



VOLUNTARY LOCAL REVIEW

IMPLEMENTATION OF THE UNITED NATIONS'
SUSTAINABLE DEVELOPMENT GOALS 2030 IN THE CITY OF ESPOO



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LEAVE NO ONE BEHIND

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FROM THE EDITORIAL TEAM

City is a genuinely complex entity. Not only that but it's also in constant organic flow. One will have as many definitions for a city as there are people defining it. Proverb of seven blind men trying to describe an elephant and all giving different descriptions to it does apply to cities rather well. What is there then to base your work on and how to steer development? In Espoo the answer is simple. It is the Espoo Story, our guiding strategy. When reading through this review you will notice that Espoo Story is a fundamental starting point to a clear majority of articles in the report. That is simply because it is embedded into everything we do. Having a shared vision and statement of values that can then be negotiated, ideated, designed and implemented into all contexts needed is the idea behind it. As for the SDGs and examining them in relation to Espoo Story we found them to be well aligned. First this was surprising. Not so much after considering what cities actually do. In Finland it is the cities that design and implement ecological, social, cultural and economic sustainable development in practice. Literally from birth, to organising "Frozen" themed dresses to Kindergartens that are municipally ran but globally acknowledged, to managing a holistic and constantly developing world-class education and vocational training system, to a lean healthcare system, elderly care, sports, culture, libraries, palliative care and beyond. Not forgetting managing and fostering our environment! When creating a sustainable future, it is in cities where the rubber meets the road. No wonder that Finnish cities, and Espoo as a forerunner amongst them, find Agenda 2030 and the SDGs a good fit to describe their present and future work. Cities and SDGs are a match forged in every day pragmatic work in order to serve our citizens. This can also be seen how VLR was

made in Espoo. It is different units in the City that have created the clear majority of VLR content: **Education and Cultural Services**, **Technical and Environment Services**, and **Social and Health Services** together with the **Mayor's Office** are to be thanked for designing, writing and reviewing most of what constitutes Espoo's VLR. Even more importantly it is these units that create all the doing that can be reviewed in the first place. We hope that the Espoo VLR is able to communicate that and what we are doing in order to reach the SDGs. Jointly as part of a global community.

Finally, conducting the VLR in Espoo was a result of great co-operation. During the past six months hundreds and hundreds of people participated to the process starting from the Mayor, people in Espoo city organisation, and partners to school students from Denmark and Iceland. And everything in between. Even so, if asked to point out one single learning from this process, it would be an easy choice. It has been at the same time constructively humbling and genuinely inspiring to witness the commitment, expertise, talent and enjoyment of daily work of the people working for our citizens. Different professions and backgrounds, even values, working together towards an even more sustainable Espoo. This review is dedicated to you.

On behalf of the editorial team,
Ville Taajamaa

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FOREWORD

CITY OF ESPOO - THE MOST SUSTAINABLE CITY

Espoo is the second largest and fastest growing city in Finland. Our target is to keep our growth sustainable. Few years ago, EU made a study about cities in Europe, and the City of Espoo was ranked as the most sustainable city in Europe. We have decided to be that also in future.

For us the United Nations Sustainable Development Goals (SDGs) are a way of measuring our sustainability but also language and a way to communicate our visions, actions and dreams with our citizens, other cities, and with all our partners. We also want to use the SDGs as a way of committing our friends close and afar to the shared journey of sustainable development.

ESPOO STORY IS ALL ABOUT DOING TOGETHER

The Espoo Story is our strategy. It guides the city's operations better and more clearly in accordance with common goals. We need shred visions, values and tasks, which are clear, understandable and make sense. We are using a narrative in our strategy because it is much easier to communicate and to have a dialogue with our citizens and employees. We made our city strategy and we set our goals in collaboration with our residents. Even the 6-year old preschoolers took part in co-creating our strategy. They had a 'Day as a mayor' -day in Kindergarten. As a result we got a lot of good ideas for sustainable Espoo! Our first value is resident and customer orientation - no one is left behind. Our best resource are our residents, communities and companies.

Voluntary Local Review (VLR) that we have now conducted and reported for the first time is all about reviewing the pragmatic and concrete phenomena, projects and actions, which we have done and are doing in accordance to Espoo Story, and mapping those with the UN Agenda 2030 and the SDGs. In short, reviewing the actions that are implementing the Espoo Story and mapping them with the SDGs.

The Espoo way of doing this process was emergent. Instead of just reviewing existing data and documentation, we gave our own experts, project managers, partners and citizens the possibility to share their insight and report their projects to us. These phenomena were then reviewed by internal and external SDG-experts. Altogether close to 1,000 persons were involved in the Espoo VLR2020-process out of which the content reported in this review were chosen based on relevance with the Espoo Story. The reason for such a holistic process is simple. For us the SDGs are both a corner stone and a capstone that we will use to build our visions, dreams and actions.

Espoo Story has been a success story and the City of Espoo was chosen to be the most Intelligent Community in the World year 2018. Espoo Story is all about doing together. I'm sure we need the same collaboration to be sustainable and to reach the SDGs. If we want to succeed as a sustainable forerunner city, we need to do it together and we need good collaboration especially with the citizens. It is not a top-down issue. If we want to co-create a better sustainable world, we need a value-based citizen oriented holistic approach. We need a common shared vision, values and tasks, which are clear, understandable and make sense. We need a narrative for a citizen oriented sustainable forerunner community, and we must co-create it together. Yes, especially with 6-year old preschoolers!

If we want to keep our growth sustainable, we must improve all our actions. I think the education is a cornerstone to sustainability. We need a continuing improvement of education to all, especially for the children. The collaboration with the universities and research institutes is very important, when we are facing the challenges of the future.

If we are going to succeed to co-create a better sustainable world, we need to do it together. A citizen oriented sustainable community makes sense, when we are doing it together. The City of Espoo is fully committed to reach all United Nations Sustainable Development Goals by 2025.

As I am writing this foreword in May 2020, the Covid-19 pandemic has influenced the way we perceive our world. Many things that we have taken for granted may have changed for good. In addition to our health and that of others, social and cultural sustainability and the economic situation are facing tremendous challenges. Covid-19 has also been an unscheduled pressure test for our visions and goals in terms of sustainable development, the VLR included. As it turns out, we have learned that nothing needs to be changed. On the contrary, sustainable development has even more significance than it used to. When the crisis is over and investments in the future start again, sustainable development will have even more significance for all of us. The City of Espoo is determined to be a forerunner city then as well.

Jukka Mäkelä
Mayor of the City of Espoo

INTRODUCTION

ESPOO'S VLR - THE RESULT OF GREAT COOPERATION

The Espoo Voluntary Local Review (VLR) is based on the city's long-term work to promote economic, ecological, social and cultural sustainability. The VLR is a process initiated by decision of the city management and jointly implemented by the entire city organisation and partners. This review has been carried out in cooperation with hundreds of people. Espoo employees, residents, customers, partners and actors of the Espoo Corporate Group have all participated in the various stages of the review work. A multi-actor and multi-voiced approach has been a conscious choice. It has brought into the review a multitude of views, talents and experiences. In Espoo, the VLR is the result of genuine cooperation.

The VLR process in Espoo was made possible by three factors:

1. A strong commitment by the management to the project from preliminary review to final release
2. Cross-administrative, committed and competent organisation and editorial team
3. The ability to resist obvious conclusions and rely on ideas and messages from within the organisation

SUSTAINABLE DEVELOPMENT REQUIRES LONG-TERM COOPERATION

Espoo's sustainable development efforts aim for a safe, healthy and functional everyday life in a carbon neutral city. Sustainable urban solutions for the future are developed, tested and implemented in partnership with partners and residents. The sustainable development goals unite the entire Corporate Group and Espoo's partners also share the same values.

The work on sustainable development is based on the Espoo Story, which is a city strategy drafted together with city residents. It tells about Espoo's values, attitudes, operating culture and common goals. The key to our sustainable development work is to make the goals and indicators of the Espoo Story concrete, and to develop an approach based on interaction between ideas, people and phenomena. This also applies to the first sub-process of the SDG work, the VLR report.

ACHIEVING SUSTAINABLE DEVELOPMENT GOALS AS A PIONEER

In the leadership programme for pioneering cities, Espoo is committed to achieving the UN's sustainable development goals (SDGs) by 2025. To achieve this objective, the city is developing its own operations and working with business partners to find solutions that serve as examples of future carbon neutral urban life. Key development areas include smart and clean city solutions, low-emission smart mobility, renewable energy, responsibility and local environment. For the first time, these solutions have been comprehensively grouped together and evaluated in this VLR.

In the first stage, Espoo's pioneering work focuses on three goals: Quality education (SDG 4), Industry, Innovation and Infrastructure (SDG 9) and Climate Action (SDG 13). In future, the city's financial planning will also be increasingly linked to the SDG reference framework. From 2021 on, the climate action prepared through the Covenant of Mayors work to achieve carbon neutrality in this decade will be included in the performance targets binding on the city.

Espoo is an active partner and development platform for companies and developers in the region. Last year at the Energy Globe World Award, Espoo was awarded the Sustainable City award for successful cooperation with companies and residents. A year earlier, the Intelligent Community Forum (ICF) chose Espoo as the world's smartest urban community for the same reason.

Espoo also participates in building a sustainable Finland. It was the first city to join the Finnish Society's Commitment to Sustainable Development, aiming to build a globally responsible Finland. Espoo's actors from schools and day-care centres to businesses and residents are committed to developing their operations to be more sustainable through more than 100 commitments. These commitments impact on over half of Espoo's population.

HOW TO READ THIS VLR

This review has seven (7) main sections. **Introduction** to VLR that reports the background to why Espoo decided to conduct the VLR and some key facts about Espoo and municipalities in Finland. **Methods** part sheds light on the VLR design, implementation and review process as well as to SDG review metrics. Three next sections: **Leave no one Behind**, **Let's do it Together**, and **Accelerated Action** contain the main bulk of what constitutes the Espoo VLR2020. These are sections where articles about social, cultural, economic and ecological sustainability and what the City of Espoo aims to achieve through different operations and projects are reviewed in relation to the SDGs. Articles are written by experts from within city's different units, namely **Education and Cultural Services**, **Technical and Environment Services**, **Social and Health Services** and the **Mayor's Office** and by key partners of Espoo. In **SDGs in Espoo** section each SDG is viewed through key indicators for the city and with emphasis on SDG 4, SDG 9 and SDG13. Finally in **Conclusions** section main results are presented together with conclusions and discussion.



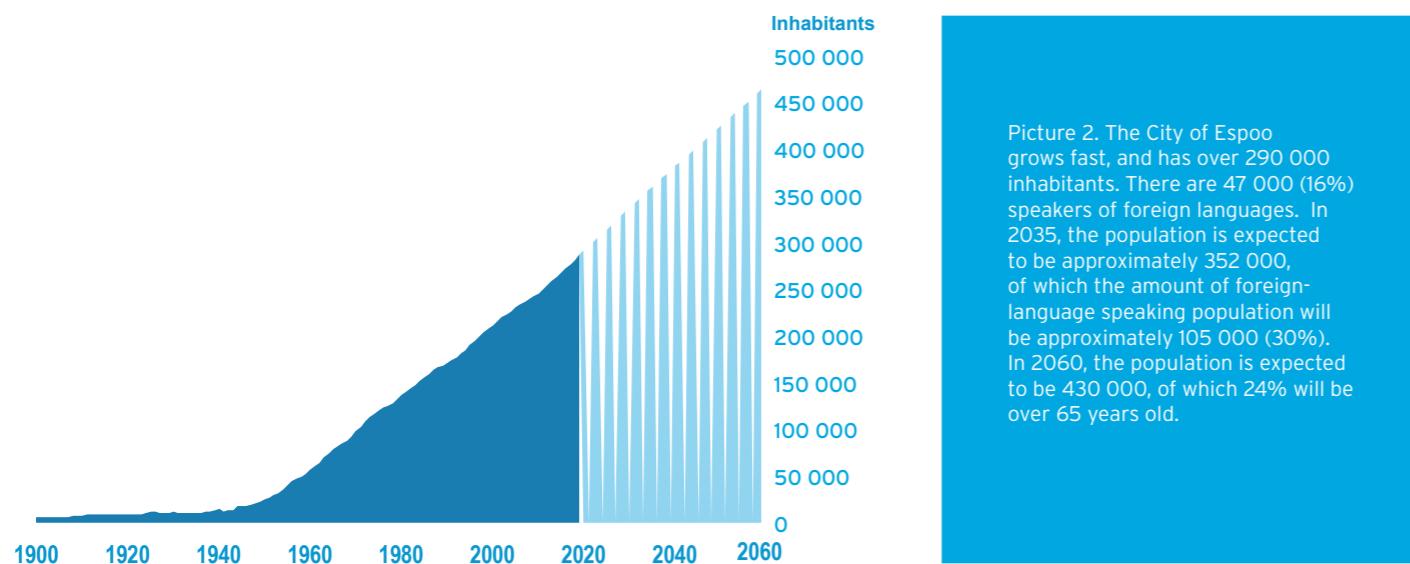
Picture 1. In accordance with its vision, Espoo is a network-like, responsible and humane pioneering city where everyone enjoys living, learning, working and doing business and where residents can truly have their voice heard. In addition to the vision, the Espoo Story contains the values and principles of operation as well as the goals and objectives for the council term which are implemented in the sectors and profit centres through their own stories and scorecards. In addition, the Espoo Story is implemented through four cross-sectoral development programmes penetrating the city organisation. One of these is Sustainable Espoo. In addition to it, the other cross-sectoral programmes are: A participatory Espoo; Healthy Espoo; and Inspiring, dynamic Espoo. The programmes are already implementing the city's SDG goals well.

“
Esboo will be
carbon neutral by
2030.

KEY FACTS ABOUT ESPOO

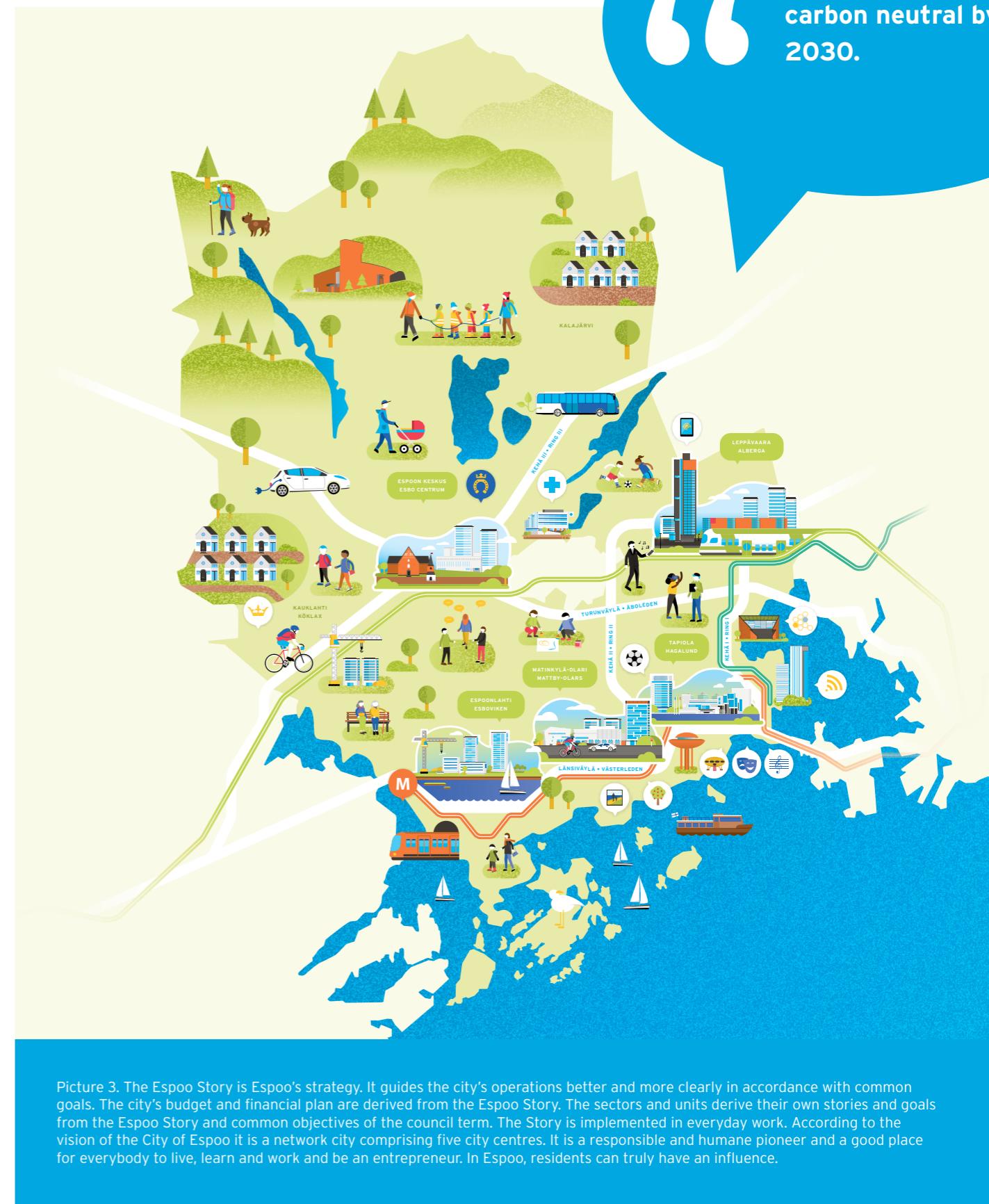
10 POINTS ABOUT THE CITY OF ESPOO

1. The City of Espoo grows fast, and has over 290 000 inhabitants. There are 47 000 (16%) speakers of foreign languages.
2. In 2035, the population is expected to be approx. 352 000, of which the amount of foreign-language speaking population will be approx. 105 000 (30%).
3. The socio-economic characteristics (age, income, education, and health) are still among the best in Finland, although the strong rise in foreign-language speaking population will have an impact on them.
4. Health and well-being are on a good level in Espoo. However, there is still some poverty, children and youth with problems, loneliness, etc.
5. Aalto University and universities of applied sciences offer high-quality education for example in the field of technology, business and arts.
6. Urban structure and infrastructure develop quickly: Urban structure of five city centres, metro, Jokeri Light Rail, Espoo city rail line, one-hour train connection to Turku.
7. Housing production remains high. In 2018, an estimated 3 700 dwellings were built. 32 500 new dwellings will be completed by 2028.
8. Residents are rather satisfied with the services provided by the city, and consider the city safe.
9. The role of the city as a digital services platform and producer will grow.
10. Fast and long-lasting growth is a challenge to environmental sustainability. Espoo will be carbon neutral by 2030.



5 POINTS ABOUT MUNICIPALITIES IN FINLAND

1. Finland has 310 municipalities (2020). More than half of them have fewer than 6 000 residents.
2. There are nine cities with a population of over 100 000 in Finland. They account for one per cent of Finland's area, but for 30 per cent of the country's population and for as much as 40 per cent of all jobs.
3. Six biggest cities are: Helsinki (more than 600 000 inhabitants), Espoo (close to 300 000), Tampere (close to 250 000), Vantaa (close to 250 000), Oulu (close to 200 000) and Turku (close to 200 000).
4. The most important services provided by municipalities include social welfare, health care, education and culture, and technical services.
5. Local authorities have a strong self-government based on local democracy and decision-making, and the right to levy taxes.
6. Local authorities are responsible for about two thirds of the public services. The government is responsible for the remaining third of the public services.





Picture 4. The city strategy, the Espoo Story, is co-created with citizens and partners, and it steers the work of the city organisation. The sustainability objectives of the city are embedded into the Espoo Story. The head of the city organisation, the City Board, has authorised the Mayor to lead the city organisation and the implementation of the Espoo Story. The Mayor has ownership of the SDGs and the city's sustainable development work, which is carried out in collaboration with partners. The UN Agenda 2030 and the commitment to be a UN Forrunner City 2025 are embedded into everything that is done in order to make the Espoo Story come true in everyday life.

IN ESPOO THE SDGs HAVE STRATEGIC IMPORTANCE

The main line of Espoo's SDG operations is to focus on the task together and on being a pioneer achieving an imprint as great as possible. Espoo's goal is, as a pioneer city, to reach the SDGs in 2025.

The SDGs must benefit all the activities of the city, including the design, implementation and communication of the strategy. The goal is therefore not only to meet the requirements of the SDGs and targets and to monitor indicators. Espoo sees it as central that the SDGs are a set of goals enabling diverse and international development together. They are a common language for sustainable development that can be used internally, nationally and globally.

With sustainable development, parties aim to achieve a common goal, each based on their own principles and acting together. In Espoo, the SDGs are a framework for implementing the strategy, against which they are considered. In the VLR this means assessing the realisation of the Espoo Story through the SDG goals.

In Espoo, the SDGs are part of everything we do. For example, the SDGs are part of the strategy guiding procurement as well as, in future, budgeting and all operations.

The core of the SDG work must be strategic and derived from the starting points and goals of the city organisation. The SDGs enable both reactive and proactive operations in our own organisation, locally and globally.

The Public-Private-Partnership concept is at the heart of Espoo's SDG work. Espoo is part of the national and international community, and the SDGs are an important reference framework that can be used to develop cooperation. The perspective of multi-sectoral and multi-voice cooperation was one of the main reasons why the VLR was drafted and to implement it explicitly as a cooperation and interaction process.

METHODS

ESPOO STORY AS THE FOUNDATION FOR VLR

In Espoo, the SDGs are perceived as a mutually dependent and phenomenal entity. Therefore, instead of reviewing a single SDG, the VLR was implemented through assessing functional entities in relation to the entire SDG reference framework. This was a conscious decision and result of thorough discussion with different stakeholders within and outside the city. As a result the review was launched in October 2019, it was decided to employ the phenomenon-based principle and examine the city in a comprehensive manner through looking at what the city organisation, city level group and partners are doing in order to achieve a more sustainable future.

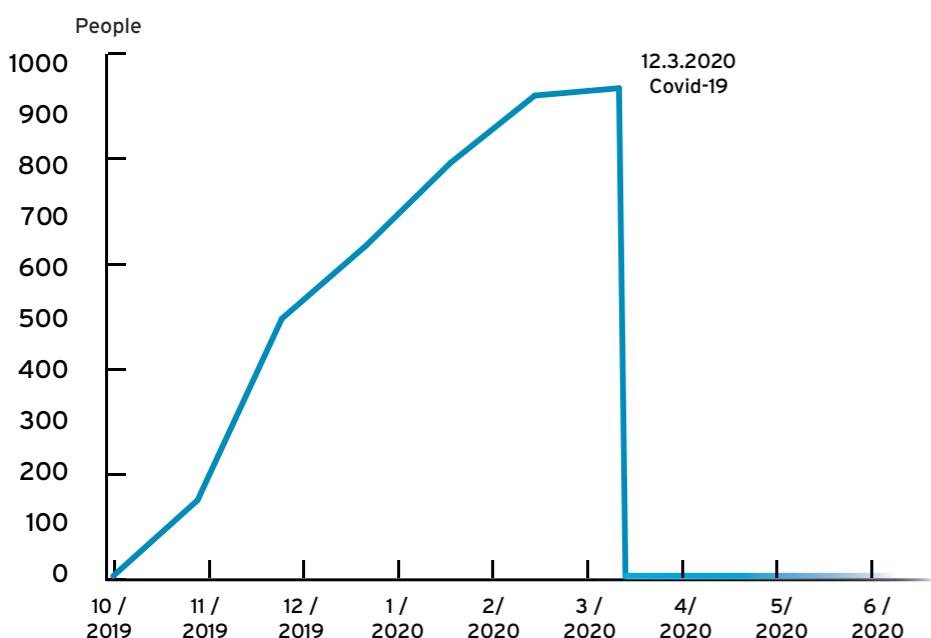
Picture 5. Espoo's VLR has been drafted in a phenomenon-based manner. Everything is based on Espoo's strategy, the Espoo Story. The VLR reviewed everything that is going on in the city to realise the Espoo Story, after which the functions presented were assessed in a holistic manner in relation to the SDG framework. In Espoo, the VLR was carried out together, which in practice meant that all the city's units, Group level actors as well as partners were committed to the review and reporting process. The VLR work is aimed at serving the UN 2025 leadership work in Espoo.



VLR IMPLEMENTATION AS SDG CAPACITY BUILDING

One of the objectives with the wide-ranging participation of the entire organisation and partner network was that in addition to the review, the discovery process serves the growth of the city's SDG competence. Capacity building can be considered even more important than the one-year findings might suggest. The objective is that in addition to the actual report, the various units, projects and other actors within the city organisation and group level would be more ready to make the SDGs a natural part of their own daily lives and work.

In the implementation phase of the review, the City of Espoo's all units, group level units and partners first reported on their top activities that implement the Espoo Story. After this, the phenomena, ventures and projects submitted were assessed within the SDG framework. One special feature of Espoo's VLR was that separate pilots were also carried out during it, such as an SDG course at one of Espoo's upper secondary schools (see picture 5).



Picture 6. A total of 17 different workshops were held during the VLR process. The number of persons at the events varied between 3 and 103. The aim of the workshops was to outline the needs of the city as widely as possible and in relation to SDGs. The temporal focus was on autumn 2019 and on early 2020. In addition to city-internal meetings and workshops, meetings with 28 different stakeholders were organised. These included companies, communities, state institutions and organisations. A total of 927 people were met face-to-face between 1 October 2019 and 12 March 2020. Covid-19 brought a sudden stop to workshops but did not affect the actual review process.

ARTICLE PRODUCTION, GUIDANCE AND PROCESS

For the VLR report, each unit in the City of Espoo was asked to select 1-3 projects, phenomena or activities that implement the Espoo Story. The units wrote articles about these and indicated what Sustainable Development Goals (SDGs) the project, phenomenon or activity is implementing. In addition, Espoo Group's subsidiaries, Group units, key partners from industry and other sectors of society also took part in the review (see next page).

October 2019	144
November 2019	489
December 2019	628
January 2020	785
February 2020	913
March 2020	927
April 2020	0

All city units, group actors and partners were asked to answer the questions below.

What to do: Go through the main projects, ventures and phenomena in your unit. Select 1 and no more than 3 projects and draw up a description not exceeding 4,000 characters, or approximately 650 words, per project. The texts should contain the items described below, but not limited to them:

- What is the background to the phenomenon, project or activity (venture)? Also describe whether the phenomenon is primarily about economic, ecological or socio-cultural development.
- What is the connection to the Espoo Story or to the City of Espoo?
- Which SDG the project mainly concerns. Select 1-5 SDGs (the UN's Sustainable Development Goals) at goal and sub-goal level. What is the most important single goal?
- What is good about the phenomenon, project or activity? (3 highlights of 1-2 sentences of these in the fact box)
- What lessons can we learn from it, and what can we develop further? (3 highlights of 1-2 sentences of these in the fact box)
- What will be important in the future about the phenomenon, project or activity from the perspective of sustainable development?
- Possible image material related to the article?
- From whom/where to find more information (contact details will be published in the report)?

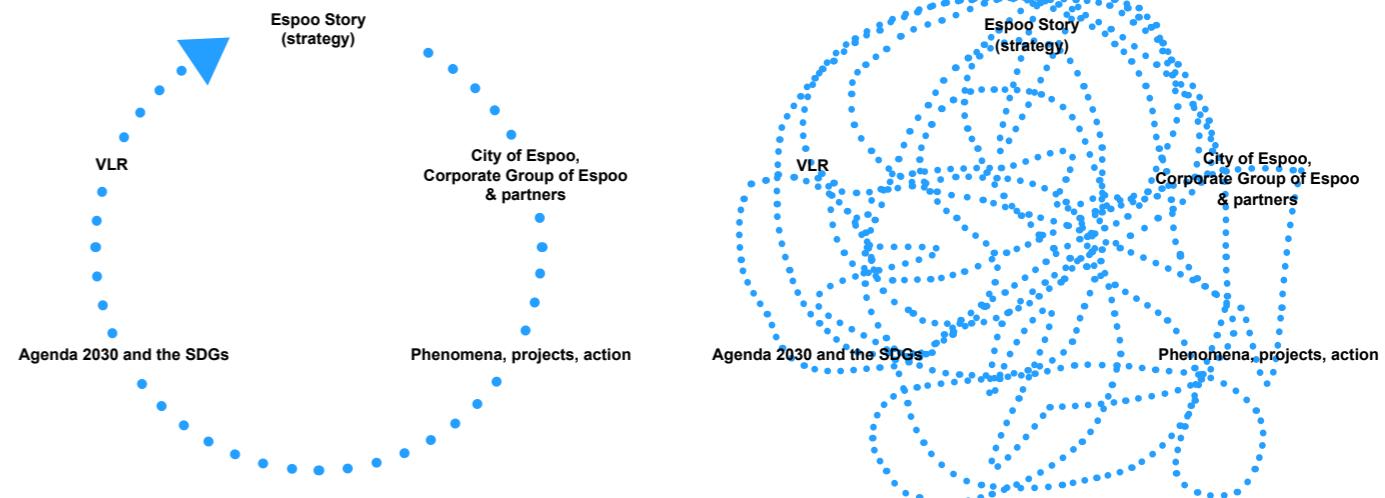
After this, a specially-convened VLR editorial team collected and edited the material in a common format, and experts evaluated the material using the SDG reference framework, described in more detail in next section. During the editorial work, three main themes were found, which also form the bulk of the content of the VLR.

VLR - A UNIQUE JOURNEY

The bulk of the content of the VLR consists of articles produced by the Espoo city organisation and by partners. After reading and editing the articles three main themes emerged from the material. These are:

- 1) **Leave no one behind**, which deals with empowering citizens and creating an inclusive city for all. This section deals mainly with socio-cultural sustainability.
- 2) **Let's do it together**, which deals with Espoo's objective of achieving the SDGs through both the handprint thinking and co-creation. The leading theme and idea in this section is that Espoo is stronger when it pursues sustainable development goals together. This section focuses mainly on economic sustainability.
- 3) **Accelerated action**, which mainly explains what Espoo is doing to develop the ecological sustainability of the city's built infrastructure and living environment.

The three main themes are further divided into sub-themes within each theme based on the content of the articles. All articles fitted inside these themes and sub-themes. During the layout process sub-themes were separated from each other and each has their own table of contents stating the title and selected SDGs. These themes and sub-themes. During the layout process sub-themes were separated from each other and each has their own table of contents stating the title and selected SDGs.



Picture 7. In Espoo the VLR process was phenomena based and input came from within the organisation and different stakeholders. Altogether there were more than 30 different units, companies, and other institutions contributing to the design and implementation of Espoo VLR with hundreds of different individuals. Doing it together is the Espoo way. It also meant that the process management had to be kept lean and agile with development loops and with divergent and convergent phases following each other. This can be best described as an emergent process with design thinking driven practices. It also meant that although in theory the VLR process does follow a nice process loop, reality was much closer to something that could be described as "Dancing with Ambiguity".

ASSESSMENT METHOD AND CRITERIA

The work of the assessment team was based on the articles drawn up by the units, which are examined from three perspectives:

- SDG relevance: the main SDG and 1-4 others (visualised in report)
- Future potential: icon, (shown if present)
- Handprint or CO2 handprint potential: icon (shown if present)

The review process started at the end of January 2020. In February, the process and the manner in which the review was to be carried out were planned and decided on. The most active review work was carried out in March and April 2020. All phenomena were reviewed at least three times by five different persons (Picture 8). All in all review process with cross checking lasted until late stages of layout phase.

Each article was first assessed by two experts and the assessment results were recorded on the assessment form. After this, the next two assessors assessed the articles. All articles which received different views in the assessment were marked in a separate form and the differences between the assessments were discussed separately. After this, all articles were assessed for a third time. The SDG assessment was performed either on the Finnish-language version or a version submitted in some other language. Where appropriate and if needed, the assessors were in contact with the expert of the phenomenon or project under assessment.

The SDG relevance was assessed mainly at the level of SDG goals and targets. The assessment was based on the UN's official SDG table. In assessing SDG relevance, global goals were localised, i.e. they were interpreted within the framework of Espoo. In unclear or borderline cases, the article was also assessed at indicator level and the author of the article in question was contacted.

COMMON OBJECTIVES IN THE REVIEW PROCESS

The review process involved experts from different sectors of the city as well as external experts. In total, 6 people participated in the process. The objectives of the review were consistent with the entire VLR process. The goal was that:

1. The review is factual, concrete and solution-oriented.
2. The review is comprehensive, inclusive, transparent and thorough.
3. The review is a process that commits to the implementation of the SDG and evaluates its implementation in everyday life and in work.
4. External reviewers are also involved in the review process, which will bring neutrality and credibility.
5. The review process and the review encourage activities and cooperation.
6. The review process and the review increase SDG competence in the organisation.
7. The review boosts the monitoring and evaluation of the implementation of the Espoo Story and of the SDG goals and identifies development targets.
8. The review strengthens cooperation on sustainable development between cities, at national level and at international level.
9. The review serves as one of the communication tools within the city, between cities and for other stakeholders on the local implementation of Agenda 2030 and the SDGs.

ASSESSMENT OF SDG RELEVANCE

The SDG relevance was assessed for each 17 SDGs as follows:

- **Not relevant.** The project, phenomenon or activity is not relevant for that SDG. In this case, all boxes on the assessment form were left blank for the SDG.
- **Quite relevant.** The project, phenomenon or activity implements the SDG or its target. However, the link is not very strong or is not especially at the core of the project, phenomenon or activity. Finally, the visibility of this SDG in connection with the article in the VLR report was assessed on a case-by-case basis.
- **Very relevant.** The project clearly implements the SDG or its targets. The SDG was marked on the VLR report for the article.
- **Main goal.** For each article, one SDG which it most clearly implements was marked. This SDG was highlighted in the report in connection with the article.

In the assessment form, one goal was identified as the main goal. A maximum of 4 goals were identified in *Very relevant* sections.

ASSESSMENT OF FUTURE POTENTIAL



Future potential was assessed on a three-step scale:

- **The present.** The project, phenomenon or activity primarily concerns the present. The classification does not appear in the VLR report.
- **The near future.** The full potential of the project, phenomenon or activity will be achieved in the next few years. The aim is to identify articles that may be lifted to the *Future* category. The classification does not appear in the VLR report.
- **The future.** The project, phenomenon or activity will reach its full potential no sooner than around 2025. The effectiveness of the project, phenomenon or activity is assessed as significant in its own reference framework. If an article is classified in this category, it will be accompanied by the Future symbol in the report.

Every article was classified into one Future potential class in the assessment form.

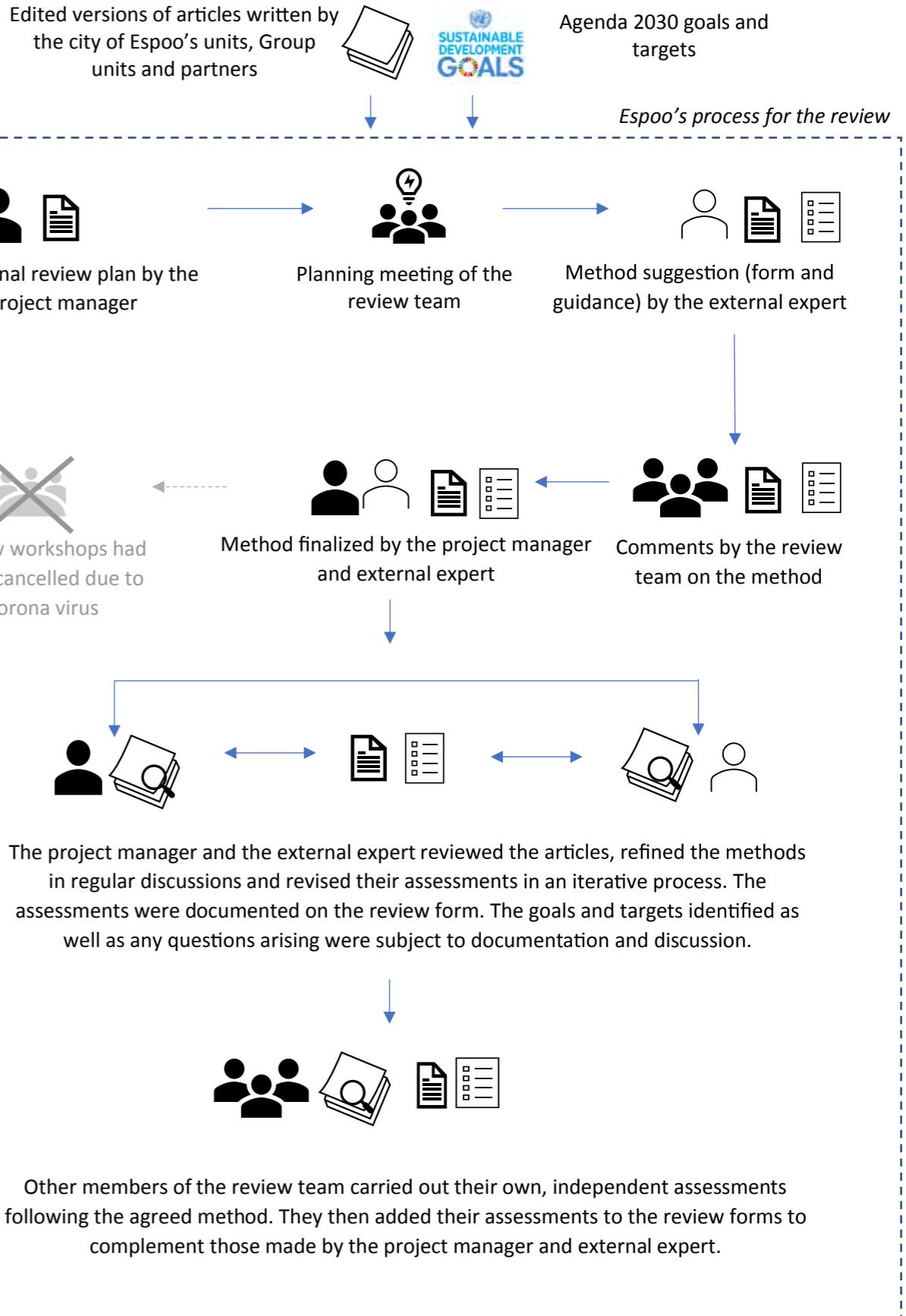
ASSESSMENT OF HANDPRINT POTENTIAL



Handprint and CO2 handprint potential was assessed on a three-step scale:

- **Local.** The project, phenomenon or activity may be very important for Espoo, but it cannot be disseminated elsewhere or dissemination is not actively carried out. This category also includes projects, phenomena and activities that have little international novelty value. The classification does not appear in the VLR report.
- **Scalable.** The project, phenomenon or activity may be scalable, but this is uncertain. Or it can be scaled, but it is not certain whether attempts are made to promote scaling or whether it succeeds or not. The aim of the classification is to identify articles that may be lifted to the Handprint category. The classification does not appear in the VLR report.
- **Handprint.** The project, phenomenon or activity is clearly scalable and its dissemination is actively ongoing, planned and/or likely. If the phenomenon has clear impact on carbon handprint then that is selected. If an article is classified in this category, it will be accompanied by the Handprint or the Carbon Handprint symbol in the report.

Every article was classified into one Handprint potential class in the assessment form.



Picture 8. Espoo's review process, interpreted strictly, does not meet the criteria of scientific evaluation. However, the review done can be considered to be thorough for several reasons: a) it involves external experts, b) there were three separate review rounds, c) discussion and qualitative analysis based on the review rounds was designed and implemented, and d) quantitative data reflecting the scope of the process was also collected and reported. The most important thing is that the scope and method of the review process were chosen, because the City of Espoo, as an organisation, wants to learn and to bring the SDGs more clearly into everyday life and work in the future. The VLR is the first concrete step in this forerunner work.



LEAVE NO ONE BEHIND

This section presents phenomena and operations in City of Espoo focusing on social and cultural sustainability. The section is divided into three parts:

PART I: NO ONE IS LEFT BEHIND

PART II: HOLISTIC LEARNING AND CULTURE FOR ALL AGES

PART III: LEAN HEALTH SERVICES ENABLE AGILE RESPONSE TO GROWING NEEDS

PART I: NO ONE IS LEFT BEHIND

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26 THE WELL-BEING OF CHILDREN AND YOUNG PEOPLE IS BUILT IN EVERYDAY LIFE



28 THE FAMILY CENTRE BRINGING TOGETHER THE SERVICES FOR FAMILIES WITH CHILDREN



29 MEANINGFUL LEISURE ACTIVITIES FOR YOUNG PEOPLE WITH DISABILITIES



30 TAKING PEOPLE WITH DISABILITIES INTO ACCOUNT IN ESPOO'S DECISION-MAKING



32 PREVENTION OF HOMELESSNESS IN ESPOO - EVERYTHING STARTS WITH A HOME



34 SKILLS CENTRE ACTIVITY FOR IMMIGRANTS IN ESPOO



36 RESEARCH BASED ASSESSMENT FOR HELPING IMMIGRANTS



38 ARTIFICIAL INTELLIGENCE BELONGS TO EVERYONE



40 EQUAL SERVICES FOR A CULTURALLY DIVERSE POPULATION THROUGH EXPERIMENTS



42 NGOS ACTING AS WINGS TO EMPOWER CITIZENS



44 PROMOTING INCLUSION IN AN INCREASINGLY DIVERSE CITY



46 ENGAGING A CULTURALLY DIVERSE POPULATION IN THE DEVELOPMENT OF THE CITY



48 TOWARDS MORE PREVENTIVE SERVICE PROVISION - "PALVELUTORI" CONCEPT



50 PARTICIPATION IMPROVES FUNCTIONAL DEMOCRACY



52 ESPOO STORY STEERING THE DEVELOPMENT OF LEADERSHIP



54 DIVERSE PERSONNEL AS A RESOURCE



A STRONG DEMOCRACY REQUIRES RESPECTFUL INTERACTION



In a democracy, what matters is respectful interaction, a positive view of human beings, and the values of equality and equal treatment.

Hate speech is a threat to democracy: derogatory, threatening and stigmatising speech reduces the desire to participate in the development of society. Hate speech is particularly targeted at women and minorities. The UN Human Rights Council has identified hate speech as one of the greatest human rights problems in Finland. Hate speech violates human dignity, fuels discriminatory behaviour and reduces freedom of speech.

According to surveys, 25 percent of local government officials and public officials in Finland have experienced harassment or intimidation because of their position. Visible decision-makers and senior officials experience more harassment than rank-and-file representatives and committee members. One of the most common forms of intimidation is inappropriate feedback in the media and other verbal threats. Experiences of harassment and intimidation vary greatly from one municipality to another. There are no big differences between municipalities of different sizes. The fact is, in society, attitudes have become more harsh.

ESPOO HAS GUIDELINES FOR RESPECTFUL INTERACTION

All the parties of the City Council, which has the highest decision-making power in Espoo, have jointly wanted to draw attention to the importance of respectful interaction and cooperation in the operations of elected officials. At the joint initiative of the parties represented on the City Council, comprehensive guidelines have been prepared on handling inappropriate behaviour and harassment cases. The guidelines were approved by the City Board in 2018.

The guidelines are based on the values of the Espoo Story: equality, equal treatment, respectful interaction and a positive view of human beings. The quality of elected officials' work is monitored annually to identify both strengths and room for improvement that can be discussed and changed. The subject is dealt with by each party's council group, so that the information is available to all of the representatives.



KEY FACTS

WHAT IS GOOD

- Integrated approach, various instruments, long-term action. The principles of internal mediation. Promotion of equality and equal treatment in activities involving elected officials. Raising awareness and implementing the Espoo Story.

WHAT SHOULD BE DEVELOPED

- The development of an evaluation culture is slow. The boundaries of activities involving elected officials and freedom of speech spark emotions. What is allowed, what is not.
- Creating a new normal and renouncing the old one can be painful.

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YOUTH COUNCIL AS AN EMBODIMENT OF ESPOO STORY

Founded in 1997, the Espoo Youth Council (nuva) is a body for promoting the interests of young people in Espoo. In 2017, when the Local Government Act stipulated youth councils mandatory for municipalities, the Espoo Youth Council had already been active for twenty years. Since 2020, the youth council has been represented in the City Board, as the first of Finland's largest cities. The youth council has a representative also in all other major political organs.

Cooperation between the City of Espoo and nuva is equal and respectful. Consultation of young people in decision-making and planning is important. The right and sustainable thing to do is to also listen to those who are unable to participate in political decision-making. The 13-18-year-old youth-elected members of the youth council have the right to attend and speak at meetings of the city's major political decision-making bodies. Espoo youth council is the largest in Finland, and a pioneering municipal youth agent both nationally and internationally. In terms of sustainable development, the most important aspect of the youth council is the socio-cultural aspect, and democracy is at the heart of its activities.

The youth council actively drives and voices its opinion on youth-related issues. It also encourages young people in Espoo to participate and influence. Vaikuttamo is an annual event organised by the Espoo Youth Council, where thousands of 9th-grade pupils from Espoo schools familiarise themselves with social impact. Vaikuttamo is a popular event that engages young people and brings politics to them in a way that speaks to them.

As an example of its work, the Espoo Youth Council has also been involved in the debate to increase the number of Summer Job Vouchers for young people. Summer Job Vouchers are vouchers that support young people aged 13-18 in getting summer jobs by providing a €300 grant to companies hiring a young person.

The youth council is part of the city organisation, but it is an independent body. The activities of the Espoo Youth Council support the Espoo Story. A functioning youth council is like the embodiment of the main elements of the Espoo Story: fair, customer- and resident-oriented and a responsible pioneer.



KEY FACTS

WHAT IS GOOD

- The Espoo Youth Council is actively working to be a good partner and expert body on the road to more sustainable Espoo.
- The youth council has an established role in all the activities of the city.

WHAT SHOULD BE DEVELOPED

- How to ensure continuity and effectiveness of activities with the interests of young people as the focus?
- Improving political activity is a long-term goal which the youth council seeks to influence.

FACTS

- Finland's largest youth council - forty members
- The purpose is to make young people's voice heard in city decision-making
- Representation in, for example, committees and the City Council - and on the City Board, as the first large city

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The right and sustainable thing to do is to also listen to those who are unable to participate in political decision-making.

THE ELDERLY COUNCIL WORKS FOR THE BENEFIT OF THE ELDERLY

The Espoo Elderly Council serves as a guardian and advocate of the elderly in Espoo in municipal decision-making. The Elderly Council brings the perspective of the elderly into urban planning and services.

Espoo residents are active and want to influence the affairs of their home town even in advanced age. The Elderly Council is involved in planning and preparing the city's activities and monitors issues relevant to the well-being, health, inclusion, living environment, housing, mobility, day-to-day activities and services of senior citizens. Concrete examples of the impact of these activities include a reduction in public transport fees for people over 70 years of age on weekday mornings and at weekends, and a sports bracelet that allows over-68-year-olds residing in Espoo to use the city's sports facilities free of charge.

Espoo was a pioneer in elderly council activities, as the first elderly council in Finland was established in Espoo in 1997. Organisations representing elderly people as well as elected officials and office holders sit on the Council.

The Council submits initiatives, proposals and opinions to the city authorities, such as the City Council. It also cooperates with organisations for pensioners and the elderly. Council representatives are involved in a number of projects for the development of services for the elderly and in the 'Let's Build for Everyone' working group, which reviews building projects that affect older people.

The aim of the Elderly Council is to ensure that older people are considered in decision-making. We are building a city and society where people can live and work together, regardless of age.

KEY FACTS

WHAT IS GOOD

- Has made a concrete contribution to the integration of senior citizens in Espoo's services and decision-making
- Is included in activities as an important partner in the development of the City's services.
- A wide range of people living in Espoo, decision-makers and associations are involved.

WHAT SHOULD BE DEVELOPED

- It's a continuous process to ensure extensive use of the Council's expertise in decision-making of all committees.

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THE WELL-BEING OF CHILDREN AND YOUNG PEOPLE IS BUILT IN EVERYDAY LIFE

The majority of children and young people in Espoo are satisfied with their lives and feel that they are in good health. At the same time, well-being is polarised and many people are struggling with challenges. In autumn 2019, almost one-fourth of Espoo's 8th-graders said that they experienced mild, moderate or severe depression.

Espoo wants to ensure that the city's services promote the well-being of children, young people and families as well as possible. Increasing the well-being requires the strengthening of basic services and cross-sectoral cooperation. The service offering must be understandable and predictable. Preventive services are sometimes not enough, in which case child- or family-specific support is needed.

EARLY SUPPORT RESULTS IN HEALTHY MINDS

The number of referrals and patients in child and adolescent psychiatry has grown in recent years. The waiting time for care has also increased. For this reason, Espoo has enhanced the support for the mental well-being of children and young people and developed the service chains in child and adolescent psychiatry. In order to solve the problems, the aim is to provide support at an early stage.

Promotion of mental well-being is included in the basic services for children and young people, such as education and leisure services. Pupil and student welfare services at schools lay a foundation for good learning and well-being. In communal pupil and student welfare services, the entire school community sets out to promote learning, well-being and health.

Schools also offer early support on an individual basis to those who need it. Espoo's secondary schools have achieved good results through interpersonal counselling (IPC). This is a method of mental health intervention for mild and moderate depression. It involves discussion with the young person about their relationships and

symptoms and examining the connections between these. Support and help is provided at the person's own school, so a referral to specialised health care is not necessarily needed.

The family of each child and young person has a great significance for their health, growth and coping later in life. Espoo has been involved in developing the 'Strongest Families' operating model, which is used for the early identification of behavioural problems of children under school age. The model makes use of digital tools and parental guidance by telephone. Possible later problems are prevented by early intervention.

Service chains to support the mental health of children and young people have been developed by standardising processes and picking up the slack. Thanks to the development work, clients in need of special support can be reached better than before. Multidisciplinary support for children and young people works better when cooperative practices and the roles of various parties have been agreed. For example, instructions for staggered care have been prepared to improve the cooperation between child psychiatry and basic-level services. It has been agreed, for instance, what the school psychologist does before the child is referred to the child psychiatry unit. The instructions are piloted in spring 2020. As a rule mental health support for children and young people must be organised in an equal, correctly dimensioned, timely and coordinated manner.



JOINT EFFORTS TO REDUCE POVERTY AMONG FAMILIES WITH CHILDREN

Poverty among families with children has increased by one-fifth in Espoo in a couple of years. The median income is at a good level, but the share of people with low income has grown in recent years. Long-term financial problems in families are directly reflected on the well-being of children and young people.

Espoo is fighting family poverty with a three-year action plan. The goal is to provide every child and young person with equal rights, opportunities and resources to be involved in society. The action plan against poverty among families with children includes goals and actions to reduce and prevent poverty. The risks associated with poverty are addressed by measures relating to education, employment and homelessness, among other things. Parents are supported by means such as income support, targeted services and cooperation between school and home. The programme sets out to make the phenomenon of family poverty visible and increase awareness and understanding of its effects.

Pupils' and teachers' understanding of the causes and effects of poverty has been increased by, for example, highlighting poverty as a theme in equality plans. Basic education reaches almost all the children in each age group, so school is a key place for the city to influence children's involvement and well-being. The services of school social workers and psychologists are primarily targeted at those who have the greatest need for them, such as children in a socio-economically challenging position. Another objective is to reduce the differences between the learning results of children with an immigrant background and children of the native population and to strengthen the language skills of children and young people from different linguistic and cultural backgrounds.

The limited means of families show as more limited opportunities in the everyday life of the children. The goal is to provide every child and young person with meaningful leisure opportunities. This begins in zoning and facilities planning by ensuring that there are suitable facilities for hobbies in residential areas. Children, young people and families are offered a wide variety of free sport and cultural activities, and targeted communications are applied to increase the involvement of those belonging to risk groups.

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Thanks to the development work, clients in need of special support can be reached better than before.

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Espoo has been involved in developing the 'Strongest Families' operating model, which is used for the early identification of behavioural problems of children under school age.



THE FAMILY CENTRE BRINGING TOGETHER THE SERVICES FOR FAMILIES WITH CHILDREN

The family centre brings the services for families with children under one roof. The aim of the family centre is to identify families' need for support early enough so that problems will not accumulate and to provide help without delay so that the families do not have to move from one place to another. The first family centre will be built in Espoo centre area, and the vision is that by 2025, other city key areas in Espoo will also have family centres.

At the family centre, professionals collaborate closely with each other. From the customer's point of view, services are easily available at a family centre and they can be seen as a whole. The same address offers low-threshold guidance and advice as well as more targeted services such as family counselling centre, family social work and child welfare services. Each family centre also functions as a meeting place for families with children. In addition, the development of digital solutions enables better utilisation of remote appointments and different electronic services.

The family centre promotes health and well-being by offering support at an early stage and with a low threshold. The location of the premises along good traffic connections makes the services accessible using public transport, reducing the burden on the environment.

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MEANINGFUL LEISURE ACTIVITIES FOR YOUNG PEOPLE WITH DISABILITIES

Young people with disabilities are at higher risk of experiencing exclusion in society. Espoo wants to enable meaningful leisure activities for young people with disabilities and bring them equal opportunities for involvement by lowering the threshold to participate in the city's youth activities. In cooperation with associations for the disabled, new activities have been organised and youth services personnel have been provided with training.

As a result of the cooperation, young people with disabilities have been reached better and they have participated in music events, cooking sessions and various excursions. Some of them have gained the courage to visit youth facilities independently. Both the young people and their parents have appreciated the new opportunities for involvement. According to feedback, doing things together and hanging out informally has provided the young people with experiences of freedom and time of their own.

Personnel have learned to better observe varying needs for support in order to enable the involvement of young people with disabilities. However, there is still more development work to be done. In future, young people must be told more openly how youth activities open to everyone are promoted in practice or how any obstacles are actively reduced. Including physical accessibility information in the descriptions of youth facilities is a good start. In future, the types of facilities offered for hanging out and spending leisure time must be reviewed more critically. For example, the lack of a lift or inconvenient location of an accessible toilet are not only physical but also mental obstacles to participation. More attention must be paid to proving that the services are also accessible socially and in terms of attitudes.

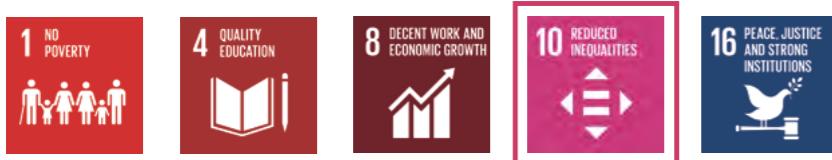
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TAKING PEOPLE WITH DISABILITIES INTO ACCOUNT IN ESPOO'S DECISION-MAKING



Achieving the goals of socially sustainable development also enhances the involvement and well-being of people with disabilities.

Taking into account the perspective of people with disabilities involves hearing the people themselves and their families. The goal is to make the reduction of inequality, increase of social justice, healthy and safe life, equal training, reduction of poverty, improvement of employment and implementation of ecological practices in services a part of the lives of Espoo residents with disabilities and those important to them.

The Disability Council in charge of disability issues acts under the authority of the municipal council, as prescribed by the Local Government Act. The council influences the planning, preparation and monitoring of the activities of the municipality's various divisions in matters that are significant in terms of the well-being, health, involvement, living environment, housing, mobility or daily functions and services of people with disabilities.

Improving the employment rate of people with disabilities is a significant means of preventing their poverty and increasing their involvement and well-being. Council initiatives have been made in Espoo to promote the employment of people with disabilities and, on the basis of these, new methods are being sought for finding paid employment for people with disabilities. In 2020, subsidised employment will be offered to 15 people with disabilities. In addition, five people with intellectual disabilities will be provided with subsidised employment at laundries in various areas. As regards to cooperation with companies, preparations are being made for common training. Various methods and models are also being studied for increasing the share of people with disabilities in the city's personnel. The City of Espoo received an honourable mention (2014) and first prize (2015) in the national competition for the development of summer jobs for young people with disabilities. The city also has a quota of practical training positions for students in vocational special needs education.

What is essential is developing everyone's personal understanding and attitudes so that they understand and accept disability. This is promoted by inclusion, one of the principles of sustainable development. Inclusion emphasises the right of all people with disabilities to belong to ordinary communities instead of being placed in their own, separate service systems.

KEY FACTS

WHAT IS GOOD

- The Disability Council has a permanent secretary, active members of bodies and good contacts with the city's decision-makers.

