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Futures review by the Ministry of Transport and Communications

WELL-BEING AND SUSTAINABLE GROWTH WITH WELL-FUNCTIONING NETWORKS, SERVICES AND INFORMATION

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Well-being and sustainable growth with well-functioning networks, services and information

Futures review by the Ministry of Transport and Communications

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Abstract

The purpose of the futures review by the Ministry of Transport and Communications is to provide assessments of the state of society and matters requiring political decision-making for the next term of government. The transport and communications policy solutions will be guided by global megatrends, most significantly by climate change, technology development, the working life revolution, urbanisation, financial development and infrastructure service levels.

Transport and communications create well-being, sustainable growth and competitive capacity. The transport and communications policy of the future must encompass a brave new vision in which Finland is a global hub for the transfer of people, goods and data. Succeeding in this requires national commitment extending over several terms of government.

This futures review assesses the future prospects and actions in the field of transport and communications through four themes: services, information, climate and networks. Transport and communications networks serve as platforms for service provision and information utilisation, and they must meet clients' service needs in terms of condition and capacity. Well-functioning routes are required to enable the flawless use of new transport services and the provision of cost-efficient transport for businesses with the help of digitalisation and automation. Climate change accelerates the deterioration of the route network. Moreover, significant reductions in traffic emissions are required.

The biggest challenges for the transport and communications policy in the 2020s will be related to route network funding, emission reductions and the coverage of communications networks.

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Liikenne- ja viestintäministeriön tulevaisuuskatsauksen tavoitteena on tuottaa arvioita yhteiskunnan tilasta ja poliittista päätöksentekoa edellyttävistä asioista seuraavalla hallituskaudella.

Tulevaisuuden liikenne- ja viestintäpolitiikan ratkaisuja ohjaavat suuret maailmanlaajuiset megatrendit. Niistä merkittävimpiä ovat ilmastonmuutos, teknologinen kehitys, työn murros, kaupungistuminen, taloudellinen kehitys ja infrastruktuurin palvelutaso.

Liikenne ja viestintä luovat hyvinvointia, kestävää kasvua ja kilpailukykyä. Tarvitsemme tulevaisuuden liikenne- ja viestintäpolitiikalle entistä rohkeamman vision, jossa Suomi on globaali solmukohta ihmisten, tavaroiden ja datan liikenteelle. Sen saavuttaminen edellyttää useiden hallituskausien ylittävää kansallista sitoutumista.

Tulevaisuuskatsauksessa arvioidaan liikenteen ja viestinnän tulevaisuuden näkymiä ja toimenpiteitä neljän teeman kautta: palvelut, tieto, ilmasto ja verkot. Liikenne- ja viestintäverkot ovat alusta palveluille ja tiedon hyödyntämiselle ja niiden on oltava asiakkaiden palvelutarvetta vastaavassa kunnossa. Digitalisaatio ja automaatio edellyttävät hyviä väyliä, jotta uusia liikennepalveluja voidaan käyttää ja elinkeinoelämän kuljetukset sujuvat kustannustehokkaasti. Ilmastonmuutos kiihdyttää väyläverkon rapautumista entisestään ja edellyttää lisäksi merkittäviä päästövähennyksiä liikenteeltä.

Väyläverkon rahoitus, päästövähennykset ja viestintäverkkojen kattavuus ovat 2020-luvun suurimmat liikenne- ja viestintäpolitiikan haasteet.

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Syftet med kommunikationsministeriets framtidsöversikt är att ta fram uppskattningar av samhällsläget och frågor som kräver politiskt beslutsfattande under de kommande åren.

Den framtida transport- och kommunikationspolitikens lösningar styrs av globala megatrender. De viktigaste av dem är klimatförändringen, den tekniska utvecklingen, förändringar i arbetet, urbaniseringen, den ekonomiska utvecklingen och servicenivån i fråga om infrastrukturen.

Transport och kommunikation skapar välfärd, hållbar tillväxt och konkurrenskraft. Framtidens transport- och kommunikationspolitik behöver en allt djärvare vision där Finland är en global knutpunkt för trafik med människor, varor och data. För att uppnå detta krävs det ett nationellt engagemang som sträcker sig över flera regeringsperioder.

