers of Finnish and Swedish accounted for 2,800 and 500, respectively, of all immigrants. In practical terms, all Finnish speakers and some Swedish speakers are returnees. The Helsinki-Uusimaa Region is also the most densely populated region in Finland, with population density on a par with the European average. Its largest municipality is Helsinki with over half a million people, while the smallest municipalities have about 2,000 inhabitants.

According to the latest Statistics Finland forecast, the population of the Helsinki-Uusimaa Region will be 1,726,000 in 2022 and as much as 1,914,000 in 2040. In 2017, the Helsinki-Uusimaa Regional Council published a study dealing with various regional economic scenarios and population and job projections. The study puts forward five



**The Helsinki-Uusimaa Land Use Plan 2050 is an overall regional land use plan being prepared by the Helsinki-Uusimaa Regional Council for the entire Helsinki-Uusimaa Region. The plan consists of a strategic structural plan and more detailed sub-regional land use plans. The Helsinki-Uusimaa Land Use Plan is due to be adopted in 2019.**

alternative population projections for 2050. Table 2 below outlines three of these projections, i.e. the most divergent growth models<sup>4</sup>, which were chosen for structural modelling efforts to provide some background for the Helsinki-Uusimaa Land Use Plan 2050.

## Urbanisation

The City of Helsinki and its surroundings form one of the fastest-growing urban areas in Europe. The Helsinki Metropolitan Area and the central parts of the Helsinki-Uusimaa Region are growing through both natural population growth and positive net migration. Conversely, natural population growth has stagnated in the Eastern and Western Uusimaa Regions. The Metropolitan Area is the destination for 90% of growth in the entire Helsinki-Uusimaa Region. The standing of the region’s rural areas can be improved by intensifying interactions between urban and rural areas and tapping into the resources of both.

**Table 2: Population projections for the three growth models chosen for structural modelling as part of the Helsinki-Uusimaa Land Use Plan 2050.**

Helsinki-Uusimaa Region’s population	2015	Centralised growth 2050	Polycentric growth 2050	Concentrated decentralised growth 2050
Population	1,620,000	2,177,000	2,164,000	2,070,000

<sup>4</sup> Based on an expert assessment, the projections selected for developing the structural model were ‘Strong centralised growth’, ‘Strong growth at all centres’ and ‘Moderate decentralised growth’. The ‘Strong decentralised growth’ alternative was considered unrealistic, because a decentralised structure does not create conditions for sustained strong growth. As the ‘Moderate centralised growth’ projection only differs from its strong alternative in terms of overall volumes, it was excluded from the analysis. The ‘No growth’ alternative was also not included in the analysis.



Urbanisation is a fact, not a choice. Worldwide, 1.3 million people move to cities every day. Urbanisation has positive and desirable effects on many different routine and everyday aspects of people's lives in both social and economic sectors. On the flipside, urbanisation also involves its own sore points. Rapid urbanisation may bring about problems relating to areas such as housing and mobility, which tend to affect low-income inhabitants in particular. Cities have traditionally seen poverty and social exclusion, but disadvantage has also taken on new forms in growing cities. Undocumented migrants and beggars are increasing phenomena in our urban areas.

While the City of Helsinki has managed to halve the number of homeless people from 1990 to 2016, there were still about 3,500 homeless people in 2016<sup>5</sup>. The prevalence of low income<sup>6</sup> in the Helsinki-Uusimaa Region is highest in the City of Helsinki, with 72,872 low-income residents in 2015<sup>7</sup>. Another problem that may affect growing urban areas is segregation of residential areas and the resulting perception of insecurity among residents

of housing estates. Homelessness, disadvantage, social exclusion and segregation of residential areas are issues that the largest cities of the Helsinki-Uusimaa Region need to fight in cooperation with all parties, including active residents.

## Jobs and economic activities

People move to the Helsinki-Uusimaa Region due to jobs and diverse educational provision. The region accounts for 34% of all jobs in Finland. The region is also characterised by competence-intensive services, as 82% of jobs are in the trade and services sectors. About 99% of places of business have less than 50 employees, while enterprises with less than 10 employees and large companies with over 250 employees generate just below 20% and slightly over 30% of total net turnover, respectively. However, the regional economic structure forms a diverse whole. Its growth is enabled by transnational companies, its service-intensive economic structure, vibrant R&D activities, a high level of education, and new start-up enterprises.

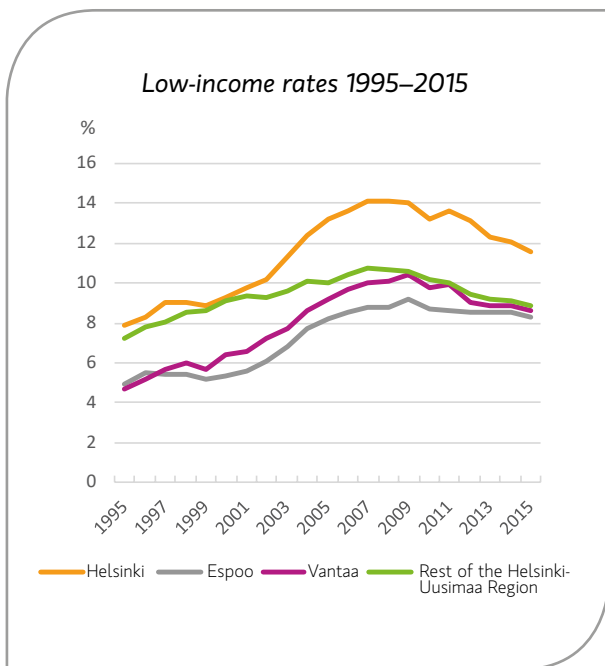


Figure 1: Low-income rates in the three largest cities in the Helsinki-Uusimaa Region (Helsinki, Vantaa and Espoo) from 1995 to 2015 (Source: THL 2017c).

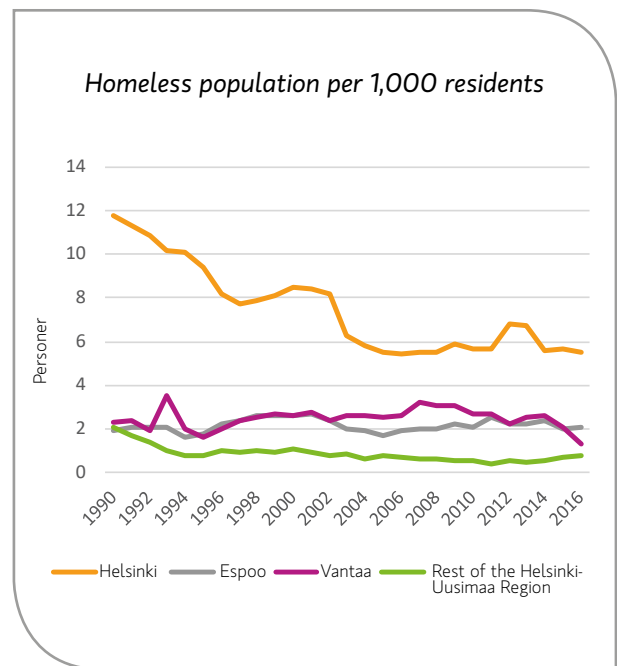


Figure 2: Homeless population per 1,000 residents in the three largest cities in the Helsinki-Uusimaa Region (Helsinki, Vantaa and Espoo) from 1990 to 2016 (Source: THL 2017a).

<sup>5</sup> In 2016, the average number of homeless people in the Helsinki-Uusimaa Region was 378, while the figures for the Cities of Espoo and Vantaa amounted to 577 and 285, respectively.

<sup>6</sup> Low-income earners refer to those whose household's total disposable cash income per consumption unit is lower than 60% of the equivalent median income of all Finnish households.

<sup>7</sup> In 2016, there were 45,092 low-income people in the Helsinki-Uusimaa Region, while the figures for the Cities of Espoo and Vantaa amounted to 22,394 and 18,456, respectively.

On average, information and communications, financing and education, as well as research and innovation account for a clearly higher proportion of jobs than elsewhere in Finland. Furthermore, arts and entertainment jobs are also strongly concentrated in the Helsinki-Uusimaa Region.

Figure 3 below describes the sectoral profile of the Helsinki-Uusimaa Region in 2014.

Figure 4 describes the 13 largest sectors measured in terms of headcount and their percentage shares of jobs in the Helsinki-Uusimaa Region. The sectors included in the figure account for over 60% of the region's jobs.

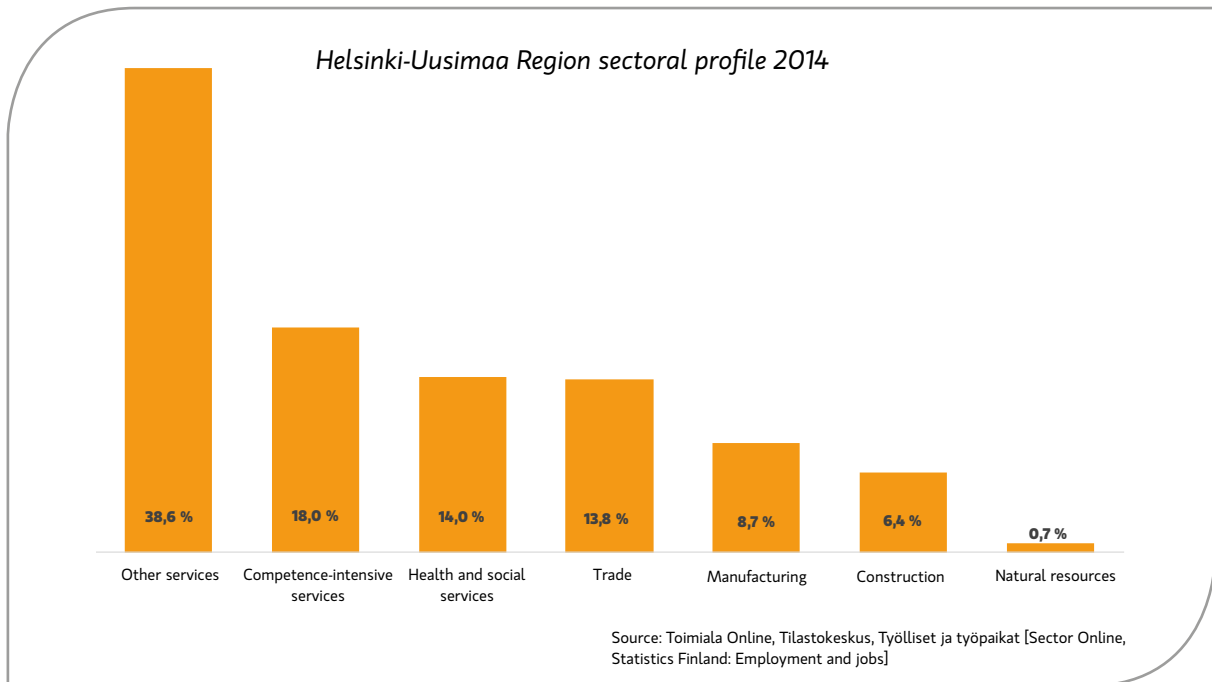


Figure 3: Sectoral profile in 2014.

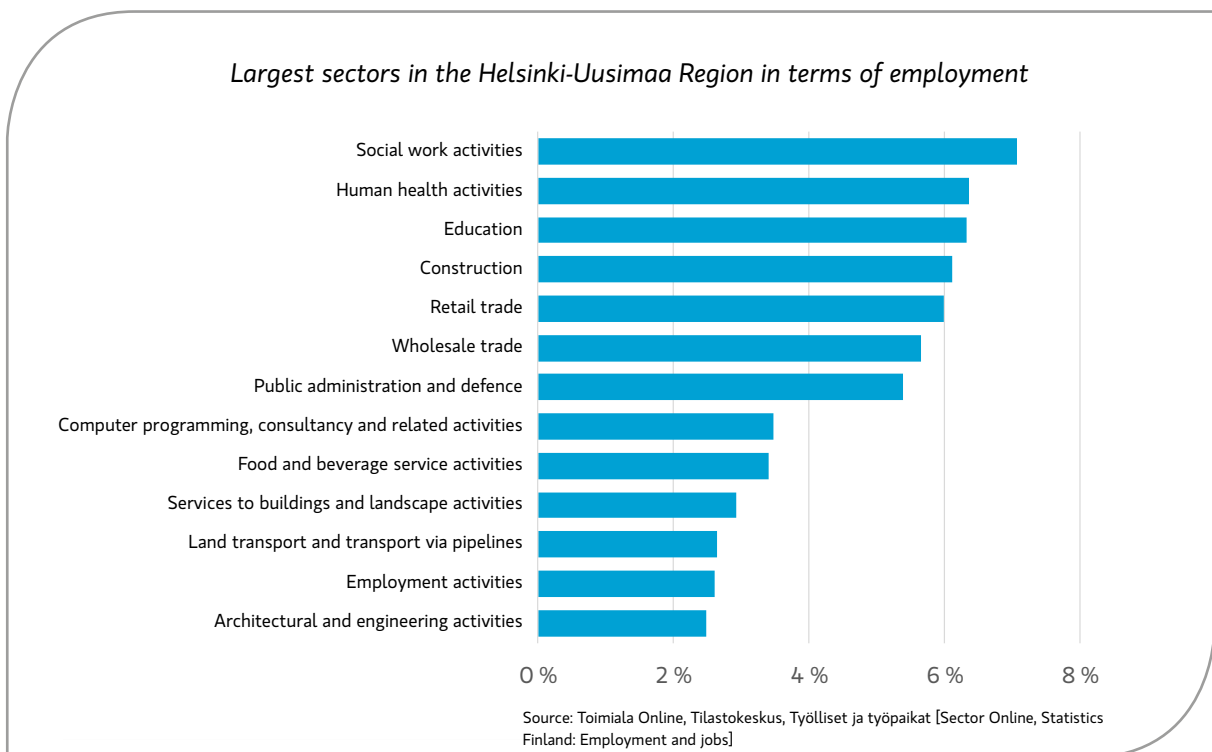


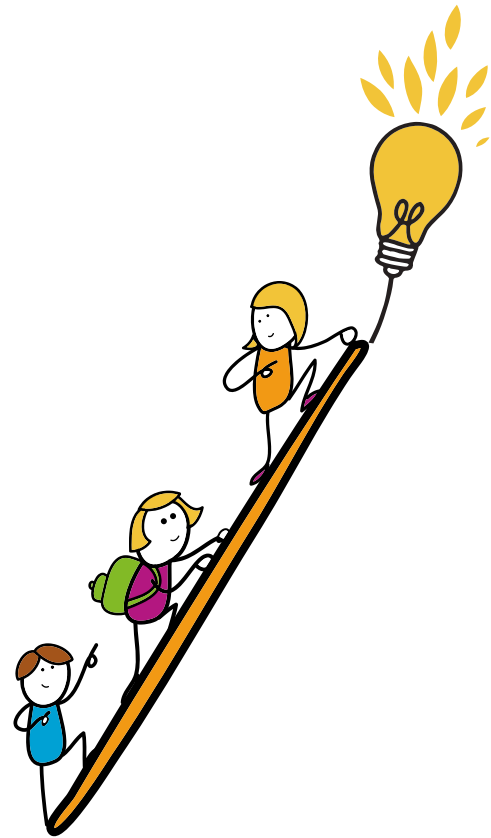
Figure 4: Proportions of jobs in the 13 largest sectors in the Helsinki-Uusimaa Region in 2014.

## Strengths of the Helsinki-Uusimaa Region

The **relative strengths** of the Helsinki-Uusimaa Region boil down to the following three themes: accessibility, attractiveness and availability of skilled labour. These strengths apply at both national and international levels. The international dimension needs to be taken into account in all regional development efforts, in order to guarantee the best conditions for success for companies, workers and other parties operating in the Helsinki-Uusimaa Region. The region is the most attractive market area in Finland, with the best international and national accessibility and the highest availability of skilled labour in the country.

In terms of **accessibility**, the Helsinki-Uusimaa Region is in a league of its own in Finland, especially with regard to its air, sea, rail and road connections. Internationally, however, there is still plenty of room for improvement in the region's accessibility. The region is host to the Port of Helsinki, which is the busiest passenger port in the world, along with Dover in Britain. The number of passengers passing through the Port of Helsinki this year is estimated to reach almost twelve million. Measured in terms of foreign freight tonnes, the busiest port in Finland is Kilpilahti Harbour in Porvoo. Air passengers rank Helsinki-Vantaa Airport as the second best airport in Northern Europe and it accounts for 90% of international air transport in Finland. Traffic between Helsinki and Tallinn is increasing considerably faster than between Stockholm and Helsinki.

In terms of **attractiveness** and demand potential, the Helsinki-Uusimaa Region is likewise the strongest region in Finland, while the Helsinki Metropolitan Area is the country's most significant market area. Moving forward, it is important for the Metropolitan Area and other areas in the Helsinki-Uusimaa Region to build their vitality based on their own strengths. Different areas of the region differ considerably from each other, and their attractiveness and competitive assets are based on different types of strengths. It is important for each area to recognise its strengths



and find the right partners in different sectors, and to start realising its strengths in order to retain or increase its attractiveness. Living bilingualism is characteristic of the eastern and western parts of the region, among others. Likewise, linguistic diversity strengthens the attractiveness and competitiveness of the Metropolitan Area.

The Helsinki-Uusimaa Region is still more than the sum of its parts. Comparisons with other Finnish regions do not do justice to the uniqueness of the Helsinki-Uusimaa Region. Instead, the region's attractiveness and economic resources should be compared with other medium-sized statistical regions in the European Union<sup>8</sup>. When compared with these, the draw factors characteristic of the Helsinki-Uusimaa Region include safety, diverse natural sites, and water areas – especially from the perspectives of living, tourism and recreational uses. Its unique natural sites range from local forests to National Parks and from valuable cultural heritage sites to natural archipelago sites and world heritage sites. Thanks to good connections, these sites are within easy reach for inhabitants and tourists.

<sup>8</sup> In this context, the EU statistical region refers to NUTS 2 regions. The NUTS classification of regions (Nomenclature of Territorial Units for Statistics) is used in statistics submitted to Eurostat, the Statistics Office of the European Union. NUTS level 2 corresponds to the national division into major regions.

Due to the **availability of skilled labour**, the Helsinki-Uusimaa Region is the most attractive region in Finland for companies requiring highly skilled employees, or labour in general, as the region has the highest proportion of tertiary education graduates in the labour force<sup>9</sup> in Finland, while supply is also highest in quantitative terms. The region's largest universities – the University of Helsinki and Aalto University – represent a major resource for the region. Their operations are complemented by the strategic alliance between three universities of applied sciences (Laurea, Haaga-Helia and Metropolia), as well as other higher education institutions operating in the region. The University of Helsinki has constantly been ranked among the top one hundred universities in international university rankings. Specialised in engineering, business and arts, Aalto University is rising in the rankings due to factors such as its increasing industry links. Aalto University is among the new universities at the top in international terms, while the Times Higher Education magazine has ranked it in the cluster of innovative technology challengers. Another strong player in the region is VTT Technical Research Centre of Finland Ltd. It is a multidisciplinary research and product development partner valued by Finnish high-tech companies, forming an essential part of Finland's national innovation system with its expertise and capacity for extensive international cooperation. With a very high standard in international terms, the scientific universities and universities of applied sciences in the Helsinki-Uusimaa Region have a significant impact on regional development.

This impact can be improved in the Helsinki-Uusimaa Region by increasing coordination and interaction between complementary scientific universities and universities of applied sciences as well as research institutes. With the introduction of the Open Innovation, Open Science and Open to the World (EU 3Os) strategy, adopted by EU and OECD countries, the international incentive and evaluation system for higher education and research is being revised. As a result of new criteria, more emphasis will be placed on the societal impact of publicly funded research.

## Helsinki-Uusimaa Region in Europe

In the European frame of reference, Nordic identity and values comprise one of Finland's showcases. Nordic cooperation is especially carried out in political, economic and cultural spheres, while it forms a key part of European and international cooperation.

The international dimension is also visible in the Helsinki-Uusimaa Region's world of work and markets, where global networks play an increasingly significant and pronounced role. As part of regional development efforts, it is important to create a framework to promote the internationalisation of the region's companies, higher education institutions and research institutes. International partners and networks are success factors that may improve the credibility of the region's growth enterprises in global markets, among other things.

As an international investment destination, the Helsinki-Uusimaa Region is the best medium-sized region in Europe. The region also ranks among the top of a wide range of international comparisons measuring characteristics relating to wellbeing, competitiveness, competence potential and innovation. However, we have not been able to make full use of these excellent strengths. The Helsinki-Uusimaa Region has more international experts than the rest of Finland, but there is still plenty of work to be done when compared with its reference regions, i.e. medium-sized European statistical regions. Its economic development is lagging behind many regions that have performed worse in comparisons, while we have not been able to attract companies, skilled labour or investments to the same extent as others.

The European Union's answer to these challenges is smart specialisation, which commits regions to identifying their own strengths and allocating resources to development of them. Investment in strengths brings forth new innovations, business activities and competitiveness. Public funding is partially allocated on the basis of smart specialisation. The strengths selected for smart specialisation in the Helsinki-Uusimaa Region include 'Urban Cleantech', 'Health & Wellness', 'Digitalising Industry', and 'Citizen City'.

---

<sup>9</sup> Holders of university Bachelor's and Master's degrees account for 44% of the labour force in the Helsinki-Uusimaa Region.

## Regional comparisons

Regional success is traditionally measured in terms of both population growth and gross domestic product (GDP). Alongside these, the European Commission has prepared comparisons of regional competitiveness (Regional Competitiveness Index, RCI), innovation performance (Regional Innovation Scoreboard, RIS), and social progress (Social Progress Index, SPI) for the EU's statistical regions. The Helsinki-Uusimaa Region ranks among the top in all of these comparisons. These indices are linked to the 17 Sustainable Development Goals adopted by the UN General Assembly in 2015, which form a widely accepted basis for

international comparisons. The goals focus on human, environmental and economic aspects.

The Helsinki-Uusimaa Region is compared with other medium-sized European metropolises with similar resources and challenges. Without more in-depth analysis, however, composite indices do not provide a sufficient picture of the reference regions. It is also important to look behind the indices and see our own strengths, which we need to maintain and consolidate, while identifying areas where we still have to improve. Figure 5 shows the Helsinki-Uusimaa Region's key European reference regions.



Figure 5: The Helsinki-Uusimaa Region's primary European reference regions are Stockholm County, the Capital Region of Denmark (incl. Copenhagen), North Holland (incl. Amsterdam), and Hamburg. All these have been classified among the 275 statistical regions of the European Union.

## Domestic product and purchasing power

In terms of population, the largest of the reference regions is North Holland, which is home to 2.7 million people. The Helsinki-Uusimaa Region, in turn, is the smallest with a population of 1.6 million.

Measured by GDP per capita in purchasing power standards (PPS) as an indicator of economic opportunities, all the reference regions fall among the wealthiest in Europe, with Hamburg taking the top spot. As the 'poorest' of the group, the Helsinki-Uusimaa Region nevertheless ranks 21st among the EU's statistical regions, with GDP per capita 50% above the EU average. However, Finland's relatively high price level eats into the purchasing power of the region's inhabitants.

