EPOMM
European Platform on Mobility Management

MOBILITY MANAGEMENT STRATEGY BOOK

Intelligent strategies for clean mobility towards a sustainable and a prosperous Europe

www.epomm.eu

IMPRINT

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EPOMM European Platform on Mobility Management

The EPOMM strategy book provides an ***overview of the best strategy practices on mobility management*** *from the Member States of EPOMM. This publication is meant to serve as a* ***source of inspiration for interested countries*** *and the European Union as a whole. The strategy practices outlined here cannot simply be copied and pasted, as the contextual environments differ among countries. However, they can provide* ***ideas and proven concepts*** *which are worth disseminating amongst countries and on the European level. So that mobility on the European level and in all European countries is managed* ***to realize a sustainable Europe*** *with cities and rural areas that are pleasant and prosperous places to be.*

MOBILITY MANAGEMENT STRATEGY BOOK

EPOMM

Content

1 | Introduction

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Mobility is an important part of everyday life. It enables people to hunt for their dreams.

Our mobility needs an efficient sustainable transport system. However, the volume of transport has increased a lot over the years and this has led to a wide variety of problems, including environmental, health and social burdens. These external effects threaten Europe and its citizens as it conflicts with the sustainability goals in Europe. Moreover, they challenge the livability of European cities and rural areas. How to deal with these concerns? Is there a way to make mobility greener to realize a sustainable Europe with cities and rural areas that are pleasant places to be? There is a way to make mobility sustainable: by applying mobility management, that is smart management of mobility needs.

Mobility management is an effective tool for counteracting the sustainability challenges in transport. It is a cost-effective tool towards environmentally friendly, healthy mobility and efficient transport. This is also what a growing body of evidence of good practices shows which are summarized in the EPOMM publication "Mobility management: The smart way to sustainable mobility in European countries, regions and cities."[1]

EPOMM is the European Platform on Mobility Management. It is formed by committed Member States that support developing and spreading mobility management in Europe.

EPOMM's strategic vision, as laid down in the EPOMM manifesto, calls for mobility management as an integrated part of mobility and transport strategies and plans in national policies, as well as to promote it on the European scale and in cities and regions. Members of EPOMM have agreed on promoting mobility management as the linking bridge between policy and practice and between urban, regional, national and European decision makers.

Furthermore, the series of European Conferences on Mobility Management – the ECOMMs – are the key events on mobility management in Europe. Their outcome documents – like the Firenze Messages, the Utrecht Declaration, the Athens Resolution and the Maastricht Treaty – provide strategic visions, guidance and recommendations on how to develop, establish and promote mobility management as an effective tool to make mobility economically viable, environmentally friendly and socially just.

The Declaration of Utrecht calls for a broad promotion of mobility management in Europe by giving five strong policy messages to national and EU policy makers, in particular calling for developing a European Masterplan for Mobility Management based on the rich experiences and good practice of EPOMM Member States.

The Athens Resolution, the outcome of the 20th edition of the ECOMM, marks a new era. Mobility management has to play a key role taking the challenges of decarbonisation and transformation to a renewable energy based mobility system, of a new urban agenda, the reclaiming of public space for making cities more resilient, of shared mobility, digitalization and autonomous vehicles. It calls for a green deal for green mobility being fundamental to transforming mobility and transport to deliver liveable and prosperous cities with happy citizens. Investments in mobility management are essential to make green mobility a reality and to stimulate new business opportunities, overcome crisis as well as counteracting unemployment and social deprivation. European and National funding programmes and instruments must give priority to such investments in green mobility.

1 http://www.epomm.eu/docs/file/epomm_book_2013_web.pdf

Most recently the EPOMM Treaty of Maastricht sets the scene for future action on mobility management:

Dream Big, Think Big and Act on it together!

With the Paris Agreement, countries for the first time committed themselves globally to ambitious climate objectives. This will require ambitious additional efforts in the next years, especially in the transport sector to enable the transformation from fossil driven transport to a decarbonized mobility and transport system based on renewable energy, zero emission vehicles, electrification, digitalization, intermodality and a mobility-as-a-service approach.

To realize these objectives and the transformation, the transport system as a whole has to be managed in a clever and efficient way. However, the transport plans are often still focusing on infrastructure and technologies only.

How to make mobility management an integral part of national and European programmes and policies? Practice shows that different strategies exist to promote mobility management in national, regional and local programmes and policies.

This report provides an overview of the best strategy practices on mobility management from the Member States of EPOMM. The report is meant to serve as a source of inspiration for interested countries and the European Union as a whole. The strategy practices outlined here cannot simply be copied and pasted, as the contextual environments differ among countries. However, they can provide ideas and proven concepts which are worth disseminating amongst countries and on the European level. So that mobility on the European level and in all European countries is managed to realize a sustainable Europe with cities and rural areas that are pleasant and prosperous places to be.

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2 | The EPOMM Manifesto

MANAGING MOBILITY FOR A BETTER FUTURE – EPOMM´S VISIONS AND GOALS FOR 2020

Adopted at the EPOMM General Assembly on December 7th, 2012

EPOMM is the European Platform on Mobility Management formed by a growing number of committed Member States that support the development and spread of mobility management in Europe. EPOMM´s Members have achieved an impressive practical experience in delivering smart mobility management actions. EPOMM is concerned about the serious challenges that Europe, its member states, cities and citizens are facing also affecting environmentally sustainable access, mobility management and transport:

- **Economic crisis –** putting pressure on budgets of public authorities, transport operators as well as private households and leading to cuts in public investments of countries, regions and cities endangering the accessibility and development of sustainable mobility in particular public transport. It is also accompanied by increasing costs and lowering of family incomes and an increasing unemployment rate especially of young people.

- **Environmental burdens –** caused by transport and its 96 % dependency on fossil fuels of which 84 % has to be imported from instable regions leading to high import costs of around 210 billion Euro per year in the EU and high transport emissions of GHG, air pollutants and noise as well as increasing land take and urban sprawl.

- **Social problems and health risks –** like the disintegration of social groups, unemployment and migration problems, demographic changes and aging society, the decreasing of free choice of mobility and increasing car and aviation dependency excluding non-motorists from economic benefits and social life, high health risks by harmful transport pollutants like ultrafine particles, road fatalities as well as physical inactivity and obesity.

EPOMM and its Members strongly believe that MM is an effective tool to counteract these challenges as it is a very cost-effective measure to achieve sustainable mobility as growing evidence of good practices is showing:

- WE are convinced that MM has therefore to become an integrated part of mobility and transport strategies and plans – on the same level and complementary to technological and infrastructural measures.
- WE are committed to integrate MM in our national policies and to promote it also on European scale as well as in our cities and regions.
- WE are keen to provide the 'bridge' between policy and practice; between knowledge providers and knowledge implementers; and between urban, regional, national and European decision makers.
- WE will strengthen and intensify our activities to promote MM as a proven tool in order to make mobility economically viable, environmentally friendly, and socially just.

To this end WE the Members of EPOMM have agreed on the following goals:

EPOMM – PROMOTING MM AS THE LINKING BRIDGE ...

- to become the focal point for European Institutions, national governments, cities and regions when seeking advice and practical expertise on mobility management particularly in integrating MM in Sustainable Urban Mobility Plans as well as in national and European mobility strategies.
- to promote and support the exchange of mobility management knowledge and learning between policy makers, stake holders, experts and practitioners, between EC as well as national authorities and cities.
- to provide the annual European Conference on Mobility Management (ECOMM) as the major European event for bringing together practitioners, decision makers and innovative best practice examples from all over Europe but also connecting with relevant global initiatives.

EPOMM – NETWORKING AND CO-OPERATING FOR MM ...

- to increase membership of EPOMM aiming at including all EU Member States and European Countries.
- for each EPOMM Member State, to establish a figurehead national network on mobility management to facilitate the integration of mobility management in urban as well as national policies.
- to develop further cooperation with international institutions, NGOs, companies and other partners.

EPOMM – FACILITATING MM WITH SERVICES AND TOOLS ...

- to further develop EPOMM as the hub for training and mobility policy audits, with a set of user-friendly materials including training and mentoring services, audit databases and auditors, training and network meetings focusing on the integration of MM in Sustainable Urban, National and European Mobility Plans.
- to build upon the experience of EPOMM and its members in mobility management and policy transfer with a set of clear policy transfer procedures for members and awarding best practice.
- to provide decision makers with tools and expertise to integrate mobility management in urban, regional, national and EU planning and through a broad dissemination of tools developed within EPOMM.

EPOMM – BRINGING MM ON THE EUROPEAN AGENDA

The EU has set important objectives leading up to its 2020 energy and climate goals. Furthermore the EU Roadmap for a Low Carbon Economy has put on the agenda even more ambitious goals for 2050 calling for a 80 % GHG reduction by 2050! For the first time sector targets also for transport are set and reflected in the new EC White Paper on Transport calling for a long term GHG reduction in transport of 60 %.

EPOMM is supporting the EU initiatives for sustainable mobility
and will intensify its European co-operations ...

- to establish a regular dialogue with EC and EP on key mobility and transport issues to discuss the potential and role of mobility management to achieve sustainable mobility in the EU, its Member States and cities as well as to identify and promote the policy actions required for broad implementation of MM.
- to deliver EPOMMs know-how and positions within EU processes relevant for mobility and transport and within key strategic documents like the White Paper on Transport, Action Plan on Urban Mobility, SUMPs, the TEN, Structural Funds and their implementation activities with a view to ensure an incorporation of mobility management.
- to cooperate with European countries and EU Member States in particular the EU Presidencies to raise awareness of the positive potentials of mobility management and the possible actions required to promote mobility management to become a key element of European policies.
- to propose the elaboration of a European Masterplan for MM as strategic tool to develop further MM, to spread best practice and to promote the integration of MM in policies of EU, its member states and cities.

EPOMM – MANAGING MOBILITY FOR A BETTER FUTURE

EPOMM is committed to implement these visions and goals and will strengthen its efforts to promote the implementation of MM as a key factor to achieve sustainable mobility and transport thus contributing to:

- **Economic welfare –** boosting investments to improve environmentally sustainable transport and increase transport efficiency, providing access to businesses, services, employment and education, creating green growth and green jobs, reducing externalities and the environmental, health and social costs of mobility.

- **Environmental quality –** making mobility and transport less polluting, less fossil fuel and carbon dependent, more environmentally sound, more health promoting, more energy efficient and based on renewable energy.

- **Social inclusion and health –** delivering healthier cities, attractive urban spaces and rural areas, giving all parts of society access to sustainable mobility in particular public transport and physically active modes, providing safe and environmentally sound access to homes, work places, schools, leisure and shopping facilities, developing and gaining higher levels of quality of life, employment and social mobility.

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3 | EPOMM messages

EPOMM kindly invites the European Commission, the European Parliament and the EU Presidencies to take the EPOMM conclusions and messages into account while developing and implementing policies, strategies and actions. EPOMM commits to facilitating these mentioned efforts, in particular the further elaboration of an EU Master Plan to promote Mobility Management. For achieving the EU objectives 2020 and 2030 of the climate and energy package as well as the EC White Paper on Transport and the Urban Mobility Package, a comprehensive European strategy beyond more infrastructure and technology is needed. EPOMM with its Declaration of Utrecht and the Resolution of Athens is therefore calling for a broad implementation of mobility management in national and EU policies to make mobility and transport more user oriented, environmentally friendly, energy saving and more efficient.

3.1 Declaration of Utrecht – 2015

The Declaration of Utrecht is the collaborative outcome of the European Conference on Mobility Management – Moving People – ECOMM 2015. User orientation was a key to success in Utrecht, Netherlands. At the ECOMM 2015 – the outstanding annual conference on mobility management in Europe – more than 300 policy makers, stakeholders and professionals from about 20 European countries were inspired by good practices in the Netherlands and in the EPOMM Member States. In a special VIP-workshop, representatives from EPOMM and EU Member States, senior officials of the European Commission and experts of the Dutch Ministry of Infrastructure and Environment collaborated to highlight the need for a more prominent role of mobility management in national and European policies.

The Declaration of Utrecht calls for a broad promotion of mobility management in Europe by giving five strong policy messages to national and EU policy makers and the forthcoming Netherlands EU Presidency:

1. The world is changing more rapidly than ever and policies have to anticipate and adapt to these changes. Mobility management has to be taken into account in policy preparation efforts like forecasts, vision development and back casting.
2. Mobility management affects many other policy areas and vice versa. We need a European Strategy on Mobility Management as a holistic approach that brings it all together; and that includes shared views and common actions.
3. Evidence on the effects of mobility management is needed to support the implementation and further development of mobility management. We need to collect the evidence on the impacts of mobility management policies including showcases. Furthermore, data collection has to be improved.
4. Mobility management enables a balanced approach in transport planning. We need a shared understanding and awareness of how mobility management can help to meet EU objectives.
5. To implement mobility management, the cooperation of all relevant actors on all institutional levels is needed – for instance – Sustainable Urban Mobility Plans (SUMP's) are an important first step tool for realising cooperation on urban level.

The development of a European Master Plan on Mobility Management will be an important stepping stone towards sustainable mobility by providing and facilitating mobility management on local, regional, national and European level.

3.2 The Athens Resolution – 2016

The Athens Resolution is the outcome of the ECOMM 2016 European Conference on Mobility Management "Smart Solutions for People and Cities" held from June, 1st–3rd, 2016 in Athens, Greece and focused on smart and green travel.

ECOMM, by celebrating its 20th anniversary, focuses on the future and marks a new era for smart mobility. Decarbonisation of transport, the transformation to renewable energy based moblity and the urgent need to make our cities and their hinterland more resilient and liveable make the need for mobility management ever more urgent.

Mobility management is the key to achieving a decarbonised, zero emission transport system and to make our cities and their hinterland pleasant and prosperous places to be.

ECOMM 2016 stated five essential conclusions on the specific role of mobility management:

1. DECARBONISATION AND ELECTRIFICATION OF TRANSPORT

The long-term replacement of fossil fuels with clean and renewable energy together, is key to reach the goals of the Paris Agreement on climate change. A major element is the electrification of the transport system with electricity based on renewable energy sources. Mobility management is essential for a proper phasing in of zero-emission transportation alternatives and to intelligently combine all kinds of electric transport.

2. DRIVERLESS VEHICLES AND DIGITALISATION

Driverless vehicles may change mobility patterns, consumer behaviour and urban spatial structures totally. Digitalisation provides continuous access to people, goods, and services. Mobility management is needed to smartly embed these concepts in the transport system whilst avoiding counterproductive effects and optimising the benefits.

3. CONNECTED CITIES AND CONNECTED HINTERLAND

A transfer from a functional separated city to a connected city and a connected hinterland is imperative. Transformation from car dependency to multimodal choices requires integration of regional, urban and local land use planning with mobility management. Successful mobility management integrates health, environment, energy and mobility objectives into land use planning and urban development.

4. RECLAIMING PUBLIC SPACE

"The outside of buildings is the inside of the city." A prosperous city requires liveable public space and thriving streets for residents and visitors that are good for the local economy. Mobility management enables attractive design of public space with easy access for walking, cycling and public transport.

5. SHARING AND MOBILITY AS A SERVICE

Due to the rise of the sharing economy, sharing in transport may become the new mainstream, enabling new transport concepts, such as "Mobility as a Service". Mobility management is essential to get the best out of sharing in order to reduce traffic and increase the efficiency of vehicle and infrastructure use.

Conclusion

A green deal for green mobility is fundamental to transforming mobility and transport in order to deliver liveable and prosperous cities with happy citizens. Investments in MM are essential to make green mobility a reality and to stimulate new business opportunities, overcome crisis as well as counteracting unemployment and social deprivation.

To this end all European and National funding programmes and instruments must give priority to green deals for green mobility.

3.3 Maastricht Mobility Treaty – 2017

Dream Big, Think Big and Act on it together! This Maastricht treaty is all about dreams, just like 25 years ago. It is the outcome of ECOMM 2017 - the European Conference on Mobility Management. Over 400 participants joined the discussion on how to achieve our big dreams using the instruments of mobility management in Europe and beyond.

At ECOMM 2017 we agreed on the following essential conclusions:

1. DREAM BIG: HAPPY PEOPLE AND A SUSTAINABLE PLANET

Mobility is an important part of everyday life. It enables people to "hunt" for their dreams. At the same time its external effects threaten overall happiness. Striving for liveable cities is not enough. We have to dream big: Our ambition is creating pleasant cities and pleasant rural areas with happy people and a sustainable planet powered by renewable energy.

2. THINK BIG: BRING FOCUS, BUT DO NOT LOSE THE BIG PICTURE!

A multitude of focused actions are needed to realize big dreams. Meanwhile, we always have to take the big picture into account. For example, car policy has to include striving towards lower car usage and lower car ownership, electrification of the fleet and social inclusion for those without realistic alternatives. All of these instruments are needed to achieve our big dreams.

3. ACT ON IT ... AND DO NOT BE AFRAID TO FAIL!

There are disruptive forces and newcomers from outside. Sectoral lines are blurring and policy focus is shifting towards sustainability. Society is changing rapidly and so is our transport system. This demands us to act. Do not be afraid to fail. Try things out, do pilots, learn from it and scale-up successes. Technological and market developments provide us with a lot of tools to do so!

4. NOT ALONE, BUT TOGETHER!

We must work together! Collaboration on all institutional levels is needed. This includes all levels of government (EU, national, regional and local level) and also public and private partners. Working together means: combining strengths, accepting the variety of stakeholder goals and trusting each other. Examples from different Member States show that mobility management in such PPP constructions work best in integral package deals.

3.4 Next steps

Roughly 400 participants of the ECOMM 2017 are now collaborating as dream owners. Together, we will do everything in our power to realize our dreams. Redirecting 5 % of resources from infrastructure to mobility management could potentially double the results. So, we ask the EU to create conditions for borderless collaboration, take away barriers, facilitate exchange of knowledge and develop a strong EU policy on Mobility Management. We invite the EU to embrace best practices and lessons learned from countries with successful mobility management programmes, as well as to stimulate PPP in all member states. The upcoming EPOMM strategy book will bring us one step closer to achieving our goals.

4 | The National Strategies

Photo: © iStock / Dutchy

The national strategies of EPOMM states are just as manifold as mobility management is itself. Depending on the responsible ministries and bodies and depending on where the money comes from, member states found their very specific ways to implement mobility management. Liveable cities, avoidance of congestion, new travel behaviour (multimodal travel, sharing), public-private partnerships, climate protection and mobility management for specific target groups or regions, e.g. companies or schools, top-down or bottom-up are just some of the keywords when looking at the variety of approaches. However, successful mobility management needs several key players for developing innovative solutions to mobility management and implementing measures.

Members of EPOMM –
The European Platform on Mobility Management

Status: 2017; Graphic: © EPOMM

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4.1 | Austria

Photo: © Stadt Salzburg / Doris Wild

COUNTRY FACTS AND FIGURES[2]

Number of inhabitants	8.77 million
Land area	84,543 km²
Population density	104 persons per km²
Total travel kilometres per year	104 billion
Modal Split (average working day)	45.4 % car drivers 15.1 % car passengers 14.6 % public transport 6.4 % bike 17.8 % pedestrians 1.0 % miscellaneous
Cars per 1,000 inhabitants	550 (2016)
Cars per household	1.2 cars per household
Trips per inhabitant per day	2.8 trips per inhabitant per day

2 Sources used: Statistik Austria; Ergebnisbericht zur österreichweiten Mobilitätserhebung „Österreich unterwegs 2013 / 2014", im Auftrag des bmvit, 2016; www.oesterreich-unterwegs.at

Introduction

Austria located in the heart of Europe lies on the pan European crossroads including some major European transit routes in particular the transalpine road and rail axes as well as the Danube East-West road, rail and inland shipping corridor.

Transport is the main source of GHG emissions in Austria (45 % in Non-ETS sector, 23 Million tonnes 2016); therefore emission reductions in the transport sector are crucial for fulfilling the climate and energy targets 2020 and 2030 and even more for achieving decarbonisation in 2050.

Overall motorization rate has reached 550 cars / 1,000 inhabitants end of 2016 with still growing tendencies, particularly in rural areas and outskirts of cities. The mobility gap between cities and rural areas is growing: intermodal mobility behaviour and increasing public transport and cycling shares and less young driving license applicants in big cities vis-a-vis the opposite of increasing car dependency without free mobility choices in rural areas.