I framtidsöversikten uppskattas kommande utsikter och åtgärder inom transport- och kommunikationssektorn genom följande fyra teman: tjänster, information, klimat och nät. Transport- och kommunikationsnäten är en plattform för tjänster och för utnyttjande av information och de måste svara mot kundernas behov av service. Digitaliseringen och automatiseringen förutsätter goda förbindelser som gör det möjligt att använda nya transporttjänster och att utföra näringslivets transporter på ett kostnadseffektivt sätt. Klimatförändringen påskyndar försämringen av trafikledernas skick och kräver dessutom att utsläppen från trafiken minskas avsevärt.

Inför 2020-talet utgörs de största utmaningarna för transport- och kommunikationspolitiken av finansieringen av trafikledsnätet, minskningen av utsläpp och kommunikationsnätens täckning.

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Contents

INTRODUCTION

The futures review of the Ministry of Transport and Communications was prepared by public servants, and the views expressed in it have not been subjected to political debate. The purpose of the review is to produce evaluations of the state of society and matters requiring political decision-making for the next term of government. These are also some of the objectives Finland may promote during its EU Presidency in autumn 2019.

The transport and communications policy solutions will be guided by global megatrends, most significantly by climate change, technology development, the working life revolution, urbanisation, financial development and infrastructure service levels. These major drivers for change were evaluated in the Prime Minister's Office's drivers for change cards, which were produced jointly by all the ministries.

Transport and communications create well-being, sustainable growth and competitive capacity. The transport and communications policy of the future must encompass a brave new vision in which Finland is a global hub for the transfer of people, goods and data. Succeeding in this will require national commitment extending over several terms of government.

This futures review assesses the future prospects and actions in the field of transport and communications through four themes: services, information, climate and networks. It explains why the biggest challenges for the transport and communications policy in the 2020s will be related to route network funding, emission reductions and the coverage of communications networks.

As public servants we look boldly to the future, also encouraging policy-makers to embrace the same courage to promote Finland's well-being and sustainable growth.

Helsinki, June 2018

Harri Pursiainen
Permanent Secretary

1 State of play and future challenges of transport and communications

Finland's well-being is based on foreign trade, and Finland thus needs good connections to key market areas. In the future, Finland should put itself on the world map in a new way. Should we wish, Finland could become a global hub for the transfer of people, goods and data. At the same time, the accessibility of regions and areas within our country is a key issue for the nation's success that must be addressed.

Transport and communications networks serve as platforms for service provision and information utilisation, and they must meet clients' service needs in terms of their condition and capacity.

Success in the creation of communications markets since the 1980s has improved telecommunications services and pushed the prices down. The entry into force of the new Act on Transport Services in 2018 will bring about an overhaul of the transport market legislation. A decision has been made to open rail passenger transport for competition in the 2020s.

New transport regulation will put the client at the centre and give businesses a freedom to create new services. The public sector will enable development, remove obstacles and secure a minimum service level.

Servicification will continue in the transport and communications sector. Transport and communications services will merge. It has been estimated that the value of the global transport services market may reach EUR 800 billion by 2030. This is also an important opportunity for Finnish businesses and entrepreneurs.

Significant reforms have been carried out in the field of information policy in recent years, which will help create new business and competitive capacity and facilitate decision-making. Information serves as the fuel for services and artificial intelligence, making our society more efficient, safe and equitable. Information enables more user-friendly, affordable and environmentally friendly services. Access to information is one of the critical factors in the digital economy.

Human work and responsibilities are increasingly being taken over by autonomous technologies, also in transport. In time, robots and artificial intelligence will turn mobile humans from drivers into passengers in all modes of transport.

Well-functioning routes are required to enable the use of new transport services and the provision of cost-efficient transport for businesses with the help of digitalisation and automation. Finland's deteriorating route network is already having a negative effect on the competitive capacity of businesses in all regions. Climate change accelerates the deterioration of the route network and, additionally, significant reductions in traffic emissions are required.

The urbanisation trend should be taken into account in transport and communications policy solutions. The population is concentrating to growing urban sub-regions and the growth corridors linking them. The Helsinki Metropolitan area will hold on to its role as the driving force of the nation. The national importance of urban sub-regions is already great, as 70-85% of the population live in them.