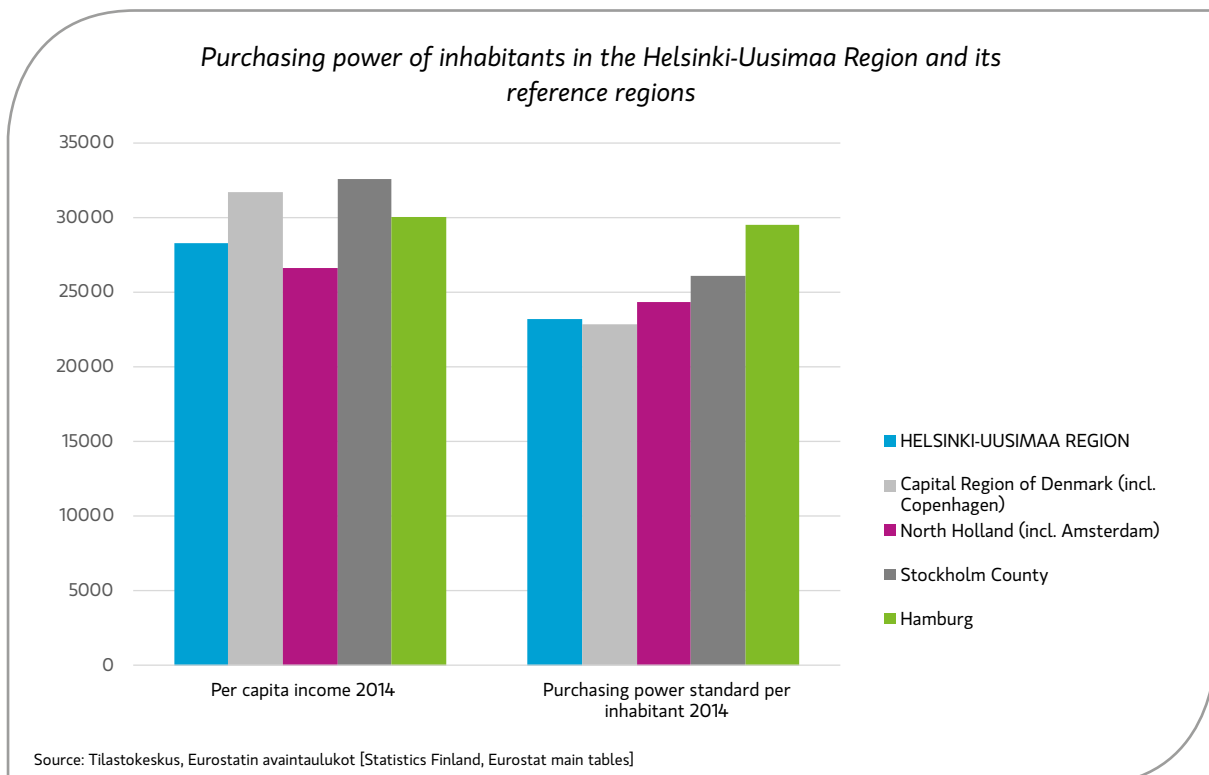


Figure 6: Net disposable income of inhabitants of the Helsinki-Uusimaa Region and purchasing power standard (PPS) per inhabitant in 2014.

## Competitiveness

The Helsinki-Uusimaa Region ranks 11th in the European Regional Competitiveness Index (RCI), placing third among the five reference regions mentioned above. **Our greatest strengths include basic education, higher education and lifelong learning, innovation, and technological readiness.**

The region's areas for improvement concentrate especially around labour market efficiency and business sophistication. However, the areas where we are lagging behind the most are market size and transport infrastructure. The market would be enlarged by a fixed connection to continental Europe, which would also increase the intensity of rail transport.

## Innovation and smart specialisation

While the European Regional Innovation Scoreboard (RIS) still ranks the Helsinki-Uusimaa Region among innovation leaders, it is of great concern that our performance has declined in almost all surveys carried out since 2008. A recent OECD report suggests that economic cuts have undermined Finland's pioneering status. Consequently, national innovation policy should be revised while focusing especially on promoting applied research and cooperation between companies, higher education institutions and research organisations in innovation activities. A good example of this is the Espoo Innovation Garden ecosystem, which has been recognised in the European Union and in the iCapital (Innovation Capital) competition as a successful model of co-configuration by different parties across sectoral borders. One of the greatest challenges for Finland is to translate research results and new ideas into saleable end products destined for international markets.

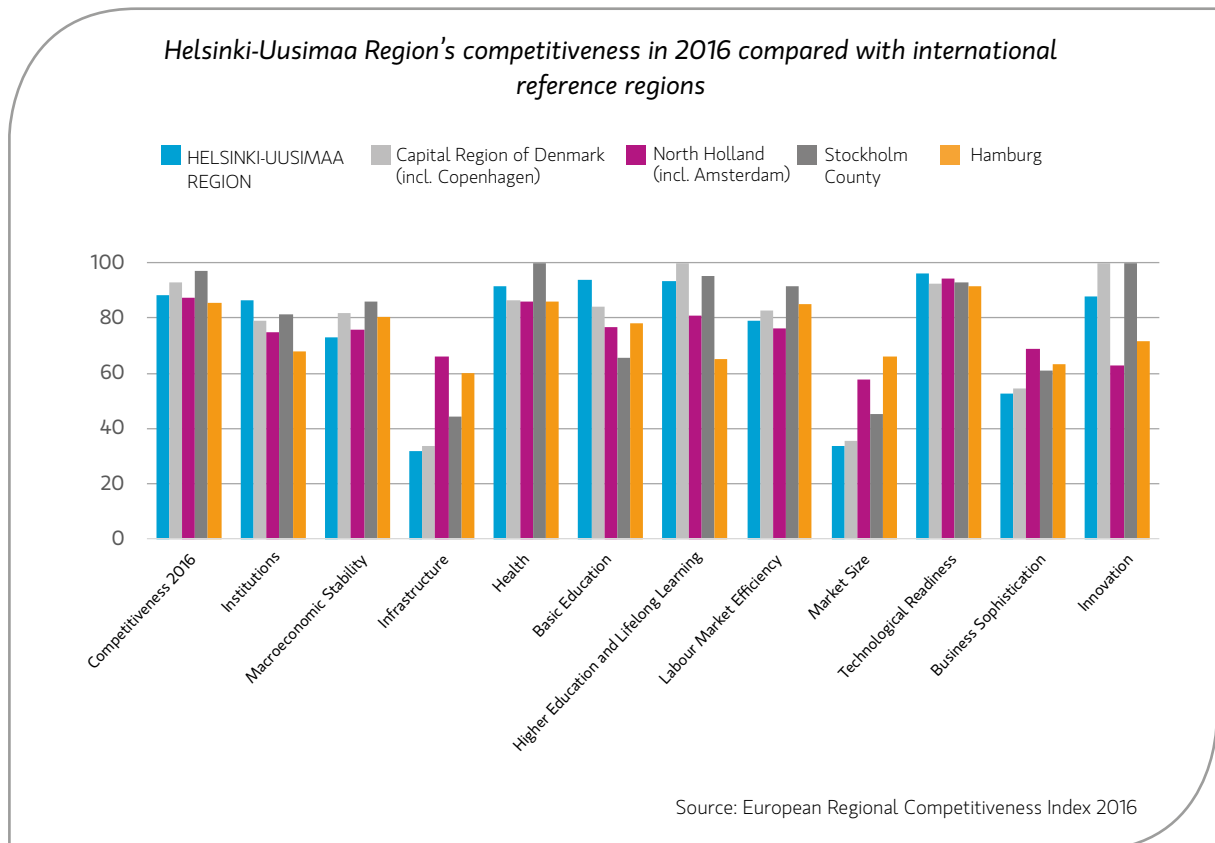


Figure 7: Results of the European Regional Competitiveness Index (RCI) in 2016.

## Social wellbeing

The Helsinki-Uusimaa Region is implementing a Smart Specialisation Strategy geared towards helping regional strengths to achieve success by means of financial instruments, and advocacy and lobbying efforts relating to international regional development. The Helsinki-Uusimaa Region will be shaped into a region where smart solutions are tested in real-life environments. The region invests in a model where it is being developed in cooperation between the public, research and private sectors, while also working together with regional inhabitants. Helsinki's Kalasatama district is a successful pilot of this type of activity that has attracted a great deal of international attention. The intention is to expand corresponding experiments to be carried out in real-life residential environments throughout the region. There are also sizeable investments in basic research, which is a prerequisite for producing innovations.

The Helsinki-Uusimaa Region offers some of the world's best opportunities for a good life. This is revealed by the Social Progress Index (SPI) measuring regional wellbeing, which ranks the Helsinki-Uusimaa Region seventh among the 272 EU statistical regions compared in terms of wellbeing. Of the reference regions, the Capital Region of Denmark is ahead of the Helsinki-Uusimaa Region. Furthermore, Finland ranks at the very top of the index in a global comparison.

The index indicates that inhabitants of the Helsinki-Uusimaa Region have confidence in their personal rights, and they can also make personal choices and access knowledge and advanced education. When compared with the reference regions, the Helsinki-Uusimaa Region also boasts an attractive environment. These factors are our strengths. There is still room for improvement in terms of satisfaction with housing, perceived access to healthcare, and completion of secondary education.

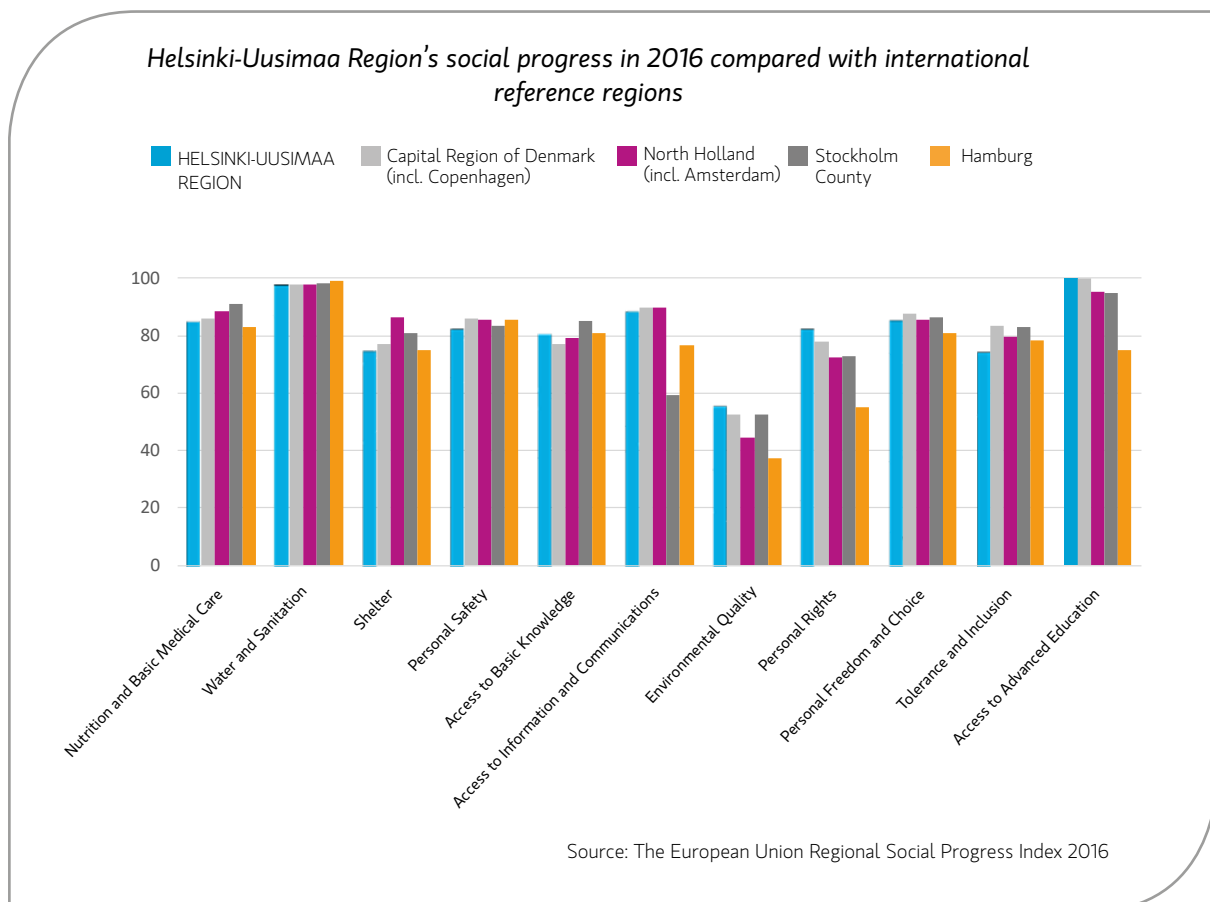


Figure 8: Results of the European Union Regional Social Progress Index (SPI) in 2016.



The number of young people aged 15 to 24 who are not in employment, education or training (NEETs)<sup>10</sup> in the Helsinki-Uusimaa Region is the second highest among the reference regions. As a result, NEETs will be added on top of SPI indicators when examining the status and progress of social wellbeing within the Helsinki-Uusimaa Region during the programming period. Figures 9 and 10 show the percentage shares of male and female NEETs in the corresponding age group in all reference regions from 2007 through to 2016.

Solutions to this problem have been sought in the Helsinki-Uusimaa Region by means such as a project to ensure the educational guarantee, led by the Helsinki-Uusimaa Regional Council. The project worked with regional education providers to develop means to reform the education, training and healthcare and social welfare systems in ways that would help young people complete vocational upper secondary programmes.

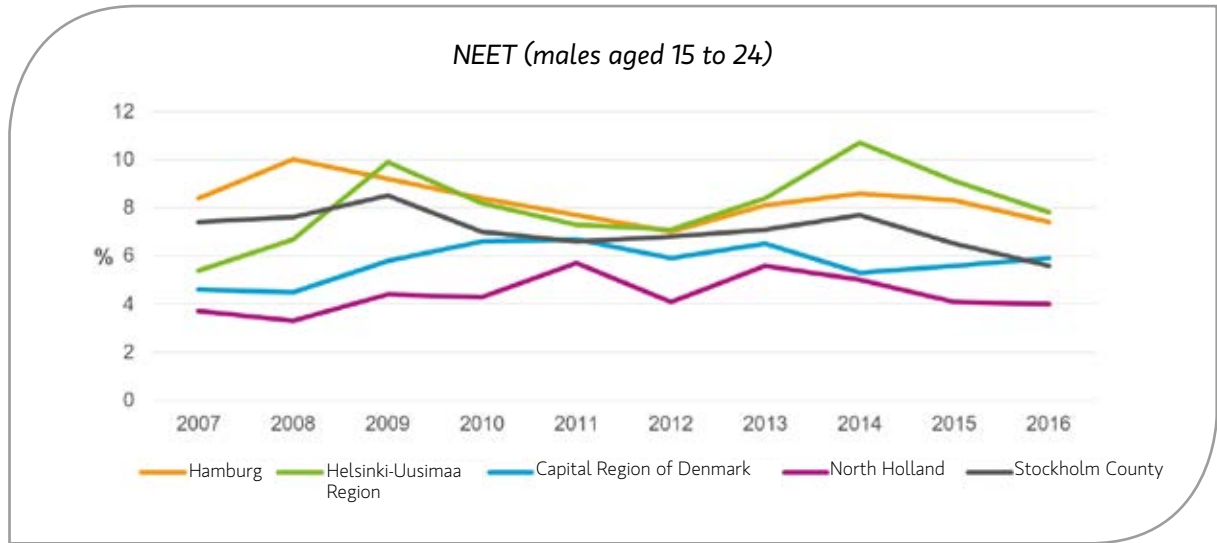


Figure 9: Proportion of male NEETs aged 15 to 24 in the corresponding age group as a whole in the Helsinki-Uusimaa Region and its reference regions from 2007 through to 2016 (Eurostat 2017).

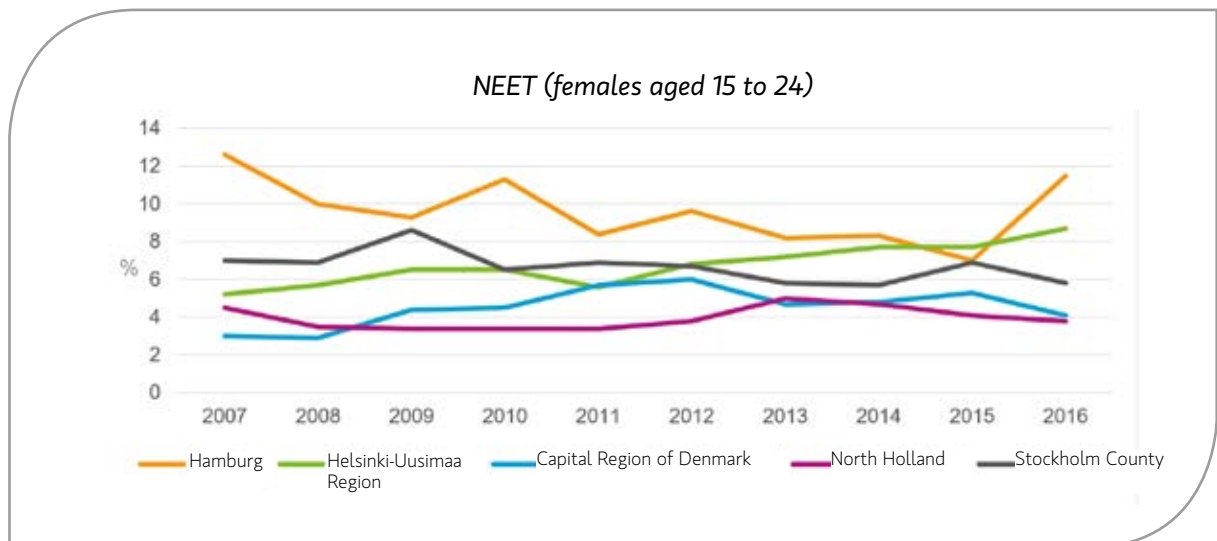
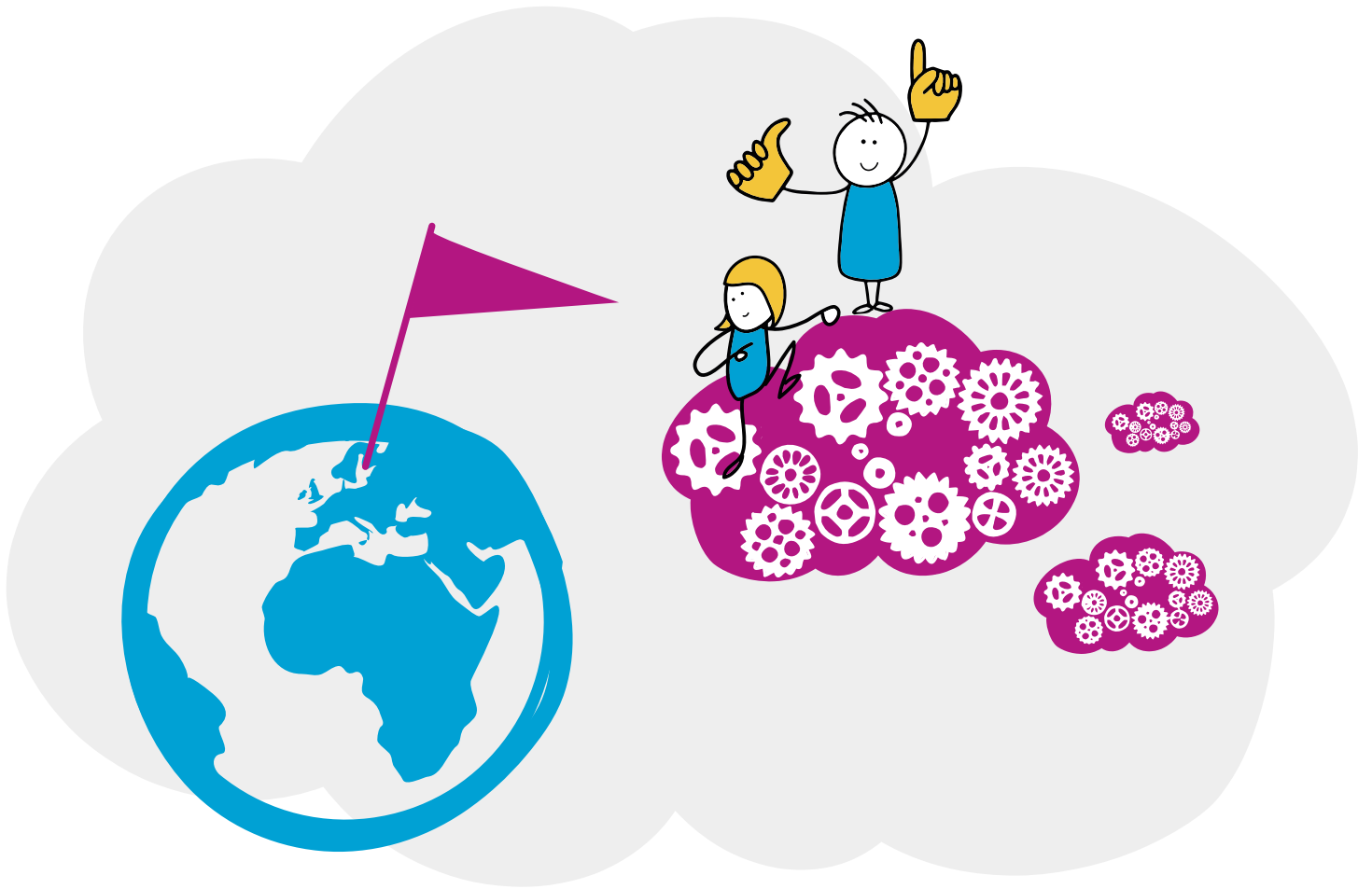


Figure 10: Proportion of female NEETs aged 15 to 24 in the corresponding age group as a whole in the Helsinki-Uusimaa Region and its reference regions from 2007 through to 2016 (Eurostat 2017).

<sup>10</sup> A NEET refers to a young person aged 15 to 24 who is not in employment, education or training. However, NEET is a challenging concept, because it includes parents caring for their children at home, as well as young people preparing for entrance examinations and waiting for the beginning of their national service.



## VISION

### **Helsinki Region 2050 – Cool & the most Vibrant region in Europe**

Why would we like the Helsinki-Uusimaa Region to be the coolest and most vibrant region in Europe in 2050?

That's because it means that it will be cool to live in the Helsinki-Uusimaa Region, where everything works. We will use coolness to attract tourists to enjoy cool and less sweaty summer days in the Helsinki-Uusimaa Region. Instead of allowing the climate to warm up, we will have managed to join forces to respond to climate change and successfully entered an era of climate-awareness and carbon-neutrality. Vibrancy stems from active, energetic and enterprising inhabitants. We will pioneer technological development and several future fields, which require vibrant brains and

seamless team play. The region will be buzzing with life amidst urban pulse and the peace and quiet of the countryside. We will always be awake, seizing on new opportunities and innovations with confidence and curiosity. We will be ready to help each other and come up with new ways to ensure that no inhabitant of the Helsinki-Uusimaa Region is left to their own devices. The vision 'Helsinki Region 2050 – Cool and the Most Vibrant Region in Europe' applies to the entire region. In international terms, Helsinki is the most well-known city in the region, which means that it is natural to use it as the flagship of our international marketing efforts.

That's why we want to be the most vibrant and coolest region in Europe in 2050.

# STRATEGIC PRIORITIES

The strategic priorities of the Helsinki-Uusimaa Regional Programme (Figure 11) are *Human Wellbeing and Competence*, *Successful and Responsible Business*, and *Climate-aware and Diverse Region*. The objectives determined for each priority can be used to consolidate the wellbeing of the inhabitants of the Helsinki-Uusimaa Region and the success of the region, regardless of which of the scenarios identified in the future analysis

carried out in 2016 as a basis for the Regional Programme the future seems to be taking.

*Open-minded Partnerships and Operating Models* and *Science, Art and Technology* form the Programme's cross-cutting themes. These themes feature prominently in the descriptions of objectives included under each priority and in the measures through which the objectives will be implemented.



Figure 11: Strategic priorities for 2018–2021.