Austria has a dense road and rail network, the latter still carrying about one third of goods transport, which is comparatively high for EU countries. With a share of 1.5 % Battery Electric Vehicles of newly registered cars in 2017, Austria, together with the Netherlands, has become the leading EU country in this respect. This relatively high share is mainly driven by a financial support scheme launched jointly by the Ministry of Sustainability and Tourism, the Ministry of Transport, Innovation and Technology together with the car importers, two wheeler importers and bicycle retailers. Additionally for companies some tax incentives are favouring e-mobility. The klima**aktiv** mobil program, Austria's climate protection initiative in transport, is one of the main sources not only for supporting and funding E-Mobility, but also all other mobility management measures contributing to GHG mitigation.

Travelling by rail is getting more and more popular in Austria.
Photo: © CIM Harald Eisenberger

Bike sharing scheme with E-Bikes in Seestadt Aspern, Vienna's biggest city expansion area *Photo: © BMLFUW / Martin Hörmandinger*

The policy context

Transport is the main contributing sector regarding greenhouse gas (GHG) emissions (45 % in Non-ETS sector, 23 Million tons 2016) as well as air pollutants (55 % NO_x) and also noise in Austria. From 1990 to 2016 GHG emissions from transport increased by almost 67 %.

But a break of this trend of rising GHG emissions from transport was achieved in 2015, resulting in a decline of GHG emissions from transport by 12 % between 2005-2014. Main success factors for that were a high share of biofuels, more energy efficient vehicles and incentive programmes like the klima**aktiv** mobil programme. Unfortunately, due to the sharp decrease of fuel prices fossil fuel consumption and GHG emissions of transport started to increase again in 2015. Therefore, achieving EU and national GHG reduction goals remain challenging, specifically in the transport sector.

Regarding GHG emission reduction, Austrian regulations have to follow the newly ratified UN Paris Climate Agreement and of course have to implement EU targets and directives like the EU Climate and Energy package 2020 and the new EU Climate & Energy Framework 2030. From a strategic point of view, also the long-term roadmap for moving to a competitive low carbon economy in 2050, the Energy Roadmap 2050 and the Transport White Paper are of great importance.

As new national strategic framework for implementing the EU Climate and Energy framework 2030 in 2018 an Integrated Energy and Climate Strategy has been developed jointly by the Ministry of Transport, Innovation and Technology (BMVIT) and the Ministry of Sustainablility and Tourism (BMNT) aiming at GHG reduction, energy efficiency and an increase of renewable energy in all sectors and particularly in transport. Additionally also a new actionplan for competitive and clean mobility is under elaboration jointly by this two ministries involving also the Federal States, the cities, the business sector, academia and NGOs.

Clean mobility, mobility transition and e-mobility are important priorities in the programme of the Austrian government and will be also highlighted during the Austrian EU Presidency organizing an Informal Joint Council for Transport and Environment and by hosting the 5 High Level UNECE WHO Ministerial Conference of Transport, Health and Environment Ministers in the context of THE PEP (Transport, Health Environment Pan European Program) in Vienna 2019.

The legal framework for targets and measures combating climate change is provided by the Austrian Federal Climate Act ("Klimaschutzgesetz") and the Joint Program of Actions of the federal government and the nine regional governments including a comprehensive package of measures for the horizon 2020. This pack-

age comprises clean transport technologies and electric-mobility, rail and public transport, cycling as well as infrastructure, logistics and mobility management.

It is important to notice that Austria is a Federal State by constitution and therefore all nine Federal States as well as municipalities have many important legal competences especially relating to the transport sector and resulting GHG emissions, e.g. parking regulations, spatial and regional planning, zoning and residential building subsidies but also regional and local roads and public transport, and local traffic planning including cycling and walking. Therefore, almost all decisions on transport need a good vertical coordination between federal, regional and local level.

On the national level, the relevant ministries have to cooperate according to their competences in particular the ministries of transport, sustainabilty and health but also economy and finance ministries. The Ministry of Transport, Innovation and Technology is responsible for transport and infrastructure policy and the related legal framework e.g. for national motorways and railways, inland shipping, infrastructure, traffic code, public transport regulations, freight transport, road tolls Eurovignette and many more.

The Ministry of Sustainability and Tourism is responsible for environment and climate policies and the related legal frameworks for emission and immission reduction like the Federal Climate Act, the National Emission Ceiling Act and also the Federal Air Quality Act all three providing frameworks for the regional level being responsible for implementation actions according subsidiarity. Important transport related competences of the Ministry of Sustainability and Tourism are also in the national implementation of EU directives and regulations on fuel quality, biofuels as well as emissions of vehicles and ambient noise. Since 2018, additionally the legal framework for energy and electricity as well as regional development funding was incorporated in the extended portfolio of the Ministry of Sustainability and Tourism. Of great relevance is also the finance ministry as being responsible for taxes and fiscal incentives as well as public investments.

In addition to legislation, the federal level is also responsible for national strategies, incentives and programmes in the fields for transport, infrastructure, environment and health. The Ministry of Transport, Innovation and Technology (BMVIT) e.g. has developed the General National Transport Plan including targets and technological and infrastructure measures and it is also responsible for transport research. The Ministry of Sustainability and Tourism (BMNT) has developed climate and sustainability strategies and the national support programme for mobility management called klima**aktiv** mobil as well as the masterplans for cycling and for walking.

In the field of electro mobility the Ministry of Sustainability and Tourism and the Ministry of Transport, Innovation and Technology together with the former economic ministry have developed the national implementation plan for e-mobility and the strategic framework for clean energy. Recently Ministry of Sustainability

and Tourism and the Ministry of Transport, Innovation and Technology together with car and two-wheeler importers as well as the bike retailers have launched a financial support program of 72 million Euros (2017+2018) to push e-mobility with renewable energy.

Austria is also playing a leading role in pan European programmes and platforms like the Transport Health Environment Pan European Program THE PEP and also EPOMM.

Roles and responsibilities

THE ROLE OF MOBILITY MANAGEMENT – KLIMAAKTIV MOBIL

After successful mobility management (MM) pilot projects, planned and financed by the BMNT, the Austrian Federal Ministry of Sustainability and Tourism ("Sanfte Mobilitätspartnerschaft" – soft mobility partnership) in the late 1990ies, the ministry continuously developed a strategic approach to widen the concept of mobility management following a clear target group oriented approach.

Starting with MM for businesses in 2004, klima**aktiv** mobil (http://www.klimaaktivmobil.at), the Austrian climate protection initiative in transport, has been established as target-group specific combination of free of charge consulting, education, campaigning and awarding. The main aim was (and still is) to reduce greenhouse gas emissions from transport. MM programmes for all important target groups, e.g. companies, cities and municipalities, administrations, the tourism sector, fleet operators, real estate developers, youth and schools have been implemented in the following years.

In 2007, the initiative was complemented by a financial support programme and since then experienced a real boost in the reduction of CO_2 emissions, numbers of MM projects and partners.

klima**aktiv** mobil is undertaken by the Austrian Federal Ministry of Sustainability and Tourism in partnership with the Austrian Economic Chamber, the Austrian Association of Cities and Towns and the Austrian Association of Municipalities and it is also involving the Federal States and businesses. The operational management of klima**aktiv** mobil is with the Austrian Energy Agency. In varying aspects klima**aktiv** mobil is also cooperating with the Austrian Federal States "Bundesländer" and other ministries on the federal level, e.g. with the Ministry of Transport, Innovation and Technology, when it comes to the Promotional package for E-Mobility (see the following pages).

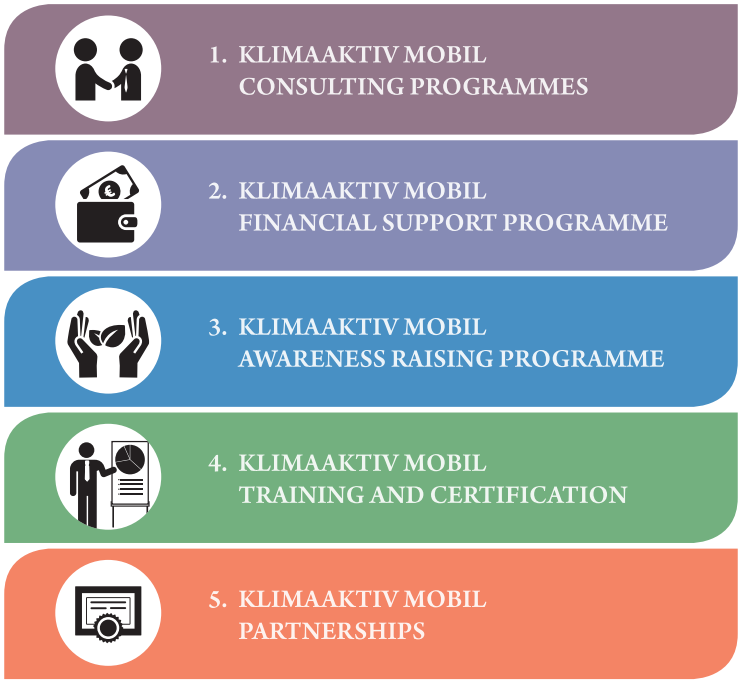
The approach

klima**aktiv** mobil provides a national framework to motivate and support specific target groups to develop and implement measures to reduce CO_2 emissions from related transport activities.

klima**aktiv** mobil promotes the transition to green mobility and provides a range of attractive services supporting the development and implementation of CO_2-reducing mobility projects. It is embedded in the klima**aktiv** initiative of the Federal Ministry of Sustainability and Tourism, which deals with the energy transition in the fields of mobility, renewables, electricity saving and efficient buildings.

klima**aktiv** mobil provides with its investment incentives for e-mobility, cycling and mobility management and the EcoDriving initiative are important contributions to the Austrian Climate Act, the Federal Energy Efficiency Act and, above all, the new 2030 integrated climate and energy strategy and the long-term options for decarbonization in 2050.

The five pillars of the klimaaktiv mobil portfolio



Source: klimaaktiv mobil

1. KLIMAAKTIV MOBIL CONSULTING PROGRAMMES

klima**aktiv** mobil supports measures focusing on mobility management, including e-mobility alternative vehicles and renewable energy, intelligent multimodal mobility, EcoDriving, cycling, walking, demand-oriented public transport and raising awareness.

- **klimaaktiv mobil consulting programmes:** Target-group oriented consulting programmes, coordinated by the operational management, offer free-of-charge expert advice on green mobility management for
  - » businesses, real estate developers and fleet operators
  - » cities, municipalities and regions
  - » tourism and leisure
  - » youth
  - » children, parents and schools

  The programmes are tendered EU-wide and granted to consortia of consulting offices and mobility experts.

- **Mobility management for companies, fleet operators and real estate developers:** Funding bonus for extensive corporate mobility projects, e.g. combining fleet changes with CO_2-saving logistics and public transport passes for employees as well as company collaborations, such as industry solutions or business parks.

- **Mobility management in cities, municipalities, regions:** Funding for extensive municipality- and region-led mobility measures and cooperating municipalities as well as special funding for Climate and Energy Model Regions.

- **Mobility management for tourism, leisure and youth:** Funding to incentivize regional mobility projects led by tourism associations and cooperation between tourist resorts as well as extensive leisure mobility. klima**aktiv** mobil focuses also on special support for eco-friendly youth mobility and mobility projects.

- **Mobility management for children, schools and parents:** klima**aktiv** mobil offers special consulting and support for eco-friendly mobility projects for schools, kindergartens and parent associations.

- **klimaktiv mobil Eco Driving Initiative:** In cooperation with the driving schools' association of the Austrian Economic Chamber and the Austrian motoring clubs ÖAMTC and ARBÖ, the **EcoDriving** initiative offers practical EcoDriving training courses for car, truck, bus and tractor fleet operators.

2. KLIMAAKTIV MOBIL FINANCIAL SUPPORT PROGRAMME

klimaaktiv mobil

CO_2-reducing mobility projects of companies, municipalities and associations receive a funding rate of up to 20 % of environment-related investment costs. High-quality projects pooling extensive measures and involving several partners receive an additional funding bonus of 10 %.

klima**aktiv** mobil financially supports measures focusing on mobility management, green logistic projects, alternative vehicles and electric mobility including charging infrastructure focusing on renewable energy, intelligent multimodal mobility services, bike and car sharing, innovative demand oriented public transport, cycling promotion including infrastructure, walking, awareness raising and eco driving.

- **EU cofinancing by EAFRD – European Agricultural Fund for Rural Development:** The Austrian Rural Development Programme 2014–2020 provides cofinancing of klima**aktiv** mobil projects through EU funding and stimulates green mobility in rural areas. Through all of these funding mechanisms and triggered investments, klima**aktiv** mobil generates new stimulus for the economy, creates jobs, promotes innovation and businesses, and strengthens Austrian cities, municipalities and regions.

- **Funding focus on promotion of cycling and walking: Investments in cycling infrastructure, bike rentals and projects to raise awareness**
  - » Funding initiative for cargo bikes, for regular and electric transport bikes
  - » Funding initiative for retrofitting buildings constructed before 2000 with bicycle parking.

- **Special funding focus on electric mobility and alternative vehicles:** klima**aktiv** mobil supports businesses and municipalities in their transition to e-mobility (e.g. e-bikes, e-scooters, e-cars, range extenders, plug-in hybrids, electric commercial vehicles, e-buses and trolley buses) and alternative vehicles powered by biofuel and biomethane.

3. KLIMAAKTIV MOBIL AWARENESS RAISING PROGRAMME

klimaaktiv mobil

Information about the benefits of climate-friendly mobility: cycling, public transport, EcoDriving training and alternative vehicles and modes of transport. Many klima**aktiv** mobil partners that contribute to the campaign are successful businesses with a focus on exports.

4. KLIMAAKTIV MOBIL TRAINING AND CERTIFICATION

klimaaktiv mobil

This pillar of the initiative focuses on qualifying EcoDriving trainers and certifying klima**aktiv** mobil driving schools. Other training schemes include the cooperation with the Institute for Economic Promotion of the Economic Chambers (WIFI) to train bicycle mechanics, the cycling academy and a course for youth mobility coaches in cooperation with the ministry responsible for women, family and youth.

5. KLIMAAKTIV MOBIL PARTNERSHIPS

klimaaktiv mobil

klima**aktiv** mobil builds on partnerships and is designed as national framework to motivate and support as many actors in transport as possible to develop and undertake climate friendly mobility projects in order to reduce CO_2-emissions, to promote renewable energy and stimulate the economy and green jobs.

klima**aktiv** mobil has established close partnerships with the Austrian Economic Chamber (WKO), Institute for Economic Promotion of the Economic Chambers (WIFI), the Austrian Association of Cities and Towns, the Austrian Association of Municipalities, the federal states, cities, municipalities and numerous companies and institutions. Companies, municipalities, associations and schools committed to CO_2-reducing projects are awarded as title klima**aktiv** mobil project partner by the Minister.

Effects and impact

THE FURTHER DEVELOPMENT OF KLIMAAKTIV MOBIL IS ENCOURAGED BY ITS SUCCESSFUL TRACK RECORD (AS OF END OF 2017)

- **11,600 green mobility projects** have been initiated and implemented by approx.
  - » 9,200 businesses,
  - » 1,100 cities, municipalities and regions,
  - » 900 tourism associations and
  - » 400 schools.

- Total annual savings: **more than half a million tonnes of CO_2**

- **Financial support** in the amount of **EUR 108 million** for mobility projects – including EUR 100.5 million from the funds of Ministry of Sustainability via klima**aktiv** mobil, the Climate and Energy Fund and the Austrian environmental support scheme as well as EUR 7.6 million from EU funds (EAFRD) – has **triggered overall investments** of over **EUR 645 million.**

- About 6,000 green jobs have been created or secured.

- Approximately 26,300 alternative vehicles, among them 23,800 e-vehicles, have been funded with EUR 37.3 million, thereof
  - » 23,800 electric vehicles (e.g. 15,000 e-bicycles, 700 e-mopeds and motorbikes, 1,200 light e-vehicles, 6,500 e-cars and 400 other e-vehicles)
  - » 2,600 charging points for e-mobility with EUR 1.6 million

- More than 250 cycling projects have been financially supported, among them the expansion of cycling infrastructure in all Austrian provinces and major cities.

- 1,640 EcoDriving instructors have been trained and 34 klima**aktiv** mobil driving schools certified.

→ *For a complete overview of all klimaaktiv mobil project partners and their projects around Austria see www.klimaaktivmobil.at/maps (in German only)*

NUMBER OF KLIMAAKTIV MOBIL PROJECTS

years 2005-2017, aggregate figures

years	Number of klima**aktiv** mobil projects, rounded
2005	20
2007	250
2009	1,000
2011	2,300
2013	4,900
2015	6,600
2017	11,600

Source: BMNT 2018

Since 2007, the Ministry of Sustaqinability and Tourism allocated approx. EUR 100.5 million for funding and about EUR 2 million/y for consulting, information and education programmes, provided by the Ministry, the Climate and Energy Fund and the National Environmental Support Scheme (UFI). Approximately EUR 7.6 million has been provided by the European Agricultural Fund for Rural Development (EAFRD) to co- finance sustainable transport projects. Additionally, klima**aktiv** mobil funding for e-vehicles and charging infrastructure has been massively increased for 2017 and 2018 (see below).

KLIMAAKTIV MOBIL FINANCIAL SUPPORT PROGRAMME

EUR million, rounded, including Climate and Energy Fund support, aggregate figures 2007-2018

Electromobility and alternative fleets		
ministerial financial support	**38.9 mn €**	
investment volume	approx. 366 mn €	
Mobility management		
ministerial financial support	**23.2 mn €**	
investment volume	approx. 132 mn €	
Bicycle traffic		
ministerial financial support	**46 mn €**	
investment volume	approx. 147 mn €	
Total		
ministerial financial support	**108 mn €**	
investment volume	approx. 645 mn €	

Source: BMNT 2018

E-MOBILITY BOOM AND NATIONAL ACTION PACKAGE TO PROMOTE E-MOBILITY POWERED BY ELECTRICITY FROM RENEWABLE ENERGY 2017-2018

Building on many years of experience in supporting e-mobility within klima**aktiv** mobil and the Austrian Energy and Climate Fund and an increasing demand for e-mobility the Ministry of Sustainability and Tourism and the Ministry of Transport, Innovation and Technology together with car and two-wheeler importers as well as the bike retailers have launched on March 1st, 2017 a big financial support program of 72 million Euros. It is jointly financed as a private-public-partnership by the two ministries with 24 million Euros each and 24 million Euros contributions of car and two wheeler importers as well as the bike retailers. It offers attractive financial support rates for all kinds of e-vehicles from e-bikes, e-scooters to e-cars and e-transporter and e-busses as well as financial support for comprehensive e-mobility management of companies, cities, regions and fleet operators, research and demonstration. For example the financial support rate for private e-cars is offered up to 4,000 Euros and company e-vehicles up to 3,000 Euros.

klima**aktiv** mobil together with the Austrian Climate and Energy Fund, the National Environment Funding Scheme are the operative pillars for the implementation of this e-mobility action package.

E-Bikes and E-Bike Rental schemes are booming in Austria

Photo: © PD-F

The Austrian Ministry of Sustainability and Tourism and the Austrian Ministry of Transport, Innovation and Technology together with the vehicle importers have launched a public-private promotion package providing financial support for e-mobility, e-vehicles and charging infrastructure based on renewable energy with a total amount of 72 Mio Euro.

Photo: © Alexander Haiden

The action package for e-mobility is a major contribution to the Austrian implementation plan for e-mobility and the national strategic framework for clean energy. E-mobility is a key measure for the decarbonisation of transport and to strive for a primarily climate-neutral transport sector by 2050. In addition to the shift in transport modality, the expansion of public transport and the promotion of active mobility forms, this also means a major shift to zero-emissions vehicles for road transport, based on renewable energy.

Based on this successful e-mobility initiatives particularly the amount of newly registered e-cars with battery BEVs significantly increased by 42 % 2016-2017. Austria has reached a role as one of the leading e-mobility countries in Europe!

The e-mobility funding package is in great demand and until march 2018 around 8,000 applications have been already submitted.

With support of klimaaktiv mobil the Austrian Post Company is now operating Austria´s largest electric delivery fleet with 1400 e-vehicles. Peter Umundum, Post, ex-skistar Michaela Dorfmeister and Robert Thaler, Austrian Ministry of Sustainability and Tourism, EPOMM, present the new electroquad called jetflyer.

Photo: © Stefanie J. Steindl

The Vienna Lines are already operating a fleet of battery e-busses supported by klimaaktiv mobil.