The biggest challenges in the future will be related to transport and communications networks. There are shortcomings in the coverage of the communications networks, and the low funding level for the transport network leads to deteriorating road quality. This problem risks becoming an obstacle to Finland's well-being and competitive capacity.

The transport and communications networks should be developed to respond to future changes in transport digitalisation, automation, urbanisation, emission reduction targets as well as the utilisation of northern areas. Rather than as costs, inputs in the transport network should be seen as an investment, following the example of communications networks. These investments and their interests will promote well-being and competitive capacity.

Significant additional investments will be needed in repairs to the current route network and the construction of new routes that will serve entire Europe. According to reports produced by the Ministry of Transport and Communications and the Finnish Transport Agency, the funding needs of transport infrastructure projects supporting business competitiveness and sustainable growth will be as much as EUR 60 billion over the next ten years. As the annual funding allocated to transport investments in the State budget has been approx. EUR 450 million, it would take over 130 years to implement the future transport projects within the current budgetary framework.

The route network is also afflicted by a maintenance backlog amounting to EUR 2.5 billion, which must be reduced. The level of appropriations allocated to basic transport infrastructure maintenance has a direct impact on the maintenance backlog amount.

Extremely high emission reductions will be required in the transport sector. Finland is committed to halving transport emissions compared to their levels in 2005 by 2030. Our ambitious target is reaching carbon free transport by 2045. Research will be needed to support the assessment of the overall impacts of this change. Without new measures, economic growth will increase traffic volumes and thus also emissions.

Investments will also be required to meet the emission reduction obligations. For instance, rail capacity needs to be improved in order to increase the railways' share in the modal split. At the same time, climate change accelerates the deterioration of the route network.

The biggest challenges for the transport and communications policy in the 2020s will be related to route network funding, emission reductions and the coverage of communications networks. They will have a direct impact on well-being and competitiveness in the entire country.

A key question is if the transport funding problem can be successfully solved by focusing on developing the on-budget funding model, or if we could boldly think outside the box and carry out a major systemic change in who owns and funds the routes and who pays for their use. The next government will have to take a stand on future solutions to ensure that the transport network will not be an obstacle to sustainable growth and competitiveness.

The options for solving each future challenge are discussed in detail in the following thematic chapters.

Image: Should we wish, Finland can become a global hub for the transfer of people, goods and data.

2 Transport and communications are services

2.1 Market creation will be continued

Transport and communications services are a precondition for the mobility of people and goods, access to and use of other services, building of communities and free time activities. A car will become a terminal device, and in an increasingly automated future, also a place in which we spend our free time. In a digitalising world, the good condition and adequacy of transport and communications networks are vital prerequisites for services and markets. Transport and communications services are an essential precondition that enable companies to do business. Services will grow in importance in the Finnish economy and exports.

Transport and communications services should mainly be provided on a commercial basis, leaving companies room for manoeuvre. Society will also need to participate in paying the costs of public transport in the future, but the current subsidised operation could be used for experimentation that could lead into the creation of new markets. Companies will generate growth, jobs and tax revenue as well as business models suitable for the international market. The largest cities will be the drivers for developing services.

The transport market is undergoing a strong period of renewal. Market creation and the enabling of new business should be continued. The importance of the Mobility as a Service (MaaS) model is highlighted in transport policy. The increasingly digital industry and sharing economy models will create new global competition. If Finland manages to develop effective mobility service solutions, digital transport services will also offer immense potential for exports.

The challenge lies in promoting the use of new transport services and integrating them in the transport system as a whole and in public transport travel chains. Ensuring access to information is essential in terms of mobility service development, so that creating obstacles to travel chains that combine different modes of transport can be avoided.

The use and development of services based on a sharing economy should also be promoted by reviewing the sharing economy legislation.

Media services and the accessibility of Finnish content have a vital role in terms of the functioning of society and the democratic system. In the transition phase, safeguarding Finnish content will be increasingly important.

Global platforms will gain an ever stronger foothold in the information and media market. Competition will no longer take place between domestic actors. At the same time, cooperation between such stakeholders as a public service and commercial media will play an important role. This offers ways of also supporting commercial media.