### **Human Wellbeing and Competence**

Inhabitants of the Helsinki-Uusimaa Region are active participants, whose involvement is supported by the Regional Programme. Human wellbeing is built on knowledge and skills that competent, open-minded and well-educated inhabitants of the Helsinki-Uusimaa Region will require in the future. It is also important to understand global diversity as a strength by increasing diverse services, such as English-language daycare centres and schools and employment services for immigrants. The largest region in Finland must have the best standard of wellness services, while inhabitants need to play an active role in promoting their own wellbeing. From the perspective of regional inhabitants, it is very important to reinforce and maintain their sense of security by means such as community spirit.



### **Successful and Responsible Business**

This priority is based on vital and responsible business activities. New technologies are used to pursue sustainable growth and exports. International competence and investments are seen to be highly important in terms of regional success. One of the primary objectives of the Helsinki-Uusimaa Regional Programme is to attract more international experts and investments to the region during the programming period. Smooth, easily accessible and reliable public services and high-quality infrastructure form the basis for business activities and people's lives.



### **Climate-aware and Diverse Region**

The Helsinki-Uusimaa Region aims to become a carbon-neutral region. Natural assets, biodiversity and positive experiences, complete with nature conservation, form part of a diverse region. Keeping the region safe and sustainable is key in terms of basic needs, quality of life and regional attractiveness. Furthermore, mobility and transport – both domestic and international connections – will also be addressed.

# OBJECTIVES AND MEASURES

The work to formulate the objectives and measures of the Helsinki-Uusimaa Regional Programme was steered by the outcomes of the Future Analysis completed in 2016. In the sub-chapters below, the objectives and measures of each priority are described in detail. Figure 12 shows the objectives of each priority, forming the framework of the Programme.


<b>Vision: Helsinki Region 2050 – Cool &amp; the most Vibrant region in Europe</b>			
<b>Strategic Priority</b>	 <p><b>Human</b> Wellbeing and Competence</p>	 <p>Successful and Responsible <b>Business</b></p>	 <p>Climate-aware and Diverse <b>Region</b></p>
<b>Objectives 2018-2021</b>	<ul style="list-style-type: none"> <li>• Competent Future Inhabitants</li> <li>• Strength through International Connections</li> <li>• Best Wellness Services, Active Inhabitants</li> <li>• Safety and Security through Solidarity</li> </ul>	<ul style="list-style-type: none"> <li>• Growth and Exports through New Technologies</li> <li>• Business from Circular Economy</li> <li>• International Competence and Investments</li> <li>• Vitality from Start-ups and SMEs</li> </ul>	<ul style="list-style-type: none"> <li>• Carbon-neutral Helsinki-Uusimaa Region by 2035</li> <li>• Safe and Sustainable Helsinki-Uusimaa Region</li> <li>• Positive Experiences and Care from Nature</li> <li>• Easy and Reliable Mobility</li> </ul>

Figure 12: Vision, strategic priorities and objectives.



## Human Wellbeing and Competence

In the course of time, technology and work have undergone numerous thorough upheavals, but basic human needs have not changed greatly. The current change is driven by digitalisation, automation and other technological development, as well as globalisation. In the background there is also climate change, which accelerates and channels

the development of technology and the changes in people's lifestyles. The change brought about by them has been compared with that caused by industrialisation.

Changes will be seen in particular in the supply and demand of labour and the contents of work, as well as in organisations, practices at work and

competences, which will directly affect the wellbeing of people in the Helsinki-Uusimaa Region. It has been anticipated that the national economy, forms of economic activity and social security will also change. The goal of the Helsinki-Uusimaa Regional Programme is that, despite profound changes, the inhabitants of the region will be well and possess the kind of skills and knowledge that will help them to succeed even in the future. Change is often seen as being inescapable; still, in the Nordic countries, the polarisation of the labour market, the splitting of work into 'good' and 'bad' jobs has been less evident than elsewhere in Europe.

The Helsinki-Uusimaa Regional Programme responds to the revolution described above through four objectives. *Competent Future Inhabitants of the Helsinki-Uusimaa Region* aims at ensuring that inhabitants of the Helsinki-Uusimaa Region will possess skills needed in the future, whether related to technology, social interaction or the capability for empathy. An adequate level of general knowledge prevents negative attitudes stemming from ignorance and will help inhabitants of the Helsinki-Uusimaa Region to assess the reliability of the information that they acquire. As the most international of Finnish regions, the Helsinki-Uusimaa Region aspires to a mindset where plurality and a *lively and international environment are strengths*, and responsible attitudes are part of daily life. To enable the continued prosperity of its inhabitants, the Region must provide the *best wellness services and encourage inhabitants to be active*. Among other things, this objective stresses the inhabitants' capability of looking after their own health, using new digital devices and applications. The objective Security through Solidarity strives to prevent loneliness and ill-being. The principal cornerstone here is a sense of community, which may be either physical or digital.



## 1. Competent Future Inhabitants

The structures of society are undergoing thorough change, which causes uncertainty among everyone, especially the young. Young people's confidence about their future, job opportunities and coping at work have deteriorated in recent years. As the character of paid work is changing, the ways in which people integrate into society and their relationship with it also change. However, in the future, the building blocks of identity may be more varied and based on a greater variety of meaningful activity. As old sectors of business lose their significance, new occupations and sectors are created by the revolution of technology and work. For its own part, the regional anticipation of educational needs has ensured that provision of education corresponds better to labour needs in the Region.

Lifelong learning is necessary if Finns are to be adaptable and capable of updating their competences and learning new ones. Adaptability also involves the capability to identify one's skills and competences, as well as to market and utilise them. Being proactive in such things as embracing new technologies will help the inhabitants of the Helsinki-Uusimaa Region to become competent citizens of the future. However, it must be ensured that, regardless of age, language or other factors, all groups have access to digital services and that assistance in using web services is available.



**Almost 47% of young Finns are concerned about their future job opportunities, and 34% are concerned about their ability to cope in working life (Myllyniemi 2017).**

In order to succeed in the labour market of the future, people must possess and acquire skills related to social interaction, problem-solving and empathy. New skills must continuously be acquired in order to keep abreast with changes in working life. Lifelong learning may also help to prevent social exclusion. Changing working life requires short-term experiments that support lifelong learning, retraining and upgrading of qualifications. Changing careers will be made easier: the adult education currently available often focuses on improving existing competences, instead of preparing adults for completely different occupational fields. The needs of elderly and less educated employees must also be borne in mind.

In a global and changing world, things are becoming increasingly complex. An adequate level of general knowledge is important for understanding far-reaching developments, path dependences and emergent phenomena. Significant among these are the changes in work and in the revenue-generating model. Problem-solving skills and general knowledge, in addition to substance-related competences, are crucial for the employment success of individuals. Adequate general knowledge may also prevent preconceived attitudes towards immigrants and minorities and support a balanced and equality-driven development of society.

Comprehensive school gives everyone the opportunity to learn, to acquire a range of skills and general knowledge and to create a basis for future competences. The ability to learn to learn will be particularly significant in the future. The results of the most recent PISA study show that differences between regions have increased and that boys in particular have done less well than before. It is important to reduce the gaps between genders and regions, to ensure that as many young people in the Helsinki-Uusimaa Region as possible have the skills and information needed for integration into working life and society. The innovative capabilities of children and young people, as well as their deductive capability, creativity, commitment and goal-orientedness can be strengthened through leisure pursuits related to culture and sports. Safe and healthy learning environments support learning and development of competences. This means that indoor air problems need to be solved.



## Measures:

1. Safeguard equitable and high-quality educational pathways for everyone, regardless of place of residence, family background, financial situation and gender.
2. Strengthen lifelong learning and opportunities for retraining and upgrading qualifications.
3. Support the ability of individuals to identify, develop and market their personal competences. Promote the appreciation of the general and social skills needed in all areas of society and their utilisation in the labour market.
4. Promote co-operation between all actors in solving indoor air problems in public buildings (particularly schools) in terms of both renovation and new construction.
5. Strengthen the capability of individuals to acquire competences and information and to assess its reliability; strive for a high level of general knowledge.
6. Support high-quality infrastructure of teaching, education and research, to create an environment that is attractive to international and national experts and students.
7. Identify emerging sectors of business and support learners of various ages to specialise as top-level experts in them.
8. Encourage the third sector to provide support for using digital services.

***“Plurality and absence of exclusion in society and working life are of crucial importance if Finland is to be perceived as being attractive by skilled labour and international students.”***

*Jari Gustafsson, Permanent Secretary,  
Ministry of Economic Affairs and  
Employment*



## 2. Strength through International Connections

Even in the future, Finland will continue to become more international. It has been estimated that during the next five years, about 90% of those who arrived in Finland in 2015–2016 and were deemed to need international protection will settle in the Helsinki Metropolitan Area. International and multicultural actors will add to the vitality of the Region. The variety of characteristics related to ethnicity, language, world view, religion, sexual identity or any other personal aspect are part of daily life in the Helsinki-Uusimaa Region, whether we speak of services, neighbourhoods, day-care centres, schools, workplaces or leisure pursuits. Internationality can best become a strength for the Helsinki-Uusimaa Region if all present and future inhabitants comply with the rules of democratic society and respect each other.

To be successfully integrated, it is important that immigrants learn Finnish, complete an education and are able to find work and accommodation. Those who have moved to Finland as a result of



**It is forecast that in 2030, one quarter of the inhabitants of the Helsinki Metropolitan Area will be non-native speakers** (Helsingin kaupungin tietokeskus [City of Helsinki Urban Facts] 2016).

marriage, other family reasons or work often have no access to integration measures and consequently need special support. Equality between immigrant men and women must be promoted in particular, so that immigrant women also learn the language, complete an education and find jobs. Successful integration provides immigrants with the information and skills needed in society and working life, while also supporting their opportunities for maintaining their native language skills and cultural heritage. Education targeted at immigrants must be developed so that any work-related skills and competences acquired before arrival in Finland are used to facilitate their learning and employment opportunities. People should not only be viewed as recipients of services and measures, but also as active inhabitants and makers of our common future.

Diversity is a strength, though the fears and threats perceived as related to it must not be belittled. Fear and hate must and can be fought against by improving the employment opportunities and integration of everyone living here. Perceived social disadvantage increases negative feelings and thoughts about diversity and immigrants in particular. Strengthening the feeling of community and the opportunities for civic activity can help to mitigate preconceived ideas about encountering differences.

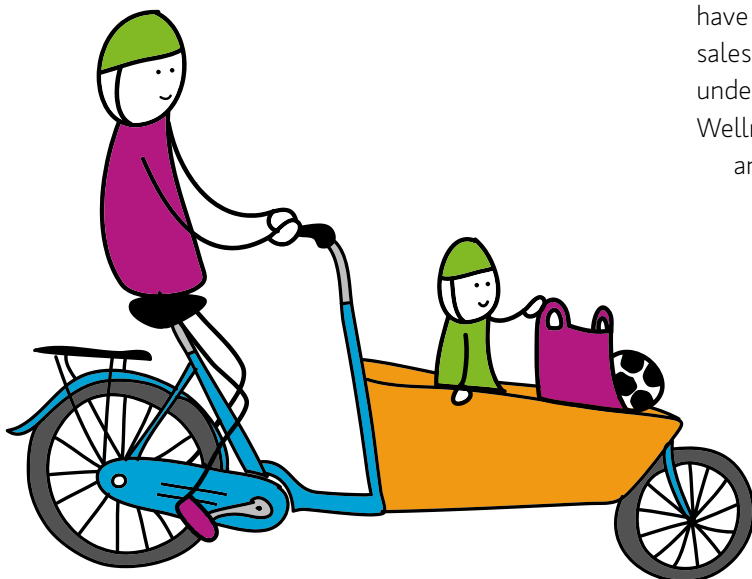
Creating an equitable and sustainable mindset will be possible, if different population groups do not feel that they are losing their position or being excluded from society. A mindset that fosters the inclusion of everyone can create unforeseen opportunities. International reviews have also recognised equality as being one of the strengths of our Region. The inclusion of all inhabitants will be further enhanced under the smart specialisation theme 'Citizen City'.

Different personalities and communities must be given space and freedom. Plurality may come across as inefficiency, but it is often more conducive to creative and innovative communities, new innovations and practices than is the case with intolerant communities. A knowledge-hungry and diverse metropolitan area is the best platform for innovation and creativity. Out of the businesses in the creative branches in the whole of Finland, about one half are located in the Helsinki-Uusimaa Region, as are the most significant national and other institutions of arts and culture. The wide variety of people and communities, as well as the diverse urban and rural environments, foster experiments where it is also permissible to fail.



### Measures:

1. Promote activities striving for dialogue between groups and individuals, for mutual respect and jointly implemented solutions.
2. Ensure a sufficient and diversified provision of education for immigrants, in order to facilitate their integration into the labour market.
3. Support measures to promote the equality and integration of immigrants.
4. Support new ways and means by which immigrants (particularly women) can learn the Finnish language and learn about Finnish culture as rapidly as possible.
5. Promote experiments emerging from curiosity and creativity and relying on a rich cultural heritage, which may lead to innovations, new cultural forms and cultural entrepreneurship.



6. Ensure that the services and other provision in the Region are sufficient to allow the integration of international experts and learners into the Region.



### 3. Best Wellness Services, Active Inhabitants

At the start of 2020, Finland will adopt a new system of health and social services, after which local authorities and hospital districts will no longer function as organisers and providers of these services. Responsibility for organising health and social services will be handed over to the new regions. Opportunities for the private and third sectors to act as service providers will improve.

Healthcare and medical services are developing rapidly. New forms of treatment, healthcare technologies and pharmaceuticals become available thanks to systematic, long-term research. Top-level research (basic research, applied research, registers, bankbooks, academic research, research in collaboration with businesses) is a prerequisite of medical and commercial breakthroughs.

Publicly funded healthcare is based on research, research-based information and impact. Cost-containment in healthcare is necessary, as public-sector margins are expected to be tightened further. Moreover, with the ageing of the population, the need for care services increases and new, more expensive treatments become available. We are in a good position to develop new healthcare technologies and treatments. Owing to the restricted size of the domestic market, these sectors have initially targeted their development and sales efforts at international markets. Measures under the smart specialisation theme 'Health & Wellness' will accelerate the international business and networking of actors in the healthcare

sector. As an example, making use of AI and large-scale analytics of health data will lead to more accurate diagnoses and accelerated treatment pathways.

The continuous improvement of competences and care outcomes leads to savings and improves health. The new healthcare technologies have substantial potential, but in addition to determining their

impact, financial resources to enable the use of the new treatments must be found.

The unique and developing health data resources must be brought into practical use in the Helsinki-Uusimaa Region. Citizens have the ownership and right of use of their personal health data, while also being jointly responsible for allowing valuable data entities to be created and used more effectively for the common good. As an important generator of information, the Helsinki-Uusimaa Region has every reason to support the development and coordination of information structures. Healthcare and social welfare data and analyses of it may increase impact and make more efficient use of resources. Among other things, this will make it possible to respond to the increasingly diverse customer needs created by immigration and to develop services to benefit inhabitants.

The continued provision of high-quality healthcare and medical care will be possible if healthcare resources are targeted sensibly. An active population that looks after its own health will also contribute to saving resources in healthcare. Looking after one's own wellbeing is a natural part of the daily lives of well-faring people. Active promotion of personal health is possible when one is sufficiently in control of one's life. To achieve this, we need structures that promote the health of those in the weakest social position and diminish health inequalities. The causes of health inequality must be dealt with by combating factors that cause social inequality. In particular, these include exclusion from education and work and the shortage of reasonably priced housing. In addition to adequate life management, every one of us needs close personal relationships at all stages of our lives. In the Helsinki-Uusimaa Region, particular

attention is focused on 15–24-old boys and girls not in education, employment or training (NEET).

As elsewhere, the most common chronic diseases and conditions in the Helsinki-Uusimaa Region are due to an excessive intake of energy, excessive use of alcohol and too little physical exercise. An appropriate lifestyle can prevent the occurrence of diabetes, cardiovascular diseases, memory disorders, mental health problems, locomotor diseases and cancers. Through preventing epidemics of modern chronic diseases and conditions, people's wellbeing will be improved, great financial savings will be achieved and healthcare resources can be targeted more effectively in future decades. Guidance, advice, information campaigns and health-promoting programmes and applications are known to reach the healthiest sector of the population better than the others. In future, healthcare technology, AI and digitalisation will make it possible for people to monitor their personal health and look after it more independently than before.

Everyday exercise is important for health and wellbeing, and it can be supported by high-quality infrastructure for pedestrians and cyclists, among other things. The opportunities and means offered by art and natural environments are also important for promoting wellness and health. Information about the health impact of natural environments and their necessity for human health has proliferated in recent years. The presence of unspoilt nature in the vicinity of settlements clearly reduces morbidity and thus also public expenditure.



***In the Jakomäki area of the City of Helsinki, the life expectancy of women is 6.2 years lower than in the Tuomarinkylä area and that of men 10.7 years lower.***

*(Kvartti 2015)*



#### **Measures:**

1. Support digital experiments that promote the smooth operation and human orientation of social and healthcare services and save resources.
2. Promote seamless service pathways of social and healthcare services in the Region.
3. Reduce health inequality by dealing with its underlying factors. Encourage local authorities to ensure that as few residents as possible are excluded from education or work and, especially in the Helsinki Metropolitan Area, that the availability of reasonably priced housing is significantly increased.

4. Support all activities to help young people leaving comprehensive school to enter further education or become integrated into working life, in order to prevent social exclusion.
5. Encourage researchers, the Region, local authorities and the business sector to establish open-minded partnerships and to strive for health-promoting innovations and medical breakthroughs.
6. Support inhabitants with monitoring and promoting their own health by means of healthcare technologies.
7. Encourage inhabitants to adopt good lifestyles by highlighting the enjoyment available from physical exercise, culture and healthy nutrition, and the recreation provided by natural environments.

#### **4. Safety and Security through Solidarity**

Solidarity equals a sense of community, caring about one's neighbours and caring for the weakest. A sense of community makes it easier to become integrated into society. Being part of a community also involves meaningful interaction and a sense of belonging, all of which creates a basic sense of security. Communities may be local, based on the environment in which one lives. On the other hand, they may rely on leisure pursuits or domestic or international contact networks related to work. Strengthening civic society and volunteer activity is an important part of the wellbeing of inhabitants of the Helsinki-Uusimaa Region. Communal activity often also leads to the discovery of new ways of doing things.

The net migration rate of the Helsinki-Uusimaa Region is positive, and it is particularly important for those moving into the Region to find meaning, stability and security in their new environment. Strong local cultures also support the shaping of the identity of inhabitants, especially of children and young people. Loneliness is a prevalent problem among people of various ages and characteristics; overcoming it is a central goal in increasing solidarity and strengthening a sense of community. Communities are often formed around shared interests, such as leisure pursuits, neighbourhood or residents' associations or voluntary communal projects. There also exists plenty of experience



**Nine percent of the inhabitants of the Helsinki-Uusimaa Region experience loneliness fairly often or continuously** (THL [National Institute for Health and Welfare] 2017b).

of dining rooms shared by day-care centres and elderly services, supported collective housing or neighbourhood living rooms.

The differentiation of lifestyles and virtual communities have created opportunities for new experiences of communality. Social media, mobile applications and new technological solutions challenge traditional face-to-face encounters, while at the same time creating a new kind of digital communality. This can be used to construct new modes of activity and connections between people, public administration and businesses, for example. Digital communities are important environments for the young in particular. There is an increasing need for digital platforms that foster a sense of community and solidarity. In future, cities and towns can also function as digital platforms, enabling communities that combine digital and face-to-face encounters.



#### **Measures:**

1. Promote co-operation and shared activities among different types of individuals, communities and groups.
2. Encourage local authorities to offer diverse, low-threshold facilities for leisure pursuits and spaces where residents can meet each other in various community-enhancing ways.
3. Encourage local authorities to strengthen their role as creators of civic society, local democracy and local identity.
4. Support peer and volunteer activity to promote social inclusion and a sense of community and to increase the inhabitants' social capital.
5. Develop and utilise digitally assisted platforms available in the market that support a sense of community and also enable face-to-face meetings. Strengthen people's sense of security by supporting activities that promote a sense of community and belonging as well as social interaction.



## Successful and Responsible Business

Entrepreneurship and the entrepreneurial spirit embody the capability and willingness to take risks. Among others, the economist J.A. Schumpeter considered entrepreneurship, technological development and innovation to be the most important factors of economic growth and development. His research and opinions have been widely discussed since the 1990s, as innovations and innovation

policy have become a topic in economic debate and societal development. A successful entrepreneur must be alert and prepared for continuous change. Creative destruction and innovations prevent excessive stagnation and foster change and development. Active innovation measures are a means for businesses to succeed despite continuous changes in the markets and conditions.

Current innovation researchers, notably Mariana Mazzucato, have introduced the concept of 'entrepreneurial state' to highlight the importance of government institutions and innovation policy for development of technologies in the United States, for example. Innovation debate must also be extended to cover actors in the public sector, for entrepreneurship is not limited to start-ups and risk capital alone. It is an essential aspect of entrepreneurship that economic actors, including the state, regions and local authorities, are willing and able to take risks when striving for a better future.

After the regional government reform, the Helsinki-Uusimaa Region will be a substantial actor capable of influencing innovation activities within its boundaries. Should it so wish, the Helsinki-Uusimaa Region could be an 'entrepreneurial region', showing that a public organisation can lead the way, act as a long-term investor and also steer in other ways the development of services and business entities in the healthcare and social welfare sector, for example. The Region will be able to shape the competitive environment and act as an innovator alongside private businesses and as their partner. In addition, investments made by the Region may be of great significance for economic growth and renewal within its boundaries. Innovative purchases by the Region may challenge businesses to develop new, high-quality and cost-effective solutions. An entrepreneurial Helsinki-Uusimaa Region may promote successful and sustainable business activity by adopting an open and innovative outsourcing policy, especially as regards health and social services. Together with the projected Joint Municipal Authority for Growth Services, it can also promote service and technology innovations in many sectors.

The Helsinki-Uusimaa Regional Programme contains four objectives for constructing an entrepreneurial and innovative region. The first of these is *Growth and Exports through New Technologies*. The second objective focuses on creating *Business Activity from Circular Economy*. These objectives particularly highlight innovations and new technologies. The two other objectives focus on attracting *International Experts and Investments* and on *Vitality from Business Activity* in the Helsinki-Uusimaa Region. They strive to promote a new, entrepreneurial Helsinki-Uusimaa Region.

## 5. Growth and Exports through New Technologies

The success of businesses in the Helsinki-Uusimaa Region will increasingly depend on the production of goods and services with a high added value, as well as on marketing and, frequently, on creating new demand. To be successful, the potential of the ongoing extensive technological revolution must be thoroughly and rapidly utilised. The adoption of new technologies and services will give the Helsinki-Uusimaa Region excellent opportunities to become an international leader. Active international cooperation within science and applied research as well as at the forefront of product development will create a competitive advantage in technology and assist in making technology-related choices. Strong international partnerships and networks also foster the ability to develop global exports competence, which will be crucial for expanding the exports of services in particular. New services and technologies are utilised to create growth and exports that will be significant for Finland as a whole. In future, the exports of services will be the most important growth business.

One of the leaders of industrial development is Germany, where the concept Industrie 4.0 is used to describe the digitalisation of production, in other words, a network of smart objects. The machinery, equipment and processes of industry are interconnected via the internet. In this way, the Internet of Things (IoT) expands the operation of physical products or production lines. Thanks to real-time links, it is possible to steer and control production, maintenance, transport and other processes in the way of games. This is linked to



### **Healthcare technology**

- **has experienced strong growth**
- **total exports of the sector from Finland over EUR 2 billion in 2016**
- **compared with the previous year, growth of nearly 10%**

(Tekes [Finnish Funding Agency for Technology and Innovation] 2017)

the Helsinki-Uusimaa Region's smart specialisation theme 'Digitalising Industry'. As an example, this could mean a proactive system which informs the user when to change a tool, change the order of tasks or place an order for materials. A smart system also anticipates the development of demand and generates information to be used in production planning. This improves efficiency and transparency and reduces dependency on individuals. Thanks to networking, businesses are more capable of utilising ideas coming from outside.