Photo: © Martin Hörmandinger

PARTNERSHIPS AND A EUROPEAN ROLE MODEL

In the last years, klimaaktiv mobil has been further established as a role model at EU level and as part of EPOMM and THE PEP:

- International klima**aktiv** mobil THE PEP conference together with the Ministry of Sustainability and Tourism, the Ministry of Transport, Innovation and Technology, the Ministry of Labour, Social Affairs, Health and Consumer Protection, the Austrian Economic Chamber (WKO), the Austrian Association of Cities and Towns and the Austrian Association of Communities, Vienna, July 13th - 15th, 2016: focusing on strategies for transport decarbonization and current best-practice examples of e-fleets, mobility management, CO_2-free logistics and EcoDriving.

- THE PEP Health Economic Assessment Tool for Walking and Cycling. Assessment tool for health benefits of cycling and walking: www.heatwalkingcycling.org

- International Youth Conference on the Environment, Health and Transport, together with THE PEP and WHO and five Austrian ministries responsible for environment, health, transport, youth and sports, Vienna, November 27th - 29th, 2016

- THE PEP cycling partnership. 26 countries are cooperating on the pan-European Master Plan for Cycling Promotion. THE PEP and klima**aktiv** mobil joined the informal meeting on cycling of EU transport ministers in 2015 in cooperation with the Ministry of Transport, Innovation and Technology.

- On invitation of the Netherlands EU Presidency 2016 klima**aktiv** mobil was presented together with EPOMM and the Dutch "Optimizing Use" programme in the context of the Informal Council of EU environment and transport ministers, in Amsterdam 2016.

- THE PEP partnerships and EU projects such as TRANSDANUBE for eco-friendly mobility along the Danube, LAST MILE and ALPINFONET have proved to be efficient tools of cooperation.

- The European Platform on Mobility Management (EPOMM) is an opportunity for cooperation with other EU members to promote mobility management on a European level. klima**aktiv** mobil also participates in the EU Conferences on Mobility Management (ECOMM).

- klima**aktiv** mobil received a Best Practice Certificate at the EU Public Sector Awards.

Lessons learned

The klimaaktiv mobil programme shows that every actor can undertake actions to reduce CO_2 in mobility and transport. The program also shows that investing in environmentally friendly mobility is good for cities, environment, health, economy and green jobs.

The benefitting sectors are widespread

- the economic sector, companies particularly SMEs, manufacturers & retailers of alternative vehicles, e-bikes, bicycles, car sharing, public transport, tourism, constructors, consultants
- the public sector
- cities, municipalities and regions and
- citizens.

A triple win can be achieved

- GHG emission reduction and environment improvements
- economic benefits through better transport efficiency and induced investments, saving and creating green jobs
- social and health benefits through physical active mobility, better choices for mobility

ESSENTIAL LESSONS LEARNED

→ Establishing national programmes to promote green and health-friendly transport and mobility management that provide support to all relevant transport actors in particular companies and cities, is essential to pull mobility management out of the local niche and push it as a mainstream policy approach.

→ Establishing supportive frameworks and programmes to promote green and health-friendly transport and mobility management also on EU (EPOMM Network) and Pan European level (Transport, Health and Environment Pan-European Programme THE PEP) will bring an important added value.

→ Building successful partnerships with strategic partners, such as cities, municipalities, regions, businesses and institutions is essential on the national level but also creating partnerships amongst Member States on the European level.

- Focusing investments of IFIs and Member States on environmentally friendly transport and mobility is crucial for implementation e.g. for alternative vehicles, renewable fuels, electro-mobility, rail network, busses and public transport, cycling and walking as well as revitalization of urban areas and settlements.

- Developing co-operations and projects on green and health-friendly sustainable mobility within EPOMM and THE PEP Partnerships (e.g. on Cycling and EcoDriving) bring high added value.

International cooperation and partnerships are other important success factors learned by klima**aktiv** mobil, EPOMM and THE PEP. Through its comprehensive approach, its target-group oriented offers and positive results, klima**aktiv** mobil contributed significantly to the "#bestofaustria" initiative, serving as a successful role model for Austria as well as Europe and facilitating opportunities for Europe-wide cooperations for the klima**aktiv** mobil partners. On both the Austrian and the European level, klima**aktiv** mobil is an important driving force in making mobility and transport more climate-friendly, healthy and energy efficient.

FURTHER INFORMATION

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BUNDESMINISTERIUM FÜR NACHHALTIGKEIT UND TOURISMUS

klimaaktiv mobil

AUSTRIAN ENERGY AGENCY

WKO WIRTSCHAFTSKAMMER ÖSTERREICH

Österreichischer Städtebund

Österreichischer Gemeindebund

EPOMM

4.2 | Belgium

Photo: © Mobiel 21 & Bike Citizens

COUNTRY FACTS AND FIGURES

Number of inhabitants	11.3 million
Land area	30,528 km²
Population density	363 persons per km²
Total travel kilometres per year	101 billion
Modal Split [3]	63.0 % car 8.5 % public transport 9.0 % bike 16.3 % pedestrians 2.5 % miscellaneous
Cars per household	5.7 mio. cars = almost 2 cars per household
Trips per inhabitant per day	3.3 trips per inhabitant per day

3 BELDAM, Belgian Daily Mobility Research, trip related modal split, 2012

Introduction

Being right in the heart of Europe, Belgium's transport position is one of a strategical hub for logistics and passengers. The Brussels Capital Region and the northern part of the country (Flanders) are one of the most-dense areas in Europe. A historical heritage of lacking decent spatial and urban development policy now lumbers the small country with huge traffic related problems: congestion (2nd highest time spent in EU), high greenhouse gas emissions, bad air quality (high share of diesel) and living conditions and still badly controlled (but decreasing) traffic safety fatalities.

Despite the regional differences in vision and velocity of the approach, there is a grown political and public awareness for a sustainable change: new strategies, schemes and measures have been introduced for two decades. Amongst the most recent are: road pricing for trucks (2016), higher priority for cycling and public transport strategies, introduction of a mobility budget (although fiscal policy still gives priority to road transport, where the company car is obstinately present), SUMPs and SUMLP (Brussels Capital) and many more (see further examples).

The policy context

Belgium is a federal state composed of several autonomous, but related entities (the Flemish Region, the Walloon Region and the Brussels-Capital Region). Competences in the field of mobility and transport are scattered between the Federal State (national level), the Flemish Region, the Walloon Region and Brussels-Capital Region and last but not least, municipalities and cities.

The divisions of responsibilities have the advantage that the Regions and local authorities can address specific (local) needs. Nevertheless, mobility does not stop at the borders of a city, nor of the regions, problems spread. European policy directives become more important – e.g. white papers, urban mobility packages, air quality and climate agreements, decarbonisation policies ... and urge the Regions and local levels to cooperate. This cooperation also involves stakeholders (public and private) in different kind of advisory boards, committees or in specific working programmes and/or action plans.

Roles and responsibilities

OVERVIEW OF MOST IMPORTANT COMPETENCES REGARDING MOBILITY & TRANSPORT

A) Federal level

- National Railways & Infrastructure
- Regulations (e.g. traffic, car license, modes-related, registrations)
- Tax / fiscal regulations (partly)
- Beldam: Belgian Daily Mobility research
- Federal Diagnosis: obligation of commuters' mobility pattern and problem analysis for companies with over 100 employees every 3 years (Diagnosis home-to-work travel: http://www.mobilit.fgov.be/fr/mobil/mobaccf/diagnosf.htm)

B) Regional level

- Public transport (the regions have their own transport authorities – De Lijn (Flanders Region), TEC (Walloon Region) and STIB-MIVB (Brussels Capital Region)
- Regional road infrastructure and maintenance
- Ports and inland waterways
- Spatial planning
- Parking regulations
- Regional support programmes, schemes or strategies; e.g. SUMP frameworks, Cycling strategies, Regional Plans for Sustainable development, Commuter Plan (Flanders), Air quality directives, MOBERs, Social inclusive transport schemes.

In Belgian legislation, a decree (Flanders, Wallonia) or an ordinance (in Brussels Capital Region) is a regional law.

C) Local level (municipalities and cities)

- Local Transport Plans (L-SUMPs)
- Local Roads and maintenance (nearly 90 % of the road networks)
- Local parking management
- Public Transport (on demand services and network influence, "MaaS" is built around the concept of "basic accessibility" of most important functions).

The approach

In Belgium, the concept mobility management (MM) was hardly recognized, neither approached as in the definition of EPOMM. When literally using the combination of the words MM this often is / was narrow interpreted by some stakeholders as "MM for Companies." The Flanders Region was an exception, due to the 'Mobility Covenant program,' many cities (e.g. Ghent, Kortrijk, Hasselt) and smaller municipalities have managed to bring mobility management into practice.

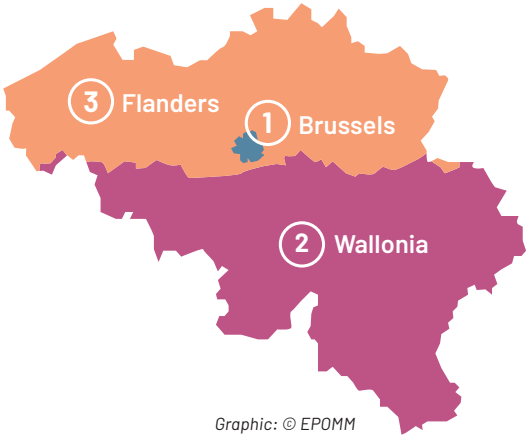
A growing interest in the livability of cities, in travel behaviour (modal split data) and in public-private partnerships (when implementing measures, e.g. school and company travel plans, public + NGO) have positively influenced the interest in mobility management in Belgium. Mainstream topics that are directly relevant to mobility management are public transport, parking management, traffic calming, cycling, walking, intermodality and smart solutions, and sustainable land use planning (concrete stop is a buzz word in Flanders).

The EU legislation on CO_2, air quality (emissions, PM_{10}), but also the launch of the Action Plan on Urban Mobility hopefully has been an eye opener for Belgium and its Regions to accelerate also on demand oriented sustainable actions: bike rental schemes, several (annual) campaigns e.g. car free day, mobility centres, raising awareness in schools, car sharing (Cambio); they all became very popular.

In 2010 a national Belgian Platform on Mobility Management (BEPOMM) with representatives from the federal and the three regional governments as well as with other stakeholders was launched successfully. BEPOMM will ensure annual network and training activities in the field of mobility management and sustainable mobility. BEPOMM became the Belgian EPOMM member in 2012.

Effects and impact

Effects and impacts can be best demonstrated by good practices that were implemented or ongoing in the three regions:



Graphic: © EPOMM

1. BRUSSELS CAPITAL REGION

2013: "Code for Air-, Climate and Energy Control"

This overall ordinance contains several measures for energy-efficiency, the development of renewable energy sources, transport, air quality and climate. Typical transport measures: limited parking standards for business, smart and sustainable logistics.

2015-2020: IRIS 2 Mobility Plan Brussels Capital Region

An ambitious transport strategy with the aim to reduce 20 % of car traffic by 2018 and control congestion: measures that promote active modes and public transport get priority; including pedestrianizing areas, public space design, cycling infrastructure and services (bike rent), bus priority lanes, automation of the metro-net etc. Push measures will rationalize the use of cars, e.g. efficient parking management, access control for living areas and additional tax on car ownership.

The regional SUMP – IRIS – will be renewed every 10 years, whereas the 19 Brussels municipalities need a similar and coherent local SUMP every 12 years.

To make regional and municipal mobility strategies and projects more consistent with one another, the Brussels-Capital Region approved an Ordinance on July 26th, 2013 giving regulatory status to its new Regional Mobility Plan.

3rd generation mobility plan

Pursuing the vision for sustainable mobility set out in IRIS 2, the new Plan 'Good Move Brussels' aims to be more concrete and more precise, covering the period of 2018-2028. But in order to anticipate developments in our society, and in particular changing travel habits and new digital technologies, the desire is also to take even longer-term prospects into account. The new Plan seeks to move from a vision of mobility to one of **multiple and shared mobility.**

Forum 'Good Move Brussels', SUMP participation

Photo: © Brussels Capital Region Government

Integration with freight

In its third Sustainable Urban Mobility Plan (SUMP), there will be particular attention to freight. The Brussels-Capital Region aims to make the metropolitan area a model for efficient and innovative urban distribution.

In applying a comprehensive planning approach, from situation assessment to measure selection and monitoring of urban freight actions, Brussels distinguished itself at the European level.

The overall objective of the Brussels regional authority is to limit the negative environmental impacts of urban freight without compromising the positive economic effects of the sector on the local economy. To achieve this, a total of 36 measures have been selected and incorporated in the SUMP approach, some of them already implemented under IRIS 2, the other measures being included in the Good Move plan.

All measures are designed to achieve at least one of the following goals:

1. Reduce and optimise the movements of vehicles transporting goods within and to the city;
2. Shift traffic from road to waterways and rail and favour environmentally friendly vehicles for last-mile deliveries, and;
3. Improve conditions for the delivery personnel.

Among the measures, are the implementation of a road-charging scheme for lorries, based on the 'polluter pays' principle; the support to alternative logistics schemes, like night deliveries and the use of urban consolidation centres; or strong support to the use of alternative freight vehicles, the support to bike couriers and the encouragement to shift traffic towards the canal, especially for bulk and construction materials.

To implement the measures, the Brussels-Capital region relies on partnerships with private innovative logistics companies and an involvement in EU-funded projects.

Site based Mobility Plans

In one decade, Brussels has motivated 240 schools to prepare a schooltravelplan. Schools that start are obliged to research home-school mobility patterns. Companies that have more than 100 employees have mandatory company travel plans, containing at least 7 predefined actions.

2. WALLOON REGION

Sustainable Urban Mobility Plans in 8 cities

13 years after the 'decree on local accessibility and mobility plans,' an awareness raising process has resulted in the financing and uptake of 'Sustainable Urban Mobility Plans' for many cities in the Walloon Region. As the living prove, the Walloon Region's administration published the examples of eight of Wallonia's biggest cities in a brochure, promoting SUMP. At this moment, besides those eight cities, 2/3 of Walloon municipalities have their own Municipal Mobility Plan (PCM) that can be seen as local SUMPs. Only the remote rural municipalities don't have their own PCM.

Cooperation between the city actors and the Region Mobility Department (SPW Mobilité) resulted already in a diversity of measures that reflect a maximum balance between economic development, environmental protection and social needs.

A new way of 'integrated and multimodal vision' has been politically accepted. Nevertheless, in the next years and decade certain improvements can be made: skills development, order and (follow up & evaluation) methodologies have to be improved, as well as participation and communication can be worked on.

These conditions also have to be fulfilled in all other municipalities.

Liège: "Vélocité"

In many European cities, bike rental schemes have been introduced successfully. Amongst the practices in Belgium (Ghent, Brussels, Antwerp, ...) the city of Liège tested another formula of long-time rental bikes amongst their citizens. Inhabitants of Liège can use the bikes for 4 months or longer and pay a fixed amount.

Due to the big success, the scheme boomed. Since spring 2016, about 800 high quality bikes are available; 60 of them were pedelecs (those pedelecs were sold by the City in May 2017; they are not available anymore). Functional cycling increased significantly.[4]

The municipality of Liège with its 200,000 inhabitants is just a part of a larger urban area. It is the reason why, in 2008, mobility has been studied on a larger scale in a document called "Plan Urbain de Mobilité." After the decision of building a first tramway link by 2022, this real SUMP (24 municipalities, 620,000 inhabitants) will shortly be updated to foster a comprehensive multimodal user-centric mobility policy, around urban railway, tramway and renewed bus networks. The link with city planning will also be stronger.

The new bridge for pedestrians and cyclists in Liège, city center. *Photo: © WBT, Denis Erroyaux*

4 www.maisondescyclistes.be/locations/velocite-0

Namur: Data for smart mobility

The Walloon capital city of Namur (110,000 inhabitants) is optimizing the use of transport modes, routes and parking supply. The renewal of the PT network was named Nam'inMove. At the same time, the local SUMP was updated and the implementation of a 'smart transport system' began at the end of 2017. The city gathers traffic data through camera observations, sensors and other monitoring instruments (e.g. air quality analysis) at the most important corridors of the city. Stakeholders complement with their data, the information is being centralized, processed and will be able to efficiently support mobility policy. The information generated will be spread via different channels as open data.

Namur is also the Walloon pilot city in introducing hybrid busses, and builds a brand-new bus station above the train station, a major step to make PT really multimodal.

New hybrid busses in Namur. *Photo: © GroupeTEC*

3. FLANDERS REGION

Commuter Plan

Already in 2006, the Flemish commuter plan has been introduced. The main goal is to make home-work travel more sustainable. The share of cars decreased meanwhile from 70 to 63 %. Cycling and the use of PT in daily commuting have both increased a little. Due to complementary policy priorities (e.g. cycle highways, Flanders cycling embassy) there is still potential for increase in bike use in home-work travel. As a result of this prolonged attention to home-work travel, innovative measures like the 'mobility budget' could be transferred from Dutch good practice to a 'Belgian' scheme (that is far from sustainable yet, but rather a shift in remuneration policy).

Commuter plan Flans *Photo: © Fotografiepolak*

Pilot in SUMPs

In Flanders, 308 of the 311 cities and municipalities already have a sustainable mobility plan implemented, or are preparing a second or even third generation of the plan (e.g. Gent will have the largest car access restriction zone in Europe). From 2013, the development of a mobility plan, with a focus on promoting sustainable mobility, is mandatory for all cities and municipalities. The respective law is the 'Decreet betreffende het mobiliteitsbeleid' (Decree on local mobility policy 2009, reviewed in 2012). It became the steering framework for integrated actions. Sustainability objectives (livability, safety, environmental, accessibility and equity) and land use planning are directly related. MM measures are put together under the umbrella of 'supportive actions'. They are part of the wide spectrum of measures aiming at 'more sustainable transport.' The STOP principle (priority ranking given to walking, cycling, and public transport and – only in last case – private transport) is a driving principle.

Gent *Photo: © Jerroen Willems*

A long-term vision for the overall mobility plan Flanders 2030-2050 will be ready soon. More emphasis in the coming years will be on working with 'indicators' (and monitoring & evaluation) and addressing the level of the 'functional city.'

Road pricing

In order to tackle congestion and further control the growing demand of transport, in 2016 road pricing – in a first stage only for freight transport / trucks – was introduced. Cost-benefit of the pilot year is being monitored and evaluated, negative site-effects (e.g. growing cut-through traffic on certain corridors) have to be solved, whilst public support for broadening the system to passenger transport is being sought.

Accessibility for all

Since 2016 pilot regions test the introduction of 'basisbereikbaarheid.' The concept will provide new PT services and cost-effective co-modality solutions for the sprawled Flanders region. Sharing mobility will be included. Harmonizing mobility and spatial planning is of key importance.

Flemish Cycling Embassy

After the example of Denmark and Netherlands, Flanders also has its own body that gathers all efforts to improve cycling policy on all levels. Flanders has the ambition to become the number 2 Cycling Region in Europe.

Flanders Cycling Embassy and Mobiel 21 promote Cycling without Age *Photo: © Mobiel 21*

Cycling Friendly shopping promotion

Source: © Jan Van Der Veken

Lessons learned

The scattered mobility competences in the Federal State of Belgium certainly hamper a consistent and shared transport policy.

Nevertheless, successful mobility management programmes and actions have been implemented for more than two decades, often **integrated** to meet broader sustainability related transport objectives (traffic safety, accessibility, livability, social inclusion and cost efficiency).

Thanks to **necessary cooperation attitude** and grown awareness for **public-private partnerships** new initiatives can address local needs and become ambassadors for others to follow the examples.

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BEPOMM
Belgian Platform on Mobility Management

EPOMM

4.3 | Finland

Photo: © Motiva Oy

COUNTRY FACTS AND FIGURES[5]

Number of inhabitants	5.5 million
Land area	338,441 km² (more than 10 % inland waters)
Population density	18.1 persons per km²
Total travel kilometres per year	74 billion
Modal Split (average working day)	50.0 % car drivers 22.0 % car passengers 19.0 % public transport 1.7 % bike 2.4 % pedestrians 5.0 % miscellaneous
Cars per household	About 1 car per household on average
Trips per inhabitant per day	2.9 trips per inhabitant per day

5 Statistics Finland: Vehicle stock grew in 2016 (2017); Finnish Transport Agency: National Travel Survey 2010–2011 (2012).

Introduction

Finland is a northern European country where innovative technologies and digital solutions are actively pioneered. With just 5.5 million inhabitants spread across a large and mainly sparsely populated country, Finland is often a challenging environment for public transportation. In rural areas, and especially in northern regions, distances from homes to services or workplaces are often very long. Contrastingly, in the most densely populated urban areas, where most Finns live today, increasing trends in cycling and public transportation are clearly evident.