WHAT SHOULD BE DEVELOPED

- There are still functions where no attention is paid to the perspective of people with disabilities or accessibility.
- Decision-makers are not making sufficient use of the knowledge of the members of the advocacy bodies.
- Challenges in cross-administrative development.

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What is necessary for all people is equally necessary for people with disabilities. For example, hobbies, promoting well-being and spending time outdoors.





PREVENTION OF HOMELESSNESS IN ESPOO - EVERYTHING STARTS WITH A HOME

Home is the most important thing that belongs to everyone. Finland is the only EU country where the number of homeless people is falling for the seventh consecutive year. The number of homeless people in Espoo fell by 16 per cent from 2018 to 2019. This has been influenced by the housing first principle. Other life management problems are easier to solve in a place where you feel safe, that is, at home.

A safe and comfortable home must not be just a right for people on good incomes. Because of the high cost of living, working does not always guarantee sufficient income. Depending on the definition, 6-12 per cent of Finns are poor. Espoo's goal is to be a city that belongs to everyone and where no one will be left without support if they run out of strength. In addition, the goal for Espoo and Finland as a whole is a more socio-culturally sustainable, fair and equal society.

HOUSING FOR THOSE IN NEED

Espoon Asunnot, which is part of the Espoo Group owned by the city, has nearly 16,000 homes, the construction of which has been supported by the state. Priority is given to those applicants who are most urgently in need of housing, with the most limited means and the lowest income. The City of Espoo also sets Espoon Asunnot an annual target for the number of homeless people who must be provided with homes. Homeless applicants are among the group whose applications are the first to be processed.

More than a thousand applicants in urgent need of housing also received a home from Espoon Asunnot in 2019. They included people for whose income the rents on the open market are too high. The rents of homes of Espoon Asunnot are over 25 per cent lower than the average rent level in Espoo, which means that residents will have money left over for other things in life after paying the rent.

EARLY INTERVENTION IN RENTAL PAYMENT PROBLEMS

Espoon Asunnot is part of a national ASTA project, which began in 2018, which develops ways to prevent the financial problems of tenants. Over-indebtedness and the increase in the number of non-payment records is a growing problem in Finland, which is also reflected in the amount of rent arrears.

Various unexpected life situations can quickly lead to changes in people's everyday life and financial situation. Sometimes people use their rental money to pay other debts. In those cases, there is also the risk of losing their home. The earlier we address rent arrears and problems with paying rent, the more resources are available for fixing things.

The quantitative objective of the finance advisory project of Espoon Asunnot is to reduce the amount of rent arrears that lead to eviction proceedings and recurring rent arrears. In order to achieve this, preventive rental supervision and housing counselling work and cooperation have been developed. Often, the rental supervisor is the customer's first contact when the rent has not been paid. Rental supervisors have been given training to make approaching issues, listening, and service guidance even smoother. This way, the customer can be referred to housing counselling and other services in time.

COUNSELLING AND SERVICE GUIDANCE

Housing advisors provide short-term guidance and advice to our residents in various housing problems. The contact may come from the client or, for example, the property manager. Networks are used to find solutions to problems. For example, with Espoo adult social work, a model has been developed in which the situation of rent arrears can be resolved through cooperation between the client, their social worker and a housing advisor.

The aim is to ensure the continuation of housing wherever possible. In 2019, the housing counselling activities managed to prevent nearly 500 evictions. The result is excellent, especially for those people who can continue to come home at the end of the day.



**espoon
asunnot**



KEY FACTS

WHAT IS GOOD

- We offer affordable homes for homeless people and people on low incomes. This way, the homeless can get a new lease on life and people on low incomes have money left for other things in life after paying the rent.
- In 2019, 885 people received housing counselling and service guidance.
- In 2019, 487 evictions were prevented by the help of housing counselling, which allowed people to remain in their homes.

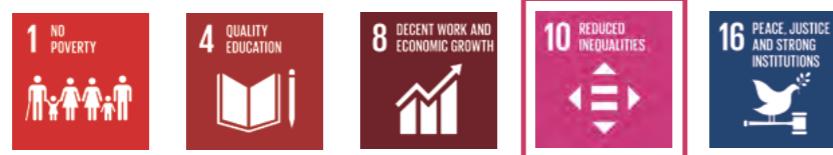
WHAT SHOULD BE DEVELOPED

- There are more and more elderly people living alone, and they cannot always manage without support. For example, we need cooperation between housing counselling and services for the elderly so that the elderly can get access to the right services in time.
- Reducing the amount of recurring rent arrears.
- At a social level, people's financial management skills need improvement.

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SKILLS CENTRE ACTIVITY FOR IMMIGRANTS IN ESPOO



In comparison to other Finnish cities, Espoo has on average a well-to-do and highly educated population. This is but one side of the coin. Urbanisation and growth also create challenges, such as loneliness, social exclusion and many kinds of social problems. Cities must work together to find solutions to these issues.

In early 2019, together with the Joint Authority of Education Omnia and the public employment office - TE, Espoo established a skills centre for immigrants to solve challenges related to engagement, education and integration of immigrants. Its goal is to support its customers' access to vocational education and improve their employment opportunities. Besides active customer work, operations in the first year have been characterised by continuous change and development. The goal is to create a service that genuinely responds to the customer's needs and only does things that will benefit them.

Integration of immigrants is a major challenge in Espoo. The strategic significance of the integration and employment of immigrants continues to grow in Espoo each year as immigration alters the city's population structure strongly and rapidly. Currently, more than 18 per cent of the residents speak a language other than Finnish or Swedish as their native language. By 2035, foreign-language population of working age will comprise more than one-third of the population in Espoo. The percentage of foreign-language population of working age and under 45 years of age is projected to rise to 37.4% in 2035.

The situation is particularly challenging because the unemployment rate of immigrants exceeds that of the resident population. So far, the unemployment rate of immigrants has exceeded the general unemployment rate by approximately 2.5 times. Due to the demographic change, it is necessary to reduce the unemployment rate of immigrants in order to secure factors such as the well-being of residents and the financial basis of public services and to combat inequality and polarisation between population groups.

The responsibility for supporting immigrant integration is shared between various actors in public administration. Besides municipalities, key actors include employment administration responsible for integration training focusing on Finnish language teaching and educational administration responsible for developing professional skills. For many immigrants, successful integration into the Finnish job market requires developing their language skills and professional competence.

SKILLS CENTRE ACTIVITY FOR IMMIGRANTS SUPPORTS TRAINING AND EMPLOYMENT

In the skills centre, following an initial analysis period of 1-2 weeks, approximately 600 unemployed Espoo-based immigrants annually receive services related to skills development and job search support that are suitable for their needs. The services are provided by a multidisciplinary and cross-administrative team. A joint customer process has been created to meet customer needs based on elements of services such as vocational education, language training, social guidance and employment services, which used to operate separately. Annually, approximately 150-200 customers can be expected to find employment. A significant number of customers also start attending qualification-oriented education after 1-12 months of the skills centre services. It has been proven that this improves their status in the job market.

Active engagement and good results in the skills centre improve their language skills, working life skills and adaptation to the culture around them. All these factors support employment or participation in vocational education and, thereby, working life. Rehabilitation offered by the skills centre and the social relationships it brings are useful to customers also at these points of their life. In the best case, employment creates a circle of well-being where employment promotes mental and physical health while supporting the individual's status in the job market and their future well-being.

Improvements in health and well-being generated by employment may also reduce the service and resource needs of the social and health services. The well-being of an individual affects the well-being of the entire family, meaning that the impact can be considered to have positive repercussions on the entire family. Furthermore, peer examples of the well-being of persons in working life enhance the motivation of other customers of the skills centre.

The skills centre serves customers in matters related to three sectors of the city: education, employment and social and health services.



The well-being of an individual affects the well-being of the entire family, meaning that the impact can be considered to have positive repercussions on the entire family.



Approximately 31 per cent of unemployed jobseekers with a foreign mother tongue in Espoo have a university degree.

Once immigrants gain employment and find success in their work, they will gradually also face less discrimination and racism on the job market. This makes it easier for all immigrants to find employment. Successful employment may also lead to career development and increasing income. Access to working life often supports the rise of new innovations and companies, which could, in the long term, employ other people across the society.

Inspired by the promising start of skills centre activity, Espoo is building a skills centre for highly educated people together with the region's higher education institutions, relying on their continuing education offering and the service products of Metropolia, which is the university of applied sciences responsible for SIMHE (Supporting Immigrants in Higher Education).

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Unfortunately, division of responsibilities for service organisation between different administrative sectors does not always serve the needs of the target group in terms of providing appropriate, customer-oriented services. Employment administration acquires integration training services from the market in a competition-neutral manner, and educational administration offers state subsidies for institutions covered by the authorisation to provide education. Differing intervention logic in administrative sectors often makes it virtually impossible to build cost-efficient training entities consisting of various elements. Skills centre activity for immigrants is also a means of finding solutions for crossing service boundaries.

RESEARCH BASED ASSESSMENT FOR HELPING IMMIGRANTS

Integration activity is highly cross-administrative, meaning that the services are provided by multiple organisations. Officially, the responsibility falls on municipalities in Finland, but multiple sectors participate in carrying out these activities within each municipality.

In addition, some government authorities and organisations play a role in supporting integration. If we want to know how integration works, we must join forces and collect information extensively, not just from a single organisation.

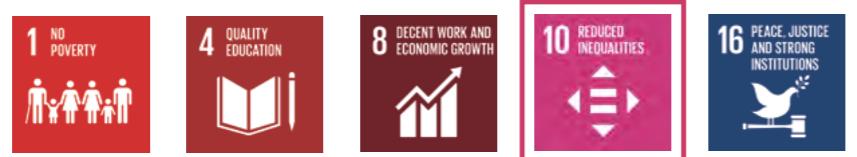
Alongside pragmatic projects there is a follow-up research project on the impact of the skills centre services for immigrants carried out in cooperation with VTT Technical Research Centre of Finland, the University of Helsinki and Aalto University. Its aim will be to create a basis for confirming the impact of public services in a new and comprehensive manner and for a new procedure for conducting impact assessments based on evolving data relying on register information and data analytics. Based on the research results, services of the skills centre for immigrants can be developed according to the needs of various customer groups even better than before. The research project is also expected to advance the development of services supporting integration in Finland and internationally.

The project also examines how the skills centre and background factors influence integration, employment, labour status and welfare from the point of view of the society and immigrants, and how they influence the financial balance of the society with regard to investment and return. Instead of assessing the direct results of the

skills centre activities, the aim is to examine the impact of its services while factoring in other external factors. Based on data collected over five years, we can diagnostically review factors that influenced integration and employment.

The underlying assumption is that success in the skills centre accelerates integration and increases employment. Another objective of the research project is to understand what kind of educational needs immigrants have in different phases of their integration process and how, for example, their home country and culture, age or residence permit status affect their need for integration. The project aims to create a template for a simulation model which could later be used in designing services for immigrants.

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ARTIFICIAL INTELLIGENCE BELONGS TO EVERYONE



Exclusion from an increasingly digitised society is a major threat, especially to citizens whose basic digital skills are already less developed than those of the rest of society. The Espoo Story stresses that technology provides an opportunity to learn new skills which ignite desire, enthusiasm and meaningfulness of life.

Artificial intelligence, AI, is a new civic skill, and learning it is part of society as a whole, in schools, homes and workplaces alike. Everyone has the right to participate in society, also in the time of AI. Omnia AI Lab, together with the participants and partners, invents, develops and tests ways to make AI civic skills available to all. The different backgrounds of the participants in the experiments accelerate learning, which is done through innovation and creating new things. Omnia AI Lab is an important part of Espoo's response to the challenge of social inclusion and digital equality introduced by AI. It is a digital equality accelerator launched in 2017 at the initiative of the City of Espoo, where students in different life situations can update their AI skills on a low threshold basis.

SENIORS AS AI MENTORS

Exclusion from a digital society is a threat, especially for older people with on average lower ICT skills than the rest of the population. People are living longer, and the number of older people is growing strongly.

In Espoo, the number of over 75-year-olds has almost tripled in the 21st century. The number of the oldest, that is to say the over 100-year-olds, has also increased considerably. At the same time, technology for the renewal of the conventional operating models in transport, industry, health care and working life has developed strongly. For this reason, society must also pay particular attention to the improvement of digital skills for older people.

A group of senior citizens, 'Senioridevaajat', took up the challenge of developing a mobile application based on artificial intelligence to make life easier for themselves. The work was carried out in cooperation with professionals in product and software development. Aalto University's experts familiarised the participants with the product development process, and then seniors designed and implemented an artificial intelligence prototype that was appropriate for themselves together with the experts. The result was the Menohaku chatbot, with which you can discuss interesting events in the Helsinki Metropolitan Area.

Omnia, the Joint Authority of Education in Espoo Region, has also trained the first AI mentors in the world, who are going out to service homes and hospitals, especially among those senior citizens who do not have the opportunity to go actively to update their AI skills. In addition to peer-to-peer mentoring, senior citizens have visited companies developing AI algorithms to discuss the possibilities of applying AI.

THE AI TRUCK, THE MOST CHEERFUL AI IN THE WORLD

The AI truck originated in an idea of helping Espoo residents explore AI in a fun way by taking the AI to them. The concept was developed by the students of Omnia and Aalto together with partner companies. The working group involved Aalto University's software developers, behavioural scientists and economic scientists as well as students in business and administration and business IT from Omnia.

An AI escape room was built on the AI truck trailer, where participants can learn the principles of artificial intelligence and see what artificial intelligence actually does. As the AI truck tours around, the students explain the cooperation and at the same time develop their own skills. The purpose of the activities is to convey the joy of learning, to highlight the fun of doing things and to demonstrate being up to date in AI expertise and methods.

KEY FACTS

- Digital equality will become an increasingly important part of a prosperous society in the future.
- In the future, citizens will have an impact on the trajectory of technological development at an earlier stage.
- Building a sustainable future opens up new opportunities for completely new forms of cooperation and innovation between the various actors.

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Espoo succeeds where residents, businesses and communities contribute to solving common challenges.

EQUAL SERVICES FOR A CULTURALLY DIVERSE POPULATION THROUGH EXPERIMENTS

An increasing number of Espoo residents have roots in different corners of the world. Slightly less than one-fifth of all Espoo residents and one in every four first-graders speak a language other than Finnish or Swedish as their native language. According to forecasts, the share of Espoo residents with different linguistic and cultural backgrounds will grow to about 30% by 2030. New residents will be moving to Espoo for reasons relating to work, family and studies as well as humanitarian reasons.

The increasing migration will require adaptation and flexibility from the new residents, receiving communities and services alike. The city's task is to ensure the equality of all residents. Achieving equality often requires paying special attention to the service needs of minorities.

TIMELY AND FLEXIBLE SOCIAL AND HEALTH SERVICES

Residents with an immigrant background may have special needs relating to their linguistic or cultural background in addition to other service needs. Language barriers or other limitations may affect their access to information as well as access to and use of services. When immigrant residents are viewed as a group, the group relatively often uses so-called heavier services, such as on-call services. Some of the residents need guidance and advice to increase their awareness of the service selection and help them use the services preventively.

Espoo is currently carrying out a priority project to respond to the needs of diverse population groups in social and health services. The goal is to make the services as timely and flexibly accessible as possible. The project will strengthen the capabilities of personnel to meet clients coming from various backgrounds and improve the availability and usability of information that promotes prediction. The development work involves associations and various units of the city.

The project is implemented by means of dozens of experiments. The experiments focus on low-threshold guidance and advice, address a certain service need or are directed at a certain target group based on age or language, for instance. For example, one of the goals of an online service experiment for Arabic-speaking young people is to respond to their culture-specific service needs.

Many experiments will improve the smoothness of service guidance and the sharing of information between various parties. The project includes the further development of a support service offered to families with an immigrant background through the maternity and

child health clinic. The clinic's task is to provide guidance and advice for families expecting children and those with children under school age. The aim is to prevent problems in advance by offering targeted support in addition to regular examinations at the maternity and child health clinic.

The accelerating demographic change will permanently influence the city's demographic structure, which is why long-term investments are made in the development work. The project involves creating models for catering to the needs of a highly diverse population group. In addition, information will be compiled for the further promotion of the development activities.

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Experiments focus on low-threshold guidance and advice, and address a certain service need.



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Education has great significance in preventing social exclusion.

coming from different backgrounds by, for example, organising training to shed light on the education and parenting cultures of various countries. In addition to everyday guidance, families are given opportunities to learn about Finnish parenting and education. There is a separate project that develops service guidance for immigrant families together with the families.

At schools and day-care centres, cultural diversity is seen as a positive resource. Strengthening both the Finnish skills and native language skills of children is an important part of their growth, development and integration. Children's native language is part of their identity, and supporting its development also helps them learn Finnish. In 2020, Espoo has hired language buddy employees as additional personnel for day-care centres, particularly those centres where over half of the children come from different linguistic and cultural backgrounds. The language buddies help children learning Finnish to take part in the activities and community. There is also a music pedagogical project, which uses musical activities to support children's involvement and language learning. The intention is to use the lessons learned from the experiments for modelling and developing the activities.

Children moving to pre-primary and basic education are offered teaching in their native language in over 40 languages, mainly in the afternoons, after the pre-school or school day. In addition, a project experiment provides children with co-teaching in their own language for those who need it. In this experiment, pupils receive teaching in some subjects in native language in their own class at the same time as the rest of the class is taught in Finnish. This teaching strengthens the pupils' skills in different subjects.

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NGOS ACTING AS WINGS TO EMPOWER CITIZENS

A strong democracy is realised not only by voting in elections, but also by residents actively participating and making an impact in everyday life. Non-governmental organisations and associations play a key role in building a sustainable city. In NGOs, citizens have the opportunity to participate, become part of the community and be empowered – NGOs allow you to experience, engage in activities and experiment. The NGO sector also offers volunteering options coordinated in a high-quality manner. The opportunity to make an impact and do good for others creates well-being for the individual.

NGOs also possess a considerable amount of expertise. Through open dialogue, NGOs provide the city with information from the perspective of residents and on possible shortcomings in services. In this way, resident-based NGO activities also provide assistance to those who are at risk of being marginalised in the public service system. In Finland, NGOs have played an important role in building social peace and stability.

Espoo becomes a good home for NGOs when the city, NGOs and other actors, such as educational institutions and religious communities, work together for the good of residents. When the collaboration succeeds, NGOs gain even stronger capacities to act for the empowerment of citizens.

NGOS BUILD ESPOO FOR EVERYONE

New and old residents, no matter where they come from in the world, have one thing in common: their current home region. In the "Kaikilla on oikeus kotiseutuun" (Everyone is entitled to local heritage) project, the Finnish Local Heritage Federation, together with the city and other partners, creates encounters between local heritage associations and immigrant associations in Espoo. Active citizenship arises from doing things together, getting to know local history and the cultures of the participants, a sense of community and inclusion. The project will create a resident-based operating model for integration that can be implemented by the 750 member communities of the Finnish Local Heritage Federation across Finland. The goal is for everyone to belong to a place and community.

Espoo is also involved in a two-year joint project of six European cities, the Active NGOs project, to learn about Latvia's Riga NGO House model and adapt it to the local context. The main focus is on NGO work to support integration. The aim is to develop a platform for cooperation between NGOs and the city, support and train NGOs, highlight current local issues and promote the participation of residents in the development of the city. The project includes joint international workshops and local events, workshops and materials for a wider audience. Representatives of the city and NGOs participate in the activities. The project is being implemented with funding from the European Territorial Cooperation programme URBACT III.

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CULTURE TO RESIDENTIAL AREAS, SUPPORT FOR PURSUING ART

The City of Espoo provides grants to hundreds of communities each year. The grant process is based on rules and mechanisms grounded in the city's objectives and safeguarding the autonomy of associations in relation to public authority. In addition to grants, cultural actors, including unregistered groups, have the opportunity to apply for project support for events, projects or co-development, for example. Associations are supported by providing public spaces for them to use, and the city organises regular partnership meetings and training sessions. Cultural associations also make it possible to make and experience art. They represent a diverse range of art forms, such as music, performing arts, theatre and circus, visual arts and literature. Cultural associations provide meaningful hobby opportunities and programmes for Espoo residents of different ages.

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TOGETHER TOWARDS RESPONSIBLE SPORTS

Espoo is the first city to participate in the Finnish Olympic Committee's Star Club programme. The programme audits the operations of sports clubs, such as their management, sports activities and resources. Those that have passed the audit are granted the Star Sign, which signals that the club meets the common content requirements and quality factors. The Star Sign is also a promise of quality to current and new members, as well as to their immediate circle and supporters. Espoo's goal is to promote equality for children and young people in sports. The auditing ensures that mutually agreed rules are implemented at Espoo-based clubs, and that everyone can play sports and exercise at their own level and towards their own goals with ever greater background support. The clubs that have been granted the sign operate as part of a national network where clubs receive support for their activities and share good practices with others. The programme has been created by the Finnish Olympic Committee, sports federations and regional organisations.

The joint activities of Espoo's sports clubs and the city are also strengthened by the "Espoo Liikkuu" (Espoo Moves) brand. Clubs publish information about their matches or, for example, interviews with star athletes on the Espoo Liikkuu community website. Espoo residents visit the community's website frequently. Espoo Liikkuu logos can be seen at the city's sports venues and events, as well as in the marketing products of clubs. Through joint activities, clubs have found each other and organised functions together. The joint activities have a common goal: to get the people of Espoo moving.

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PROMOTING INCLUSION IN AN INCREASINGLY DIVERSE CITY

The percentage of foreign-language residents is rapidly growing in Espoo. Growth occurs in all age groups, and the number of foreign-language residents is increasing also in view of all the reasons for their arrival – whether they moved to Espoo due to work, family, studies or humanitarian reasons.

Diversification in the city is reflected in services in many ways. Foreign-language residents from foreign backgrounds, of different ages and in different life situations need and use all the same services as the other residents of the city. They also have some particular needs related to their language or cultural background. Lacking language skills or other factors limiting their ability to use services can influence, for example, their access to information about services, how to access these services or how to take advantage of the services. It has been noted that foreign-language customers use, on average, “heavier” services (such as emergency services). They have a pronounced need for guidance and counselling to increase their knowledge about the service portfolio and to direct their service behaviour to a more preventive direction.

KNOW-HOW MUST BE SCALED ON THE CITY LEVEL

The spearhead project concerning the development of services for foreign-language residents in Espoo consists of trials carried out with various sectors and actors. Progress in this development work manifests itself to customers through services that better correspond with the needs of a diverse target group and are as timely, flexible and accessible as possible. An integral part of the development work is reinforcing the skills of employees working in various service areas and duties and enhancing their preparedness to encounter clients from different backgrounds. The aim is to enhance this competence at the city level as well. Another important goal of the project is to improve the availability and usability of statistical data and other data that facilitates prediction. Educational institutions also play a significant role in the project.

The goal of the project focusing on developing services for foreign-language customers is to use co-creation to create operating models that are suitable for various services and the needs of the foreign-language customer base. In 2020, more than 20 such trials are under way. Some trials focus on low-threshold general guidance and counselling while some functions are customised for a certain target group based on age or language group, for example. There are also trials related to a certain service need. Some ongoing trials include, for example, a service offering support for immigrant families via a maternity and child health clinic, and a web service trial intended for Arabic-speaking young people as part of the city's digital agenda trial. Service guidance is streamlined and information sharing between actors improved through multiple trials. Efforts are made together with civic organisations to improve the integration opportunities of immigrants settled in Espoo and their attachment to their own district.

- All Espoo residents benefit from improvements in the accessibility of services and better consideration of the right timing and individual needs.
- The project highlights the staff's competence related to encountering customers from different backgrounds and how to share these skills to the benefit of all.
- Projects compile information on foreign-language residents and their increasing numbers in Espoo. Distributing this information increases general awareness of the topic and enables a more comprehensive acknowledgement of the situation.
- Development work should be conducted together with a group of actors that is as diverse and multidisciplinary as possible. Improving customer engagement is an essential part of the development work.
- To support the arguments for this, more fact-based information is needed on why it is important to develop services with consideration for the needs of foreign-language residents.
- The project reinforces the idea that service development for foreign-language residents should be continued with a long-term approach because we are dealing with a quickly growing and continuously evolving phenomenon.



One should remember that the increase in foreign-language population is not a passing phenomenon; it is a permanent trend affecting the city's resident structure, so development work should be carried out with a long-term approach. A strong basis for developing foreign-language services will contribute to the more comprehensive effort to improve – to the benefit of all residents of the city – the accessibility of services and promotion of equality.

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ENGAGING A CULTURALLY DIVERSE POPULATION IN THE DEVELOPMENT OF THE CITY

Espoo is an open city and home to 150 different nationalities. The population of Espoo is growing strongly and, according to the population projection, in 2030, 30 per cent of the working-age population of Espoo will have another mother tongue than Finnish or Swedish. Espoo Story, the city's strategy, recognizes the importance of international connections.

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Espoo is home to 150 nationalities. Openness and connections to the world are our recipe for success.



LANGUAGE PROJECT TO MEET THE NEEDS OF INTERNATIONAL RESIDENTS

The English as a Service Language project implements Espoo's goal of serving its residents also in English. In particular electronic services are developed. The city's services will be described in an easy-to-understand form, taking better into consideration the linguistic and cultural background of the customer, and ensuring uninterrupted service paths. Since the start of the ongoing project, the amount of application forms, webpages and social media activity in English has increased. For example, a new webpage for new residents, Hello Espoo, and a trilingual chat service for residents with children in early education have been launched.

The project was created using user-driven and inclusive methods of service design. About 600 foreign-language residents of Espoo took part in the preliminary analysis project by responding to surveys or participating in workshops. One of the key challenges identified was the accessibility of services for a resident who is not familiar with the services provided by the city, or with Finnish society.

The project has highlighted the needs of a large group of residents and put them on the city's agenda in a coordinated way. It has produced a lot of valuable information on the service development of the city and insights into the design of services. Investing in accessibility of services and establishing a customer perspective have been good means for understanding the need for development.

Providing improved services in English aims at smoothing the first steps of the integration process for newcomers, before they have had the chance to learn Finnish. For some, for instance guest-workers, the

access to functioning services in English might be a decisive factor when contemplating moving to a new country. Since English is not a helpful language for everyone, the city lowers the linguistic barriers of newcomers also in multiple other ways. Key materials regarding school might be translated into 10 languages or more, and the law ensures the right to translation services in certain situations.

ATTRACTING GLOBAL TALENT

Everyone is competing for global talent. Almost half of the value of the Nasdaq Helsinki Stock Exchange comes from companies located in Espoo. 40 per cent of the academic staff at Espoo-based Aalto University comes from outside Finland. To ensure the economic sustainability of the city, it is crucial that residents moving to Espoo from all over the world find their place in Finnish society, can access work that corresponds to their competence and use public services. The English as a Service Language project tests a new participatory method to better include non-Finnish-speaking residents in the development of the city. At Town Hall meetings, residents and city officials map and work together on development targets, in English. Social sustainability is enhanced when no section of the population feels isolated from the city's services and its development. It is important that, regardless of language, everyone can find interesting recreational activities and communities to brighten their daily life and to grow roots in their neighbourhood.

Espoo wants to be an attractive and functional city for international companies and investments. The city develops its services to the benefit of all residents and employees.

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TOWARDS MORE PREVENTIVE SERVICE PROVISION – “PALVELUTORI” CONCEPT

The rapidly growing, networked city is looking for new, cost-efficient means to provide public services in the future. The starting point was to create a service concept for public services that would facilitate residents' everyday life and sustainable use of public services, improve equal access to services and enable flexibility in service development.

The Service Centre concept, Palvelutori in Finnish, offers residents key services in one place across branch boundaries, cost-efficiently and with high quality. Public services have been brought to where people move, which has lowered the threshold for using the services. At Iso Omena, which is one of the largest shopping malls in Espoo at the Service Centre, a total of 10 public services are available on the same floor inside the shopping centre. The operating culture revolves around the mutual customer to whom better services are offered through collaboration. The staff views the customer in a more comprehensive way than in traditional public services because they are familiar with the other available services and are able to guide customers to get help and support in a preventive manner. Service centres are actively looking for new forms of cooperation to streamline the service paths of customers as much as possible. Service Centres also function as innovation platforms where municipal services can be developed together with the public administration, companies and residents. The pioneering concept itself and its customer orientation represent the values of Espoo. The Service Centre concept is a bold experiment in the Finnish municipal field, arising from the need to develop service provision in a new way.

THE CONCEPT ENABLES COMPREHENSIVE CUSTOMER SERVICE

The foundation for the first Service Centre lies in the Espoo Story. The Service Centre concept highlights new forms of cooperation. Residents and customers have access to, for example, services related to health, employment and other social areas without forgetting youth and cultural services. The concept has enabled staff to approach customers' needs more openly and intensively. Service Centres are also an essential element of urban planning and, particularly, planning of public transport networks. The use of joint resources generates savings in operating costs and reduces mobility costs for customers. The good accessibility of public services both in terms of location and longer opening hours makes it easier for customers to access services at an early stage, before problems start piling up.

At the Iso Omena Service Centre, located in Matinkylä, Espoo, the library offers culture and its welfare benefits alongside social and health services.

SERVICE CENTRES ALSO CONTRIBUTE TO A GOOD TEAM SPIRIT AMONG SERVICE PROVIDERS

According to surveys, a majority of customers benefit from the concept: services are easily accessible and help is available right away. The concept has brought about more spontaneous and tight-knit forms of cooperation between service units. Professionals are also able to network more easily and learn from each other. The team spirit between employees is great, enhancing motivation and well-being at work and lowering the threshold for cooperation. The Service Centre also offers premises for new kinds of urban community activities: high-quality public premises are offered for residents to use, such as group work facilities free of charge. Service Centres reach new customer groups and customers can find new services more easily. All of this serves the goal of providing services in a preventive manner.

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- **Maintaining** a common operating culture and goals is continuous work and requires resources from the service units as well as the facilitating party.
- **A prerequisite** for the concept's success is to create and maintain a shared concept of the goal and the resources needed for it across all levels of decision-making and operational activity.
- **There** should be means to measure the quality benefits and impact of the concept more precisely.
- **It is important** that the Service Centre concept keeps up with the times and responds to customer needs in terms of its service offering.
- **As social** problems become more complex, the multidisciplinary environment of the Service Centre is hugely beneficial in terms of assisting customers better and in a more impactful manner.
- **Since services** are more often provided by digital means, the Service Centre model helps scale up operations as joint modular premises are adapted for new purposes.



PARTICIPATION IMPROVES FUNCTIONAL DEMOCRACY

Functional democracy requires actors who want to influence society. If we want to engage residents, companies and communities to solve shared challenges, they must have experiences of equal encounters and they need to know that their participation had an impact. This can only be achieved if decision-makers, employees and residents are capable of dialogue. They must be able to talk to each other constructively and be willing to learn from each other. The current, largely adversarial atmosphere does not support the efficient resolution of shared problems and can, at its worst, lead to an even greater divide.

The involvement of residents and its development are highlighted in many ways in the Espoo Story. The first value in the story is resident and customer orientation. The aim for this value is to make daily life as smooth as possible. Residents, communities and companies are the best resources of Espoo. The active involvement of residents in the development of services and the co-operation with partners is a way to ensure successful service production meeting the needs of residents.

Increased understanding created in dialogue and shared learning, on the other hand, create trust and strengthen attachment to the community. In 2018-2019, the city trained 22 dialogue facilitators from among its personnel for this purpose. They facilitated about a dozen public meetings in 2019. In addition, dialogue evenings were introduced in libraries, including discussions about climate change, among other things.

Despite the strategic significance of civic participation, the city had not offered training to its personnel or residents. The Participatory Espoo programme (2017-2021) developed a training entity for this need in 2019 to ensure the spreading of dialogue-based interaction methods to become city-level operations. The entity consists of modules that can be implemented on their own or incorporated into existing training. It suits work units that are thinking of involvement work as well as work units that have progressed further, in any organisation of the city. The different parts of the training were piloted with city employees and residents. Particularly the events bringing residents and employees together received plenty of positive feedback. These events increased understanding and trust on both sides.

Resident and customer orientation will become more evident in everyday life when the attitudinal and operating culture changes so that employees identify interaction skills as part of their basic work instead of perceiving it as a task of some "involvement specialist". Although training increases the skills of the personnel, the building of trust may also increase the customers' willingness to participate. As the employees' willingness to support customers' participation is concentrated around certain enthusiastic persons, the participation and influencing activity revolves around residents that are already active in other ways. The objective is to extend the willingness to participate to all resident groups and support the ability and willingness of the entire personnel to strengthen the participation of residents.

There have been challenges in getting employees to participate to training. Especially in customer work, it is difficult to attend training and it always requires special arrangements. That is why parts of the training package are also included in other staff training, such as orientation and supervisor training. An online training entity is also being prepared.

Participation is both a method and a goal of sustainable development. Of the elements of sustainable development, social sustainability is near the objectives of the interaction and involvement work in terms of its content. A socially sustainable society treats all its members equally, supports their well-being, health and functional capacity and provides the necessary security and services. Socially sustainable development is about the possibilities of people to influence their future, their ability to demand their rights and their opportunities to bring up their concerns. The training entity of interaction and involvement work supports these objectives.

KEY FACTS

WHAT IS GOOD

- The joint training for residents and city employees of the city received positive feedback. Participants have made successful changes to their operating methods. An official decision has been made that participation training will be included in supervisor training.

WHAT SHOULD BE DEVELOPED

- It is difficult for all employees to attend training, so online study material is also needed.
- New, successful practices should be communicated more widely among the staff.

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ESPOO STORY STEERING THE DEVELOPMENT OF LEADERSHIP

Effective management is a prerequisite for the renewal of the city. The root cause behind the need are the rapid changes in the environment and from expectations of the residents, partners and citizens in terms of swift response and close dialogue with city management.

CLEAR STRATEGY CREATES COMMITMENT

Espoo's management is steered by the Espoo strategy, the Espoo Story. The narrative strategy, owned by the mayor, with customer orientation and versatile sustainability as some of its key themes has served as a basis for developing management work and leadership. One of the key successes for Espoo Story is that it is well known across the Espoo's organisation.

Development of management in Espoo is part of the implementation of the strategy and is based on cooperation and inclusion. The city's management values also include network management and working in various global networks in a target-oriented and respectful manner. The 14,000 employees, experts, supervisors and managers of the city are all working towards the implementation of the strategy. This provides a solid support for every employee. When everyone knows and shares the targets, there is less confusion and more action.

Managers and supervisors are seen as a resource in the city, and as with any resource, it is important to also keep developing it in the future. Knowledge alone cannot manage change, but we need to manage people and their motivations, feelings and knowledge. Espoo management was developed in 2013-2017 in a project focusing on the best common practices in goal-oriented management and good management team work.

BUILDING THE CORNERSTONES OF LEADERSHIP TOGETHER

The foundation of Espoo leadership, the five cornerstones of leadership, were gathered in shared discussions between top management and all leaders:

- Customer-oriented activities
- Responsible pioneer
- Making everyday life easier
- Development as a leader and expert
- Effective partnerships and networks

In addition to the cornerstones of leadership, best management practices based on the experiences of leaders were created for setting, implementing and learning goals. In addition, some rules were developed for good management of team work. Inspiration was also sought from outside experts and other organisations.

CONTINUOUS LEARNING AS A BASIS FOR DEVELOPING LEADERSHIP

The development of Espoo leadership is characterised by continuous learning. Leadership is an open, interactive, dynamic process that can be studied and practised. Leadership and managerial work are supported by systematic leadership training in the city.

Every year, 100 managers participate in the "Making Espoo leadership your own" -training. Since 2017, 75 managers have participated also in the management eMBA programme. In addition, the city offers leadership coaching. Recently, Espoo has been piloting sustainable leadership training for experienced leaders.

One key leadership development forum is an annual event for supervisors and senior experts dealing with common goals and shared leadership experiences from different perspectives. The event is hosted by the mayor. All leaders, and about one in five of the city's senior experts, participate in the event.

KEY FACTS

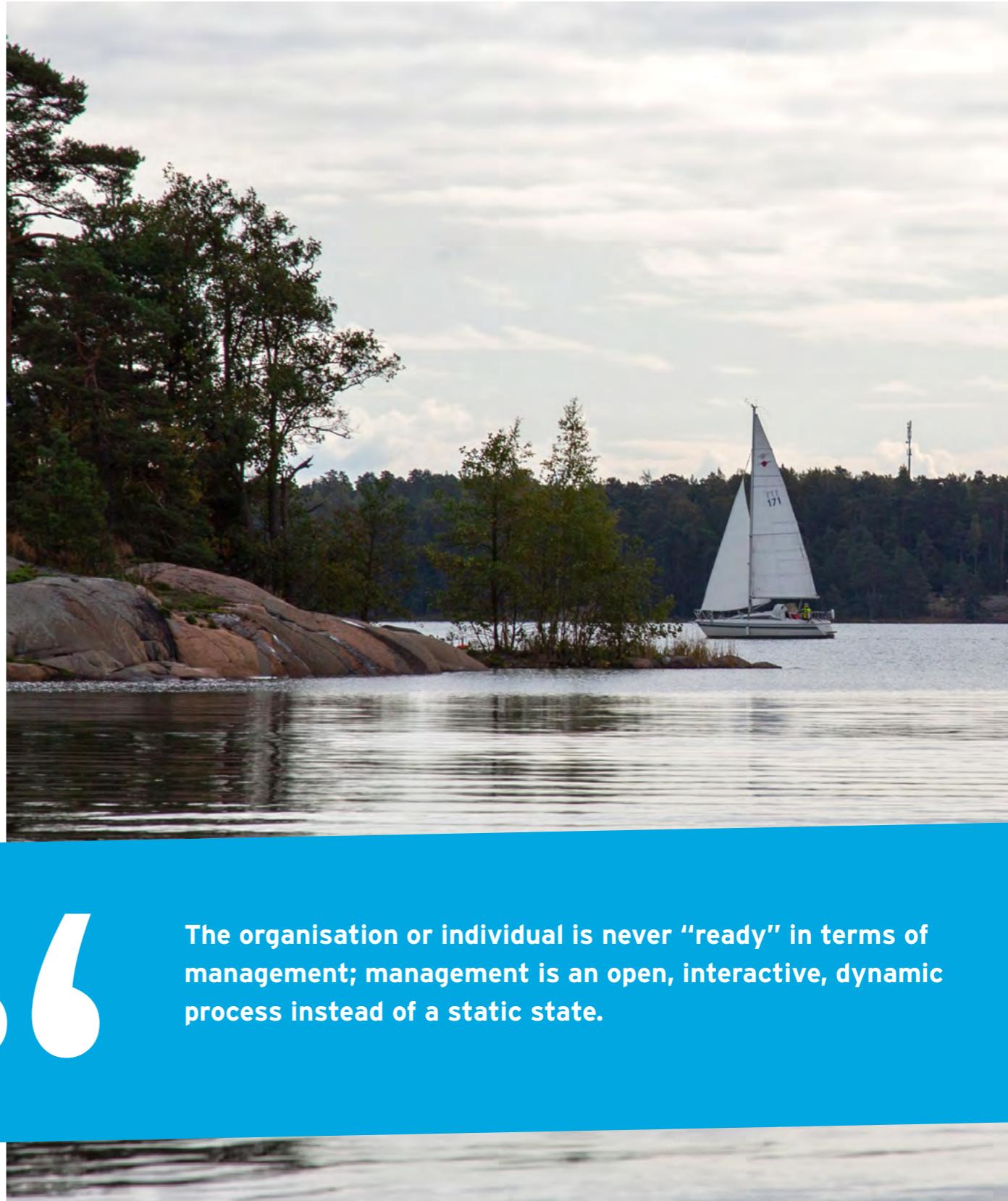
WHAT IS GOING WELL IN ESPOO LEADERSHIP DEVELOPMENT

- Strategy-oriented, goal-oriented
- Common leadership cornerstones – common values and culture'
- Continuous development, application of leadership practices and learning

WHAT HAS ROOM FOR IMPROVEMENT

- New ways to manage sustainable development
- Strengthening the learning perspective
- Tolerating incompleteness, maintaining resources

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DIVERSE PERSONNEL AS A RESOURCE IN THE CITY

Espo's goal is to ensure that the personnel structure in the city reflects its diversifying demographic structure. Models have been created to promote diversity, enabling a more streamlined recruitment process in comparison with the usual administrative procedure.

Based on the junior model of the City of Espoo, young students about to graduate or recent graduates can be recruited for fixed-term positions that match their education. The immigrant recruitment model helps to recruit persons with immigrant background for fixed-term positions that match their education. The senior model supports those about to retire in the coming years based on their age, encouraging them to keep working longer and help younger employees with their experience.

Personnel planning, personnel training, individual development plans and customised training help support competence development. Planning and adapting work tasks, individual management of different employees and work guidance contribute to general well-being at work.

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A BRIGHT FUTURE FOR PEOPLE AND THE ENVIRONMENT - EDUCATION FOR SUSTAINABLE DEVELOPMENT IN ESPOO

The changing world is forcing humans to shake up their ways of thinking and living. Sustainable development has also been described as the greatest learning challenge of humankind. Education for sustainable development encourages people towards active citizenship and bearing responsibility for the future of our world. Building a sustainable future requires continuous, lifelong learning and shared actions.



The City of Espoo is guiding and encouraging all of the city's communities towards sustainable activities. Education plays a significant role in building a sustainable future. Sustainable development is a fundamental value at all levels of education in Finland, from early childhood education to later studies. Education for sustainable development includes things like exploration, creative, systemic and critical thinking, participation and responsible advocacy. The goal is to modify the values, knowledge and skills of individuals and communities in accordance with the principles of sustainable development.

TAKING ACTION TOGETHER FOR THE ENVIRONMENT

In personal human growth, it is essential to understand our dependence on the environment and its well-being. From an early age, all children must be given the opportunity to develop environmental skills and a good relationship with nature.

Espoo's early childhood education makes use of forests and outdoor spaces. For example, the city has a few day-care nature groups that spend most of the day outdoors. The children learn to observe the nature and take care of it together, and their imagination and creativity are unleashed. In more extensive urban gardening activities, the children and educators grow berries, vegetables and root vegetables together in pallet collars. By doing things themselves and exploring, the children learn that, through care, work and persistence, you can get pure food from nearby. The skills have spread to the families, as some of the parents have been keen to join the gardening activities.

Everyday choices, like means of transport or recycling, are important for the well-being of the environment. Sustainable development groups and programmes at schools have managed, for example, to reduce energy consumption and food waste. The environmental education provided by educational communities is also supported by two nature centres located in Espoo.

Sustainable development is a fundamental value at all levels of education in Finland.

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Education plays a significant role in building a sustainable future ...

... The best sustainable development models take into account the special characteristics and various actors of the area.

LOCAL PROJECTS, GLOBAL UNDERSTANDING

The best sustainable development models take into account the special characteristics and various actors of the area. At Kaitaan koulu secondary school, for example, almost 80 pupils, under the guidance of their biology teacher, spread out in the vicinity of their school to root out all Himalayan balsam, an invasive species that threatens the diversity of nature, and got so enthusiastic that they continued the work in their spare time. On the Shared World geography course at upper secondary schools, students got together with urban planners to tackle local challenges in mobility and food production. At the same time, the students learned about the UN Sustainable Development Goals and their impact.

The city has also decided to develop learning environments in a more ecological direction. Karhusuon koulu primary school is Finland's first loaned building connected to a geothermal heating system.

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Education plays a significant role in building a sustainable future ...

... The best sustainable development models take into account the special characteristics and various actors of the area.

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TAKING ACTION TOGETHER FOR PEOPLE

The aim of education for sustainable development is to enable a good life for the current and future generations locally, regionally and globally. For example, schools have organised wellness breaks, during which the entire school community has practised mindfulness or yoga. After a shared moment of relaxation, the adults and children have happily continued their day. At an upper secondary school, students can take a personal trainer coaching course, and the pupils of one school formed a club with the purpose of finding friends for everyone. Evoking empathy is an integral part of education for sustainable development.

In a diversifying society, intercultural communication skills and understanding are increasingly important. The languages and cultures of pupils and their parents have been brought together by means of shared events involving both schools and homes, allowing parents and children to share information about their traditions and habits. The Global Communications course at upper secondary schools taught the students interaction skills and dealt with changes in diplomacy and ethical communications together with a specialists in intercultural communications. Among other things, the students learned about embassies, international conflict resolution and global companies.

The good deeds are not limited to the people at the school; the activities aim to approach and help people both in the neighbourhood and around the world. For example, schools have organised charity events for the benefit of the world's conflict areas and collected funds for the schools' own child beneficiaries in the Global South.

YOUNG PEOPLE AS A FORCE OF CHANGE

According to research, young people in Finland need more means of societal influence. A key task of Finnish education is to enable all young people to grow into active human beings and ethically

responsible members of society. Pupils can take part in pupil and student union work, school boards and various teams. Another important forum in Espoo is the Youth Council with 40 members, exerting influence in matters affecting young people in the city's decision-making.

Formal advocacy work is particularly suitable for active and bold children and young people. However, the sense of belonging to a community and being heard and seen is important to everyone. In surveys conducted in Espoo, concerns have been raised about some young people's feeling of social exclusion from the school community. Accordingly, enabling participation is part of the daily development work carried out by the city's various units and partners. In the school year beginning in autumn 2020, Espoo's schools will emphasise the well-being of every pupil and student as well as their sense of belonging to the group and school class. In addition to the day-care centres and schools, an important role in this is played by the city's youth services, libraries, hobby providers and associations. To empower young people, the city's youth services have developed, for instance, participatory budgeting as well as support and guidance services. Well-working participatory structures enable young people to feel and experience that they are members of the community and able to act for it.

Espoo has good experiences with Gutsy Go activities, in which pupils ideate and conduct acts of peace in their local community, with instructors as their sparring partners. For example, pupils have accompanied local senior citizens outdoors and organised excursions for local young people with intellectual disabilities. Through these activities, some of the young people have felt capable of having a concrete influence on their immediate surroundings for the first time in their lives. The activities have also shown what a valuable resource eight-graders are for the city.



A key task of Finnish education is to enable all young people to grow into active human beings and ethically responsible members of society.

EMPOWERING EDUCATORS IS THE KEY TO SUCCESS

Determined leadership and high competence of educators and teachers are prerequisites for successful education for sustainable development. The teachers are there to guide, educate and support the learners. In Espoo, teachers develop their skills through tailored training and, increasingly, through continuous learning in their daily work. Some teachers have been appointed as curriculum agents, who work with designated schools once a week and provide comprehensive schools with sparring to develop, among other things, key sustainable development contents.

In liberal adult education, Espoo's adult education centres are developing their personnel's eco-social education skills so that the education offered by the centres would better meet the sustainable development goals. The activities of adult education centres reach a significant number of Espoo residents. The project organises training, develops induction materials and carries out development visits to the centres.

GETTING COMMUNITIES INVOLVED

Education for sustainable development is a key part of continuous learning and something that belongs to everyone. Learning a sustainable lifestyle does not only happen in formal learning environments but everywhere. Residents, communities, workplaces, libraries or museums - everyone must be involved.

In Espoo, mobile training is offered for the development of residents' and personnel's sustainable development skills, with a virtual course certificate for those who complete the training. The mobile app has been developed as a joint effort between an Espoo-based company and the city. In addition, Espoo and partners have developed the MY2050 game, a mobile app that teaches users about circular economy and climate change. The story in the game familiarises players with a future altered by climate change. The game provides players with information on climate change as a societal phenomenon in an interesting new format, encouraging them to learn more about climate change and take action to mitigate it. Available to everyone, the game is highly suitable for use in education.

Together with the residents, the city has also developed a health nature trail in a local forest. The checkpoints on the nature trail offer various exercises whose purpose is to promote mental well-being and boost the health benefits offered by nature. The nature trail increases the involvement of a wide variety of user groups and gives them the chance to experience nature. The residents have also started many kinds of independent activities, such as cleaning up shores and enabling cultural encounters.

Different generations also meet each other: On the initiative of the Lake Hannusjärvi preservation society, the eutrophic local lake has been preserved as a joint effort between local residents and upper secondary school students. Together with residents of the centre for people with intellectual disabilities, the fish caught have been taken to the zoo to feed the seal pups.

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Learning a sustainable lifestyle does not happen only in formal learning environments, but everywhere.





ME & MYCITY - WORKING LIFE EXPERIENCES FOR STUDENTS

Me & MyCity, or Yrityskylä in Finnish, is an innovative way for students to learn about working life, the economy and society. Yrityskylä in Finland is coordinated by a non-profit organization called 'Talous ja nuoret TAT'.

We want every student to serve as an enterprising and responsible member of society. As Yrityskylä is based on the Finnish National Core Curriculum, the content related to the SDGs are present in the learning concept. We have built a miniature society and every year 75% of all Finnish sixth graders, including all students in Espoo, get a chance to run it for a day as a citizen, consumer and employee. We have created an inspiring and practical way to introduce young people to working life, based on the Finnish primary school curriculum. Wouldn't you be excited to have your first working life experience at the age of 12?

Based on the sixth graders' much loved Yrityskylä experience, the feedback was clear: the schools want more of this kind of practical working life activities. To answer this need, TAT has developed a new digital and interactive game system for ninth graders in which they manage a company on the global markets. Youngsters at the age of 15 form corporate executive teams and run real case companies' operations with all the possibilities and challenges that can occur during a year- isn't it impressive? In Espoo 100 % (Finland 60%) of ninth graders participate in this activity.

KEY FACTS

- According to research significant impact and rise of knowledge has been shown among students participating in the learning module.
- Teachers are the gatekeepers. One of the main focuses is to empower and inform the teachers of the intended learning outcomes and the core mission. A committed teacher catalyzes the learning experience for students, especially for older students.
- How to use the concept for less privileged, migration, unemployed and other focus groups outside the school system with the aim of social inclusion. Pilot projects are planned.

More information: <https://yrityskyla.fi/en/>



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Yrityskylä is an innovative way for students to learn about working life, economy, society and entrepreneurship. Learning module includes teacher education (3 h), lessons at school, a full workday in the learning environment and a reflection lesson. The length of the learning module can vary from an intensive week to a whole semester.



The physical and digital Yrityskylä learning environments are planned to support the well-being of all students. An important part of working life is taking care of your health. In Yrityskylä health stations there are arranged health checks where sixth graders discuss together with an occupational health nurse about physical and social wellbeing. The students also gain an insight of how it would be to work in the health care sector. In addition, students investigate pollutions in the area and what it means to take care of clean water. (SDG 3)



Yrityskylä is an inclusive learning environment where all students play a significant role. Reading and mathematics skills are naturally included in the learning concept, since they are relevant for working life. Running your private economy or a company requires basic knowledge in mathematics. The learning environment combines technology and digital solutions with face to face interaction and teamwork. Yrityskylä wants to give all students positive experiences of working life and thus prevent young people from dropping out. (SDG 4)



Structurally there are still significant gender differences in choosing one's occupation and educational paths. We want every student to have the possibility to choose the field student is interested in working in. In Yrityskylä, girls also get leadership experience. Many companies partner with us because they want to encourage all genders to work as their future experts. (SDG 5)



Energy is a vital part of the society and thus the Yrityskylä miniature society educates students in clean energy solutions. When students run a company, they also must consider what kind of solutions should be made to save energy. (SDG 7)



In Yrityskylä every student gets their first experience of working life. It starts with finding your strengths and interests, writing a job application and going to a job interview. Students have a possibility to explore different fields. Students get equal pay for the same job and different wage levels are discussed. Unemployment rate among the students in Yrityskylä learning environment is 0%. Yrityskylä also provides possibilities for internships every year for hundreds secondary and tertiary students. In addition, Yrityskylä promotes a safe and secure learning environment. (SDG 8)



In Yrityskylä, all students despite their family or social background have the possibility to get experience in which ever occupation they choose to apply for. The teachers are trained to take this into account and not let any factor obstruct the students from their first working life experience. (SDG 10)



Yrityskylä is a miniature society based on circular economy, where waste sorting is seen as a solution to keeping raw materials in circulation. Yrityskylä also minimize the amount of mixed and food waste, and educate teachers in this theme. (SDG 11)



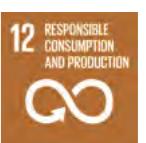
Same as 11. Yrityskylä educates students in responsible consumption. This means that we try to encourage students to consume services instead of products and educate students to recognize different product labelling. (SDG 12)



In Yrityskylä negotiation skills as well as cooperation skills are crucial as they are seen as central future working life skills. (SDG 16)



Yrityskylä wouldn't be possible without partners, where the City of Espoo, other municipalities and numerous companies play a significant role. The partners views on future needs of knowledge and skills in working-life are considered in the students' learning experience in Yrityskylä. Yrityskylä and the partners want to work together as an ecosystem providing relevant working life experiences for the students and young people to help form their future. (SDG 17)



STRATEGY FOR A SUSTAINABLE FUTURE GUIDES THE OPERATIONS OF OMNIA

Sustainable development is a value that is realised at different levels in all Omnia operations. Omnia aims to solve the global sustainability problem together with partners, and the operations are based on shared determination.

The Omnia training group is Finland's fifth largest provider of vocational education and training, where a total of 10,000 students study in degree programmes. Omnia offers lifelong learning opportunities from vocational and adult education to further education, youth workshops, upper secondary education and liberal adult education. In Omnia, dreams are being made reality by: 7,000 vocational students, 1,500 adult upper secondary school students, 1,600 staff and further education students, 230 basic education students, 340 youth workshop participants and 350 students in preparatory education. Omnia's liberal adult education courses help approximately 22,500 students of different ages enrich their lives every year; up to 3,000 courses are offered. Omnia also offers a wide range of business services. Our learners have the most important task in the world: making their dreams reality.

The core task of Omnia training group is to create training products for sustainable development, digital everyday tools for citizens and businesses, and knowledge-based solutions for future challenges. This is done in collaboration with education, business, member municipalities and customers, nationally and internationally. The focus of Omnia's operations is to make high-quality education possible for all. High-quality education is a pathway to increased equality and inclusion, improved well-being and better social justice. Good education also leads to a reduction in poverty and exclusion, and an improvement in the economic and employment situation.

SUSTAINABILITY CERTIFICATION WORK IS FOR THE WHOLE OF OMNIA

Omnia has a sustainable development certificate that covers the entire organisation. Achieving the UN Sustainable Development Goals (SDGs) will still require a strong commitment to comprehensive development. The emphasis is on the sustainability of teaching, operating culture and management. The most important thing that the training organisation can do to ensure future sustainability is to increase people's awareness of sustainability, to teach students about sustainable practices and to create sustainable and innovative learning environments for all students.

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Our learners have the most important task in the world: making their dreams reality.

FREE AND SUSTAINABLY PREPARED FOOD FOR ALL - EVERYDAY

Finland was the first country in the world to introduce free school meals for all children and young people more than 70 years ago. In addition to free meals, sustainable development has become an important part of all activities. Concrete examples include the increase of vegetarian, seasonal and local food in the offering.

INCREASING THE USE OF VEGETARIAN FOOD AND FISH SUSTAINABLY CAUGHT IN THE BALTIC SEA

The city's food services provide 80,000 daily portions to children at day-care centres, school children, the elderly and staff. Food is being developed in a more sustainable direction by increasing the share of vegetarian, seasonal and local food. Espoo Catering is participating in the Baltic Sea Programme of the City of Espoo in 2019-2023. The aim of the programme is to increase the share of vegetarian food and fish sustainably caught in the Baltic Sea, such as whitefish and cyprinids, in food procurement. The aim is to reduce the consumption of meat and dairy significantly by 2025. This will reduce climate emissions and the nutrient load entering the Baltic Sea. Espoo Catering has, among other things, doubled the use of domestic freshwater fish patties in 2019 from the previous year.

YOUNG PEOPLE INSPIRED AT POP-UP EVENTS

Already in 2019, vegetarian food accounted for 60% of the offering, meat dishes for 30% and fish dishes for 10%. However, vegetarian food was eaten less measured in kilograms than meat and fish foods, although it is served daily. The aim is to encourage young people to choose vegetarian food more frequently. Young people are encouraged to make responsible choices in schools at pop-up events, such as identifying and tasting fish or various beans. Young people have also been able to develop vegetarian recipes for the menus of restaurants themselves.