Digitalisation enables changes in manufacturing technologies, service channels and value chains in most sectors of industry and services. At a slightly longer range, blockchain technology will change several established business operating models and sectors, such as the financial sector, for which data security is of the utmost importance. Artificial intelligence, machine learning and robotics are developing at an unprecedented rate. The Helsinki-Uusimaa Region must make sure that it has the capabilities needed, not only in terms of the utilisation of technological opportunities, but also in terms of managing the resulting changes in working life and working practices. In this respect, the Region will need the ability to solve a new kind of ethical issues. It must be ensured that decision-makers and citizens possess the necessary abilities to take part in the debate on future directions, value base and choices.

In healthcare services, an important need for change is related to moving the focus from treating diseases to the preventive promotion of health. Healthcare will increasingly focus on services and patients, while frequently becoming more individualised than today and capable of utilising many sources of information effectively. At the interfaces of digital healthcare, a significant number of business opportunities will be created, such as those related to self-administered care and the measuring activity required for it, diagnostics, utilisation of genome data and clinical data sets, development of health data security, home care services, services for family caregivers and the development and commercialisation of various e-service solutions. In order to be successful, the structural reform of health and social services requires new tools for data management and analysis, as well as the flexible adoption of new technologies. New systematic practices are needed,



so that the best healthcare and wellness technologies developed in the Helsinki-Uusimaa Region may be tested in service units locally, which will assist businesses in the Region to grow and become more international.

Digital platform economy is a growing opportunity. A platform is a new marketplace for goods and services. Within a platform, not only businesses, but also other organisations and individuals will be active, perhaps leasing out their property, for example. In parallel with conventional modes of operation, platform economy will provide flexible models of business operations and income-generating opportunities. This will diversify the range of services and give the consumer more choices. However, not all forms of platform economy are problem-free. New revenue-generating models, in particular those based on moving the risk from the business to the employee, will require new rules to be developed by society. The new means of earning created by platform economy must be supported, but at the same time, it must be ensured that they can be used without problems to complement or replace the income from conventional paid work. Furthermore, moving between the roles of entrepreneur and employee must be enabled in the digital economy. Platforms generate potential for a new creation of value, but this requires the availability of services that combine, analyse and interpret data flowing through the platforms. The business activity in a platform economy must be

constructed with genuine customer orientation, to respond to the needs of customers and businesses. The wellness and healthcare sector, circular economy and mobility as a service (MaaS) are sectors in which actors in Finland and the Helsinki-Uusimaa Region possess particular strengths in international competition.



### Measures:

1. Support technological development and innovations which promote growth and exports.
2. Strengthen the reputation of the Helsinki-Uusimaa Region as a uniquely creative region which views technology favourably and is confident about its future.
3. Promote international technology partnerships, co-operation and networking of businesses, research agents and the public sector.
4. Improve the capabilities of businesses to utilise the potential of digitalisation in developing their activities.
5. Support implementation of the national research and innovation strategy via the strengths of healthcare actors and university and research sector in the Helsinki-Uusimaa Region, and invest particularly in the networking, competences and growth of start-up businesses in the sector.
6. Encourage different actors to cooperate in the development of digitally assisted platforms. A good platform economy is based on strengthening the ecosystems. Dynamic processes and innovative, de-centralised and diverse production of services are crucial.
7. Make special efforts to solve ethical issues arising out of the use of new technologies.
8. Develop sectors of industry towards more diversification to reduce economic vulnerability.



**Circular economy offers annual growth potential of up to EUR 2.5 billion for the Finnish national economy by 2030**

(Sitra [Finnish Innovation Fund] 2014).

***“There are about 250 recycling depots in Finland. Would it be possible to develop and expand their activities to cover maintenance, repair and re-manufacturing - in other words, increasing the added value of materials brought to the depots? In this way, recycling depots would be developed into centres of circular and sharing economy.”*** Lauri Ihalainen, Verkkouutiset, 31 July 2017

## 6.

### Business from Circular Economy

The economic model of circular economy as well as smart and clean technology solutions open up opportunities to adapt to and make use of the move towards a post-oil era and the global sustainability crisis. The objective also embraces bio-economy and resource wisdom. New comprehensive bio-economy solutions create new business opportunities, while also partly eliminating the thinking of the post-fossil economy. The efficient use of resource streams, life cycle thinking and service-based business activity utilise digitalisation and smart technology and also promote private and public consumption in an environmentally sustainable way. The Helsinki-Uusimaa Region will start to reduce wastage significantly across the entire foodstuffs chain, providing a test platform for effective reduction actions. New ways of using sidestreams and waste fractions leading to higher added value will be sought.

Clean technology (cleantech) refers to productions, services, processes and technologies that promote the sustainable use of natural resources and reduce negative environmental impacts. It is one of the strongest-growing sectors in Finland, and its potential and markets around the world (especially in rapidly industrialising countries) are enormous. The Helsinki-Uusimaa Region, and especially the Helsinki Metropolitan Area, are being transformed into the world’s best test platform for smart and cleantech solutions. The best solutions generate successful business in Finland, and they





**In Finland, 90 million tonnes of waste are generated annually, out of which 54% is not repurposed or recycled** (Sitra [Finnish Innovation Fund] 2014).

may also be used as references on the growing global market. In the global market, cleantech solutions developed by Finnish companies may generate multiple environmental benefits compared with restricting their impact to Finland only. A good example of this is the circular economy centre in Kilpilahti, Porvoo, which is a world-class facility and an important development agent in the sector in terms of solutions for both circular economy and cleantech.

In order to accelerate the search for cleantech solutions, the Finnish government and the Helsinki Metropolitan Area have agreed a growth pact. To achieve the goals of the pact they have set up the Smart & Clean Foundation for a fixed period. The purpose of the foundation is to develop and plan smart and ecologically advanced solutions and services that can be used as international references in the Helsinki Metropolitan Area and its vicinity. The deadline for the work is 2021 and the solutions should answer the needs of public administration, businesses and citizens. Businesses, towns and cities, the Government, research institutions and universities are committed within the foundation to achieving significant results. The Smart & Clean Foundation implements the smart specialisation theme 'Urban Cleantech' in the Helsinki-Uusimaa Region.

The significance of agriculture and forestry and the sensible use of renewable natural resources will also continue to increase in importance. Rural areas are important for the circulation of nutrients and raw materials. In order to strengthen circular economy, a good and functional cooperation with landowners is particularly important.

The Helsinki-Uusimaa Region strives to increase business activities based on circular economy and resource efficiency. It is especially desirable for large companies to launch projects aiming at the generation of bio- and renewable energy.

The efficiency of local authorities and companies can be improved by sensible use of resources. Sharing economy, energy efficiency and cooperation between companies and residents to save raw materials is a critical success factor. With a resource-wise operating model, local authorities can support the local economy by creating business opportunities that lead to new jobs and improve the wellbeing of residents and the environment. The Helsinki-Uusimaa Region will help to remove obstacles to cooperation between circular economy projects, companies, service pathways, innovation networks and authorities, and support pilot environments. We will also make sure that public services are developed in a direction that facilitates circular economy. The land use planning of local authorities can improve the infrastructure required by circular economy.



### Measures:

1. Identify and implement resource-wise solutions and seeds of circular economy (including bio-economy) and cleantech which are financially profitable and innovative and have the potential to reach international scalability.
2. In cooperation between various actors, develop new modes of operation that promote smart and environmentally friendly technology.
3. Support the development of operating environments for sizeable circular economy clusters.
4. Support cooperation, networking and open exchange of information between business life, local authorities and the research sector, to develop circular economy and the sustainable use of natural resources.
5. Apply the principles of circular economy in the operation practices and procurement of the Region.





**“Finland will only be successful in global competition if we increase our attractiveness to foreign businesses and leading experts.”** Jan Vapaavuori, Mayor, City of Helsinki



## 7. International Competence and Investments

To succeed in the global economy, the Helsinki-Uusimaa Region must make use of internationalisation competences and investments in order to make the region more competitive. International investments will strengthen business activity in the Helsinki-Uusimaa Region and make it more international, while also increasing innovation, experimentation and development activity.

Foreign experts with a tertiary education and Finnish returnees with international work experience can contribute significantly to business life in the Helsinki-Uusimaa Region. The experience that international experts have in different markets, their knowledge of target audiences and their international networks are important tools for promoting exports and for attracting investors. Businesses must be encouraged to recruit personnel whose knowledge of the official languages of Finland is not yet perfect. Together with local universities, the region must take measures to ensure that international students can increasingly

find jobs in local businesses after completing their degree. The residence permit process should be simplified and accelerated so that non-Finns with degrees from Finnish universities can find employment in the region more easily.



### **Foreign university students in the Helsinki-Uusimaa Region in 2016**

- Bachelor's- and Master's-level degrees: total number of students 2,944; new students 710; degrees completed 598

- Doctoral degrees: number of students 1,543; degrees completed 175

(Opetushallinto [Finnish National Agency for Education] 2017)

The high-quality infrastructure and public services, health care and social welfare services and education services, the transport network, land use planning and permission procedures, maintenance of green spaces and their easy accessibility form an environment that is attractive, safe and predictable both for companies and for international experts. Despite these draw factors, the volume of international investments and the number of international experts in Finland is lower than in other comparable countries. General awareness of a city and its image contribute to whether a region is attractive to international experts and investments. Increasing the number of English-language schools and daycare centres in the Helsinki Metropolitan Area, for example, may make the region more attractive. As businesses in the Helsinki-Uusimaa Region learn from their international peers, especially in areas like brand development and marketing, their competitiveness will be enhanced and experts will be encouraged to relocate here. In terms of major markets, such as China, developing a Nordic joint market towards major markets will also make the region more interesting and attractive. In the long run, all these will increase the volume of international investments in the region.

Helsinki Airport is important for attractiveness and transport in the Helsinki-Uusimaa Region. It is a symbol of the metropolitan area and a gateway to international markets. It is also a special regional centre - as an employer, a transport hub and an image factor whose impact reaches an extensive area. In terms of flight connections, the accessibility of the Helsinki-Uusimaa Region is very good in relation to the size of its population. The logistical position of the Helsinki-Uusimaa Region with its good flight connections to Asia must be utilised more fully, and the region must be marketed to Asian businesses as a gateway to European markets. The Port of Helsinki supports industries and prosperity in Greater Helsinki and Finland as a whole. The value of goods passing through it is about 50% of the total value of Finland's marine transports, and its share of passenger traffic through Finnish ports is 79%. Kilpilahti harbour is the busiest international freight harbour in Finland. In 2016, about 12.5 million tonnes of goods were brought in and about 9 million tonnes were exported through here.

Despite recent fluctuations, the potential for



***Of all international investment projects in Finland in 2016, 70% were targeted at the Helsinki-Uusimaa Region (EY 2017).***

trade with Russia and its importance to Finnish foreign trade should not be forgotten. Rail and road connections have improved and the volume of traffic to Russia has again taken an upward turn. The budding growth of trade with Russia is a real opportunity for businesses in the Helsinki-Uusimaa Region.



#### **Measures:**

1. Invest in cooperation between the Helsinki Metropolitan Area and regional actors to promote international marketing and attract investments.
2. Encourage all organisations to recruit international experts and to utilise the expertise of inhabitants with international experience.
3. Set up a regional fund to support degree students from outside the EU and the EES to offset tuition fees.
4. Strengthen cooperation with the Stockholm, Oslo and Copenhagen regions, especially in the cleantech sector, to create interesting investment opportunities for the Asian market in particular.
5. Highlight flight connections to Asia in order to promote exports and to attract investments and tourism.
6. Support development of accessibility, trip chains and different modes of mobility at Helsinki Airport.
7. Invest in strengthening international awareness of the Helsinki Metropolitan Area when competing for investments and experts.
8. Make use of existing reports to assess the development needs of the Helsinki-Uusimaa Region with a view to attracting and integrating international experts. Pay particular attention to operations and quality of services.



### **High-growth businesses in the Helsinki-Uusimaa Region in 2015:**

- 42% of all high-growth businesses in Finland
- The number has increased by 10% since the previous growth period.
- During the growth period, the average employment growth has been 134% and turnover has grown by 119% (Suomen virallinen tilasto [Official Statistics of Finland] 2017)

and trade. At the moment, exports from SMEs mainly consist of industrial products. About one third of SMEs in the manufacturing industry export their products, while the corresponding share for trade and knowledge-intensive services is less than one fifth. The exports activities of growth-oriented enterprises is above average. This is particularly the case in the construction sector. In the technology sector, enterprises are attracted to global markets, especially when their products are world-class and production is scalable.

In recent years, the start-up culture in the Helsinki-Uusimaa Region has taken great strides and entrepreneurship has become an attractive option<sup>12</sup>. Factors affecting the rise of start-up entrepreneurship include universities and other establishments of higher education, as well as their dynamic student communities.

## **8.**

### **Vitality from Start-ups and SMEs**

There are about 280,000 business enterprises in Finland, and 99% of them are SMEs employing fewer than 250 people. In the Helsinki-Uusimaa Region, the number of SMEs is about 100,000, and here, as elsewhere in Finland, they play an important part in increasing employment and exports. For the future of enterprises, the supply of skilled and qualified labour is important. In the event of a significant return of manufacturing activities to Finland, demand for labour with vocational qualifications will increase even more sharply than currently. In addition, the Helsinki-Uusimaa Region should develop employment services for university graduates and invest in career counselling.

Special attention should be paid to enterprises that are oriented towards and capable of fast growth<sup>11</sup>. According to a recent report by the Ministry of Economic Affairs and Employment, the share of strongly growth-oriented SMEs out of all Finnish SMEs is currently about 11%. Compared with other SMEs, growth-oriented SMEs are more international and their share is increasing, particularly in the sectors of knowledge-intensive services

***"The greatest achievements of [the start-up and tech event] Slush are that it has created a new climate, brought Finland on to the investors' map of the world and fostered risk-taking. Small start-up companies do attract risk capital in Finland, but medium-sized, growth-oriented enterprises continue to have problems finding suitable investors. Not everybody meets the right people at Slush in November."***

*Ilkka Kivimäki and Miki Kuusi  
(Helsingin Sanomat 24.7.2017)*

<sup>11</sup> 'High-growth company' refers to a company with a minimum of 10 employees at the beginning of a three-year period that achieves an average annualised employment growth greater than 20% over that period (official definition from the OECD).

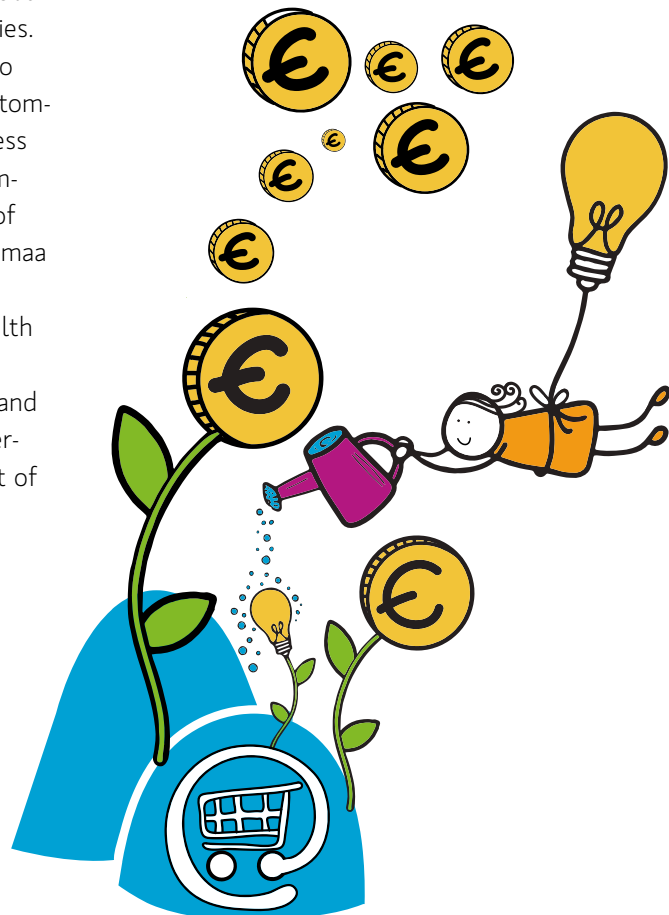
<sup>12</sup> 'Startup company' refers to a company established no more than a few years ago. An essential characteristic is to strive for rapid growth.

The availability of qualified labour and internationalisation are critical factors for the competitiveness and growth of both SMEs and start-up companies. Multiplying the international contacts of actors in the start-up ecosystem would attract international experts to the Helsinki-Uusimaa Region. Companies aiming for rapid growth also need capital in order to safeguard their growth internationally. Strengthening cooperation between regional and local investment companies at an EU level is advantageous for growth-oriented enterprises in the Helsinki-Uusimaa Region, and it would pay to foster networking of this kind. For early-stage investments, it is important to create tools for funding high-growth enterprises in the ICT sector, as well as those based on digital platforms and deep-tech enterprises based on research and technological development.

Business accelerators and incubators accelerate the growth of start-up companies and create new business. In the Helsinki-Uusimaa Region, accelerator and incubator activity is well under way, and continued support for this activity must be ensured. The goal is to double the number of early-stage start-ups in the Helsinki-Uusimaa Region. Increasing early-stage seed funding is crucial for the success of early-stage start-up companies. The public sector has excellent opportunities to support new companies by becoming pilot customers. Making use of open data thinking in business activities creates opportunities for start-up companies that are oriented towards and capable of fast growth. The strengths of the Helsinki-Uusimaa Region include mobility as a service (MaaS), cleantech and a broad competence base in health technology and digitalising health care. Open data structures can generate new innovations and business opportunities in both Finland and international markets. These strengths are also part of the smart specialisation strategy.

## Measures:

1. Support cities and towns, universities and research organisations in developing competitive start-up and technology concentrations.
2. Encourage public organisations to make bold and innovative purchases which will also open up opportunities for SMEs.
3. Promote early-stage funding for start-up companies and the international networking of actors in the start-up sector.
4. Support local authorities in identifying clusters in their SME sector and in strengthening their knowledge and information intensity.
5. Support participation in EU programmes among actors in the research and innovation sector in the Helsinki-Uusimaa Region.
6. Encourage actors to support innovative business activities in rural areas, with the aim of strengthening rural vitality.





## Climate-aware and Diverse Region

Each of us has a responsibility to look after our environment. The aim of the Helsinki-Uusimaa Regional Programme is to accelerate development of a climate-aware, diverse and sustainable region. The current joint regional objective is to achieve carbon neutrality in the Helsinki-Uusimaa Region by 2050. We may, however, make faster progress and set ourselves a more ambitious target. We aim at emission-free modes of transport that are the most attractive in the world, the smartest urban energy solutions and a pioneering position in environmentally positive construction. We also want the Helsinki-Uusimaa Region to have leading circular economy towns and resource-wise urban residents and businesses.

Industry, transport and housing are currently the greatest sources of greenhouse gases.

Carbon-neutrality is aimed at by developing energy solutions, transport, community structure and new and existing buildings, as well as by affecting the food chain and people's choices. Combating climate change requires a move to low-emission and renewable energy sources. Energy-efficient solutions are becoming more common both in mobility, housing and business activity. Being climate-aware also means paying attention to practices in food production, minimising food wastage and the choices that people make. Smart specialisation supports achievement of this objective, under the themes Urban Cleantech and Citizen City, among others.

Factors important for a diverse and sustainable Helsinki-Uusimaa Region include natural environments, waterways and security. In the regional

programme, security is discussed in terms of preparedness in particular. The Helsinki-Uusimaa Region needs to prepare for the effects of climate change, ensure the supply of food and water, look after groundwater resources and ensure cyber-security, in order that we may continue to be a *sustainable, secure and resilient region*. Biodiversity must be looked after in order to safeguard the preconditions of life on Earth. Nature also provides positive experiences for people and the importance of green spaces for carbon sequestering is increasing. Another important factor in this context is the availability of clean waterways. Nature is also a *draw factor*, when comparing the Helsinki-Uusimaa Region with other European regions. Changes in *transport and mobility* are discussed from the viewpoint of transport infrastructure projects, energy efficiency and low emissions.



## **Carbon-neutral Helsinki-Uusimaa Region by 2035**

The Helsinki-Uusimaa Region aims to be the first carbon-neutral region in Finland. With this in mind, the work to draft the Roadmap for a Carbon-neutral Helsinki-Uusimaa Region will begin in 2018. The roadmap will contain a more detailed and realistic goal, as well as bringing it closer, to the year 2035. Urban areas are in a key position in terms of achievement of climate goals. Among the local authorities in the Helsinki-Uusimaa Region, the following have set the goal of achieving carbon-neutrality by 2035 or earlier: Espoo, Helsinki, Vantaa, Porvoo, Lohja, Hyvinkää, the Raasepori sub-region (Hanko, Inkoo, Raasepori) and Siuntio. The areas covered by these local authorities include 80% of the population of the entire Helsinki-Uusimaa Region. This challenges and encourages all local authorities in the Helsinki-Uusimaa Region as well as other regions to join in the common effort to combat climate change. Being climate-aware means finding smart and economically sustainable solutions which strive to reduce greenhouse gas emissions and to promote development of a low-carbon, ecological society.

The move away from fossil fuels requires a long-term change to the energy system. The goal of the national energy and climate strategy is for the share of renewable energy of Finland's energy

***The Helsinki Region Environmental Services proposes a definition of carbon-neutrality in the Helsinki-Uusimaa Region that includes an 80% reduction of greenhouse gas emissions and offsetting the remaining 20% through other projects to reduce emissions or increase carbon sinks.***

consumption to be 38% in 2020, which requires an increase of 9.5 percentage points from the 2005 level by the year 2020. Important goals in reducing the carbon footprint of the Helsinki-Uusimaa Region are to close coal-fired power plants and increase the share of renewable and distributed energy in energy production. The Helsinki-Uusimaa Region is favourably placed to increase the use of solar energy and produce both solar electricity and heat, which may be used in both district heat production and distributed production. The district heat sector is also interested in the potential of geothermal energy, derived from deep underground. It is also important to promote new innovations and experiments in energy storage and evening out usage. The Helsinki-Uusimaa Region also has good potential for producing wind and bio energy. The operation permits of the Loviisa nuclear power plant will expire in 2027 and 2030.



***Most of the greenhouse gas emissions in the Helsinki-Uusimaa Region, which are about a quarter of those in the whole of Finland, come from heating buildings (36%), industrial use of fuels and industrial processes (29%), transport (21%) and electricity consumption (10%).***

*(Uudenmaan liiton tietopankki [Helsinki-Uusimaa Regional Council database])*

Discussions on the fate of the nuclear power plant must be started during the lifetime of the regional programme. At the same time, the impact of carbon sinks in the region must be determined.

The solutions adopted by the Helsinki-Uusimaa Region will have a significant impact on total emissions in Finland. The planning of land use and transport systems can be used to create preconditions for a low-carbon, sustainable built-up environment. The special characteristics of the Helsinki-Uusimaa Region - a sizeable population and the high population density of the Helsinki Metropolitan Area, universities and research institutions, diversified business activities, a dense transport network and strong pioneers of climate work among the region's local authorities and enterprises - can be used to combat climate change effectively and innovatively.