As digitalisation makes headway, however, we should also be aware of the need to find ways of reducing the distribution costs of conventional media, which is important for a large share of the population, and improving the efficiency of their distribution.

The media sector should not be looked at exclusively from the viewpoint of certain media types, such as the television, the press or the radio. Different kinds of media are merging, and drawing clear lines between them is challenging. This should be stressed in such contexts as exerting influence on European Union decisions. The distribution channels should be treated equally in regulation, for example on advertising. Additionally, support could be channelled to demand and, in part, directly to consumers when making decisions about any tax and aid schemes.

When exerting influence in the EU, the focus should be on creating effective competition and markets as well as safeguarding people's possibility of managing their own data. Dominant position situations should be intervened in, especially through competition law instruments. It is important for Finland to advocate net neutrality in the EU also in the future in order to preserve the communication service users' and producers' freedom of using and providing different services.

2.2 Defining the service level is a challenge

As housing and services concentrate in urban sub-regions, offering high-quality transport and communications services profitably in sparsely populated areas is not always possible. However, society should guarantee minimum transport and communications services for everyone, regardless of where they live.

If commercial offer of transport services cannot respond to essential mobility needs, specifying a minimum transport service level to secure citizens' well-being and equity is justified. A minimum service level has currently been specified for postal and telecommunications operations among other things. The definition of the minimum

service level for transport could be based on access to certain basic services (health centre, school, shops), rather than access to a specific transport service.

The minimum service level could, for instance, be guaranteed by means of regulations or legislation. Equality can also be promoted by providing services accessible for special groups. This aspect of accessibility should be addressed throughout the lifecycle of transport and communications services, and diverse user groups should be involved in planning the services.

In media policy, the role of the minimum service level is highlighted in the world of fake news and hybrid influencing, as it is the special task of public media services to combat these phenomena. The public service provided by the Finnish Broadcasting Company sets the minimum service level in this sector. Some commercial media services important for the public interest can also be regarded as part of the minimum service level. As the web and mobile devices are playing a more and more important role in media consumption, the Finnish Broadcasting Company's contents should be available online to reach all segments of the public.

Finnish edited content will also contribute to safeguarding stability and democracy in society. While digitalisation has facilitated access to contents, it has also resulted in the proliferation of fake news and attempts at hybrid influencing. This trend can be counteracted by well-informed media users. Improving critical media literacy is a cost-effective form of preparedness.

3 Well-being and growth from information

3.1 Finland into a pioneer of data economy

Data is the foundation of all digital business. The best innovations as well as innovative business and services are created by combining data. The accessibility of both public and private sector data must be promoted by means of common rules and, where necessary, also legislation.

Companies need to have great volumes of data at their disposal as teaching material and driving force for artificial intelligence. In order to enable artificial intelligence to serve humans with its unlimited potential for different applications, access to data and the protection of privacy must be ensured. Market development should be guided to rely on solutions in which data is used responsibly.

The development is slowed down by shortcomings related to data quality, interoperability, rights of use and openness. Any centralisation of data to a few large international companies would prevent the development of data economy and competition.

It is particularly important to create principles responding to different needs for rights of use to data, thus providing companies with better preconditions for distributing them. There should be an obligation to open private sector data that play a key role for societal development while also paying particular attention to the protection of privacy and business secrets.

Trust is the basic requirement of the digital economy. The utilisation of data should take place responsibly and with respect for privacy, as everyone has the right to confidential communications and the protection of private life. For this, new models of managing, processing and distributing data are needed, which preserve the confidentiality and integrity of the data. The security of digital products can be improved by promoting security certification, standards and audits, either on a mandatory or a voluntary basis. The preconditions for inspiring trust include making sure that the confidentiality of communications is not unreasonably restricted by the authorities. Finland should actively promote solutions that support trust and cybersecurity both in the EU and globally.

The most efficient way of improving an individual's digital rights and potential as a data economy actor would be including even stronger rights of managing the individual's own data (MyData) in legislation. This would allow individuals to personally specify what their data may be used for, thus generating ethical business based on the protection or privacy.