LOCAL AND SEASONAL THINKING IN MENU PLANNING

Menu planning is based on a diverse, colourful and nutritive package that takes into account harvest seasons. Menus are planned on the basis of adequate nutrition and age-specific nutritional recommendations for appropriate energy intake. They are taken into account both in the sourcing of ingredients, in the recipes and in the planning of menus. The use of vegetable proteins in vegetarian dishes is increased by including for example seitan, which is derived from wheat protein. Various plant proteins, such as beans, lentils, pulled oats, broad bean products and milk protein products, have been in use for a long time.

Seasonal thinking can be seen in fresh salads, vegetables, fruit and root vegetables in salad bars, as well as in the breakfasts, snacks and evening snacks of our customers. Fresh domestic berries are served to customers when they are in season from July to August,

and so are Finnish apples after they ripen in September and October. Domestic vegetables, such as tomatoes and cucumbers, are served when they are in season. Domestic root vegetables, such as carrots, white and red cabbage and Swedes, are available almost year round.

The City of Espoo has been a Fairtrade city for more than ten years, committing itself to using responsibly produced Fairtrade products. Espoo Catering uses only Fairtrade coffee and tea, and other Fairtrade products, such as fruit, where possible. Organic products are used systematically and wherever possible.

KEY FACTS

WHAT IS GOOD

- Espoo Catering is responsible for 80% of the City of Espoo's kitchens
- Food is made more sustainable by increasing vegetarian, seasonal and local food.
- Young people have been able to develop vegetarian recipes for restaurant menus themselves.

WHAT SHOULD BE DEVELOPED

- Vegetarian food is still consumed less in terms of kilograms than meat and fish foods.

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Every day, all children are offered a free, full and healthy meal in schools.

Already in 2016, vegetarian food accounted for 60% of the offering, meat dishes for 30% and fish dishes for 10%.



REDUCING FOOD WASTE IS LONG-TERM WORK

Espoo's meal services, reduce food losses with a long-term approach. The most recent initiative is biowaste scales to help visualise the amount of waste left on plates.



Food waste is a burden on the environment as well as a source of greenhouse gas emissions and of water and soil eutrophication. A huge amount of raw materials, energy, transport emissions and the production that has been done goes wasted if prepared food is discarded. The food service company owned by the City of Espoo, Espoo Catering, has been continuously reducing food waste in its restaurants since 2008. Since 2014, when the measurement was standardised, food losses have decreased by 20 per cent.

Most of the losses are losses in serving, i.e. food left in the serving line. In Finland, at the moment, food legislation prohibits the re-serving of food that has already been in the serving line once, which poses challenges to reducing losses. A biowaste scale will be introduced in 2020 to give diners immediate feedback on the amount of food left over on their plate. Implementation is not as straightforward as one might think. Food is a touchy subject. What is essential is not making diners, especially young people, feel guilty. In Finland, youth have climate anxiety, and eating disorders are a global phenomenon. It is essential to feed young people, not the problems mentioned above.

As new concrete actions, surplus lunch food is sold through a mobile application and donated to third parties who need it. The amount of food waste of kitchens is monitored centrally. Four times a year, the kitchens weigh and record the amount of biowaste generated for a week. The development trend is monitored and the amount of biowaste is compared with the previous year. There is no one correct way to proceed in battling food waste; it is trial and error.



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Food losses have been reduced for more than ten years in a long-term manner with help of new innovations.

KEY FACTS

WHAT IS GOOD

- The kitchen staff and diners are involved in the reduction of losses.
- Must be done with a positive approach. Must not increase climate anxiety or eating disorders.
- Cooperation with external actors to exploit surplus food.

WHAT SHOULD BE DEVELOPED

- Food legislation poses challenges for the re-use of surplus food.

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AN INCLUSIVE CITY ENABLES CULTURE FOR, BY AND WITH ALL

Art and culture empower, bring people together and regenerate competence. Art and culture foster creativity and offer alternative frames of reference and ways to release difficult issues.

Growing inequality is one of the most significant challenges facing cities around the world today. Espoo's approach is to tackle the phenomenon through a preventive and collaborative approach. A wide scale of services is provided with the aim to give all citizens the possibility to lead a good life. The right to culture is not only a question of who gets to consume it, make it or, own it or what is considered as legitimate culture. It is also about creating a society where everyone feels that they matter and have a chance in life. Art and culture play an important role in building an inclusive city.

KAIKUKORTTI - EQUAL ACCESS TO CULTURE

Culture belongs to everyone, but not everyone has the economic means to use cultural services. The cultural card Kaikukortti gives citizens with financial constraints free access to cultural services, such as concerts, museums and theatres. The users include, for instance, unemployed, clients of social or healthcare services or citizens with mental health problems. To reach as many citizens as possible, both social and health care operators of the city as well as local organisations and parishes, handle the distribution of the cards. Kaikukortti provides equal access to culture and cultural spaces. It gives its user a feeling of being an equal part of society. According to citizen feedback, already carrying the card in your pocket and being aware of the opportunities it provides, generates wellbeing – although the person might not yet have used it.

Almost all city-owned cultural actors as well as cultural actors receiving grants from the city are part of the Kaikukortti network. They get no financial compensation for reserving part of their user capacity for Kaikukortti clients. In addition, the service enriches the dialogue between the social, health and culture sectors. The Kaikukortti service has been developed by the national Culture for All service, which is financed by the national Ministry of Education and Culture. Espoo was the first city to pilot the card in 2015, after which it was developed into a permanent service in Espoo and spread to other cities in Finland.

"As a low-income resident, you are easily excluded from things that aren't necessary for your survival. Life loses its lightness and you miss out on opportunities. You feel like a second-class citizen. Getting access to cultural services gives you a chance to live and feel that you belong." – User of the Kaikukortti cultural card.

ARTS AND CULTURE BELONG TO EVERY CHILD

Children have the right to participate fully in cultural and artistic life (UN Convention on the Rights of Children). Espoo Cultural Services reach out to children and families through a wide variety of measures. The Culture Clinics bring cultural actors to maternity and child health clinics on a regular basis, to introduce families to local culture. In 2019, Espoo's City Orchestra Tapiola Sinfonietta decided to provide all expectant parents with free access to regularly arranged concerts, so that their children could experience the positive

influence of music while still in the womb. Free concerts are arranged for these children until the age of 3.

The Culture Call program, piloted in 2017-2018 and taken into wide-scale use in 2019, takes art and culture professionals to day-care centers to perform or guide activities for children. The professionals also train staff in utilizing art in early childhood education. Cultural knowledge and expression and multi literacy skills are an inherent part of the learning path and education curricula in Finland. The early childhood education curriculum emphasizes play, creativity, interaction, wellbeing and joy of learning.

The Culture Call supports creativity, innovation and participation from an early age. Children acquire the knowledge and skills needed in the future, including for instance appreciation of cultural diversity. Through Culture Call more children, regardless of their family situation or the opportunity of the day care centre to arrange visits to cultural activities, gain access to culture. The systematic approach makes the outreach of Culture Call impactful. The program covers all 175 municipal day-care centres in Espoo. A total of 25 cultural and art actors producing content ranging from dance, circus and light art to nature, cultural history and storytelling. The program has been developed on the basis of experiences from the cultural and art education program for schools in Espoo.

ESPOO DAY - WRITING THE DNA OF THE CITY

Esopo Day is the largest communal event in Espoo. The lively event spreads to all five city districts, invites everyone to join and encourages citizens to make and create their neighborhood culture. The city facilitates, provides coordination and marketing assistance, networks and grants. The Espoo Day has expanded vastly during last years: Nowadays hundreds of larger and smaller events are arranged all over the city.

The event lies heavily on the history and cultural heritage of Espoo: Espoo Day is arranged on the last Saturday in August, referring to 27th of August 1556, when the manor of king Gustav I of Sweden was founded in Espoo. Although being inhabited for around 8 000 years, Espoo gained the status of a city as late as in the 1970s and became the country's second largest city in early 1990s. This combined with the city's location, decentralized city structure and rapid growth due to a high net migration rate means that Espoo has reflected on and re-formed its identity perhaps more than traditional cities. What does a city like Espoo look and feel like, now and in the future?

Culture and cultural heritage are the DNA of the city - that special something which makes it recognizable and authentic (Culture Espoo 2030). A communal event such as the Espoo Day, reaching all city areas and inviting everyone to join, is crucial in the city's identity-building and in fostering community spirit and vitality. The Espoo Day provides everyone with access to the city space, encourages active citizenship and fosters partnerships between local actors.



KEY FACTS

WHAT IS GOOD

- Culture for, by and with all reduces inequality and makes citizens thrive. Culture has a special capacity to engage, empower and offer new frameworks of thinking and acting.
- Cross-sectoral and multi-stakeholder collaboration builds trust and understanding.
- Culture and art education foster creativity, innovation and sustainable life skills.

WHAT SHOULD BE DEVELOPED

- Removing financial obstacles isn't enough. If you never had anything, how should you know which possibilities are offered for you? More emphasis needs to be put on how to encourage and empower citizens to participate in culture.
- Access to information. Not everyone has the skills or opportunities to use digital platforms or search for opportunities. A diverse city needs diverse ways of fostering dialogue and providing information.
- Scaling. How to move from pilot to large-scale operations?

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ESPOO CITY LIBRARY - THE SECOND-BEST CITY SERVICE AFTER TAP WATER

In an age of increasing polarization, fake news and knowledge gaps, libraries are essential. The task of libraries in Finland is to promote equal possibilities to culture, lifelong learning, active citizenship and democracy. The libraries are free of charge, open for all and provided for by legislation.

The mindset, locations and community programs of Espoo City Library have ensured that the libraries in Espoo reach the hearts and minds of nearly everyone. 80% of Espoo citizens have visited a library during the last year. In citizen surveys, the library is outrun only by tap water - making the library the second most appreciated public service in Espoo.



LIBRARIES AS NEIGHBORHOOD ANCHORS

Espoo City Library services are integrated in the daily lives of people. Larger libraries are open every day of the week and located at shopping centers, balancing the commercial aspect of shopping centers with public spaces. Smaller libraries are spread to suburbs and most of them operate also as self-service libraries. Customers can access these libraries even when the staff isn't present, which has doubled the libraries' opening times during recent years. The library network also includes two library buses and a free home delivery service for those unable to access libraries.

A wide-ranging library network not only provides equal access to the services but also supports community spirit. In 2019, one of the larger libraries opened its doors during Christmas holidays, a holiday when everything closes but which not all citizens celebrate or which some citizens experience as a lonely time. It was a success.

Another example of the communal strength of the library is the latest addition to the library family, Otaniemi Library, located at the new Otaniemi upper secondary school. The library was opened in 2019 as a response to students wishes: to have a public library open for everyone, not only the students. The students have taken an active role at the new self-service library. They were involved in the designing of it and every Monday they are available for library customers who need help in mathematics or science.

RELYING ON THE POWER OF PARTICIPATION

The library is an open and safe space for everyone. People need to feel welcomed and accepted, no matter who they are. Espoo City Library is always open to customer's wishes, be it a question of arranging dances or a robot workshop. Experience shows that visitors feel a stronger ownership of the library when they are included in the planning.

Espoo City Library has developed activity-based departments for children and young people, spaces for play or for just for hanging out with friends. Book buses visit refugee centers to meet asylum seekers, support their Finnish-language learning or to assist in administrative procedures. With rainbow bookshelves, gender neutral toilet

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Espoo City Library took home The Library of the Year Award 2019, with judges calling it “a fine example to the world of an open and innovative service for everyone”

facilities and diversifying sex categories in the customer register, the library makes gender minorities feel welcome. The library visits terminal care patients and reads novels with them. The music workshops for ukulele beginners have been so successful that a band has been formed. The ukulele band has spread its joy of music in nursing homes.

Responding to phenomena of our time through experiments
No progress or new services can be achieved if the working culture is not open for quick experiments, trials or fails. A few years ago, Espoo City Library started developing makerspaces as an answer to a customer's comment: "Wouldn't it be great, if you had a 3D printer in the library and people could come and explore it here?"

Now the makerspaces have 3D-printers and -scanners, woodworking tools, sewing and embroidery machines, vinyl cutters, programs and devices for digitizing home archives no matter what form they are: music, images, films etc. Some libraries also have music studios for recording.

One of the library's biggest challenge is in supporting those at risk to be passed by the digital evolution. To succeed in the challenge, the library has shifted the emphasis of the staff's professional identity towards pedagogic skills. The library also works together with other actors of the city, and the third sector.

NOT TO FORGET LITERACY

Library pedagogues work closely with schools, day care centers and other institutions to encourage reading and learning. Every year, new reading challenges are published in Facebook for children and adults. Tens of thousands of people around Finland have participated in the challenges and found inspirational chats with new literature-oriented friends while doing so. Also, Espoo City Library was the first one to adopt reading dogs: children with reading difficulties are encouraged to read aloud. Dogs will listen contentedly to a child, not caring if the reader makes mistakes or reads slowly.

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PHYSICAL ACTIVITY BENEFITS EVERYONE

Regular exercise strengthens health, invigorates the mind and improves learning ability. According to the World Health Organization (WHO), more than a quarter of the world's adult population gets too little physical activity, and the health of the majority of the world's teenagers is under threat because of physical inactivity. Physically active lifestyle is an increasingly topical issue in Espoo as well as, also because the citizens in Espoo are aging.

The actions by cities to encourage an active lifestyle and facilitate physical activity are crucial. Espoo's goal is to make local physical activities accessible to everyone. The starting point is good: Nearly 70% of Espoo residents live less than 500 metres from a green area. The maritime location, over a thousand sports and outdoor exercise venues, the evolving network of pedestrian and bicycle routes, and the ski trail network all encourage everyday physical activity. The city's own sports and exercise services and 400 sports clubs enable a wide range of physical activities for different target groups. Espoo offers exercise counselling in cooperation with health services, and customises services to special groups. The correct and timely allocation of services encourages people to look after their well-being. The city does well when its residents are well.

PHYSICALLY ACTIVE LIFESTYLES FOR ALL CHILDREN AND YOUNG PEOPLE

Active lifestyles are acquired at an early age, but not all children and young people have access to opportunities that inspire physical

activity. In Espoo, one in five pupils in lower secondary schools finds interesting hobbies too expensive. Espoo has therefore created a hobby project, where all children and young people are offered the opportunity to find a physical activity that suits them.

In cooperation with the city and sports clubs, 2-18-year-olds are offered free clubs in their age group where they can try different sports, mainly after the school day. The offering also includes family exercise at weekends and customised clubs for youth who have already given up a goal-oriented hobby. In 2019, 200 clubs were organised, which attracted an average of 1,400 participants per week.

Regrettably often, a hobby started at a young age is abandoned in the teen years. The city and clubs have joined forces with lower secondary schools. Every Wednesday, Espoo's lower secondary schools end at 2.30 pm, and the young people are offered free hobbies right after school. In the Wednesday groups, young people looking for pleasant activities can try hobbies without long-term commitment. Young people who already have goal-oriented hobbies are encouraged to maintain a social network with friends outside

their regular hobby and receive an opportunity for a relaxed weekday night.

There are activities all over Espoo in 20 sports from ice hockey to swimming and from fencing to self-defence. The hobby afternoons are supervised by professional clubs coaches, and the participants are insured. The activities are being extended to the last years of lower comprehensive school. In addition, groups open to all are being planned for the younger pupils, along with Kuperkeikka groups for day-care centres, where children can learn motor skills under the guidance of professionals once a week.

In ten years, the share of mostly physically inactive children and young people has decreased, and most of the children and young people in Espoo regularly attend an active hobby. In 2019, 92% of 4th and 5th grade pupils and 97% of pupils in lower secondary schools said they attend an active hobby at least once a week. 92% of students in second-cycle vocational education and 98% of students in upper secondary school said they attend at least once a week.

GETTING SENIORS ACTIVE

In 2030, there will be 1.5 times more over 65-year-olds in Espoo than there will be children. In Espoo, the aging of the population is being addressed with physical activity, among other things. Physical activity slows down the changes brought about by aging, strengthens mental well-being and offers opportunities to meet other people. Physical activity is a vital for older people.

In addition to the wide range of sports and exercise activities, a "68+ sports wristband" has been developed in Espoo. The wristband gives all people aged 68 or over the opportunity for free physical activities and an active lifestyle. The wristband entitles its wearer to use the City of Espoo's swimming halls and gyms, and to participate in guided exercise for seniors and special groups. They can also bring an adult assistant or of-age companion with them free of charge. The wristband can also be used for scheduled archipelago boat traffic, and an of-age companion travels free of charge.

KEY FACTS

WHAT IS GOOD

- Sport and exercise services open to all contribute to the well-being of city residents.
- The services reduce inequality. The activities are open to all and free of charge.
- Young people can find interesting activities.

WHAT SHOULD BE DEVELOPED

- Structures for cross-administrative cooperation.
- Reaching target groups.
- The expansion of hobby activities for young people (lack of facilities).

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ESPORTS - POTENTIALLY THE MOST INCLUSIVE HOBBY IN THE WORLD

Esports, also known as professional gaming, is a global trend and phenomenon taking over families, schools and cities. In esports, passion and competition - traditionally associated with physical sports - meets gaming in which people compete against each other.

In 2019, more than 65% of Finnish citizens aged between 10 and 29 played video games at least once a week, while more than 4% played video games in a competitive manner. Gaming and esports are part of everyday life for most citizens in Espoo, as well. Esports is growing rapidly but cities and municipalities have been slow to react. We need to be interested in it and willing to change, if we wish to see esports as a tool to reach youth and young adults. Gaming and esports have already taken a foothold in our lives and culture, whether it means playing a game Angry Birds on your phone, Fortnite on a gaming platform or going to mega events with thousands of gamers and spectators. Denial won't work. It is important to understand the phenomenon. If we do not understand how it affects our families and residents, we cannot start using it as a tool for wellbeing, equality or learning.

IT IS IMPOSSIBLE FOR A CITY TO SINGLEHANDEDLY CHANGE ESPORTS

We need co-operation and partners, just like we do when it comes to sports such as football or ice-hockey. The City of Espoo is forging strong relationships with esports organizations, companies and event organizers in creating a collaborative future for esports. Concrete steps towards the right direction are to establish gaming rooms, training facilities, and adding gaming to, for example library services. But we also need to understand gaming as an ecosystem where game developers, companies and esports clubs work together with the city.

ESPORTS HAS THE POTENTIAL TO BE A HOBBY FOR EVERYONE WHILE REDEFINING WHAT WE CONSIDER A HOBBY IN THE FIRST PLACE

There is no need for different competitions for men and women, nor is there a need to differentiate people who have physical disabilities. Esports might become the biggest sport we have ever seen, and gaming might become the biggest form of entertainment. Because gaming and esports has become part of the day to day lives of youth and young adults, we have a chance to change lives through it. People tend to judge esports on what it is today without dreaming of what it could be.

KEY FACTS

WHAT IS GOOD

- We must open our eyes and embrace the change. Games and esports are here stay.
- A City cannot do this alone. Developers, companies, and sport clubs are all needed just like in any other sports.

WHAT SHOULD BE DEVELOPED

- Creating responsible, inclusive and resident oriented esports is a marathon, not a sprint.
- In Espoo projects are in early phase. How to define the City's role and what to offer for our future partners in day to day operations.

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Creating a meaningful and entertaining hobby out of responsibly organized esports has numerous advantages: players get a socially accepted hobby, social skills, health and wellbeing.

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We must broaden the current esports and gaming culture in a way is responsible and inclusive all.



LEAN SKILLS AS THE BASIS OF THE CULTURE OF DEVELOPMENT IN SOCIAL AND HEALTH SERVICES

The operations, competence and development of social and health services are faced with challenges such as the ageing of the population, new technology and its use, financial pressure and lack of personnel. This requires new kinds of planning and development in service provision. One of definitions of Lean by Toussaint is an organisational culture that is committed to constantly developing multi-professional operating models and acting accordingly to achieve more added value for clients or patients and owners.

ESPOO SOCIAL AND HEALTH SERVICES

Espoo has been applying Lean skills in building the culture of development and improving the organisation's capability of changing for more than 10 years now. Lean management is built around clear and measurable objectives whose achievement is monitored on a visual management board at least once a month. The monitoring is carried out everywhere in the organisation. The teams are coached in, for example, standardising the activities and improving the processes in small steps. The common motto is: "Everyone has two jobs - their own work and developing their work." Hundreds of employees have taken part in developing their work both in the administrative unit and all the profit centres.

Espoo Social and Health Services are also well equipped to continue making use of the Lean skills in the management of digitalisation. Development practices based on Lean thinking are easy to learn, but their daily implementation requires directors and supervisors to adopt a new, coach-like approach and disciplined work. Without strong leadership, the results are modest. Leadership plays a big role in the commitment of personnel and making extensive use of the organisation's expertise, among other things. In order to achieve good development results, everyone must be able to prioritise and schedule ongoing projects and ensure that the changes are followed through in the daily work.

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EFFICIENT AND SAFE HEALTH SERVICES WITH A REMOTE APPOINTMENT

Digitalisation and ICT solutions are tools for providing clients of social and health services with better service as well as maintaining and developing their well-being and functional capacity. In Espoo, digitalisation is utilised in a client-oriented manner. Digitalisation means revamping the operating methods, digitalising internal processes and introducing electronic services.

A video appointment with the nurse on duty is one example of client-oriented service that facilitates the treatment of adults in good general health in the event of acute respiratory infections and stomach flu. From the client's perspective, a remote appointment saves trouble and time as it is independent of location. Using the service is simple: the client can book a remote appointment on the City of Espoo website with their online banking credentials. After booking the appointment, the client receives a link and then opens it at the agreed time. The client has a video connection with the nurse and need not exert themselves by travelling when they are ill. At the time of writing, in March 2020, video appointments and telephone calls were also the recommended methods of contacting the health centre in the event of suspected coronavirus cases. The benefits of video appointments include preventing the infection of clients and staff, cost-efficiency and environmental friendliness.

Video appointments have been used at all of Espoo's health centres since 2019 and have also been adopted in, for example, medical rehabilitation and mental health services. In the future, video appointments can also be adopted in group activities, non-urgent appointments with nurses and doctors in the treatment of long-term illnesses as well as on-call doctor services.

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The benefits include preventing the infection of clients and staff, cost-efficiency and environmental friendliness.



MOBILE HOSPITAL "LIISA" REDUCES UNNECESSARY VISITS TO THE EMERGENCY CLINIC

Various mobile service solutions have been applied in social and health services to find opportunities for supplementing and replacing conventional, centralised service provision. Mobile hospital LiiSa is a mobile diagnostic and treatment unit that operates in connection with the Espoo home hospital and specialises in on-call situations. LiiSa serves clients of Espoo's nursing homes, disabled housing units and home care. The staff members have been recruited from the home hospital and have received further training for dealing with on-call situations.



The goal is to provide clients with safe and competent on-call treatment in their own homes. The nurse's visit to the client's home replaces the client's visit to the emergency clinic. The client-oriented purpose of the activities is to treat the clients in a familiar environment and save their resources. The clients get the treatment quickly and without unnecessary transport and waiting. Thanks to the project, one-fifth of the on-call visits of nursing home clients have been handled in their own homes.

The activities support the care work of home care and long-term care staff, improve the cooperation between the various parties, and support palliative care, i.e. active and comprehensive care for the terminally ill and their families. A client treated by the mobile hospital can become a client of the home hospital or, if necessary, be sent to the emergency clinic.

From a professional's perspective, the service involves contact between professionals, meaning that the nursing home or home care staff contact LiiSa's nurse. Espoo's nursing homes can join the service once they have been introduced to its operating principles and learned them. In practice, LiiSa's nurse uses a specially equipped vehicle with integrated treatment and examination equipment. This enables the nurse to take various quick samples and start the prescribed medical treatment on the site. If necessary, the mobile hospital nurse consults a doctor to agree upon further measures. The doctor service is provided by nursing home or home care doctors on weekdays and by the emergency clinic outside office hours.

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MOBILE HOSPITAL LIISA

- The activities started in March 2019.
- Initially served the clients of nursing homes.
- The activities have expanded to disabled housing units and home care clients.
- The service covers 50 nursing homes and disabled housing units (as of January 2020).
- 6 employees
- 1,533 contacts (March–December 2019)
- 556 telephone consultations (March–December 2019)
- 1,389 visits to nursing homes and home care (March–December 2019)
- Won the Mayor's Innovation Contest in Espoo in August 2019.
- An honourable mention in the health sector innovations category of Laatukkeskus Excellence Finland's national Quality Innovation Award competition.



SENSITIVITY THE KEY IN END-OF-LIFE CARE

Death is largely hidden in our society, even though it is something we all have to face at some point very personally.

COMPREHENSIVE CARE

"It is a privilege to be present in the last moments of a dying person. There, I meet the person as a human being; when taking care of someone who is dying, you experience human unity. Care is not merely a performance, but you must always be sensitive and feel the condition and actions of the dying person and the needs of close relatives. Everyone is unique," says Hanna Ronikomäki, nurse at the palliative care unit of the City of Espoo.

The palliative care ward at Villa Glims in Espoo employs the primary nursing model. Each nurse has 1-2 assigned patients, and each patient has two primary nurses. Nurses care for their own patients as comprehensively as possible. The nurse is involved in care planning, takes care of medication and other medical activities and procedures, and assists in day-to-day operations according to the needs of the patient. A key part of the work is to be there for mental support for the patient and the family.

"Care work is patient-driven. We literally ask the wishes of patients and relatives and try to implement them," Ronikomäki says. There are as many types of hopes as there are people. Some want good pain relief and a peaceful state, others want to live as active a life as possible till the end: to enjoy the outdoors or culture, for example. For some, sauna is an important means of relaxation, and this is why the ward features a private sauna.

Patients' rooms at Villa Glims are single rooms. Patients are encouraged to make their rooms cozy and safe by bringing items there that are important to them. Pets are also allowed to visit the patient's room. Ronikomäki vividly remembers a patient who decorated their room very elegantly. "That person died in an environment that was very uniquely decorated."

STRENGTH FROM THE WORK COMMUNITY

Villa Glims is a small unit. There are some twenty nurses, beds for fifteen patients. In addition, the ward has a hospital chaplain, a physiotherapist and a social worker to support patients and care work when needed.

Ronikomäki feels that the work community has a good atmosphere and employees support each other - with their work and with the heavy issues they face there. "We have a low threshold here to ask a colleague for help when you have something that is bothering your mind. It makes us a safe place to work at."

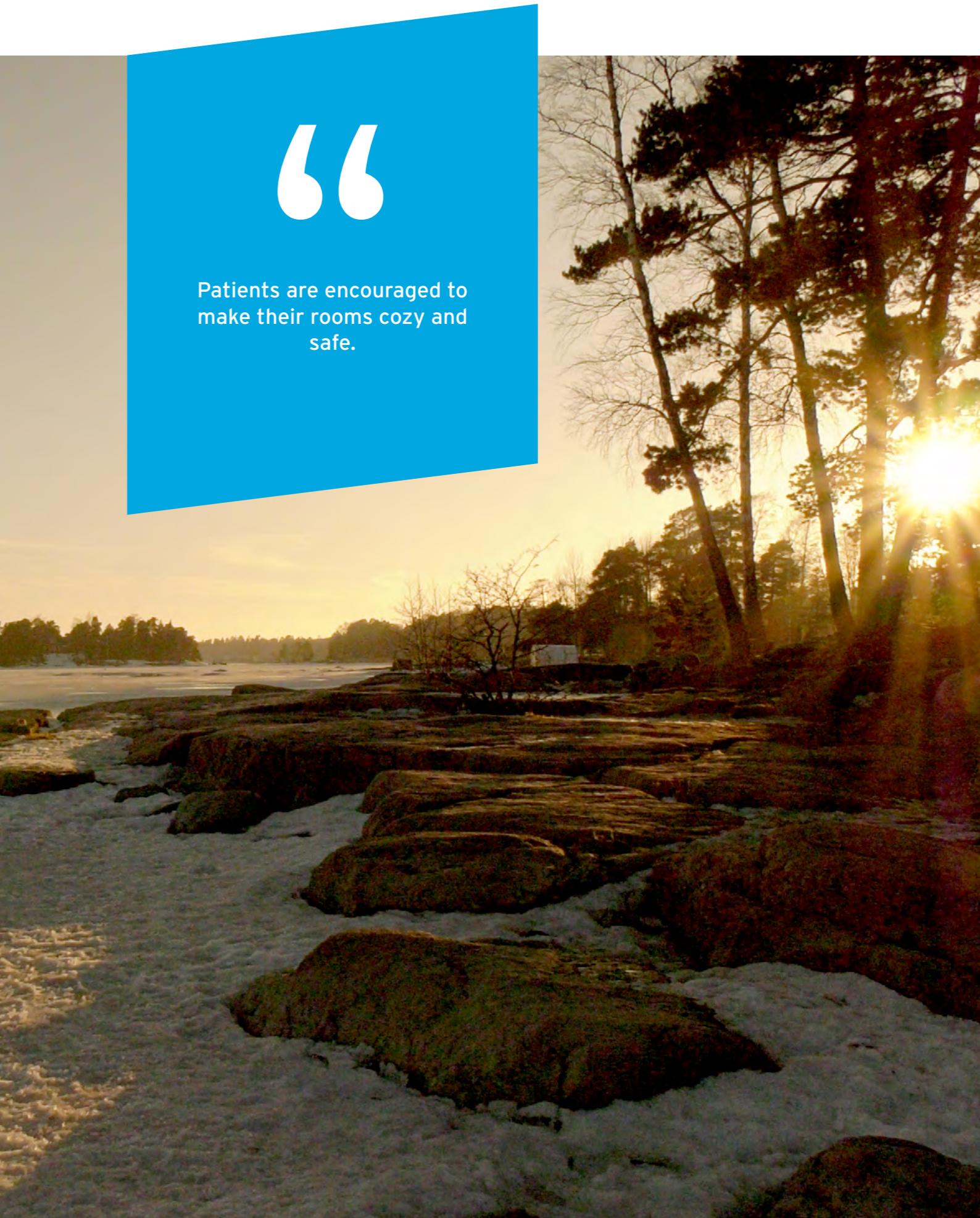
Emotions are everywhere at Villa Glims, tears but laughter too. Talking to colleagues helps you face difficult issues. "We share feelings, thoughts and experiences. There has been lots of crying and supporting each other in the recreation room."

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Patients are encouraged to make their rooms cozy and safe.



HEALTHY ESPOO PROGRAMME PROMOTING MENTAL WELL-BEING

Mental health problems are the most significant reason for the inability to work and exclusion from society. The discussion relating to mental health is often very problem-oriented. The Healthy Espoo development programme particularly focuses on promoting the mental well-being of Espoo residents. While the physical well-being of people has improved significantly, the development of mental health has not been so flattering.

In the Espoo Story, the unequal distribution of health and well-being, rapid population and foreign-language population growth, ageing of the population's age structure, urbanisation and slow economic growth have been identified as key well-being challenges. The latter challenges have been seen as connected with problems such as loneliness, social exclusion and social problems. The risk of negative differentiation development of residential areas has also been highlighted in the story.

Resident-orientation and strong partnerships, especially with associations, are key elements in the implementation of the programme. The opportunities of digitalisation and the needs of foreign-language population have been taken into account especially in the projects promoting the mental well-being of children and young people. The improvement of the mental well-being of children and young people and early intervention must be invested in to prevent mental health problems and social exclusion in a timely manner and to support the strengthening of mental resources at critical development stages. Supporting parenthood is also essential for the mental well-being of children and young people.

The programme actions encourage Espoo residents to be more independent and active, taking care of themselves, their family and friends and their immediate surroundings, and support their opportunities to participate in activities that suit them and their situation in life. In accordance with the Espoo story, the programme actions have focused on prevention, aiming directly or indirectly at bridging the differences in well-being between residents and residential areas.

The promotion of mental well-being and prevention of mental health problems is an especially important part of socially and culturally sustainable development. The ecological dimension is also essential because nature and the environment have significant effects on mental well-being. Mental health problems cause significant economic costs. Their prevention is also important from the point of view of economic sustainability.

As a concrete example, the programme has particularly focused on communicating about the significance and strengthening of mental well-being. The communication has been directed at residents, personnel and partners. The communication has revolved around five ways that have been shown to improve mental well-being. Many actors have found the framework suitable for the goals of their own unit.

Multichannel, active communication has increased the actors' understanding of mental well-being, increased discussion on its significance and helped actors identify their role in its improvement.

CONCRETE ACTIONS

Multichannel communication and campaigning directed at residents and personnel concerning the significance of mental well-being has increased understanding of the phenomenon and helped people identify their role in it.

The **Five ways** framework has been suitable for communication about mental well-being to different target groups. The model has been considered suitable for communication to target groups and as a tool for customer work.

The mental health skills of the employees of the city and associations have been improved by organising training under a registered training model. To establish and distribute competence, some of the training participants have received instructor training, and they have organised training for customers and personnel at their units.



DIVING INTO THE UNKNOWN. BEST MOMENT OF THE DAY.

Even the unknown can become familiar when you're open to new things. Happiness lies in daily life.



ESPOO
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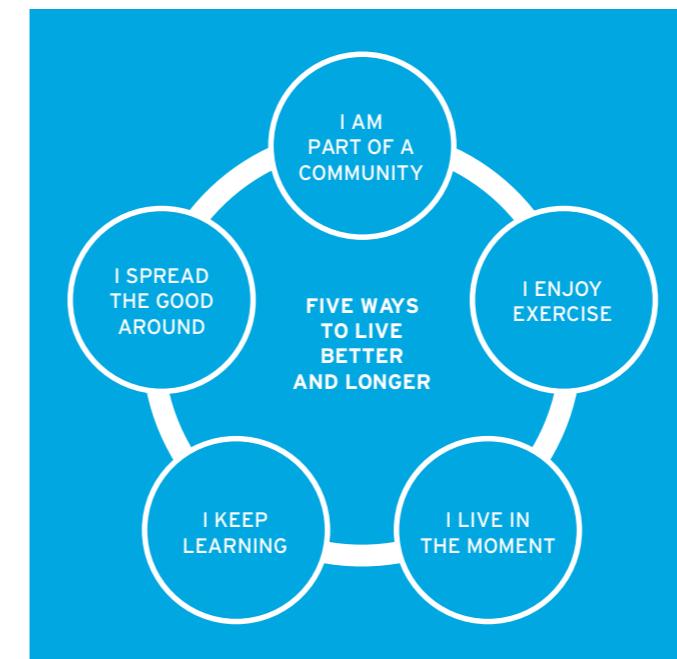


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The physical well-being of Espoo residents is top-class nationwide. The objective of the Healthy Espoo development programme is to increase the opportunities of Espoo residents to promote their overall health, well-being and happiness and to participate and be part of the community.



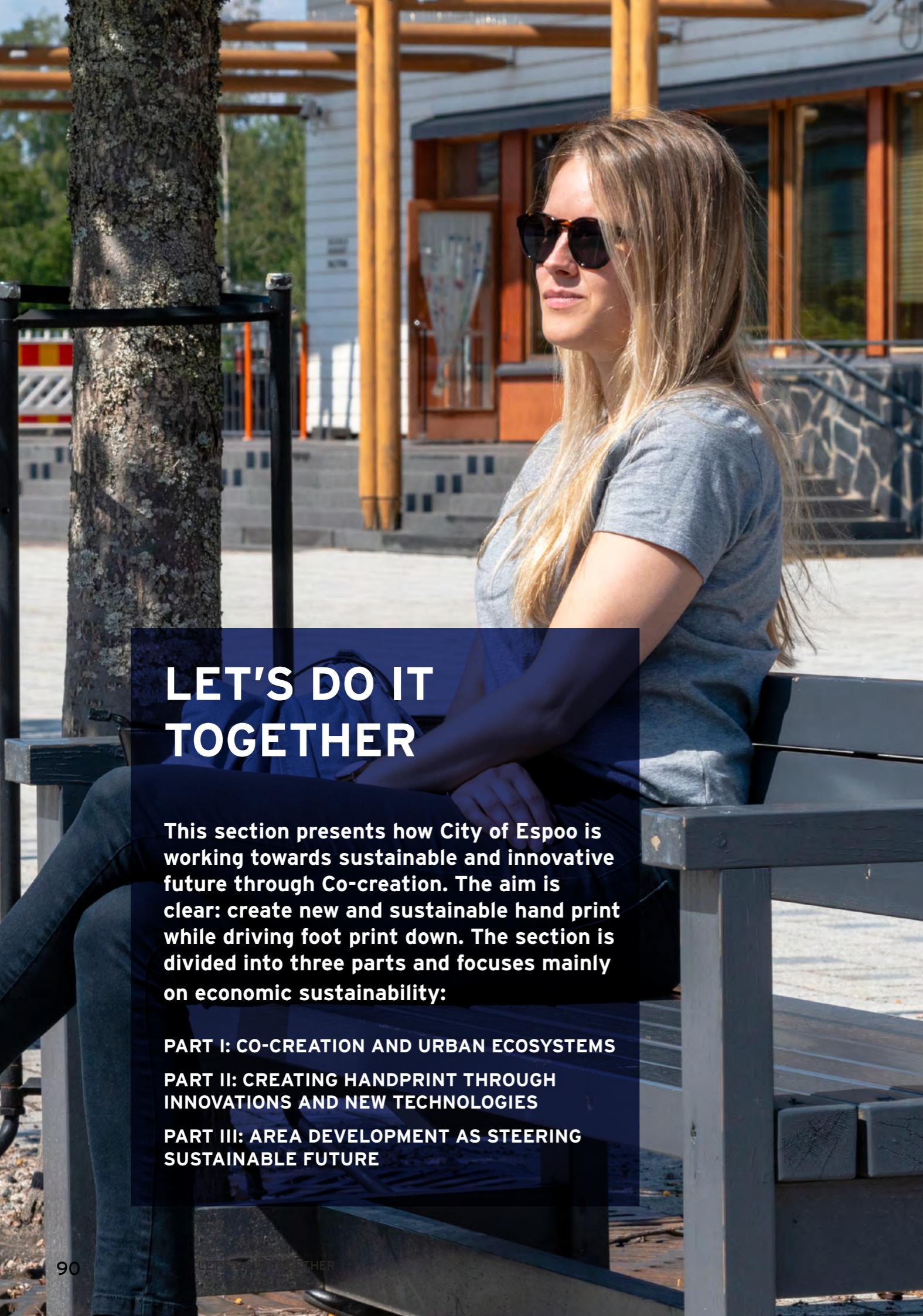
THE FIVE WAYS FRAMEWORK



KEY FACTS

- From the beginning, the mapping and increasing of the promotion of mental well-being in different operations must be systematic. This creates effectiveness running through the different operations of the city.
- The operations must have continuation and a financing model in order to connect experiments proven to be functional to the existing operation. This also motivates different parties to commit to the development project.
- Establishing the registered training model in the city's operations and associations requires resources and close cooperation with the operations.

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LET'S DO IT TOGETHER

This section presents how City of Espoo is working towards sustainable and innovative future through Co-creation. The aim is clear: create new and sustainable hand print while driving foot print down. The section is divided into three parts and focuses mainly on economic sustainability:

PART I: CO-CREATION AND URBAN ECOSYSTEMS

PART II: CREATING HANDPRINT THROUGH INNOVATIONS AND NEW TECHNOLOGIES

PART III: AREA DEVELOPMENT AS STEERING SUSTAINABLE FUTURE

PART I: CO-CREATION AND ECOSYSTEMS

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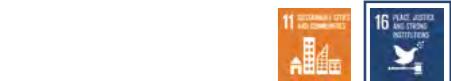
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CITY AS A SERVICE - COMPREHENSIVE DEVELOPMENT TOGETHER

Espoo is developing a model that helps to build a socially, ecologically, financially and culturally sustainable city. The City as a Service model means that services in Espoo will, in future, be organised and produced by the entire urban community, not just the city organisation. In a sustainable city, residents, companies, communities, universities and the city organisation work more closely together in service organisation and provision.

The City as a Service model has the following key aspects: engagement of residents, accessibility of services by means such as digitalisation, and creation and deployment of new business and operating models. For example, one of the goals is to improve the utilisation rate of facilities, reduce idle time and the need for new buildings through the use of network resources. The city also creates preconditions for private companies and organisations to provide services.

Work related to the City as a Service model has been ongoing in Espoo for a long time. The first thing to be developed together with stakeholders was the concept of a Service Centre. It was introduced in the Service Centre of the Iso Omena shopping centre, where 10 different service units provide services together. The second topic involved the creation of an entirely new learning environment – the concept of School as a Service. It was introduced in Otaniemi together with Aalto University. Further activities have been developed, such as Mobility as a Service.

One development target is the management and flexible use of facilities, Facilities as a Service. New, cost-efficient and digital solutions are being sought for the purposes of facility management and use. The goal is to utilise facilities of various owners in a more flexible manner and avoid unnecessary construction of new facilities.

KEY FACTS

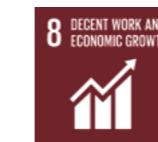
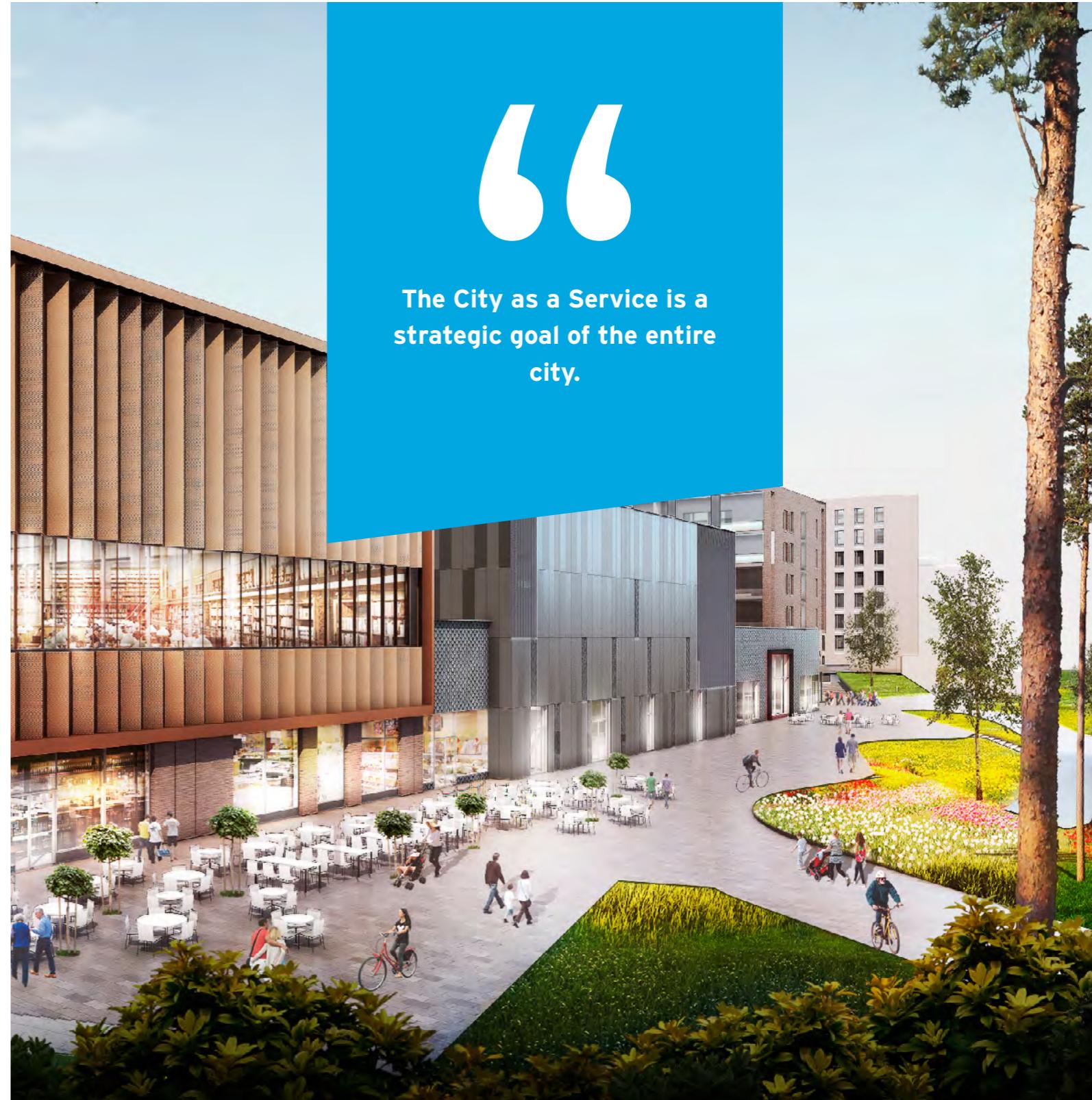
WHAT IS GOOD

- The City as a Service model is continuously evolving and suitable for various situations.
- There is evidence from experiments on how the CaaS operating models function on a smaller scale. Based on the information obtained from the experiments, we can increase capabilities to implement the model on a bigger scale.

WHAT SHOULD BE DEVELOPED

- Efficient sharing of information is a key point of networked cooperation. Harmonising data and improving the interoperability of various information systems is demanding work.
- The new roles and contract models between actors set challenges for traditional models. Both time and courage are required to alter established practices and ways of thinking.

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CO-CREATION AS A TOOL IN A CHANGING WORLD

Service development in Espoo is based on experimental culture and co-creation. Generally, co-creation refers to cooperation between citizens, professionals in the public sector, companies and RDI institutes to improve public services. A citizen may be, for example, someone participating in the formulation of service content and processes, or a person who makes the initiative regarding a new service. Co-creation also occurs in urban living labs, which are limited urban spaces used for experiments and co-development of information and innovations based on learning. In Espoo, what this means in practice is that the city opens doors and invites all stakeholders of municipal services from companies to associations, research institutions and residents to refine old services and innovate new ones together.

Espoo is developing services based on the needs of residents and customers, in a cost-efficient and sustainable manner. It wants to be a pioneer of municipal service development. A key element is the benefit of the customer - resident of the municipality. The aim is to provide residents of Espoo with more streamlined services that make everyday life easier. The individuality of services will be increased by combining electronic services with traditional services in a new way.

New, transparent and impactful means of understanding a customer relationship, creating new business models, transforming operations and utilising information on a customer-oriented basis are needed in place of traditional administration-based activities. New kind of open activity strengthens participation, responsibility and trust. It generates new business and services and reinforces the openness of society. The aim is to respond to the challenge posed by continuous and accelerating changes together with different actors.

MAKE WITH ESPOO - CO-CREATION IN ESPOO

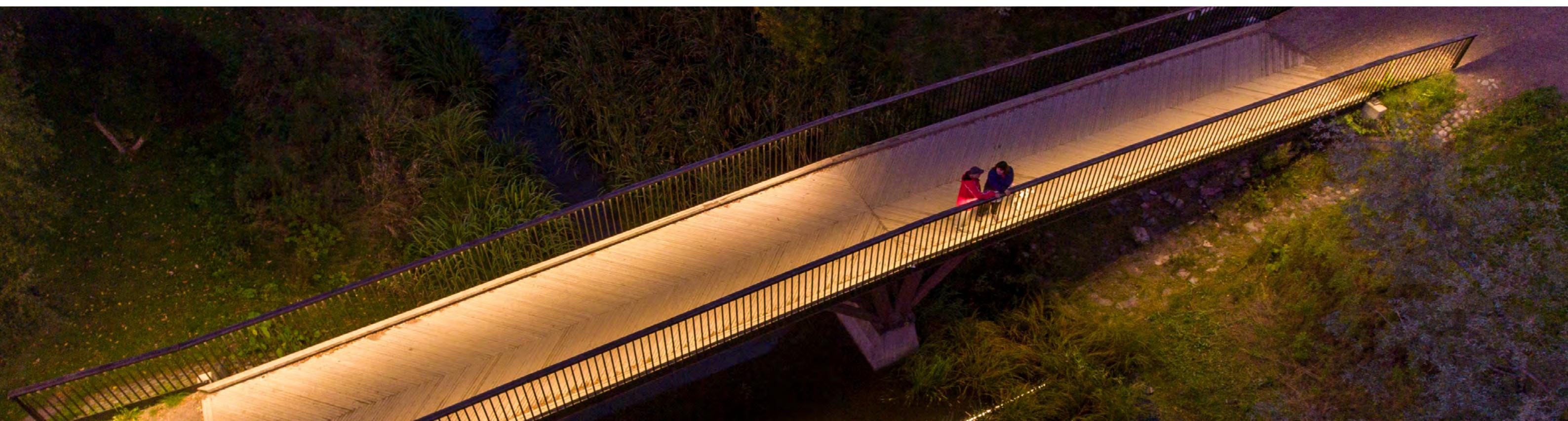
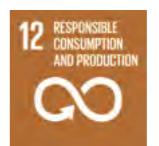
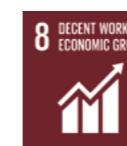
The slogan of Espoo co-creation is "Make with Espoo". The slogan underlies the need to look at the city's role in a new way. Cities and municipalities have to work together with different actors to more actively seek solutions to challenges related to changes that individuals, communities, companies, the society and the environment are going through. The world has changed considerably over the past centuries, and the change is accelerating. Disruption, or changes in established operating models through inspiring innovations, also creates entirely new opportunities for building a sustainable and human-oriented future.

The change requires new kinds of public activity. The joint "6Aika" strategy of the six largest cities in Finland aims to develop more transparent and intelligent services. It promotes transparent operating models that help the entire urban community, or residents, communities, companies, research and development actors and the authorities, participate in the development work. Joint innovation development generates new know-how, business activity and jobs in Finland and improves the country's competitiveness by reinforcing markets that also have international significance.

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We can only succeed by working together, and Make with Espoo is an invitation to the entire urban community to engage in finding solutions.



FACILITIES AS A SERVICE BY MEANS OF INNOVATIVE PROCUREMENT

The Facilities as a Service project is seeking new ways to share the city community's facility resources. The model enables a more efficient use of existing facility resources and improves ecological sustainability by reducing the need for investment and extending the life cycle of the facilities. This has significant cost impacts, too. Facilities as a Service supports resident engagement and well-being and thereby social sustainability by providing facilities of the urban community for the use of various actors, such as hobby organisations, in a more equal and open manner. The goal is to facilitate the use of the facilities and enhance sustainability through new digital solutions being sought in the project.

Based on service design and experiments carried out during the project, the goal is to procure a novel digital platform by means of an innovative procurement procedure. In innovative procurement, the party involved in the procurement offers a challenge to promising operators, or requests them to offer something new or adapt an existing solution to a new situation. Generally, innovative procurement also means that companies or providers and stakeholders are involved in procurement planning.

The Facilities as a Service project involves many city units across various sectors. Other participants include companies, associations and residents. The section focusing on service design first considers new ways to open the city community's facilities for joint use. These operating models will also be put into practice in some facilities. Based on these trials, a new digital platform solution will be procured with the aim of enabling a more customer-oriented process for facility booking and usage and optimising facility solutions related to service provision. The platform should, for example, be able to calculate how to respond to the facility needs of a school by utilising facilities close to the site known as the "core site". This means that the facility solution is optimised based on different perspectives, by using existing buildings. Furthermore, the platform may provide information and open data about the city's facilities.



KEY FACTS

WHAT IS GOOD

- The number of facilities in the city environment is remarkable, so any new data generated by the project, if it succeeds, and the operating practices based on this data will have a great impact on how future facilities will be built, utilised and maintained.
- The solution will be developed so that it can be scaled to other cities in Finland and the world.
- The cross-administrative project enables better information exchange and lines of communication in the city and between stakeholders. This in itself promotes network-based activities.
- Service design has provided potential administrative models for opening new facilities, in accordance with the City as a Service development path. These will be tested during 2020.

WHAT SHOULD BE DEVELOPED

- The flexible use of facilities is an issue which should be taken into account when planning, building, using and even demolishing facilities. Changes in regulations, practices and technologies occur slowly and the interconnections are intricate.
- Regional equality has not yet been achieved; different actors have different levels of access to facilities around Espoo. There are, however, purposeful ongoing efforts to improve this issue.
- The impact on well-being generated by the opening of new facilities is difficult to measure, meaning that it is also difficult to estimate its cost-effectiveness. In the short term, use of the facilities by municipal residents will generate costs that must be resourced.

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KEY FACTS

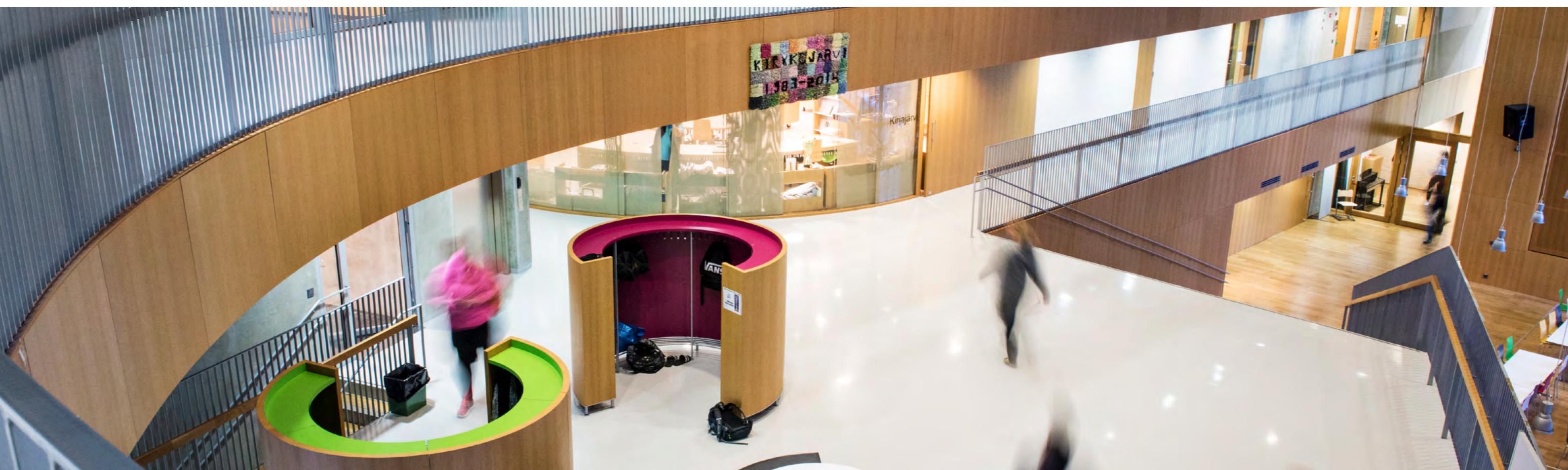
WHAT IS GOOD

- The experiment generated information and understanding about the new operating model and how the city could proceed in the implementation of the City as a Service development model.
- The takeaways from the experiment are instantly accessible particularly with regard to the development of the Leppävaara area, where the facility plan for a new upper secondary school is being prepared. Therefore, the experiment's impact will be significant.
- Implementation of a school in accordance with the SaaS model may multiply the effects on well-being generated by school services in the area. The SaaS model supports the new curriculum in a new way, and a networked school also enhances the vitality of the area and cooperation between actors.

WHAT SHOULD BE DEVELOPED

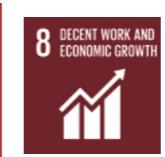
- The implementation of the SaaS model is strongly contextual due to the special characteristics of each area and school. Clarifying the availability of facilities in the area required a lot of time and expert efforts using current systems and operating models.
- Data from different actors is of varying quality or difficult to access. This adds to the workload and increases the need for system reforms and integration.
- Adopting and implementing the SaaS model in a functional way requires new kinds of facility and course planning, leadership and operating metrics. Agreements will need to be specified as well.

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MAKE LEARNING ENVIRONMENTS WITH ESPOO



Espoo is creating success stories of learning by bringing various actors together. The co-creation model of schools and businesses, Make with Espoo Learning Environments, serves the development needs of both teaching and learning and the activity of businesses.

In the accelerated co-creation activities of schools and businesses, schools have opened their doors for companies to try out and co-create services. The activity is in accordance with the curriculum and provides a learning environment for entrepreneurial activities, product development and innovation activity. It provides pupils and students with an opportunity to participate in companies' product development processes and to become familiar with the everyday activities of companies. Teachers have a prime opportunity to see what is possible with today's technology and influence the direction in which products in the education sector are being developed. Products and services refined through co-creation meet the needs of teachers and educational institutions better.