The most important solutions in terms of reduction of emissions are related to the structure and functionality of urban areas. A compact community structure is one way of improving sustainability in urban areas. Compactness means that jobs, housing and services need to be situated close to each other and form functional networks. The compactness of the community structure must be increased by infill development and

optimal utilisation of the existing building stock and infrastructure. Wood construction is becoming an image-enhancing draw factor. At best, it has a positive effect on living conditions, energy and resource efficiency, life span sustainability and health issues. Wood construction and landscaping may be integrated to create urban settlements that contain attractive, functional and eco-efficient neighbourhoods as well as complexes housing public service centres and even business and office premises. The Helsinki-Uusimaa Region has the potential to be a pioneer in modern wood construction. Thanks to a more compact community structure, urban settlements can become vital and communal, thus also serving surrounding rural areas.

Transport uses about 20% of the energy consumed in Finland, and its share has been increasing over the past few years. Greenhouse gas emissions from transport must be halved from the 2005 level by 2030. Reduction measures will focus on road traffic in particular, as this has the greatest potential for reduction. A more compact community structure encourages the use of public transport as well as moving about on foot or by bicycle. The traffic system must be developed to make public transport, bus traffic and particularly





rail traffic accessible and flexible. In future, smart traffic services, autonomous traffic and smart traffic control will revolutionise transport and mobility. For this reason, traffic planning must prepare for a new operating environment.

However, the increase in passenger car traffic will offset some of the benefits of improved energy efficiency, which is why passenger car traffic must partly be replaced by other modes, especially in the Helsinki Metropolitan Area. As low-emission vehicles, such as electric and hybrid cars, and biofuels become more prevalent, emissions from traffic will be reduced. Would it be possible to increase the number of low-emission vehicles by giving them advantages in terms of parking, allowing them to use lanes reserved for public transport and supporting construction of a network for electricity distribution and charging stations? In contrast to many other countries, Finnish law allows development of new modes of mobility, as it is possible to permit cars where the person steering the vehicle is not sitting in the driver's seat. The purpose of autonomous robot buses, currently

being tested, is to complement public transport feeder traffic and improve the existing trip chains even in remote areas.

Some responsibility for meeting emissions targets must also be delegated to businesses and the transport sector. As an example, the Porvoo refinery owned by the Neste company is a significant source of emissions in the Helsinki-Uusimaa Region. On the other hand, its production focuses on high-quality, clean transport fuels, such as biodiesel. It is also an important employer in the eastern part of the region and includes a research-oriented technology centre. The energy efficiency of Finland's international connections must be significantly improved, since Finland's geographical location makes it difficult to develop alternative modes of mobility. The main mode of transport in Finland is road traffic. Its energy efficiency must be improved in order for the country to meet its emissions reduction targets. Long-distance transport within the country should be moved from road to rail by combining loads at intermodal terminals. In addition to this, should freight transport be more stringently regulated to support low-emission traffic?

Responsible personal choices that take into account the entire life span of products and activities will save the environment and reduce consumption. Circular economy and resource-wisdom provide low-emission tools for enterprises. Public procurement can promote and support responsible choices and development of products and services. Through responsible choices, the public sector and enterprises can find and develop low-emission solutions that may find demand on the global market. The public sector can support experiments related to reducing food wastage, developing smart housing, energy efficiency in buildings and sensible and flexible mobility, for example.



**The sum used annually for public procurement is over EUR 35 billion** (VM/Kuntaliitto [Ministry of Finance/Association of Finnish Local and Regional Authorities])



## Measures:

1. Start drafting a new carbon neutrality roadmap in 2018, defining a more detailed and realistic goal and aiming to achieve it in 2035. For the roadmap, the Regional Council commissions researchers to model means of achieving carbon neutrality.
2. Promote production of low-emission and renewable energy, also bearing in mind sustainable bioenergy and the potential of waste heat.
3. Enable production of solar energy in suitable buildings and land or water areas, with special attention to areas poorly suited to other uses.
4. Look for means to increase the flexibility of the solar energy market.
5. Promote adoption of automotive technology based on renewable energy and low emissions.
6. Ensure that the regional land use plan and municipal land use planning, as well as the transport policy decisions of the Government, the regional state administration and local authorities promote opportunities to use public transport and other sustainable modes of mobility, by creating a more compact community structure and developing urban settlements supported by strong public rail transport in particular.
7. Support the use of renewable fuels, construction of charging stations for electric cars and sustainability in the procurement activities of businesses and the public sector.
8. Diversify housing production and increase provision of affordable housing, encourage local authorities to offer property developers and construction companies opportunities to try out new concepts which also strive for carbon neutrality. The new concepts must be systematically assessed.
9. Identify the potential of existing building stock and valuable building heritage in reducing CO<sub>2</sub> emissions in construction and encourage renovation based on sustainable methods.
10. Steer public procurement to sustainable choices. It can lead the way to creating a market for responsible commercial services and products.
11. Support initiatives from the Helsinki-Uusimaa Region that promote eco-efficiency and responsibility, from early education onwards.
12. Support cooperation between local authorities, research and development institutes and companies to develop housing estates, business premises and working environments into modern and functional entities in the spirit of sustainability.

## 10. Safe and Sustainable Helsinki-Uusimaa Region

Sustainable and secure, the Helsinki-Uusimaa Region is a region where we are prepared for extreme weather events, where water and food supplies are assured, where groundwater quality is under control and where attention is paid to risks related to occupational health and safety.

At worst, extreme weather events and their consequences (such as power cuts) may have widespread impacts on the lives of people in the Helsinki-Uusimaa Region. As climate changes, winters become warmer and rainier than before. There is less accumulation of snow; winter floods, formerly rare, become more frequent; and the risk of flooding from urban runoff increases. The situation may be exacerbated due to the densification of community structure. Heavy rain in the summer months may become more frequent. The rise in



**On the basis of climate change scenarios and reports by the Finnish Meteorological Institute, it is estimated that the sea level in the Gulf of Finland will rise by almost one metre by 2100, despite the post-glacial rebound.** (Ympäristöopas: SYKE, Ilmatieteen laitos, YM & MMM [Finnish Environment Institute, Finnish Meteorological Institute, Ministry for the Environment & Ministry of Agriculture and Forestry] 2017)

sea level due to climate change will considerably increase the risk of sea floods compared to the situation today. Local authorities in the Helsinki-Uusimaa Region, particularly the City of Helsinki, have long since started investing in protecting against and combating floods. Following the flood risk directive, the coastal areas of Helsinki, Espoo and Loviisa have been designated as areas of potential significant flood risk and plans for flood risk management have been drawn up for them.

Water supply is an indispensable service which is expected to be available without interruptions. In the Helsinki-Uusimaa Region it currently works well. The reliability of water distribution and sewage must be improved by constructing secured connections and reserve systems at critical points. To deal with disturbances, most municipalities have one or more water mains connections to neighbouring municipalities. Shortage of rain will deplete groundwater resources and cause problems for the procurement and supply of water. The groundwater areas in the Helsinki-Uusimaa Region are among the most heavily used in the country, as many extensive settlements are located in or near them. Not all groundwater areas have the good status required by the water framework directive.

Internal migration causes great pressures on land use in groundwater areas. Improving the status of groundwater areas sufficiently may require restoration and cleaning. More detailed information on the soil and groundwater conditions of groundwater areas must be obtained to serve the planning of improvement measures and land use. In addition, information is needed about the risks to groundwater from various activities and forms of land use, as well as on how to remove and prevent such risks.

The main challenges to the food system include safeguarding the profitability of primary production and diversifying production, environmental sustainability and developing the circular economy. Other important aspects are improving the competitiveness of the food industry, developing exports and maintaining the high level of food security. Promotion of exports requires a high-quality training and advice service. In addition, producing greater added value, new food innovations and special products tailored for different markets are also key. As regards food wastage, it weakens the resource efficiency and productivity of the food system, burdens the environment and is socially unsustainable. The effects of climate change on production



**Of the inhabitants of the Helsinki-Uusimaa Region, over 90% are connected to water supply networks** (Uudenmaan ELY-keskus [Uusimaa Centre for Economic Development, Transport and the Environment] 2016)





of food may include, for example, an increased risk of plant pests and spreading of new harmful pests, plant diseases and weeds into Finland. On the other hand, new forms of production,

such as vertical cultivation in greenhouses, wall structures etc. may gain ground in Finland. Vertical cultivation in greenhouses, for example, reduces the need for floor space and energy. It is regarded as a potential way of producing clean local food in urban areas and elsewhere.

Cyber-security deals with preventing and combating disturbances in electronic and networked systems. Many critical activities of society, such as financial transactions, distribution of electricity, energy production and air traffic control depend on the faultless operation of information systems and networks. The principal trends in cyber-threats have been the increase of ransomware, utilising vulnerabilities in information networks, threats to equipment and devices and attacks designed to destroy business activities or steal personal data. Scams and phishing, denial-of-service attacks and targeted attacks also continue to be seen. The health sector, manufacturing and production, the banking and financing sector, public administration and the transport sector are the most frequent targets of cyber-attacks. With the spread of the Internet of Things, the possibilities for cyber-attacks are increasing and it is likely that even more sophisticated attacks will be seen in the future.

As a small country with a high level of education and cooperation, Finland has excellent potential to become a leader in cyber-security. We have a strong competence base and a long tradition of close and confidential cooperation between the public and private sectors and between various administrative sectors. Finnish universities and research institutes, such as the Aalto University, the University of Jyväskylä, the University of Oulu, Tampere University of Technology and VTT Technical Research Centre of Finland network extensively with European cyber-security experts. Finnish companies and research units have top-level expertise in the field, yet coordination could

still be improved in this area. The cyber-security of Finnish companies and related business opportunities as well as cooperation between authorities, research units and companies must be developed. The Helsinki-Uusimaa Region could function as a driver for this cooperation, with the goal of being an internationally recognised pioneer in cyber-security and related business activities.



### Measures:

1. In new construction and when building infrastructure crucial to society, bear in mind sufficient flood heights and improve awareness of and preparedness for flood risks.
2. Systematically increase the renovation and maintenance operations of water supply and sewage networks to reach a sustainable level. Construct and maintain in readiness reserve water supply systems, intermunicipal water supply connections and reserve water extraction plants to prepare for adverse events.
3. Steer more funding to determining the structure and status of groundwater areas and water extraction potential.
4. Encourage and finance actors in the region to draw up protection plans for groundwater areas and restoration and cleaning measures in order to achieve and maintain the good status of groundwater areas.
5. In addition to physical investments in the food sector, promote research, development and innovation activities, such as new modes of operation, technological know-how, digitalisation, product development, commercial piloting and brand know-how.
6. Support the improvement of circular economy and energy and materials efficiency in the food system and the minimising of wastage, and increase urban food production (plant factories).
7. Strengthen the role of education, research and business life in the maintenance and development of cyber-security.
8. Promote cyber-security and related business opportunities, as well as cooperation between authorities and businesses.

## 11. Positive Experiences and Care from Nature

Nature in the Helsinki-Uusimaa Region is a patchwork of forests, agricultural land and urban green spaces, interspersed with river valleys and other waterways. The Helsinki Metropolitan Area is surrounded by a varied belt of forests, whose value is heightened by waterways, coastal areas and numerous islands. Looking after this area is extremely important for the maintenance of biodiversity and of an unbroken and rich network of green spaces; at the same time, it provides the opportunity for recreation in nature. Biodiversity must be protected and maintained in order to safeguard the preconditions for life on Earth. The ecological network formed by the green spaces becomes more and more important with climate change, as it will enable species to migrate to more appropriate habitats. The green spaces serve to maintain a diversity of species, the ecological processes, cleanness of air and water resources. They have also been found to have a positive effect on human health and quality of life. In addition to recreation, nature provides opportunities linked to tourism, energy and food production, business activities and sustainability of climate.

Varying natural environments and a well-maintained network of sufficiently extensive green spaces are a long-term resource and draw factor. Green spaces function as carbon sinks, thus slowing down climate change and they also help society to adapt to changes. The importance of green spaces and vegetation, especially trees, for improving the quality of built-up environments must be borne in mind at the planning stage of projects. Appropriate use of vegetation in built-up areas leads to environmental benefits, such as noise abatement, suppression of dust, provision



**46% of residents of the urban districts of Greater Helsinki consider that natural environments are among the most important amenity factors in their residential neighbourhood (Strandell 2017).**

of shade and control of urban runoff. Close-lying green spaces also have a great significance for the wellbeing and physical health of inhabitants. Green spaces strengthen the attractiveness of the Helsinki-Uusimaa Region for new inhabitants, enterprises and tourists.

The Regional Structure of Tourism 2050 report notes that future assets for tourism operators include nature and adventure travel. International tourists are attracted by nature, architecture and destinations such as UNESCO World Heritage sites. Service provision in the Helsinki-Uusimaa Region includes visits to natural and cultural heritage sites, islands and coastal areas. Urban and cultural destinations also offer many things to see and do. To some extent, the potential for food tourism in the Helsinki-Uusimaa Region remains untapped, despite the many possibilities of increasing the region's attractiveness in this respect. Wilderness tourism can make use of areas such as Nuksio and Sipoonkorpi national parks. In order for nature tourism operations to be sustainable and capable of responding to increased demand, it is particularly important to look after nature in a comprehensive way and to safeguard biodiversity.



### Measures:

1. Promote the recognition of natural values and the services provided by nature and strengthen them through cooperation between regional actors (among other things, by developing nature management and steering the recreational use of nature).
2. Steer funding to measures to halt the depletion of biodiversity, through the METSO biodiversity programme and other channels.



**Of the area covered by the Helsinki-Uusimaa Region, 67% consists of forests or other natural environments (SYKE [Finnish Environment Institute] 2017)**

3. Develop the forested zone around the Helsinki Metropolitan Area and the islands in the Gulf of Finland into a well-known and sustainably used entity serving inhabitants, tourists and entrepreneurs.
4. Improve the condition of waterways and the Baltic Sea as part of diversified nature by steering funding to the restoration and conservation of waterways.
5. Promote the maintenance, connectivity and development of the network of green spaces and the preservation of extensive core natural areas.
6. Improve the accessibility of nature sites by building hiking and recreation trails.
7. Promote the recreational potential of coastal areas and shores (rivers, lakes, the sea).
8. Support appreciation of cultural environments when building regional identity and strengthen their use in tourism and for inhabitants' wellbeing.

## 12. Easy and Reliable Mobility

The reliability and flexibility of transport is extremely important for the growth and vitality of the Helsinki-Uusimaa Region. The development needs of the transport system are determined by the growth of the region and its structural development. Some of these needs will be solved with the help of diverse and, as far as possible, eco-friendly means: improving transport services, rail traffic, public transport, traffic control and maximum utilisation of existing structures. Whenever possible, preference will be given to rail traffic, as

***"Cities are in a key position in terms of solutions to mitigate climate change. Especially in the Helsinki Metropolitan Area, mobility may be steered towards public transport, walking and cycling and new services."*** Anne Berner, Minister of Transport and Communications

***Enligt HRT:s utredning är prissättningen av fordonstrafiken den effektivaste åtgärden för att minska utsläppen.***

it supports the objective of generating eco-friendly growth in the Helsinki-Uusimaa Region.

In addition to developing the regional structure and transport services, the Helsinki-Uusimaa Region needs investments responding to national or international needs, as they will result in vitality and growth. Major rail projects include construction of additional tracks along the main line and the Espoo Urban Rail. Other important rail network projects include the City Rail Loop to relieve pressure on Helsinki Central Station, the Helsinki Airport rail link connecting to the national rail network and the high-speed rail service linking the Helsinki and Turku commuter areas. The improvement of main road 25 and the electrification of the Hanko-Hyvinkää railway will improve the logistical position and traffic connections of the western part of the Helsinki-Uusimaa Region in particular. In addition, public transport from Lohja and Porvoo to the Helsinki Metropolitan Area needs to be improved. The West Metro underground and the Jokeri Light Rail line will improve traffic connections inside the Helsinki Metropolitan Area. Once it is finally adopted, the Helsinki City plan will enable access routes to the city to be converted to so-called urban boulevards, which will involve building a rapid tram line, though lowering road capacity at the same time.

The twin city development connecting Helsinki and Tallinn is an international success story that has got off to a good start. A long-term vision included in the twin city scenario is a railway tunnel between Helsinki and Tallinn. The Rail Baltica system, planned between Tallinn and Berlin, will create a rail link between the Helsinki-Uusimaa Region, the Baltic republics and Central Europe. With the realisation of the Rail Baltica system, the Tallinn railway tunnel and the Helsinki Airport rail

link, Finnish and Asian tourists and businesspeople can have a direct rail connection from Helsinki Airport all the way to Berlin.

For the transport sector, carbon-neutrality is a challenging objective. In terms of sharing the burden within the EU too, the most important potential for reduction of emissions is found in the transport sector, especially in road traffic. The Greater Helsinki area is extremely important for the carbon neutrality of the entire Helsinki-Uusimaa Region. The most important solutions regarding reduction of emissions are related to the structure and functionality of urban areas. The MAL2019 plan<sup>13</sup> covering the Greater Helsinki area includes an assessment of what measures to develop the community structure and transport policy (such as transport pricing, including road tolls, parking fees, changes in the use of different modes of mobility, electric cars, investments in public transport infrastructure) will enable the area to achieve emissions targets. In order for emissions targets to be met, several measures must be used together. Responsibility for achieving emissions targets should also be partly delegated to the business and transport sectors.

Public transport in the Greater Helsinki area must continue to be improved and made more flexible and rapid, to ensure that as many people as possible will opt for it. In this respect, a substantial change in the ways of funding and pricing is already under way. New opportunities for local mobility have also emerged. The increase of pedestrian and bicycle mobility is already visible in the streets. Moreover, smart services combining different modes of transport are developing, and car and bicycle sharing is increasing. The compatibility of ticketing systems and transporting small passenger flows outside central areas hold a key position for creating sustainable trip chains. Mobility services can also contribute to solving what is called the last-kilometre problem in sparsely populated areas.



**About 4.2 million commuting or personal business trips are made in Greater Helsinki each day** (Helsinki Regional Transport Authority 2013).

**Commuting trips in the urban districts of Greater Helsinki 2016:**

- On foot 12%
  - By bicycle 15%
  - By public transport 32%
  - By car 38%
  - Working from home 3%
- (Strandell 2017)

Businesses and the transport sector also have a substantial responsibility for meeting emissions targets. The overwhelming majority of transport takes place on the roads. Connections to and from harbours, airports, industrial and logistics estates, among others, must work well and be dimensioned based on requirements. Good connections improve the efficiency of transport, reduce emissions caused by congestion and enable efficient use of transport capacity. The growth of online shopping increases door-to-door transport and the need to develop urban distribution activities. At the moment, the Helsinki-Uusimaa Region has no effective measures (such as developing city distribution centres) to improve city logistics and reduce emissions. Ensuring the efficiency of the transport system is essential for the cost-effectiveness of Finland's logistics and the competitiveness of its businesses. In logistics, efficiency and ecology go hand in hand. To ensure that a system works well, possible disruptions and disturbances must also be taken into account.

.....

<sup>13</sup> The MAL 2019 plan is a regional plan of land use, housing and transport, describing the projected development of Greater Helsinki in 2019–2050.



## Measures:

1. When developing land use and transport systems, strive to reduce the need for mobility and promote sustainable modes: walking, cycling, public transport and vehicle sharing.
2. Support and pilot development of mobility as a service (MaaS) to create frictionless, accessible and uninterrupted trip chains. Prepare to promote autonomous traffic.
3. Improve the working of logistics connections over the road and street network when developing the transport system. Improve the smooth flow of traffic to and from harbours by planning the location and design of truck stops, for example.
4. Strive to direct growth primarily so as to utilise existing transport infrastructure and favour sustainable modes of mobility.
5. Enable energy-efficient and frictionless logistics in the region. Promote rail transport in long-distance transport and the use of low-emission vehicles in distribution activities. Promote experiments that improve energy efficiency by increasing transport payloads.
6. Continue development of the main railway line and implement the Espoo Urban Rail project. After the City Rail Loop, the high-speed rail link between Helsinki and Turku and the Helsinki Airport rail link will be implemented.
7. Prepare for the significant boosting of rail transport: assess the transport, financial and environmental effects of various improvement measures, to achieve the optimal overall solution covering the entire region.
8. Support development of the Helsinki-Tallinn twin city, implementation of the tunnel and related smart transport solutions.
9. Promote the Rail Baltica connection and Finland's links to the transport network across Continental Europe.





# MONITORING AND MEASURING

## Equality, equitability and inclusion as core values

The Helsinki-Uusimaa Regional Programme is building a climate-aware and diverse region focused on the wellbeing and competence of inhabitants and successful and responsible business activities. Promoting equality and equitability and supporting inclusion have played a prominent role during development of the Programme's priorities, objectives and measures. As part of implementing the Programme, it is necessary to determine for each objective and project how the planned measures are being targeted at different genders and population groups. An essential part of implementing the Programme and its projects is to measure the effects and targets of measures, in order to prepare assessments from the perspectives of achieving equality and equitability.

The first objective of the Helsinki-Uusimaa Regional Programme is 'Competent Future Inhabitants'. This is being pursued through measures aiming to develop education and training, education and training paths, social skills, information acquisition skills, and the education and research infrastructure, which will be carried out by various parties. When planning and targeting measures, it is necessary to assess their effects on different genders and on the equitability of citizens in different positions.

The Programme's second objective is 'Strength through International Connections'. Its targets include services for inhabitants of immigrant origin; education, training and integration; dialogue between different regional groups and inhabitants; and jointly implemented solutions. A specific objective is to promote immigrants' equality and integration.

The Programme's third objective, 'Best Well-being Services, Active Inhabitants', deals with health and wellness services and inhabitants' active role in looking after their own health. Its measures involve

monitoring personal health; recreation through exercise, culture and nature; health-promoting innovations by various parties; seamless health and social service pathways; digital means of improving services; etc. It is important to assess the measures as early as at the planning stage, in order to ensure participation of different groups and equal distribution of results.

The Programme's fourth objective, 'Safety and Security through Solidarity', includes measures relating to collaboration and community spirit, and development of civil society and local democracy. Its key themes include community spirit and inclusion. In order to achieve these, it is necessary to plan projects with care, to describe the targeting of measures at the planning stage and to assess effects while implementing the projects. The intention is to consolidate participation of disadvantaged individuals and increase equitability of different population groups in society.

The Programme's strategic priority entitled 'Successful and Responsible Business' includes measures relating to developing business activities and conditions for business. It is important to determine for each measure how activities and results are being targeted at different genders and population groups, in order to assess these from the perspective of achieving equality and equitability.

The strategic priority entitled 'Climate-aware and Diverse Region' focuses on the shared responsibility of all inhabitants to look after their environment. Its specific theme is a climate-aware, diverse and sustainable region. The vibrant and diverse cultural life in the Helsinki-Uusimaa Region offers a wide range of multidisciplinary opportunities to promote equality and equitability, prevent segregation, level out regional differences, and increase the region's attractiveness.

## Phenomena to be monitored and indicators

For the purpose of monitoring the progress of the objectives of the Helsinki-Uusimaa Regional Programme, the aim was to find clear, easy-to-understand and internationally comparable indicators. A few indicators encouraging implementation of the objectives were selected from the vast range on offer.

The indicators selected as objectives under the **Human Wellbeing and Competence** priority included five indicators from the European

Regional Social Progress Index (SPI). In addition, achievement of the objectives will be measured by the number of NEETs during the programming period. The five SPI indicators are:

- Access to Advanced Education;
- Access to Basic Knowledge;
- Personal Freedom and Choice;
- Tolerance and Inclusion;
- Health and Wellness.