Digitalisation and automation in transport and logistics require easy and real-time access to key data in digital format. This development should be promoted through both networking and legislation. The aim should be at optimised and efficient logistics chains, the creation of logistics hubs and export of logistics solutions. A legislative framework should be created for the use of aircrafts and distribution robots in logistics, and the infrastructure needed by them should be developed. Improving the quality of positioning and condition data, for example by relying on national and international space infrastructure, is key to this development.

3.2 Enabling automated, safe and efficient transport

Human work and responsibilities are being taken over by increasingly more autonomous technology, also in transport. Mobility is already supported by automation, and step by step, the trend will be towards fully automated transport. Robots and artificial intelligence will turn a mobile human from the driver into a passenger in all modes of transport.

The vehicles and routes used for automated transport must be safe, and the users must be able to trust them. Preconditions for transport automation include a comprehensive digital infrastructure and the availability of communications connections. Digital infrastructure for traffic control should be developed in all modes of transport. Investments and access to satellite positioning will also be necessary.

Enabling legislation and operating licence conditions are needed in order for automated transport to develop. The phase in which conventional and autonomous traffic are using the routes simultaneously should also be addressed in regulation. The aim is at legislation that creates business opportunities and promotes the interoperability and safety of the transport system. At the same time, the ethical questions and responsibilities related to artificial intelligence must be resolved, as well as issues related to algorithm transparency.

Competence and trust related to automated transport can be built by investing in testing it and experimenting with it in different modes of transport and by imposing quality requirements that improve the interoperability and safety of traffic on routes.

4 Bold actions required to reduce transport emissions

4.1 Carbon-free transport by 2045

Transport emissions constitute approximately one fifth of all greenhouse gas emissions in Finland, and some 40% of emissions in the non-ETS sector. The objective of the National Energy and Climate Strategy and the medium-term climate change policy plan is to reduce transport emissions by one half compared to their 2005 levels by 2030. Finland is aiming for carbon-free transport by 2045.

The measures for achieving carbon-free domestic transport by 2045 must be outlined at the beginning of the next government term. This will require a clear joint vision and an ambitious action plan that spans several government terms. Research will be needed to support the assessment of the overall impacts of this change. Concrete new means for cutting the emissions are needed now, rather than in the 2030s.

The parliamentary working group on the transport network noted in autumn 2017 that a large range of measures will be needed to reduce transport emissions, including aids, tax incentives, regulation and actions that promote the servicification of transport. The group stressed that additional measures will be essential in order to reduce emissions.

The greatest potential for cutting emissions is found in road transport, which produces about 90% of the emissions from domestic transport. The most effective way of reducing emissions is increasing the proportion of renewable fuels and improving the energy efficiency of the transport system and vehicles. Urban planning and transport pricing can be used to influence people's mobility habits.

Costs will be incurred over the short term from reducing emissions and adapting to climate change. For example, investments in the rail network will be needed, as the capacity of the railways must be improved in order to increase their share in the modal split. As climate change speeds up the decline of the route network, pressures to increase the level of appropriations for basic transport infrastructure maintenance are mounting. On the other hand, emission reduction measures also offer significant business opportunities, for example in the cleantech sector. Emission reduction measures should combine efficient utilisation of the opportunities with minimising the negative impacts on businesses and citizens.

Measures agreed in international forums play a key role in efforts to reduce emissions from shipping and air traffic. Finland actively exerts influence in the International Maritime Organization (IMO) and the International Civil Aviation Organization (ICAO) on the definition and introduction of measures aiming to reduce emissions from shipping and air traffic. In 2021, Global Market Based Measures will be introduced to halt the increase in aviation emissions at the 2020 level. Air traffic is also within the scope of the EU's emissions trade, the terms of which are expected to become more stringent in the 2020s.

4.2 Towards an energy-efficient transport system

From the user's perspective, servicification will lead into a transport system of the future that is sustainable, transport mode neutral and dynamic. The transport system will consist of services that offer seamless interoperability on land, at sea and in the air.

In order to improve the transport system's energy efficiency, sustainable modes of mobility should be promoted in land use and transport system planning. Especially in urban sub-regions, walking and cycling, the attraction of public transport and the new MaaS services of transport instead of private car use should be promoted.