AN EXCELLENT REFERENCE FOR COMPANIES ABROAD

Originally, the model was created based on the need to apply a set of rules for co-creation between schools and companies. Schools need to develop their activities in a rapidly changing world and increasingly digital society. There are a lot of EdTech products and services that support learning, but it is difficult to choose products that inspire learners, follow the curriculum and are pedagogically sound.

As for the companies, they can contribute to the development of future learning environments. Many companies want to test and develop products and services in Finnish schools which are successful in international comparisons. The participating companies have received genuine user feedback and product development ideas and support. In addition, co-creation has served as an excellent reference abroad.

The new digital platform under development helps companies and city operators interested in co-creation to find each other. The platform will be connected to the Launchpad platform of Espoo Marketing, which is a meeting place of investors, corporations and startups. This connection will help to better support the business conditions of companies. The new platform will be available in English, too.

THE PEDAGOGICAL ASPECT IS REINFORCED

The model has undergone further development in various projects and has been tested in classes, early childhood education, cultural services and exercise and youth services. The aim is to continue to reinforce the pedagogical aspect of the activity. The goal is to employ multi-actor co-creation to create an operating culture-based phenomenon in Espoo schools, so that know-how and activities related to co-creation can be firmly established in everyday life at schools. Another goal is to scale up the model to the city level.

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SUSTAINABLE GROWTH FOR STARTUPS AND THE WHOLE OF ESPOO

Espresso is known worldwide as an innovation environment for science, art and the economy, the key actors of which include Aalto University and VTT Technical Research Centre of Finland. Within the innovation ecosystem of Espresso, there are approximately 20,000 jobs, 15,000 students, 5,000 researchers and more than 30 research institutes. Espresso is also a significant growth company incubator. For example, all Finnish unicorns, i.e. technology startups valued by financiers at over a billion dollars, have emerged in Espresso. These include MySQL and the game companies Supercell and Rovio.



GROWTH COMPANIES AS THE NEW ENGINE OF THE FINNISH ECONOMY

The role of innovative growth companies in the economic growth in Finland and the commercialisation of new technologies has increased considerably in the past decade. In addition to economic growth and jobs, growth companies create new technological solutions that have significant positive effects in supporting the development goals, such as streamlining the circular economy. However, the development of new high tech solutions often requires years of work and major capital investments. With Espresso Marketing's Innovation Services, large companies can find the most suitable startups and innovation partners from the ecosystem. The service includes the following themes:

- Technology and partner search
- Introduction of corporations and investors to startups
- Online and physical collaboration activities

Introductions to large companies are carried out online or at events and visits. Digital tools are used in searching for suitable partners.

SUSTAINABLE GROWTH LOCALLY

The partner network of Espresso Marketing consists of local and international investors, large companies, business incubators and accelerators, research centres and other innovation actors. In accordance with the Espresso story, Growth Services will support the achievement of vitality, competitiveness and employment in Espresso. Due to investments, companies have the opportunity to promote product development, grow their business and hire more employees.

INNOVATIVE SOLUTIONS FOR MATCHMAKING

The traditional ways of matchmaking have been challenged due to the coronavirus epidemic. In May 2020, Espresso Marketing created a new digital matchmaking activity called Corporate-Startup Online Weeks to help local companies to find customers, partners, and investors. The activity brought Espresso-based and Finnish startups and scaleups together with 15 international corporations during pre-selected, one-on-one online meetings.

WE HAVE A MATCH FOR YOU! LAUNCHPAD CONNECTS YOU TO NEW OPPORTUNITIES

Launchpad is a digital platform implemented and owned by Espresso Marketing, offering the chance to actively create connections between startups, investors and large companies. Espresso Marketing also uses the platform as a tool in its daily activities. The Launchpad

platform combines physical and digital work so that the customer gets the maximum benefit from the Innovation Services provided by the company.

After creating a company profile on the platform, the user receives information from Espresso Marketing on other actors and cooperation opportunities. The service also enables direct contact between the actors. In addition, the users receive targeted information on other useful opportunities, such as events, meetings, innovation competitions and internationalisation trips. The service is free of charge, and it encourages companies to keep their profile information up to date.

Success stories created in 2019 through Launchpad include Vim AI's participation and second place in the APP Challenge innovation competition of the Singaporean Airlines and eCharge's selection as one of the finalists in Bosch Venture Forum in Germany. Both companies learned about the innovation competitions through targeted messages on the Launchpad platform.



KEY FACTS

- 21 collaboration projects launched with international large companies since 2018
- 163 corporate-startup introductions in 2019
- Corporate-Startup Online Weeks in May and June 2020
 - 15 international corporations connected with 100+ local startups

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CO-CREATION IN THE HEART OF ESPOO

Urban Mill is a space, a community and a service situated at Aalto University campus in the heart of Espoo Innovation Garden, Finland. Urban Mill brings together important actors to help solve wicked problems of urban life. It shows how the built environment can be planned and designed based on actual use. It is an innovation hub with the theme of Creative Sustainable City and its activities include e.g. developing new digitally-enabled service concepts. Urban Mill builds long-term collaboration through new solutions that are tested rapidly and flexibly.

Urban Mill started as a public-people-private partnership in 2013. The main partners of the program are the City of Espoo, Aalto University and Academic Engineers and Architects in Finland TEK. A private company is responsible for developing the Urban Mill concept, operating the space and arranging the services.

URBAN MILL IS A GLOBAL FOCAL POINT FOR URBAN INNOVATION CO-CREATION

Urban Mill brings urban developers together with residents and other users of the urban environment. Public and private sector institutions, researchers, new entrepreneurs and students have a place to share ideas with the users of the built environment. Urban Mill is a venue for events and a smart co-working space for entrepreneurs and developers. Our partners exhibit results both physically and virtually. Simultaneously, Urban Mill is an innovation accelerator that is connected to other spaces needed by our community.

SERVICES, PARTNERSHIPS AND MEMBERSHIPS

- Action and event spaces: Diverse self-service spaces for our community to share. Our space is also available to organizations outside our network who want to showcase, develop and prototype their own urban innovations.
- Ecosystem services: A wide spectrum of services supporting innovation, development, testing and business, including co-location services to establish business in the area. Urban Mill is a great entry into the opportunities, networks and resources available in the Espoo Innovation Garden, the biggest innovation hub in Nordics
- Partnership: Several alternatives for organisations and institutional actors to join the program and become part of the community.
- Membership: Alternatives answering the needs of different sized organisations in different development phases- from micro entrepreneurs to big enterprises.

KEY FACTS

Memberships and programs include the use of shared spaces, discounts on event spaces, the possibility to use the 3D cave and technology provided together with Aalto Built Environment Laboratory, Smart Screens, thematic networks and access to Urban Mill's service network.

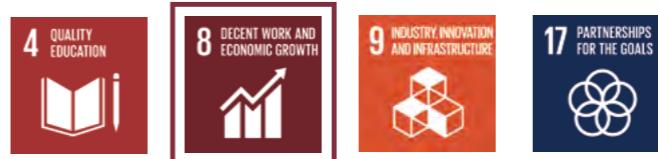
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Urban Mill



INSPIRING, DYNAMIC ESPOO



The changes in the economy of Finland and the transition to a period of slow growth is expected to manifest as a decrease in companies' willingness to invest and the partial decrease of innovation and development projects in Espoo as well. The positive development of employment will slow down or stop, yet the mismatch problem that has already become critical in some fields will hardly ease off. The changed situation with the operating environment also requires cities, Espoo included, to act differently.

The Inspiring, dynamic Espoo programme is a platform where innovative solutions are developed with partners through experiments and pilots. The aim of the programme is for Espoo to grow sustainably, taking into account the economic, ecological and socio-cultural factors. The programme has four target benefits, which are approached through projects and actions:

- 1) to diversify the economic structure and strengthen vitality
- 2) to make Espoo an appealing and internationally attractive city of events
- 3) to respond to the problem of matching the demand and supply of labour
- 4) to strengthen friendliness towards businesses and entrepreneurs.

Programme work has achieved significant successes. External cooperation is particularly ambitious in the business service centre project, where the City of Espoo Economic and Urban Development has formed a joint Business Espoo business service network together with six partner organisations. Business Espoo serves business and entrepreneur customers in a cost-efficient manner and in

accordance with the Espoo Story. Operation on the shared premises started in August 2018. The programme is more and more focused on supporting co-creation projects to be implemented with partners (companies, universities, educational institutes, the third sector) and a more active business policy.

Sustainable vitality and the prerequisites for growth are comprised of many different factors, such as the good and dynamic operating environment of companies and entrepreneurs, the widespread internationality, the living city culture manifesting as events and especially the dynamic business ecosystem in which experts and employers find each other. Several ambitious, far-reaching and abstract as well as practical, concrete and immediate initiatives, the implementation of which the programme promotes, have been found around the themes reflecting the target benefits of the programme. Each action and project of the programme is implemented as either cross-sectoral cooperation or cooperation with partners exterior to the city organisation.

The Inspiring, dynamic Espoo programme uses more and more bold and diverse methods to seek ways to introduce new solutions

and encourage companies to develop new solutions. Of the target benefits of the programme, the diversification of the economic structure and the response to the matching problem aim at the crystallisation of the city's role, the development of new solutions and experiments and the promotion of development work on the market on a long-term basis. Espoo's friendliness towards businesses and entrepreneurs is improved through entrepreneurship education, marketing and communication and by supporting entrepreneurship in different ways. The development work of the event city is implemented in cooperation with private- and third-sector actors providing tourist, restaurant and adventure services. Events increase the awareness of the city, make the city more appealing and invigorate the urban culture. The programme is used to promote the smooth internationality of daily life under all target benefits so that skilful people and innovative companies put down roots in Espoo and enrich working communities and other operating communities.

The UN's Sustainable Development Goals are shown in all programme work. Projects and actions particularly implement objectives related to continuous learning (4), sustainable work and economic growth (8), industry, innovation and infrastructure (9) and the building of partnerships (17). Goal number eight, decent work and economic growth, is the most essential sustainable development goal from the point of view of the target benefits of the development programme. The goal promotes long-term, inclusive and sustainable economic growth and productive and worthwhile employment for all.

The steering group includes six elected official members and five office-holder members. There are five permanent experts.

WHAT IS GOOD

- The Inspiring, dynamic Espoo programme is a platform where innovative solutions are developed with partners through experiments and pilots.
- The significance of the partner network was emphasised in the business service centre project, where the City of Espoo Economic and Urban Development formed a joint Business Espoo business service network together with six partner organisations.
- The good operating environment of companies, internationality, the living city culture and the dynamic business ecosystem are prerequisites for sustainable growth and vitality.

WHAT SHOULD BE DEVELOPED

- Changes in the operating environment must be adapted to.
- The transition to a period of slow change requires programme work to have stronger focus on projects implemented with partners.
- The person resourcing of programme work must take into account the long-term goals and sustainable results more widely.





A ONE-STOP-SHOP FOR CUSTOMER-ORIENTED BUSINESS SERVICES

Espoo supports local business operations, thereby increasing the area's vitality and number of jobs. Business Espoo, a network of seven organisations provides entrepreneurs and companies in Espoo and the surrounding municipalities customer-oriented, cost-effective and high-quality services from a single address.

The Business Espoo network started operations at the beginning of 2018, and the shared service channels were opened in September 2019. The network involves organisations from both the city and the Corporate Group of Espoo, regional and national members as well as company representatives. The service providers listen to the needs and wishes of the entrepreneurs and companies, systematically examine the changing needs of companies during different stages of their life cycle, and constantly test and produce innovative solutions to these challenges.

It all began when Espoo's business services recognised three challenges that had weakened the effects of the services - which had received good feedback in themselves - on the vitality of Espoo and local companies:

1. service provision scattered across several organisations
2. poor awareness of the services
3. the distance of service development from the customer.

As responsible pioneers in line with the Espoo Story, a new customer-oriented cooperation model implementing City-as-a-Service thinking to respond to the challenges of business services was created.

Business Espoo network serves entrepreneurs and companies also in the surrounding municipalities. New kind of service guidance aims to serve customers on the one-stop-shop principle, compiling hundreds of different business services into practical packages that the customer can utilise instead of being bounced from one organisation to another. Business Espoo's professionals can determine the situation of corporate customers and direct them to the right services in the network. This has required providing the personnel with training in the entire service offering as well as strong network management and internal communications in order to reach the shared goals. In addition to the shared service offering and service channels, the network has shared communications and marketing, shared events and shared operations management and development processes. The customers take part in developing the services through service design processes and hackathons, for instance.

AIMING FOR HIGH QUALITY SERVICES ACROSS ORGANISATIONS

The services of the business service network are divided into six service areas: starting a business, growth, internationalisation, recruitment, competence development and change situations. The network involves over 100 designated Business Espoo specialists, who provide entrepreneurs and companies with support and guidance on starting and developing a business, finding competent

workers and international recruitment, strengthen the expertise of companies through training and help companies and investors find the right contacts. Companies and entrepreneurs are also offered networking opportunities at various training and other events. The most recent addition to the network is Bertta, a chatbot that answers questions asked by entrepreneurs and aspiring entrepreneurs on the Business Espoo website regarding, for example, internationalisation, training and employment.

Business Espoo has become more of a state of mind than a physical service point, even though it does also serve customers face-to-face with an appointment. The organisations in the network share the workspace and everything that can be shared - from workstations to coffee makers. Business Espoo strives to act as a single team in every way, transcending organisational boundaries. This also benefits the customer, since the main thing is not the name of the organisation providing the service but the quality and timeliness of the service provided. The business service network is an excellent opportunity for operations development and increasing vitality in a sustainable manner. The strong network cooperation can result in improved customer orientation, service quality and cost-effectiveness.

KEY FACTS

WHAT IS GOOD

- Clarifying the provision of customer-oriented business service and the service offering.
- The network is based on continuous development: it critically analyses its own work and carries out bold experiments, not intending to do everything as it has always been done.
- Supporting new entrepreneurs and companies before and after starting the business.

WHAT SHOULD BE DEVELOPED

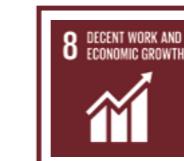
- In a network consisting of seven different organisations, there is still plenty of room for development in the cooperation processes.

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Main thing is not the name of the organisation providing the service but the quality and timeliness of the service provided.



MAYOR'S INNOVATION CONTEST

The Mayor's Innovation Contest encourages the improvement and development of city services and the work done in the City of Espoo. It has been organised since 2012 to support the goal of a more resident and customer-oriented Espoo. The competition is open to all city employees, work communities, networks and groups.

There are two competition categories: Innovations, and Innovation ideas. An external panel will evaluate all the applications submitted for the contest, after which an evaluation team comprising the city's own experts will assess all the innovations that have made it through to the next round. An innovation or idea may be small or large, but it is essential that it has improved or will improve a service to be produced or the internal functionality of an organisation. Innovation may have already produced a great many results, or it may be a fresh idea, which will only produce a harvest later. Particular attention will be paid to reforms where customers and city residents are given priority, either as recipients of better service or as partners.

The contest finalists will present their innovations in a management forum, which will include not only the mayor but also leaders of the various sectors, unit managers and leading experts. This phase is also important in terms of communications, as knowledge about innovations and the importance of innovation is widely communicated to staff.



Espoo's applications are also automatically entered into Excellence Finland's Quality Innovation Award. Espoo's innovations have been awarded both in national and international categories.

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Attention will be paid to reforms where customers and city residents are given priority.

CUSTOMER-ORIENTED SERVICES

Espoo is committed to ensuring that all services respond to the needs of city residents increasingly better. The goal is that customers should receive the right service at the right time and in the right way.



One way to implement the UN's Sustainable Development Goals (SDGs) is by developing city service management. In Espoo, services were first productised a few years ago, when the perspective was to increase the knowledge and cost awareness needed for management. Once services have been productised, their use and cost can be better monitored using data. The productisation of services means that services are named, classified and described appropriately. In the development of service management, productisation work has continued in a customer-oriented fashion. Customer segmentation was used to identify and analyse customer service needs in the current state and, in a proactive manner, in the future. The development assessed how the current city service portfolio meets the customers' and residents' identified needs. Service product data can be used to improve service efficiency, to track costs, and for forecasting. Scarce resources can be allocated to those customer groups most in need of services, and lighter services and service channels can be allocated to customers who can make do with lighter services, self-services or services in digital channels.



KEY FACTS

WHAT IS GOOD

- Service products provide additional information to managers and improve the monitoring and forecasting of service operations and costs.
- The potential to digitalise services will be better identified.
- The productisation of services has generated good discussions within and between the units and people have learned from each other.
- Resources are better available for those who need services a lot, if the services of those who do well in everyday life can be taken care of flexibly, for example by means of digitalisation.

WHAT SHOULD BE DEVELOPED

- It is not sensible to have an identical service portfolio available to all customers.
- Coupling the quality of services with indicators is challenging and requires work.

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DIGITALISATION WILL ADD EFFICIENCY

Covid-19 pandemic has catalysed the use and development of digital service channels globally. In Espoo these were improved already earlier with focus on availability of services, and the productisation of services. Goal is to better identify the opportunities offered by digitalisation. Face-to-face customer encounters are still needed, even though the degree of the digitalisation of services is increasing. The productisation of services in the future will enable services to be available efficiently and to respond effectively to customer needs through different service channels. This will require closer and more systematic cooperation within and between the city sectors and units. All the city's units, numbering over 20, are developing their service portfolios and customer relationship management. The aim is to eliminate overlaps and streamline operations by directing customers to the right services. Services are also examined across sector boundaries, finding service integration opportunities with significant impact factors, when the customer's situation can be managed through as light measures as possible and guiding the customer, where necessary, smoothly from one service to another. The customer's service path should be made as smooth as possible. It is important that city-level development work has generated good discussions in and between the city's services, and leaders and developers have identified common customers and learned from each other. More than 100 high-level officeholders and employees have participated in the productisation of services.

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The productisation of services enables the correct services to be targeted at the right customer, in a timely manner, in the right channel and in the right way.



PROCUREMENT UNIT IMPLEMENTS THE CITY'S SUSTAINABLE DEVELOPMENT

Espoo purchases goods and services for EUR 1.2 billion a year. Contract suppliers provide a wide range of services to the city, ranging from Frozen-themed dresses for day-care centres to sheltered housing for elderly residents, asphalt work or management fishing of lakes. Products needed for service production are also purchased in very diverse categories. The products needed range from snow plough markers for road maintenance to arts and crafts supplies for schools and everything in between. Because the objects of the procurement are very diverse, the procurement unit has developed working methods to find the right ways to take account of the Espoo Story and the Sustainable Development Goals (SDGs) at the system level.



The procurement impact tool is an analytical method derived from the goals of the Espoo Story for identifying which strategic objectives procurement can affect and how this can be done. The tool is used to examine economic, social, ecological and cultural sustainability, leadership, customer and resident orientation, business impact and employment impact. When using this tool, we report how procurement has effectively supported these strategic themes. Since the tool was introduced, for example, the amount of social employment through contracts was increased by 30% in 2019 from the previous year.

SELECTING THE MOST SUSTAINABLE SUPPLIERS IS A WIN-WIN

The focus of procurement processes is strongly on exploiting the expertise of the supplier market through discussion. This dialogue explores how potential suppliers have taken into account their goals common with Espoo in their products and services. In particular, in terms of environmental sustainability, leadership, and customer and resident orientation, new innovations and practices from suppliers provide excellent new opportunities to produce services and products



KEY FACTS

WHAT IS GOOD

- The goals are examined procurement-specifically.
- The processes and common working methods allow the goals to be taken into account in all centralised procurement.
- The system supports reporting and tracking of the goals considered in procurement.

WHAT SHOULD BE DEVELOPED

- Ensuring the achievement of the goals during the contract period
- How to measure the achievement of goals?
- In what concrete ways can different goals be taken into account in very different services and products?

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more sustainably. When the best practices in the market are taken into account in procurement, the best suppliers can be selected for the contract period through procurement.

In preparation for each procurement, we review the strategic objectives that can be taken into account. In the preparation, these objectives are included in the requirements for both procurement and suppliers. The impact tool plays a key role here.

Clear contract management processes, working methods and responsibilities enable the achievement of agreed goals and reporting of results in the context of procurement. This ongoing work will enable contract suppliers to be guided and track the results with the same principles as guiding the city's own activities. In the future, it will be important to develop Espoo's goals and also the impact tool so that the goals can be defined in an increasingly precise and unambiguous way. The aim is to better identify the individual means by which, for example, the SDGs can be supported in different procurements.

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Since the tool was introduced, for example, the amount of social employment through contracts was increased by 30% in 2019 from the previous year.



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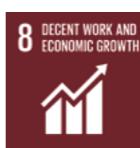


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UN INNOVATION LABS UNTIL



ACCELERATING DIGITAL INNOVATIONS TO BENEFIT THE WORLD

UNTIL's vision is a world where the benefits of digital innovation are harnessed for sustainable development, to empower people and societies, and accessible to all. The mission of UNTIL is to use digital innovation to accelerate the achievement of the Sustainable Development Goals (SDG). UNTIL and the City of Espoo, home base for UNTIL Finland, are supporting each other's mission and goals through joint activities, events, sharing information and tapping each other's networks.

UNTIL Labs are designed to leverage emerging technology and innovation in support of the achievement of the SDGs. UNTIL works to support and harness innovation and emerging technologies to create impact on our most pressing development challenges. UNTIL works to support the UN system, Member States and partners in addressing these challenges, to reach more people in need, to test and innovate, and to help ensure we leave no one behind.

The Lab in Espoo, has 12 staff focussing on four thematic areas: Health, Education, Circular Economy, Peace & Security (SDGs 3, 4, 12 and 16). These sectors represent the best of Finland in terms of their potential to make a big development impact for people in the global south. Challenges which UNTIL aims to address through technology include access to healthcare, education, plastic pollution, conflict and post-conflict reconstruction. In addition to the above SDGs, UNTIL also works on Climate Change (SDG 13), Gender Equality (SDG 5) and Human Rights. Through UNTIL's projects, the UN aims to promote the agenda of these 3 areas.

CITY OF ESPOO A NATURAL HABITAT FOR UNTIL

Espoo was an obvious choice for UNTIL. At Aalto University campus, AGRID, the building where UNTIL is located, houses approximately 160 start-up companies. Within a 10km radius of AGRID, there are thousands of start-ups and innovation companies. Espoo has a strong research pedigree through organisations such as VTT and is the home to large tech companies like Nokia, Kone, Rovio, Microsoft, Fortum. All of these represent potential tech solutions which will help people in the global south to improve their lives. UNTIL's challenge is to find the best tech, to make the biggest and quickest developmental impact.

Furthermore, in 2018, Espoo joined the United Nations leadership programme for sustainable development where the City of Espoo is one of 25 cities committed to reach the SDGs by 2025.

FUTURE CHALLENGES NEED TO BE SOLVED TOGETHER

Equality, good governance, inclusion, diversity, reducing biases are all critical elements of sustainability. Since the first Earth Summit in 1992 in Rio, sustainability came to be defined as economic, social and environmental. But increasing inequality, climate change, poor digital governance, using tech for bad, are all huge risks which threaten sustainability. Cooperation with Espoo and government also has to ensure a policy framework, norms, standards and incentives to support the achievement of the SDGs.

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Moving humanity
forward, faster



SMART CITY WITH AUTONOMOUS FIRST AND LAST MILE SENSIBLE 4

Autumn 2019, the cooperation between the City of Espoo and Sensible 4 brought self-driving public transport to reality when a self-driving pilot with the autonomous shuttle bus GACHA was organised in the Espoo Kera area. The key point of the pilot was to offer the employees working in the Kera area the possibility to use GACHA for last-mile transportation, for example between the railway station and an office building. The pilot supported the goal of providing people with access to safe, affordable and sustainable transportation.

There are over one billion cars in the world, and every year over 70 million new ones are manufactured. Mobility and transportation produce a significant portion of pollution and greenhouse gases globally. In order to change this unsustainable direction, we need to change the way people use transportation. Our vision is clear. We believe in a world that is not based on the current model of private car ownership. The future of transportation as we see it, is shared, electric and driverless, with fewer cars on the roads and more space for people.

THE STORY OF GACHA

How can this vision become a reality? Sensible 4 has developed GACHA, a shared driverless shuttle bus for last-mile usage, capable of driving in all weather conditions. By integrating autonomous shuttles into the already existing public transport system, GACHA can contribute to society by offering transport solutions to areas outside the public transport network and thereby reduce the use of privately-owned cars. Our self-driving shuttle bus navigates smoothly in urban environments and offers sustainable on-demand transportation all year round.

Self-driving serves all kinds of areas from business parks and campuses to recreational venues. No matter where, a smart self-driving transport system sustainably frees up space for people, nature and active urban life. On top of that, our self-driving solution consumes very little energy and requires only a minimal amount of resources.

There is still a lot of work that has to be done before self-driving cars become the norm. One of the biggest challenges autonomous vehicles face is changing weather conditions. Most of the self-driving vehicles are only able to drive in ideal weather conditions. Another challenge is posed by human drivers who break traffic laws. When a car driven by a human breaks the law, the robot does not know what to do. Since self-driving cars are robots and robots act according to what they are told, this can lead to dangerous situations. To achieve a safer and more sustainable city, awareness has to be raised about these issues.

FUTURE PLANS

To make our vision become a reality, we are planning our next step to bring GACHA to different locations within the European Union,

Asia and the Middle East. During 2020, we are also going to continue the pilot programme with the City of Espoo in order to establish a permanent self-driving route in the city by 2022.

ABOUT SENSIBLE 4

Sensible 4 is a Finnish self-driving technology company developing full-stack software for autonomous vehicles. Their unique technology combines information from multiple sensors (sensor fusion), allowing their self-driving cars to operate even in the most challenging of weather conditions. Sensible 4 recently raised \$7 Million from Japanese tech investors in their Series A round. Their technology was awarded Best Startup at the prestigious Dubai World Challenge for Self-Driving Cars in October 2019, and their autonomous shuttle bus GACHA has collected multiple design awards.

KEY FACTS

- One of the biggest challenges autonomous cars face is changing weather conditions. Most self-driving cars are only able to drive in ideal weather conditions.
- When a car driven by a human breaks the law, the robot does not know what to do. Since self-driving cars are robots and robots act according to what they are told, this can lead to dangerous situations.
- To achieve a safer and more sustainable city, awareness has to be raised about these issues.

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Bad weather has been the biggest obstacle for driverless vehicles up to this point. Sensible 4's software allows vehicles to operate in all weather conditions and environments.



FACTS ABOUT GACHA:

Type: Autonomous shuttle bus
Autonomous level: SAE level 4
Developed by: Sensible 4
Designer: MUJI

Maximum capacity: 10+6 persons (seated and standing)
Maximum speed autonomously: 40km/h
Demo drives on public road: 34



ZERO EMISSION ENERGY FROM DEEP BEDROCK

The production of geothermal heat using the natural heat of the bedrock is a promising and emission-free way of producing heat on a global scale. Finnish energy company St1 is piloting geothermal heat production on an industrial scale in Espoo for the first time. The project drills to a depth of over 6 kilometres in hard granite bedrock under challenging conditions in Finland.

Launched in 2015, the globally unique research and development project in Otaniemi, Espoo, has progressed according to planned stages, although it has required more time and investment than expected. The pilot project aims to test and develop technically sound and economically viable solutions for all work stages of the geothermal business concept in order to commercialise geothermal heat production on an industrial scale after the pilot.

Renewable geothermal heat increases the flexibility of heat production and reduces emissions in Espoo. The geothermal heat plant is estimated to produce up to 40 MW of heat at its best and to cover up to 10% of the district heat demand in Espoo. Geothermal district heating is ideal for densely populated city centres. According to the City of Espoo's strategy, the city is a pioneer in the fight against climate change and aims to reduce the carbon footprint of its residents. The goal is to produce and exploit renewable energy with zero emissions in the city.

REVOLUTIONISING FINLAND'S DISTRICT HEATING

St1 is piloting geothermal heat production for the first time with Fortum, an internationally recognised Espoo-based energy company, which will buy the thermal energy produced by the completed plant for the district heating network in Espoo. The geothermal heat project, which is piloting a completely new form of energy production in Finland. Successfully launched, it could revolutionise district heat production both here and in many other countries. The project in

Otaniemi is one of the most significant renewable energy projects in Finland, the success of which is of considerable importance for Finland's energy self-sufficiency and the reduction of emissions: district heating is the most common form of heating in Finland, and 2.7 million Finns live in buildings heated by district heating. If the geothermal heat production concept can be commercialised, we will be heading towards a future in which heat can be produced completely without emissions, burning nothing.

Challenges have arisen along the way, but they have been resolved. Progress with the project has required, for example, the development of drilling technology and, consequently, the first ever successful drilling of a hole over 6 kilometres deep in Finland's hard bedrock. The project has increased Finnish geoenergy expertise to world class levels in drilling, stimulation and flow analysis.

The challenging stimulation phase of the project, i.e. the testing the water flow in the bedrock fractures, was also completed year 2019. Learning from previous foreign projects, the pumping of water to produce the necessary microearthquakes in the bedrock was done in a very controlled manner to minimise the environmental damage to momentary noise nuisance. The water flow in the bedrock was carefully monitored with geophones installed in the deep boreholes in cooperation with the Institute of Seismology at the University of Helsinki. After the above ground piping and installation work is completed, the target schedule for the start of commissioning of the plant is in the fall.



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The commissioning of the plant is expected to start in Fall 2020. It will be the world's deepest geothermal heat plant, which produces heat completely free of emissions.

KEY FACTS

- When the project is completed, it will enable the production of heat practically without fuel, completely emission-free - it will revolutionise the production of district heat.
- The project has attracted international attention and increased Finnish expertise in the field to world class levels in drilling, stimulation and flow analysis.
- Geothermal heat can help the City of Espoo reduce its climate emissions. On a larger scale, the success of the project is of great importance for reducing emissions and energy self-sufficiency both in Finland and more widely in the Nordic countries.

WHAT HAVE WE LEARNED?

- The project is a unique research and development project - the first of its kind in the world - so there is bound to be plenty of challenges and uncertainties until enough experience has been gained in the production of the pilot plant.
- The commercial success of future projects will require the use of the lessons learned from the pilot project in order to optimise the timetable and cost-effectiveness.
- Comprehensive planning and project management for the different phases will also be developed to speed up the follow-up projects.

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CIRCULAR ECONOMY IS AN EFFECTIVE TOOL FOR REDUCING TRAFFIC EMISSIONS

Circular economy is the word of the day. The City of Espoo is at the heart of circular economy: renewable biogas is produced in the area, and local companies have switched to gas-powered vehicles. Energy company Gasum and IKEA Finland use biowaste generated in IKEA stores as raw material for biogas production.

Biogas is a smart and versatile form of energy. The biogas produced by energy company Gasum is produced in Finland from biodegradable waste from households, agriculture and businesses, among others – it is 100% renewable. The use of biogas for transport can reduce the greenhouse gas emissions generated during the life-cycle of fuel by up to 85%. The use of biogas also reduces emissions from city traffic, such as nitrous oxides and particulate matter, which significantly improve air quality in cities.

Gasum owns 13 biogas plants in Finland and Sweden, and the company also buys biogas from three partner plants in Finland. Gasum also has two new biogas plants being built at the moment. The current volume of biogas produced in produced in Metropolitan area (including Espoo) corresponds to the annual fuel demand of approximately 1,000 buses or 30,000 passenger cars.

ESPOO BASED COMPANIES PIONEERING IN LOW CARBON MOBILITY

More than 80 companies in Espoo have already managed to reduce their emissions through the use of biogas for transport. The choice of biogas has been influenced not only by Finland's emissions targets, but also by the increased environmental awareness of consumers and the values of companies themselves. For example, a national wholesaler, an environmental service specialist and the grocery chain Lidl have switched to using biogas for their logistics.

Gasum and IKEA Finland started cooperation in 2017, resulting in the production of renewable and low-emission biogas from biowaste from the restaurants of IKEA stores. At the same time, gas filling stations were built next to IKEA stores. The first station was opened at the store in Espoo, and later ones also in Vantaa and Raisio. The filling stations are available to both IKEA customers and other users of gas vehicles.

KEY FACTS

- Biogas is a renewable and low-emission form of energy suitable for both transport fuel and industrial energy.
- Biogas is produced in Finland from, for example, biowaste from households, food waste from grocery stores and sewage sludge, at several Gasum biogas plants.
- In biogas production, the nutrients in biowaste and side streams can also be recycled in different applications by means of recycled fertiliser products.
- Several Espoo-based companies have managed to reduce their emissions through the use of biogas for transport. The choice of biogas has been influenced not only by Finland's emissions targets, but also by the increased environmental awareness of consumers and the values of companies themselves.
- Biogas would be ideal for both public transport in Espoo and for fuel in the city's own transport equipment to reduce its carbon footprint.

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Few products or services combine both cost-effectiveness and low-emission performance in the same way as biogas.





WORKING TOGETHER TO REDUCE GREENHOUSE GAS EMISSIONS

The City of Espoo's goal is to be completely carbon neutral by 2030. An important step in reaching this goal was the adoption of Neste MY Renewable Diesel made from waste and residue in cooperation with the city's public works department in 2018. Compared to fossil diesel, Neste MY Renewable Diesel offers up to 90% lower greenhouse gas emissions during the life cycle of the fuel.

The City of Espoo's goal is to be completely carbon neutral by 2030. An important step in reaching this goal was the adoption of Neste MY Renewable Diesel made from waste and residue in cooperation with the city's public works department in 2018. Compared to fossil diesel, Neste MY Renewable Diesel offers up to 90% lower greenhouse gas emissions during the life cycle of the fuel.

After adopting Neste MY Renewable Diesel, the City of Espoo has been able to reduce its greenhouse gas emissions by 1,500 tons, which has a significant effect on the city's environmental impact.

Renewable fuels also help to clean the air in Espoo for the benefit of machine operators and commercial vehicle drivers, as well as everyone in the city. As shown by research carried out at the Tampere University of Technology, local emissions can drop by tens of percent after switching to Neste MY Renewable Diesel.



In addition to Neste, numerous experts from local companies have participated in the climate work of the City of Espoo.

The project has shown the importance of cooperation in reducing emissions and making concrete use of cleaner solutions. Engaging employees to use renewable fuels in city vehicles has also been successful through communication and active involvement. In the future, it will be increasingly important to use all available means to reduce greenhouse gas emissions.

COOPERATION CONTINUES WITH THE SMART AND CLEAN KERA PROJECT

The partnership between Neste and the City of Espoo expands in the near future with the joint Smart and Clean Kera project. The main objective of the joint project is to promote regional planning and construction with circular economy principles. The goal of future urban planning is to create environments that enable a circular economy lifestyle.

In the project, the City of Espoo and Neste are jointly exploring ways to use cleaner energy and create new service concepts in the transport sector. Neste MY Renewable Diesel could have a significant role in reducing greenhouse gas emissions of the project already in the building phase. There has also been some discussion about switching to a cleaner energy source for the machinery on the building site.

Neste has also invested financially in the project by supporting the important work done in the Smart and Clean Kera project to build a more sustainable city district.

We also want to develop digital solutions together with our partners. For example, the Neste app already makes it easier to refuel with a mobile payment, and at the same time users can see the reduction in their emissions compared to using fossil diesel.

KEY FACTS

- Espoo is making the air cleaner for users of machinery and commercial vehicles as well as for everyone in Espoo.
- As a result of the cooperation, Neste MY Renewable Diesel is now available at several Neste service stations in Espoo.
- Each company played a significant role in enabling the City of Espoo to reduce its greenhouse gas emissions.
- In the future, it will be increasingly important to use all available means to reduce greenhouse gas emissions.

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In 2019, Neste together with the City of Espoo and other companies received recognition in the Energy Globe World Award for the development of geothermal energy for district heating of Espoo.



ESPOO CLEAN HEAT - CARBON NEUTRAL DISTRICT HEAT IN ESPOO IN THE 2020S

The City of Espoo and Fortum are completing one of the city's largest climate action with the Espoo Clean Heat project: district heating in Espoo will be carbon neutral in the 2020s.

Already in 2016, the City of Espoo and the Espoo-based energy company Fortum committed to making the district heating system in Espoo, Kauniainen and Kirkkonummi fully carbon neutral. As a member city of the UN's sustainable development leadership programme, Espoo has committed to developing solutions that support carbon-neutral urban life. Carbon-neutral district heating is a major climate action for the city, as the majority of the emissions of Espoo are generated from heating.

Espoo's and Fortum's development work was accelerated in autumn 2019 by setting a new interim target to discontinue the use of coal in 2025. The 2020s carbon neutrality project is known as Espoo Clean Heat. With the project, Fortum will close one of its two coal units in Espoo for good in early summer 2020. A new biomass heat plant is already operational to compensate this. Its fuel will be wood material that would not be used by other industries.

New solutions will be sought to replace the remaining coal use, for example in utilising the excess heat from data centres, wastewater and industry, electrical heat pumps, geothermal heat, smart solutions for flexible consumption and bioenergy. The aim is primarily to find fuel-free heating solutions.

An example of future solutions is the use excess heat from data centers. If a large data centre could be attracted to a location near the Espoo district heating network, excess heat could be used efficiently for district heating. This way, the cooling air would not be wasted and instead could be conveyed to heat homes. Data centres use clean electricity as a rule, so the impact could even be carbon-negative.

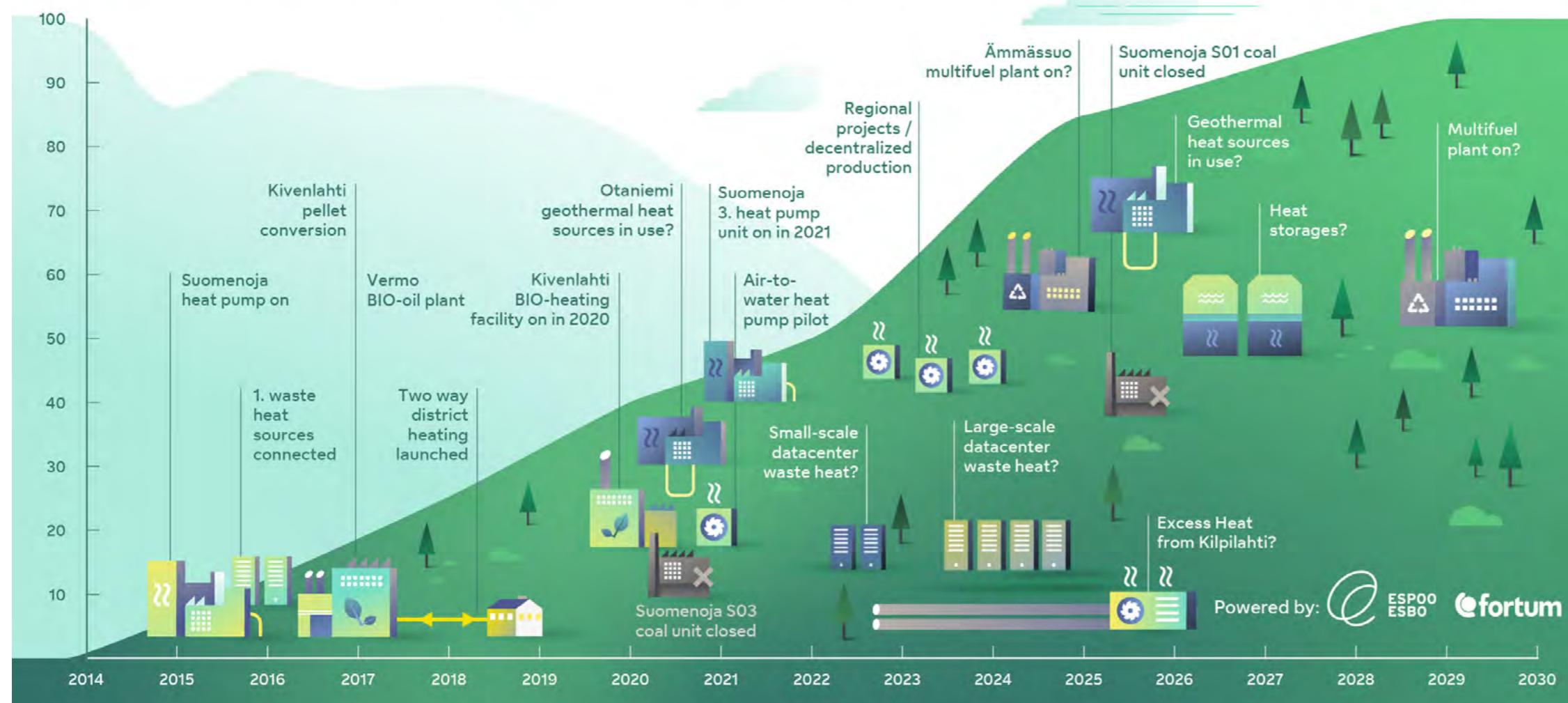
More information: minna.robertson@fortum.com

Espresso district heating transformation journey 2014–2029

Illustrative

% CO₂ emissions in relation to 2014 level % share of carbon neutral production

Espresso
Clean
Heat



fortum

HEAT RECOVERY FROM TREATED WASTEWATER

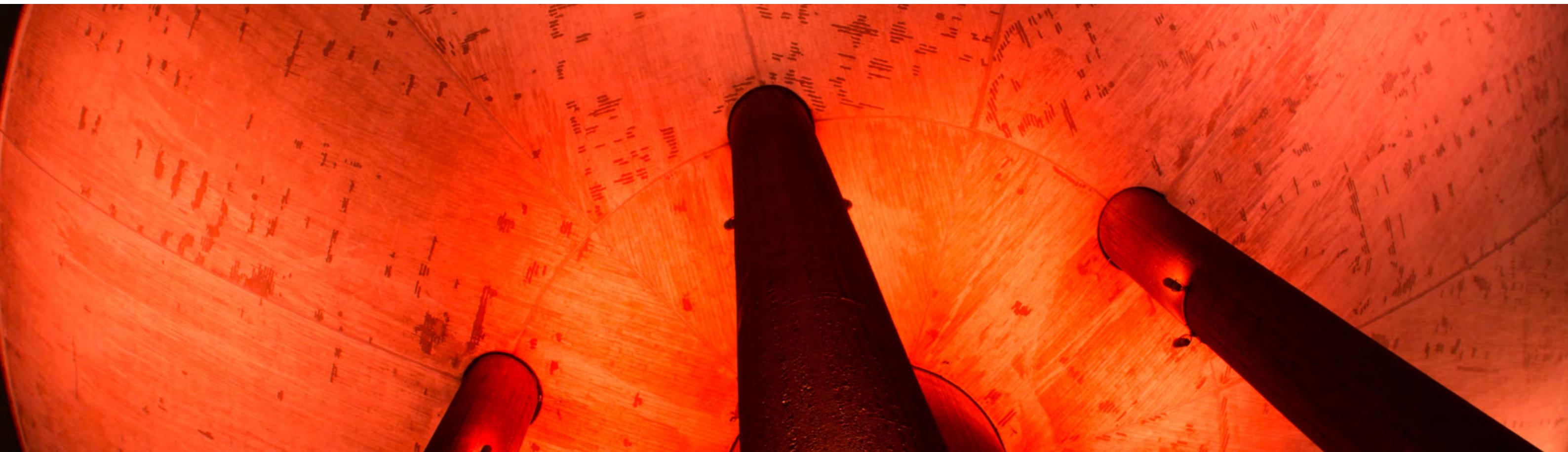
Heating comprises about half of climate emissions in Espoo. Making district heating in Espoo carbon-neutral in the 2020s is a major climate action. Fortum's new heat pump unit in Espoo will be a significant step towards carbon-neutral district heating, since it will replace some of the fossil fuel heat production. Treated wastewater contains lots of thermal energy, which can be utilised most efficiently using centralised heat pump technology.

The sustainable and ecological energy system is being constructed in Espoo as a joint effort between various organisations. Fortum has been recovering heat from wastewater since 2014. With the new agreement between the regional environmental services, partly owned by Espoo, and Fortum, the output of the thermal power plant can be increased from the current 40 MW to 60 MW. The new heat pump unit will use waste heat from treated wastewater coming from HSY's Blominmäki wastewater treatment plant, which will be completed in 2022. In addition, the plan is to use warm seawater as a heat source in the summer. The new heat pump unit will increase the carbon-neutral share of district heat production in Espoo to over 50%.

With the commissioning of the new wastewater treatment plant, treated wastewater will be led through an underground sewer tunnel to an underground pump station, from where it will be conveyed to heat pump plant. After waste heat recovery at the plant, the water will be led to the sea discharge tunnel, which takes the treated water to the open sea 8 kilometres from the coast – just like before. The new wastewater treatment plant will reduce the current per capita nutrient load on the Baltic Sea, removing over 96% of the phosphorus and organic matter contained in the wastewater as well as over 90% of the nitrogen. The treatment plant will produce the majority of the energy it needs from biogas, which is produced from sludge and other sources. Utilising waste heat is an excellent option in terms of urban development.

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Output of the thermal power plant can be increased from the current 40 MW to 60 MW.



THE FIGHT AGAINST GLOBAL WARMING REQUIRES SMART CITIES

Smart solutions and technology are needed in the fight against global warming. The smart cities of the future require a service infrastructure and seamless digital ecosystem. The market for these solutions around the world is in the order of billions or Euros.

The LuxTurrim5G, a multi-sectoral business and research ecosystem led by Nokia continues to build the digital infrastructure of the smart city and develop new data-based services. The second phase of the LuxTurrim5G project has started and will bring the 5G smart pole concept towards productisation and practical piloting. The development work of some EUR 26 million is partly funded by the Finnish State. The project involves 26 partners and the City of Espoo, and aims to proceed through piloting the new circular economy showcase area in Kera, Espoo, to the global smart city market worth tens of billions. The 5G project led by Nokia has attracted a great deal of interest around the world, especially from a sustainability perspective.

5G NETWORK AS THE DIGITAL BACKBONE OF THE FUTURE SMART CITY

The first phase of the project ended in May 2019. A 'smart pole' concept including smart lighting, an integrated 5G base station and a wide variety of different IoT sensors, like such as weather and air quality sensors, video cameras, information displays and an electric vehicle charger system, was developed and piloted at Nokia Espoo Campus. A 5G smart pole network enables fast data traffic and provides a large sensor network to gather a wide range of information and to create a wide situational picture for the use of city residents, businesses and public administration. In addition, the city and other parties already have a wide variety of data that can be used to develop new services.

The second phase, launched in November 2019, involves over 100 experts from key companies and research organizations in various sectors. The project develops and evaluates new technical solutions related to radio technology, data processing, materials, sensors and urban planning. In particular, new service concepts and business models will be developed in the areas of transport, logistics, energy management, building of urban infrastructure, health and safety as well as the operation of services.

The LuxTurrim5G ecosystem project consists of two interlinked projects:

- LuxTurrim5G+ aims to productise the smart pole concept and expand the pilot network in Kera, Espoo.
- Neutral Host Pilot focuses on creating data-based business and services as well as issues related to the construction and operation of a smart network.

In the Neutral Host project, a digital urban platform enables, for example, real-time video transmission from areas with smart poles. This data can be used in applications such as automated traffic and logistics. In addition, it can be used to automate city maintenance functions. Smart poles also allow for a wide range of other functions to be connected to the pole network, such as drone docking stations or electric vehicle charging points. Drones can be used to provide new applications in urban environments, such as area security monitoring or applications through airborne video image. The drone market is forecast to grow by up to billions over the coming years.

The 5G ecosystem is capable of supporting related development. The idea is that, when real-time data is collected, countless applications using it can be created. Interfaces must be open to developers in order to allow new actors to join the building ecosystem. The key to the project is that it will enable the emergence of a digital urban platform open to new entrepreneurs and developers. In practise, this means that not only a physical city, but also a digital city will be built around us.

The existing rail traffic and the 5G technology already under development in the area will enable the implementation of modern Internet of Things (IoT) and mobility solutions as early as during the construction phase. The pilot phase, which will be completed by the end of 2020, will build a network of 15 smart poles from the Nokia campus to Kera railway station, which will support, among other things, the running of a self-driving robot bus.

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URBAN ACADEMY SUPPORTING THE DISCOVERY OF FUTURE CITY'S DNA

Since 2019, Espoo has been involved in the Urban Academy collaboration, a collaborative platform of Aalto University, the University of Helsinki, and the cities of Espoo, Helsinki and Vantaa for research-based urban development.

The Urban Academy supports the discovery of multidisciplinary perspectives in the sustainable urban development. The Urban Academy's goal is to identify critical urban problems and relevant research topics from the city perspective - and to inspire researchers and students to work with these topics. Urban Academy's tasks are to search for opportunities for cooperation, organize occasions and events for interaction and to assist in the preparation of joint research or development projects.

Between 2018 and 2023, the cities of Espoo, Helsinki and Vantaa are funding postdoctoral research positions at the Aalto University and the University of Helsinki. The aim of the project is to stimulate interaction between the cities and universities and to increase the use of research findings in urban development and planning. The research themes for these collaborative projects are selected directly from the strategy programmes of the cities e.g. combatting social inequality in cities, increasing competitiveness of urban areas, transformation towards a carbon-neutral city, and how digitalisation changes urban life. The main research partners of the Urban Academy are Institute of Urban and Regional Studies/ University of Helsinki and Aalto University's Living+ platform.

The Urban Academy is managed by a steering group with representatives of the cities and university professors. The strategic priorities and objectives of the Urban Academy are defined by a strategic board composed of the university rectors and the city leaders. The Urban Academy has two employees, a project manager and a planner, who work in all the partner organisations. In the 2019-2023 contract period, the activities are financed by the partner organisations.

More information: www.urbanacademy.fi

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Urban Academy supports
collaboration and exchange
of academic and practical
knowledge between the
cities and universities.**



CITY AND UNIVERSITY COOPERATE TO ADDRESS GRAND CHALLENGES

The City of Espoo and Aalto University work closely together, with room for courage and experimentation. The common goal is to build a sustainable future. A developing city is seen as a living lab that can be developed together to be more functional and sustainable. This cooperation is comprehensive, including cooperation in education and research, regional development, the promotion of the international competitiveness of the Helsinki metropolitan area and Finland, and the bold search for new solutions.

Aalto University is a multidisciplinary scientific community where science and art meet technology and business. The university aims to develop solutions to solving grand societal challenges challenges of the world in key fields and at their interfaces by building a strong, creative community to support new thinking. As the first university in Finland, Aalto University signed universities' international Sustainable Development Goals accord. In 2019, about one tenth of all the university's theses, including doctoral dissertations, and a total of nine of the Master programmes, focused on the thematics of sustainable development.

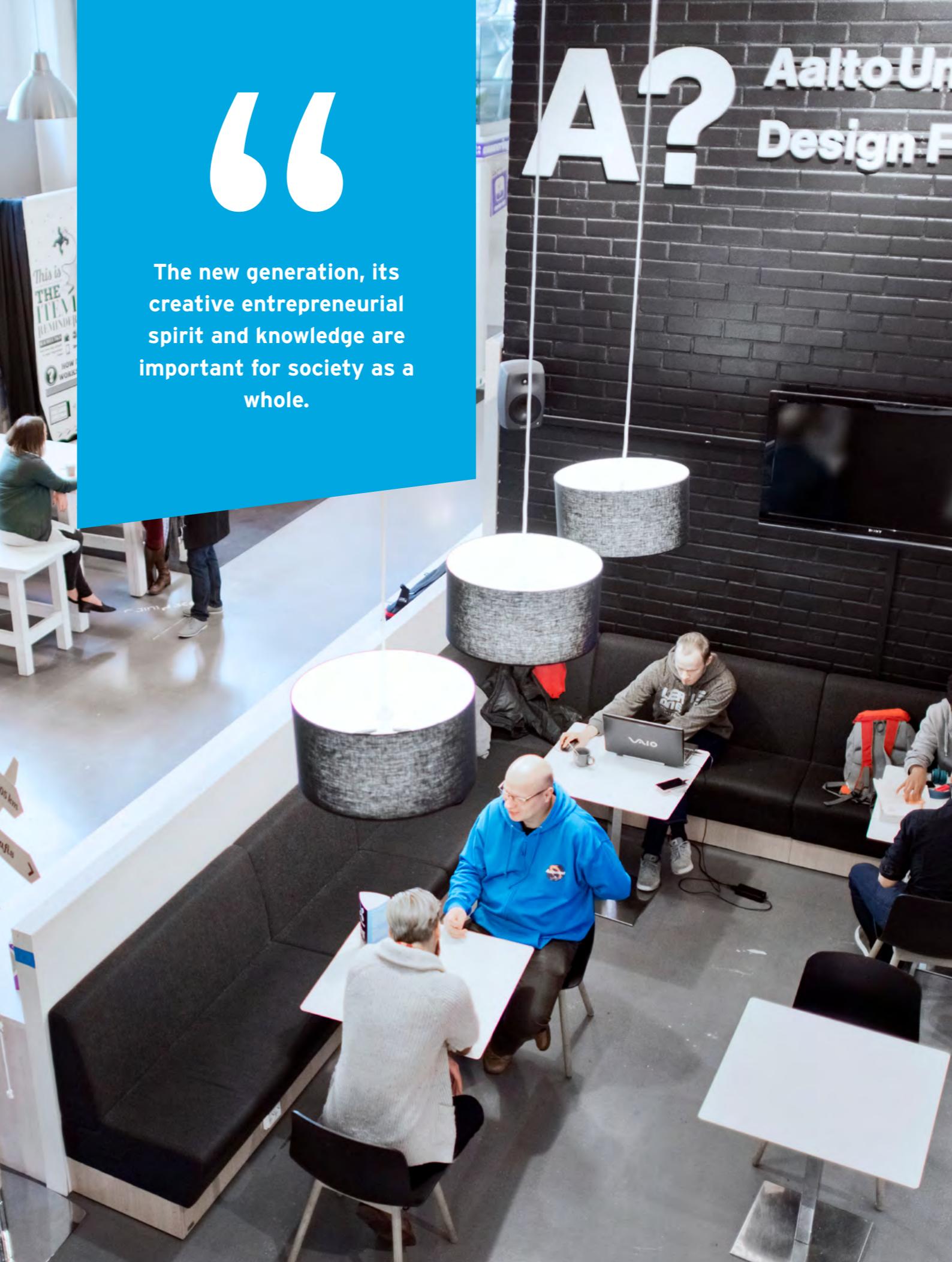
WORLD-CLASS INNOVATION AND CREATIVITY CLUSTER

The City of Espoo and Aalto University are jointly developing the Otaniemi campus area as a world-class innovation and creative community. In expanding the sustainable campus area, it has been vital that the city's land use planning decisions have allowed the proper mixing of laboratories, university facilities and student housing. This has enabled the building of vibrant innovation environments that will generate cooperation and new solutions.

In addition to high-quality research and teaching, the campus has growth-focused, high skilled companies and startups. The technology cluster interacts with the university, the city, and other key players in the region and attract foreign companies to the region. A dense competence cluster attracts participation. The common goal of the cityplanning is also to develop intelligent public transport in Otaniemi campus. The campus now has a metro station, and a tram line will also be built in the coming years. Walking and cycling are encouraged.

BROAD-BASED LEARNING CREATES DRIVERS OF CHANGE

Aalto University and Espoo wish to build an innovative society and educate game changers, and they therefore work in an open-minded, and they therefore work in an open-minded way to promote wide-ranging learning together. The new generation, its creative entrepreneurial spirit and knowledge are important for society as a whole.



THE SMART CITY OF THE FUTURE RISES TO THE CHALLENGES OF SUSTAINABLE DEVELOPMENT

Clean and smart solutions are being developed in cooperation with a wide network of partners in Kera, Espoo, along the city railway. In the future, Kera, will offer homes to at least 14,000 residents and jobs for 10,000 people. The planning area is approximately 58 hectares in size. Kera is being built into a smart city of the future and a new kind of low-carbon circular-economy environment for housing, services and entrepreneurship based on intelligent solutions.



The opportunities of circular economy and digitality are taken into account as cross-cutting themes in all development themes of Kera, such as in energy solutions, construction, housing, urban production, mobility and logistics, as well as well-being. At the same time, the operational and service-based development of the area will be linked in a new way to the city's land use processes, which will enable the construction of infrastructure supporting new solutions and services. This goal requires common objectives and implementation methods across the boundaries of the city organisation and business organisations. The parties share the objective of making Kera an international pioneer brand of circular economy solutions and digital service platforms as well as a unique smart city entity on a global scale.