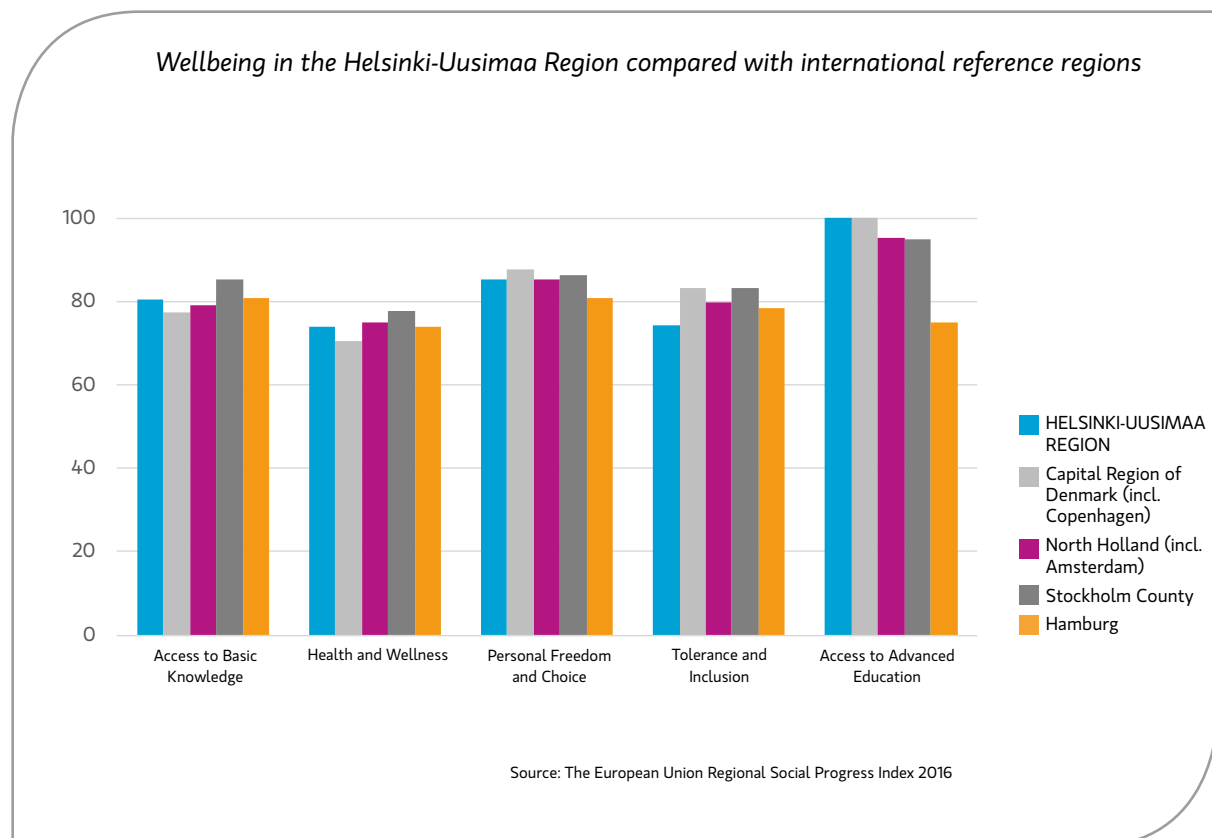


Figure 13: Phenomena measured under the Human priority in the reference regions in 2016.

The European Social Progress Index (SPI) is a comparison of the 275 medium-sized statistical regions<sup>14</sup> in the European Union, drawn up by the European Commission in cooperation with the Social Progress Imperative. The Social Progress Index was developed for use alongside GDP. The

index is linked to the 17 Sustainable Development Goals<sup>15</sup> adopted by the UN General Assembly in 2015, which form a widely accepted basis for international comparisons. The goals focus on human, environmental and economic aspects.

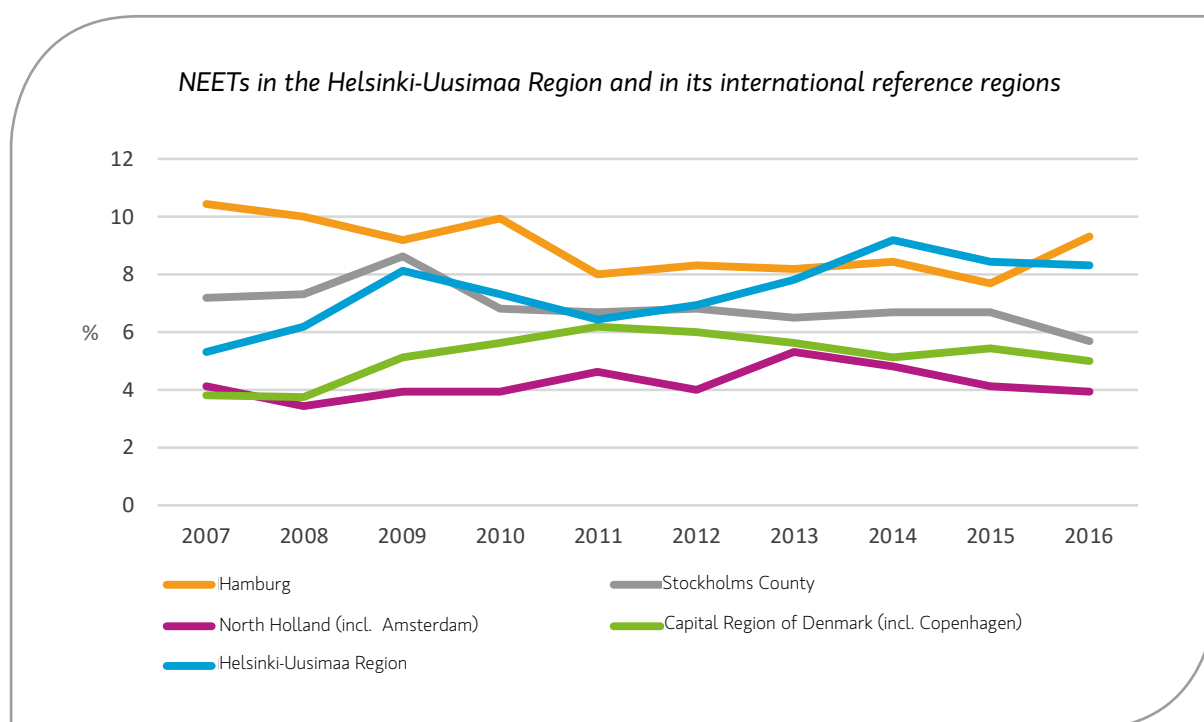


Figure 14: Phenomena measured under the Human priority: social exclusion of young people in the reference regions from 2007 to 2016, as described by the NEET indicator<sup>16</sup>.

<sup>14</sup> In this context, the EU statistical region refers to NUTS 2 regions. The NUTS classification of regions (Nomenclature of Territorial Units for Statistics) is used in statistics submitted to Eurostat, the Statistics Office of the European Union. NUTS level 2 corresponds to the national division into major regions.

<sup>15</sup> The UN Agenda 2030 Sustainable Development Goals are: 1. No poverty; 2. Zero hunger; 3. Good health and wellbeing; 4. Quality education; 5. Gender equality; 6. Clean water and sanitation; 7. Affordable and clean energy; 8. Decent work and economic growth; 9. Industry, innovation and infrastructure; 10. Reduced inequalities; 11. Sustainable cities and communities; 12. Responsible consumption and production; 13. Climate action; 14. Life below water; 15. Life on land; 16. Peace, justice and strong institutions; and 17. Partnerships for the goals.

<sup>16</sup> According to the definition of Statistics Finland, NEETs include young people aged 15 to 24 not working, studying for a degree or qualification, attending course training, or performing national military or non-military service. Young people performing national military or non-military service are not included among the population in the Eurostat statistics used in this report.

Progress of the objectives under the **Successful and Responsible Business** priority will be monitored using the European Regional Competitiveness Index (RCI) and the following four of its sub-indicators:

- Labour Market Efficiency;
- Technological Readiness;
- Business Sophistication;
- Innovation.

The European Regional Competitiveness Index (RCI) is a comparison of the regional competitiveness of approximately 270 medium-sized EU statistical regions, drawn up by the European Commission. The circular economy is part of the strategic priority entitled 'Successful and Responsible Business', which currently includes indicators exclusively focusing on economic aspects. There are no indicators focusing on preserving natural resources or the material-intensiveness of business

activities, because these are still in the early stages of development. In many cases, indicators relating to material efficiency fail in terms of usefulness due to the lack of reliable data and, as in this case, the absence of figures from international reference regions. An indicator to measure new circular economy jobs is being developed, but it still involves some open questions. If an indicator also responding to the environmental aspect of the circular economy is identified during the programming period, it will be added to the indicators being measured.

The SPI and RCI indicators selected for the Human and Business priorities of the Regional Programme are descriptive in terms of monitoring their objectives, making it possible to compare regional development with other medium-sized European metropolises with similar resources and challenges.

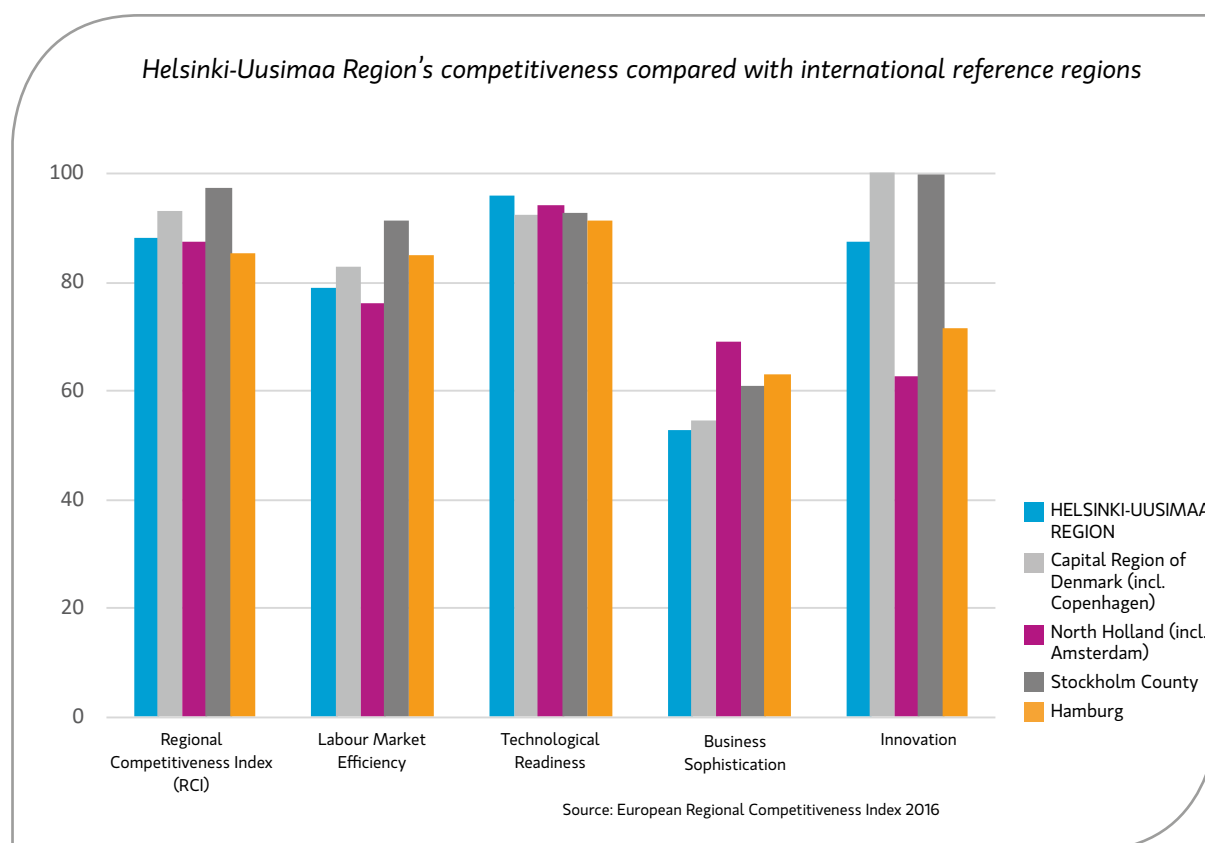


Figure 15: Phenomena measured under the Business priority in the reference regions in 2016.

The objectives of the priority entitled **Climate-aware and Diverse Region**, in turn, will be monitored using the following seven indicators that describe progress exclusively in the Helsinki-Uusimaa Region:

- Greenhouse Gas Emissions in the Helsinki-Uusimaa Region;
- Surface Area of Nature Conservation Areas;
- Core Natural Areas;
- Mobility Mode Distribution in Greater Helsinki;
- Mobility Zones in Greater Helsinki;
- Surface Water Status;
- Groundwater Status.

As yet, there is no international comparative data available on greenhouse gas emissions that would be as reliable as the calculations produced by the Finnish Environment Institute (SYKE) and the Helsinki Region Environmental Services Authority HSY. Calculations of greenhouse gas emissions in the Helsinki-Uusimaa Region are currently available for 1990, 2012 and 2015.

Developments in the surface area of nature conservation areas have been compared with the situation in the year 2000. An indicator for the connectivity of natural areas is only just being developed, and it will be introduced as soon as possible.

Core Natural Areas is an indicator developed as part of the Seutukeke project (Sustainable urban regions – criteria and indicators for land use planning), which was calculated from CORINE data at the Helsinki-Uusimaa Regional Council. These are forest areas with a minimum core surface area of 100 hectares after deducting a 250-metre marginal zone. Calculations based on CORINE Land Cover data were produced in 2000 and 2006, when the data was produced using a 25-metre grid. Since 2012, the data has been produced using a 20-metre grid, which is why it cannot be used as reference data at present. Moving forward, comparisons will be made with reference to 2012 data.

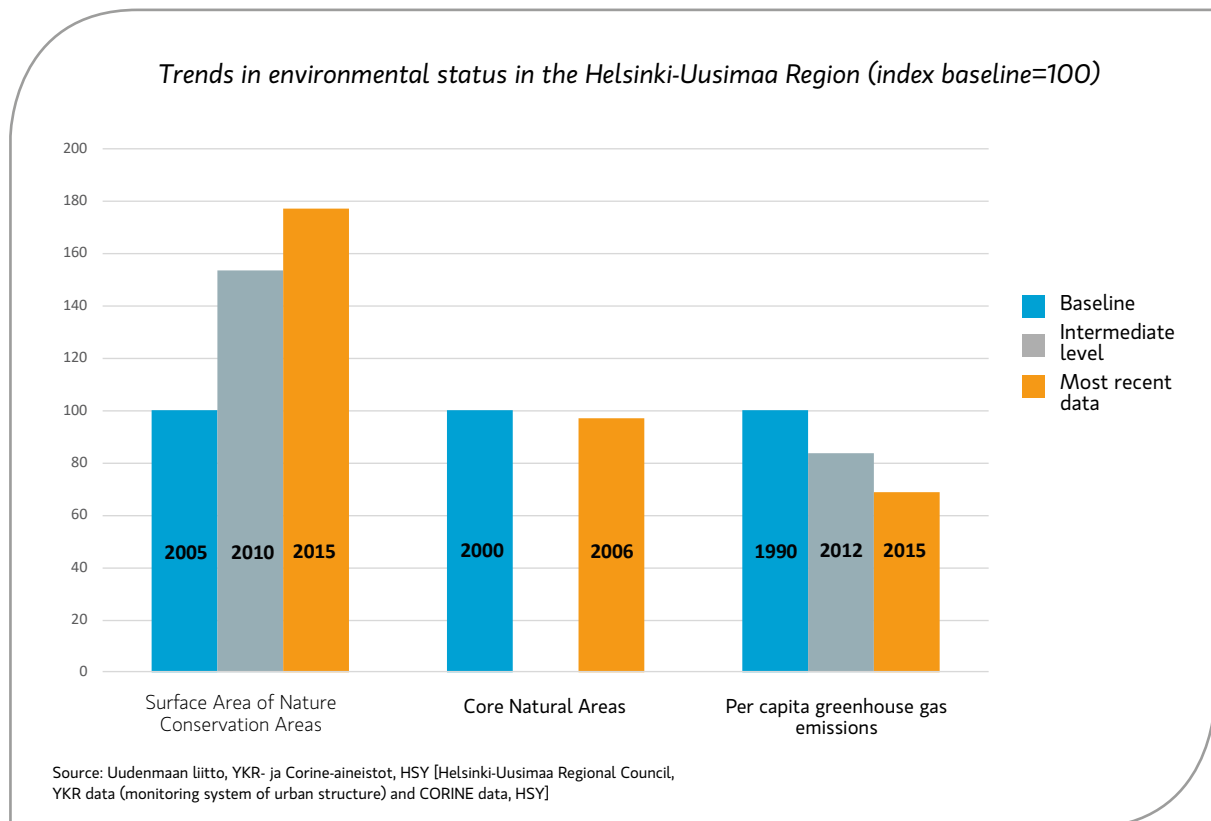


Figure 16: Phenomena measuring environmental status under the Region priority.

Inhabitants' mobility patterns and access to modes of mobility have been monitored using two indicators. Calculations of mobility mode distribution were produced for Greater Helsinki in 2008 and 2012. These were compared with the inhabitant distributions in Greater Helsinki zones specified in the Urban Zone Analysis of the community structure prepared by the Finnish Environment Institute in 2010 and 2015.

Moving forward, it will also be possible to monitor trends in mobility patterns and access to public transport using the indicators of an accessibility analysis (SAVU) prepared for the Helsinki-Uusimaa Region in 2017. According to the analysis, 81% of inhabitants of the Helsinki-Uusimaa Region live in areas accessible by public transport (SAVU zones I–IV).

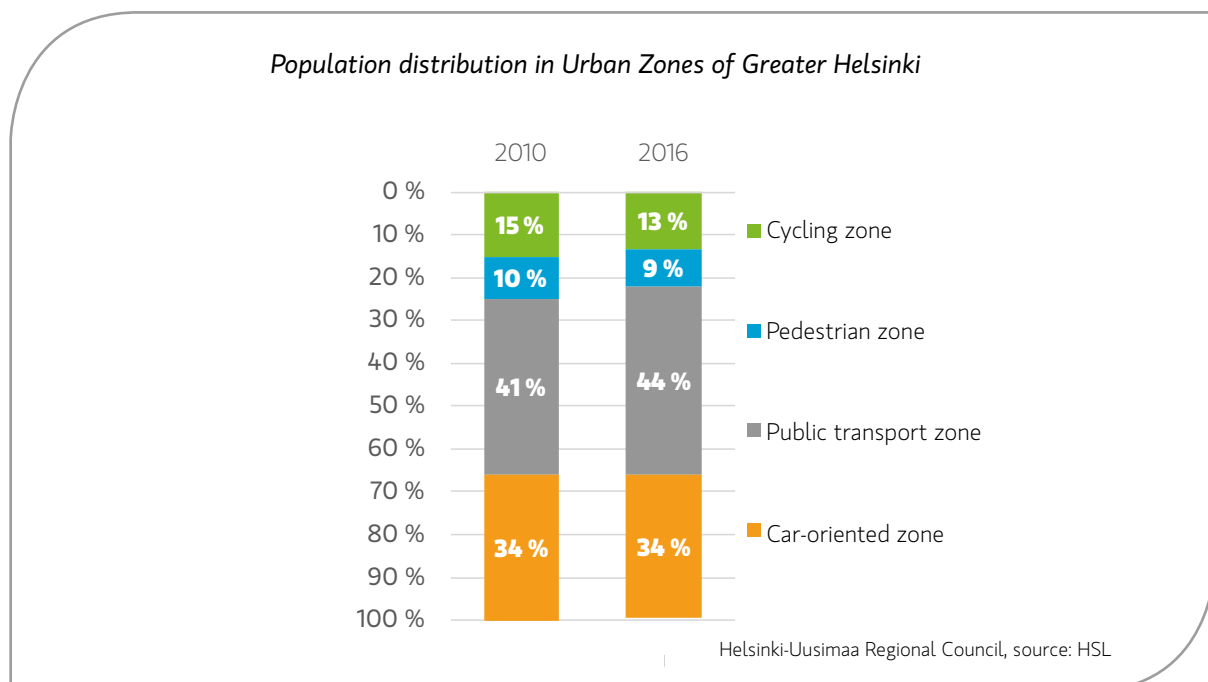
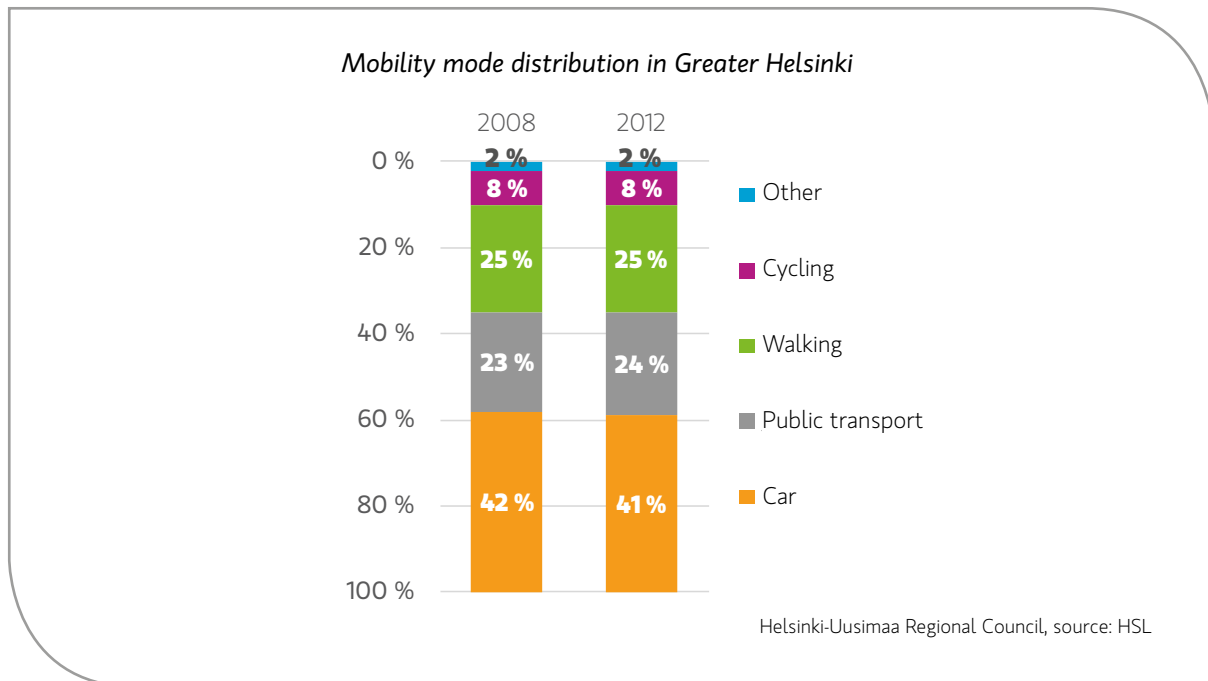
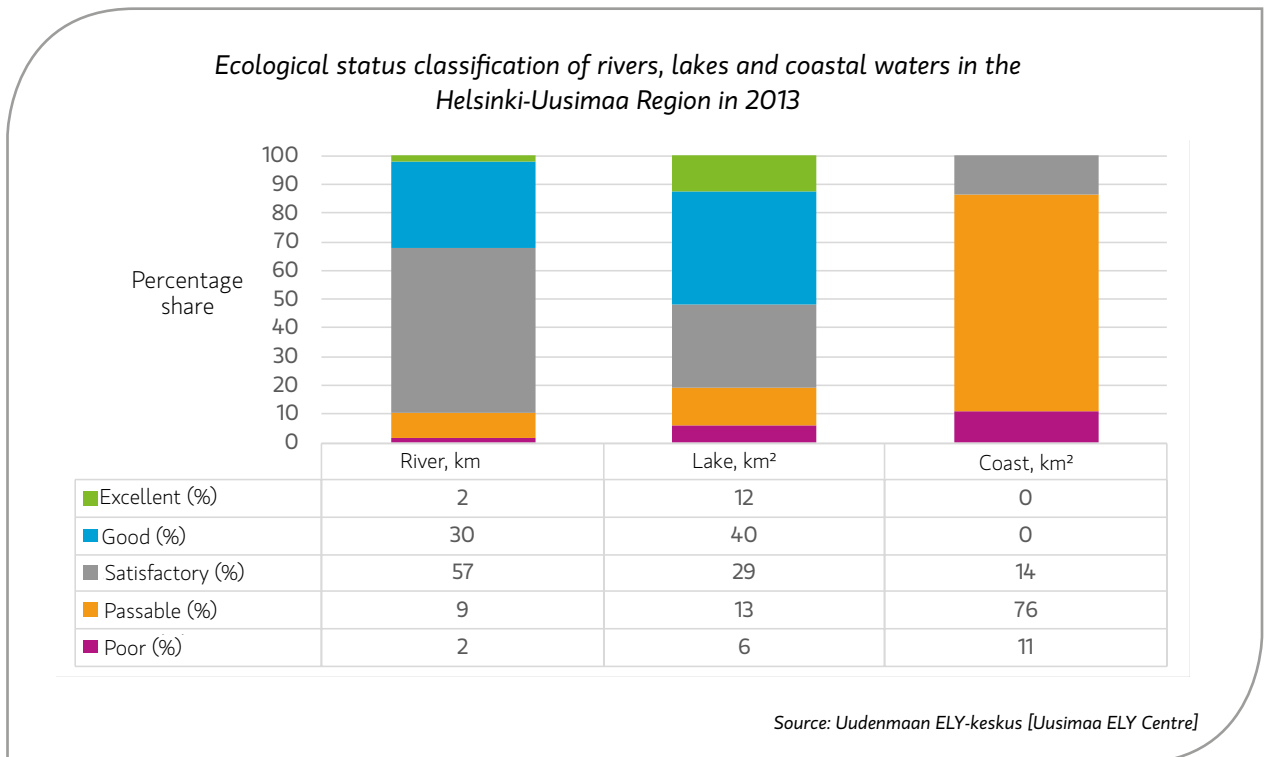


Figure 17 and Figure 18: Phenomena describing mobility patterns and access to modes of mobility under the Region priority.