The central government, counties and cities should intensify their cooperation related to transport, land use, building, housing, business development and environmental issues, for example by developing the current agreement procedure.

The key challenge in improving the transport system's energy efficiency lies in the traffic performance trends of cars, or the number of kilometres driven, which could be directly influenced by the urban structure. A precondition for achieving the emission reduction targets is more competitive low-emission forms of transport.

Transport performances can also be reduced by such means as effective remote connections and online services as well as by using mobility data more efficiently. Digitalisation, automation and new transport services will make for more streamlined travel chains and reduce fuel consumption. Experiments associated with these areas should be promoted.

Low-emission forms of mobility could also be given preference in transport taxation. Instead of incentivising private motoring, incentives that encourage the use of alternative modes of transport should be introduced. The introduction of an air travel tax could also be considered.

4.3 Use of new energy sources

The more extensive use of low-emission and renewable fuels and energy forms will be a key method for reducing emissions in all modes of transport. The proportion of biofuels will be increased to 30% of all fuels sold for road transport by 2030. This goal is extremely ambitious.

However, biofuels alone will not be sufficient. While the biofuel target for 2030 may be reached using the current raw materials, improving those figures will not be possible. The targets for cutting emissions will become more stringent, and thus other energy forms will also be needed. The goal is that in 2030, there will be at minimum 250,000 electric and 50,000 gas-powered cars in Finland.

The low number of cars running on alternative fuels also slows down the distribution network development. National support is thus needed to ensure the fast renewal of the vehicle stock. The distribution network, on the other hand, should be built on commercial terms.

Factors affecting emissions from air traffic include a strong growth in the transport performance and lack of alternative fuels. The international goal of halting the growth of CO2 emissions at the 2020 level will be extremely difficult to reach. In the years to come, an actual reduction in the emissions is the target. Advanced biofuels will play a key role in this, as no other alternative energy forms are on the horizon.

A precondition for achieving significant cuts in emissions from shipping would be replacing heavy fuel oil with other fuels. The automation of shipping is also expected to reduce fuel consumption. Additionally, more efficient transport system operation and logistic chains will be needed.

4.4 Towards a vehicle stock with lower emissions

The vehicle stock in Finland is the oldest in Europe. The average age of cars in Finland is approx. 12 years, and the current measures have not been able to change this situation. New cars produce clearly lower emissions while being safer. Measures are urgently needed to replace the old vehicle stock by vehicles with lower emissions. Taxation will play a key role in this.

The renewal of the vehicle stock should be speeded up while making sure that any new cars sold are as environmentally friendly as possible. The emissions of new cars

are influenced by requirements set by the EU on car manufacturers as well as national economic policy instruments, including environment-based taxation or support for purchases of electric cars.

An effort to promote purchases of low-emission cars has been made in Finland through car and vehicle taxation staggered according to the vehicle's CO2 emissions. Together with the CO2 threshold values set by the EU, this has considerably decreased the nominal emissions of new cars sold in Finland. However, the taxation model has not provided a sufficient incentive for getting such vehicles as electric or gas-powered cars onto the roads. An overhaul of transport taxation will be unavoidable to ensure that taxes have a more effective impact on the environmental friendliness of the car stock and to realise the central government's fiscal targets concerning tax revenue from transport.

5 Network policy with a longer time span

5.1 Ensuring a transport network service level meeting client needs

We need a bolder vision for the transport and communications policy that will support well-being and sustainable growth. In the future, Finland should put itself on the world map in a new way. Should we wish, Finland could be a global hub for transfers of people, goods and data through well-functioning transport and communications networks. The accessibility of regions and areas within the country should also be addressed.

Determined and bold political decisions extending over several government terms will be needed to turn this vision into reality. It will also challenge the central government budget economy and spending limits thinking.

The transport network condition and communications network capacity do not sufficiently support client needs, digital services and automation. A clear improvement will be needed in the service level of the routes to enable the use of new transport services and cost-efficient transport operations for businesses. The deteriorating route network is already having a negative effect on business competitiveness in all regions. Climate change accelerates the deterioration of the route network. Shortcomings still remain in the national coverage of the communications networks.

The transport and communications networks should be developed to respond to future changes in urbanisation, intelligent and automated transport, digital services, emission reduction targets and the utilisation of northern areas.