There is a growing need to increase the share of sustainable transportation modes. In 2016 the Finnish Government published its National Energy and Climate Strategy for 2030[6]. This report sets a target to reduce the transportation sector's greenhouse gas emissions by 50 % by 2030.

Finland is well-known for its active start-up community. Many companies are presently working around the theme of Mobility as a Service (MaaS), seeking new ways to connect passengers and increase the available transportation capacity. Many new pilot projects and services have been launched during 2017.

The policy context

The present situation

Mobility management (MM) started to gain attention in 2000. So far MM activities in Finland have been led by the Ministry of Transport and Communications together with the Finnish Transport Agency, which holds overall responsibility for MM in Finland, and is the main funder of local mobility projects. MM was first identified as a tool to achieve the long-term national transport strategy back in 2009. Since then, stakeholders and decision-makers have realized further concrete steps to promote public transport, walking, cycling and ecodriving.

The need for better MM to reduce the numbers of car-trips has been largely driven by climate and environment targets set for the transport sector, while reducing congestion and improving air quality have been of smaller significance as drivers.

6 Ministry of Economic Affairs and Employment: Government report on the National Energy and Climate Strategy for 2030 (2017).

The Climate Policy Programme for 2009–2020, produced by the Ministry of Transport and Communications, assigns the Finnish Transportation Agency to look after national MM coordination. The Environmental Strategy for Transport 2013–2020 includes the most significant environmental targets for the sector, while also mapping out how they should be reached. One good approach to achieve these targets is to manage growing urban traffic favouring the transportation modes that are least harmful to the environment.

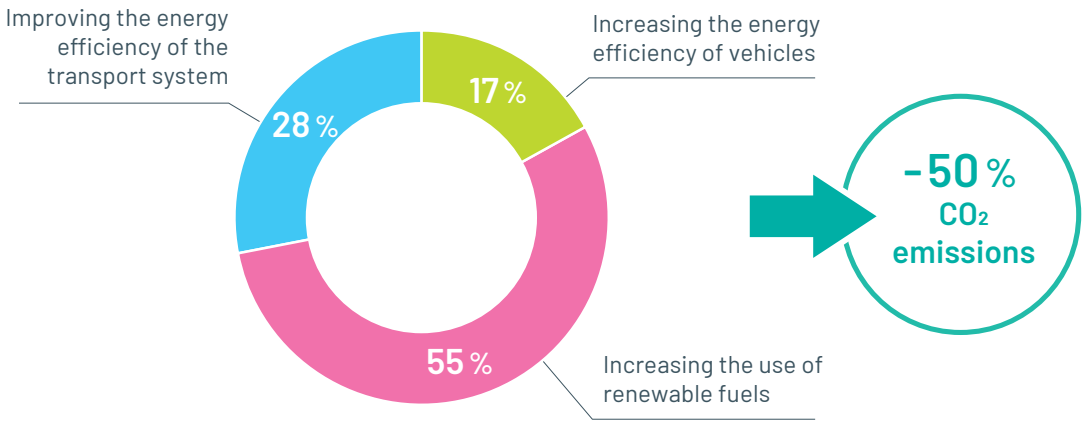
In recent years, the perspective has widened and the impacts of MM in other areas such as public health has also been recognized.

Policy goals

The National Energy and Climate Strategy for 2030 sets an ambitious goal to reduce CO_2 emissions from the transport sector by 50 % by 2030. Both technological advances and rapid changes in modal shares will need to reach this target. The strategy also includes the goal of increasing walking and cycling by 30 %.

In 2016, the Finnish Transport Agency published a report examining its own role in supporting the national strategy and sustainable development in general. This report defines MM as an essential tool for reaching these goals.

The key ways to achieve the goals set in Finland's National Energy and Climate Strategy for 2030.



Source: Motiva Oy; Graphic: EPOMM

Roles and responsibilities

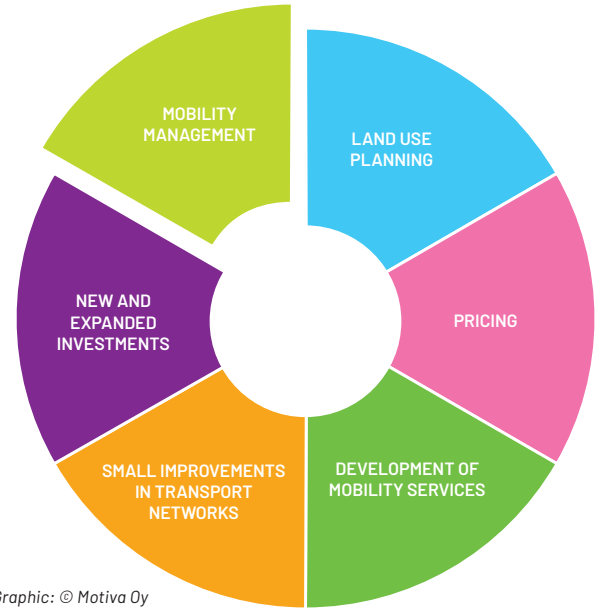
Mobility management has been organized on a national level in Finland since 2010, applying a top-down approach where MM activities have been led by the Ministry of Transport and Communications together with the Finnish Transport Agency (FTA). To spread awareness, knowledge and best practices, a national coordination programme was established. Since 2010, the FTA has purchased national coordination and expert services from the state-owned company Motiva Ltd. Motiva's role involves coordinating a national MM expert network, the European Mobility Week, and various other activities relating to the sharing of expertise and communications.

On the local level, MM-work has been organized by various actors such as municipalities, regional transport organisations and NGOs. Since 2012, related national government subsidies have also been used to promote MM work on the local level. This involves providing financial support for cities, other municipalities, regional actors and NGOs in line with related legislation, which specifies that MM subsidies must be used for marketing, information and service developments that will promote favourable modal choices. Since the launch of the national subsidy scheme, MM work has become better established even in smaller Finnish municipalities.

The approach

MM AS A TOOL TO SHAPE DEMAND FOR TRANSPORTATION

In many cases the best results in MM have been achieved when using packages including various measures. Such an approach is valid, for example, in regional transport planning, where MM has recently been better recognized as a good way to shape travel demand. A similar integrated approach, linking MM with other planning processes, can also be beneficially used in local transport safety plans, for instance.



Graphic: © Motiva Oy

A TOP-DOWN APPROACH TO MM

A top-down approach has been applied ever since MM work was first organized on a national level in Finland. Since the concept of MM was not well known at the local level, national coordination was needed to spread knowledge and best practices. Such measures have also required national funding and strong networking. Finland's national MM network, which had 600 members at the end of 2016, plays a key role in supporting MM work done at both local and national levels.

Since 2012, national government subsidies have also been granted to establish and promote MM work on the local level, though this remains largely a top-down action.

Graphic: © Motiva Oy

THE MULTIPLE BENEFIT APPROACH

At first, MM was strongly linked with environmental issues, but in recent years linkages have also been established with public health issues. This has largely been achieved through extensive cooperation between actors in the transport and health sectors, with common funding programmes established at the national level, for instance.

Lately there has also been an increasing focus on work-related MM on the national level. This usefully ties in other factors such as corporate responsibility, image, and employees' well-being as additional benefits of MM. In November 2016, a programme of R&D funding for workplace MM was launched in Finland, to be funded by the Finnish Transport Agency, the Finnish Transport Safety Agency, the Fit for Life Program and the Finnish Innovation Fund Sitra.

Graphic: © Motiva Oy

Effects and impact

There are no specific targets for Finland's MM work in itself, though there are strong linkages with goals to increase walking, cycling and the use of public transport. On the national level three policies supporting the chosen approach may be highlighted.

Graphic: © Motiva Oy

1. The national MM subsidy scheme

Since the national subsidy scheme was first introduced in 2012, the numbers of applicants and the quality of applications have increased. The municipalities receiving MM subsidies are widely scattered around Finland. Assisted by these subsidies, work related to mobility management has been initiated in 65 municipalities. These local schemes include sustainable mobility strategies, walking and cycling strategies, public transport branding and marketing, the development of mobility services, and workplace MM.

2. The Mobility Management Network

By the end of 2016, Finland's national MM network had over 600 members, including representatives from municipalities, national authorities, the private sector and interested NGOs. The network was first established in 2010. Its members receive newsletters, invitations to national meetings, links to webinars, and social media releases. This continuous sharing of best practices has facilitated the spread of favorable MM measures.

3. Getting stakeholders widely involved

The results of the multiple-benefit approach adopted in Finland can be seen in the numbers of stakeholders from different fields involved in the national MM network. Members include representatives from municipalities which work in various sectors, including health, education, technical issues and environmental issues, as well as transport. Also, the involvement of various stakeholders to MM work on the national level has made possible as many as six related funding programmes using funding from these various sectors.

Most of the impacts of these policies are realized at the local level.
Three examples of effective measures are described below.

Campaign: "Take a vacation from driving"

Example of a demand measure
Target group: car-owners

Approach: In 2013, the Helsinki Regional Transport Authority (HRT) ran a campaign enabling local residents to order travelcard passes loaded with 14 days of free travelling time. The target group consisted of people who had never previously used HRT travelcards, or who had not used their existing cards over the last three years. HRT initially hoped to distribute 7,500 new travelcards through the campaign, but their expectations were greatly exceeded and as many as 28,000 people received travelcards. More than 10,000 of these new cardholders continued to use their travelcards after the 14-day free period. HRT reckoned that the campaign paid itself back in just two months. The Turku Region Transportation authority ran a similar campaign enabling residents to order travelcards loaded with EUR 20 of prepaid travel. About 18,500 local residents took up the offer and ordered cards. The authority will measure the success of the campaign after examining how the cards are used after the prepaid EUR 20 has been spent.

Results (in the Helsinki region):

- 28,000 orders for travelcards offering free travelling time
- Of whom 10,000 went on to use their new travelcards regularly

Public transportation campaign and cooperation with employers

Example of a demand measure
Target group: drivers and employees

Approach: In 2016, the city of Jyväskylä and the non-profit organisation JAPA ry launched a wide-ranging scheme promoting cycling and the use of public transportation. Its elements included advertising, the promotion of a cargo bike-sharing scheme, the establishment of a mobile information point, and cooperation with local businesses and employers. Collaboration designed to promote sustainable commuting will include:

- parking charges at workplaces
- employer-subsidized travelcards
- improved facilities for cycling commuters (e.g. bike racks and changing rooms).

Results (so far the scheme has led to):

- an 11 % increase in public transportation usage (2015 to 2016)
- the sale of 17,500 new travelcards

Aviapolis MaaS

Example of a mobility service

Target group: drivers, employees and other travellers

Approach: The Aviapolis district consists of a large and expanding cluster of workplaces located around Helsinki-Vantaa international airport. In 2016, the city of Vantaa started to use the district as a testbed for new mobility services. The project started with an evaluation of the current mobility situation, and the selection two innovative services to be tested: Go Now! – a car-sharing service; and VediaTaxi – facilitating shared taxi rides. By the end of the pilots, the associated mobility apps had over 1,200 downloads. The operators of both services have decided to continue providing them.

Results (so far the scheme has led to):

- 1,200 app downloads
- 400 registered users
- services to continue after piloting

Lessons learned

1. INTEGRATION KEY TO SUCCESS

For MM measures to be effectively promoted, they must be well integrated with ongoing or forthcoming planning processes and strategies. A cross-sectoral approach is recommended, to exploit linkages including links for example between city-level strategies and national MM targets.

2. COOPERATION BETWEEN THE NATIONAL AND REGIONAL AUTHORITIES AND BUSINESSES

As the most important results can be achieved at the local level, it is important in the context of Finland's top-down approach that national MM subsidies are effectively channeled to promote the establishment of favourable local schemes. It is important to tread carefully with regard to interfering in markets, where there is potential for conflicts between measures realized by the public sector and the private sector. This consideration also applies when new mobility services are promoted through MM work.

3. ALTERNATIVES TO CAR USE ESSENTIAL FOR FUNCTIONING MOBILITY MANAGEMENT

Promotion of sustainable modes of transport, alternatives to car use are urgently needed. This may sound simple, but in many locations it may not be feasible to provide functioning public transport services. This problem may be crucial to successful mobility management. In such locations, there needs to be an increasing focus on mobility services that can operate in the area between private car use and high-capacity public transport solutions.

4. PROMISING PROSPECTS FOR BETTER MOBILITY MANAGEMENT

Current trends, including the spread of "Mobility as a Service" solutions and automated vehicles, create wide-ranging opportunities for the use of MM approaches and tools. User-based approaches, consumer segmentation and a better understanding of individuals' behaviour have already been widely used in MM work, and they could also be used further in connection with these ongoing trends to catalyze the necessary behavioural changes. For these reasons the role of MM can be expected to become more prominent in the foreseeable future.

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4.4 | France

Photos: © Arnaud Bouisson/Terra

COUNTRY FACTS AND FIGURES

Number of inhabitants	67 million (65 for mainland France)[7]
Land area	672,369 km² (551,806 km² for mainland France)
Population density	118 persons per km²
Total travel kilometres per year[2]	928 billion[10] (national scale)
Modal Split (in urban areas[3]**)**	61.0 % road 10.0 % public transport 3.0 % bike 26.0 % pedestrians
Cars per household	About 1.25 cars per household[10] (1.17 in urban areas[9])
Trips per inhabitant per day	3.1 trips per inhabitant per day[10] (3.5 in urban areas[9])

7 Insee, estimations de population (2016)
8 Ministère de l'Environnement, de l'Energie et de la Mer, 2016. Chiffres clés du transport, février 2017.
9 Cerema, Households surveys in urban areas (2011-2015)
10 National survey (ENTD), 2008

Introduction

Beyond the mobility of its own inhabitants, France is a country which has a lot of transit. In terms of infrastructures, France has a dense network which is, for its most part, star-shaped around and from Paris. The road network is particularly long and its density (in km per inhabitant) is high in comparison with other European countries. Moreover, the French rail network is the second largest in Europe, with several high-speed train lines. Since the early 2000s, national car traffic has slowly increased (by 3 %) whereas public transport traffic has steadily increased. Since 2005, in spite of a drop in registrations for two years, the road vehicle fleet grew by 6 %. In urban areas though, a decline in car mobility has been observed. In the same time, tram lines have been greatly extended in the most populated cities (from 239 km in 2005 to 674 km in 2015). Consequently, tram traffic has been multiplied by 4 since 2005. Meanwhile, subway and bus traffic have increased by 15 % in the capital region.

However, there are also strong differences remaining between local territories. In major cities, the modal share of public transport is increasing but these territories are still facing recurring problems of air quality and congestion, in particular due to the growth of road traffic from their periphery. In less dense areas, car use is still strong and accessibility by public transport is very difficult to develop. Given these facts, mobility management makes the promotion of an alternative approach possible, seeking to guide user demand from single car use towards alternative modes of transport and aiming to make users become more aware and involved in their mobility choices.

The policy context

THE NECESSITY FOR FRANCE TO EVOLVE IN ITS MOBILITY PRACTICES IS BASED ON THE ROLE OF THE TRANSPORT SECTOR:

- to boost economic competitiveness: transport accessibility is a prerequesit to economic development, the weight of the transport sector in the economy reaches 18 % of GDP and 1.3 million jobs,

- to protect the environment from global warming and air pollution: the transport sector still accounts for 29 % of greenhouse gas emissions, 32 % of particulate emissions and France exceeds the threshold of several major urban areas in terms of NO_x (caused for 70 % by transport),

- to improve health, social and solidarity policies: transport is a major lever for social inclusion either for precarious people or people with disabilities, especially in the context of elderly population. Moreover, the development of active modes is an opportunity to improve the health status of the population in general.

OUR AMBITION

France's ambition is thus to change people's behaviours towards more sustainable mobility choices. This ambition is embodied in the "National strategy for clean mobility," published in 2016 following the 2015 energy transition law. This law sets ambitious targets:

- *a 40 % decrease of GHG emissions in 2030 compared to 1990,*
- *a 30 % decrease of fossil fuel consumption in 2030 compared to 2012,*
- *a 32 % share of renewable energy in 2030,*
- *7 millions of charging points for electric vehicles in 2030.*

THE NATIONAL STRATEGY INCLUDES SIX KINDS OF ORIENTATIONS. AMONG THOSE, FOUR ARE DIRECTLY RELATED TO MOBILITY MANAGEMENT:

A) **Mitigating the demand for mobility:** by mobility planning (through the SUMP – sustainable urban mobility plans in urban areas, and now "rural mobility plans" in sparsely populated areas), by mobilizing partnerships and concerted approaches with companies through "workplace travel plans", and by encouraging teleworking (goal of 10 % of teleworking days by 2030).

B) **Optimizing the use of existing vehicles and networks:** by implementing traffic management measures on existing roads, facilitating intermodality (multimodal information or fare integration), and restricting car use (lowering speed limits, creating restricted traffic areas or low emission zones).

Photo: © Arnaud Bouisson / MEDDLT

C) **Developing carpooling** by creating dedicated carparks or car-pool areas to pick-up and drop-off passengers, by developing local online platforms when necessary, or by setting up reduced rates or dedicated lanes on motorways.

D) **Creating incentives for modal shift** by developing public transport in urban areas, by promoting the use of active modes (walking, cycling) and by organizing a right articulation of modes.

Roles and responsibilities

DEFINING AND IMPLEMENTING MOBILITY MEASURES COME UNDER THE RESPONSIBILITY OF DIFFERENT STAKEHOLDERS.

The State defines national orientations, guidelines, laws and regulations to be implemented at regional and local levels. It can provide targeted funding to support specific investments (for example from local authorities, such as light rail projects).

Local authorities (urban or regional) are responsible for organizing transport on their scale:

- Cities – actually regrouped cities – are "mobility authorities," that are responsible for urban policies including public transport (metro / bus / tram) and, since 2014, including other services such as carsharing, car-pooling, bikesharing and urban logistics. These entities define and fund mobility services through the "transport tax," which is based on payrolls. They contract with operating companies, mostly private (90 %), to provide transport services.
- Regions are responsible for regional and intercity trains and buses.

Companies are also involved as stakeholders in mobility management measures. Beyond financing public transport in urban areas, companies are asked to set up workplace travel plans to reduce car use and to promote public transport, biking and carpooling. Such travel plans will be mandatory for companies with more than 100 employees since January 1st, 2018. In addition, companies must fund 50 % of their employees' commuting fares.

National technical bodies and agencies like ADEME and CEREMA help to implement mobility management measures by defining methods, evaluating results, capitalizing on good practices, and animating stakeholders networks.

The approach

MOBILITY MANAGEMENT HAS BEEN PROGRESSIVELY TAKEN INTO ACCOUNT:

First implemented by pioneers local governments, then included into national guidelines and finally into legislation (the "Transport Code"). Several laws were put in place as milestones for mobility management:

- In **1982** the law on Inland Transport set the principles regarding the decentralization and accessibility of public transport services and accessibility, introducing the concept of sustainable urban mobility plans (SUMPs) in the law.
- In **1996,** with the law on Air and Rational Use of Energy, sustainable urban transport plans (SUMPs) became mandatory for urban areas beyond 100,000 inhabitants, including promoting mobility management with employers.
- In **2000,** the Urban Solidarity and Renewal law developed the concept of "workplace travel plans" and required the implementation of MM tools in large urban areas: multimodal information services, mobility guidance and mobility centres.
- In **2005,** the law on disabled rights required public transport accessibility to be completed by 2015.
- In **2009,** the "Environment Grenelle law" reinforced motivational measures favouring alternative mobility (carpooling, car-sharing, self-service bicycles, etc.).
- In **2015,** the Energy Transition law made workplace travel plans compulsory for companies with more than 100 employees located in cities of 100,000 inhabitants or more, by 2018.

In 2018, a new law is planned to encourage a cleaner, safer, more intermodal, more connected and more sustainable mobility, with a greater solidarity towards vulnerable groups and territories.

Mobility management measures are therefore widely implemented in France through several kinds of actions:

- the development of local mobility plans, like SUMPs or workplace travel plans, to reduce individual car use and organize mobility alternatives.
- the implementation of direct measures towards people, through mobility advice for the population or for specific groups (e.g. seniors, children, unemployed), or through financial incentives (e.g. 50 % of commuters' fares is supported by employers, in 2017 a bike allowance is created, 50 % reduced fare nationwide for people with low-income).
- investments in order to develop infrastructures for alternative modes to single car use (bicycle paths, dedicated lanes for public transport or carpooling on urban motorways, public transport facilities), or special regulation limiting car use (e.g. low emission zones, 30 km speed zones, parking policies).
- sometimes special actions aimed at improving the understanding of the professional and personal habits of inhabitants in order to improve the functioning of urban services, and in particular public transport.