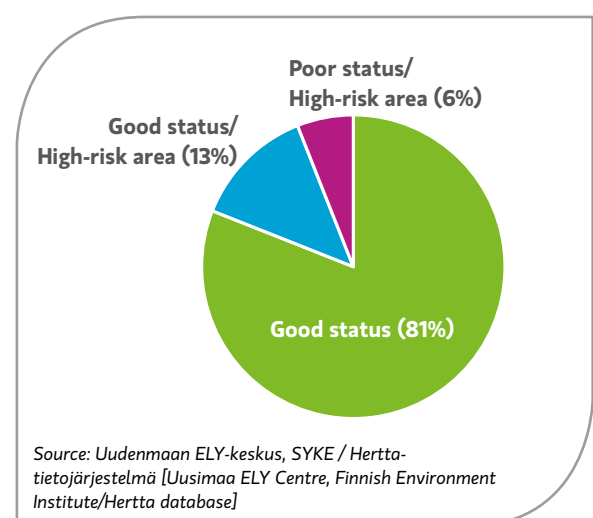
Changes in the status of waters are monitored using the Ecological Status of Surface Waters and Ecological Status of Groundwaters indicators surveyed by the Finnish Environment Institute, Regional Centres for Economic Development,

Transport and the Environment and Natural Resources Institute Finland (Luke). The baseline survey was conducted in 2013. The next water status classification will be completed in 2018–2019.



**Figure 19: Classification of surface water status in the Helsinki-Uusimaa Region. Phenomena measured under the Region priority.**

According to a study published by the Uusimaa Centre for Economic Development, Transport and the Environment (Uusimaa ELY Centre) in 2014, the quantitative status of all of the region’s 350 groundwater areas is good, which means that the annual water intake does not exceed the amount of groundwater generated. About 20% of groundwater areas are considered to be high-risk areas, of which 22 areas have poor and 44 good chemical status. Without protective measures, high-risk areas may become polluted. Groundwater accounts for about 20% of water supplied by utilities in the Helsinki-Uusimaa Region, while the most important groundwater abstraction plants are located in high-risk areas. The Helsinki Metropolitan Area uses water from the Päijänne Water Tunnel.



**Figure 20: Status of groundwaters in the Helsinki-Uusimaa Region in 2013. One of the phenomena measured under the Region priority.**

Our aim is to monitor the region's ranking relative to the reference regions and to improve our position in inter-regional comparisons. Figure 21 shows a summary of the strategic priorities, the phenomena selected for measuring each of these, and the indicators used for measurements for the 2018–2021 programming period.




Strategic priority for 2050	Phenomena to be measured	Indicators
 <p><b>Human Wellbeing and Competence</b></p>	Access to Advanced Education	SPI: Access to Advanced Education
	Access to Basic Knowledge	SPI: Access to Basic Knowledge
	Personal Freedom and Choice	SPI: Personal Freedom and Choice
	Tolerance and Inclusion	SPI: Tolerance and Inclusion
	Health and Wellness	SPI: Health and Wellness
	Risk of Social Exclusion among Young People	Share of NEETs in the Relevant Age Group
Strategic priority for 2050	Phenomena to be measured	Indicators
 <p><b>Successful and Responsible Business</b></p>	Technological Readiness	RCI: Technological Readiness
	Business Sophistication	RCI: Business Sophistication
	Innovation	RCI: Innovation
	Labour Market Efficiency	RCI: Labour Market Efficiency
	Regional Competitiveness	RCI: European Regional Competitiveness Index
Strategic priority for 2050	Phenomena to be measured	Indicators
 <p><b>Climate-aware and Diverse Region</b></p>	Greenhouse Gas Emissions	Greenhouse gas emissions and their per capita trends. Helsinki-Uusimaa Region greenhouse gas emission calculation (KASVENER).
	Core Natural Areas	Core natural areas are forest areas with a minimum core surface area of 100 hectares after deducting a 250-metre marginal zone. Calculated from CORINE Land Cover data.
	Mobility Patterns and Access to Modes of Mobility	Share of users and zone inhabitants. Helsinki-Uusimaa Region transport system plan 2015 – Mobility patterns in Greater Helsinki in 2012 and SYKE analysis from the Liiteri information and analysis service.
	Surface Water and Groundwater Status	Changes in the status of waters are being monitored using the classifications of surface water ecological status and groundwater chemical status in accordance with the Government Decree on Water Resources Management (1040/2006). The classifications are based on the EU Water Framework Directive (2000/60/EC).
	Surface Area of Nature Conservation Areas	Developments in the surface area of nature conservation areas compared with the situation in the year 2000.

Figure 21: Indicators and phenomena used to measure the strategic priorities and objectives specified for the 2018–2021 programming period.



# PREMISES OF THE HELSINKI-UUSIMAA REGIONAL PROGRAMME

The Regional Council is responsible for regional planning and development in keeping with the Act on Regional Development and Administration of Structural Fund Operations (7/2014) and the Land Use and Building Act (132/1999). The regional planning system comprises the regional programme, the regional plan and the regional land use plan. The Helsinki-Uusimaa Regional Programme for 2018–2021 was drawn up in keeping with currently effective legislation. The Assembly of the Regional Council adopted the Programme in late 2017. It is important to note that the Programme will only become significant and effective through consistent and efficient implementation.

According to currently effective legislation (Act on Regional Development and Administration of Structural Fund Operations 7/2014), the objectives of regional development are to:

- strengthen the balanced development and national and international competitiveness of regions;
- strengthen and diversify the economic structures of regions in a sustainable manner and promote economic balance;
- promote sustainable employment and the competence, equal opportunities and social inclusion of the population;
- reduce developmental differences between and within regions and encourage full use of all available resources in a sustainable manner;
- improve regional strengths and specialisation and promote regional cultures;
- improve the quality of living environments and sustainable regional and community structures.

Regional government reform will change the regional development system. Based on the draft bills currently being prepared, new regional governments will be responsible for regional development functions, promotion of economic activities, and steering and planning of regional



***An implementation plan is a tool to channel European structural funding and national funding allocated to the region. The implementation plan is drawn up in cooperation with local authorities and other parties. It describes key regional projects, lobbying and advocacy efforts, and plans for the next two years. They are adopted by the Regional Management Committee.***

land use. Regional development is a broad concept, transcending administrative borders by its very nature. At a regional level, it is based on the regional strategy and the regional programme adopted by the Assembly of the Regional Council. The negotiation process between central and local government is assuming an important role in steering regional development.

The Regional Programme for 2018–2021 was prepared in keeping with the guidelines issued by the Ministry of Economic Affairs and Employment. It seeks a new approach to regional development and strives for strategic thinking that covers regional operations as a whole. The Programme is drawn up so as to ensure its impact on the strategic contents and priorities of the Uusimaa ELY Centre and the Regional State Administrative Agency.

The Regional Programme was drawn up in cooperation with local and central government authorities and with various organisations involved in regional development. The Programme was prepared with due consideration for the strategic contents of the Uusimaa ELY Centre and the

Regional State Administrative Agency, the priorities and objectives specified by the Finnish Government for regional development, as well as the Regional Innovations and Experimentations (AIKO) measure launched as part of the Government's key project relating to competitiveness, which is being implemented by means of the growth agreement signed with local authorities and as part of the anticipated structural reform.

The Helsinki-Uusimaa Regional Programme is based on making use of the strengths of the different parties and areas in the region by means of competences, technologies and financial resources. The Programme includes measures that can be influenced by the means available to the region.

According to the Ministry of Economic Affairs and Employment, the general objective of a regional programme is to reform and vitalise the region. The intention is to seek growth through reform, vitality through networking and wellbeing through partnerships. In terms of the programme's effectiveness, special attention must be paid to the regional economy and competitiveness, the labour market situation, demographic trends and wellbeing, as well as a low-carbon economy and

sustainable environmental development.

The Regional Programme includes the priorities and key measures of the Helsinki-Uusimaa Region's Smart Specialisation Strategy. The region's competitiveness can be improved considerably by focusing funds on excellence. The Smart Specialisation Strategy is closely linked to the Europe 2020 strategy and to those policy and financial instruments that support it. Regional Research and Innovation Strategies for Smart Specialisation (RIS3) are a prerequisite for approval of EU Structural Funds programmes, among other things. From a European perspective, the weight of smart specialisation in allocation of EU funds will increase considerably in the years to come.

### **Regional government reform will change the national operating environment**

As a result of the reforms of regional government, health and social services, the status and functions of the Helsinki-Uusimaa Region will change fundamentally. Its own internal management and steering system will be completely overhauled, as



will the steering system between central, regional and local governments. The functions of regional governments will expand, strengthening their new status as self-governing units. As a result, each regional government's own role in and responsibility for regional development will expand. On the other hand, since the operations of the Helsinki-Uusimaa Region are funded by central government, the economic steering and the related operational steering of regional government by central government will gain a more prominent role. With the expanding functions and strengthening status of regional government, the significance of regional strategic planning will increase accordingly. This is also supported by its close link to the preparation of the General Government Fiscal Plan.

The new regional government being created as a result of regional government reform will be an important service provider and a very significant economic player. From the regional development perspective, the role of regional government will change considerably. A situation awareness analysis, combining qualitative and quantitative data, will be drawn up in cooperation with the Ministry of Economic Affairs and Employment to form the framework for regional development. Alongside the current region's project activities carried out with relatively modest resources by various parties, it is necessary to create a systematic development process for the region's internal operations. Profiling of the existing statistical, information service and research competences, foresight work, EU and other funding competence, and geographic information competence will enhance development of internal operations. It is also necessary to consolidate competences relating to monitoring and evaluation and to planning and implementation of cross-sectoral development efforts. The aim is to create a 'Regional Development as a Service' type of process within the regional organisation.

A key instrument of the Helsinki-Uusimaa Region's strategic planning work is the Regional Strategy, drawn up every four years, which not only covers current regional plans and programmes, but also sectoral strategic plans for new regional government functions, including service promises relating to these. Every four years, the Finnish government draws up a strategy to steer regional government, based on the Government Programme. It includes region-specific policy guidelines, which may also be seen as guiding feedback on the strategy of the Region.

As at present, the Regional Strategy will basically continue to define the regional development vision and, based on this, the regional development policies and key measures for implementing these policies. Implementation of measures falling within the competence of regional government will be planned as part of the planning and decision-making processes concerning regional finances and operations.

In order to implement its own strategy, the region will also aim to influence the measures of other parties, including central and local governments, by means of agreements, negotiations, statements and joint preparation of strategy and the General Government Fiscal Plan. As the Helsinki-Uusimaa Region will have a significantly stronger impact on achieving the objectives of central government and the local authorities within the region, its opinions will also be taken into account in broader terms than today. Regional land use planning, the land use, housing and transport agreements, international development funding and the related drafting and planning processes will probably remain the same, forming a significant part of regional strategic planning.

Most of the spending limits for regional operational finances and investments, as well as some of their intended uses, are determined to a great extent in annual negotiations carried out between central government and the Helsinki-Uusimaa Region as part of the general government fiscal planning process. This also creates the premises for the region's internal economic steering, budget, and operating and financial plan. For the purposes of the general government fiscal planning negotiations with central government, the Helsinki-Uusimaa Region first conducts annual sectoral negotiations with different central government ministries. Based on these, central government objectives for negotiations with the region will then be negotiated between the ministries. From the regional perspective, the most significant negotiation partner is the Ministry of Social Affairs and Health, as its expenditure covers the greater part of regional expenditure. A regional situation awareness analysis is drawn up as the basis of the fiscal planning negotiations. After the ministerial negotiations, the analysis will also be discussed as part of the joint regional development consultation procedure between the region and the ministries.

# APPENDICES

## Appendix 1 – Smart Specialisation Strategy

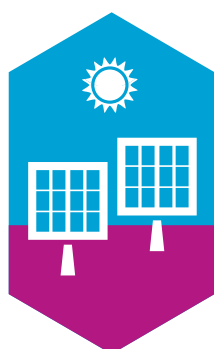
The Smart Specialisation Strategy of the Helsinki-Uusimaa Region was already prepared as part of the previous Regional Programme. The strategy document entitled *Smart specialisation in the Helsinki-Uusimaa Region – Research and Innovation Strategy for Regional Development 2014–2020* was adopted by the Regional Board in 2014. The strategy has been updated such that two separate themes, Smart Citizen and Welfare City, were combined under the title Citizen City<sup>15</sup>. The other themes remain the same: Urban Cleantech, Health & Wellness, and Digitalising Industry.

The strategy themes highlight the strengths and challenges characterising the Helsinki-Uusimaa Region from the perspectives of individuals, business and society. The international competitiveness of industry requires that the opportunities provided by digitalisation will be introduced broadly within the entire Helsinki-Uusimaa Region. The ageing population and preventive healthcare are global future megatrends, with challenges that are being tackled by means such as health technologies. There is a robust trend

in the Helsinki-Uusimaa Region to develop smart and clean environmental technologies and make full use of new opportunities provided by the bio-economy.

A condition of national AIKO funding for regional innovations and experimentations in the Helsinki-Uusimaa Region is for projects to implement the Regional Programme and the Smart Specialisation Strategy. The latter also guides EU structural funding in the region.

The Helsinki-Uusimaa Region will be an international innovation cluster and a forerunner in the use of innovative products and services. The goal is to expedite economic growth and promote employment by strengthening regional research and innovation activities. The Helsinki-Uusimaa Region will define its profile as a reliable partner, a safe and innovative investment destination, and a test environment for new intelligent solutions. The region's people and urban and rural areas will form an integrated whole, where it will be good for everyone to live.



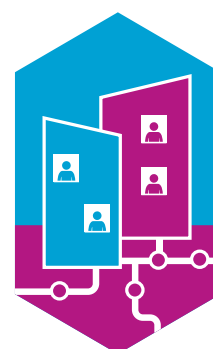
Urban Cleantech



Health & Wellness



Digitalising Industry



Citizen City

<sup>15</sup> Further information is available online at [www.uudenmaanliitto.fi/smartregion](http://www.uudenmaanliitto.fi/smartregion) and [helsinkismart.fi](http://helsinkismart.fi) (in English).

## Appendix 2 – Financial sources for implementation of the Programme

Financial source	Human Wellbeing and Competence				Successful and Responsible Business				Climate-aware and Diverse Region			
	OBJECTIVES*											
	1	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.
Sustainable growth and jobs 2014–2020 – Finland’s structural funds programme												
6Aika six-city urban development strategy												
Central Baltic Interreg V A												
Baltic Sea Region Interreg												
Interreg Europe												
ENI CBC for Southeast Finland/ Russia												
Rural Development Programme for Mainland Finland												
European Maritime and Fisheries Fund (EMFF)												
Horizon 2020 Societal challenges												
Horizon 2020 instrument												
Life +												
Creative Europe Programme												
Europe for Citizens Programme												
ERASMUS+												
European Fund for Strategic Investment (EFSI)												
Urban Innovative Actions UIA												
Connecting Europe Facility CEF												
AIKO funding												
Business Finland TEKES												

\* 1. Competent Future Inhabitants, 2. Strength through International Connections, 3. Best Wellness Services, Active Inhabitants, 4. Safety and Security through Solidarity, 5. Growth and Exports through New Technologies, 6. Business from Circular Economy, 7. International Competence and Investments, 8. Vitality from Start-ups and SMEs, 9. Finland’s First Carbon-neutral Region, 10. Safe and Sustainable Helsinki-Uusimaa Region, 11. Positive Experiences and Care from Nature, 12. Easy and Reliable Mobility

## Appendix 3 – Summary of the Environmental Report

The Environmental Report drawn up for the Helsinki-Uusimaa Regional Programme is based on the Act on the Environmental Impact Assessment of Plans and Programmes by the Authorities (200/2005) and related Decree (347/2005), which impose obligations to assess the Programme's environmental impact. According to the Act, the public authority responsible for a regional programme will determine and assess any significant environmental impacts caused by implementation of the programme and its options and draw up an environmental report for the programme. The matters to be determined include the impact on people, the economy, transport, the regional structure and the environment, natural conditions and resources, and climate change. The assessment aims to ensure compatibility with the Programme's environmental objectives and the principles of sustainable development. The assessment determines the likely significant impacts of implementing the plan or programme and the options being analysed. As the impact assessment of the Helsinki-Uusimaa Regional Programme has taken into account ecological impacts as well as its social, cultural and economic impacts, it is referred to in broader terms as an 'impact assessment', rather than an 'environmental impact assessment'.

The impacts of the Helsinki-Uusimaa Regional Programme were assessed by an environmental impact assessment group for plans and programmes made up of experts from Helsinki-Uusimaa Regional

Council. Impacts were assessed throughout the process of preparing the Programme.

The impacts of the Programme were assessed to be greatest in the measures relating to competence, the circular economy and resource wisdom. A key objective of the Programme is a carbon-neutral Helsinki-Uusimaa Region. The Programme's strategic priorities steer solutions relating to transport and the community structure. In terms of overall assessment, when implemented, the Programme will have significant positive effects. The most positive overall effects focus on the economy and people. The Programme was assessed to have very positive effects on business development opportunities. In other respects, its effects were assessed to be positive or somewhat positive.

Somewhat negative effects were identified in relation to household expenditure, local recreational areas and urban nature, reduction in mobility needs, as well as energy and mitigation of climate change. However, these partially tightening environmental requirements and subsequent pressures relating to construction and other activities, densification of the community structure and general economic growth is modest in overall terms. In addition to the strongest positive economic and people-related effects, the impacts were assessed to be clearly positive as a whole, as well as in environmental terms.