At the same time, information will be produced on the added value of circular economy policies in urban development. Material and energy efficiency are reflected in careful planning, economy and minimising losses. The aim is to achieve progressive solutions that are of national and international interest. A network of companies, landowners, research institutes and other developers will create new energy solutions, forms of mobility and urban food production, for example. The aim of developing smart urban solutions is to enable a new model based on co-creation by cities, businesses and research institutes.

KNOWLEDGE ABOUT CIRCULAR ECONOMY AND LOW CARBON MOBILITY IN PRACTICE

Kera's aims emphasise the daily lives of residents and those who work in the area: smooth, interesting, healthy and safe everyday life and a good social environment. Kera offers great opportunities for companies to develop new service models in housing, living and mobility for global needs and circular economy. Comprehensive analysis, anticipation and implementation produces solutions that are flexible in time, forming the basis for a good living environment and a desirable brand.

As part of the whole, a new 5G network platform for high-speed mobile connectivity will be developed, along with a new business model for managing and utilising open data. The most effective pioneering solutions can be duplicated elsewhere in Espoo or outside the city. The data obtained from the urban environment offers endless opportunities for the benefit of residents, businesses and the environment. The first pilot showcase implemented in Kera is the robot bus Gacha, which has made its début run and is suitable for year-round operation.



Kera Hub will be set up in the heart of the region, the industrial halls in temporary use. It will serve the area's residents, companies and developers as a meeting place and window into the development of the area. For example, Kera Hub can be used for live events, as work space or to get an up-to-date overview of the schedule or solutions for the development of the area.

The change in the area has begun with the revival of the silent and rough industrial halls for temporary uses, including sport and urban cultivation. In the next few years, the area will serve as a building site before the residents finally settle in. Kera already is an area where people work and study, which will be included as a starting point in the different stages of development - the area must be safe and easy to move around in even during construction.

KEY FACTS

STRENGTHS

- A new way of developing the city together with businesses, research institutes, residents and others
- Increasing understanding of circular economy and low carbon in urban development

WHAT SHOULD BE DEVELOPED

- Measurement of impacts
- Effective communication between numerous interfaces

PARTNER COMPANIES INVOLVED IN THE SMART AND CLEAN KERA PROJECT:

A-Insinöörit Oy, Espoon Asunnot, Fortum Oyj, LähiTapiola, Neste Oyj, Nokia Oyj, Ramirent Oy and SOK. In addition, the project includes the Finnish Innovation Fund Sitra and the Helsinki Metropolitan Smart & Clean Foundation.

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Construction starts 2021

14,000 residents

10,000 jobs

EUR 3-4 billion in investments

UN Sustainable

Development Goals 2025

Carbon neutral 2030

Digital platform 5G



SUSTAINABLE KERA – EVERYTHING STARTS WITH A LOCAL DETAILED PLAN

The purpose of town planning is to design an urban environment that promotes the well-being and carbon-neutral lives of Espoo people while the population of the city is growing.

The local detailed plan is a step toward achieving the sustainable development goals in Kera. Town planning addresses concrete issues related to the urban environment, such as the location of housing and jobs, mobility, green spaces and services.

URBAN AND GREEN KERA

Kera is planned to be dense and urban. There will be a wide range of public and private services. Walking and cycling will be made easy and attractive in the area, so that the residents do not necessarily need a car to move around. The Kera station will have access to park-and-ride facilities for bicycles and cars.

A green park offering opportunities for many different activities is being built on both sides of the centre of Kera, and will be an important part of Kera's pedestrian and cycling network. Residential buildings will be located in such a way that all of them have easy access to green areas.

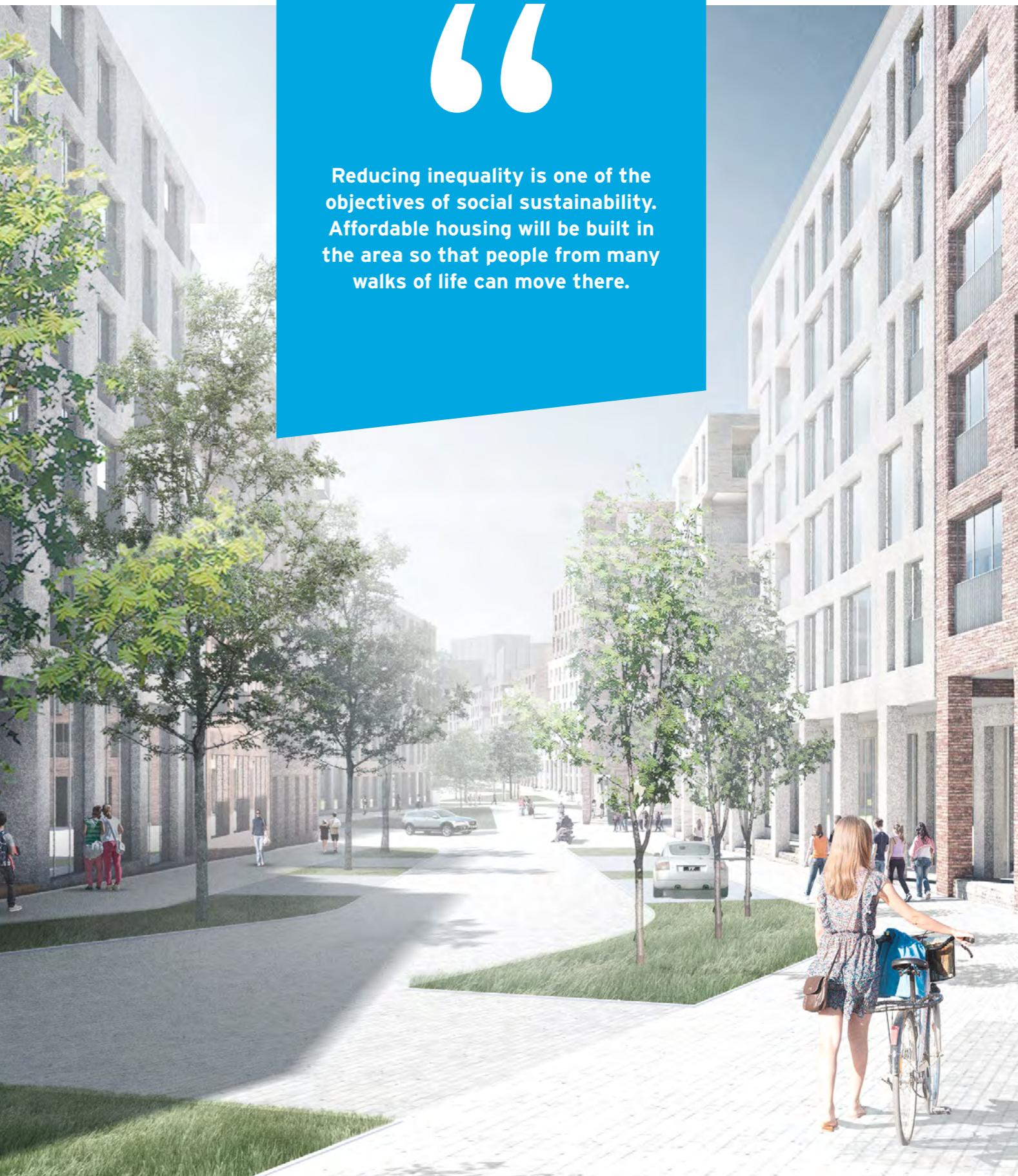
The energy options considered for the area include local district heating and geoenergy. Kera can serve as a pilot area for sustainable energy solutions.

SAFE AND COMFORTABLE KERA

Social and cultural together with ecological sustainability are the starting points for Kera's detailed local plan: planning creates a healthy and safe living environment. It is hoped that the current and new residents and those working in Kera will create a diverse and lively community in the area. The interesting history of the area supports the creation of a strong local identity. The art programme brings art to the city space for everyone to enjoy.

The residents of the surrounding area are being consulted in the planning of Kera. Everyone has an interest in improving the services, recreational opportunities and transport links. At the same time, the rapid transformation of the residential area into a new city centre also raises concerns. Cooperation with the residents is therefore important in the area's planning.

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Reducing inequality is one of the objectives of social sustainability. Affordable housing will be built in the area so that people from many walks of life can move there.

FINLAND'S FIRST GEOTHERMAL LOCAL HEATING NETWORK PLANNED IN FINNOO

In Espoo's Finnoo district in the future, heat may be sought at a depth of two kilometers. The first geothermal local heating network in Finland is planned in this new district, which would enable the creation of an emission-free residential area in terms of heating and cooling energy.



In the draft master plan, Djupsundsbäcken from the west.
Photo: Architects Anttila & Rusanen Ltd. / Ramboll Finland Oy.

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The new technology reduces emissions by up to 95% in the energy consumption of buildings.

The network for the Finnoo area is planned to be built first in two project portfolios that are underway, one of which includes around 6,000 square meters of permitted building area for non-subsidised housing. The second portfolio consists of state-subsidised rental and right-of-occupancy housing and includes 11,400 square meters of permitted building area. Geothermal capacity will be planned to provide geothermal energy as well to daycare building 2100 m² in the area.

ESPOO LEADS THE PRODUCTION OF ZERO EMISSION HEAT

The implementation of a geoenergy network in Finnoo would support Espoo's carbon neutrality objectives. An additional objective is to develop Finnoo into a model area of sustainable development, where innovative energy solutions can be tested.

The deep well technology developed by QHeat Oy enables the heating and cooling of properties to be produced in a fully carbon neutral manner. The new technology reduces emissions by up to 95% in the energy consumption of buildings. A similar mid-deep deep well and a regional energy solution built around it have not been implemented in Finland before.

FINNOO MADE OF THE BEST PIECES

The construction of Finnoo is guided by the energy efficiency criteria set by the city, to which the operators selected for the area are required to commit. In the design and implementation of residential buildings, provision must also be made for real-time energy use monitoring of buildings.

Finnoo is a new neighbourhood built around the sea, the metro and nature, where 17,000 Espoo residents will be living in the future. In addition to the metro site, the construction of streets and municipal infrastructure is currently underway in the area, and construction has also started on the first residential buildings. The majority of Finnoo will be completed in the 2030s.

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A EUROPEAN JOINT PROJECT AIMS TO CREATE ENERGY- POSITIVE AREAS

Espoo is looking for new, innovative solutions to develop Positive Energy Districts as part of a European joint project.



In terms of energy solutions,
we are moving from
property-specific analysis
towards area-level analysis
and strive for energy
positivity.



The project is part of a major challenge related to enabling changes in mobility and energy use, and fostering more sustainable lifestyles. In energy solutions, the analysis focuses on district level instead of building level solutions. Further improvement goals include electric mobility, functionality of transport hubs and carbon neutrality.

Sustainable Energy Positive & Zero Carbon Communities (SPARCS) is a five-year project of the EU's Horizon2020 programme, which is looking for new, innovative solutions to develop energy-positive areas in two Lighthouse cities: Leipzig, Germany, and Espoo. Development targets in Espoo include three built areas, in addition to which the new solutions will be expanded to other areas in Espoo as well as five European follower cities involved in the project. The project involves 31 partners all around Europe. The goal is to generate globally significant imprints for the city - new innovations. In practice, companies in Espoo develop and experiment with new solutions first at the local level and then export the best solutions globally.

A key objective of the project is energy-positivity, which means increasing local surplus energy production by means of renewable energy production and energy efficiency. In addition, the project seeks prosumer and commercial solutions that add to the choices available to energy consumers. A prosumer is a person who produces and consumes a product. The project's most important global goal related to sustainable development is the objective of using affordable and clean energy.

In Espoo, new solutions are developed jointly by the city and companies: Adven, Citycon, Kone, Plug-it Finland, Siemens and institutions such as the Finnish Association of Civil Engineers RIL and VTT Technical Research Centre of Finland. The project creates new and develops existing operating models for business, collaboration and internal processes of the city.

Energy-related solutions and policies steer the energy behaviour of residents and communities and are a key part of reaching the city's goal of carbon neutrality. So far, various decentralised forms of energy production, such as solar energy, have not been widely taken into account in regional planning. The city's internal operating models and cooperation between the city, residents, companies and other actors should be further developed support the change.

KEY FACTS

WHAT IS GOOD

- The project tackles the challenge of energy and mobility change, with the goal of future energy-positive areas.
- Possibilities to develop new, globally interesting solutions in cooperation with industry-leading companies and European cities.

WHAT SHOULD BE DEVELOPED

- Better development of the city's internal operating models and partnerships to take into account sustainability and climate, and developing existing and new areas
- So far, various decentralised forms of energy production, such as solar energy, have not been widely taken into account in regional planning.

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SUSTAINABLE GROWTH THROUGH CIRCULAR ECONOMY

Espoo is developing new operating models for circular economy to promote the development of circular economy business activity, sustainable growth of the city and a sustainable way of life for the residents. The shift to circular economy reduces the environmental load, improves the efficient use of materials and promotes self-sufficiency and competitiveness.

Transformation to circular economy requires system changes on all levels: how we use, re-use and dispose of materials and resources. Future challenges related to sustainable development include increasing the provision of products and services in accordance with the principles of circular economy as well as changes in our current consumption patterns. In Espoo, circular economy is developed in cooperation with different stakeholders to create new sustainable solutions for city environment.

The nation-wide, EU-funded project KIEPPI, short for 'Partnership model for sustainable neighbourhoods', develops districts based on circular economy in three cities in Finland: Espoo, Tampere and Turku. The partnership model specifies the collaborative methods of the city, its residents, companies and educational and research organisations in order to implement the principles of circular economy in the planning and construction of districts.

In Espoo, the project supports business-driven circular and sharing economy solutions. New products and services are being developed and piloted in the urban environment, particularly in the changing Kera district, which is one of the main future smart boroughs in

KEY FACTS

WHAT IS GOOD

- New business-driven solutions for circular economy are being developed in Espoo
- The partnership model created in the project helps develop cooperation

WHAT SHOULD BE DEVELOPED

- Understanding and implementing the principles of circular economy in the city organisation needs further development
- Coherent circular economy products and services to better serve citizens and change consumption culture

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Business-driven circular economy solutions in Espoo enable residents in particular to lead a sustainable lifestyle.



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Key development themes in Espoo include sharing economy services, the utilisation of material, nutrient and energy flows as well as urban food production.



ACCELERATED ACTION

This section focuses on ecological sustainability and innovations in infrastructure and urban development. Sustainable urban development has significant impact on achieving the SDG Forerunner 2025 goals. The section is divided into five parts:

- PART I: PATH TOWARDS CARBON NEUTRAL ESPOO
- PART II: MOBILITY AS A SERVICE
- PART III: URBAN DEVELOPMENT CREATING SUSTAINABLE IMPACT
- PART IV: STEERING AND DATA CREATING BASIS FOR SUSTAINABLE DEVELOPMENT
- PART V: NATURE AND BIODIVERSITY AS FOUNDATION FOR SUSTAINABILITY

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SUSTAINABLE ESPOO PROGRAMME - PARTNERSHIPS TOWARDS CARBON NEUTRALITY

The Sustainable Espoo programme supports the city's objectives to act as an example in achieving the SDGs, being the most sustainable city in Europe and becoming carbon-neutral during this decade. Key development areas include smart city solutions, low-emission smart mobility, renewable energy, responsibility and local environment. Programme supports the development and implementation of economically, ecologically, socially and culturally sustainable solutions.

The Sustainable Espoo programme is a cross-administrative development programme in the 2017-2021 council term. It develops solutions in order to achieve the objectives set in the city strategy, Espoo Story, to be a pioneer in smart urban development, climate work, circular economy and the digitalisation required to support them. Projects are planned and carried out in cooperation with multiple partners and networks.

Espoo wants to offer well-being in a smart, climate-friendly and safe city in which work and daily life run smoothly and biodiversity is secured. Partnerships with companies and other stakeholders strengthen the development of sustainable growth economy and its operating environment in Espoo. The goal is to create new jobs, companies and product and service solutions while enabling the building of a better urban environment.

The most important SDG goal of the programme is #17, because this goal creates basis for the achievement of all other SDG goals.

Without extensive collaboration with the city's sectors and units, companies, education and research institutes and residents, it is not possible to achieve the climate and sustainability goals. Nearly 200 representatives of personnel, elected officials, partners and residents participated in preparing the objectives and projects of the programme.



KEY FACTS

WHAT IS GOOD

- Involvement of wide range of various actors in the work towards shared goals.
- Development of sustainable solutions that have both local and global impact.

WHAT SHOULD BE DEVELOPED

- Many concrete solutions still need to be found for the ambitious climate and sustainability targets to be reached.

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Key development areas include smart city solutions, low-emission smart mobility, renewable energy, responsibility and local environment. Programme supports the development and implementation of economically, ecologically, socially and culturally sustainable solutions.



SECAP - ROAD MAP TO CARBON NEUTRALITY

As a pioneering city in the UN's sustainable development agenda, Espoo is committed to achieving the Sustainable Development Goals by 2025. At the initial stage of the pioneering work, the city's focus areas in sustainable development include climate action (SDG 13). In accordance with the UN's Sustainable Development Goal 13, Espoo acts urgently to mitigate climate change and adapt to its effects. The carbon neutrality objective for 2030 recorded in the Espoo Story is very ambitious, and progress towards it is made purposefully with residents, communities and companies.

To promote sustainable development and climate work, Mayor of Espoo Jukka Mäkelä signed the European Covenant of Mayors for Climate and Energy in February 2018. The wide approval of the mutually set sustainable development and climate goals is clear from the City Board's unanimous support for joining the covenant. Joining the covenant required the preparation of a Sustainable Energy & Climate Action Plan (SECAP). The action plan was prepared by the Espoo-based consulting firm Benviroc Oy in close cooperation with representatives of the city. The work was directed by Mayor Jukka Mäkelä, who owns the city's carbon neutrality objective, supported by the sustainable development division of Corporate Group Administration, Technical and Environmental Services and the climate work steering group, which represents all sectors of the city.

The SECAP meets the objectives of ecological sustainability in particular. On the other hand, building sustainable infrastructures and cooperation with companies developing solutions supporting the mitigation of climate change promote economic sustainability in the long run. The dimension of social sustainability is also strongly present in the SECAP. Ensuring smooth transport for all customer groups promotes equal opportunities. Preparation for the risks of climate change, such as hot spells and downpours, and the city's ability to function in exceptional situations supports all residents but particularly residents in a vulnerable situation, such as children, elderly people and people with long-term illnesses.

Espoo's focus areas in sustainable development also include SDG 9, i.e. the building of resilient infrastructure and promotion of sustainable industry and innovations. The goal is also strongly connected to the carbon neutrality objective, for the achievement of which the city implements sustainable solutions together with partners and residents. The partnership with energy company Fortum is crucial for the quick introduction of innovative and emission-free energy solutions (SDG 7); without it, it would be almost impossible to achieve the carbon neutrality goal. The production of renewable energy in Espoo will be increased in the coming years, for example, with the new energy production plant to be built in Ämmässuo, the new bioboarder at the Kivenlahti biothermal plant and the new heat pump unit at the Suomenoja power plant. Finland's first industrial-scale heating plant running on geothermal energy is also under construction in Espoo. The geothermal plant to be built in Otaniemi is supposed to cover as much as 12-15% of the need for district heating

in Espoo. If the project is successful, it will act as a significant pilot project for the introduction of similar technology elsewhere. This way, the handprint of the City of Espoo will be visible in the climate work of cities in Finland and around the world.

Organising smooth transport in a city comprising five urban centres is a key factor in building a sustainable city (SDG 11) and also one of the major challenges to be solved. With sustainable infrastructure solutions and the development of rail traffic, among other things, Espoo will also impact the carbon footprint of transport and the transport habits of Espoo residents in the long term. The development of public transport and emission-free traffic are among the key themes of Espoo's climate work. The city has directed a significant amount of resources to the development of rail traffic in particular. The major investments for the coming years include the second phase of the West Metro, Jokeri Light Rail and the City Railway.

The sustainable development goals cannot be achieved without cooperation between the public and private sectors and civil society (SDG 17). Espoo's partnership with Fortum is an internationally-awarded example of this. Partnership with smaller companies is also important, and a robot bus has been piloted in Espoo as part of the Sustainable Espoo development programme. In the development of a carbon-neutral transport system, cooperation with partners, such as Helsinki Region Transport (HSL) and other municipalities in the Helsinki Metropolitan Area, is of utmost importance.

In addition to mitigating the effects of climate change, Espoo has, as part of SECAP work, identified the greatest risks caused by climate change. These include, in particular, the effects of floods and downpours in densely built-up areas and hot spells, which affect children, elderly people and people with long-term illnesses. To respond to the risks, the city has a work group for the adaptation to climate change, which also participated actively in SECAP work. The adaptation to climate change is already taken into account in many fields, such as city planning, but adaptation measures must continuously be assessed and strengthened. The extensive mapping of the risks and effects of climate change for the social and health sector and the sector's actions to improve tolerance were identified as clear development targets for the city. As is characteristic for the operating principles of the City of Espoo and the Espoo Story,



the adaptation to climate change strongly relies on partnerships and cooperation with, for example, Aalto University, Helsinki Region Environmental Services Authority HSY and the Finnish Meteorological Institute.

From the point of view of sustainable development, climate work and the achievement of goals, it is also important to measure and monitor the actions taken. The Covenant of Mayors for Climate and Energy and SECAP work provide an excellent framework for monitoring the effects of climate actions. Current actions and their impact must be reviewed regularly in order to enhance the actions and adapt them to the changing operating environment as necessary.

Implementing the approximately 60 climate actions in the SECAP report will reduce emissions considerably, but more new, innovative actions are still needed. Espoo's model of five urban centres provides multiple opportunities for the design, piloting and implementation of mitigation actions. As the city grows, regional spearhead projects include the development projects of the Finnnoo, Kera and Kiviruukki districts, the design of which utilises renewable energy and develops innovative energy systems and functional public transport. Partnerships, information, research and bold, open-minded pilot projects can continue to be used as the foundation for climate and sustainable development work.

Authors: Espoo-based consultants Suvia Monni and Emma Liljeström, Benviroc Oy



KEY FACTS

WHAT IS GOOD:

1. All sectors of the city are committed to the carbon neutrality objective owned by the mayor, and each sector also participated in the preparation of the SECAP operating plan.
2. The extensive and smooth collaboration with residents and partners, such as Fortum, enables the achievement of ambitious goals.
3. Belonging to the Covenant of Mayors network of more than 10,000 cities provides collaboration possibilities, visibility and the opportunity to act as a global trendsetter.

WHAT CAN BE LEARNED/DEVELOPED:

1. Achieving carbon neutrality requires contribution from all of us. It still requires a lot of work to make the mitigation of climate change a part of the daily activities of all of us.
2. The assessment of the effect of sustainable development and climate work must be invested in so that the city can enhance and redirect the operations as necessary.
3. More information is needed about the risks of climate change. The preparedness of the social and health sector in particular to respond to climate risks must be improved.
4. In the coming years, a sufficient amount of personal and economical resources must be directed to fighting and mitigating climate change.

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THE ELECTRICITY OF THE CITY OF ESPOO'S PROPERTIES BECOMES CARBON NEUTRAL

The electricity consumed by properties directly owned by the City of Espoo will become almost completely carbon neutral as the guarantee of origin of electricity agreement enters into effect.

The City of Espoo's Premises Department, which are responsible for the City's properties, administer over 400 properties directly owned by the City, the electricity of which has become carbon neutral at the beginning of April 2020. The origin of the electricity is verified with a guarantee of origin certificate, which ensures that a specific proportion of electrical energy is generated using renewable energy sources.

In practice, the guarantee of origin of electricity is ensured through a scheme in which a proportion of future energy supply generated using bioenergy is reserved for the City of Espoo's use. This electricity is generated utilising energy from forestry industry by-products and primarily domestic wood-based fuels.

THE AIM IS TO SUPPLY ALL PROPERTIES WITH CARBON NEUTRAL ELECTRICITY

The amount of carbon neutral electricity purchased for directly-owned properties by the City for the current year is approximately 70,000 MWh. In the future, the aim is to also bring limited liability property companies under the carbon neutral electricity contract. This would mean that nearly all of the properties owned by the City would be supplied with carbon neutral electricity.

"Finland's and the City of Espoo's carbon neutrality objectives are ambitious. It is excellent for all of us if we can utilise opportunities to speed up the achievement of these objectives through our decisions," says Head of Premises Mauri Laurila.

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A SAFE AND LOW-CARBON URBAN LIFE IN THE URBAN SURROUNDINGS OF RAILWAY AND METRO STATIONS

The Helsinki metropolitan area aims to create regional and urban structures based on rail transport. The urban surroundings of railway and metro stations are at the heart of urban development as areas where housing, services and jobs are concentrated for their good accessibility. In addition, these urban surroundings, as nodes of low-carbon transportation, are also a natural starting point for carbon neutral and sustainable urban development.

Espoo has participated in the development of the 'Low Carbon District (LCD)' planning tool, which supports the realization of climate and sustainable development objectives in urban planning. The tool is available online for free use by City of Espoo planners or anyone interested. The planning tool features more than 70 concrete actions to develop the urban surroundings of railway and metro stations, for example to promote walking and cycling, the energy efficiency of the urban structure and the circular economy. The Low Carbon District -planning tool brings together a wide range of expertise. Dozens of experts have been involved in its development, both regionally and internationally.

Urban surroundings of railway and metro stations are developed through planning complementary land use that balances services, housing, jobs, green areas and public space. In addition, streamlining services for sustainable mobility, supporting the energy efficiency of housing and the building stock, bringing everyday services close to the population and developing the responsibility of industries also support integrated urban development, taking social sustainability into consideration too. In addition to the mitigation of global warming, the measures will provide concrete input to the promotion of new circular economy solutions and the measures to be taken to adapt to climate change.

The untapped potential of stations and the urban surroundings of railway and metro stations should be fully mobilised to develop people's lifestyles and sustainable mobility.

KEY FACTS

WHAT IS GOOD

- the development of the urban surroundings of railway and metro stations strengthens the urban structure based on sustainable mobility and makes rail transport more attractive
- the development of the urban surroundings of railway and metro stations adds value to travel chains
- the development of the urban surroundings of railway and metro stations reduces insecurity and improves comfort in urban environments

WHAT CAN BE LEARNED/DEVELOPED

- the urban surroundings of railway and metro stations are multi-functional environments and their development requires the commitment of actors to common development goals
- stations are often somewhat separated from the rest of the urban structure
- the infrastructure and properties of the urban surroundings of railway and metro stations should be developed in a user-driven manner

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TOWARDS EMISSION-FREE CONSTRUCTION SITES

The Carbon neutral and resource-wise industrial areas (HNRY) project is an EU-funded project aimed at bringing together cities and research institutes that have a shared interest in creating carbon neutral industrial areas. Companies that have already made strides in lowering their carbon emissions are urged towards carbon neutrality, and other companies are coached on how to initiate relevant measures.

“

Contractors must be given confidence that an operating method that takes the environment into account will be the “new normal” in all construction.



In the project, together with two other large Finnish cities, Espoo will:

- perform situation mapping of companies operating and located in the areas and identify their essential emission reduction needs and opportunities
- enhance landmass management at intermediate storage facilities and at a designated landfill
- increases digitalisation, impact fuel choices and enhance logistics at work sites
- work on action plans together with companies in order to strive for carbon neutrality
- develop and test environmental criteria for equipment purchases with the aim of being emission-free and low-carbon.

Espoo's objective is to create a concept of an emission-free and resource-wise construction site and pilot an emission-free infrastructure work site. The project started in 2019 and will continue until 2021.

WITH PILOTS TOWARDS EMISSION REDUCTIONS

The concept of the emission-free construction site has been developed by the City of Oslo in Norway. In the concept, construction sites gradually move away from fossil fuels, resulting in a calculated state of no emissions in the long run. Espoo will use the lessons learned from Oslo to carry out a pilot in accordance with the concept of the emission-free construction site in spring 2020. The first phase of the concept is about learning wise ways to use resources and new, better practices at the work site aiming at carbon neutrality. The idea is to calculate the amount of emissions created and especially the amount not created to ensure the desired effectiveness before taking the concept to other sites. The pilot of the emission-free construction

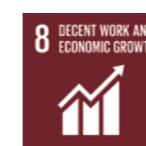
site concept is part of the city's development work on the way to a “new normal” at all construction sites. In the first phase, the concept of the emission-free construction site aims to ensure that the site does not produce calculated greenhouse gas emissions and the machinery does not pollute. Power may be derived from green electricity or nitrogen and heating from district heating produced by renewable energy sources. The concept also focuses on the reduction of noise and, in the next stage, dust.

COOPERATING WITH COMPANIES

It is important to cooperate with contractors of construction sites. If the criteria are too strict or unrealistic, not a single tender will be received for competitive tendering in the worst case. Earth movers in particular are expensive investments with long service lives, so the desired quick changes are expensive for the contractor.

Contractors must be given confidence that an operating method that takes the environment into account will be the “new normal” in all construction. Their competitive advantages for getting contracts will be active cooperation and the achievement of emission reductions at construction sites. It is therefore worthwhile to invest in low-emission machinery and, for example, transform diesel lorries into electric or biogas-powered ones. Training in the smarter use of machinery provides another option for emission savings, which eventually benefits everyone involved. The transition may be facilitated in different ways. The project will investigate whether the city, for example, could purchase an electric machine and rent it to the contractor and whether the Government could provide a subsidy for that.

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SERVITISATION OF TRAFFIC AFFECTING THE WAY WE MOVE

Reducing emissions from transport plays an important role in Espoo's aim to achieve carbon neutrality. Practical solutions are provided by various mobility services, the increased use of which also increases the proportion of sustainable means of transport in all movement.

The aim is that at the same time, dependence on private cars decreases and the number of kilometers driven alone falls. This will also reduce congestion and traffic emissions. Espoo wants to prioritise sustainable modes of transport: For example, people should be able to get closer to the metro platform with a bicycle than with a car. The growth in sustainable modes of transport is promoted in Espoo, in particular by developing key transport hubs and service clusters.

PUBLIC TRANSPORT - THE BACKBONE

A prerequisite for the success of mobility services is an urban environment that supports walking and cycling, the backbone of which is well-functioning public transport. The role of the city is central to increasing the proportion of sustainable means of transport, to implementing a smart infrastructure supporting services and to opening up information to service developers. Espoo encourages companies providing mobility services to use electronic vehicles more and more by extending the public charging network.

Companies developing mobility services offer their customers joint-use cars, on-demand rides and shared rides. In addition, city bikes, electric bikes and scooters as well as luggage bikes are available. There are also applications on the market that enable journeys featuring various modes of transport to be managed easily in the same service. This is possible because, among other things, the sale of public transport tickets and the city bike season in the Helsinki metropolitan area has been opened to an open interface. In this way, companies that provide mobility services can build their own service portfolio around public transport.

In the area of mobility services, key stakeholders for Espoo are public transport operators, companies providing different mobility services and interfaces and, of course, all employers in Espoo. As commuting represents a significant share of the total transport emissions, employers play an important role in driving new mobility services forward. Espoo also encourages co-operation. Examples of pilot projects include a robot bus and an on-demand ride service as part of Espoo's connecting and cross traffic.

CITY BIKES CURRENTLY THE MOST POPULAR MOBILITY SERVICE

City bikes are currently the most popular mobility service in Espoo; in 2019, people made more than 570,000 journeys on city bikes in Espoo. City bikes are used especially in the first and last kilometre of the journey and as part of the rail travel chain.

Park & Ride is also an important part of mobility services. In Espoo, Park & Ride has become an attractive option for those who have no other suitable connection with rail transport than the car. The attractiveness has been enhanced by clear signs, real-time information on free parking places and the development of mobile payment. Mobile payment also allows Park & Ride to be integrated into the service portfolios of companies offering mobility services. To make joint use cars more popular, Espoo provides parking spaces for them in key areas.

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JOKERI LIGHT RAIL LINE BRINGS RESPONSIBLE MOBILITY ALREADY IN THE CONSTRUCTION PHASE

The forecast is that the Helsinki Metropolitan Area will have about two million inhabitants and more than one million jobs in 2050. Effort is being made to direct the increase in mobility resulting from the population growth into sustainable mobility: public transport, walking and cycling. The Jokeri Light Rail line is the first quick rail line in the Helsinki Metropolitan Area and is scheduled to start operating in 2024.

SUSTAINABLE HOUSING AND MOBILITY

The municipalities of the Helsinki Metropolitan Area have committed themselves to increasing housing construction, and the goal is a dense regional structure based on sustainable forms of transport. The rail line will replace the busiest bus line in the metropolitan area. Its capacity is insufficient for the increasing passenger numbers. The length of the rail line is about 25 km, some 9 km of which is within Espoo. In Espoo, new housing and office construction is planned along Jokeri Light Rail line in several areas. Building homes and services along the Jokeri Light Rail route is profitable and sustainable. The area already has a street network, municipal infrastructure and services. The proximity of services and the high speed rail line will reduce the need for residents to use their own car.

The Jokeri Light Rail implements the City of Espoo's targets to achieve carbon neutrality by 2030. The development and expansion of rail transport is one of the most effective ways of reducing emissions from transport. The electricity is produced by renewable energy sources; wind and hydroelectric power, whose production does not generate direct CO₂ emissions. The future tram is energy efficient and ecological. Its braking energy is recovered and used for air conditioning and, during winter, for heating. The Jokeri Light Rail Line will increase the use of public transport and reduce private car traffic, reducing CO₂ emissions and air pollution from car transport.

SUSTAINABLE DEVELOPMENT IN FOCUS ALSO DURING CONSTRUCTION

The aim is also to minimise the environmental impact of construction. The effects of construction and mitigation measures were extensively analysed during the project's design phase. The track passes by the Laajalahti Natura 2000 nature conservation area, a sea bay with internationally significant birdlife. In addition, the rail line passes by a valuable old forest, the core area and important pathways of the flying squirrel. The above-mentioned nature values are among those that have been taken into account in both the design and construction of Jokeri Light Rail line.

The project employees are actively familiarised with consideration of environmental aspects on the site. Any invasive species are removed from the site, the trees to be preserved are protected, concrete aggregates and other recovered materials are used in construction, recycled substrates are used and follow-up research on the impact of construction noise on birds is carried out.

KEY FACTS

WHAT IS GOOD

- The construction of a new environmentally friendly public transport mode in Espoo and the associated dense urban structure contribute to sustainable development.
- Using the alliance approach enables better collaboration between planners, builders and clients.
- There is motivation to carry out the project in a high-quality, innovative and industry-improving manner.

WHAT SHOULD BE DEVELOPED

- A tight budget imposes constraints on making environmentally responsible choices.
- Because of the compact city structure, the work sites are narrow in some places, which poses challenges for the prevention of noise and dust on the work sites.
- The consideration of nature values requires coordination both in design and construction.

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TRANSPORT HUBS CREATE A CIRCLE OF GOOD

Cities consist of centres that operate as transport hubs, or mobility hubs. Easily accessible by foot or bike, a transport hub provides smooth trip connections thanks to high-frequency transit lines and new, practical mobility services.



Less passenger car traffic in the city enables alternative uses for the space reserved for such traffic.

attractive. This is not simply a question of ecological sustainability. For example, new business generated in the sustainable mobility services sector promotes financial sustainability. A transport system based on public mobility services available to as many groups of people as possible will also enhance equality and non-discrimination when the key modes of transport no longer require a certain age, income, wealth, physical fitness or lack of disabilities.

KEY FACTS

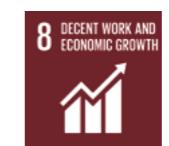
WHAT IS GOOD

- Smooth trip connections make sustainable modes of transport more attractive.
- Digital services enable carefree and flexible movement.
- Reducing the share of car traffic is ecologically, financially and socioculturally sustainable.

WHAT SHOULD BE DEVELOPED

- Above all, a sustainable transport system is a question of land use.
- The electrification of transport does not remove all its externality costs.
- Benefits of the transport system changes may be distributed unevenly across districts.

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MOBILITY AT THE FOREFRONT OF A LOW-CARBON FUTURE

Accessibility is a key metric for successful urban development. Transport and mobility have a major role in people's everyday life: Espoo residents spend well over an hour moving about every day. Transport also has an enormous impact on our environment in many ways. On a large scale, traffic emissions contribute to climate change. On a small scale, the same emissions affect the quality of the air we breathe. In cities, one of the most significant environmental effects of transport is the space it requires – taking away from other construction projects and recreational areas. Roads and railways also divide areas through their barrier effect.

The project Low-carbon transport in mobility hubs, funded by six major Finnish cities and the EU, aims to improve the preconditions for sustainable modes of transport in urban areas. A particular objective is to generate transport hubs that bring together people and various modes of transport. Easily accessible by foot or bike, a transport hub provides smooth trip connections thanks to high-frequency transit lines and new, practical mobility services. Easy-to-use, reliable and safe mobility services that provide quick and frequent connections reduce the attractiveness of cars in relation to more sustainable modes of transport, therefore reducing transport emissions.

In order for Espoo to reach its goal of becoming a carbon-neutral city in 2030, it must reduce its carbon dioxide emissions by more than 80 per cent from the figures of 2018. At that point, approximately 31 per cent of Espoo's carbon dioxide equivalent emissions were caused by transport. Cars generate 59 per cent of the overall transport emissions. Reaching the goal of carbon neutrality requires new and functional ways to offset overall emissions caused by cars.

SUSTAINABLE MODES OF TRANSPORT ENABLING THE BENEFITS

The growing share of sustainable modes of transport enables multiplier effects when homes, jobs, shops and services are closer to one another in a denser urban structure, and when walking, cycling, transit and other sustainable modes of transport become more

METRO CREATING SUSTAINABLE GROWTH AND VITALITY IN ESPOO

Three of the five city centres in Espoo are located on the metro line, either currently or in the future. Smooth everyday life, functional travel chains and ease of movement are key factors in building the metro. Espoo grows and develops by investing in smooth rail links.

The West Metro is by far the city's largest investment project. It will help renew city structure and turn the metro's growth and development corridor into an attractive, high quality working and residential area where the surroundings of each metro station within a radius of a few kilometres have their own unique characteristics. A completely new residential area with up to 17,000 inhabitants is being developed along the metro line, notable in terms of new and ecological construction in Finland.

The metro is built because it brings vitality and enables new homes and jobs to be created in an ecological way. Metro is sustainable public transport at its best.

The West Metro implements and lives the Espoo story. Länsimetro Oy, the company building the West Metro, has set itself the objective of

bringing everyday convenience to residents and users of the metro. The metro runs underground throughout the line, so that the city and the services of city residents can be developed overground. All stations and entrances to the stations are accessible. The lighting and architecture of the West Metro has received many international awards.

The aim is also to bring value for money. The metro is an investment that produces multiple returns on the funds invested in it. The metro investment attracts up to ten times more investments around it.

During construction, taking nature into consideration plays an important role. For example, the routes of the flying squirrel have been recognized, and no disturbing work will be carried out in nearby natural areas during the nesting period of birds. Especially, cycling and walking have also been taken into account.

The West Metro is one of the largest construction projects in the history of Finland. With the completion of the second phase, more than 20,000 construction workers have participated in the construction project. The project aims to introduce new innovations into construction and project management and to share information with others. The West Metro is one of the safest in the world in terms of its systems and solutions. Passenger safety in exceptional situations is taken into account by 52 different systems.

The metro is the fastest means of transport in the Helsinki metropolitan area, with the largest number of departures daily. Metro traffic is carried out by electricity from hydro- and wind power. The City of Espoo grows to rail traffic hubs in an ecologically and sustainable way.

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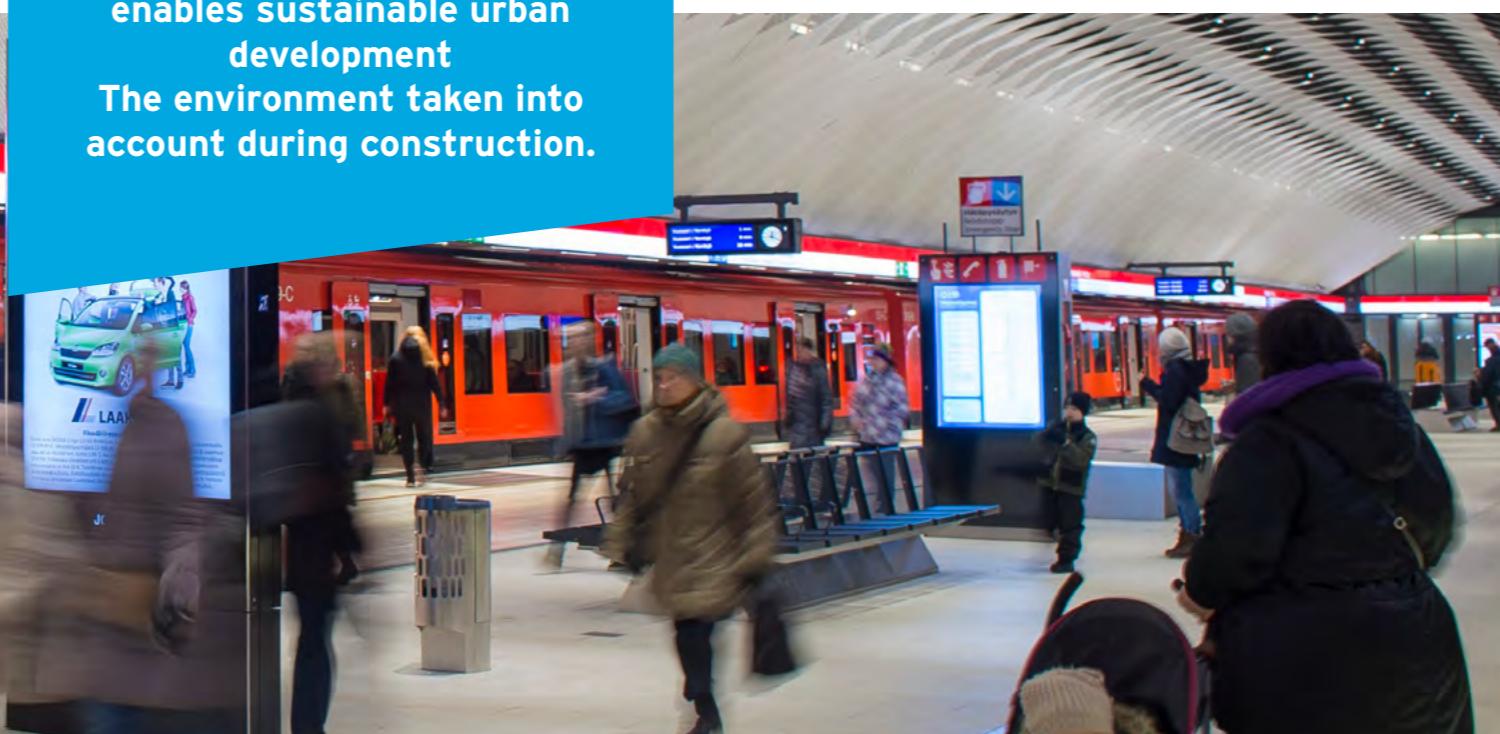
Traffic already in the first stage; eight new stations and 14 kilometres of rail line. Five new stations and seven kilometres of rail line opened up to traffic by 2023.

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The biggest investment in Espoo's history

Smooth public transport enables sustainable urban development

The environment taken into account during construction.



THE WALKABLE CITY IS THE FUTURE

The city centres of Espoo will grow, change and become more densely built as migration to the Helsinki Metropolitan Area and Espoo continues. The development of the centres is being planned as a whole. The aim is that each of the five city centres in Espoo will develop in a unique way, based on their own strengths.

The increasingly urban centres offer jobs, diverse services and a comfortable, walkable environment. A walkable city means a city where local services are within walking and cycling distance. The physical environment has a proven impact on people's mobility choices. A functional, comfortable, green and safe urban environment attracts sustainable mobility, without hindering the use of cars. The residents can choose the mode of transport that best suits the situation.

GOOD LIFE FOR ESPOO RESIDENTS

Everyone benefits from a walkable city. When people walk and bike, they promote their health. People who travel by car or bus also walk a part of their journey. As car traffic decreases, it reduces congestion and makes everyday mobility easier - even for motorists. The carbon footprint of walking and cycling is the smallest of all modes of transport, no matter how intelligent advanced vehicle technology may become.

In an urban environment, it is easy to meet people. Diverse centres attract skilled people who strengthen Espoo's vitality. Walkers often use local services, and the euros saved from motoring can thus benefit local businesses. A physical environment that creates activity and human connections is the basis of good life.

WORK ON CENTRES MEANS WORKING TOGETHER

A significant share of daily journeys takes place between home and work. Smooth connections improve people's daily lives and enable sustainable mobility. All city centres in Espoo are being developed as diverse environments for work, housing and leisure. The result of the work on the centres is an outline of the centres in Espoo and the principles guiding the development of each centre.

Improving walkability requires working together. The work on the centres provides us with information on how to better integrate walkability into urban planning and transport planning. When this succeeds, we will all get to enjoy a sustainable, more urban and more livable Espoo.

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Diverse centres attract skilled people who strengthen Espoo's vitality.



BICYCLE PARKING ENCOURAGES CYCLING

Esboo is being built around five city centres and good rail connections. A network city works when it is fast and effortless to move around in. Traveling in the urban area often involves changing between several means of transport. Making it easy to combine public transport and cycling increases the popularity of these modes of transport.

Esboo is committed to promoting cycling: the goal is to double the share of cycling in modes of transport and reach 15% in 2024. This target is based on the Brussels Declaration, which has been signed by the City Board.

CITY PLANNING CONTROLS BICYCLE PARKING

The City Planning Department has been implementing a programme to promote cycling since 2013. High-quality bicycle parking is one of the tools of the programme. Bicycle parking requires space, an appropriate location and good traffic links. It should therefore be taken into account in planning at an early stage.

Town planning sets the minimum number of bicycle parking spaces near housing, shops, jobs and public services. Cycling is taken into account in connecting traffic to the train and metro stations in Esboo. The city bike system is also used for connecting traffic. Stations close to metro stations are among the most popular stations.

There are also qualitative requirements for bicycle parking spaces: the characteristics, requirements and criteria of high-quality bicycle parking has been defined for them. Areas where bicycle parking is provided must be attractive, comfortable and safe. For safety, it is important to have sufficient parking spaces and to park bicycles in the designated spaces.

THE RIGHT NUMBER OF SPACES IN THE RIGHT PLACES

In Finland, cycling is seasonal and the need for parking spaces varies by season and weather. It is therefore challenging to scale parking areas: there must be enough spaces, but unnecessary spaces take up space for nothing. Traffic forecasts and traffic calculations help find the right solutions.

A total of 650 bicycle parking spaces have been planned in connection with the metro at six stations in Esboo, some of which are covered and weather resistant. When the metro extension is completed, five new stations will be opened, by which time Esboo will need a total of 5,600 bicycle parking spaces.

The Esboo train stations currently have park-and-ride facilities for around 1,200 bicycles, of which more than half are located at Lempäälä Station. In the future, the use of park-and-ride facilities will increase, most significantly in Kera, as the area grows and transforms.

Bicycle park-and-ride facilities are an important part of a smooth travel chain. As Esboo is changing, it is also necessary to keep developing park-and-ride facilities continuously.

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SUSTAINABLE MOBILITY WITH ELECTRIC BUSES

Passengers in Espoo have been able to make their acquaintance with electric buses while they have been operating in the Helsinki Metropolitan Area. Before autumn 2019, all electric buses came to the metropolitan area via various experiments, in which Espoo was involved.

The first fully electric buses started operating in August 2019. 30 buses were used, of which twenty run on the Espoo lines. Electric buses will take a big leap forward in the Helsinki Metropolitan Area in autumn 2021. A major experiment began at the beginning of 2016, when HSL, the Helsinki Region Transport authority, acquired 12 electric buses manufactured by the Finnish company Linkker Oy for transport in the Helsinki Metropolitan Area.

The Linkkers were the first fast-charging electric buses in Finland,

which could be charged at the terminal stop while passengers board the bus. In the future, the Helsinki region may see both fast-charging buses and buses charged at the depot, depending on the development of battery technology.

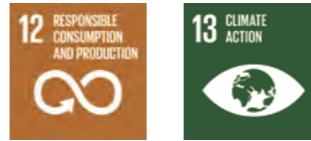
HSL can influence the number of electric transport equipment by making winning routes in its competitive bidding conditional on the use of electric buses. HSL will shortly start to invite companies to bid on a number of heavily used bus lines and will require them to use

only electric buses on the routes. The aim is that a third of the bus fleet in the metropolitan area should be electric in 2025 and, in the future, all buses in the region should be electrically powered.

BUSES RUN ON RENEWABLE POWER

The electricity on which buses in the Helsinki Metropolitan Area run is now, and in the future, produced with Nordic wind and hydroelectric power. An electric bus consumes only a quarter of the energy compared to diesel cars and does not produce any local emissions, such as nitrous oxides, so electronic equipment is an important step toward more ecological urban transport. HSL aims to reduce transport emissions by 90% by 2025 compared to 2010 levels. HSL believes that the emissions target is realistic.

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The 30 electric buses introduced in autumn 2019 will prevent about 5 million kilos of CO₂ emissions year.

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ARTIFICIAL INTELLIGENCE PROVIDES COMFORT AND ENERGY SAVINGS

In Espoon Asunnot homes, artificial intelligence automatically controls the heating in the building based on the interior temperature of the homes, building properties and weather forecasts. Occupants can easily monitor the temperature and humidity in their home with a smartphone or computer, and quickly report any deviations they have detected. The aim of this all is to provide occupants with quality housing conditions.

Housing is the largest single cause of carbon dioxide emissions in Finland. Approximately 30,000 people live in Espoon Asunnot homes, which is more than 10% of the inhabitants of Espoo and more than 0.5% of Finns. Due to old-fashioned heating control systems, heating energy is wasted; this not only heats the building but also contributes to global warming. Utilising Espoo-based energy company Fortum's smart heating control and flexible consumption helps reduce energy consumption, costs and the carbon footprint.

BUILDINGS AS MOMENTARY HEAT STORES

SmartLiving, a smart heating control system installed in buildings with flexible consumption of heat energy, is linked to the optimisation of district heating production. In addition, the information provided by the system enables even better planning and allocation of building maintenance activities. Artificial intelligence continuously collects information and learns about the consumer behaviour



of the occupants, which determines the exact heat demand for each moment. Buildings can be used as temporary heat stores by optimising district heat production and by allocating heat proactively, so that when heat demand increases, heating capacity does not immediately need to be put full on. Shifting consumption to times of lower demand and price, i.e. flexible consumption, is an excellent way of offsetting consumption peaks.

The SmartLiving service project was the largest in the Nordic countries and piloted starting from 2015. Espoon Asunnot has been involved in the development of the service and introduced it in almost all of its homes since the end of 2018. Since the introduction of the system, the number of fault reports related to the temperatures in the homes has decreased, and heat consumption has also decreased by about 7.5%. It has been possible to cut the peak power of district heat consumption by an average of 17%, and there have also been related savings in the standing charge dependent on it.



KEY FACTS

WHAT HAS WORKED WELL

- Heat consumption in buildings has decreased by about 7.5% since the introduction of the SmartLiving service.
- Artificial intelligence learns from the consumption behaviour of occupants and collects information to optimise the use of energy in homes and buildings as needed.
- In addition, the information on conditions provided by the system enables even better planning and allocation of building maintenance activities.

WHAT HAVE WE LEARNED?

- Inadequate equipment labelling and instructions for installed equipment have resulted in unnecessary maintenance visits.
- The training of maintenance, hosting and experts should be focused on making the most of the system.
- There is room for improvement in alarm data management to allow for a faster response to future failures.

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ESPOO IMPLEMENTING AN INTERNATIONAL CLIMATE PROGRAMME

Espo is improving energy efficiency and phasing out fossil energy as part of the energy conservation programme for the municipal sector and the Finnish State. The measures will support the achievement of the city's carbon neutrality objective in an economically efficient way.

The Energy Efficiency Agreement for Municipal Sector (KETS) is an agreement for public entities, companies and energy producers to ensure the implementation of Finland's climate targets. The current agreement has been concluded for 2017-2025 between the City of Espoo and the Ministry of Economic Affairs and Employment. The agreement sets a target of at least 4% energy conservation for 2020 and a final target of 7.5% conservation. According to the targets, the total conservation target for Espoo by 2025 is approximately 19,600 MWh.

Measures are targeted at residents, staff and investments. Residents and city staff are activated through communications

to act responsibly and ecologically. Four cost-effective measures targeted at the entire property portfolio have been selected as energy conservation investments. These include the transition to LED lamp technology for outdoor and indoor lighting, emission-free district heating, target-oriented consumption management using remote monitoring technologies and more efficient use of space by abandoning empty spaces. Other actions include increasing the proportion of eco-labelled electricity, training of job-specific eco-supporters, recycling of building materials, promoting zero-energy and wood construction as well as targeted measures to reduce commuting, business kilometres and food loss.

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The city's energy-efficiency measures will reduce the energy consumption of electricity and district heat by 14% between 2016 and 2030.

KEY FACTS

WHAT IS GOOD

- The project plays an important role in achieving climate targets and balancing the municipal economy.
- The measures include concrete investments as well as advice and communications to residents and staff.

WHAT SHOULD BE DEVELOPED

- The development of cross-sectoral cooperation
- Changing everyone's outlook on energy and climate matters

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The objective of the energy conservation programme is to contribute both to the achievement of climate targets and to the rebalancing of the municipal economy.



MULTI-OBJECTIVE OPTIMISATION – CONSTRUCTING CARBON NEUTRALITY

The City of Espoo's construction projects make a significant contribution to achieving the carbon neutrality objective by optimising the life-cycle energy use, carbon footprint and costs of buildings. The result is savings in investment costs and life-cycle emissions.

In 2018, Espoo's Premises Department began to look for ways to optimise investments and design solutions in terms of emissions reductions and investment costs. A construction project will always have to be designed in terms of technical solutions for the building. The selected solutions for construction and building technology systems have a major impact on the life-cycle carbon footprint of the construction project. In general, a structure or system of higher technical quality is more costly in terms of investment costs, but less costly in terms of life-cycle costs.

OPTIMISATION SAVING MONEY AND THE ENVIRONMENT

The implementation of the method has challenged the conventional

way of working in the design process and has received a positive reception. Technical and Environment Services in City of Espoo has tested multi-objective optimisation in four construction projects. The results were very positive. In a swimming hall project, the saving in investment costs compared to the basic solution was about EUR 1 million, and the reduction of -364 tonnes of CO₂ emissions was also achieved. In a school centre project cost savings were EUR 1.3 million compared to the basic solution, and the carbon footprint could be reduced by a total of -292 tons of CO₂ emissions. The method will be used for all major sites in the future.

The most significant share of the costs and emissions during the entire life cycle of the construction project is generated during the

use of the building. For example, the carbon footprint is mainly made up of energy consumption during use. Only about a quarter of the carbon footprint of the life cycle is generated during construction. The variety of technical solutions for construction projects, especially in building technology, and the growing need to produce renewable energy in buildings have increased the number of options. It is almost impossible to define the most optimal overall design solution from thousands of combinations without the help of software.

LIFE-CYCLE BENEFITS AND ADDED CREDIBILITY

In multi-objective optimisation, an accurate 3D indoor climate and energy simulation model is created for the building. The results of the calculation are based on dynamic simulation, which produces hourly data on the conditions in the building over the whole calendar year. The most significant benefit arises when the calculation enables the selection of the most efficient combination of life-cycle energy use and carbon footprint, taking into account the investment and life-cycle costs. The combination of construction and system solutions from individual components and solutions will best support the overall goal in an optimal way. The overall solution chosen can be justified in a transparent and clear manner. The client's credibility increases when planning is based on clear and verifiable calculation through multi-objective optimisation.



The share of carbon footprint during construction is about a quarter of the carbon footprint of the entire building's life cycle, which is mainly energy consumption.



The client's credibility increases when planning is based on clear and verifiable calculation through multi-objective optimisation.

KEY FACTS

WHAT IS GOOD

- The calculation enables the selection of the most efficient combination of life-cycle energy use and carbon footprint, taking into account the investment and life-cycle costs.
- There is a clear need and place for multi-objective optimisation.
- Planning is based on clear and justified calculations through multi-objective optimisation.