Photo: © Laurent Mignaux / MEDDLT

Effects and impact

These policies have had several effects in terms of deployment. Today, 133 sustainable urban mobility plans cover 55 % of the population. In the first phase of the implementation of the workplace travel plans, nearly 1,500 plans had been set up in 2010, covering 4 million employees. Well animated WTPs dropped the number of car trips by their employees by 15 % in 3 years. One result in big urban areas, like Lyon or Grenoble, the modal share of public transport, which was less than 10 % 40 years ago, has increased to 15 to 20 %.

HIGHLIGHTS OF EFFECTIVE MEASURES

Deployment of a bicycle kilometric allowance

In 2014 and 2015, an experiment about the implementation of a bicycle kilometric allowance for employees who commute by bicycle was conducted in 18 companies of various sizes.

Approach: In the scope of this experiment, an assessment system was set up in order to observe

- the impacts on the practice of cycling and effects on the modal share,
- the impacts on the health of the employees,
- the conditions of the implementation of this bicycle kilometric allowance in companies.

Results: The allowance resulted in a 25 % increase in bicycle modal share after a few months and a 125 % increase after one year (from 4 to 9 % in modal share). The number of employees with lack of physical activity was divided by 2. Cycling increased the level of physical activity for 80 % of participants. In 2016, the bike kilometric allowance has been generalized for companies in France on a voluntary basis, up to 25 c / km and EUR 200 max / year of tax deduction / employee.

Personalized mobility advice: The Mobility Ambassadors in Aix-Marseille

On the territory of Aix-Marseille Provence Metropole, mobility Ambassadors advised 480 persons to reduce their car use.

Approach: Each person received advice following three steps: individualized mobility assessment, personalized advice and formal commitment. The initial assessment highlighted all regular trips which could be made without a car. During one year, each person received special advice but remained completely free to choose which transport modes he / she wanted to try, for which trip(s), and to accept or not to commit to change.

Results: After 12 months, the results showed an average of 6 % decrease of the individual car modal share, mainly in favour of walking and public transport. On average, a person declared a modal shift of 941 km per year from car to alternative modes.

An example of a workplace travel plan: the case of the Grenoble Presqu'île / Giant

The Grenoble Presqu'île travel plan includes 15 research, higher education and industry establishments, representing 16,000 users in a strategic geographical area for the agglomeration.

Approach: The 15 institutions signed a convention in 2013 to structure their efforts on working travel plans (WTP) and to facilitate exchange with the public authority. Working groups were set up on various themes: communication, accessibility, cycling, public transport, carsharing, etc. Financial incentives were provided to employees to cover up to 80 % of their travel, whether for public transport, carpool or bicycle costs.

Results: The single car use now represents only 37 % of trips on the site. Alternative trips represent more than 110,000 km per day. The site is also distinguished by organizing annually national days on workplace travel plans, and it was the origin of the creation of a national association of stakeholders of WTPs.

Staggering the university's lecture times to reduce overcrowding on the subway

Faced with an overcrowded subway during rush hour, Rennes Métropole, Rennes II University and the operator Kéolis experimented with staggering the start of lecture times.

Approach: Since September 2012, first- and second-year undergraduate students have started classes at 8:30 a.m., while other students were starting at 8:15 a.m.

Results: This has had a positive impact, with reduced congestion at peak times and less tightly-packed trains (a 17 % drop has been recorded in carriage loads), without any cost. Discussions are in progress to extend this solution to include other traffic-generating hubs.

Lessons learned

THE SUCCESS FACTORS OF THE MOBILITY MANAGEMENT POLICY IN FRANCE ARE OBSERVED AS FOLLOWS:

- the promotion of actions through a national regulatory framework: e.g. SUMPs, multimodal information and mobility advice for employees and targeted people in large urban areas, workplace travel plans for companies with more than 100 employees, dedicated tax to fund urban transport services.
- companies commitment to build workplace travel plans based on employees and customers trips analysis. Such an analysis based on the understanding of the trips generated by the activity of the company (and not just the juxtaposition of mobility solutions) is a key factor for a good WTP.
- a transversal approach of local issues: in an increasing way, land use, housing and mobility plans are built and implemented jointly.
- several decades of collective involvement of public and private stakeholders sharing their experiences through federations of local mobility authorities (Gart), private companies (FAPM), users (e.g. FNAUT, FuBicy) and technical bodies like CEREMA and ADEME.

FUTURE CHALLENGES INCLUDE:

- the use of information and communication technologies in mobility management measures. One issue is about accessibility of these technologies for people with low-income (without adequate advice) and for people without sufficient cognitive capacities;
- the mobility management in peri-urban and low-density areas, where the use of cars will remain strong. The development of carsharing or carpooling solutions can provide efficient solutions if public policies and private initiatives are well coordinated;
- the mobility management for goods, especially in a context where online business and sales are growing very fast and generating more and more trips.

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EPOMM

4.5 | Germany

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COUNTRY FACTS AND FIGURES[11]

Number of inhabitants	82.6 million (2017)
Land area	357,368 km²
Population density	231 persons per km²
Total travel kilometres per year	1,208 billion
Modal Split	75.6 % car (drivers and passengers) 18.7 % public transport (incl. 7.3 % trains, 4.9 % air travel) 2.9 % bike 2.8 % pedestrians
Cars per household	1.12 cars per household
Trips per inhabitant per day	3.4 trips per inhabitant per day

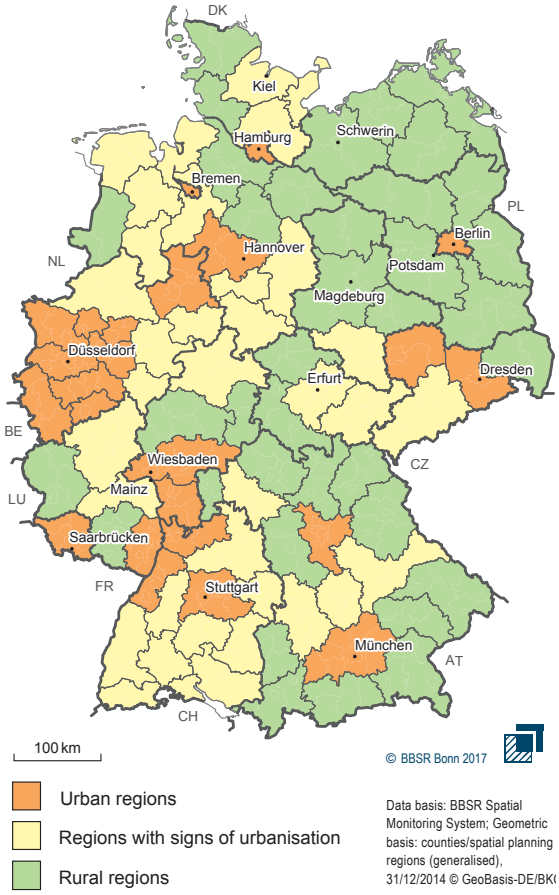
11 Sources used: Verkehr in Zahlen 2017 / 2018; Statistisches Bundesamt; Mobilität in Deutschland 2008; Kraftfahrtbundesamt

Introduction

Germany is located in the heart of Europe. It shares its borders with nine other nations. The transport sector plays a central role in a modern economy. In 2017, Germany's road network (roads other than local transport) was 229,270 km long and railway lines (length of lines operated in 2015) were 38,466 km long. [12]

The regional distribution of people and jobs in Germany is polycentral. The majority of the population, about 38.2 million (47.4 %) live in urban regions. In 2015, about 24.9 million (30.7 %) lived in regions which show signs of urbanisation and about 17.8 million people (21.9 %) lived in rural areas. [13]

Settlement structure by type of region



The policy context

THE GERMAN SUSTAINABLE DEVELOPMENT STRATEGY (2016)

The German Sustainable Development Strategy (2016) outlines the importance of sustainable development for the Federal Government's policies and defines concrete targets and measures over the entire range of political issues. It thus provides a benchmark for the required long-term perspective. All federal institutions are called upon to contribute to achieving the targets with activities in their own fields. The Sustainable Development Strategy implements the 2030 Agenda and its 17 Strategic Directions. At the heart of the German Sustainable Development Strategy is a sustainability management system: goals with time frames for their attainment, indicators for continuous monitoring, rules for management and definitions for institutional configuration.

12 Statistisches Bundesamt

13 Raumordnungsbericht 2017

Among those goals are specific mobility goals. These are under the understanding of guaranteeing mobility while protecting the environment. The strategy includes three mobility indicators with associated targets. The first and second indicators are about final energy consumption in freight transport and in passenger transport. The target for each is achieving a range of minus 15 to minus 20 % up to 2030. The third indicator and target is a reduction of population-weighted average travel time with public transport from each stop to the next medium-sized / large city.

In the context of the further development of the Federal Government's mobility and fuel strategy, there is support for the deployment of refuelling and recharging infrastructure for alternative fuels (e-mobility, liquid natural gas, hydrogen / fuel cells). In addition, the consistent use of the potential of digitalisation allows significant improvements in the provision of transport services. For example, commuter traffic can be reduced with the aid of modern ways of working (home office, mobile working), and overland journeys can be controlled in an energy-saving manner. With the aid of digitalisation, it is also possible to use infrastructure more efficiently, for example to make traffic more fluid by harmonizing speeds.

The Federal Government also supports the nationwide introduction of e-tickets and an improved passenger information system.

CLIMATE ACTION PLAN 2050

The German Climate Action Plan 2050 sets out an emissions reduction pathway with a final target of 80 to 95 percent lower greenhouse gas emissions compared to 1990 by 2050. The guiding principle presents a 2050 vision for each area of action, while milestones and measures focus on 2030. Under the interim target for 2030, Germany's total greenhouse gas emissions need to be reduced by at least 55 percent compared to 1990.

In the Climate Action Plan 2050, the German government has agreed for the first time on sectoral targets which set the framework up to 2030 for the proportional reduction of greenhouse gases in the areas of action considered. The interim target for the transportation sector up until 2030 is a reduction of 40-42 % compared to 1990.

The transportation related measures to achieve the targets include funding electric mobility, financial incentives to support environmentally friendly modes, increase modal split for public transport, funding of new technological developments in bus and rail transport, further integration of transport services, promoting walking and cycling, and the intention to develop a digitalization strategy for the transport sector which includes exploiting the potential for reducing greenhouse gases.

Roles and responsibilities

On a national level, the Ministry of Transport and Digital Infrastructure is, among other matters, responsible for shaping mobility in an environment- and climate-friendly way. Among the projects serving this purpose are the Federal Transport Infrastructure Plan, the evolution of the Mobility and Fuel Strategy and the promotion of local public transport, cycling, electric mobility, noise mitigation, and EU policy issues.

The Ministry for the Environment, Nature Conservation and Nuclear Safety's responsibilities include the environment, climate actions, and nature conservation.

With regard to public transport, the federal government supports the federal states (Länder) and local authorities financially with regionalization funds, via the Disentanglement Act and according to the Community Transportation Financing Act (GVFG) and thus makes a considerable contribution to environmentally friendly mobility. [14]

Key players and implementers of mobility management are the federal states and the local levels of government, such as municipalities, cities and regions. Mobility management is also implemented by traffic generators, such as schools and companies.

In addition to all levels of governments and traffic generators, there are a lot of further key players in academia, associations, and industry that all have an important part in mobility management.

14 The German Sustainable Development Strategy 2016

The approach

There are a number of initiatives on the federal level that support mobility management. The initiatives range from nationwide strategies, to funding programs and providing incentives. Below are a few examples:

NATIONAL CYCLING STRATEGY 2020

The 2020 National Cycling Plan of the Federal Ministry of Transport and Digital Infrastructure sets out nine action areas, which include planning and developing a cycling strategy, infrastructure, road safety, cycle tourism, electric mobility, linkage to other means of transport, mobility and safety education. The strategy identifies the measures that are required for evolving cycling in a sustainable manner and describes specific steps that need to be taken by the federal government, the federal states and the local authorities.

IMMEDIATE ACTION PROGRAMME "CLEAN AIR"

In November 2017, the federal government, together with participating federal states and municipalities, agreed on the corner stones of the immediate action programme "Clean Air 2017-2020." The programme is funded with 1 billion Euros and includes eight actions:

- Electrification of urban commercial traffic (e.g., electric vehicles for commercial users, transport and delivery services, also funding for the usage of freight bicycles)
- Retrofitting public transit diesel buses
- Digitalization of communal traffic systems to increase traffic flow
- Electrification of taxis, rental cars and car-sharing vehicles
- Electrification of buses in public transportation (plug-in hybrid or battery powered buses)
- Funding of charging infrastructure for obtained electric vehicles
- Funding for setting up charging infrastructure for electric vehicles with close consideration of reduction of constraints (in public spaces or commercial areas)
- Build-up of low-cost infrastructure and mobile metering charging spots [15]

15 https://www.bundesregierung.de/Webs/Breg/DE/Themen/Saubere-Luft/_node.html

An additional action is strengthening cycling by making it more attractive. The federal government is funding the building or the marking of cycling paths and rapid cycling paths, rebuild and renewal of traffic lights, way-finding and building parking for bicycles.

PROGRAMME "MOBIL GEWINNT"

The programme is an initiative of the Federal Ministry of Transport and Digital Infrastructure and the Ministry for the Environment, Nature Conservation and Nuclear Safety. The initiative supports companies that are engaged in sustainable mobility and mobility management. This includes being more efficient with car related traffic and supporting the use of bicycles and using public transportation.

Effects and impact

A number of the above mentioned examples are new initiatives that are recently underway and still need to be implemented. A few preliminary results are:

GERMAN SUSTAINABLE DEVELOPMENT STRATEGY (2016)

An important gauge of environmentally friendly mobility is the population-weighted average travel time with public transport from each stop to the next medium-sized / large city. Equivalent living conditions in all sub-regions can be achieved only if public service facilities are sufficiently reachable by public transport. The indicator values available for 2012 and 2016 show that the population-weighted average travel time to the nearest medium-sized or large city in this period has reduced from 23.5 to 22.4 minutes. This corresponds to a reduction of 4.7 %.

Regional Express Train

Photo: © hpgruesen / pixabay.com (CC0 Licence)

NATIONAL CYCLING STRATEGY 2020

Bicycles in Münster

Photo: © Flotty / pixabay.com (CCO Licence)

The Federal Ministry of Transport and Digital Infrastructure is funding important projects to implement the National Cycling Plan with 3.2 million Euros per year. So far, 180 projects were funded. Examples of funded projects include the Cycling Portal, German's largest internet platform for up-to-date information on cycling, the Cycling Academy as the one-stop-shop for training and education in the field of cycling, as well as a wide range of research projects which support cycling today and tomorrow in a special manner and serve as a model for other regions in Germany. In the past measures such as the 'Ride your bike to work' or 'Mobility at the kindergarten' as well as studies and campaigns to increase cycling safety were implemented. [16]

PROGRAMME "MOBIL GEWINNT"

Leipzig

Photo: © schaerfsystem / pixabay.com (CCO Licence)

The initiative supporting mobility management in companies was a competition for which 54 companies applied. Out of these, 26 applicants ranging from small-, medium- and large-sized companies, corporate joint projects and public-private partnerships won and now have a chance to receive funding for their mobility management efforts. Of note is that, altogether 300 companies and facilities can take the opportunity to receive free consultation on the benefits of mobility management in companies and facilities. [17]

16 https://www.bmvi.de/SharedDocs/DE/Artikel/G/fahrradverkehr-nationaler-radverkehrsplan.html

17 https://mobil-gewinnt.de

Lessons learned

Successful mobility management needs a lot of key players: all levels of government, traffic generators such as companies and schools, associations, industry, and academia all play an important role in developing innovative solutions to mobility management and implementing measures.

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im Bundesamt für Bauwesen und Raumordnung

EPOMM

4.6 | Italy

Photo: © ANSA/Angelo Carconi

COUNTRY FACTS AND FIGURES[18]

Number of inhabitants	60.7 million
Land area	301,340 km^2
Population density	201.32 persons per km^2
Total travel kilometres per year	104 billion
Modal split[19]	69.1 % car 3.1 % motorcycle 9.1 % public transport 3.5 % bike 15.1 % pedestrians
Trips per inhabitant per day	2.68 trips per inhabitant per day

18 Sources: ISTAT and ISFORT

19 Calculated on the total number of trips, excluding those with a duration under 5 minutes

Introduction

Italy is a country with one of the most important European and worldwide historical heritage. However, this cultural heritage is forced to coexist with one of the highest motorization rate among all European countries: in fact, the number of cars per 100 inhabitants keeps increasing (+0.6 in the last year) and it reached 61.6, a very high figure compared with the European average (49.1). Rome, capital of Italy as well as the main historical city of the country, confirms the national average, reaching about 61.3 cars per 100 inhabitants.

To tackle the high car ownership as well as the high car usage, the Ministry of Infrastructures and Transport issued on August 4th, 2017 a specific Decree containing the national guidelines on Sustainable Urban Mobility Plans (SUMP), as required by the Legislative Decree 257 of December 16th, 2016 (in transposing of the European DAFI Directive), and the Ministry of Environment funded mobility management measures on commuting to school and to work, as provided by Italian Law 221 of December 28th, 2015.

The policy context

After a drop in the last three years, the motorization rate is again increasing and it reached the level of 58 cars per 100 inhabitants in the 50 major Italian cities (a bit lower than the national average of 61.6). The number of eco-friendly vehicles is increasing, especially LPG and CNG, which reached 8.6 % of the national share, and hybrid and electric ones that increased by 37.6 % in the last year. At the same time, the number of accidents per 1,000 inhabitants is still very high, equal to 4.57 in 2015, and the mortality rate (number of deaths per 100 accidents) has increased, reaching 1.03 in 2015. Forlì, with 9.0 accidents per 1,000 inhabitants is the city with the highest accident rate, followed by Bergamo (7.9) and Genoa (7.4). The highest death rate was registered in the city of Potenza (3.2), followed by Perugia (3.1) and L'Aquila (2.8).

These are just some of the data collected each year by the "Observatory on sustainable mobility in the 50 major Italian cities," which is now ten years old: its tenth report confirms that we are far from truly sustainable mobility despite the government's efforts and the spread of the so-called sharing mobility. 2015, in fact, marked a sharp deterioration of air quality in Italian cities, also due to an atmospheric crisis that led the Ministry of Environment to issue a dedicated emergency plan. Among the 50 major Italian cities, only 15 cities respect all of the limits and thresholds imposed by the legislation on air quality.

In 2015, Vicenza was the city with the highest number of days exceeding the daily threshold of PM_{10} (106), followed by Milan (101) and Turin (99). The city with the highest PM_{10} annual average was Turin (52 µg / m^3 compared to the limit of 40 µg / m^3), followed by Vicenza (43 µg / m^3).

And once again it is confirmed that, in order to improve air quality, emergency measures (e.g. temporary traffic restrictions) are inconclusive, because it is not an emergency, but a problem that can only be tackled with serious planning and scheduling. Some administrations thankfully have already understood this concept (e.g. Bari, Brescia, Milan, Parma, Pescara, Pordenone, Prato, Torino) and they have already adopted their SUMP.

Pollution in Milan *Photo: © Dollars /stock.adobe.com*

On a positive note, there has been an affirmation among Italian citizens of the so-called sharing mobility: compared to 2014, in 2015 bike sharing users increased by almost 26 % and conventional car sharing users over 25 %, with the latter ones reaching more than 35,000 not counting users of the so-called free floating car sharing, which are more than 630,000. In the coming years, sharing mobility could become one of the solutions to traffic and mobility problems.

→ *All data of the Italian "Observatory on sustainable mobility in the 50 major Italian cities" can be seen on the dedicated open data web site: www.osservatorio50città.it/searchIndicator/index.php?lan=English*

Roles and responsibilities

In Italy, the Ministry of Infrastructures and Transport, the Ministry of Environment and the Ministry of Economic Development are in charge of mobility matters. The role of the Ministries is to implement policies on the national level through laws, regulations, incentives, etc. The first Ministry covers land use planning and infrastructure, the second one covers environment and climate change, and the third one grants incentives, in particular for the automobile market and fuels with low environmental impacts.

At a local level, regions are in charge of regional trains (regional services by train or sometimes coach) and provinces are in charge of transport by road and coach (i.e. non-urban transport), such as school transport by coach.