In the context of transport network maintenance and development, the decision on the main network and the national 12-year transport system plan are interlinked. They lay the foundation for long-term planning. Finland must actively exert influence at the EU level, promoting the extension of the European Ten-T core network northwards in cooperation with Sweden and Norway.

The possibilities of developing Helsinki-Vantaa airport, which is important in terms of Finland's international connections, must be safeguarded. The business life expects domestic destinations to also be accessible by air.

The land transport connections of the ports will be improved in line with the decision on the main network. In ice-breaking, traffic control and pilotage, the possibilities of the companies responsible for these functions to provide the services efficiently and to a high standard will be ensured.

5.2 Putting transport network funding on a sustainable foundation

Transport and communications networks are at the very core of society's infrastructure. They are the drivers for change of societal development. Rather than as costs, inputs in the transport network should be seen as an investment, following the example of communications networks funded on commercial terms. Investments in transport and communications networks will be returned with interest as prosperity and competitive capacity.

Repairs to the current route network and the construction of new routes serving entire Europe will require significant additional investments. According to reports produced by the Ministry of Transport and Communications and the Finnish Transport Agency, the funding needs of transport infrastructure projects supporting business competitiveness and sustainable growth will be as much as EUR 60 billion over the next ten years. As the annual funding allocated to transport investments in the State budget has been approx. EUR 450 million, it would take over 130 years to implement the future transport projects within the current budgetary framework.

The Finnish route network is also afflicted by a maintenance backlog amounting to EUR 2.5 billion, which must be reduced. The level of appropriations allocated to basic transport infrastructure maintenance has a direct impact on the maintenance backlog amount. The current Government has significantly increased the appropriation for reducing the maintenance backlog, and an additional amount of approx. EUR 1 billion was allocated to basic transport route maintenance for 2016–2019. However, the needs keep growing. The heat wave of this spring, for instance, resulted in the most severe frost heaving damage in 20 years to roads across the country. Weight limits have been imposed on approx. 4,000 km of unpaved roads, and this figure is increasing further.

If the unanimous proposal of the parliamentary group concerning an annual increase of EUR 300 million in the level of appropriations is carried out in the following government term, this will significantly improve basic route network maintenance. In practice, it would mean an annual appropriation of EUR 1.3 billion for basic route network maintenance, or a 10% increase in the Ministry of Transport and Communications' main title. Otherwise the

maintenance backlog will keep growing, and Finland may have to scale back the state's road and rail network.

It is obvious that the level of funding for transport network development must be increased, and more flexible budgeting practices must be introduced. Transport project funding should be closely linked to the 12-year national transport system plan. Further innovative solutions will still be needed to implement the requisite investments, however. Added flexibility in the current budget funding model and the potential establishment of project companies alone will not be sufficient to solve the investment needs of future routes.

The Finnish Transport Agency (Transport Infrastructure Agency), which is responsible for the state transport network, is mainly funded from the State budget. The private sector's possibilities of implementing transport network development projects should be actively promoted. The goal is that large-scale transport network development projects will be implemented by project companies. The question of their cash flow funding needs to be solved, however, as the companies' interest is currently reduced by the lack of possibilities for pricing the road network use and restrictions applied to railway infrastructure charges.

The introduction of a regional or national road toll system will thus have to be considered during the next government term. At least some of the transport network investment costs could be covered with the tolls, simultaneously obtaining environmental benefits. The toll would be a payment for a better service level.

In the boldest vision, the possibility of transferring the entire road network to a state enterprise could be considered based on experiences obtained from project companies, analogically to the way in which Finavia Oyj is responsible for the country's airports. Incorporation would necessitate making the entire road network subject to tolls, thus guaranteeing the state enterprise sufficient revenue flows for maintaining and developing the road network.

Fairway dues and rail infrastructure charges also need to be reformed. The fairway due system should be reformed with the aim of achieving a solution that is sustainable for society and businesses and viable over the long term. It should be possible to use the fee revenue collected as a result of the infrastructure charges reform for funding rail network investments.