WHAT SHOULD BE DEVELOPED

- Establishing it for all major projects
- Adaptation to the project process of construction projects requires development, particularly as regards the working methods and the impact of the timetables of the parties.
- Advice and guidance for new partners

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DEVELOPING WOOD CONSTRUCTION AS PART OF ESPOO'S CLIMATE TARGETS

Wood construction contributes to bioeconomy and effectively reduces the carbon footprint of the construction process. Wood construction has been identified in Espoo as one way of promoting environmentally conscious construction. It is an effective means of reducing the carbon footprint of the City of Espoo and achieving the goal of being a carbon-neutral city by 2025.



Nearly 110 million cubic meter of stem wood grow annually in Finnish forests. In recent years, around 60-65% of this amount has been utilized. The use of wood can be increased by 10-20%, for example as a source of bioenergy and in construction, wood products and various bioproducts.

When assessing wood construction, the entire life cycle of wood must be taken into account, from the manufacture of material to construction, use and recycling. The carbon bound in wood is maintained in the structures and furniture of buildings for a long time, thus contributing to the environmental impact of the whole construction sector. The biggest growth potential of wood construction in Espoo is in larger construction, such as residential buildings, school and daycare buildings, sports facilities, bridges, yard and environmental construction, as well as energy renovation of façades of residential buildings, building additional storeys to existing buildings and infill development.

In December 2017, the mayors of the six largest cities in Finland took the initiative to strengthen the growth of cities through wood construction. The aim is also to develop incentives for low-carbon construction. Espoo has a program for the promotion of wood construction for the period 2014-2020, which has been followed in the implementation of the construction projects under the city's investment plan.

How, then, is the promotion of wood construction in practice visible in urban construction projects? All the modular portable / demountable school and daycare center buildings built by the city have wooden frame and facade. Modularity and industrial prefabrication of space elements allowed a short construction time - for example a 3000 sqm school was in use in approx. 6 months from the start of the building works on the site.

Duplicability and increased industrial production are therefore important objectives in the development programs for wood construction.

Wood construction plays an important role in the building stock carried out by the city. The successes of wood construction in Espoo in recent years have included schools and day-care centres in particular. Around 1,000 pupils in three different schools and hundreds of children in six different day-care centres are comfortable in their wood-based learning facilities. The use of wood in the city's construction is also promoted by the use of wood in additional structures, such as roof structures, facades and building interiors.

The use of wood must always take into account the appropriateness of the wood. In general, the life-cycle maintenance needs for wood construction are higher than for many competing building materials.

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In construction, the focus is on housing construction, as about 65% of the Finnish building stock is residential buildings.

In addition, project management and supervision of construction work play an important role in wood construction, because wood is more sensitive to damage due moisture than many other materials. In general, this means that a wooden building must be built protected from the weather.

It is more demanding to implement large-scale projects fully with wood than other materials, and large-scale construction projects involve special technical solutions. In this way, wood construction is often more expensive in large buildings than the construction of a similar building made of, for example, concrete products.

KEY FACTS

WHAT IS GOOD

- The use of wood in construction projects supports the goal of carbon neutrality.
- There is national support for wood construction and a wide range of stakeholders from which information is available on the promotion of wood construction.
- Sites combining wood structures with industrial production can be completed more quickly than traditional construction projects.

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The use of wood in construction projects effectively reduces the carbon footprint of the construction process.

WHAT SHOULD BE DEVELOPED

- Carrying out large projects with a completely wooden structure is technically challenging and expensive.
- The importance of site supervision in the construction project is emphasised if the frame structures are made of wood.
- Particular attention should be paid to the maintenance and care of wooden structures.

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TODAY'S SHOPPING CENTRE MAY BE A FUTURE SCHOOL

Construction steering work in Finnish cities is enforced by law and is based on regulations. The focus of construction steering in Espoo is on sustainable construction in the long term. Details are inspected and steered depending on the goal, with consideration for regulations. The key steering targets related to the goal include: safe and healthy buildings, possibilities for their adaptation, maintenance and upkeep, the functionality of the building and yard areas and a good cityscape.



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From the perspective of sustainable development, it is important to focus on sustainable construction in the long term.

MODERNISATION ENHANCES SUSTAINABILITY

A key steering target of renovation and changing the purpose of use is reducing the carbon footprints of buildings. Steering methods include the use of local energy production and general improvements in energy efficiency. Skills and expertise related to renovation and energy matters are improved through training, distribution of work and specialisation.

Construction supervision units actively help to develop the sector and create joint practises in close cooperation with planners, the construction industry and the rest of the sector and works with construction supervision units of the largest cities and the Ministry of the Environment. The goal is to promote creation of a functional, safe, healthy and comfortable living environments and monitor construction based on public interest.

According to the strategy, the goal is to achieve a flexible and interactive work culture where cooperative skills, expertise and ability to reform are valued.

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DIGITAL TWIN OF A REAL CITY IN 3D

A 3D city model supports the sustainable management of the economic and socio-cultural development of Espoo. The city model allows data to be stored and shared. In 2019, Espoo was the first European city to launch a constantly updated 3D city model as an open interface service.

In Espoo, challenges are posed by the rapid growth of the city, which must be managed and controlled by various means. New housing and access routes must be planned for the growing population, while maintaining the natural assets and comfortable urban environment in Espoo. The city model representing the current situation serves as a basis on which new plans can be presented. It also makes the model ideal as a tool for interaction with residents.

Espoo's up-to-date city model covers all the main elements of the urban structure from land use to infrastructure, including the existing building stock of the city and the streets, parks and water systems. It can also be used to provide information on, for example, town planning, building control and landed property.

The maintenance of the model is based on processes in the technical sector that enable the information produced and needed by decision-making, planning and construction to be compiled. The geometric and visual maintenance of the city information model uses traditional geographic data management methods combined with information acquired using new technology. The city model is distributed in accordance with the CityGML 2.0 3D city model standard.

THE MODEL BRINGS DATA TOGETHER

A city model that is maintained in the normal operation of a city and accessible to everyone saves resources on more important issues when you do not need to spend time gathering or compiling information. The information is reliable and can be used to plan new things and to see sensible targets for the development of the city. The city model can be used in future, for example, for planning the use of solar energy. It is essential that Espoo's 3D city model is kept up to date as the city develops.

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AN OPEN INTERFACE ENABLES NEW INNOVATIONS

The city information model is produced for the needs of urban development, city planning and visualisation. It serves as a baseline data model, providing a reliable basis for planning. The model is distributed through an open interface, so it is also available to actors outside the city organisation. This saves planning agencies time during the initial data editing phase, reduces the implementation time of development projects and saves the city budget. At the same time, the model facilitates new innovations and solutions and provides a platform for testing them.



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Espoo was the first European city to launch a constantly updated 3D city model as an open interface service.



INFORMATION CREATES THE BASIS FOR A SUSTAINABLE CITY



The city and the needs of Espoo residents will constantly change over the coming decades. When planning land use and traffic in Espoo, background information and understanding of these changes are needed. How do five city centres connect in a functional network that is easy to move around in? Where is it most sensible to build housing and jobs? Which forms of public transport best serve different areas?

These issues are being explored in a project focusing on land-use potential and public transport corridors (MaaLi). The aim is to improve public transport within Espoo in particular. The project examines possibilities for infill development in order to reduce the need for passenger cars and increase the share of public transport, walking and cycling. The project has developed new methods and approaches for research in the field.

The results of the project are applied in master planning and detailed planning as well as in transport planning. The results can be used to draw conclusions on the most effective land use and

transport solutions, both locally and at the city level. Espoo's land use and traffic are also connected to the Helsinki Metropolitan Area. In addition, the material can be used in cooperation with land use, housing and transport in the Helsinki region, which covers 14 municipalities. City planning aims to promote urban development that is economically, ecologically, socially and culturally sustainable. The MaaLi project provides a good knowledge base for this.

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LAND USE POTENTIAL AND PUBLIC TRANSPORT CORRIDORS PROVIDES THE BASIS FOR FUTURE URBAN DEVELOPMENT

The land use potential and public transport corridors project is long-term background work to local planning, with an impact far into the future. The aim is to identify the potential for future land use development in areas adjacent to strong public transport corridors.

Based on the results obtained, it is possible to conclude whether the passenger potential along public transport routes is currently at trunk bus route or light rail level, and whether it is possible to increase the number of passengers along the routes so that the passenger potential in the future justifies the deployment of a light-rail route. The data helps identify areas where land use changes should be targeted in particular. The project produces master-plan level material in the form of areas with floor-square metres and population estimates.

A NETWORK-LIKE URBAN STRUCTURE CONNECTED WITH RAIL TRANSPORT

The land use potential and public transport corridors project provides the basis for a network-like and rail-based urban structure. Espoo's growth and development corridors are based on effective rail links that strengthen sustainable growth, equality, well-being and achieve economies of scale. The project promotes a compact urban structure along the rail network, evaluates the potential for infill development in areas of low density housing, and enables Espoo to grow, particularly along the West Metro, Metro extension, Jokeri Light Rail and the City Railway corridors. At the same time, it promotes the siting of businesses and jobs in the growth and development corridors of the West Metro and the City Railway, and draws up plans

for the development of the city with consideration to potential light rail routes.

The material generated in the project can be used to support decision-making, for example in commensurate evaluation of the city's growth trends and the routing options for city-level future public transport corridors, and in supporting coordination of land use and traffic planning.

During the project, new methods and approaches to study land use potential and public transport corridors have been developed. The first phases of the project have been implemented in cooperation with the master planning unit and the traffic planning unit, and the work continues. The aim is to improve public transport within Espoo in particular. The project explores opportunities for infill development in order to reduce the need for passenger car traffic and increase the share of public transport, walking and cycling.

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Land use planning is long term work for sustainable development.



WITH LANDMASS MANAGEMENT TOWARDS A CARBON NEUTRAL SOCIETY

Traditionally, construction projects have not paid too much attention on landmass management. However, this would be particularly necessary since landmass accounts for some 75 per cent of the amount of waste in the Metropolitan Area. In the past decades, poor landmass management has led to ineffective soil logistics, creating significant environmental hazards. The most prominent of these have been the considerable greenhouse gas emissions from digging and transports, the noise disturbance and emissions degrading air quality from lorry traffic, and the unnecessary expansion of landfills. An action plan for landmass management carried out in the 2010s demonstrated that significant savings are possible even in the short term. In three years, the action plan achieved savings of 32 million euros and reductions of 4.5 million litres of fuel and more than 11,300 tonnes of carbon dioxide emissions at the city level of one researched city. The results of the programme acted as a stimulus in Espoo, where an action plan for soil and rock management and the use of recovered materials in groundworks was prepared for 2019–2021.

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In Finland, a truckload of soil is used annually for each resident just for public sector construction.

USING DATA AND REGIONAL COLLABORATION TO REDUCE EMISSIONS

Helsinki Region Environmental Services Authority (HSY) launched the 'SeutuMaisa' -pilot project in 2017 aiming at creating a tool for regional landmass management. SeutuMaisa aims to mitigate the carbon emissions in the Helsinki Metropolitan Area through better landmass management.

In the project, HSY and the large cities in the metropolitan area (Espoo, Helsinki and Vantaa) have collaborated to design and develop a regional data base and a data system for landmass management based on geographic information, which has now been used with test materials. With SeutuMaisa, users will be able to find landmasses in the metropolitan area and exchange information with others who manage landmasses. In the ongoing pilot phase, the tool is directed at the needs of HSY and the cities, but it will be possible to expand the user base in the future.

A key objective of the SeutuMaisa project is openness, which is an objective set by HSY for all its operations at the organisational level. Thanks to this policy, it has been decided in the project to use an open source code platform (the Oskari platform) for the technical solution of the map service. Openness is also aimed at in terms of the landmass data.

HSY coordinates the project, which implements several objectives of the UN's 2030 Agenda for Sustainable Development through enhanced logistics of landmass management. The most active city partner in the development of SeutuMaisa has been Espoo, which uses the project to look for answers to the challenges posed by the Agenda for Sustainable Development.

The pilot phase of the SeutuMaisa will finish by the end of 2020. After that, the objective will be to open the finished tool for landmass management as soon as possible.

KEY FACTS

1. In the SeutuMaisa project, HSY and the large cities in the metropolitan area (Espoo, Helsinki and Vantaa) have collaborated to develop a regional data base and a data system for landmass management based on geographic information.
2. With SeutuMaisa, users will be able to find landmasses in the metropolitan area and exchange information with others who manage landmasses.
3. It has been decided in the project to use an open source code platform (the Oskari platform) for the technical solution of the map service. Openness is also aimed at in terms of the landmass data.
4. Landmass accounts for some 75 per cent of the amount of waste in the Helsinki region.
5. Inefficient landmass management has caused significant environmental hazards, the most prominent of which have been the considerable greenhouse gas emissions, the noise disturbance from lorry traffic and the unnecessary expansion of landfills.

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ESPOO INVOLVED IN BALTIC SEA PROTECTION

The most serious factor that undermines the state of the Baltic Sea is the excessive nutrient load and the resulting eutrophication. Espoo is part of the Baltic Sea Challenge, where a large network of Baltic Sea Region actors is committed to implementing concrete water protection measures to improve the state of the Baltic Sea. Espoo has been involved in the Baltic Sea Challenge since 2007.

In addition to nutrient loads, litter and different chemicals cause damage to the marine environment. Underwater noise is also a growing problem throughout the Gulf of Finland due to new construction and increasing ship traffic. In addition, climate change is expected to further increase the burden on the Baltic Sea in the future.

Good results have already been achieved during the first two operating periods of the Baltic Sea Challenge, but improving the state of the Baltic Sea will require further measures. The objective of Espoo water protection is to achieve at least good ecological status in water systems. In the Action Plan for the third period of the Baltic Sea Challenge (2019–2023), Espoo's measures focus in particular on reducing nutrient loads, pollutant emissions and litter in its marine areas. Espoo also commits to increasing Baltic Sea awareness and activity within the city.

There are many beautiful sites in Espoo's marine areas, which have an important recreational value for the urban population, but also important areas for aquatic birds, some of which are sites of national value in the Natura network. In future, the importance of the local nature for recreation and biodiversity will be further strengthened in line with the Espoo Story.

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WATER PROTECTION PROGRAMME PROMOTING WATER ISSUES

Nearly half - over 200km² - of Espoo's surface area is water. Espoo has more than 100 lakes and ponds, several rivers and streams and 58 km of coastline on the Baltic Sea. Natural waters provide a habitat for a wide range of species, as well as drinking water for animals, irrigation water and various recreational opportunities.



Espoo residents place a high value on natural waters. According to a survey carried out in 2014, Espoo residents would invest most of the money reserved for environmental protection in improving the status of waters, green areas and biodiversity.

In 2015, Espoo was one of the first municipalities to draw up a water protection programme. The programme runs until 2021 and aims at achieving at least a good ecological status of waters under the EU Water Directive. The majority of lakes in Espoo are in good condition, and some are even excellent, and some are in a moderate or poor condition.

EUTROPHICATION THE GREATEST THREAT

Eutrophication decreases the quality of Espoo's watercourses, due to increased nutrient loading from agriculture, point sources and municipal discharge. Eutrophic lakes are for instance more prone to mass occurrences of cyanobacterium. In addition high loading of nutrients and organic matter, rivers and streams are affected by water abstraction, straightening for drainage and pipe-laying. Construction of dams and pipes also create migration barriers for fish. The shallow bays of the Baltic Sea are more affected by eutrophication oppose to open sea. In shallow bays, waves cause vertical mixing that release nutrients from the sediments. Dredging and dumping contribute to the nutrient load locally.

The water protection programme features measures that have been planned to improve the ecological and chemical status of watercourses, and the programme is used to monitor the impact thereof. The premise of the programme is that by improving the ecological and chemical state of our water courses, it also has positive impacts on people's health, well-being and even property values. Espoo, the changing environment creates risks to waters, the main threats being the increase in harmful substances and nutrient loads, and the reduction in the quality and quantity of the living areas of organisms. A great deal of work should be done to preserve and restore the diversity of the aquatic environment, because humans are shaping the environment at an ever-increasing speed.

PEOPLE MAKING A DIFFERENCE

The less there is human impact, the better the ecological status of waters is. In Espoo, the poorest lakes are being restored by oxidation and by the removal of Cyprinidae. In addition, the city advises associations on restoration work. City residents can pool their strength and start to restore their home lake by, for example, arranging voluntary communal work.

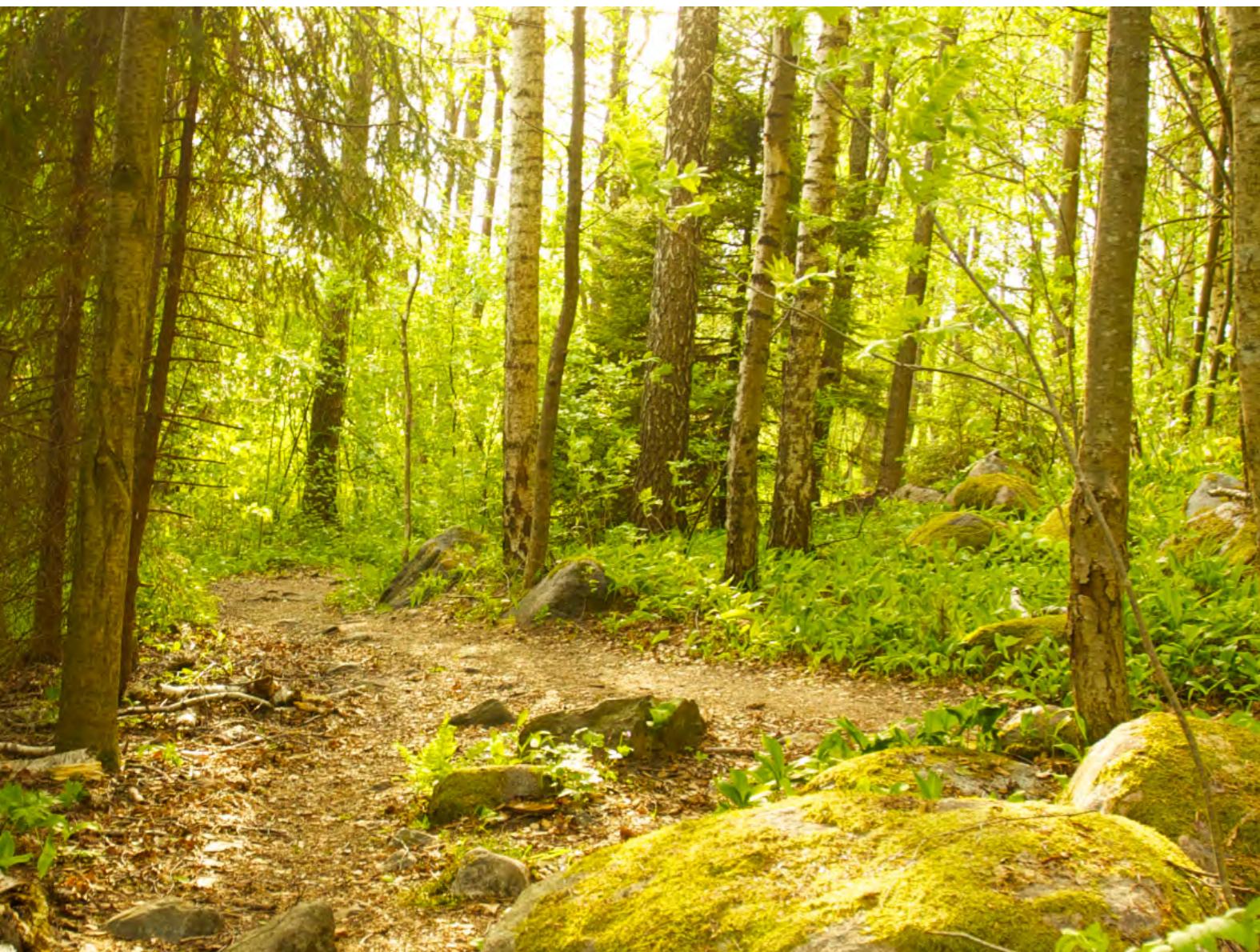
More information: saara.olsen@espoo.fi



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The majority of the lakes found in Espoo are in a good condition, and some are even excellent.

GOAL-ORIENTED PLANNING OF NATURE MANAGEMENT IN ESPOO

The City of Espoo plans and implements goal-oriented forest and grassland management throughout Espoo. The green areas managed cover about 5,500 hectares. The majority of the area managed consists of forests used for recreational purposes and outdoor exercise and the local forests of urban settlements.



The five objectives of the Espoo forest and grassland management model, introduced in 2017, are:

- 1 to maintain and develop the diverse ecosystem services produced by forests,
- 2 to protect biodiversity in forests,
- 3 to strengthen the resilience of forests to changes in growth conditions,
- 4 to manage valuable landscapes by strengthening their characteristics, and
- 5 to enable residents and stakeholders to influence the processes of forest and grassland management.

KEY FACTS

WHAT IS GOOD

- More information on the state of the urban nature is constantly being collected, and the existing information is being exploited in a complex manner. The information is widely available to the various actors in the city.
- The introduction and exploitation of new nature management methods is possible with the latest nature data. The forests of the city are managed by continuous growing methods aimed at keeping urban forests in a continuously wooded and in good general condition as well as preserving diversity.
- Everyone has an opportunity to influence things: Feedback from residents and stakeholders is listened to continuously as part of the planning work.

Information and the promotion of material are developed as part of the interactive planning work. New methods and planning tools for nature management are developed, tested and implemented. The sharing and exploitation of information that is collected and existing in the design work is constantly evolving.

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Everyone has an opportunity to influence things: Feedback from residents and stakeholders is listened to continuously as part of the planning process.



ESPOO AND THE PROTECTION OF DIVERSE NATURE

In Espoo, nature is always near. Thanks to good nature conservation and urban planning, local nature and multipurpose green areas offer recreation to people and a living environment for various species.

Espoo has made long-term efforts to preserve the diversity of nature. The best example of this is the city's extensive spectrum of nature reserves spanning thousands of hectares and forming the core of our green network. Other green spaces and water areas of our city complement the network and are an essential part of the whole. New valuable natural sites are continuously found as knowledge of nature increases and is updated, for example, through annual nature surveys.

Nature is also an essential part of the Espoo Story. According to it, Espoo must ensure the preservation of nature values and the diversity of nature as the city grows. The Espoo Story has the objective that the nature benefits and recreational opportunities of the local environment will increase, the local environment of Espoo residents will be attractive and nature values and natural diversity will remain intact.

ESPOO CELEBRATING THE BIODIVERSITY YEAR IN 2020

The NATURE project 2019–2021 of the City of Espoo is divided into two parts that are carried out in parallel: The objective of the survey of the current state of the green network is to identify the framework and connections of Espoo's green network, its central core areas and their connectivity. The network survey will be turned into a practical tool to support decision-making, land use planning, nature management and nature conservation. The resulting green network covering the entire city will be reviewed from the point of view of nature reserves, for example. This enables the identification of areas outside the nature reserves that have significant nature value and the preservation of the value of these areas.

DIVERSITY AS A KEY OBJECTIVE

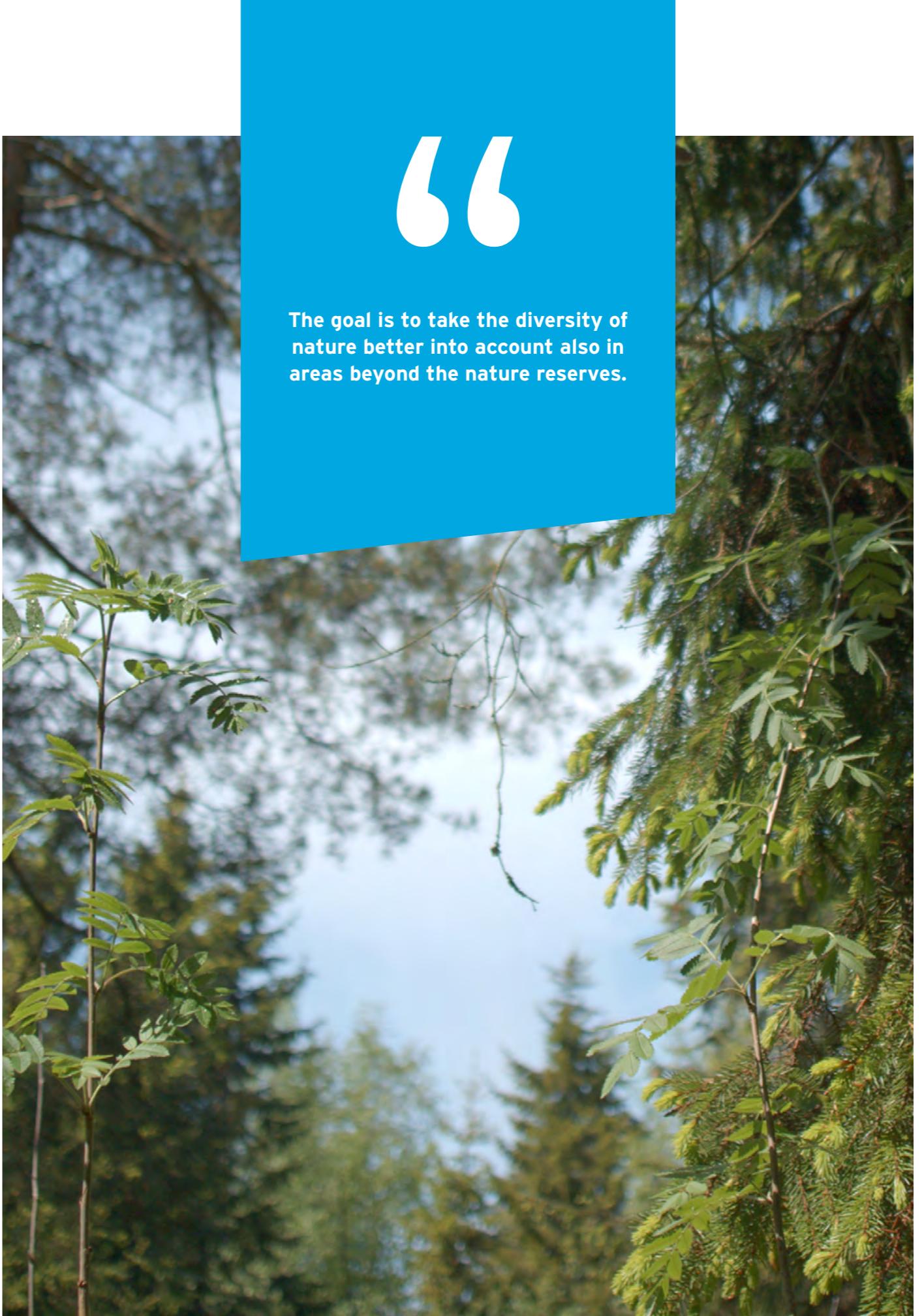
An action plan will be prepared, presenting how the network of nature reserves can be supplemented regionally and qualitatively. In this context, regional supplementation refers to the establishment of new nature reserves. Qualitative supplementation refers to land use policy instruments that can be used to improve the connectivity of nature reserves, for example. However, the establishment of nature reserves alone is not sufficient to preserve nature and its diversity. For this reason, the project group also includes experts from urban planning, nature management and green space planning. The

project looks for solutions to support the existing nature reserves by taking the diversity of nature better into account in areas beyond the nature reserves as part of land use planning and environmental management. As part of the action plan, a natural diversity policy for the city will be prepared, describing the nature conservation methods in different units of the city, particularly in Urban Planning and Public Works. The aim is to retain Espoo's rich and diverse nature for the future.

COMMITTING RESIDENTS IS ESSENTIAL

The theme of the biodiversity year in 2020 is "Enchanted by Urban Nature". It is important that the residents of Espoo are aware of nature in their city, the way it is protected and managed and their own opportunities to influence the state of the environment and biodiversity. The theme year focuses on the diversity of urban nature and the ways to conserve and improve it. Besides raising awareness of nature and its state in Espoo, the aim is to generate basic information and thereby acceptance for certain measures increasing the diversity of nature, such as leaving road shoulders unmanaged or increasing decayed wood in forests.

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The goal is to take the diversity of nature better into account also in areas beyond the nature reserves.

FLYING SQUIRRELS AS PART OF THE URBAN ENVIRONMENT

Espoo's strengths include its local nature, recreational areas, lakes, the Waterfront Walkway and the proximity to the sea. These are things that Espoo residents tend to value. Espoo is involved in the Flying Squirrel LIFE project, funded by the European Union, which will last until 2025.



Espoo's aim in the project is to share and develop its competence in the coordination of flying squirrels with land use, increase information on the habitats of the flying squirrel in Southern Espoo, cooperate with project partners and raise awareness of the protection of flying squirrels not only among residents but also within the city organisation. For Espoo's part of the project, EU-Life funding of approximately one million euros has been received. The overall budget is approximately €9 million.

THREE SUBPROJECTS STEER THE DEVELOPMENT

Together with two other Finnish project cities a guidebook will be prepared on good practices discussing the coordination of flying squirrel protection with land use based on the cities' own experiences and operations models. The guidebook takes the perspective of the special characteristics of the urban environment, especially urban planning, and competence is conveyed, for example, through CASE examples. The guidebook will be completed at the end of 2020.

More information on the habitats of flying squirrels in Southern Espoo will be collected. The effects of the city structure on the habitats of the flying squirrel are investigated through radio tracking of flying squirrels performed in the area. In the tracking, movement paths and habitats of the species are investigated by fitting flying squirrels with radio collars. The results of the investigation are utilised in the coordination of land use planning and flying squirrel protection in order to maintain a favourable protection level despite the increasing construction in the surrounding area. In addition, the effects of town planning practices on the habitats of flying squirrels are investigated through three-year tracking of flying squirrels at five different town plan sites.

The third major subproject for which Espoo received funding is the maintenance of the habitat network of the flying squirrel. We will plant large saplings in places where the moving paths of flying squirrels have deteriorated. Forest management plan will be prepared for a site where the growing pressure for recreational use and the habitat of the flying squirrel must be coordinated.

nosto: The aim is to enable favourable protection level despite the increasing construction in the surrounding area

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The project has received funding from the LIFE Programme of the European Union. The material reflects the views by the authors and the European Comission or the EASME is not responsible for any use that may be made of the information it contains. LIFE17NAT



CITY OF ESPOO PROMOTING HEALTH BENEFITS OF NATURE THROUGH HEALTH&GREENSPACE PROJECT

Urbanisation and urban consolidation are megatrends affecting many cities in Europe. At the same time, the proportion of elderly people in urban areas is growing and the sense of community is challenged.



Although cities have become healthier and safer places to live in, loneliness and depression are now a common theme among urban citizens. The Health&Greenspace project brings together nine European cities and implements ways to increase the health benefits of urban vegetation, greenery and recreational areas. Vegetation can, for example, mitigate the health effects of urban environments such as traffic noise and street dust.

The project gathers information, exchanges experiences and plans actions in five different themes:

- stress caused by heat,
- air quality and noise,
- the impact of green areas on mental and physical health,
- green areas as part of the lifestyle, social interaction and physical activity of urban citizens.

The Health&Greenspace project receives funding from the EU's URBACT programme and will continue until 2021. URBACT brings together networks of urban experts to share expertise, experience and best practices in urban development.

In the Health&Greenspace project, Espoo's good experiences in the management and use of green areas will be shared with the other cities, and new ideas are gathered from the partner cities. During the project, the City of Espoo will draw up a Local Integrated Action Plan to increase the health benefits of the green environment. The plan will be developed in a broad partnership with the Urbact Local Group. In addition, the cooperation group is an important route for data collection and the implementation of measures.

KEY FACTS

The city of Budapest from Hungary coordinates the project and in addition to Espoo the following cities participate: Breda (Netherlands), Limerick (Ireland), Messina (Italy), Poznan (Poland), Santa Pola (Spain), Suceava (Romania) and Tartu (Estonia).

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TOURISM GUIDED BY SUSTAINABLE DEVELOPMENT



The role of tourism as a part of the world economy is growing. Climate change affects where the streams of tourists will be directed in the future. We consume natural resources much faster than they can be replenished. Sustainable tourism takes into account the present and future economic, sociocultural and ecological effects of tourism.



Visit Espoo is part of the city marketing company Espoo Marketing owned by the city, and its task is to promote and develop tourism and meeting and conference activities in Espoo. For tourism to be able to respond to the changed demand and continue growing, development must be sustainable. Visit Espoo supports the achievement of the objectives of sustainable tourism by forming its own roadmap of sustainable tourism for 2020-2030 to guide Visit Espoo towards creating a more sustainable travel region. The objective of the City of Espoo is to be carbon neutral in 2030 and the most sustainable city in Europe on a permanent basis. Through development of a sustainable tourism destination can tourism support the objectives of the city.

Cooperation is at the core of the roadmap. The roadmap is prepared and implemented in cooperation with the tourist industry of the area and other stakeholders with the aim of finding shared objectives and actions to make Finland the leading country of sustainable tourism and Espoo the most sustainable city in Europe.

THE SEA BELONGS TO EVERYONE - ACCESSIBILITY AND SHARING ECONOMY AT THE CORE

Nature and the sea are always present in Espoo, and they are important to both residents and tourists. Enjoying the sea is not a privilege for a few but something that belongs to everyone. Besides local nature, Espoo features 58 km of seaside, the approximately 40 km long Waterfront Walkway, 165 islands, the Central Park and the Nuuksio wilderness in Northern Espoo where suburbs meet Nuuksio's nature values and dozens of lakes.

The development of the Waterfront Walkway is a good example of the promotion of sustainable tourism, carried out in cooperation with local businesses while taking into account the needs of residents. The Waterfront Walkway runs close to the shore in a very diverse landscape, ranging from a protected Natura area to an urban business hub. Significant to Espoo residents, the Waterfront Walkway offers opportunities for enjoying the sea, relaxing in local nature and recreation. The Waterfront Walkway is a little over 40 kilometres long. In addition to diverse nature and marine landscapes, there are beaches, cafés, restaurants and marinas along the walkway.

BOAT RIDES WITH THE PRINCIPLES OF THE SHARING ECONOMY

Espoo's Waterfront Walkway is easy to reach by public transport, for example the metro and city bikes. The Waterfront Walkway is a

“Enjoying the sea is not a privilege for a few but something that belongs to everyone.

gate to Espoo's beautiful archipelago, which can be enjoyed without a boat of one's own. In the summer, archipelago boats take people to Espoo's outdoor recreation islands complete with piers, cooking areas, toilets and campfire sites with wood for everyone to use. Espoo wants to develop the archipelago transport services further in accordance with the theme "The sea belongs to everyone". The new transport solutions emphasise the sharing economy. With rentable city boats, boating is possible for more and more people, and through new digital services, it is possible to share boat rides and enhance the use of the existing infrastructure, including berths. The City of Espoo has engaged in long-term development work to enable the Waterfront Walkway and marine recreation for everyone.

Sustainable tourism and recreation is made possible through cooperation between the city, businesses and residents. The development of tourism is part of the Espoo Story and supports the city's carbon neutrality objective.

The Waterfront Walkway offers 40 kilometres of diverse open space for marine recreation (equality) and local services. Transport in the area is based on accessibility and the sharing economy: city bikes, city boats, archipelago boats, the metro, buses.

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For Finland, tourism is a service field with great potential and a growing field of export. In 2017, more than 17% of the export income of services was from tourism exports, the overall demand of tourism was approximately €15 billion and its direct share of the GNP was 2.7%. Finland's objective is to be the most sustainably growing tourism destination in the Nordic countries. Tourism is developed as a responsible and growing field of service business that generates well-being and employment throughout the year in all of Finland. Tourism employs more than 140,000 people in Finland. In addition, tourism has significant effects on regional economies.



SDGs IN ESPOO

This section presents key indicators of the city in relation to each SDG

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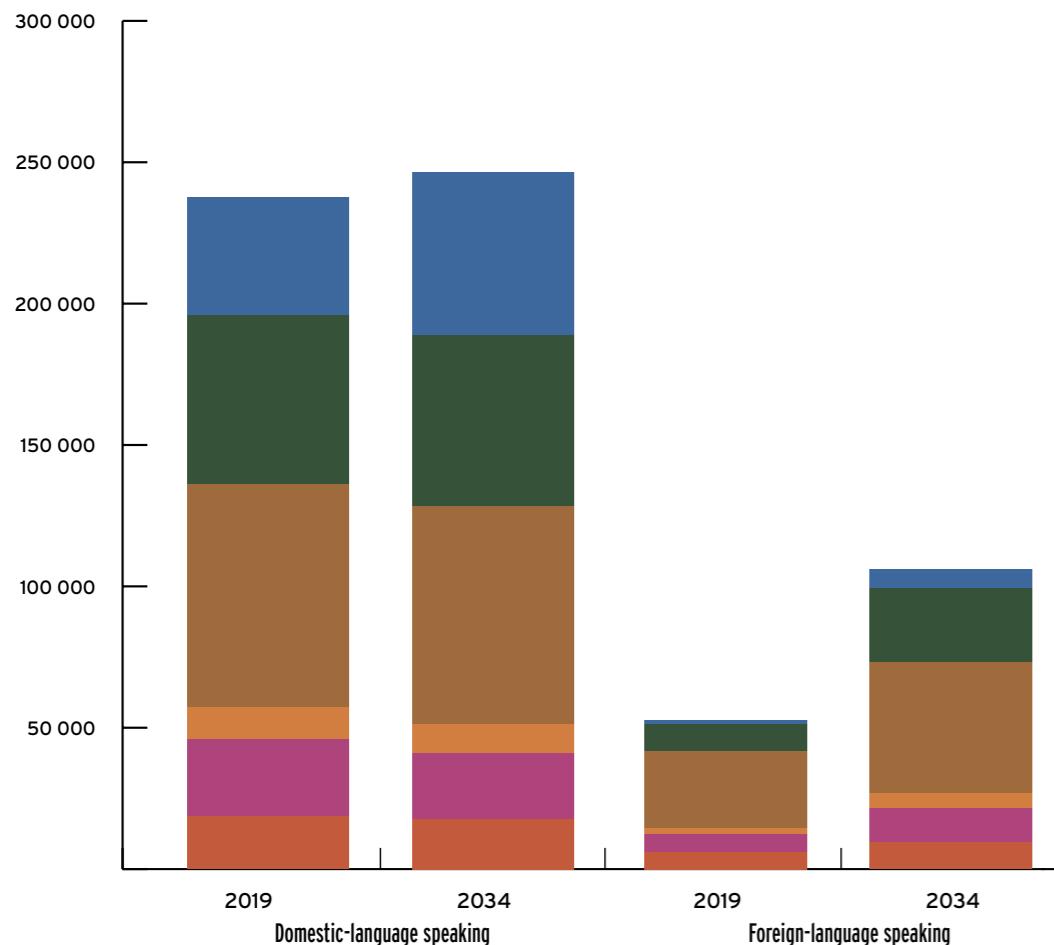
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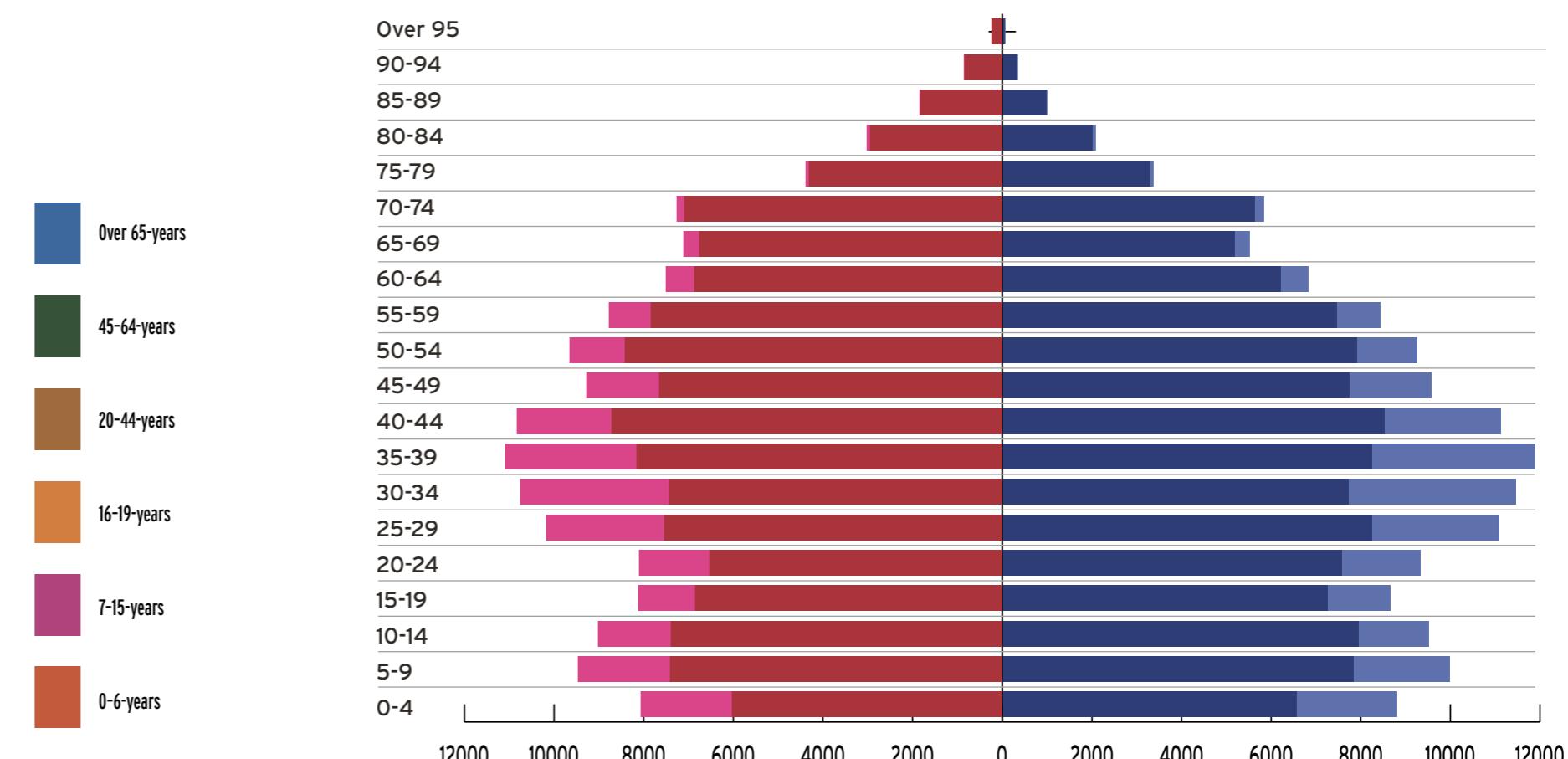
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POPULATION IN ESPOO ACCORDING TO LANGUAGE AND AGE (31.12.2019 AND 2034)



AGE STRUCTURE AND SEX OF THE WHOLE POPULATION AND THOSE WITH A FOREIGN MOTHER TONGUE IN ESPOO ON 31 DECEMBER 2019



Source: Statistics Finland

- Foreign-language speaking population (i.e. persons whose native language is some other than Finnish, Swedish or Sami) was 52 196 (18,0%) in the beginning of 2020
- Population growth was 6 099 inhabitants (2,2%) in 2019.
- Population in Espoo has doubled since 1981. During past five years the average population growth has been 4 800 inhabitants/year.
- 67% of the population growth was foreign-language speaking.
- Foreign-language speaking population grows faster than domestic-language speaking population. Most of the population growth is foreign-language speaking.
- Most spoken foreign languages in Espoo are Russian, Estonian, Arabic and English.
- During recent years, the rate of natural increase has declined due to the decreased birth rate.
- Immigration has been bigger than emigration during almost the whole 21st century.
- More than half of the population is working age (25-64 years). Foreign-language speaking population is mostly children, youth and working age.
- Most common family type in Espoo is married couple with children. The share of alone living population in Espoo is lower than the average in Finland.

Foreign mother tongues women **Foreign mother tongues men**

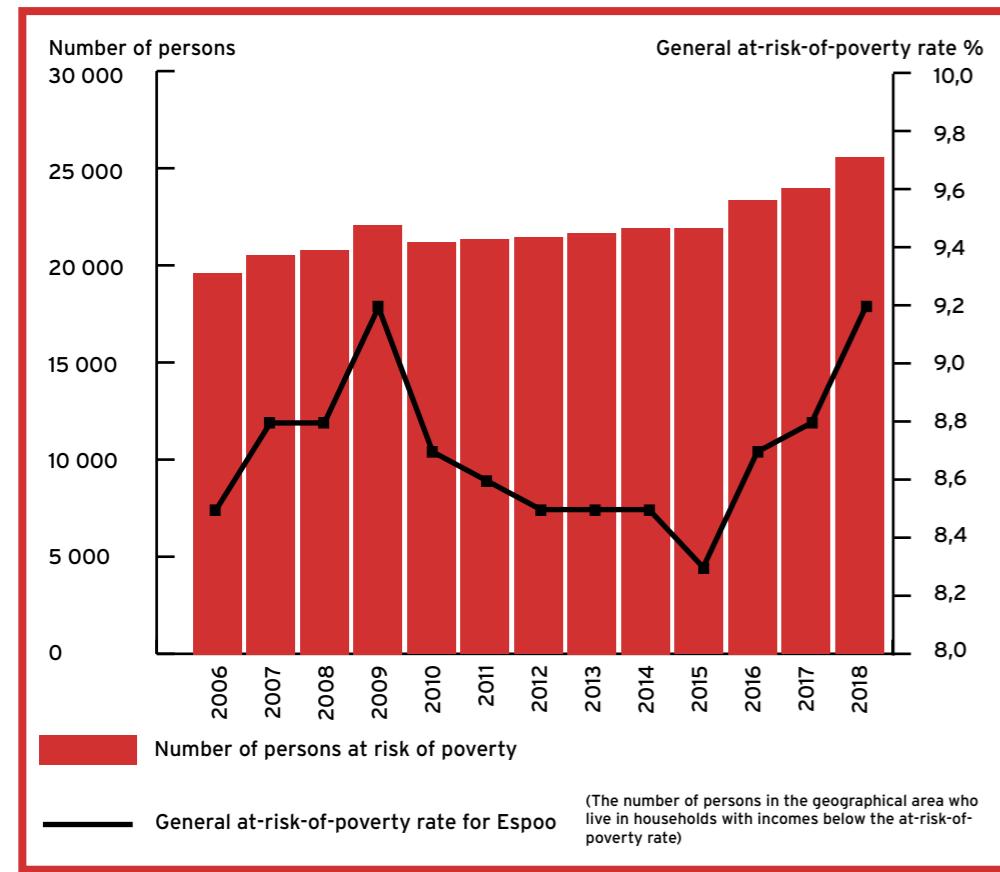
Domestic mother tongues women **Domestic mother tongues men**

The number of foreign-language speaking population will grow from the current 52 000 to 105 400 by 2035. The population pyramid shows that especially children, youth, and working age populations are growing. This will have a great impact on Espoo's demographic dependency ratio. The important question is how the employment, income, and education levels of the foreign-language speaking population will develop.



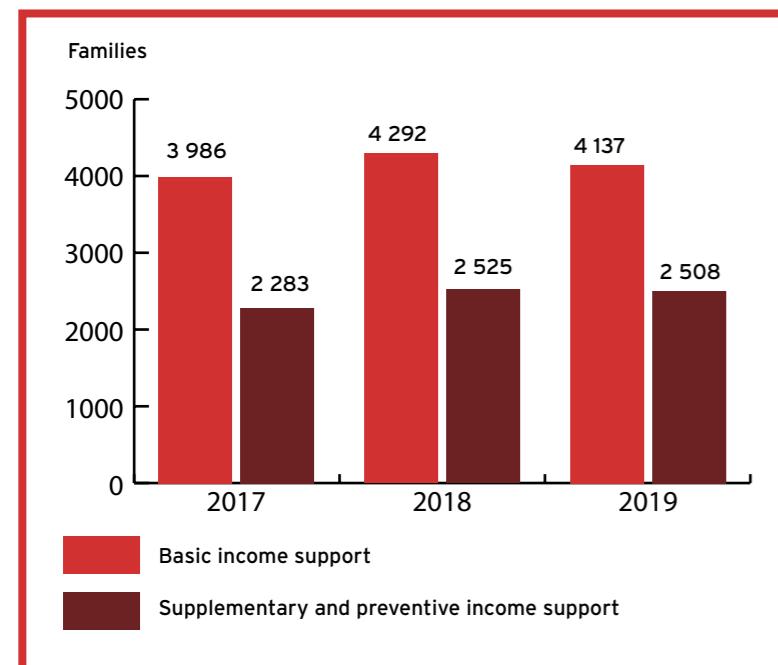
END POVERTY IN ALL ITS FORMS EVERYWHERE

GENERAL AT-RISK-OF-POVERTY RATE



- In a yearly urban and municipal services survey 81% of the respondents were satisfied with their economic situation.
- However, the in work at-risk-of-poverty rate has increased.
- Persons are classified as being at-risk-of-poverty when the household's disposable monetary income per consumption unit is below 60 per cent of the national median income. Households' median income from which the at-risk-of-poverty threshold is counted was 24 950€ in 2018.
- In Espoo number of persons belonging to households at risk of poverty increased in 2018, while in whole Finland it fell slightly from the previous year.

FAMILIES WITH CHILDREN RECEIVING INCOME SUPPORT

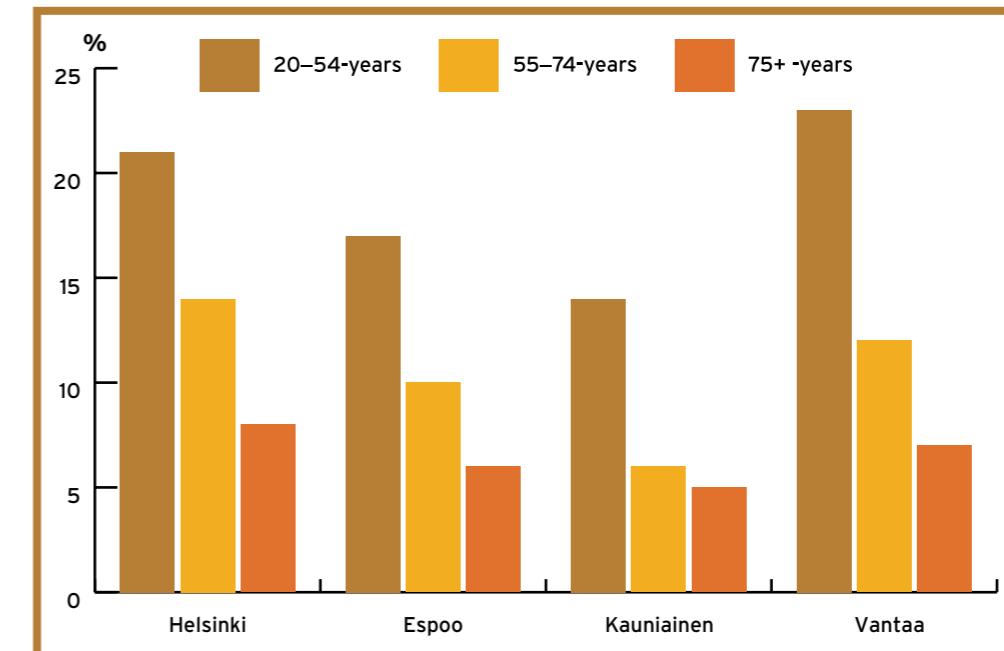


- The Gini coefficient describes relative income differences. In Espoo it was 0,334 in 2017.
- The number and share of people receiving basic income support (last-resort financial assistance) decreased slightly in 2018. The number of foreign-language speakers receiving basic income support has increased, but the share has slightly decreased.
- The number and share of families with children receiving basic income support has slightly decreased in 2018.



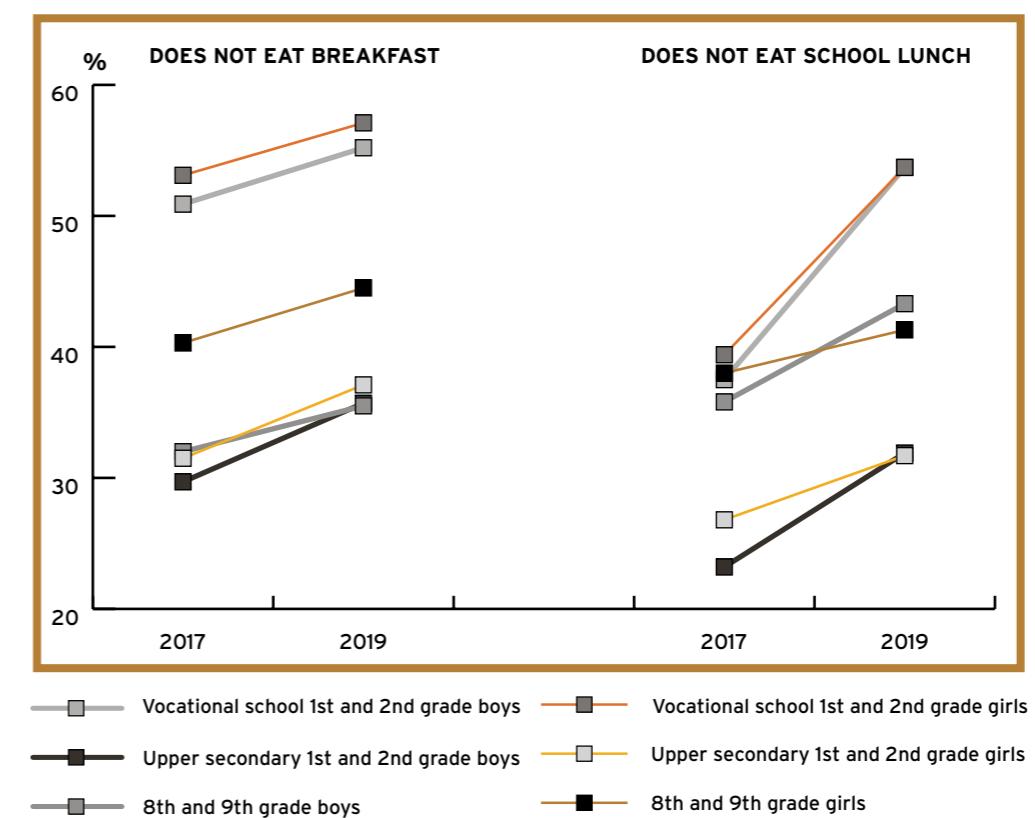
END HUNGER, ACHIEVE FOOD SECURITY AND IMPROVED NUTRITION AND PROMOTE SUSTAINABLE AGRICULTURE

GOING SHORT OF FOOD, MEDICINES OR PHYSICIAN VISITS BECAUSE OF LACK OF MONEY (%)



The FinSote National survey of health, well-being and service use enables monitoring the changes occurring in the population's well-being and health by different population groups and regions. According to the 2018 survey results every fifth of 20-54-year old, every tenth of 55-74-year old and approximately 6% of over 75-year old Espoo residents have experienced going short of food, medicines or physician visits because of lack of money. Those with higher education experienced going short of food, medicines or physician visits because of lack of money more seldom than those with only basic education.

YOUNG PEOPLE'S EATING HABITS IN TERMS OF BREAKFAST AND SCHOOL LUNCH GETTING MORE IRREGULAR



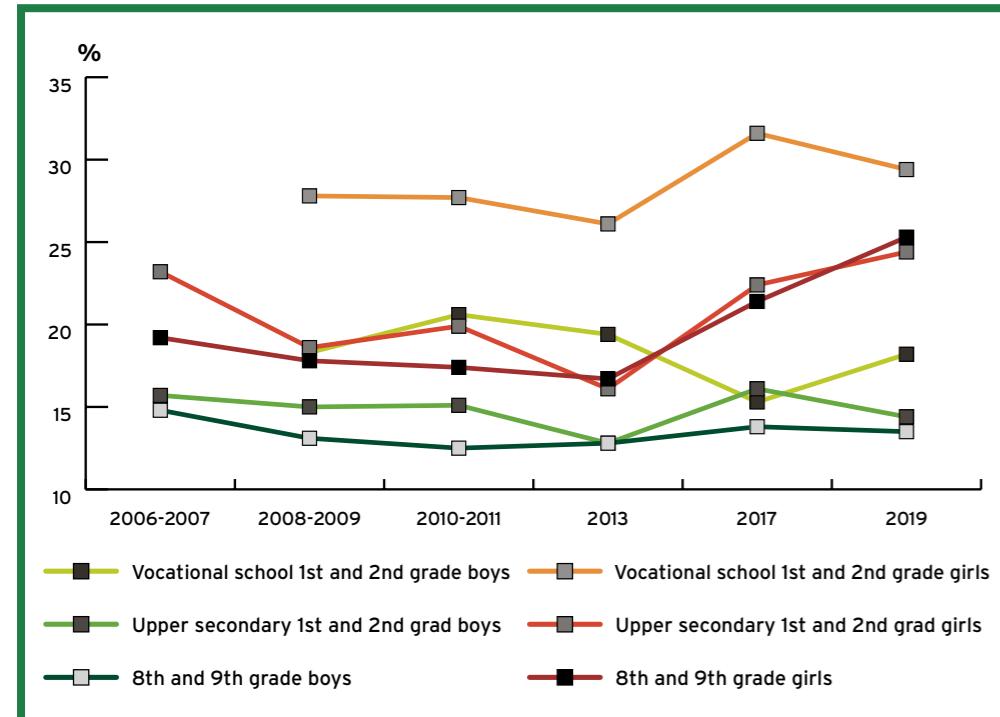
Since 1948, all Finnish children have been served a free lunch during every school day. A diverse food education agenda has developed around this. With a history of over 70 years, Finland has the world's longest-running free-of-charge school feeding system. Each school day, all pupils and students attending pre-primary, basic and upper secondary education are entitled to a full, balanced meal. School feeding is globally the most widely provided form of social protection.