Lastly, municipalities with a population of more than 30,000 inhabitants have to develop and adopt Urban Traffic Plans (PUT) according to the D.Lgs No. 285/92. With Article 22 of law No.340/00 a specific tool for urban mobility planning has been established: the Urban Mobility Plan (PUM): individual municipalities with more than 100,000 inhabitants and the largest land areas have to prepare a PUM to access government funding and on August 4th, 2017 a specific Decree containing the national guidelines on SUMP has been issued. Another decree of the Ministry of Environment of March 27th, 1998 on "Sustainable mobility in urban areas" introduced mobility management: this decree introduced the position of mobility manager for companies (both public and private) with more than 300 employees, in order to engage business and workers in identifying alternatives to the use of private vehicle. The mobility manager is responsible for optimizing systematic homework trips of the employees, introducing new forms of environmentally sustainable mobility to address the current issues of air pollution and traffic congestion. This decree requires the adoption of home-to-work mobility plans for companies, defining the role of "company mobility manager," and the creation of a support structure for the coordination of the company mobility managers to be managed by each municipality.

With law 221 of December 28th, 2015 laying down rules to promote green economy measures and restraints to the excessive use of natural resources, the Italian Parliament introduced measures to promote sustainable mobility, such as the introduction of the mobility manager for each school and the funding of the national experimental programme concerning home-to-school and home-to-work sustainable mobility (more information in "6. Lessons learned"). The programme is managed by the Ministry of Environment.

The approach

As already mentioned, in Italy the approach has mainly consisted of the promotion of company mobility managers and their coordination through mobility managers at the city level.

A specific research project, carried out by the Unit on Technology for Energy Efficiency of ENEA with the support of Euromobility, completed in early 2015, has provided an updated picture of the distribution of mobility management in Italy and of the sustainable mobility measures most commonly used by companies and cities.

The research project was carried out not only to check the implementation of the position of the mobility manager, both at the city and at the company level, but also to outline a detailed picture of the most common mobility management measures. The research investigated 58 offices of mobility managers at city level, mainly concentrated in municipalities located in the central and northern regions of Italy (especially Emilia-Romagna, Lombardy and Piedmont).

This circumstance confirms, also regarding sustainable mobility, a significant gap between the northern and southern regions of the Italian peninsula. The mobility manager at the city level plays, above all, a coordinating role of company mobility managers located in their territory, whose initiatives are much more numerous and effective the more active and diversified the function of the mobility manager at the city level is.

More precisely, the role of the mobility manager at the city level is primarily to organize training and courses for company mobility managers and to provide them with technical support for the preparation of home-to-work mobility plans, by providing software tools and / or informational materials for the preparation of these plans. Mobility managers at the city level, however, play also an important role for the local community, promoting sustainable mobility and sensitizing the community through the organization of events, conferences and citizens' involvement in projects dedicated to mobility.

Certainly, the current economic downturn and the limits imposed by the spending review significantly reduce the resources dedicated to ensure the proper functioning of the offices of the mobility managers at the city level, reducing drastically the potentiality of their activities. Nevertheless, the current economic crisis is increasingly perceived as an opportunity that can favour the success of sustainable mobility initiatives, because by reducing economic resources available to families and, in general, citizens you can create an increasing demand for mobility services other than the private car.

The information provided by mobility managers at the city level, as well as clarifying the role played by them in practice, allowed a census of about 750 company mobility managers: 100 of them, including private companies, governmental agencies, universities and local health authorities, took part in a specific survey and provided important contribution in understanding the most common measures implemented to promote the use of sustainable transport modes to travel to work and to school.

Effects and impact

The results of the research project show a wide variety of alternatives implemented by company mobility managers, the most common of which are measures to promote the use of bicycles in everyday trips. In this case, the most commonly implemented measures are to give a bike for free to the employees or incenting the purchase by offering special discounts through specific agreements with the sellers (see figure 1, p. 81).

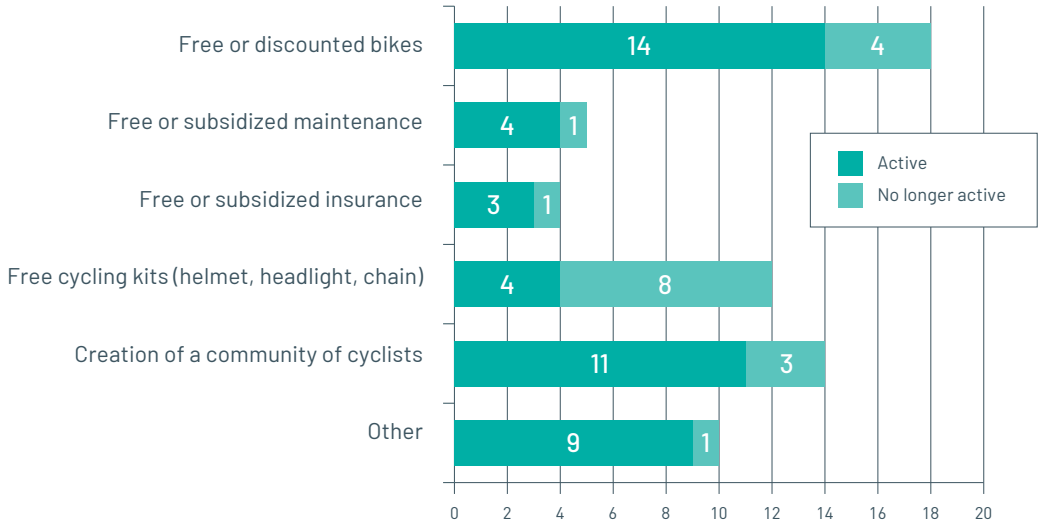
Infrastructural projects to promote sustainable travel behaviour have also been put in place, including special parking lots or outdoor bicycle racks, charging stations for electric vehicles and changing rooms with private showers for bikers (see figure 2, p. 81).

The use of public transport is encouraged especially by making agreements with public transport companies, which allow employees to buy lower priced passes, receive contributions from the employer or obtain the payment in instalments of the passes in the payrolls. In some cases, new bus stops have been added near the company offices, especially those located in more peripheral contexts, through mobility managers' intervention.

Other area of intervention include the establishment of company shuttles and employee collection services (though shuttle sharing between companies is still underdeveloped) and, above all, car-pooling. Sharing car use is encouraged, above all, by creating web platforms where you can place personal requests to find colleagues interested in sharing trips and by creating parking reserved for employees.

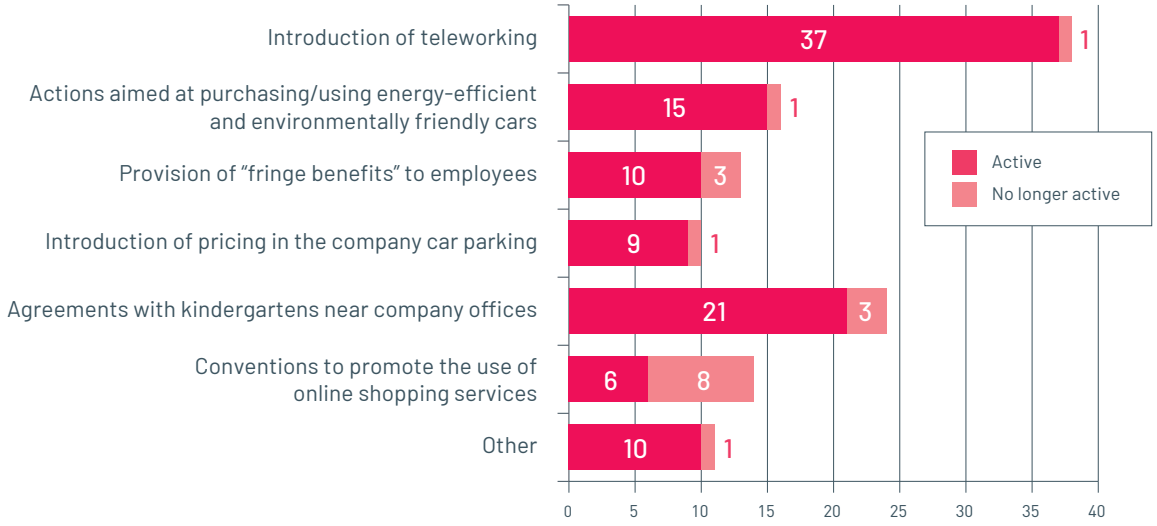
Mobility managers also focus on sharing mobility, through initiatives on car sharing and bike sharing, with the aim of facilitating work trips between different company offices. These measures come alongside the growing use of teleworking, the spread of agreements with kindergartens close to company offices and the promotion of on-line shopping services (see figure 3, p. 82).

Measures to promote the use of bicycles



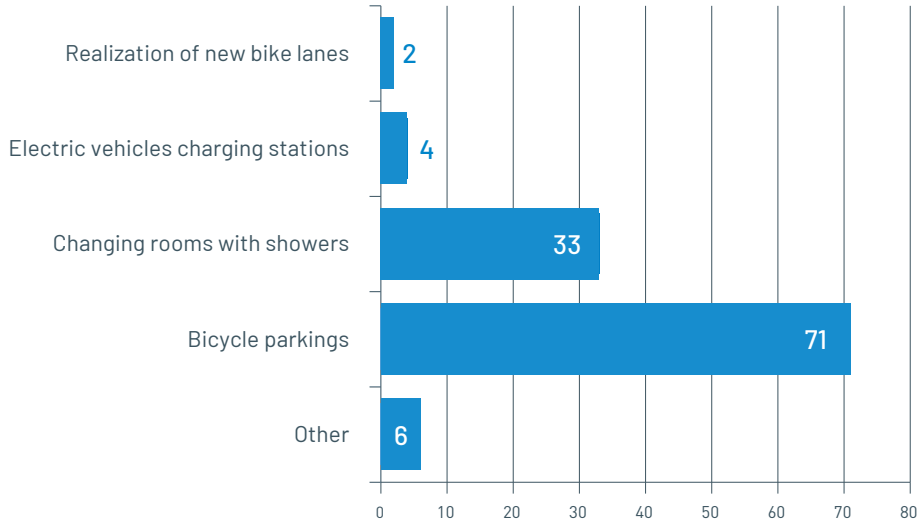
Source: Survey on the level of diffusion of Mobility Management in Italy; Euromobility; ENEA; Graphic: EPOMM

Different types of infrastructure to promote sustainable travel behaviour



Source: Survey on the level of diffusion of Mobility Management in Italy; Euromobility, ENEA; Graphic: EPOMM

Other mobility management initiatives implemented by companies that took part in the survey



Source: Survey on the level of diffusion of Mobility Management in Italy; Euromobility, ENEA; Graphic: EPOMM

Lessons learned

THE SURVEY CARRIED OUT BY EUROMOBILITY AND ENEA HIGHLIGHTED THE FOLLOWING OUTCOMES:

- *Mobility management measures are able to generate significant changes in people's behaviour with benefits for the territory, environment, air quality, but also economic savings for the user;*
- *the assessment of the benefits (energetic, environmental and economic) of the measures is not diffused;*
- *it is necessary to implement a standard evaluation methodology of the benefits.*

The previous conclusions and outcomes suggested promoting and financing both the implementation of mobility management measures and their evaluation.

For this reason, on October 12th, 2016 the national experimental programme concerning home-to-school and home-to-work sustainable mobility and the procedures and criteria for the presentation of the projects and their evaluation has been published, in compliance with article 5 of law n. 221 of December 28th, 2015. The total budget amounted to 35 million Euro.

THE FOLLOWING SEVEN CATEGORIES OF MEASURES HAVE BEEN DEFINED:

1. Implementation of low-emission collective and / or shared mobility services and infrastructures, including walking, bus, car-pooling, car sharing, bike sharing, cycling, bike to work, scooter sharing, mobile information services and other services and infrastructure related to low-emission collective and / or shared mobility, dedicated in particular to the connection of areas with low demand;
2. Creation and / or adaptation of protected routes to ease home-to-school and home-to-work trips by foot and / or bicycle, including bicycle lanes and 30 km / h zones;
3. Scheduling of educational field trips and work trips through the use of low-emission vehicles with a preference for bicycles and electric vehicles;
4. Realization of road safety, eco-driving and training programmes;
5. Implementation of programmes related to traffic, pollution and parking reduction near schools, universities and working places;
6. Granting free "mobility vouchers" and / or discounted public transport passes, as well as monetary incentives to workers and students who use low-emission vehicles;
7. Implementation of other projects designed to promote and encourage sustainable mobility for home-to-school and home-to-work trips.

The commission of the Ministry of Environment received 114 projects involving a total of 483 local authorities around the country: 82 of those projects have been funded.

Each project has been accompanied by an appraisal of their benefits. The Ministry of Environment set up three specific evaluation procedures for the seven categories of measures. The Ministry of Environment provided as well the average emission factors and fuel consumption factors per km not travelled by car through the implementation of the measures of the projects and to be used for the evaluation:

- fuel consumption factor equal to 8.69 liters / 100 km;
  CO_2 emission factor equal to 163.08 g / km;
- NO_X emission factor equal to 0.4256 g / km;
- CO emission factor equal to 0.7853 g / km;
- PM_{10} emission factor equal to 0.0297 g / km.

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Euromobility

EPOMM

4.7 | Norway

Cars passing by the National Opera House in Oslo *Photo: © Knut Opeide*

COUNTRY FACTS AND FIGURES

Number of inhabitants	5.25 million
Land area	385,186 km² (6 % water)
Population density	15.5 persons per km²
Total number of journeys per day	14 million
Modal Split[20]	50.0 % car drivers 9.0 % car passengers 15.0 % public transport 3.0 % bike 21.0 % pedestrians 2.0 % miscellaneous
Cars per household	About 1 car per household
Trips per inhabitant per day	2.7 trips per inhabitant per day

20 Source: Grunnprognoser for persontransport 2014-2050, Institute of Transport Economics, report 1362/2014

Introduction

Norway has a very low population density but the majority lives in cities, which are rapidly growing. The Norwegian Ministry of Transport and Communications wants Norway to have a good road infrastructure that provides optimal mobility to people and businesses with low emissions, regarding both greenhouse gases and the local environment.

The ministry has the aim to tackle traffic jams, improve mobility and cut emissions in the largest cities despite high and rapid population growth towards 2030. This requires a decoupling of the population growth and growth in car usage.

The policy context

Globalization, rising income and rapid population growth make it necessary to increase the capacity and quality of the Norwegian transport system, especially in urban areas. This ought to be done in a way that is friendly to the local and global environment.

Norway is projected to have 6 million inhabitants by 2029. The population will grow in every county of the country. The four largest urban areas with the cities of Oslo, Bergen, Trondheim and Stavanger are expected to have a population growth between 30-40 % between 2012 and 2040. This gives a need for large investments in the transport system, exceeding what local authorities are able to cover with their regular revenues.

The Government established guidelines for the development of the urban transport system in the white paper Norwegian Climate Policy (Meld. St. 21 (2011–2012)). This was the foundation for a broad political agreement to address the climate challenge – known as the Climate Agreement. The parliament adopted a goal of absorbing the projected traffic growth in major urban areas with public transport, walking and cycling and also to give these environmentally friendly modes of transport higher priority in the allocation of funding. It was also decided that public transport should be given a more important role in the National Transport Plan for 2014-2023 ("NTP"), which outlines how the Government intends to prioritise resources within the transport sector. When this plan was presented by the government in 2013, a policy tool to reach this goal was introduced and given the name of "The Comprehensive Urban Environmental Agreements" ("UEA").

THE AMBITION – THE ZERO GROWTH GOAL

The ambition of the UEAs is to stop the growth in car traffic in the nine largest urban areas. This means that measures for public transport, walking and cycling must be strengthened to the extent necessary to ensure that they take the growth of passenger transport in urban areas. In other words, there is a zero-growth goal regarding the traffic with private cars despite population growth.

The rail renaissance – Bergen inaugurated its new light rail system in 2010, 45 years after the last tram line was closed. The system will form the backbone of the city's zero car growth goal.

Photo: © Knut Opeide

Roles and responsibilities

The framework of UAE presented in the NTP 2014-2023 represented a new way of organizing transport policy in urban areas. The new UEAs entail a comprehensive approach in urban policy whereby the government, county authorities and municipalities unite in negotiations and undertake to pursue joint objectives enshrined in the UAE. These mutual arrangments are a new way of organizing the collaboration between central and local authorities. The UAEs include targets and measures for increasing public transport use, cycling and walking, and measures to reduce the use of cars and land use enhancing less transport and environmentally friendly transport. In the long-term, this will enable most people to use public transport for city travel.

The approach

SUMP is not mandated as such in Norwegian law. Neither are local transport plans for cities. However, the Urban Agreement framework in effect leads to the goals and objectives of a SUMP as stated in the European Commission's concept for a sustainable urban mobility plan. [21]

The Urban Agreements are binding agreements between the state and the urban areas. They have to contain goals and instruments designed to increase the share of public transport, bicycling and walking, as well as measures aimed at reducing car use. To receive additional state funding for investment and operation of public transport and other environmentally-friendly forms of transport, there is a precondition that environmental goals are emphasized and achieved in the agreements.

Effects and impact

The urban areas eligible for Urban Agreements are Oslo / Akershus, Bergen, Trondheim, Stavanger, Drammen, Fredrikstad / Sarpsborg, Porsgrunn / Skien, Tromsø and Kristiansand (Some are together with adjacent municipalities. The budget for the City Agreements and the Reward Scheme projected in the National Transport Plan for 2014-2023 is 26,1 billion NOK (approximately 3 billion euro)).

Until now, the four largest areas – Oslo / Akershus, Bergen, Trondheim and Stavanger – have signed agreements. The smaller areas are still in a preparatory phase, which is expected to result in signing of agreements.

The Urban Agreements scheme has thus been successful in making local authorities adhere to the zero-growth goal for car traffic and promoting walking, bicycling and public transport.

21 https://ec.europa.eu/transport/sites/transport/files/themes/urban/doc/ump/com%282013%29913-annex_en.pdf

The four largest urban areas have signed Urban Agreements committing to zero growth in car traffic running for a seven year period from 2017. *Graphic: © EPOMM*

EXAMPLE: TRONDHEIM

On February 12th, 2016, the city of Trondheim and the Norwegian Public Roads Administration, acting on behalf of the government, signed the first UEA.

The UEA will give Trondheim 3.76 billion NOK (approximately 400 million euro). The mutual aim of the signatories of the agreement is to reach the "zero growth goal:" to stop the growth in car traffic and ensure that all growth in traffic is taken by walking, cycling or public transport. But the funding does not come without requirements, and cannot be used for any purposes.

In order to start negotiating for such an agreement with the state, the municipal authorities must state a clear commitment to the "zero growth goal." The local authorities are in principle quite free to choose how the goal is to be reached, but must show a credible plan and must then use the state funding for measures helping to reach it. For Trondheim's part, the 3.76 billion NOK are used for these measures:

- 1 billion NOK for road infrastructure enhancing public transport, walking and cycling
- 1.4 billion NOK for a metro bus solution (half of the total cost)
- 1.36 billion NOK for different measures to tackle air quality and congestion

No more cars passing on the old city bridge in Trondheim *Photo: © Knut Opeide*

The requirements from the state towards the municipality in return are:

- Adherence to the zero growth goal
- Densification of the city near existing and new public transport lines, and especially around access points and stations
- The building of a coherent walking and cycling network, with good access to the public transport system
- Development of nodal traffic points

The results are measured according to the following criteria:

- Traffic development with modal split. This is measured with travel surveys, live traffic counting and number of public transport journeys
- Greenhouse gas emissions
- Parking restrictions
- Densification of the city

The large part of the funding goes to infrastructure measures promoting modal shift from car to walking, cycling and public transport, but more traditional mobility management measures are also being used. From 2017 to 2020, 5 million NOK yearly are planned to be spent on information campaigns and material, and 5 million NOK every year on travel advice for schools, businesses and private individuals.

→ *From the web page of "Greener Trondheim". The city already has an impressive record of modal shift, even before it was the first Norwegian urban area to sign up for a UEA in 2016: http://miljopakken.no/about-miljopakken*

Lessons learned

The UAE framework shows the effectiveness of using financial mechanisms to align national and local ambitions for sustainable mobility in cities. As the UAE´s contractual period is to the end of 2023, the final conclusions of lessons learned will still have to wait for a few years. However, the framework has certainly been important for making the cities set ambitious targets for sustainable mobility, and the chances seem quite good that the ambitions will be fulfilled as reaching the goals is coupled to substantial funding.