5.3 Urban policy with a higher impact

When developing the transport system, more attention should be paid to the needs of urban sub-regions. In particular, measures reducing transport emissions and the need to integrate new services in the city transport system should be addressed. The greatest potential for new MaaS services as well as increasing walking and cycling lies in the cities.

Transport connections between cities will also be highlighted. The objective is creating larger employment areas in which transport is based on fast, low-emission services. In rail transport between growth centres, the potential for developing commuter train traffic in urban sub-regions as well as the possibilities of opening passenger transport for competition when developing travel chains relying on rail traffic should be addressed comprehensively.

The central government, counties and cities must intensify their cooperation related to transport, land use, building, housing, business development and environmental issues. National political leadership is called for in urban policy. Cooperation between the ministries that play a key role in urban policy (Ministry of Economic Affairs and Employment, Ministry of the Environment, Ministry of Transport and Communications) should be intensified in order to promote sustainable urban development, for example through a joint ministerial group. Active urban policy requires diverse cross-administrative cooperation and agreement procedures between the central government, counties and cities.

The agreement procedure aiming for a sustainable urban structure between the central government and urban sub-regions should be strengthened and updated by extending it to medium-sized urban sub-regions. The cooperation agreements should address better the needs of industries and services, utilisation of information and enabling new services. The construction of communications networks should be taken into account in the agreements from the perspective of developing smart cities.

5.4 Securing the quality and coverage of communications networks

Ultra-fast data communications promote competitiveness, business opportunities and well-being across Finland. The speed and quality of communications networks should be sufficient to enable future services and innovations. The digital infrastructure should support the utilisation of automation, robotisation and real-time data economy and thus promote digital development and services in such areas as health care, the media, education and transport.

The radio spectrum is a valuable and limited natural resource of great societal and economic importance. Finland should continue to allocate as wide a spectrum as possible to wireless broadband connections. To enable this, Finland needs to actively exert influence both internationally and at European Union level.

Finland aims to be a global pioneer in the testing, development and commissioning of fifth generation (5G) wireless systems and technologies that will be introduced for commercial use in the 2020s, and sixth-generation (6G) systems to be developed at a later date.

Optical fibre networks will continue to facilitate the most reliable and fastest fixed broadband connections. Optical fibre connections will also be needed for base stations supporting mobile communication devices. Effective competition in the Finnish mobile communications market has resulted in the rapid building of networks as well as the provision of high-quality services at affordable prices. In the supply of fibre optic connections, too, the aim should be at more effective competition and discouraging regional centralisation. In addition to competition related to networks and services, the building of open networks, leasing of passive infrastructure and demand for ultra-fast connections in households and companies should be encouraged to support the market.

The building of communications networks can be speeded up by cutting the building costs. Cost-efficient placement of cables and base stations and streamlined permit procedures should be ensured. Implementing the one-stop shop principle should be aimed at in the permit procedures. A significant part of broadband construction is taking place in urban areas and municipalities, and municipalities should thus be actively encouraged to develop their procedures in order to facilitate broadband construction.

In addition to next-generation wireless connections and ultra-fast fibre optic connections, other evolving technologies may also be part of the future communications network infrastructure, including so-called fixed wireless connections or small satellite solutions. The communications policy must be as technology neutral as possible in order to enable the most innovative and cost-efficient solutions.

Communications networks will mainly be maintained and developed on commercial terms by telecommunications companies also in the future. It is likely, however, that telecommunications companies will only build ultra-fast broadband connections in areas where this is commercially profitable. If necessary, the central government must ensure through operating licence conditions or by other measures that, in keeping with the target set by the EU, all households will have access to a 100 Mbit/s connection which can be upgraded to one gigabyte per second.

Similarly to other sectors, automated transport will need sufficiently extensive communications networks. Transport hubs, including ports and terminals, as well as the main routes will play a key role in the early phases of automated transport development. It is likely that communications networks supporting intelligent transport services will be built in these areas on commercial terms based on the needs of local industries.

The central government should actively monitor the building of the connections. The building of connections may also be promoted in conjunction with the central government's road improvement projects. If sufficient connections are not provided on commercial terms, a state enterprise or some other actor can build the networks enabling automated transport if necessary. Central government support may also be needed in the future to build broadband connections in sparsely populated areas.

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