The 2019 School Health Promotion (SHP) survey raised some concerns on young people's increasingly irregular eating habits in terms of breakfast and school lunch.



ENSURE HEALTHY LIVES AND PROMOTE WELL-BEING FOR ALL AT ALL AGES

IN MODERATE OR POOR HEALTH, AS % OF ALL PUPILS

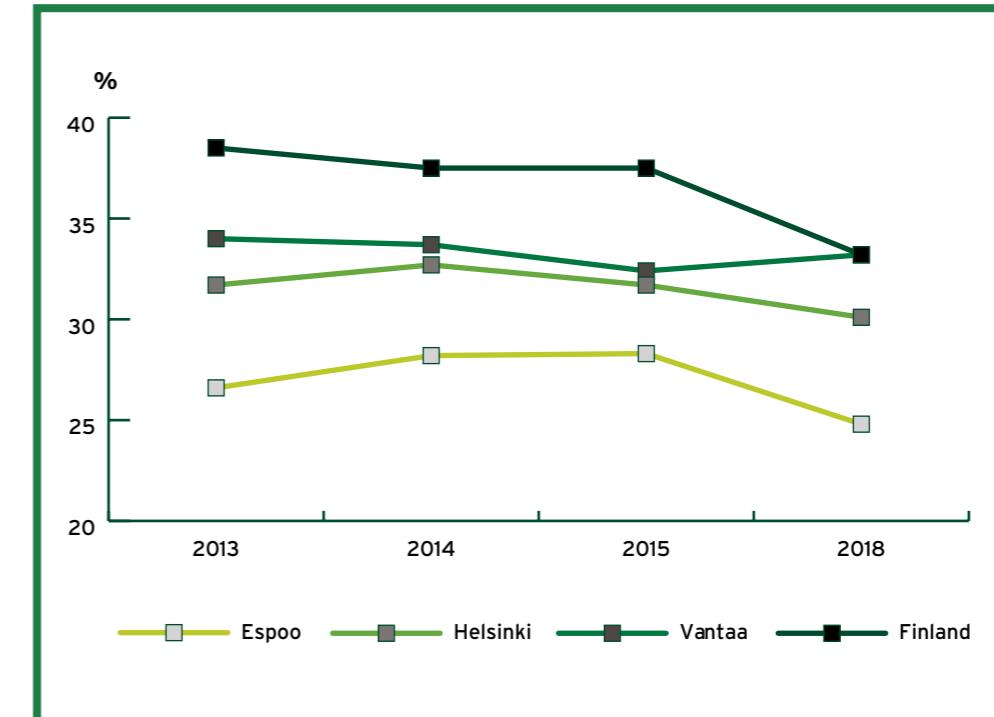


According to the results of the 2019 School Health Promotion (SHP) Survey, the majority of children and young people in Espoo are satisfied with their lives and feel that they are in good health. However, girls feel more often than before that their health is moderate or poor. Indicators of poor health were neck or shoulder pain, lower back pain, stomach ache, trouble falling asleep or waking up during the night, headache, and tiredness or dizziness. Approximately 15% of pupils on 8th and 9th grades have daily experienced at least two of these symptoms during the 6 months before the survey. Approximately 8% of children on 4th and 5th grades feel that their health is moderate or poor. There are no significant differences between boys and girls.



ENSURE HEALTHY LIVES AND PROMOTE WELL-BEING FOR ALL AT ALL AGES

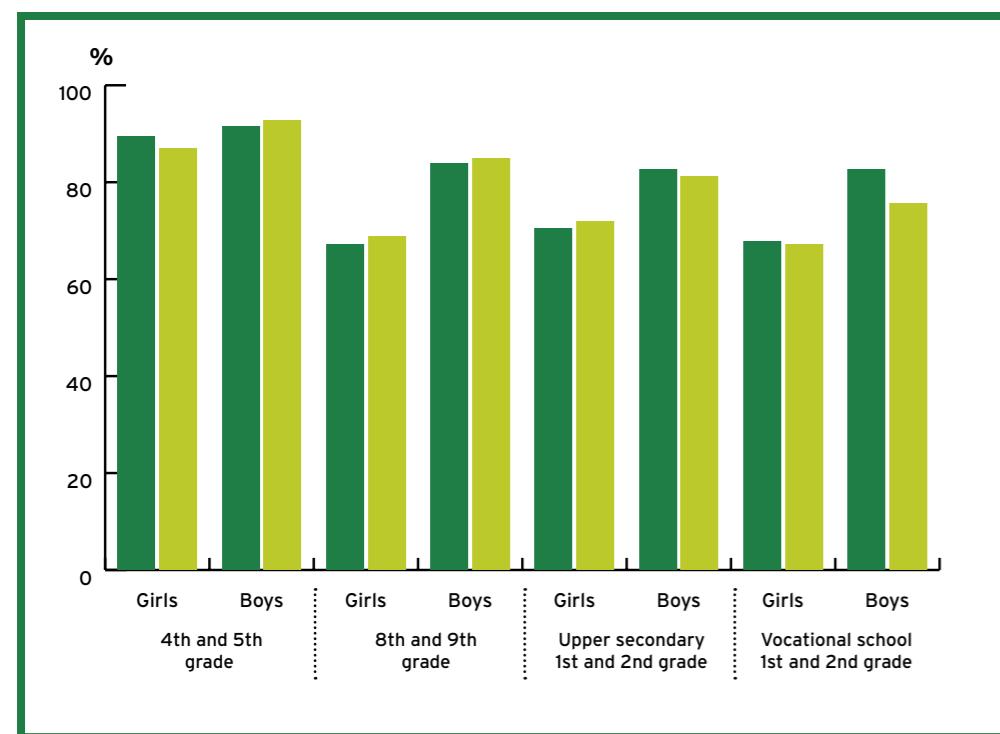
SELF-RATED HEALTH MODERATE OR POOR (%)



Perceived state of health means an individual's personal evaluation of his/her general state of health. It is one of the most commonly used indicators for stage of health used internationally in population surveys. Perceived state of health is influenced by factors such as known and diagnosed illnesses, various symptoms, functional capacity and living habits.

The share of Espoo residents reporting moderate or poor self-rated health has decreased from 28% in 2015 to 25% in 2018. The older age groups feel more often that their health is moderate or poor. Similarly, the respondents with the highest education reported more seldom that their health is moderate or poor.

SATISFIED WITH HIS OR HER LIFE AT THE MOMENT, % OF PUPILS

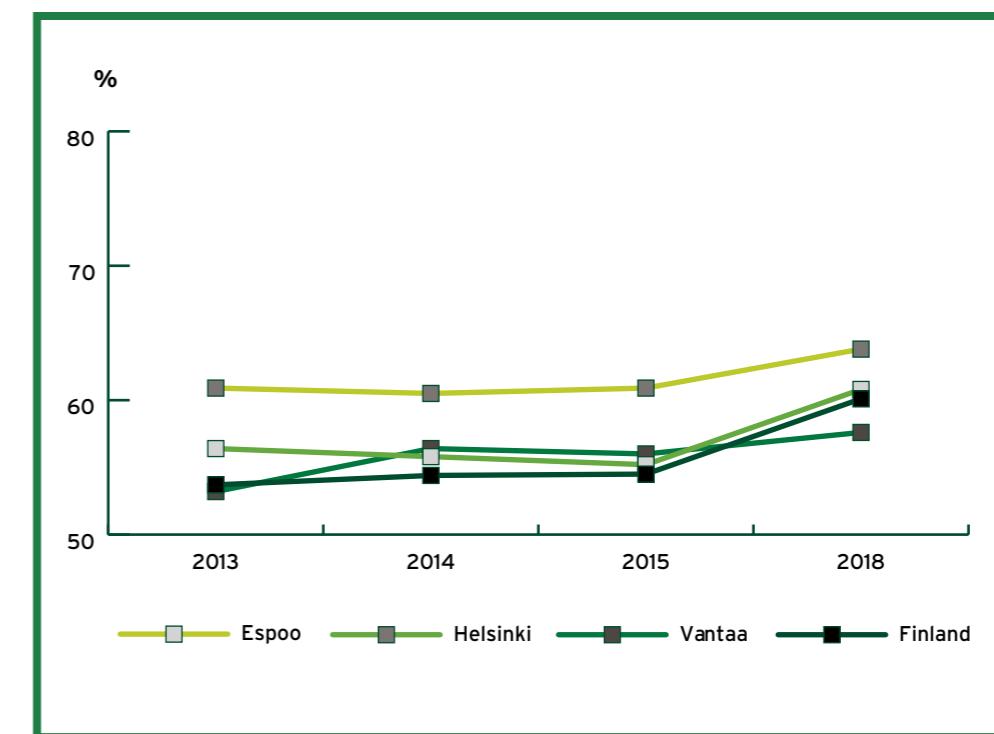


Approximately 90% of pupils on 4th and 5th grades and almost 80% of pupils on 8th and 9th grades, upper secondary schools and vocational schools are satisfied with their lives in Espoo. In the older age groups the satisfaction is above Finnish national average.

2019

2017

PERSONS WHO RATE THEIR QUALITY OF LIFE AS GOOD (%)



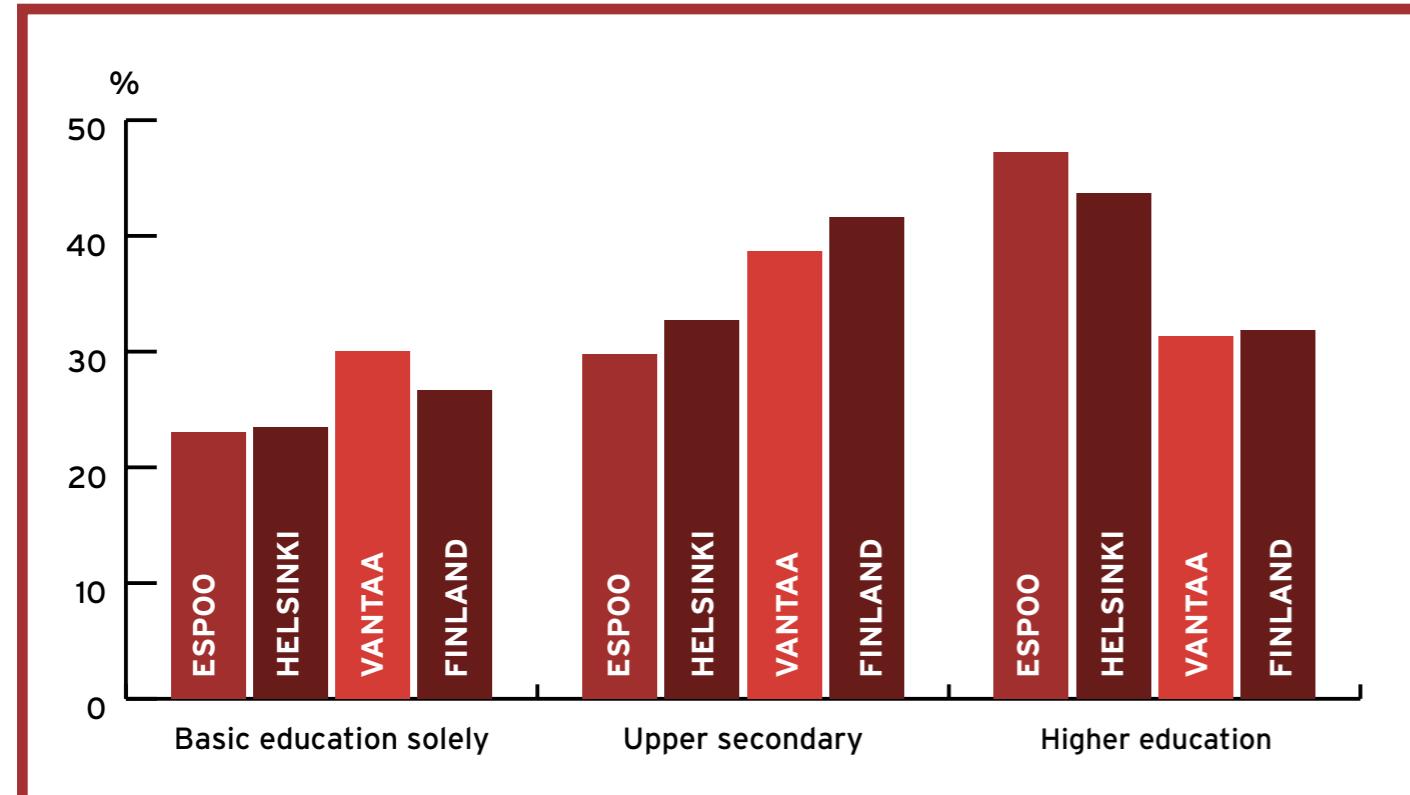
Quality of life is a concept referring to an individual's perception of his/her life relative to the cultural and value environment in which he/she lives and relative to his/her personal goals, expectations, values and other important factors. The indicator gives the percentage (%) of persons aged 20 or over who perceive their quality of life as good.

57% of over 20-year-old Espoo residents with only basic education perceive their quality of life as good, whereas the percentage within residents with high education is 69.



ENSURE INCLUSIVE AND EQUITABLE QUALITY EDUCATION AND PROMOTE LIFELONG LEARNING OPPORTUNITIES FOR ALL

POPULATION AGED 15 YEARS AND OVER BY EDUCATIONAL LEVEL ON 31 DECEMBER 2018, (%)



The Finnish education system consists of early childhood education and care, pre-primary, basic and general upper secondary education, vocational education and training and higher education.

Compulsory schooling consists of one-year pre-primary education for 6-year-olds and nine-year basic education for children aged 7-16.

Post-compulsory education consists of three-year general and vocational upper secondary education and training. General upper secondary lead to matriculation examination and vocational to vocational qualification.

The higher education system comprises universities and universities of applied sciences. Universities engage both in education and research and have the right to award doctorates. Universities of applied sciences are multi-field institutions of professional higher education. Universities of applied sciences engage in applied research and development. For example Aalto University and Metropolia and Laurea Universities of Applied Sciences function in Espoo.

More than half of population 30 years or over in Espoo has higher education and the share of people with basic education solely is decreasing.

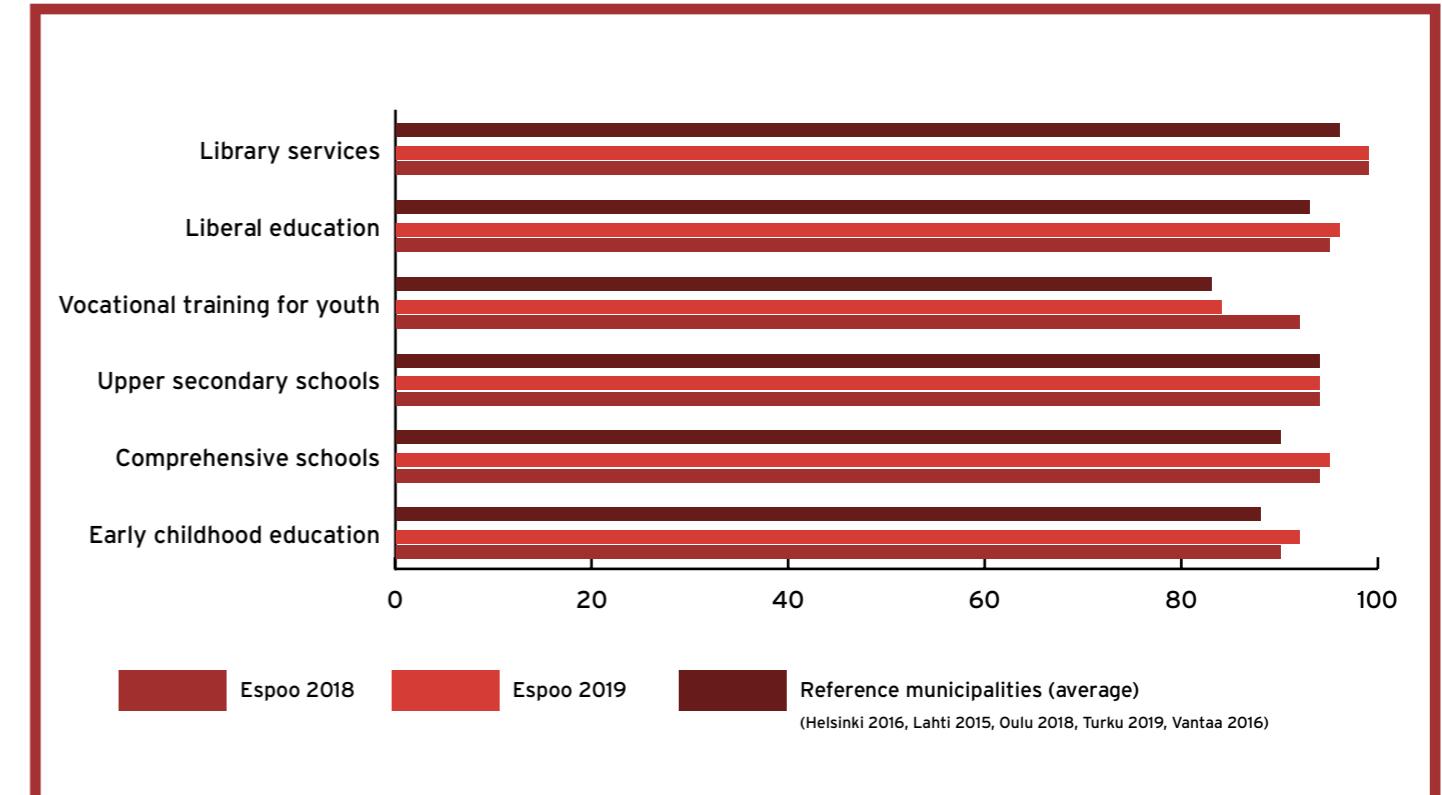
Liberal adult education institutions provide non-formal education. Liberal adult education institutions include adult education centres, folk high schools, learning centres, sports training centres and summer universities.

In 2019 approximately 72 000 hours of liberal education were provided in offered courses in Espoo (Omnia and Arbis). Courses in liberal education are nearly free of charge.



ENSURE INCLUSIVE AND EQUITABLE QUALITY EDUCATION AND PROMOTE LIFELONG LEARNING OPPORTUNITIES FOR ALL

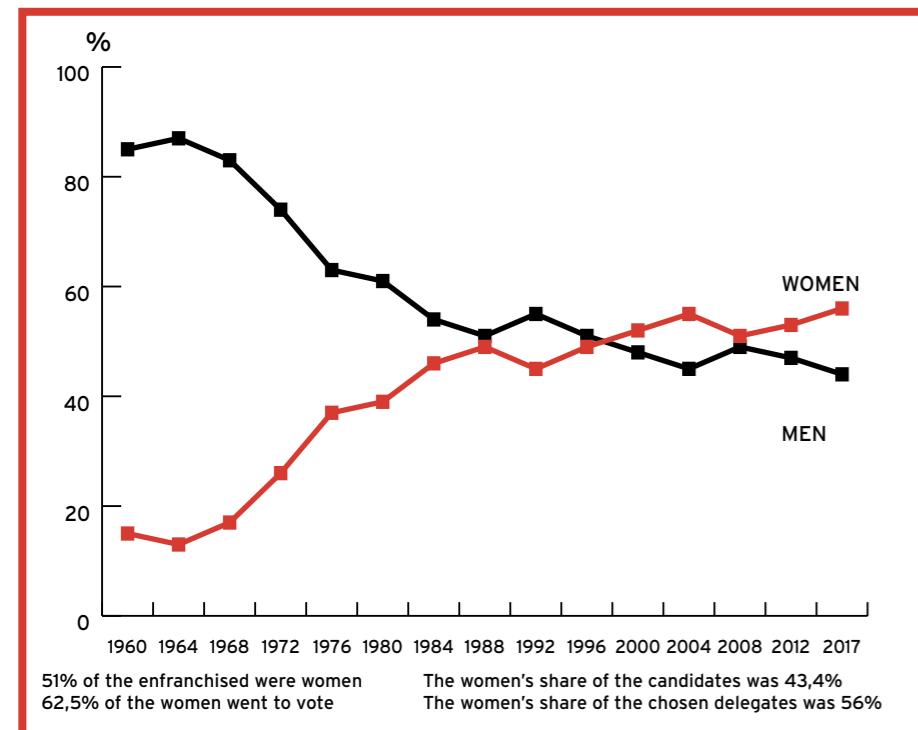
HOW WELL DO THE FOLLOWING SERVICES IN YOUR MUNICIPALITY FUNCTION? (SHARE OF RESPONDENTS WHO TOOK POSITIVE STAND, %) 2019





ACHIEVE GENDER EQUALITY AND EMPOWER ALL WOMEN AND GIRLS

WOMEN AND MEN (%) IN THE ESPOO CITY COUNCIL IN 1960-2017



GENDER EQUALITY

Finland believes in equal representation and participation of both genders in municipal decision-making. The Finnish Equality Act includes a quota provision. According to the provision, the bodies must have at least 40 percent of both men and women. The quotas do not apply to bodies chosen via elections.

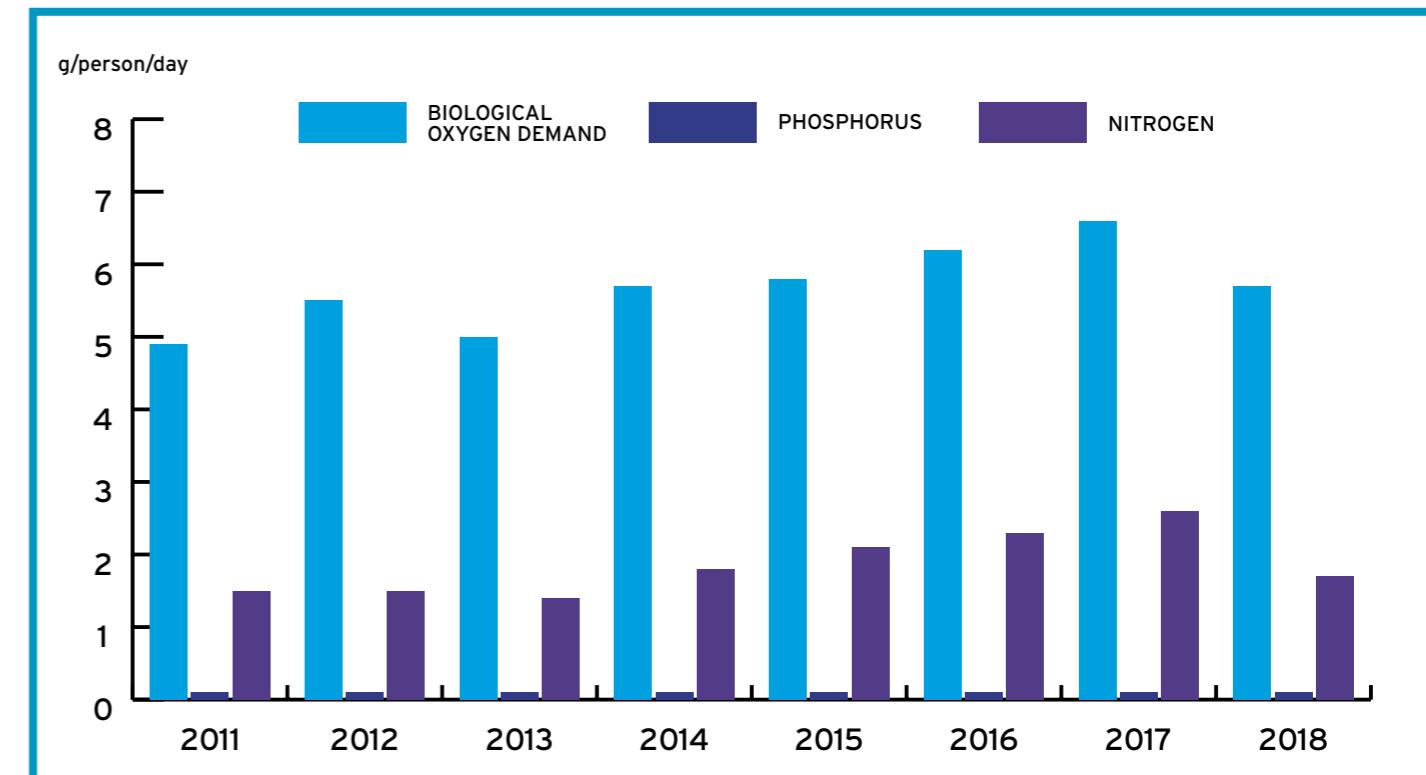
Municipal elections are held to elect the members of municipal councils. The municipal council is elected by direct secret vote of the residents for four-year terms. The number of members in Espoo city council is 75.

Women account for 39 per cent of municipal council members in Finland. However, in Espoo 56 per cent of municipal (city) council members are women (elections 2017).

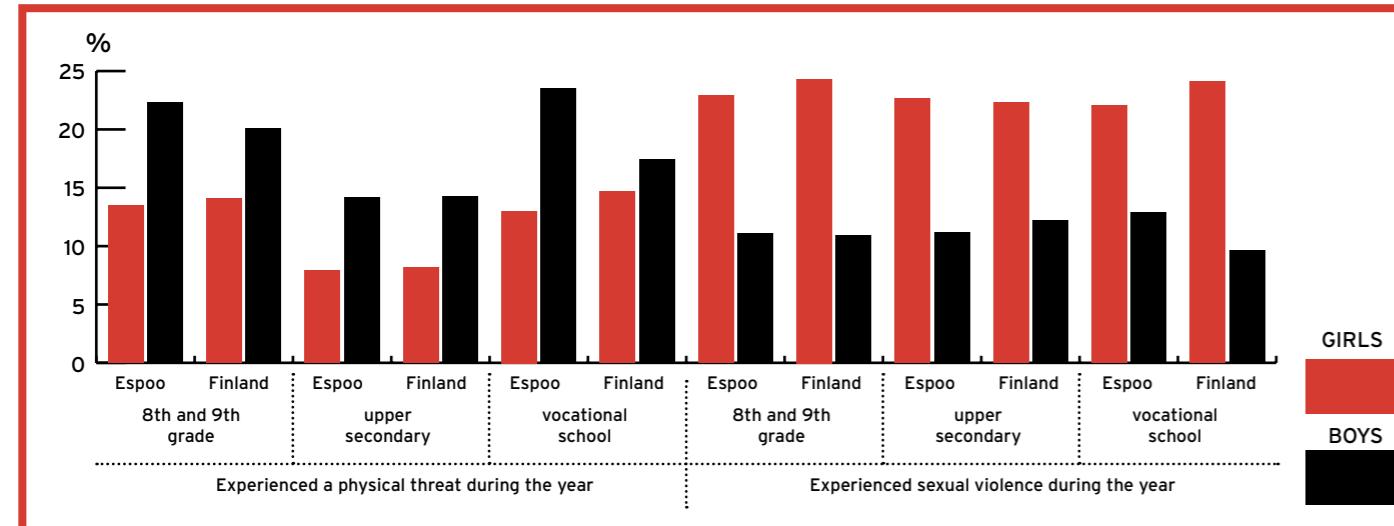


ENSURE AVAILABILITY AND SUSTAINABLE MANAGEMENT OF WATER AND SANITATION FOR ALL

EFFLUENT DISCHARGE IN ESPOO



EXPERIENCES OF PHYSICAL THREAT AND SEXUAL VIOLENCE



GENDER DIFFERENCES IN EXPERIENCES OF PHYSICAL THREAT AND SEXUAL VIOLENCE

The 2019 school health promotion (shp) study carried out a broader survey of the experiences of violence and harassment of children and young people. Sexual violence (for example forcing to undress, unwanted touching of intimate parts of the body, being pressured into sexual acts or being offered money or other goods in exchange of sex) and harassment, experienced especially by girls, and psychological and physical violence within the family are

one of the main concerns that emerged.

The majority of those young people who have experienced sexual violence and harassment also fail to report it. However, they receive help and support from friends and family, and the improved dialogical connection with parents is a significant cause of joy.

The survey was carried out for 8th and 9th grades in comprehensive school, and 1st and 2nd grades in upper secondary and vocational schools.

CLEAN WATER AND SANITATION IN ESPOO

At the city level Espoo monitors compliance with the Water Act and the Act on Water Service. Also monitoring of water protection is controlled by the city. Also, the impact of refineries, landfills, and land and snow dumping sites on waters, determines disputes and applications related to trenching and wastewater conduction, and processes exemption applications are observed. In addition, the quality of domestic water and water in public beaches is monitored by the city.

Domestic water supply, transfer of waste and rainwaters, and wastewater cleaning is done at the Metropolitan level.

WASTEWATER IN SPARSELY POPULATED AREAS

If a property is not connected to public sewage system, the owner or holder of the property must ensure that wastewaters are treated according to relevant requirements. The property owner must have a detailed description of the wastewater system installed coupled with operating and maintenance instructions. The description and instructions are stored at the property and presented to the supervising authority upon request.

A property may be exempted from the renovation if the volume of wastewater is very small, or if the resulting costs are considered unreasonable.

PROTECTION OF WATERS AGAINST NITRATES FROM AGRICULTURAL SOURCES

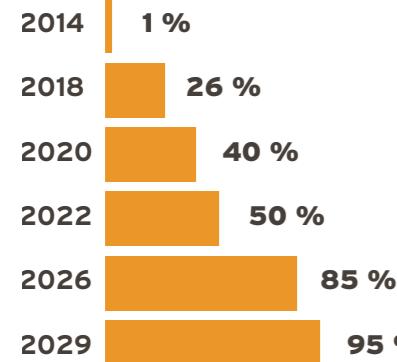
The Government Decree on the Restriction of Discharge of Nitrates from Agriculture into Waters, or the Nitrates Decree, applies to all animal shelters, field use and horticulture. The Decree contains provisions concerning, inter alia, soil fertilisation, the use and storage of livestock manure, silage effluent recovery, as well as the placement of livestock shelters and exercise areas.

In addition, the environmental protection regulations include provisions regarding stables and manure treatment.

Source: www.espoofi

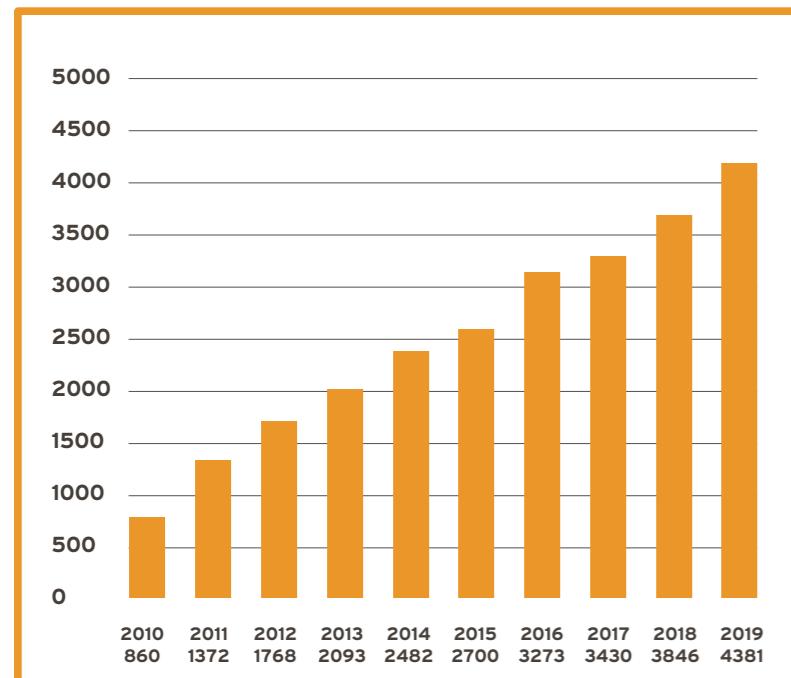


ENSURE ACCESS TO AFFORDABLE, RELIABLE, SUSTAINABLE AND MODERN ENERGY FOR ALL



Source: fortum.com/espo

NUMBER OF GEOENERGY WELLS FOR GROUND SOURCE HEAT PUMPS



Source: Caruna and the City of Espoo

With decreasing spot prices and emission factor below 100g CO₂ / kWh for grid electricity, ground source heat pumps are quickly replacing fossil fuels in heating. Demand side management in heating solutions and power-heat sector coupling support renewable power integration.



PROMOTE SUSTAINED, INCLUSIVE AND SUSTAINABLE ECONOMIC GROWTH, FULL AND PRODUCTIVE EMPLOYMENT AND DECENT WORK FOR ALL

SHARE OF CARBON NEUTRAL DISTRICT HEATING IN ESPOO (FORECAST)

50 %
District heating is a reliable and convenient heating method - This is how over 50% of the Finns think

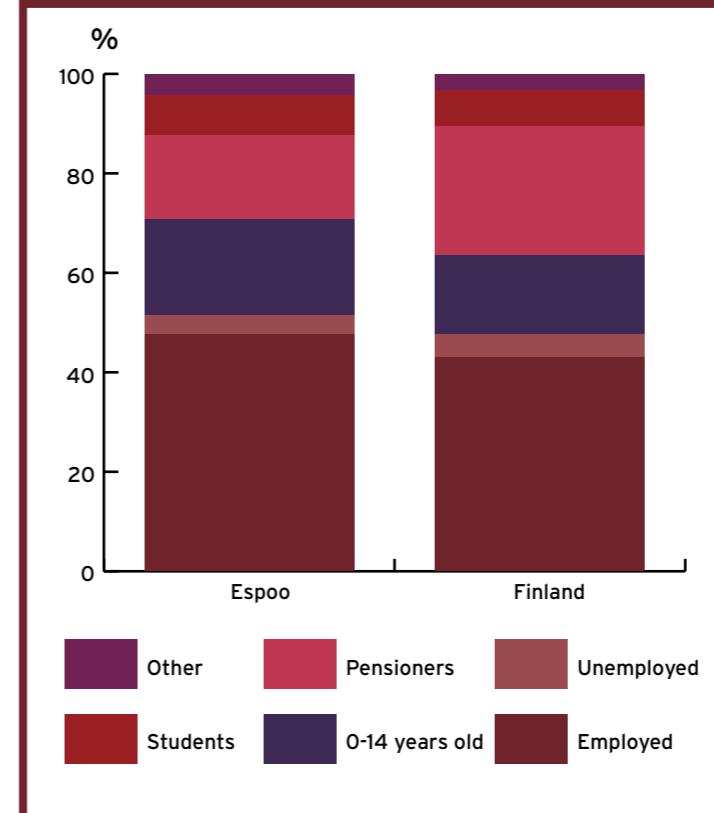
20 %
Citizens of Espoo feel that heating should be environmentally friendly - 20% of them think that it's the most important feature of heating

60 %
District heating is the most popular heating method in Finland - almost 60% of the new building space is heated by district heat

Coal will be phased out by 2025.

*Due to security of supply, there will be some natural gas capacity left. This share will be compensated.

POPULATION BY ACTIVITY ON 31 DECEMBER 2018



Employment and unemployment vary quite considerably by month and the change from the observation of the previous month mainly describes the seasonal aspect rather than the trend in development. Thus, the latest statistical data are compared to the corresponding period of the year before.

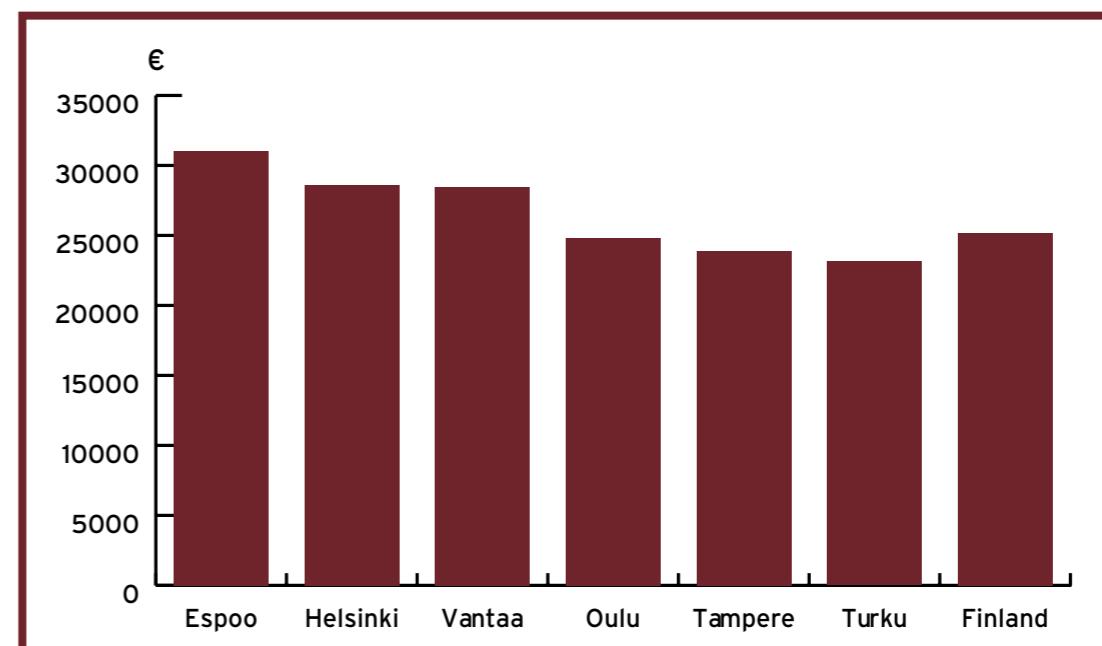
According to Statistics Finland's Labour Force Survey in the end of February 2020 in Espoo

- the unemployment rate was 7,7%, lowest among the six largest cities in Finland (same as 2019)
- the unemployment rate of young people aged 15 to 24 was 6,7% in Jan-Feb 2020 (same as 2019)
- there were approximately 11 000 job-seekers (same as 2019)
- there were approximately 3 400 long-term unemployed (same as 2019)
- there were approximately 900 under 25-year-old job-seekers.

Of the 11 000 unemployed

- 8,4% were under 25-years-old (1,1% less than 2019)
- 56,3% were 25-49 years old (0,3% less than 2019)
- 35,3% were over 50 years old (0,7% more than 2019)
- men 54% and women 46%.

STATE TAXABLE MEDIAN INCOME OF THE RESIDENTS OF SIX LARGEST CITIES IN 2018



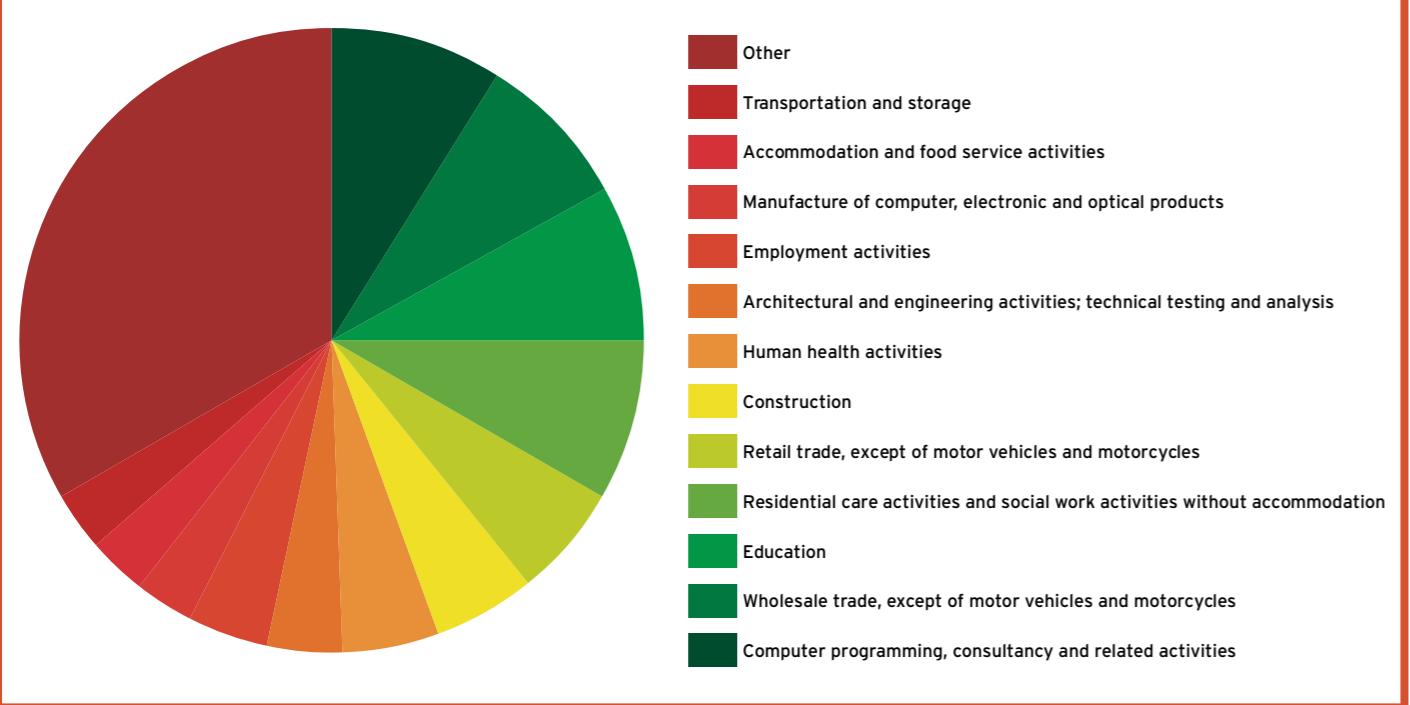
Espoo residents had the highest state taxable median income of six largest cities in 2018. It was 31 014€ compared to 25 158€ in Finland.

Source: Statistics Finland



BUILD RESILIENT INFRASTRUCTURE, PROMOTE INCLUSIVE AND SUSTAINABLE INDUSTRIALIZATION AND FOSTER INNOVATION

LARGEST FIELDS OF BUSINESS ACCORDING TO NUMBER OF JOBS IN ESPOO IN 2017.
SHARE OF ALL JOBS.



- Espoo's economic structure is diverse. There are approximately 121 000 jobs (2017), and according to scenarios there will be 134 000 jobs in 2030. The growth has been approximately 2-3%/year during the past three years.
- Trade, software and consultation, education and social and health services are the biggest employers in Espoo.
- Aalto University and universities of applied sciences offer high-quality education for example in the field of technology.
- Urban structure and infrastructure develop quickly (Urban structure of five city centres, metro, Jokeri Light Rail, Espoo city rail line, one-hour train connection to Turku).
- 88,8% of residents in Espoo live within 300m radius from the closest public transportation stop and 97,1% of residents live within 600m radius from the closest public transportation stop (City of Espoo and Helsinki Region Transport 2020).
- Vehicle-kilometre has stayed on previous years' levels even though the number of inhabitants has increased. Greenhouse gas emissions have decreased notably.
- Housing production remains high. In 2018, an estimated 3 700 dwellings were built. 32 500 new dwellings will be completed by 2028.
- Concentration of the urban structure and considerable housing production will pose challenges to high-quality environment construction and landscaping.

- According to the 2019 survey of local business in Espoo (510 interviews):
- the companies located in Espoo rated the business climate in Espoo good (3,56/5).
 - the companies located in Helsinki rated the business climate in Espoo even more positively (3,81/5).
 - the most important factor in the result is how communication between the City and the companies function.
 - the companies want to grow. 53% of companies estimate that they will have more personnel than in the previous year. However, finding suitable workforce has become more difficult (especially considering jobs demanding higher education).

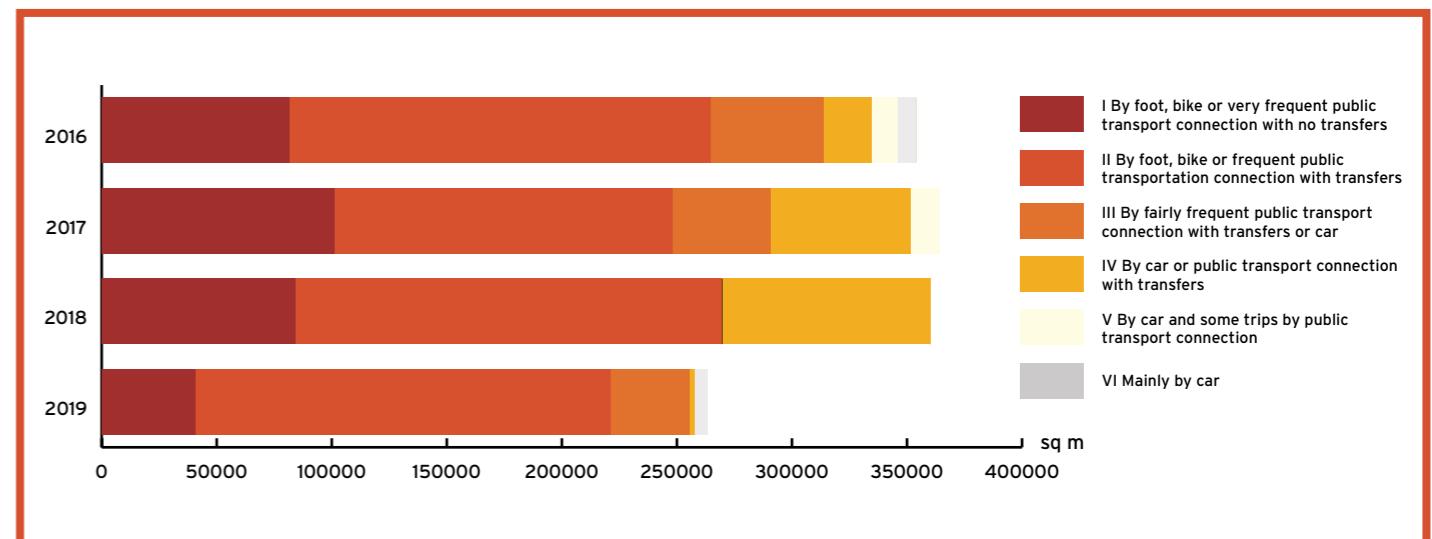
THE FOCUS OF CITY PLANNING IS ON LAND USE DEVELOPMENT AREAS THAT ENABLE SUSTAINABLE MOBILITY AND URBAN STRUCTURE.

The accessibility zones (SAVU) describe regional accessibility by public transport, walking and cycling. The zones describe how easily and by which mode of transport residents can typically access areas of services and workplaces. SAVU framework has been developed by the Helsinki Region Transport (HSL). Ninety-seven (97) per cent (%) of the gross floor area of housing in local detailed plans, approved in 2019 by the City Planning Committee, were located in zones supporting sustainable modes of transportation (SAVU 2025, zones I-III).



BUILD RESILIENT INFRASTRUCTURE, PROMOTE INCLUSIVE AND SUSTAINABLE INDUSTRIALIZATION AND FOSTER INNOVATION

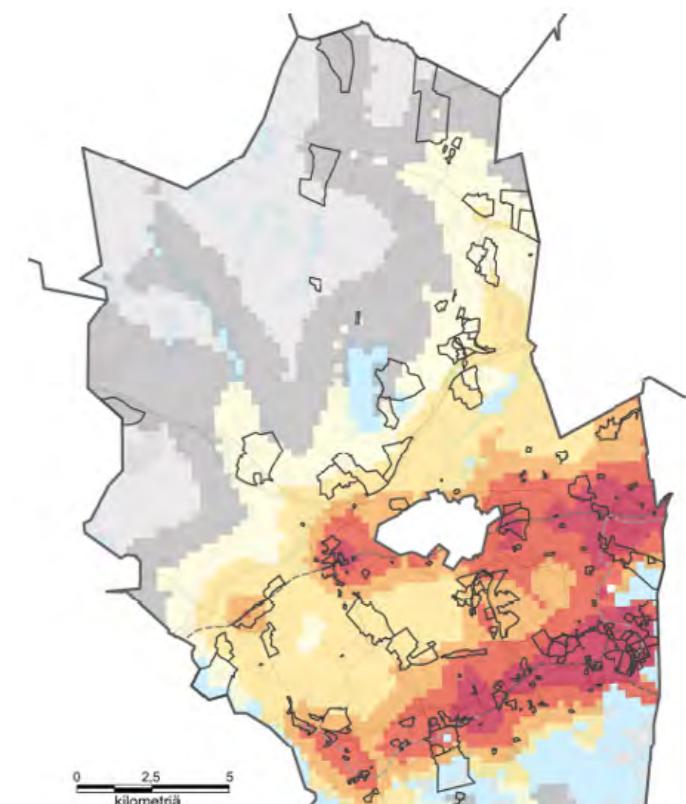
THE LOCATION BY REGIONAL ACCESSIBILITY ZONES SAVU 2025 OF GROSS FLOOR AREA (SQUARE METRES) OF HOUSING IN LOCAL DETAILED PLANS APPROVED IN 2016 - 2019



PENDING LOCAL DETAILED PLANS IN 2020 AND ACCESSIBILITY ZONES SAVU 2030

Accessibility zones SAVU 2030

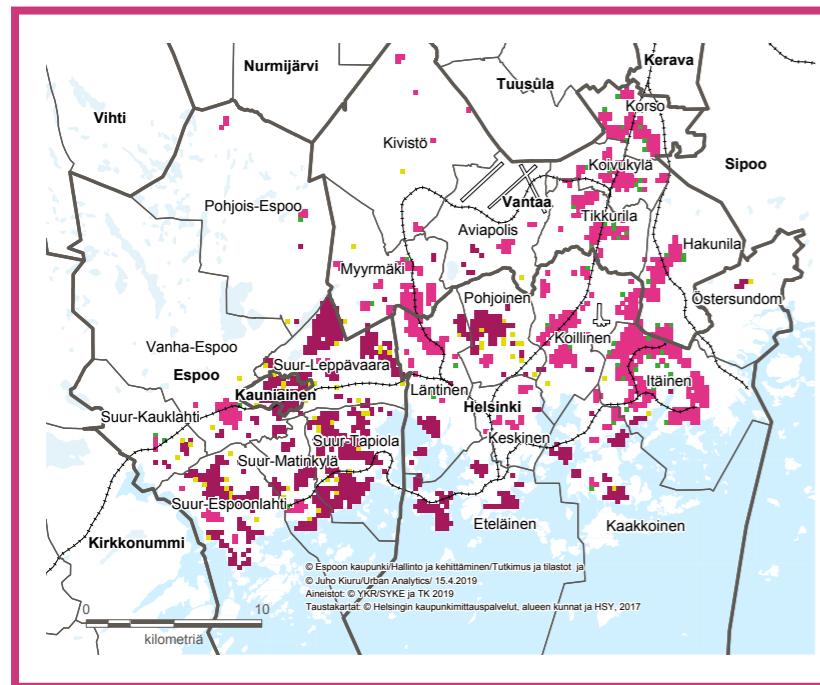
- Zone I By foot, bike or very frequent public transport connection with no transfers
- Zone II By foot, bike or frequent public transportation connection with transfers
- Zone III By fairly frequent public transport connection with transfers or car
- Zone IV By car or public transport connection with transfers
- Zone V By car and some trips by public transport connection
- Zone VI Mainly by car
- Zone VII By car





REDUCE INEQUALITY WITHIN AND AMONG COUNTRIES

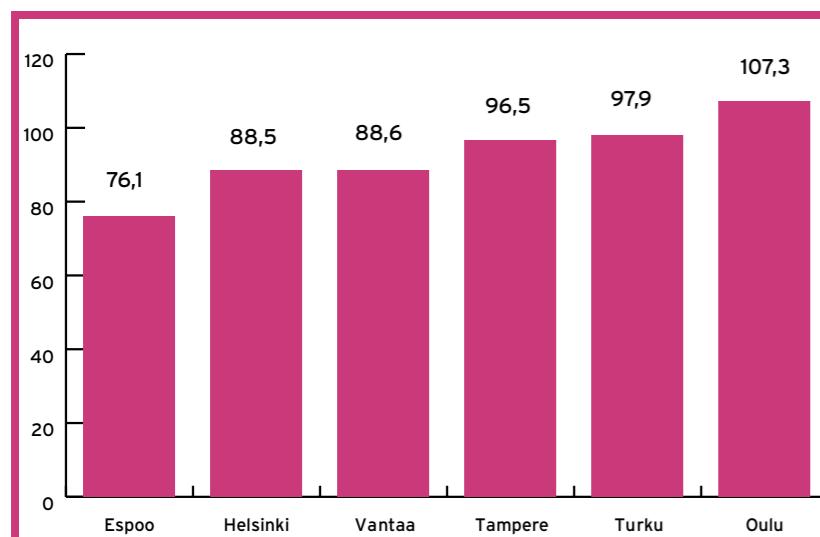
HIGH AND LOW EMPLOYMENT, EDUCATION AND INCOME CLUSTERS



In Espoo

- The socio-economic characteristics (age, income, education, and health) are still among the best in Finland, although the strong rise in foreign-language speaking population will have an impact on them.
- The percentage of foreign-language speakers is the largest in the five city centers, however the percentage is increasing in almost all parts of the city.
- Health and well-being are on a good level. However, there is still some poverty, children and youth with problems, loneliness, etc. in the city.
- The immigrant unemployment rate is higher than that of the native-born population, and the employment rate is lower. The immigrant unemployment rate has decreased in the last years. However, in 2020 the decline has stopped, which is a similar development to the common unemployment rate.

HEALTH BAROMETER MORBIDITY INDEX 2018

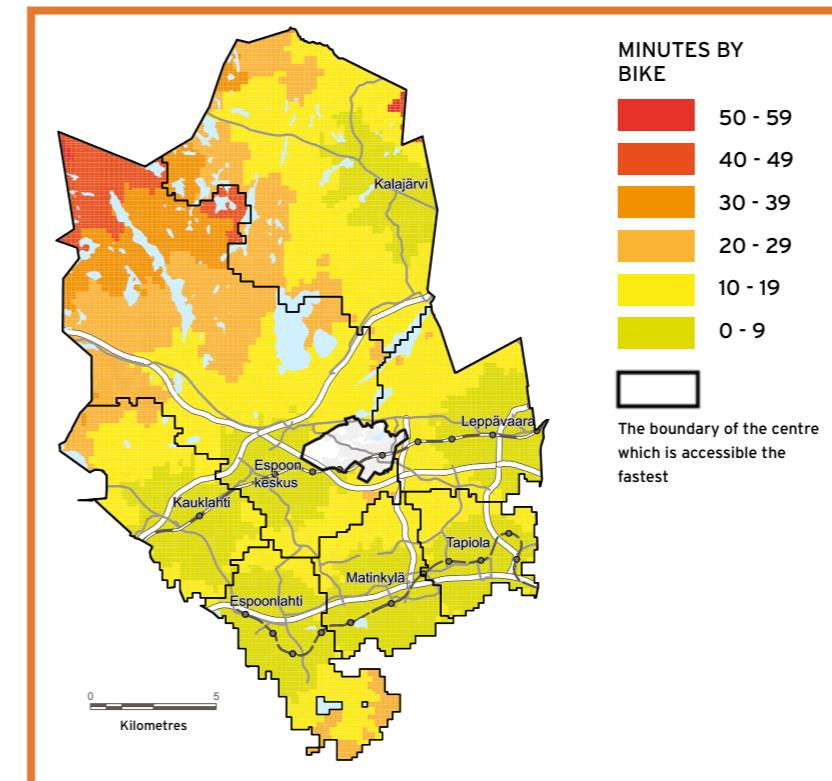


Mortality and morbidity are lower in Espoo than in other big cities in Finland. The health barometer morbidity index consists of three parts: mortality index, disability index and index of drug reimbursement entitlements. The index illustrates how healthy or sick the population of the area is in relation to the average of the population of the whole country (=100).