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EPOMM

4.8 | Portugal

Photo: © IMT, I.P. / Rui Velasco Martins

COUNTRY FACTS AND FIGURES [22]

Number of inhabitants	10.3 million (2016)
Population density	112.0 persons per km^2
Modal Split (2011 Census)	44.0 % car drivers 18.0 % car passengers 17.0 % public transport 1.0 % motorbike 0.5 % bike 16.0 % pedestrians 3.5 % miscellaneous
Motorization rate *(light passenger vehicles per 1,000 inhabitants)*	470.5 (2016)

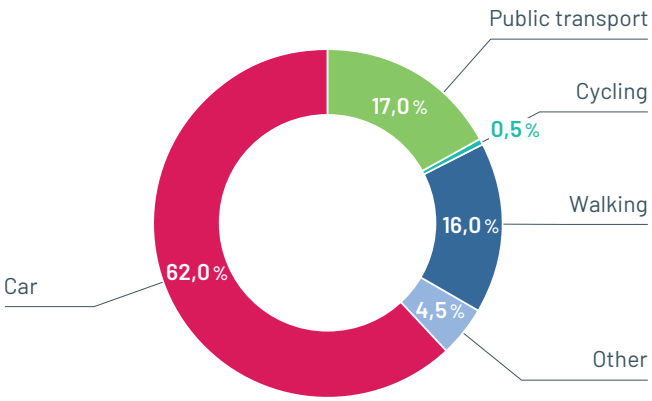
22 Sources used: INE (National Statistics Institute), PORDATA (Contemporary Portugal Database)

Introduction

Photo: © IMT, I.P. / Manuela Tavares

Portugal is a Southern European State which occupies a total area of 92,226 km^2 including the Mainland and the Atlantic Archipelagos of Azores and Madeira. If the Discoveries of the Portuguese navigators were once an important contribution to increase the worldwide mobility of people and products, now Portugal has embarked on a new challenge – sustainable mobility.

Most commonly used means of transport in commuting



Sources used: Commuting movements, INE, Census, 2011, Graphic: EPOMM

The policy context

The Portuguese Government has emphasized, namely through the National Reform Program, the need to adopt instruments and measures that seek to promote sustainable and resilient mobility management.

The national transport system has a low level of intermodality, with excessive dependence on the individual road transport.

In fact, transport sector represents an important part of final energy consumption (e.g. 74 % of the oil final consumption), with road transport accounting for almost all of this consumption. It is also verified that the land transport is mainly responsible for the consumption of oil products for energy purposes, contributing in a significant way to the external energy dependence.

In order to reduce this dependence, the use of road transport should be reduced at the national level, both by public transport and by soft mobility, to increase energy efficiency in the sector. But it is also important to promote the adoption of more efficient and fuel-efficient vehicles, such as natural gas and electric vehicles.

Although this sector shows positive signs of reducing national GHG emissions, partly due to the incorporation of biofuels into road fuels, it still accounts for 24 % of total GHG emissions in Portugal.

The concept of sustainable mobility, which is increasingly present in territorial policies and strategies, presupposes that citizens, living in cities, towns and villages, have accessible mobility choices that allow them to travel safely, comfortably, timely and affordably. It also implies that their mobility is carried out with energy efficiency and reduced environmental impacts.

Regulatory instruments have also been set up to accommodate new forms of mobility, including flexible transport and car sharing, and encouraging soft mobility (in particular promoting the use of bicycles) through various initiatives and to create conditions for intermodality with public transport systems.

Roles and responsibilities

The Institute of Mobility and Transport, I.P. (IMT, I.P.) acts on matters related to the Ministries of Internal Affairs, Planning and Infrastructure, Environment, and Sea, under the supervision and authority of the Minister of Planning and Infrastructure.

The mission of IMT, I.P. is to perform the functions of technical regulations, licensing, coordination, supervision and planning in the area of inland and inland waterway transport and related infrastructure, as well as in the economic sector of commercial ports and marine transport. It also has responsibilities in the management of concession contracts granted by the State in those sectors, in order to meet the mobility needs of people and goods.

Bearing in mind the importance of innovation as a strategic value for the mobility and transport sector, IMT actively collaborates to define the objectives and guidelines for the implementation of sustainable mobility at the national level, placing Portugal in line with European trends and positioning the country in the international scene.

The Portuguese transverse approach to mobility and transport policies allows a high level of coordination that supports the promotion of sustainable mobility in Portugal. In this sense, Portugal has recently been reorganizing public transport, with the implementation of a decentralized model for public transport competences. Local and regional authorities are assuming a direct role in planning and management of transport networks to ensure their participation in the sustainable mobility policy.

The approach

In 2011, the Portuguese government approved The Strategic Plan for Transport – Sustainable Mobility (PET), which established a broad reform programme to be implemented by 2011-2015.

Based on an assessment of the results of the implementation of PET, The Transport and Infrastructure Strategic Plan 2014-2020 – PETI3+, was approved and envisaged a set of structural infrastructure reforms to be undertaken, promoting the change from individual transport to collective transport until the end of this decade. Strategic objectives for this period have been set and, in this context, the following stands out: To promote social and territorial cohesion, and environmental sustainability, ensuring the mobility and accessibility of people and goods throughout the country.

In 2011, a national reference framework, entitled "Mobility Package," was developed for addressing issues related to mobility, transport, accessibility and territory. This work resulted in technical guidelines, legislative proposals, national and local workshops and further communication and technical support for sustainable mobility projects.

Regarding climate policy, the National Strategic Framework for Climate Policy (QEPiC), approved in 2015, embodies the Portuguese political, scientific and technical conviction that climate change is a national priority, given its future impacts on society, economy and ecosystems, and that the mobility sector is one of the greatest challenges, both in terms of mitigation – National Climate Change Programme (PNAC) and adaptation – National Adaptation Strategy (ENAAC). The mitigation component also includes the implementation of the European Emissions Trading Scheme (ETS).

PNAC 2020/2030 aims to ensure a sustainable path to reduce national greenhouse gas emissions to achieve an emission reduction target that, in the transport sector is of -14 % by 2020 and -26 % by 2030 compared to 2005, ensuring compliance with national mitigation commitments and putting Portugal in line with the European objectives in this regard. PNAC Policies and measures are organized in sectoral initiatives, transverse axes and areas of integrated intervention.

- Sectoral initiatives in the transport and mobility sector: Mobility management – medium- and long-distance transport (passengers and goods); Mobility management – Urban and suburban transport (passengers and goods); Technology – Vehicles / fuels; and Behaviors.
- Transverse measures: Research, development and innovation (R&D); Knowledge, Information and Awareness; and Green Taxation.
- Areas of integrated intervention: Public Administration – ECO.mob (Sustainable Mobility Program for Public Administration); and Sustainable Cities.

It is also important to highlight the alignment between PNAC and ENAR – National Strategy for Air, developed in parallel with the PNAC, based on the same energy demand scenarios and with some common measures for sectoral emissions initiatives.

ENAAC 2020 sets out the objectives, activities and model for the organization and operation of the strategy by 2020 with a goal to adapting Portugal to climate change, through the continuous implementation of solutions based on technical-scientific knowledge and good practice.
Technical monitoring is ensured by The National System for Policies and Measures (SPeM) and the National System of Inventory of Emissions by Sources and Removal by Sinks of Atmospheric Pollutants (SNIERPA) are included in the QEPiC for the reporting and monitoring of climate policy implementation and actions, such as the reporting system envisaged under the ENAAC 2020.

Political monitoring is ensured by the Interministerial Commission for Air and Climate Change (CIAAC) made up of members of the government whose subjects relate to climate policies.

In order to ensure compliance with the targets for the sector, Portugal is embarking on a process of transition to a higher level of sustainable mobility, which will be achieved through the behavioral change towards greater use of collective transport and soft modes, the adoption of new mobility solutions like shared mobility, the technological evolution of vehicles towards greater energy efficiency / cleaner fuels and a mobility management that promotes a sustainable, shared and smart mobility. An important part of this vision will be present in Portugal Roadmap for Carbon Neutrality 2050, the new policy document that will draw the strategy of decarbonisation of the Portuguese economy until 2050 (identifying a new trajectory for 2030) and that will set specific targets for the transport sector.

Effects and impact

In the area of sustainable mobility, some major programmes underway are: the decentralization of the urban transport sector, the decarbonisation of the public transport fleet, the expansion of the Lisbon Metro and Oporto Metro networks, the electric mobility and the soft mobility programme.

PORTUGAL HAS ALREADY STARTED THIS PATH:

- With the reorganization of the transport sector, which highlights the transfer of collective urban transport management to the metropolitan level in the metropolitan area of Porto (STCP) and to the Municipality of Lisbon (Carris);
- With supporting electric mobility by expanding and renewing the network of electric charging points and installing new fast charging points;
- With the incentive to purchase electric vehicles, through financing of vehicles for environmental urban services and public administration by the Environmental Fund, and through the financing of low emission buses for public transport by POSEUR;
- With the enhancement of soft and active mobility, through bicycle usage projects;
- With political support for shared forms of transport.

SOME HIGHLIGHTS OF EFFECTIVE NATIONAL MEASURES, POLICIES AND PROJECTS OF PORTUGAL'S COMMITMENT TOWARDS A SUSTAINABLE MOBILITY:

Green buses

The promotion of road public passenger transport services, accompanied with the promotion of the replacement of the most polluting vehicles, has been strengthened. In this context, it should be pointed out that the applications that have been recently submitted to POSEUR (Operational Program for Sustainability and Efficiency in the Use of Resources) by 11 passenger transport companies, from all over the country, for the acquisition of 516 "green" buses, electric or natural gas buses, are under examination. In the vast majority, they will replace more polluting vehicles, thereby reducing emissions of greenhouse gases and air pollutants, and meaning an investment of EUR 156 million.

The expansion of subway networks

In the promotion of the use of public transports, EUR 500 million are included in the National Reform Plan for the expansion of Lisbon and Porto subway networks.

U-bike Project

The U-bike Project aims at the implementation of strategies to promote the use of the bicycles, as an efficient means for urban mobility. To this extent, the project intends to foster the habit of using this mode of transportation within academic communities, by renting electric and conventional bicycles to its members, by semester or school year, according to norms defined by each Higher Teaching Institution adherent.

It involves fifteen Higher Education Institutions, is coordinated by IMT, I.P. and intends to achieve the following objectives: 3,234 bicycles, electric and conventional; 2,412,141 km of cycling; reduction of emissions of 505 t of CO_2e.

Total investment: EUR 6 million

© IMT, I.P.

MOBI.E Network

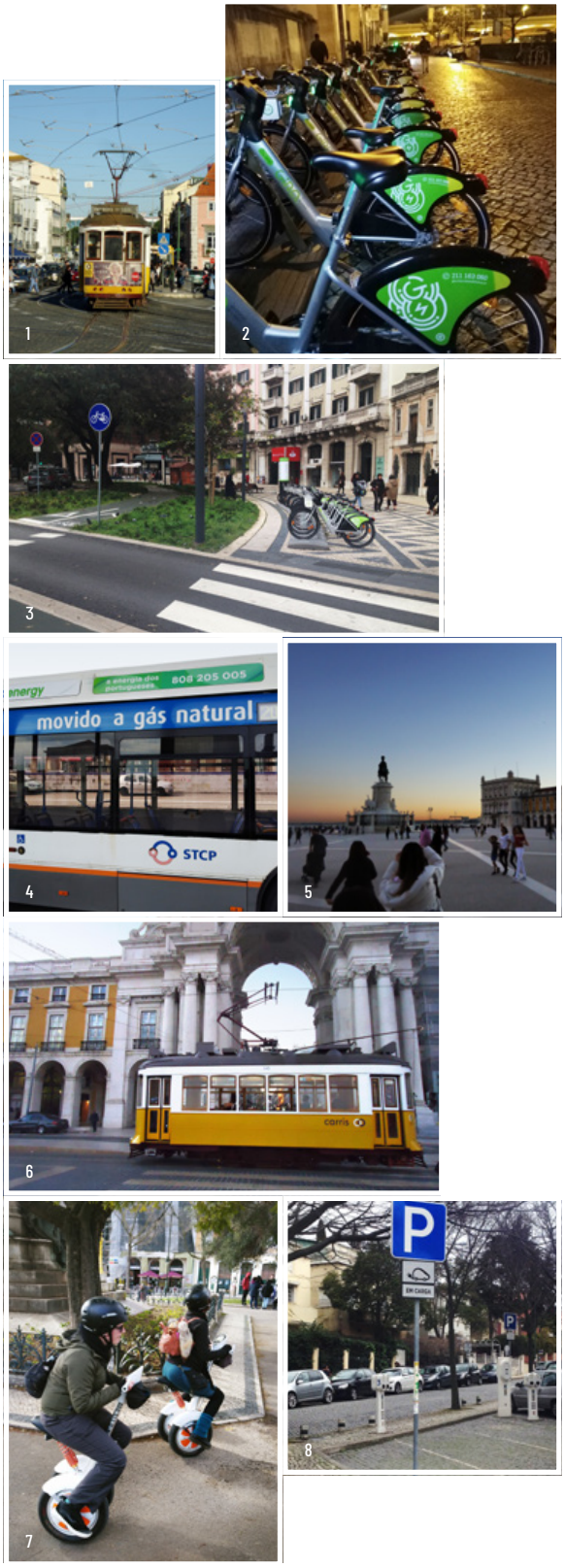
An intelligent electric charging network, present in the whole national territory, with electric charging points mainly located in spaces of public access that offers 1,200 normal charging points and 11 fast charging points in public access spaces [23]. At any time, the user can consult his vehicle's charging history, with information about the duration and number of charges made, the points of charging used and the amount of energy consumed. The network is currently being expanded to ensure that every municipality has at least two available charging points.

Incentives for ZEV / LEV

Electric vehicles have exemption of the vehicle tax (ISV), lower circulation tax (IUC) and, in some cities, don´t pay parking. Reduction of 75 % of the ISV for hybrid plug-in vehicles.Through the Environmental Fund (FA) the Portuguese government has a 2,250 euros compensation mechanism for each new 100 % electric vehicle without previous registration (FA funding - EUR 2.3 million). The companies have more incentives when buying an electric vehicle, such as IRC deduction and autonomous tax exemption. Sustainable Mobility Program for Public Administration 2015-2020 (ECO.mob).

Incentives for the use of public transport

Recovery of VAT paid on public transport tickets from January 2017 – The total value of VAT (6 %) paid on public transport expenses can be included in the personal income tax (IRS) deductions.



Photos: © IMT, I.P. / Manuela Tavares (1, 3, 5, 6, 8), Rui Velasco Martins (2, 4, 7)

23 www.mobie.pt charging points

A LOCAL HIGHLIGHT: "LISBOA – PARADIGM SHIFT"

Lisbon is in a period of change, a paradigm shift in mobility. As a major city it has a preponderant role in guaranteeing the quality of life of those who live and work in or visit the city. There is also a need to ensure the promotion of sustainable mobility in which the options for public transport, walking, cycling and using shared vehicles should be the main means of transportation.

Climate change, energy efficiency, air quality and the reduction of noise levels are major challenges to the quality of life in cities, which consequently depend mainly on city mobility. Increasing social, environmental and economic pressures have led to a rethinking of the mobility model and a return to public transport and active modes.

The defined mobility strategy is very clear, it aims to ensure a more balanced modal split, strongly supported by an integrated and multimodal public transport system, a secure, functional and appealing pedestrian and cycling network. It aims to ensure that Lisbon is a city with low emissions, with high levels of environmental, economic and social quality. It intends to give back the public space to people by creating conditions so that everyone is free to choose the most convenient mode of travel.

Lisbon is becoming increasingly accessible, having approved a multiannual Pedestrian Accessibility Plan that links a minimum of 3 % of the annual budget to the improvement of pedestrian mobility, in addition to very demanding regulations in this area to be fulfilled by all actors of the urban space.

The various projects developed by this municipality are synonymous to this, namely: the assisted pedestrian path "Da Baixa ao Castelo" (from Downtown to Castle), where, using mechanical means to overcome the existing topographic gaps, is now possible to enjoy them by active modes; the improvement and expansion of the public space for pedestrians, to the detriment of the vehicular traffic space, such as the recent requalification intervention carried out in two of the three main avenues of the city; the "Uma Praça em cada Bairro" ("One Square in each Neighbourhood") Program that contemplated the intervention in 30 priority squares; and the requalification of the riverside front, between Cais do Sodré and Campo das Cebolas, which allowed the population to return to the river edges.

Requalification of one main avenue in Lisbon

"One Square in each Neighbourhood" Programme – Saldanha Square

Cais do Sodré

Photos: © Municipality of Lisbon

In the last 10 years, the cycling network in Lisbon has received an unprecedented boost, from just 10 km of bike lanes to 80 km, as well as six new pedestrian / cycling bridges to overcome physical obstacles, which makes cycling an attractive mobility tool in the city.

Electric mobility is also one of the strategic objectives of Lisbon, and this municipality is concerned with reducing the pollution generated by passenger transport by promoting new models of sustainable mobility.

The public transport system has been reinforced so that it becomes an effective alternative to individual transport. One of the steps recently achieved was the transition of the Carris (Lisbon public transports) management to the municipality. Since February 1st, 2017 children up to 12 years old have free public transportation and pensioners benefit from a reduction of about 50 % in the value of the social transport pass.

The reformulation of the supply and parking pricing policy allowed the creation of differentiated prices in accordance with traffic management objectives, contributing to the guarantee of supply, reducing congestion and freeing up space available for urban requalification.

As a follow-up to this mobility strategy, the municipality has been participating in the European Mobility Week (SEM) since its first edition in 2001, an event which aims to encourage behaviour compatible with sustainable development and in particular with the protection of air quality, with mitigation of global warming and noise reduction. The organization of a set of initiatives aimed to inform the general public of the work carried out in the field of sustainable mobility, such as: the implementation of permanent measures focusing on accessibility, the promotion of public transport and soft modes.

Throughout the SEM editions, popular participation in the activities developed in the city of Lisbon has increased, and citizens are more aware of the effects that the choice of modes of transport have on the quality of the environment and that the contribution of each one to achieve more sustainable mobility is crucial.

In all editions, the municipality has made an effort to prepare a diverse agenda that spans multiple audiences and engages all stakeholders.

This success factor reflects the fact that in the last two editions of the SEM, Lisbon was included in the finalist group of cities to be awarded with the European Mobility Week Prize and was highlighted both by the activities carried out and by the permanent measures implemented in the city, in which some were considered exceptional.

On the path for a safer, more accessible and people-friendly city, Lisbon will continue to focus on a better mobility.

Lessons learned

To achieve sustainable mobility, it is imperative to engage civil society to a new culture of mobility, which presupposes a substantial behaviour change at the level of individual citizens, groups of citizens, companies and institutions.

Addressing the challenge of sustainable mobility requires a shift in urban planning and design that should focus on how to bring people and places together, by creating cities that focus on accessibility. This is a common effort that requires an integrated mobility and transport policy, through strong strategic planning, and coordination from national and local governments which need to provide enabling legal frameworks and policies, and address mobility in light of their global city planning endeavours. Authorities also need to allocate sufficient time and funds to improve their transport infrastructure over the long-term and to accommodate future travel demands.

Deep decarbonisation of the economy requires broad and participatory involvement of all stakeholders, with a view to identifying policy options and defining low carbon trajectories for the national economy.

Results already achieved reveal the good path Portugal is on to attain the targets to the new paradigm of mobility that must be sustainable, autonomous and shared.

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EPOMM

4.9 | Sweden

Photos: © Municipality of Uppsala

COUNTRY FACTS AND FIGURES[24]

Number of inhabitants	10 million
Land area	407,300 km^2
Population density	22.5 persons per km^2
Total travel kilometres per year	123 billion
Modal Split	53.8 % car 15.4 % public transport 27.5 % pedestrians and bike 3.3 % miscellaneous
Cars per household	About 1 car per household
Trips per inhabitant per day	1.35 trips per inhabitant per day

24 Sources used: SCB, Statistics Sweden 2017; The Swedish national travel survey 2015-2016, Transport Analysis 2017 ; The Swedish Energy Agency 2017

Introduction

Photo: © Municipality of Uppsala

Sweden is the country in Europe with the fastest growth in urban regions but at the same time, many people in Sweden live in the countryside with long distances from homes to services or workplaces. There is a need to facilitate and enhance sustainable transport both in the cities, within the countryside and to and from the larger cities. Recent trends show that bike trips in general in Sweden have become longer, but that the percentage of bike trips has decreased. The trends in cycling and public transportation are generally pointed in a more positive direction within the cities. One of the biggest challenges is therefore to increase the sustainable transport in rural areas and between urban and rural areas. To ensure this, Sweden has a strong focus on enhancing cooperation between companies, municipalities, organisations and other stakeholders. There are various networks related to mobility management (MM) in Sweden, in which actors work to inspire each other to work with MM measures. One of these networks is called "Mobility management in land use planning" (Möjligheter med Mobility Management i Samhällsplaneringen, MMMiS, in Swedish). The network strives to inspire others, test new approaches and evaluate the results of the approaches.