# REFERENCES

- Aalto (2017). *Alojensa kärkeä*. [viitattu 29.6.2017] Saatavilla: <http://www.aalto.fi/fi/about/ranking/>
- Aho, Hanna (toim.), (2014). *Ympäristön tila Uudellamaalla 2013, näkymiä*. (Helmikuu) 2014. Uudenmaan elinkeino-, liikenne- ja ympäristökeskus.
- Ahtokivi, I. (2017). Lauri Ihalainen: Kierto- ja jakamistaloudesta uutta kasvua. Julkaistu Verkko uutisissa 31.07.2017. [viitattu 30.8.2017]. Saatavilla: [https://www.verkkouutiset.fi/politiikka/lihalainen\\_kiertotalous-68362](https://www.verkkouutiset.fi/politiikka/lihalainen_kiertotalous-68362)
- Ailisto, H. et al. (toim.) (2016). *Onko Suomi jäämässä alustatalouden junasta?* Valtioneuvoston selvitys- ja tutkimustoiminnan julkaisusarja 19/2016. [viitattu: 8.5.2017]. Saatavilla: <http://bit.ly/1STS8bg>
- Ajatushautomo - Kalevi Sorsa -säätiö (2017). *Kalevi Sorsa -säätiön Uudenmaan tulevaisuustarkastelun analyysi*.
- Ajatuspaja - Toivo (2017). *Uudenmaan tulevaisuustarkastelun analyysi – Näkemyksiä välttämättömistä toimenpiteistä ja varautumissuunnitelmista*.
- Ajatuspaja – E2 (2017). *Raportti e2:n analyysistä ja suosituksista Uusimaa 5.0 - Jotakin parempaa: Uudenmaan liiton tulevaisuustarkasteluun*.
- Ajatuspaja- Visio (2017). *Uudenmaan tulevaisuustarkastelun analyysi*.
- Alaja A. (2016). *Yrittäjähäinen valtio. Uusi avaus innovaatiopolitiikkaan*. Kalevi Sorsa -säätiö 2016.
- Aro, T. (2016). *Muuttoliikkeen vaikutus alueen elinvoimaan ja vetovoimaan. Kiinteistöväilytyksen markkinat ja markkinointi 8.11.2016*. Helsinki, 46 ppt.
- Benkler, Y. (2004). *Sharing nicely: On shareable goods and the emergence of sharing as a modality of economic production*. The Yale Law Journal, 114, 273–358. doi: 10.2307/4135731.
- Botsman, R., & Rogers, R. (2010). *What's mine is yours: The rise of collaborative consumption*. New York: Harper Collins.
- Byles, D. (2015). *Urban poverty and the dangers of unplanned city growth*. [viitattu: 30.8.2017]. Saatavilla: <https://www.youtube.com/watch?v=grUGObjdLc>
- Dufva, M. et al. (2017). *Miltä näyttää työn tulevaisuus? Tilannekatsaus ja kuusi muutuskulkua*. [viitattu 24.5.2017] Saatavilla: <http://tietokayttoon.fi/documents/1927382/2116852/Milt%C3%A4+n%C3%A4+ytt%C3%A4%C3%A4+ty%C3%B6n+tulevaisuus/674fd30e-f47e-40b3-9a56-0d23f9c7d86f?version=1.0>
- Energiatoteellisuus (2017). *Kaukolämpö tuotetaan lähellä asiakasta*. [viitattu 4.9.2017]. Saatavilla: [https://energia.fi/perustietoa\\_energia-alasta/energiantuotanto/kaukolammon\\_tuotanto](https://energia.fi/perustietoa_energia-alasta/energiantuotanto/kaukolammon_tuotanto)
- Espoon kaupunki (2017). *Espoo-tarina: "Espoo on Euroopan kestävin kaupunki jatkossakin"*. [viitattu 12.9.2017]. Saatavilla: [http://www.espo.fi/fi-FI/Tyo\\_ja\\_yrittaminen/Espootarina\\_Espoo\\_on\\_Euroopan\\_kestavin\\_k\(125864\)](http://www.espo.fi/fi-FI/Tyo_ja_yrittaminen/Espootarina_Espoo_on_Euroopan_kestavin_k(125864))
- ESRI. Maps & Data for ArcGIS. [viitattu 9.3.2017]. Saatavilla: <http://www.arcgis.com/home>
- Euroopan komissio (2016). *InfoRegio. European Regional Competitiveness Index*. [viitattu 12.6.2017]. Saatavilla: [http://ec.europa.eu/regional\\_policy/en/information/maps/regional\\_competitiveness/](http://ec.europa.eu/regional_policy/en/information/maps/regional_competitiveness/)
- European Commission Directorate-General for Regional and Urban Policy (DG Regio), Orkestra Basque Institute of Competitiveness, and Social Progress Imperative (2016). *European Union Regional Social Progress Index*. [viitattu 5.6.2017]. Saatavilla: <http://www.socialprogressimperative.org/custom-indexes/european-union/>
- Eurostat (2017). *Tietokantataulukot. Young people neither in employment nor in education and training by sex, age and labour status (NEET rates)*. Eurostat, Luxembourg. [viitattu 26.10.2017]. Saatavilla: <http://ec.europa.eu/eurostat/data/database>
- EY (2017). *Opportunity and potential. EY's Attractiveness Program Nordics 2017*. EY:n selvityksiä. [viitattu 26.10.2017.] Saatavilla: [http://www.ey.com/Publication/vwLUAssets/Attractiveness\\_Program\\_Nordics\\_2017/\\$FILE/EY-Nordics-Attractiveness-Report-2017.pdf](http://www.ey.com/Publication/vwLUAssets/Attractiveness_Program_Nordics_2017/$FILE/EY-Nordics-Attractiveness-Report-2017.pdf)
- Financial Times, fDi Magazine (2016). *European Cities and Regions of the Future 2016/17 rankings*. [viitattu: 15.5.2017]. Saatavilla: [https://www.uudenmaanliitto.fi/files/17684/European\\_Cities\\_and\\_Regions\\_of\\_the\\_Future.pdf](https://www.uudenmaanliitto.fi/files/17684/European_Cities_and_Regions_of_the_Future.pdf)
- Finavia (2016). *Liikennetilastot 2016*. [viitattu 10.8.2017]. Saatavilla: <https://www.finavia.fi/fi/tietoa-finaviasta/lentoliikenne/tilastot/2016/>
- Gustafsson, R., Jääskeläinen, M. & Maula, M. (2013). *Innovaatiotoiminta ja globaalit arvoverkostot*. Policy Brief. [viitattu: 15.5.2017] Saatavilla: [https://www.tekes.fi/globalassets/global/ohjelmat-ja-palvelut/kampanjat/innovaatiotutkimus/policybrief\\_4\\_2013\\_gfi.pdf](https://www.tekes.fi/globalassets/global/ohjelmat-ja-palvelut/kampanjat/innovaatiotutkimus/policybrief_4_2013_gfi.pdf)
- Hanska, J. (2017). *Tulevaisuus hanskassa: Öljymiehen tunnustuksia*. YLE, podcast. [viitattu 23.10.2017]. Saatavilla: <https://areenayle.fi/1-4256464>
- Helsingin kaupunki (2017). *Helsingin kaupunkistrategia 2017–2021*. [viitattu: 25.8.2017] Saatavilla: <https://www.hel.fi/helsinki/fi/kaupunki-ja-hallinto/strategia-ja-talous/kaupunkistrategia/strategia-ehdotus/>
- Helsingin kaupunki (2015). *Helsingin ilmastotiekartta 2050 on valmistunut*. [viitattu: 28.4.2017]. Saatavilla: <http://www.stadinilmasto.fi/2015/03/26/helsingin-ilmastotiekartta-2050-on-valmistunut/>
- Helsingin kaupungin tietokeskus (2016). *Helsingin seudun vieraskielisen väestön ennuste 2015–2030*. Tilastoja 2016:1. Helsingin kaupungin tietokeskus, Helsinki.
- Helsingin yliopisto (2017). *Mikä yliopistoranking?* [viitattu 29.6.2017]. Saatavilla: <https://www.helsinki.fi/fi/yliopisto/mika-yliopistoranking>
- HSL (2013). *HLJ 2015 – Liikemistottumukset Helsingin seudulla 2012*. HSL:n julkaisuja 27/2013. Helsingin seudun liikenne, Helsinki.
- Hutschenreiter, G. et al. (2017). *Suomen innovaatiopolitiikan OECD-arviointi 2017*. Työ - ja elinkeinoministeriön julkaisuja 25/2017. [viitattu 29.6.2017]. Saatavilla: [http://julkaisut.valtioneuvosto.fi/bitstream/handle/10024/80084/TEMjul\\_25\\_2017\\_verkkokjulkaisu.pdf](http://julkaisut.valtioneuvosto.fi/bitstream/handle/10024/80084/TEMjul_25_2017_verkkokjulkaisu.pdf)
- Kauppalehti (2017). *Jakamistalous laskee yrittämisen kynnystä*. Julkaistu 7.6.2016. [viitattu 7.4.2017]. Saatavilla: <http://www.kauppalehti.fi/uutiset/jakamistalous-laskee-yrittamisen-kynnysta/t3sbCjXj>
- Kiiski Kataja, E. (2016): *Megatrendit 2016 – tulevaisuus tapahtuu nyt*. Sitra. [viitattu 15.6.2017]. Saatavilla: [https://media.sitra.fi/2017/02/23211717/Megatrendit\\_2016.pdf](https://media.sitra.fi/2017/02/23211717/Megatrendit_2016.pdf)

- Kovuranta, E. (2017). Yllättävä tieto: Helsinki matkalla maailman suurimmaksi matkustajatasotamaksi – nyt tasoissa Britannian Doverin kanssa. Julkaistu Ylellä. Viitattu 8.8.2017: <https://yle.fi/uutiset/3-9754915>
- Laakso, S. (2017). Uudenmaan aluetalouden skenaariot sekä väestö- ja työpaikkaprojektiot. Taustaselvitys Uusimaa-kaavan 2050 ja Uusimaa-ohjelman valmisteluun. Uudenmaan liiton julkaisuja E 179 – 2017. [viitattu: 4.7.2017.]. Saatavilla: [https://www.uudenmaanliitto.fi/files/19412/Aluetalouden\\_skenaariot\\_seka\\_tyopaikka\\_ja\\_vaestoprojektiot\\_E179-2017.pdf](https://www.uudenmaanliitto.fi/files/19412/Aluetalouden_skenaariot_seka_tyopaikka_ja_vaestoprojektiot_E179-2017.pdf)
- Lehto, M. et al. (2017). Suomen kyberturvallisuuden nykytila, tavoitetila ja tarvittavat toimenpiteet tavoitetilan saavuttamiseksi. Valtioneuvoston selvitys ja tutkimustoiminnan julkaisusarja 30/2017. [viitattu: 14.6.2017]. Saatavilla: <http://bit.ly/2s9QyxS>
- Liimatainen, K. (2017). Slush-vaikuttajien mielestä Suomi on tärvännyt liikaa aikaa soteen, kikyyn ja keskioluisiin – ”Meidän pitää rakentaa maailman parhaita yrityksiä”. Julkaistu Helsingin Sanomissa 24.7.2017. [viitattu 2.8.2017]. Saatavilla: <http://www.hs.fi/talous/art-2000005300828.html>
- Luoto, L. et al. (2017). Uusimaa 5.0 – Jotakin parempaa. Uudenmaan tulevaisuustarkastelu 5.0. Uudenmaan liiton julkaisuja E 18. [viitattu: 4.7.2017]. Saatavilla: [https://www.uudenmaanliitto.fi/files/19633/Uusimaa\\_5.0\\_-\\_Uudenmaan\\_tulevaisuustarkastelu\\_2050\\_%28E182-2017%29.pdf](https://www.uudenmaanliitto.fi/files/19633/Uusimaa_5.0_-_Uudenmaan_tulevaisuustarkastelu_2050_%28E182-2017%29.pdf)
- Maa- ja metsätalousministeriö (2017). Valtioneuvoston selonteko ruokapolitiikasta. Ruoka2030 – Suomi - ruokaa meille ja maailmalle. [viitattu: 6.7.2017]. Saatavilla: <http://mmm.fi/documents/1410837/1923148/Ruokapolitiinen+selonteko+Ruoka2030/d576b315-41fe-4e9d-9d02-8462c5ae5895>
- Mazzucato, M. (2013). *The Entrepreneurial State. Debunking Private vs. Public Sector Myths*. London: Anthem Press.
- Mellon, J. (2017). *Investing in the longevity*. Presentation at the Digital Health World Congress 2017.
- Myllyniemi, S. (toim.) (2017). *Katse tulevaisuudessa. Nuorisobarometri 2016*. Valtion nuorisoneuvoston julkaisuja ISSN 2341-5568 verkkojulkaisu nro 56, Verkkojulkaisuja (Nuorisotutkimusseura) ISSN 1799-9227, nro 111, Kenttä. [viitattu 5.6.2017]. Saatavilla: [https://tietoaunorista.fi/wp-content/uploads/2017/03/Nuorisobarometri\\_2016\\_WEB.pdf](https://tietoaunorista.fi/wp-content/uploads/2017/03/Nuorisobarometri_2016_WEB.pdf)
- Motiva (2017). *Uusiutuva energia*. [viitattu: 22.8.2017]. Saatavilla: [https://www.motiva.fi/ratkaisut/uusiutuva\\_energia](https://www.motiva.fi/ratkaisut/uusiutuva_energia)
- Motiva (2017). *Uusiutuva energia Suomessa*. [viitattu: 22.8.2017] Saatavilla: [https://www.motiva.fi/ratkaisut/uusiutuva\\_energia/uusiutuva\\_energia\\_suomessa](https://www.motiva.fi/ratkaisut/uusiutuva_energia/uusiutuva_energia_suomessa)
- Mustosmäki, A. (2017). *Pohjoismainen työmarkkinamalli digipaniikin aikakaudella*. Kalevi Sorsa säätiö. [viitattu 3.7.2017]. Saatavilla: [http://sorsafoundation.fi/wp-content/uploads/2017/06/Mustosmaki\\_Pohjoismainen\\_tyomarkkinamalli\\_digipaniikin\\_aikakaudella\\_Sorsasaatio\\_WEB.pdf](http://sorsafoundation.fi/wp-content/uploads/2017/06/Mustosmaki_Pohjoismainen_tyomarkkinamalli_digipaniikin_aikakaudella_Sorsasaatio_WEB.pdf)
- Myllyniemi, S. (2017). *Katse tulevaisuudessa. Nuorisobarometri 2016*. Valtion nuorisoneuvoston julkaisuja nro 56. Opetus- ja kulttuuriministeriö, Helsinki.
- Mäki, N. (2015). *New Yorkissa elinajanodote voimakkaasti yhteydessä alueen tulotasoon – entä Helsingissä?* Julkaistu Kvartti verkkolehdeissä 11.11.2015. [viitattu 7.11.2017]. Saatavilla: <http://www.kvartti.fi/fi/blogit/new-yorkissa-elinajanodote-voimakkaasti-yhteydessa-alueen-tulotasoon-enta-helsingissa>
- Neuvonen, A. (2016). *Jakamistalous tulevaisuuden ilmiönä*. [viitattu 7.4.2017]. Saatavilla: <http://www.slideshare.net/DemosHelsinki/jakamistaloustulevaisuuden-ilmin>
- Opetushallinto (2017). Opetushallinnon tilastopalvelu Vipunen. *Yliopistotutkimuksen suorittaneiden sijoittuminen*. Opetushallinto, Helsinki. [viitattu 26.10.2017]. Saatavilla: <https://vipunen.fi/fi-fi>
- Parjanne, A. & Huokuna, M. (toim.) (2017). *Tulviin varautuminen rakentamisessa, Opas alimpien rakentamiskorkeuksien määrittämiseksi ranta-alueilla*. Ympäristöopas. Suomen ympäristökeskus, Ilmatieteen laitos, Ympäristöministeriö ja Maa- ja metsätalousministeriö. Saatavilla: <https://helda.helsinki.fi/handle/10138/135189>
- Pasonen, J. (2017). *Oletko huomannut, ilmasto muuttuu?* Luonnonvarakeskus. Julkaistu Maaseudun Tulevaisuudessa 6.2.2017. [viitattu: 6.7.2017]. Saatavilla: <https://www.luke.fi/mt-oletko-huomannut-ilmasto-muuttuu/>
- Rifkin, J. (2011). *Third Industrial Revolution: How Lateral Power Is Transforming Energy, the Economy, and the World*. New York: Palgrave MacMillan.
- Rifkin, J. (2009). *The Age of Access*. Penguin Books, New York.
- Rikama, S. (2017). *Voimakkaasti kasvuhakuiset pk-yritykset*. TEM-analyysseja 77/2017. [viitattu 12.9.2017]. Saatavilla: <https://julkaisut.valtioneuvosto.fi/bitstream/handle/10024/79254/voimakkaasti%20kasvuhakuiset%20pk-yritykset.pdf?sequence=1>
- Rode, P. (2016). *The integrated ideal in urban governance: compact city strategies and the case of integrating urban planning, city design and transport policy in London and Berlin*. Doctoral thesis, The London School of Economics and Political Science.
- Rode, P. et al. (2009). *Cities and social equity: inequality, territory and urban form*. Urban Age Programme, London School of Economics, London, UK. ISBN 9780853284185.
- Rodrik, D. (2011). *The Globalization Paradox: Democracy and the Future of World Economy*. W.W. Norton & Company.
- Sitra (2014). *Kiertotalouden mahdollisuudet Suomelle*. Sitran selvityksiä 84. Sitra, Helsinki.
- Sitra (2017). *Yhteisöllisyys*. [viitattu 14.6. 2017]. Saatavilla: <https://www.sitra.fi/aiheet/yhteisollisyys/#ajankohtaista>
- Sitra (2017). *Seuraava erä*. [viitattu 24.5.2017]. Saatavilla: <https://www.sitra.fi/seuraavaera/#mista-on-kyse>
- Sitra (2016). *Kierrolla kärkeen - Suomen tiekartta kiertotalouteen 2016–2025*. Sitran selvityksiä 117. [viitattu: 27.4.2017]. Saatavilla: <https://media.sitra.fi/2017/02/24032626/Selvityksia117-2.pdf>
- Sosiaali- ja terveysministeriö (2015). *Parempaa terveyttä genomitiedon avulla - Kansallinen genomstrategia - työryhmän ehdotus*. Raportteja ja muistioita (STM): 2015:24. [viitattu 21.5.2017]. Saatavilla: [https://www.julkari.fi/bitstream/handle/10024/126268/URN\\_ISBN\\_978-952-00-3586-0.pdf?sequence=1](https://www.julkari.fi/bitstream/handle/10024/126268/URN_ISBN_978-952-00-3586-0.pdf?sequence=1)
- Strandell, A. (2017). *Asukasbarometri 2016 – Kysely kaupunkimaisista asuinympäristöistä*. Suomen ympäristökeskuksen raportteja 19/2017. Suomen ympäristökeskus, Helsinki.
- Sundarajan, A. (2016). *The Sharing Economy: The End of Employment and the Rise of Crowd-Based Capitalism*. (MIT Press).
- Suomen virallinen tilasto (2017). *Kasvuyritystiedot maakunnittain toimialan, kokoluokan ja kasvuvauhdin mukaan*. Toimialoitainen yritystietopalvelu. Tilastokeskus, Helsinki.
- Suomen YK-liitto (2015). *Kestävän kehityksen tavoitteet - Agenda 2030*. [viitattu 8.9.2017]. Saatavilla: <http://www.ykliitto.fi/yk70v/yk/kehitys/post-2015>
- SYKE (2017). *Elinympäristön tietopalvelu Liiteri. Maankäyttö maakunnittain*. Suomen ympäristökeskus, Helsinki.
- Syke, Aalto & Ilmatieteen laitos (2017). *Ilmastonmuutoksen vaikutukset Suomen talouteen ja Ilmastonmuutos ja maailmantalous*. [viitattu 18.10.2017]. Saatavilla: <https://ilmasto-opas.fi>



Tekes (2017). *Terveysteknologia on edelleen yksi nopeimmin kasvavista korkean teknologian ventialoista*. Tekesin verkkouutinen. [viitattu 26.10.2017]. Saatavilla: <https://www.tekes.fi/nyt/uutiset-2017/terveysteknologia-on-edelleen-yksi-nopeimmin-kasvavista-korkean-teknologian-ventialoista-suomessa/>

THL (2017b). Tilasto- ja indikaattoripankki SOTKANet, ind. 4284. *Itsensä yksinäiseksi tuntevien osuus*. Terveyden ja hyvinvoinnin laitos, Helsinki.

THL (2017d). *Tulotason mukaiset terveyserot ovat edelleen suuria*. Suomen sosiaalinen tila -raporttisarja 3/2017. Terveyden ja hyvinvoinnin laitos, Helsinki.

Tilastokeskus (2017). PX-Web-tietokannat. Eurostatin avaintaulukot. Kansantalous. [viitattu 24.8.2017]. Saatavilla: [http://pxnet2.stat.fi/PXWeb/pxweb/fi/Eurostat/Eurostat\\_kan/tgs00036.px/?rxid=a0cf5e97-3aba-4125-a50d-2c7763b8a48b](http://pxnet2.stat.fi/PXWeb/pxweb/fi/Eurostat/Eurostat_kan/tgs00036.px/?rxid=a0cf5e97-3aba-4125-a50d-2c7763b8a48b)

Toimiala Online. Tilastokeskus. Taulukko: Alueella työssäkäyvät (työpaikat) 31.12.2014

Tulli (2017). *Tavaroiden ulkomaankauppa maakunnittain vuonna 2016*. [viitattu 10.8.2017]. Saatavilla: <https://tulli.fi/documents/2912305/4426912/Tavaroiden+ulkomaankauppa+maakunnittain+vuonna+2016.pdf/c6b2eeb0-41c9-4850-bc09-44e7d85ae9?version=1.0>

Turvallisuuskomitea (2017). *Suomen kyberturvallisuusstrategian toimeenpano-ohjelma 2017-2020*. ISBN: 978-951-25-2908-7 [viitattu 14.6.2017]. Saatavilla: [www.turvallisuuskomitea.fi](http://www.turvallisuuskomitea.fi)

Työ- ja elinkeinoministeriö (2014). *Terveysalan tutkimus- ja innovaatiotoiminnan kasvustrategia*. TEM raportteja 12/2014. [viitattu 21.5.2017]. Saatavilla: <https://tem.fi/documents/1410877/2871099/Terveysalan+tutkimus+ja+innovaatiotoiminnan+kasvustrategia+26052014.pdf>

Uudenmaan ELY-keskus (2016). *Vesihuollon kehittämissuunnitelman päivitys: Vaiheet 1, 2 ja 3*. Uudenmaan ELY-keskus, raportteja 111/2016. [viitattu: 6.7.2017]. Saatavilla: <http://urn.fi/URN:ISBN:978-952-314-544-3>.

Uudenmaan ELY-keskus (2014). *Ympäristön tila Uudellamaalla 2013*. [viitattu: 7.9.2017]. Saatavilla: [http://www.ymparisto.fi/fi-FI/Kartat\\_ja\\_tilastot/Ympariston\\_tila\\_Suomessa\\_2017/Ympariston\\_tila\\_Suomessa\\_2013/Ympariston\\_tila\\_Uudellamaalla\\_2013\(27618\)](http://www.ymparisto.fi/fi-FI/Kartat_ja_tilastot/Ympariston_tila_Suomessa_2017/Ympariston_tila_Suomessa_2013/Ympariston_tila_Uudellamaalla_2013(27618))

Uudenmaan ELY-keskus (Tulossa/ luonnos 2017). *Ympäristön tila Uudellamaalla 2017*.

Uudenmaan liitto (2017). Uudenmaan liiton tietopalvelut. [viitattu: 3.5.2017]. Saatavilla: <https://www.uudenmaanliitto.fi/tietopalvelut>

Uudenmaan liitto (2016). *Hiilineutraali Uusimaa 2050 –tiekartta*. Uudenmaan liiton julkaisuja E 150 -2015. [viitattu: 28.4.2017]. Saatavilla: [http://www.uudenmaanliitto.fi/files/16769/Hiilineutraali\\_Uusimaa\\_2050\\_tiekartta\\_E\\_150\\_-2015.pdf](http://www.uudenmaanliitto.fi/files/16769/Hiilineutraali_Uusimaa_2050_tiekartta_E_150_-2015.pdf) 24.2.2017

Uudenmaan liitto (2016). *Kasvihuonekaasupäästöt*. [viitattu 15.6.2017]. Saatavilla: [https://www.uudenmaanliitto.fi/tietopalvelut/uusimaa-tietopankki/alue\\_ja\\_ymparisto/kasvihuonekaasupaaastot](https://www.uudenmaanliitto.fi/tietopalvelut/uusimaa-tietopankki/alue_ja_ymparisto/kasvihuonekaasupaaastot)

Uudenmaan liitto. *Uusimaa-kaava 2050: Uudenmaan rakennemallit*. Uudenmaan liiton julkaisuja E 191 -2017. Saatavilla: [https://www.uudenmaanliitto.fi/files/20941/Uudenmaan\\_rakennemallit\\_-\\_Uusimaa-kaava\\_2050\\_9628E191-2017%29.pdf](https://www.uudenmaanliitto.fi/files/20941/Uudenmaan_rakennemallit_-_Uusimaa-kaava_2050_9628E191-2017%29.pdf)

Uudenmaan liitto & Ramboll Finland Oy (2017). *Helsinki-vantaan lentoasemalla merkitys ja vaikutukset Uudellamaalla*. Uudenmaan liiton julkaisuja E 188 – 2017. [viitattu 10.8.2017]. Saatavilla: [https://www.uudenmaanliitto.fi/files/20319/Helsinki-Vantaan\\_lentoaseman\\_merkitys\\_ja\\_vaikutukset\\_9628E188-2017%29.pdf](https://www.uudenmaanliitto.fi/files/20319/Helsinki-Vantaan_lentoaseman_merkitys_ja_vaikutukset_9628E188-2017%29.pdf)

Ympäristöministeriö (2017). *Valtioneuvoston selonteko keskipitkän aikavälin ilmastopolitiikan suunnitelmasta vuoteen 2030 – Kohti ilmastoviisasta arkea*. Ympäristöministeriön raportteja, 21/2017. [viitattu 18.10.2017]. Saatavilla: [https://julkaisut.valtioneuvosto.fi/bitstream/handle/10024/80703/YMra\\_21\\_2017.pdf?sequence=1](https://julkaisut.valtioneuvosto.fi/bitstream/handle/10024/80703/YMra_21_2017.pdf?sequence=1)

Vigna, P. & Casey, M.J. (2016). *The Age of Cryptocurrency: How Bitcoin and the Blockchain Are Challenging the Global Economic Order*.

Wennberg, M. et al. (2017). *Alueiden vahvuuksien analyysi*. Työ- ja elinkeinoministeriön julkaisuja 24/2017. [viitattu 29.6.2017]. Saatavilla: <http://julkaisut.valtioneuvosto.fi/handle/10024/79987>

Wijkman, A. & Skånberg, K. (2015). *The Circular Economy and Benefits for Society, Jobs and Climate Clear Winners in an Economy Based on Renewable Energy and Resource Efficiency. A study pertaining to Finland, France, the Netherlands, Spain and Sweden*. A study report at the request of the Club of Rome with support from the MAVA Foundation, 59 p.

**Uudenmaan liitto // Nylands förbund**  
**Helsinki-Uusimaa Regional Council**

Esterinportti 2 B • 00240 Helsinki • Finland  
+358 9 4767 411 • [toimisto@uudenmaanliitto.fi](mailto:toimisto@uudenmaanliitto.fi) • [uudenmaanliitto.fi](http://uudenmaanliitto.fi)