MAKE CITIES AND HUMAN SETTLEMENTS INCLUSIVE, SAFE, RESILIENT AND SUSTAINABLE

BICYCLING



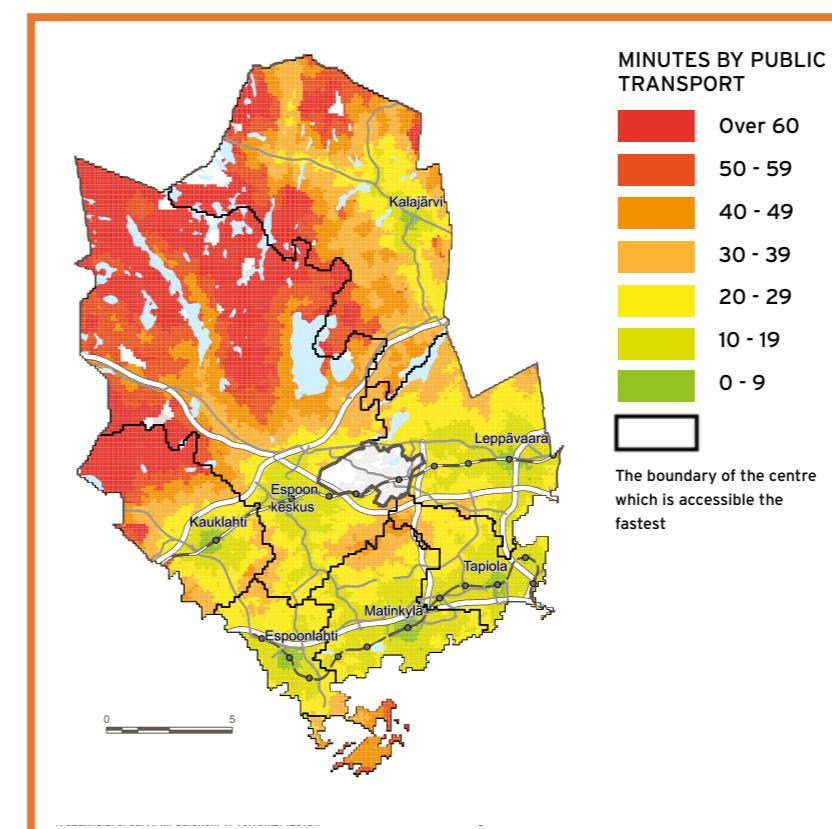
Total travel time by fast cycling in minutes from origin to the center which is accessible the fastest; Includes extra time (1 min) that it takes to take/return bike. The reference value for fast cycling is 19km/h. January 2018.

Nearly 70% of residents in Espoo live within less than 10 minutes bike trip from the centre accessible the fastest by bike.

Travel Survey is a survey conducted by Helsinki region municipalities and Helsinki Regional Transport Authority (HSL) to study Helsinki region residents' travel habits. It is not a public transport survey; the aim is to collect information about all modes of transport. The overall aim in the metropolitan region is to promote sustainable transport modes, walking, bicycling and public transport.

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Background maps © Helsingin kaupunkimittauspalvelut, municipalities in the region and HSY 2018
Joukkoliikenenesuunnitelmat © HSL 2019

PUBLIC TRANSPORTATION



Total travel time by public transportation in minutes from origin to the center, which is accessible the fastest in rush hour traffic; whole travel chain has been considered including the waiting time at home. January 2018.

Nearly 90% of residents in Espoo live within less than 30minutes on public transportation from the centre accessible the fastest.

According to the travel survey 2018 there were changes in use of transport modes in Espoo 2012-2018

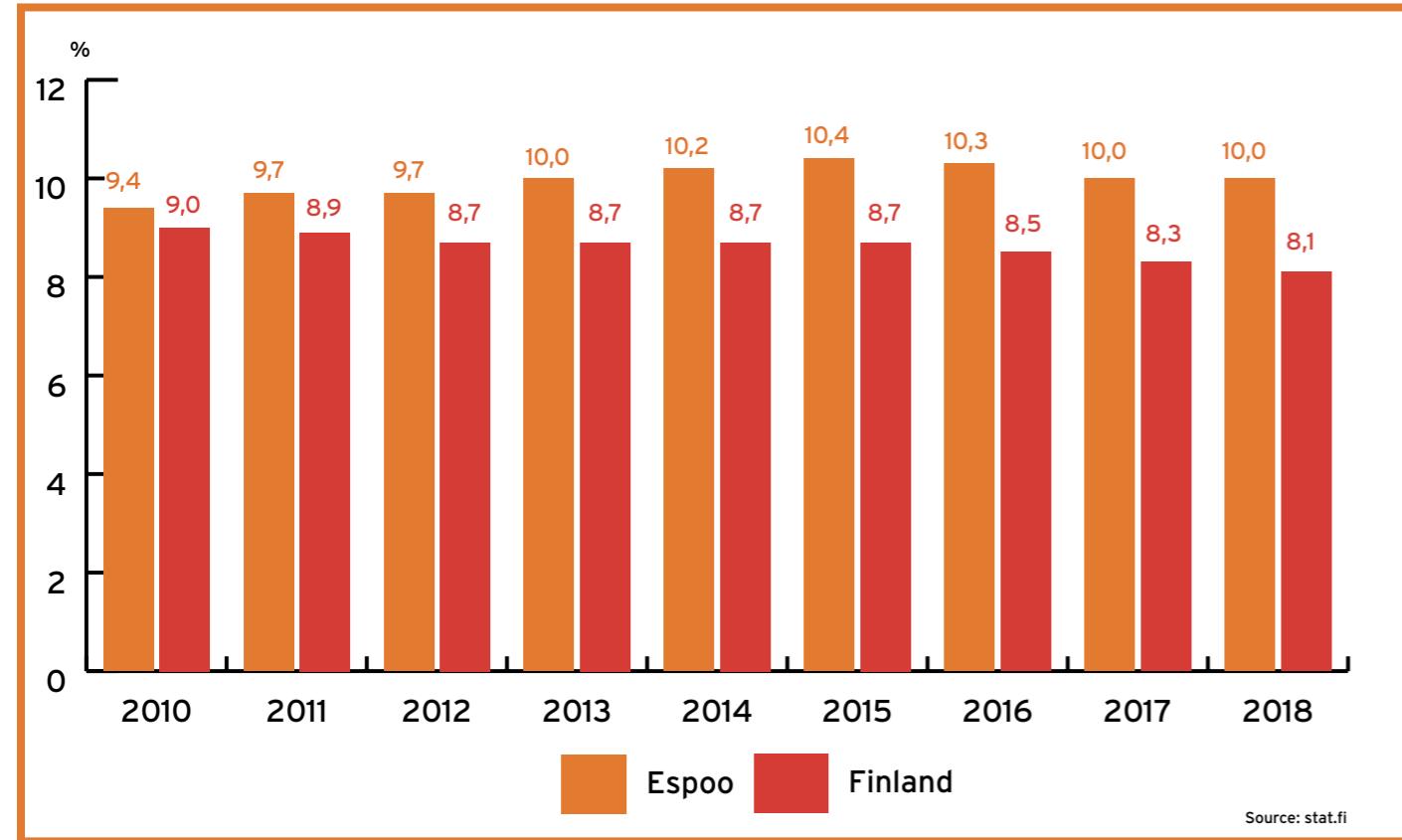
- walking 23% → 26%
- bicycling 8% → 9%
- public transport use 20% → 18%
- passenger car use remained at 46%
- all sustainable transport modes 51% → 53%

© City of Espoo and Accessibility Research Group 2020
Background maps © Helsingin kaupunkimittauspalvelut, municipalities in the region and HSY 2018
Joukkoliikenenesuunnitelmat © HSL 2019



MAKE CITIES AND HUMAN SETTLEMENTS INCLUSIVE, SAFE, RESILIENT AND SUSTAINABLE

PERCENTAGE OF HOUSEHOLDS IN OVERCROWDED DWELLINGS



Safe and affordable housing and sustainable transport systems are important for the inhabitants in a city. In the Espoo story unequal division of health and welfare, quick growth of the foreign and domestic population, ageing, urbanisation and slow growth of the economy have been raised as central challenges for the growing city in the future.

According to the survey on urban and municipal services 2019, Espoo residents are mostly happy with their residential environment and safety in the city.

For the past 30 years, tackling homelessness has been a focus for successive governments in Finland. The vast majority of them are living with friends or family, or are housed in temporary accommodation. Only a very small number are actually sleeping on the streets. There are 1,6 homeless people per 1 000 residents in Espoo. In Helsinki the number is 2,6, in Turku 2,2 and in Tampere 1,4. Approximately half of all homeless people in Finland

live in Helsinki region (Helsinki, Espoo, Vantaa and Kauniainen).

Espoo has more than 140 000 homes of which 53 300 are in detached houses. Over half of the housing stock of Espoo comprises owner-occupied houses, while rental houses make up one third. Additionally, Espoo has over 5 500 right-of-occupancy apartments.

The percentage of dwellings with low standard of equipment (the dwelling only lacks washing facilities and/or central/electric heating) is 1,6% in Espoo and 8,1% in whole Finland.

The percentage of households in overcrowded dwellings (more than one person per room, with kitchen excluded from the number of rooms). Overcrowded housing is more common in large households and rental housing. In practice, it is most common in families with children and is particularly related to the stage when there are children under school age in the family.

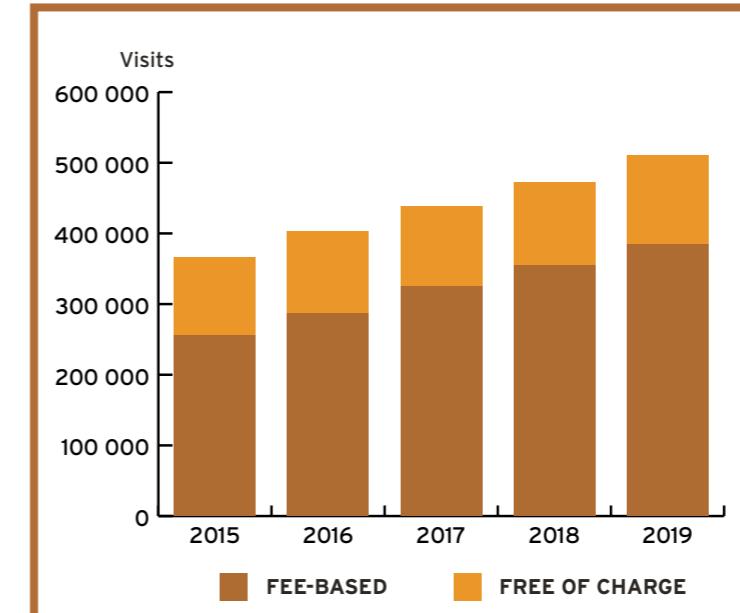
	Adults total
2017	89
2019	91
Percentage of those, who consider the safety of the residential area well managed in the municipality	94
Percentage of those, who think that there are places that create feeling of insecurity in their residential area	34
Percentage of those, who think that there are places that create feeling of insecurity elsewhere in Espoo	65
Percentage of those, who have experienced violence or threat in their residential area	8
	59
	5

Source: Urban and municipal services survey 2019

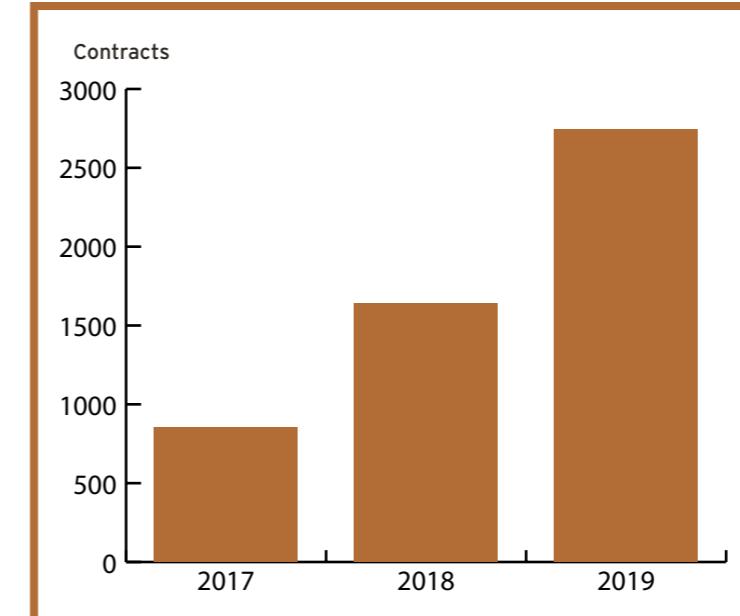


ENSURE SUSTAINABLE CONSUMPTION AND PRODUCTION PATTERNS

CUSTOMER VISITS AT THE RECYCLING STATIONS - SORTTI



AMOUNT OF CONTRACTS FOR COLLECTING AND TRANSPORTING OF PLASTICS IN ESPOO



Recycling of plastics started with a pilot back in March 2016. Since September 2017 collecting and recycling of plastic have been open to all households. So far collecting plastic has been voluntary. Starting from year 2021 all bio, plastic, glass, cardboard, and small metals -waste are to be collected from real estates with more than five apartments.

	2015	2016	2017	2018	2019
FEE-BASED	256 150	287 289	324 937	354 500	384 104
FREE	109 760	115 493	114 323	118 632	125 999

TOTAL 365 910 402 782 439 260 473 132 510 103

SUITABLE FOR THE COLLECTION:

- all plastics labelled as 02, 04 and 05
- empty buckets, basins, vats and drums
- empty barrels, canisters and tubs
- garden furniture
- baskets and pallets
- balcony flower boxes, plastic flower pots and planters
- bale plastics, plastic wraps
- plastic bags and sacks
- freezer containers
- chopping boards
- sleds and other plastic toys with no big metal parts
- composite decking boards
- plastic packages.

UNSUITABLE FOR THIS COLLECTION:

- styro (PS, EPS)
- styrofoam
- PVC 03
- tarpaulins, large heavy duty sacks
- fibre-reinforced fabrics
- electronic plastics
- plastic items containing large metal parts
- vats and drums containing concrete, aggregate

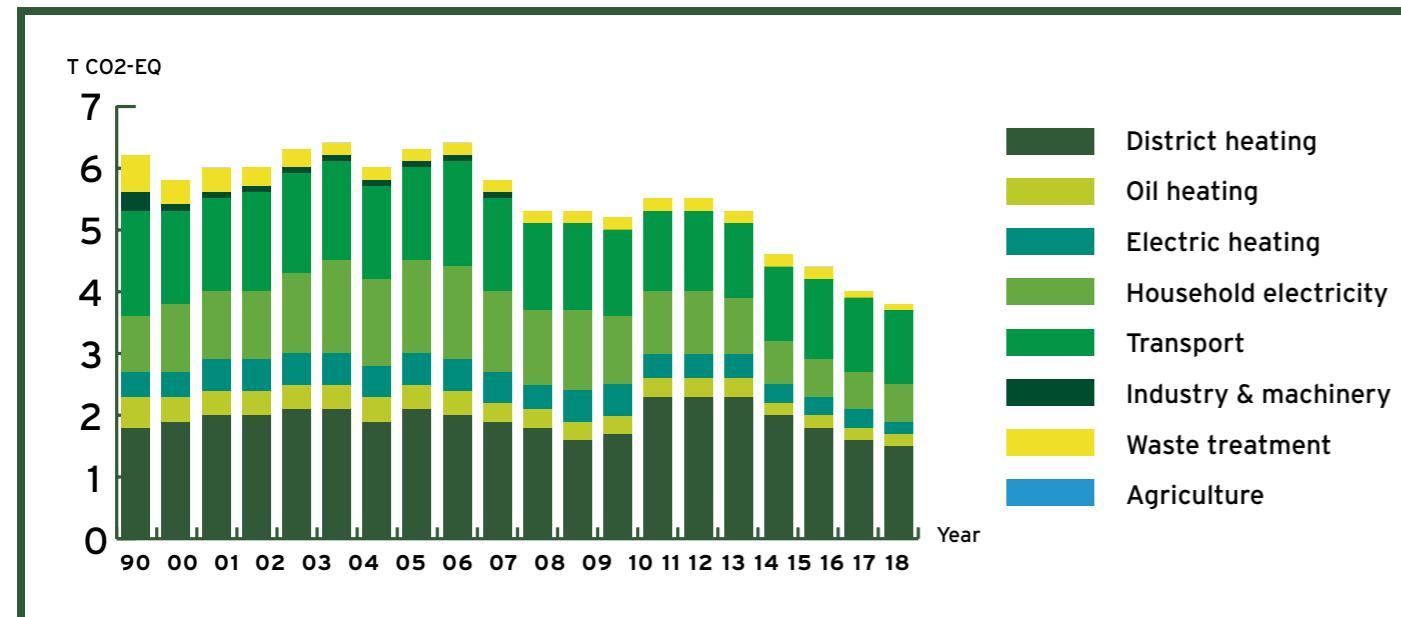
ONE CAN ALSO BRING:

- carton
- domestic hazardous waste
- wood
- sorted renovation and construction waste
- paper
- plastics
- mixed waste
- metal
- impregnated wood
- gypsum
- glass packages; e.g. glass bottles and glass jars
- garden waste and brushwood



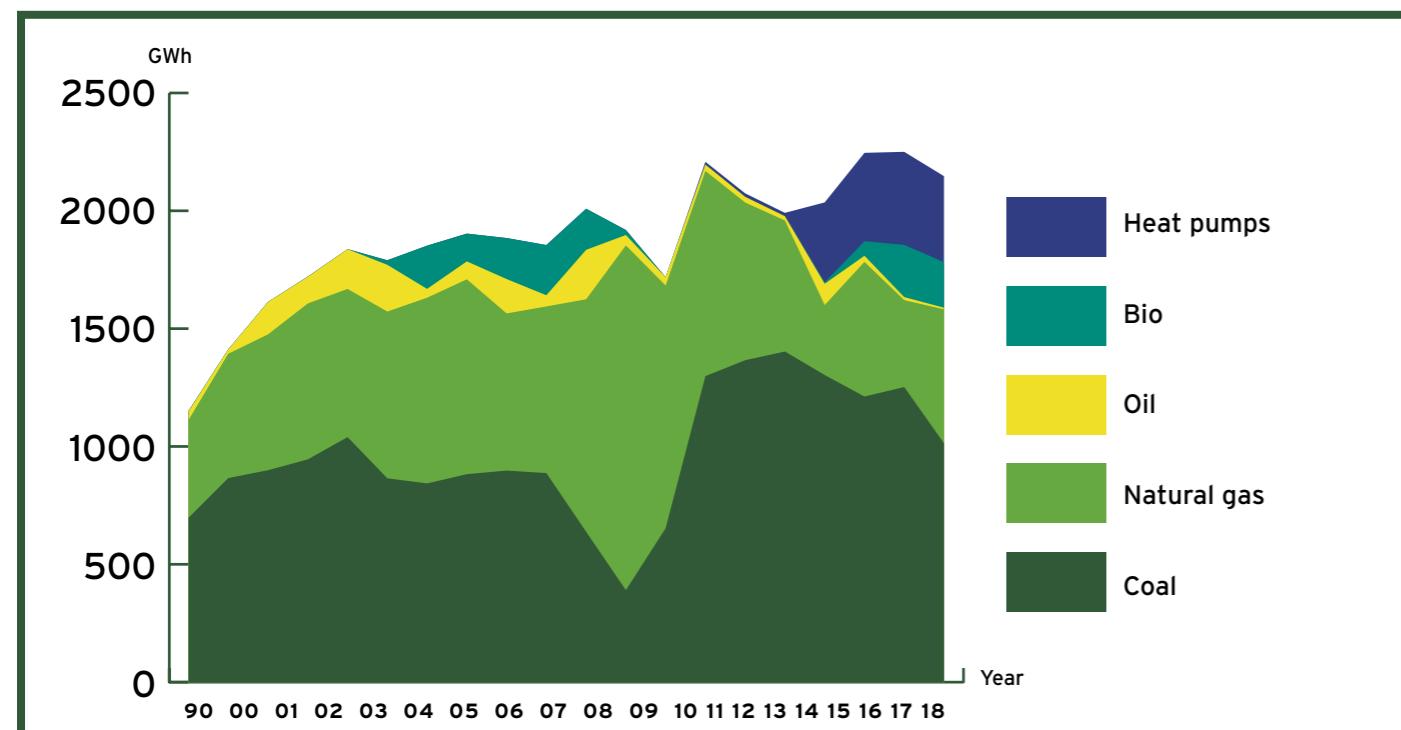
TAKE URGENT ACTION TO COMBAT CLIMATE CHANGE AND ITS IMPACTS

PER CAPITA GREENHOUSE GAS EMISSIONS IN ESPOO (T CO₂-EQ)



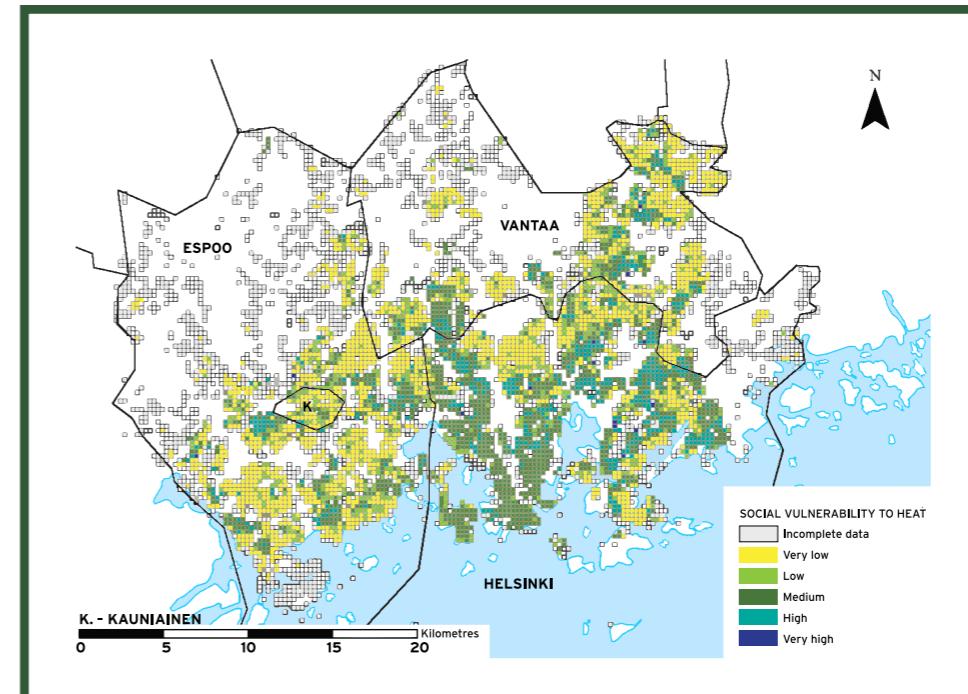
Espoo aims to be carbon neutral by 2030. Espoo's greenhouse gas emissions were 3.9 tonnes per resident in 2018. Biggest emission sources in Espoo are district heating production, transport and electricity consumption.

ENERGY SOURCES USED IN DISTRICT HEATING BETWEEN 1990-2018



TAKE URGENT ACTION TO COMBAT CLIMATE CHANGE AND ITS IMPACTS

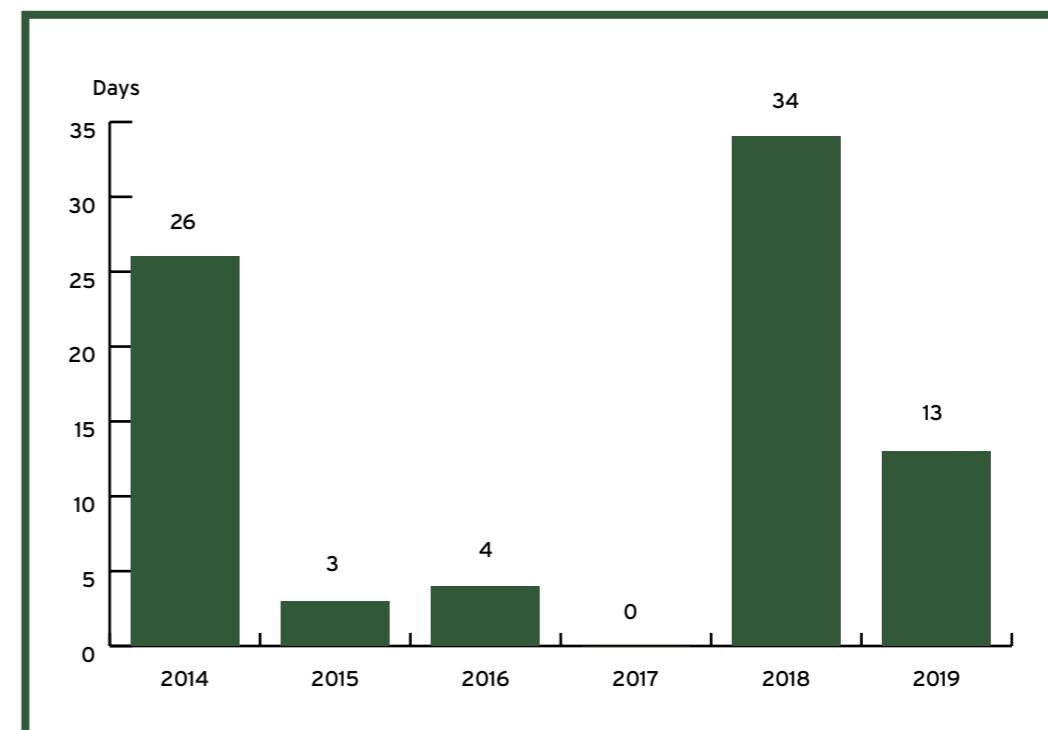
SOCIAL VULNERABILITY TO HIGH TEMPERATURES IN THE HELSINKI METROPOLITAN AREA



Climate impacts and extreme weather events can affect some people more than others. How badly a person or group will be affected will depend on their social vulnerability – that is, how well they are able to cope with and respond to events like floods and heatwaves. The main drivers of social vulnerability relate to personal features such as age and health, characteristics of the living environment, and the social and institutional context that affect the ability of people to adapt.

source: HSY.fi

NUMBER OF DAYS WITH DAILY MAXIMUM TEMPERATURE MINIMUM 25 °C

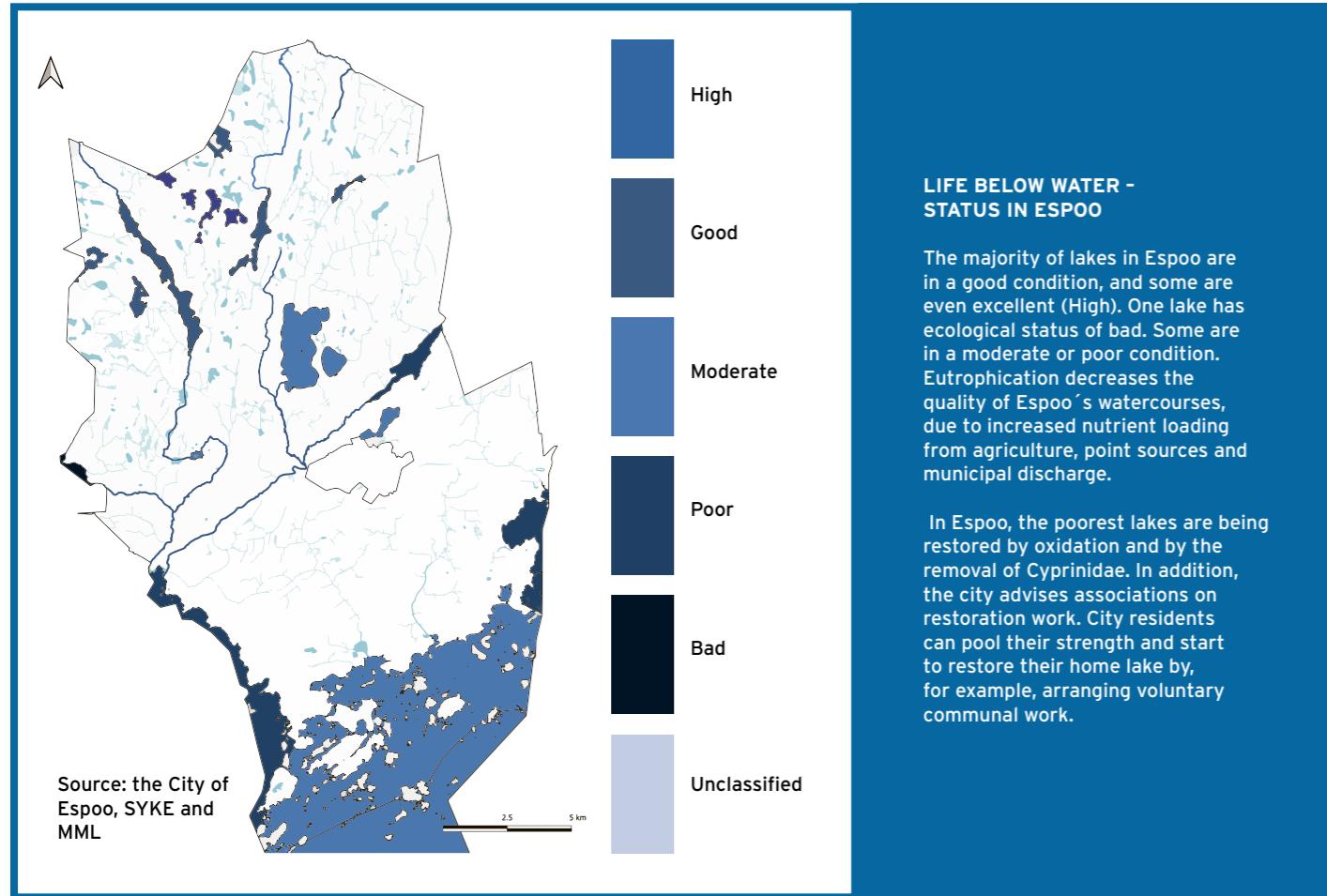


Long-term heats will become more frequent because of the climate change. Extreme heat can cause a health risk especially for the elderly and people with chronic disease. The number of heat days serves as an indicator for the adaptation to climate change. It can be used to follow the development of the heat periods and the need for adaptation.



CONSERVE AND SUSTAINABLY USE THE OCEANS, SEAS AND MARINE RESOURCES FOR SUSTAINABLE DEVELOPMENT

WATER PROTECTION IN ESPOO - ECOLOGICAL STATE



SEA AND ARCHIPELAGO

Espoo is a coastal city with 158 km² sea area, 58 km coastline and 165 islands. The shore varies from smooth cliffs to rocky shores and a few beaches. Flood meadows, flood plain forests and shallow bays support the richest aquatic wildlife. If you are lucky, you may see the Grey seal, or even the Baltic ringed seal, resting on one of the several rocky islets off Espoo. Inlets in Espoo are important spawning and fry production areas for several fish species.

LAKES

Out of all the municipalities in the Helsinki Metropolitan Area, Espoo has the most waterbodies, and its 95 lakes and numerous ponds offer a wide variety of freshwater habitats. In Northern Espoo, the Nuuksio highlands are dotted with many clear-watered lakes and murky ponds. The southernmost lake is situated on Pentala Island. Espoo also has many lush and nutrient-rich lakes. The main sources of eutrophication are the phosphorus and nitrogen from rural and agricultural sources. The rugged lakes in Nuuksio highlands have remained in good condition.

FLOWING WATERS

Espoo offers the richest river habitats in the whole Southern Finland from clear-watered, rugged highland streams all the way to lush, murky estuaries in the Baltic Sea. As a result of the number of lakes and the shortness of flowing waters, flow alternation and flood cycle differ from the rest of the coastal region. Even short streams and rivers have an abnormally high number of rapids. In addition to the rich fish species diversity, flowing waters offer a preferred habitat for the Otter and the White-throated dipper.

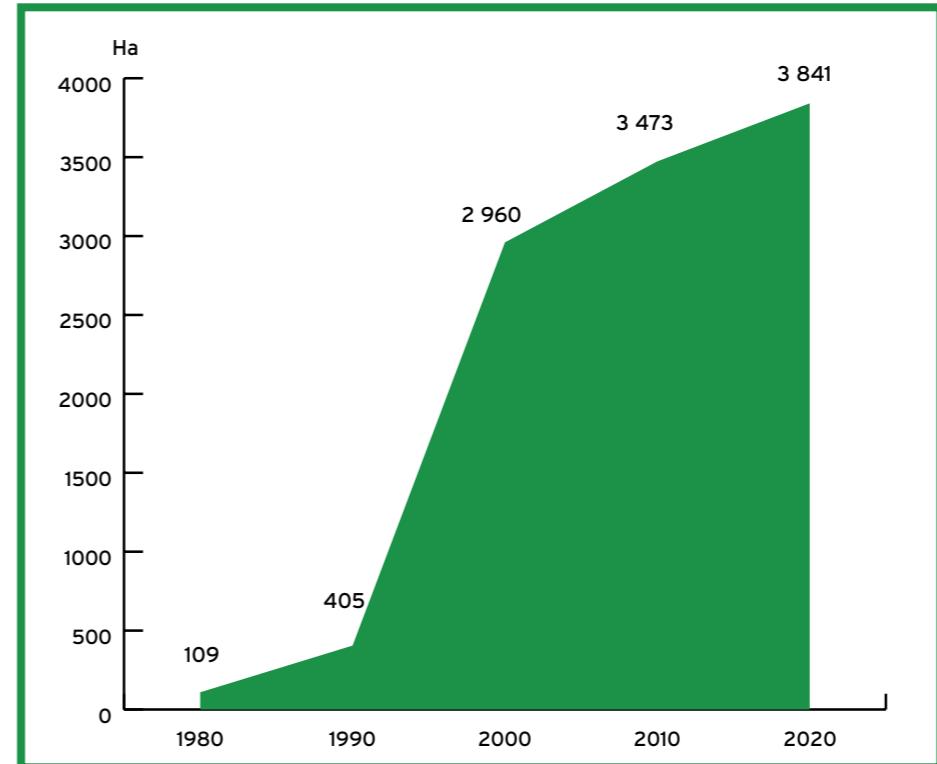
SPRINGS

The springs in Espoo were listed in 2012. The mapping revealed 19 springs in natural state. Spring-fed streams are not included in this figure. Many streams are fed by springs or mires with seepage effect in streambeds or beds. Springs make stream water clearer and, in many cases, maintain their flow during dry season. An even supply of cool, oxygen-rich water throughout the year contributes to the success of the Trout and the Common freshwater shrimp, among others.



PROTECT, RESTORE AND PROMOTE SUSTAINABLE USE OF TERRESTRIAL ECOSYSTEMS, SUSTAINABLY MANAGE FORESTS, COMBAT DESERTIFICATION, AND HALT AND REVERSE LAND DEGRADATION AND HALT BIODIVERSITY LOSS

PROTECTED LAND AREAS IN ESPOO

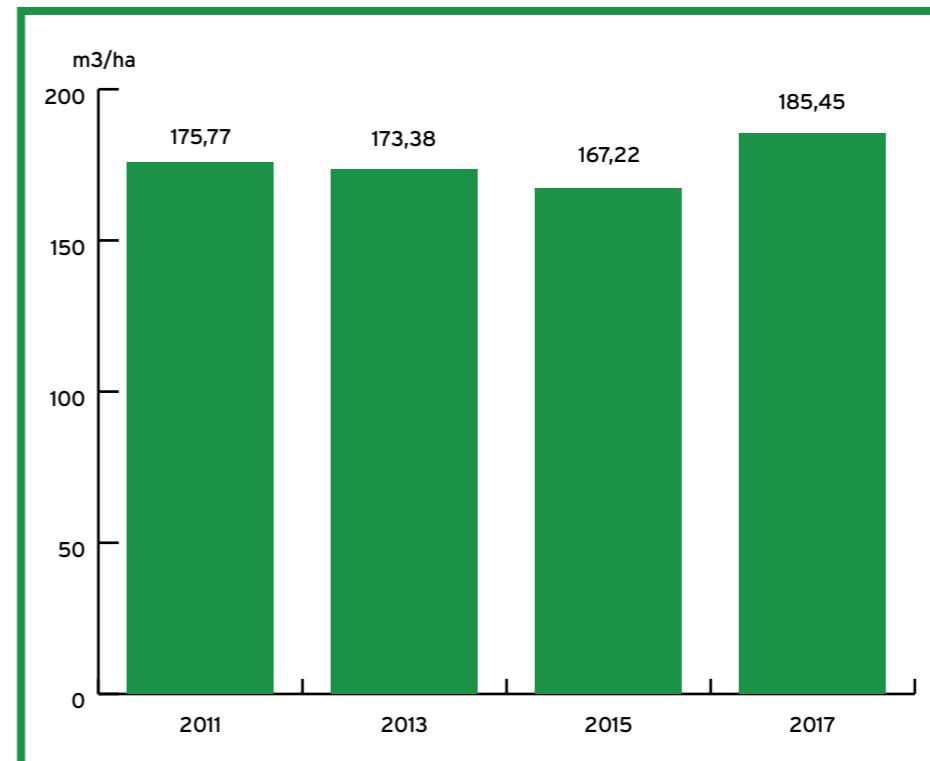


Espoo has altogether 3800 hectares protected area, protected by the Environmental Protection Act. It is about 12,2 % of total land area and about 7,2% of total area water and land included. About 52% of protected area is situated in the Nuuksio Natural Park.

To ensure nature's biodiversity, ecological connections and routes, protected areas, and different species have a joint plan in Espoo.

Espoo has had vast protected land and water areas since 1990's

FOREST COVER



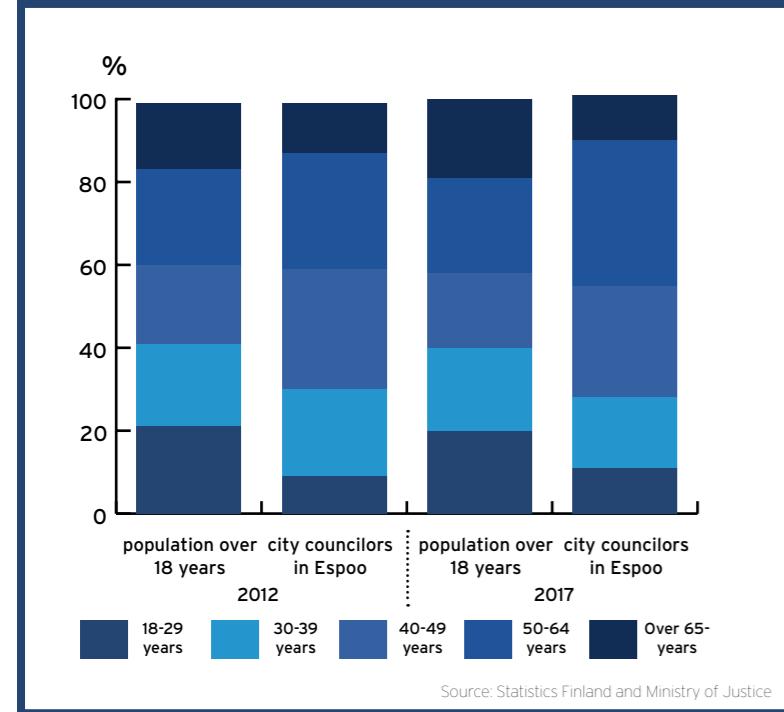
55% of land area in Espoo is covered by Forests. Sturdy trees bind carbon and provide a diverse ecosystem for many endangered species. Spectrum of different tree cultivars and ages provide habitat for a large variety of other species as well.

Indicator shows the forest growth in terms of total volume per hectare.

source: Natural Resources Institute Finland.

PROMOTE PEACEFUL AND INCLUSIVE SOCIETIES FOR SUSTAINABLE DEVELOPMENT, PROVIDE ACCESS TO JUSTICE FOR ALL AND BUILD EFFECTIVE, ACCOUNTABLE AND INCLUSIVE INSTITUTIONS AT ALL LEVELS

THE CITY COUNCILORS' AND OVER 18-YEAR-OLD POPULATIONS' AGE DISTRIBUTION (%) IN ESPOO IN 2012 AND 2017

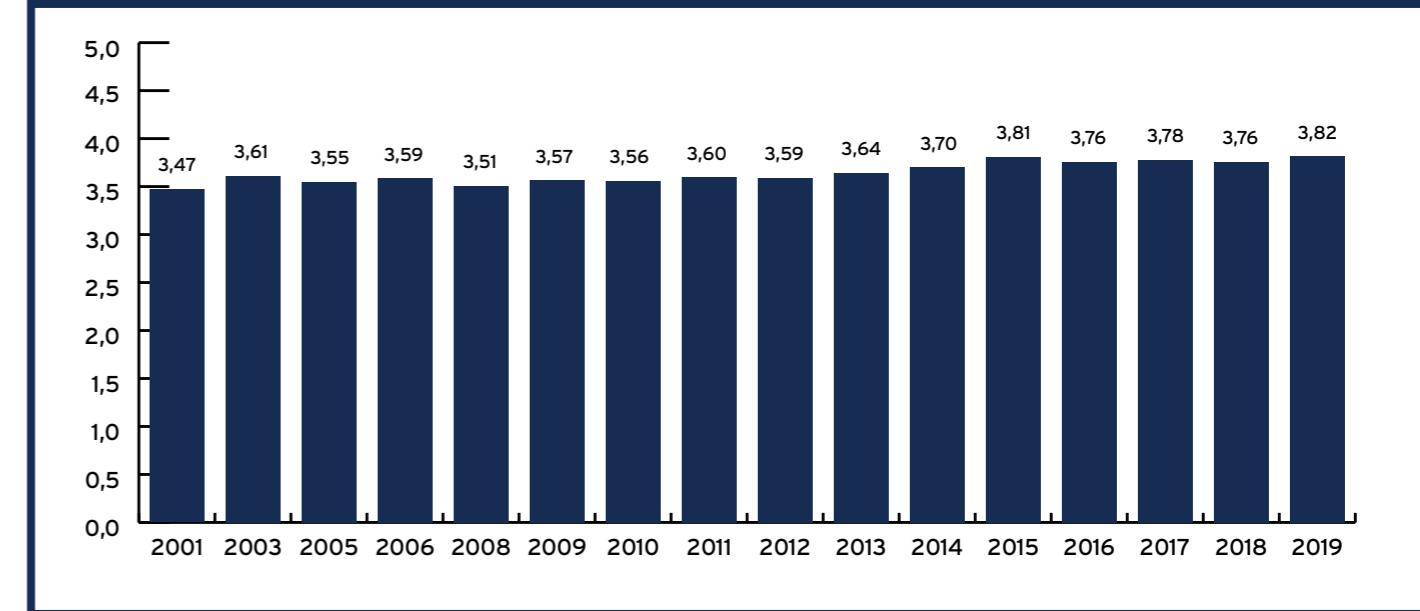


Confidence in political institutions is key for effective democracies. On the one hand, citizens' confidence increases the probability that they vote in democratic elections. On the other hand, it provides politicians and political parties with the necessary mandate to take decisions that are accepted in society. Local government is one of the most important arenas of participation in democratic life (Local Government Act 410/2015, part 2).

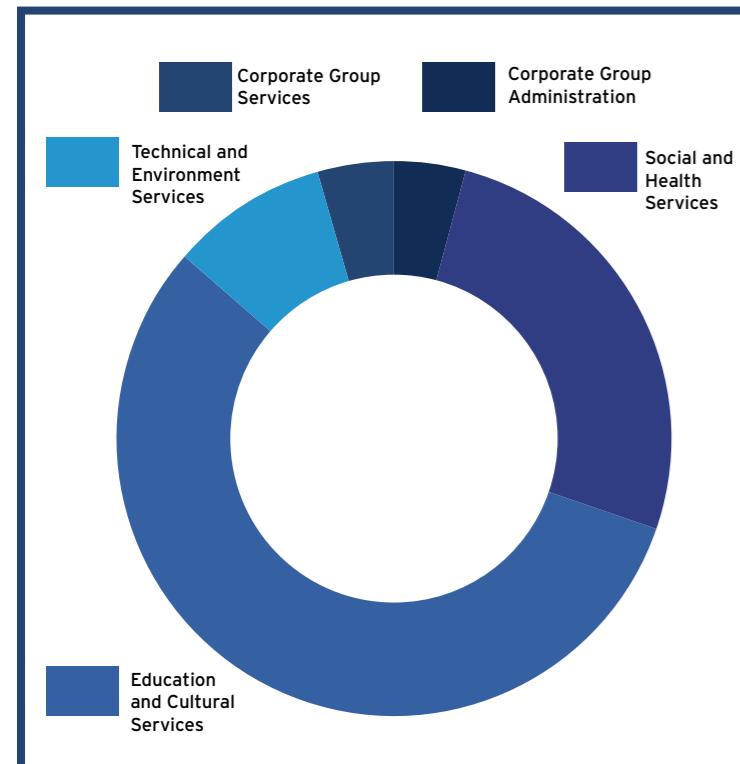
According to the School Health Promotion Study 2019 the young people from Espoo experience that they are trusted. They also feel that they are able to affect the progress of their own life and to reach for the matters, which are important to themselves. The young people mostly experience, that they get help if needed and they belong to a group or community which is important to themselves. In the municipal elections 2017 the turnout percentage in Espoo was 60,1 and in whole Finland 58,9.

STRENGTHEN THE MEANS OF IMPLEMENTATION AND REVITALIZE THE GLOBAL PARTNERSHIP FOR SUSTAINABLE DEVELOPMENT

QUALITY OF MUNICIPAL SERVICES IN ESPOO



CITY OF ESPOO - PERSONNEL



The City of Espoo is a large employer with around 14 500 employees. These professionals and experts of various fields work in three divisions and in the corporate group administration and services.

At the City, there are many kinds of job titles. The City employs engineers, doctors, biologists, lawyers and planners in many different fields. The most common jobs are in early childhood education, teaching, as well as social services and health care.

Espoo employees are relatively well educated. The majority hold at least upper secondary qualifications and almost every third employee holds a higher academic degree.

	2018	2019
Permanent employees, %	81,0	80,9
Share of women, %	79,8	79,7
Average age (years)	44,5	44,5
Average time of employment in Espoo (years)	10,1	10,0
Higher academic degree, %	29,6	29,7
Employees with immigrant background, %	6,2	6,5

The City of Espoo often has the same development needs as other European and global cities. Networking with other cities in Finland, Europe and globally is important. Additionally, the City of Espoo actively cooperates with, for example, local and global business, universities and other higher education institutions, other educational institutions and research institutes. The networks make it possible to learn and exchange information between cities, to create new partnerships and to represent interests in the EU. Through these networks, Espoo can also market the know-how found in the city.

A vital project life supports the realisation of the goals of the Espoo Story. Also service development in Espoo is based on experimental culture and co-creation. Cooperation between citizens and professionals is important in the public sector to improve public services and create possibilities of participation. In Espoo, the city opens doors and invites all stakeholders of municipal services from companies to associations, research institutions and residents to refine old services and innovate new ones together. Espoo residents are also active in participating in third sector activities and voluntary work, which support well-being of residents. Espoo wants to be a pioneer of municipal service development and respond to the challenge posed by continuous and accelerating changes together with different actors.

Urban and municipal services survey is population survey used to effectively determine the perceptions of services amongst municipal inhabitants in Espoo. A similar survey is conducted in many other cities in Finland. This kind of survey gives a possibility to visualise municipality's own strengths and find areas for development.

According to the 2019 survey, Espoo residents are more satisfied with services than the residents in the reference cities (Helsinki, Lahti, Oulu, Turku and Vantaa). The city service has been followed with the broad urban and municipal services index since 2001 and with a more limited urban and municipal services index since 1980's. The broad index includes 54 indicators on housing, healthcare, education, culture and sports facilities, infrastructure, and transportation. These are measured on a scale of 1-5 (very bad-excellent). The "undecided"-answers are deleted and a weight coefficient is used in calculation of the index. Comprehensive school and medical services in health centers have the weight coefficient of 5, hospital services, dental services and early childhood education 3. All other services have the coefficient of 1.



CONCLUSIONS & NEXT STEPS

A city has many functions, but above all it is a community of its inhabitants and a place to live. Experiences, built environment and stories, memories, and images which are related to the places and intertwine and build the future of the city.

In Espoo, the SDGs are perceived as a mutually dependent and phenomenal entity. Therefore, instead of reviewing a single SDG case by case, the VLR was implemented through assessing functional entities, different projects and processes in relation to the entire SDG reference framework. This was a conscious decision and result of thorough discussion with different stakeholders within and outside the city. The idea is that VLR should function as a tool for communicating and collaborating with different cities and entities, but it is also a tool to better understand what is actually happening within the city. We believe that everything starts with this. In a sense, one could say that in Espoo we were a bit selfish when instead of just making a linear SDG review of each SDG independently, we looked at what is happening in the city. Then we mapped that into SDGs based on the action. It makes comparing the SDGs to other cities a bit more demanding but on the other hand, it does give a transparent and holistic picture of what is happening within the city.

If each city has unique operations, so how can one compare the results? It is our view that the very epistemology of VLRs and VNRs is that they should be executed to serve the entity in question, whether it being a city or a nation. Through this inference, understanding and development process, we have more to offer when collaborating with others. In other words, VLR and VNR processes act as vehicles for cities or nations to better understand themselves and provide means for sustainable development. For the City of Espoo, the SDGs are not just targets and indicators, but they are a language that helps us to communicate our strengths, weaknesses, dreams and visions. Completing a VLR is not an exam, neither is it a competition. Just like sustainable development in general, a VLR is an adventure and a journey best traveled together.

In addition to reviewing phenomena, projects and processes within the city and mapping them to SDGs, we also selected key indicators for the city based on each SDG. These are presented in the **SDGs in Espoo** section.

As mentioned already in the beginning of this VLR document, cities are genuinely complex entities. Furthermore, they are in constant organic flow. One can have as many definitions of why cities exist as there are people defining it. The proverb of seven blind men trying to describe an elephant and all giving different descriptions does apply to cities. One should ask, that if this is the case, then where to base your work on and how to steer development? In Espoo it is the Espoo Story, which is the city's strategy. It was also the fundamental starting point for almost all the articles. This is simply because it is embedded into everything that is done in the city. Having a shared vision and statement of values that can then be negotiated, ideated, planned and implemented into all contexts needed is the idea behind it.

As for the SDGs and examining them in relation to the Espoo Story, we found them to be well aligned. At first this was surprising, but

not so much after considering what cities actually do. In Finland, it is cities that plan and implement ecological, social, cultural and economic sustainable development in practice. In Espoo this means literally from birth to organising Frozen-themed dresses for day care centres that are municipally ran but globally acknowledged, to managing a holistic and constantly evolving world-class education and vocational training system, to a lean health care system, elderly care, sports, culture, libraries, end-of-life care and beyond. Not forgetting managing and protecting our environment. When creating a sustainable future, it is in cities where the rubber meets the road. No wonder that Finnish cities, and Espoo as a forerunner amongst them, find Agenda 2030 and the SDGs a good fit to describe their present and future work. Cities and the SDGs are a match forged through everyday pragmatic work in order to serve our citizens.

We wanted to have a VLR process that was:

- 1 Inclusive, participatory, transparent and a thorough process
- 2 Evidence based, would produce tangible lessons and solutions
- 3 It would be followed by concrete action and collaboration that drives SDG implementation
- 4 The review is factual, concrete, solution-oriented, comprehensive, inclusive, transparent and thorough
- 5 The review is a process that commits to the implementation of the SDG and evaluates its implementation in everyday life and in work
- 6 External reviewers are also involved in the review process, which will bring neutrality and credibility
- 7 The review process and the review increase SDG competence in the organisation
- 8 The review boosts the monitoring and evaluation of the implementation of the Espoo Story and of the SDG goals and identifies development targets
- 9 The review strengthens cooperation on sustainable development between cities, at national level and at international level
- 10 The review serves as one of the main communication tools within the city, between cities and for other stakeholders on the local implementation of Agenda 2030 and the SDGs

MAIN RESULTS

The three main results of the review are summarised below:

1. Espoo is very serious about being the most sustainable city in Europe and a UN Forerunner 2025 city. This can be realized through looking at the everyday work that is being done in Espoo. In VLR report this is manifested in three thematic sections: *Leave no one Behind*, *Let's do it Together*, and *Accelerated Action*, which contain the main bulk of what constitutes the Espoo VLR2020. These are sections where articles about social, cultural, economic and ecological sustainability and what the City of Espoo aims to achieve through different operations and projects are reviewed in relation to the SDGs. Articles are written by experts from within city's different units, namely Education and Cultural Services, Technical and Environment Services, Social and Health Services and the Mayor's Office and by key partners of Espoo.

2. National level policy building for sustainable development is important but when talking about implementation, it is the cities that play a key role. The City of Espoo is an excellent example of this. All 17 SDGs can be found from the review results. SDG1 was the most mentioned SDG, which is only natural, but several other SDGs were often selected as the main SDG. Out of these SDG 3, SDG 7, SDG 4 and SDG 9 should be mentioned.

3. SDG4, SDG9 and SDG13 have been and still are the three main SDGs for Espoo. Realizing that all the SDGs are interconnected and mutually dependent the three SDGs are still relevant and needed spearheads and beacons for aligning the SDG work for the City of Espoo. Especially SDG 13 is interconnected to almost every other SDG. One should always look at the gestalt of SDGs but from a point of view. For Espoo it is SDG 4, SDG 9, and SDG 13.

THOROUGH REVIEW PROCESS WITH SYMBOLS FOR FUTURE AND HANDPRINT

Using outside expert help in the review process was clearly a good choice. Dr. Sivi Monni provided valuable help in ideating the review process, designing together the review metrics and participating to the actual review. We found two new symbols that we reviewed for each article. These were: *Future* and *Handprint* potential. They were evaluated in addition to the actual SDGs. This means that all VLR material was examined from three perspectives:

1. SDG relevance: the main SDG and 1-4 others (visualised in report)
2. Future potential: icon, (shown if present)
3. Handprint or CO2 Handprint potential: icon (shown if present)

Symbols and their review criteria are explained in more detail in *Methods* section. Future will show if these new metrics are found to be useful by other cities as well.

CONCLUSIONS AND NEXT STEPS

VLR2020 in Espoo has been a tremendous, exciting and at the same time demanding journey. At the ideation phase the phenomenon-based model was chosen, which meant that all the material would come from within the organization and from different entities in an emergent manner. There was no way knowing what the experts will write or if they will report anything at all. In essence, this meant that the city would be totally exposed to all kinds of criticism already in early phase of the process. From the city leadership perspective, allowing the process to be so open was a very courageous decision. Especially when criticism, albeit constructive, was exactly what was asked from the experts.

Around 100 different VLR articles is the final count when material from the whole city organisation, group level units, institutions and partners are summed together. The number of articles seems irrelevant compared to how seriously all authors and author teams reacted to the request of contributing to VLR. It was simply astonishing. During the workshop and material collection phases it was evident that clear majority of experts and other city officials are

extremely committed to their work. Once the articles started coming in, the editorial team composed of experts from five different units, realized that in addition to commitment towards their work, experts had taken the task of reporting their work to the VLR with earnest. It is this cycle of material creation, editorial work and then SDG -review of the material that is the heart and soul of this review. First the committed work of experts, then editorial team trying its very best to grow up to the challenge of editing the material in a concise, fair and just way. And finally, the review team, with outside expert help, sparing no effort in making sure that all articles receive a just and thorough review. This is what constitutes the core of what Espoo VLR2020 is all about.

Next steps for SDG work in Espoo include embedding the SDGs into all operations of the city. The new Espoo Story will be ideated, designed and created starting almost immediately after this VLR process. Results and the overall content of VLR will act as a baseline for integrating SDGs into the next city strategy, the Espoo Story. It will be the roadmap for all activities and operations in the city for the timeline Year 2021 to Year 2025, which is also the last year of the UN Forerunner 2025 project.





VOLUNTARY LOCAL REVIEW

IMPLEMENTATION OF THE UNITED NATIONS'
SUSTAINABLE DEVELOPMENT GOALS 2030 IN THE CITY OF ESPOO