The policy context

Domestic transports contribute to one third of Sweden´s total carbon dioxide emissions. The emissions have decreased by about 9 % between 1990 and 2015 but the decrease has been smaller in the more recent years. In the larger Swedish cities, air pollution and noise are two of the biggest environmental and health problems. The transport system needs to contribute to improved health by reducing noise and ensuring good air quality as well as by providing various active mobility alternatives (e.g. walking and cycling).

In the '90s, the Swedish Transport Administration put out a principle called the Four Steps Principle (Fyrstegsprincipen in Swedish), which is a planning approach where possible improvements in the transport system are tested in four steps; **rethink, optimize, rebuild** and **build new.** The first two steps are MM measures and by this, MM became an obvious part of mobility and transport planning in Sweden.

THE POLICY GOAL

The overall Swedish goal for transport is to ensure the economic efficiency and long-term sustainability of transport provision for citizens and enterprises throughout Sweden. In addition, the Parliament has adopted a functional goal – accessibility – and a consideration goal – safety, environment and health.

In 2015, ahead of the COP21 climate change conference in Paris, the Swedish Government launched an initiative called Fossil Free Sweden. The initiative is based on a national ambition to reach a fossil-free vehicle fleet by 2030. By the Fossil Free Sweden initiative, the government wants to mobilise Swedish involvement in climate work and give companies, municipalities and organisations opportunity to showcase their efforts under a common umbrella. Up until today, 300 actors who have all realised that climate change adaption paves the way for new business opportunities, technologies and better social solutions, are part of the initiative. Alongside with this, the Swedish Energy Agency (together with a group of other actors) put out a strategic plan in 2017 for conversion of Sweden´s transport sector into fossil-freedom.

Photo: © Municipality of Uppsala

Roles and responsibilities

On a national level, mobility management activities are driven by actors such as the Swedish Energy Agency, the Swedish Association of Local Authorities and Regions, the National Board of Housing, Building and Planning, the Swedish Environmental Protection Agency, the Swedish Transport Administration, the Swedish Transport Agency and Transport Analysis. All of these actors have different roles and responsibilities. The Government gives missions to the actors.

On a local level, MM work is organised by various actors such as companies, municipalities, universities and regional transport organisations. The Four Steps Principle, which suggests that MM measures should be tested first, has become business-as-usual for municipalities and organisations. As written before, there are several networks related to MM in Sweden. The network MMMiS is driven by the Swedish Energy Agency, co-ordinated by Trivector, and includes 12 Swedish municipalities who have worked with integrating MM measures early on in the planning process. They inspire others, test new approaches and evaluate the results of the approaches and together they strive to reach the Swedish goal of transport. The next sections will mainly focus on some of the approaches within MMMiS.

The approach

A lot of the MM work in Sweden is focused on increasing knowledge about the importance of conversion into more sustainable transportation. This is done in seminars, workshops, campaigns etc., but to get the most effect out of it, it is often combined with approaches such as the three examples described below.

FLEXIBLE PARKING STANDARDS

Many municipalities and other local authorities are combining MM and parking measures by using flexible parking standards. Flexible parking standards allow municipalities to decide on a lower number of car parking spaces in new developments. The numbers of parking spaces can then vary depending on location, access to public transport, target groups etc. This has been tested in cases where MM measures or measures supporting sustainable mode choices such as car-sharing, access to good public transport and bicycle parking have been implemented.

MOBILITY MANAGEMENT MEASURES IN TRAVEL PLANS

MM measures in travel plans can be used as requirements or in negotiations between municipalities and developers in planning processes to facilitate urban development in accordance to the municipalities' overall objectives. The approach is about demanding or negotiating with builders around MM plans and / or measures associated with the detailed planning of new areas or the construction license application. If the municipality owns the ground they may require MM plans to be placed in conjunction with ground instruction.

This often results in a win-win situation where the builders can reach denser areas, more building rights or fewer parking spaces if they in turn implement MM measures. For residents, the winning deal is cheaper-built housing and a wider range of transport facilities and mobility services. The municipality serves in a denser city that can provide a basis for a more efficient transport system.

GREEN PARKING PAY-OFF

This approach equals increased responsibility for the property owner to achieve a change in travel behaviour. In return, the car parking standard can be reduced which decreases the cost of parking. Green parking purchases can for example be made by placing part of the parking lot purchase into a mobility fund. This is governed by an agreement linked to the agreement of the parking purchase (which is signed between the property owner and the municipal parking company). The winnings are that the number of parking spaces can be reduced while active actors in the area are given improved conditions for sustainable travels through actions funded by the mobility fund. Property owners can also market their properties with a clear environmental orientation about green parking purchases being used.

Effects and impact

Since a lot of the MM work in Sweden is being done on the municipal level (but often in networks), it is not a simple task to relate all of the MM work to policy goals. The strategic plan for conversion of Sweden´s transport sector into fossil-freedom is too new to evaluate. In this section, effects of the approaches mentioned in the section before will instead be explained. Focus is on limiting car parking.

Measures that lead to a reduced need of a private car lead to fewer parking spaces required, which yield benefits to society in terms of lower emissions, reduced noise, better road safety and more accessible space to create attractive urban environments. For builders, large financial savings are created with the lower demand for parking spaces, while providing space for modern bicycle parking and car pools and more pleasant living environments instead. For the individual, MM measures contribute to better economy due to lower transport costs, more exercise and better health as you choose to travel more by foot, by bike and by public transport. Increased physical activity in traveling also gives benefits to society through increased public health as it prevents overweight and reduces the risk of diseases such as hypertension and cardiovascular disease. In general, the work within the network has resulted in about 2,400 fewer parking spaces, a decrease in energy consumption of the traffic with approximately 18 GWh per year and a reduction of carbon dioxide emissions of 5,000 tons per year.

Decreasing car parking and releasing space for bicycling *Photo: © Municipality of Uppsala*

FLEXIBLE PARKING STANDARDS

The Municipality of Malmö uses a flexible parking standard to assess demand for parking on a case-by-case basis. An example is the neighbourhood Fullriggaren, where the builders were offered a departure from the parking standard. Malmö's original parking plan for the area was 1.0 parking space per apartment, but the builders were given the opportunity to get the parking standard reduced to 0.7 per apartment. However, the 30 percent reduction required that all builders jointly implemented a package of measures that lead to lower demand for car parking in the area. One of the most important measures was that the builders would ensure a car pool in the area and pay the fixed monthly fee for this for all apartments and business premises for five years. In addition to the car pool, a number of other MM measures were included in the builders' package. Among other things, it included the construction of high-quality bicycle parking, organising a bicycle pool, annual reporting of car ownership among residents in the properties as well as powerful marketing of the ambitions with the area and the measures that have been introduced. In a 2012 poll, it was shown that there are about two people per apartment in the neighbourhood and there are 0.6 cars per apartment, which is lower than the parking standard of 0.7 car parking per apartment. More than half of the residents were connected to the car pool at the time.

MOBILITY MANAGEMENT MEASURES IN TRAVEL PLANS

Ways to include MM measures in travel plans are to demand that all car parking is to be done by purchase and to not allow car parking on private property. Parking spaces are instead located in parking facilities on the outskirts of the area, about the same distance as to bus stops in the area. Builders also have the opportunity to reduce the number of parking spaces established by offering opportunity to use a car pool. This has recently been done in Vallastaden, in the Municipality of Linköping. Since it is so recent, there are not many results in terms of numbers to show yet but there are results to be seen in terms of flourishing courtyards with trees and more innovative house constructions due to more space. Many other municipalities are following the good example of placing parking facilities on the outskirts of new development areas.

MM plans to create liveable societies *Photo: © Municipality of Uppsala*

GREEN PARKING PAY-OFF

Reduce car commuter traffic and make room for greener options *Photo: © Municipality of Uppsala*

The Municipality of Umeå is implementing green parking pay-offs to reduce the number of car commuters to central parts of Umeå city. The aim is to improve the air quality. An area in Umeå is undergoing a fortification project in form of renovation and new construction, where the parking standard will be reduced by 40 percent for workplace parking. The goal is to reduce car commuter traffic by 40 percent. With this the property owner connects to pay equivalent 10 percent of the price of the parking purchase to one public transport fund, sign-up for a car pool, build changing rooms and heated garages for bicycles as well as to develop a communication plan for the property. Green parking purchase has not been a requirement but rather an offer to builders and property owners. Calculations show that if the goal is achieved, the energy consumption of the traffic will decrease with approximately 335 MWh per year and carbon dioxide emissions will be reduced equivalent to approximately 93 tons per year. This is, of course, provided that all measures are implemented as planned.

Lessons learned

Since many municipalities work together with MM measures, lessons learned on local level can in many cases be applied on a national level. MMMiS is tested locally in different Swedish municipalities, but the network is driven on a national level.

→ One of the main lessons learned is about the importance to adapt MM measures to the different phases of the planning process. Equally important is a good foundation, both within and between organisations, to facilitate the measures. A success factor for strengthening the anchoring of the measures is continuous information, dialogue, negotiation, advice and a clear division of responsibility within and between organisations. It has been proven important that all actors are well involved with what work effort is required for each party. Another success factor has been the fact that everyone involved is working towards the same goal and vision.

- Experiences from Linköping show that it might be successful to encourage actors to propose requirements and criteria themselves. By letting the market participate and formulate requirements and criteria, opportunities can come for smaller players, creative and innovative solutions and better economic capacity.

- In order for a municipality to be given credibility, it is important to follow up MM initiatives by implementing infrastructure investments that improve the conditions for sustainable travels. This is partly to enable an increase of, for example, the number of trips with public transport and bicycle, partly to show a clear will of direction with planning. The effects of the combined measures will be greater with a combination of measures by the municipalities, private actors and public transport companies. It is important to make sure that there is room for methods like the above described in strategic work.

CONTACT

Swedish Energy Agency
http://www.energimyndigheten.se

Swedish Association of Local Authorities and Regions
https://skl.se

National Board of Housing, Building and Planning
http://www.boverket.se

Swedish Environmental Protection Agency
http://www.naturvardsverket.se

Swedish Transport Administration
https://www.trafikverket.se

Swedish Transport Agency
https://www.transportstyrelsen.se

Transport Analysis
https://www.trafa.se

EPOMM

4.10 | The Netherlands

Photo: © Ministry of Infrastructure and Water Management 2018

COUNTRY FACTS AND FIGURES[25]

Number of inhabitants	17 million
Land area	41,543 km² (18 % water)
Population density	410 persons per km²
Total travel kilometres per year	186 billion
Modal Split	52.0 % car drivers 22.0 % car passengers 13.0 % public transport 8.0 % bike 2.0 % pedestrians 3.0 % miscellaneous
Cars per household	About 1 car per household
Trips per inhabitant per day	2.7 trips per inhabitant per day

25 Sources used: CBS, Transport and Moblity 2016; CBS Statline; KiM, Mobiliteitsbeeld 2016

Introduction

The Netherlands is an international logistics hub, for goods as well as passengers. Rotterdam is Europe's largest sea port. Amsterdam Schiphol Airport is one of Europe's major airports. The Ministry of Infrastructure and Water Management wants the Netherlands to have a good infrastructure of roads that provide optimal mobility to people and businesses. The ministry's aim is to tackle traffic jams and improve mobility. This requires improvements in the road network and public transport system. Besides this, travellers themselves have an important role to play too. They should feel invited to make conscious choices; to avoid peak hours and choose between the car and public transport. The business community is working on this by introducing flexible working hours.

The Netherlands is known for its high bike use. For distances up to 5 kilometres Dutch people of all ages take their bicycle or walk. Most children and students ride their bicycles to school or university. Electric bicycles (e-bikes) are becoming more popular especially among seniors.

The policy context

About 2010, the Dutch government noticed that accessibility issues were becoming increasingly urgent. This is why the government has committed to major investments in new roads; approximately EUR 88 billion until 2028. However, especially around cities, there is only limited space available for new infrastructure. Consequently, new methods were explored for optimising the use of existing roads. It was recognised that this is not something the government can do by itself. The mobility issues needed to be addressed in a more integrated manner.

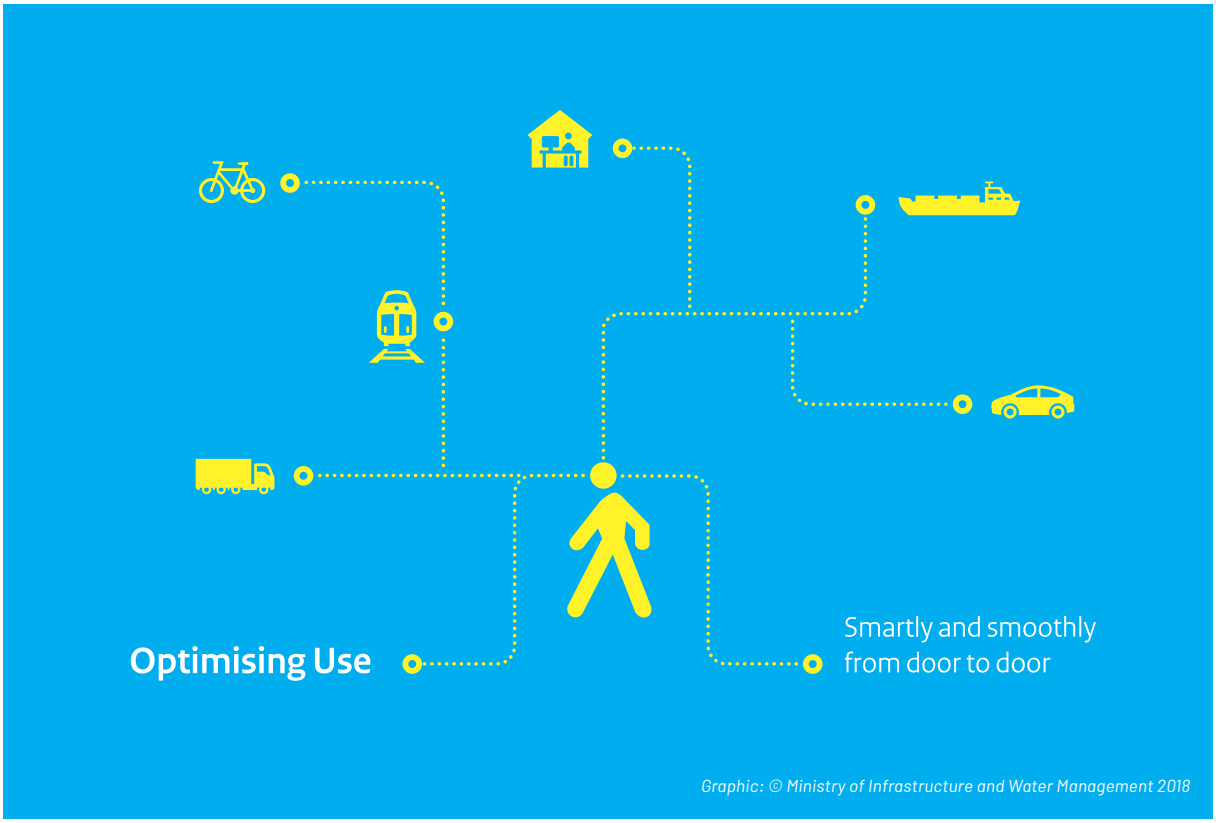
One reason for this is that society requires the government to be effective and efficient. The problems that users face are not limited to those parts of the transport system for which the government is accountable. Therefore, it has broadened its scope and is working together with all relevant stakeholders. Another important reason for this integrated approach has to do with various developments within our society. People and organisations are becoming increasingly vocal; they want to be included in the decision-making process. A third factor is the growing rate of technological innovations. These innovations can offer new solutions to problems. However, as these innovations are often developed by companies, the government's role is to facilitate, rather than to develop.

Furthermore, because of the growing access to information, people want to know exactly when and where traffic jams are or will be occurring, and they want to be offered an alternative. Briefly put: users want easy access to reliable, up-to-date information, as well as flexibility.

Therefore, in 2011, the Ministry of Infrastructure and the Environment launched the 'Optimising Use' ('Beter Benutten') programme. [26]

OUR AMBITION

Our ambition is to reduce congestion by roughly 20 % during rush hour and improve door-to-door journey times in the busiest regions during rush hour up to 10 % as compared to the situation without the Optimising Use programme. Reducing CO_2 and NO_x emissions is not an objective as such, but rather a positive side-effect of the measures taken in the context of the Optimising Use programme.



Graphic: © Ministry of Infrastructure and Water Management 2018

26 http://www.beterbenutten.nl/en

Roles and responsibilities

The Optimising Use programme organisation is an innovative collaboration which was created in 2011. The programme has clear, concrete objectives and ambitions. It brings together regional governments, businesses and the State, which work closely together to achieve better accessibility in twelve regions. The programme runs until mid-2018.

The Optimising Use programme is innovative in that the State does not impose the measures itself. The measures are realised through close cooperation with the regional governments and the business sector. The State, the regional governments and the business sector jointly invest on the basis of co-finance (50-50 %). A total of EUR 1.7 billion has been injected into the programme jointly by the participants. The programme organisation directs, coordinates, bundles, drives, shares knowledge and experience, and evaluates the packages of measures in the regions.

For each region the main accessibility issues are identified, and for each region a set of measures is developed to improve accessibility. This means customisation. After all, something that works in one region does not, by definition, need to work in another region. The measures have been clustered into three types: supply, demand, and Intelligent Transport System (ITS) / dynamic traffic management measures. The programme Optimising Use monitors and evaluates all measures within the regional packages of measures to ensure that we know what works and what does not.

Each region cooperates with a range of partners, for example: municipalities, provinces, urban regions, the national road and water authority ('Rijkswaterstaat'), the confederation of industries and employers (known as VNO-NCW), the Chamber of Commerce, port authorities, individual companies, etc. Various structures and organisational forms have arisen in the twelve regions; in each case,

The 12 regions

Graphic: © Ministry of Infrastructure and Water Management 2018

a programme manager is responsible for the direct management of the package of measures. Direction is given, and impulses are provided, by an administrative trio. This trio is comprised of the Minister of Infrastructure and the Environment, a regional manager and a Chief Executive Officer (CEO) from the business sector. The latter two are the ambassadors for Optimising Use in their respective regions. At least once a year, the Minister meets with the other members of the trio to discuss the state of affairs in their regions.

The approach

In 2012, the Netherlands Minister of Infrastructure and the Environment wrote in the first Optimising Use newspaper: "If, together, we break out of our old patterns, we will optimise our use of possibilities and infrastructure more than ever before." Six years later, we can indeed say that those old patterns have been broken. Not only by the innovative collaboration among regional governments, businesses and the State, but also by innovation in the approach, and innovation in the projects themselves.

The first years were all about pioneering. The fact this was possible may be considered innovative in itself. The approach to the accessibility issue departing from the traveller, rather than from the infrastructure, is innovative as well. The approach consists of four elements:

1. GOOD DIAGNOSIS BY BROAD PROBLEM ANALYSIS

Together with interested parties and stakeholders (public as well as private), we determine the accessibility problem. We do not immediately focus on solutions or specific infrastructure projects, but we zoom in on the problem and what we wish to achieve. The task is examined both in terms of traffic and behaviour.

2. DEVELOP COST-EFFECTIVE SOLUTIONS: DEPARTING FROM KNOWLEDGE OF TRAVELLER BEHAVIOUR

Once we know what the traveller regards as a problem, and why (s)he does what (s)he does – e.g. joining the rush hour – we can look for solutions that take this into account. Ultimately, this can lead to alternative, innovative and smart measures that improve accessibility.

3. STRENGTH BY (ADMINISTRATIVE) COOPERATION WITH OTHER PARTIES (PUBLIC AND PRIVATE)

Working on the problem analysis together increases the commitment of regional governments and the business sector. The result: a solution that is backed by all. At the same time, the close cooperation with parties able to exercise influence on traveller behaviour (employers, educational institutions, public attractions) provides more possibilities for influencing traveller behaviour.

Photo: © Ministry of Infrastructure and Water Management 2018

4. MONITORING & EVALUATION

We want to know whether the measures we introduce are also (cost-)effective. To that end, we have set up a comprehensive monitoring & evaluation programme. It allows us to make evidence-based statements about the effectiveness of our measures, and by the same token of our policy. Also, we get to understand which types of measures work, and which do not.

Effects and impact

Over 354 measures have been realised and 400 more measures are meant to be fully implemented by mid-2018. There are three types of measures: supply, demand and Intelligent Transport Systems (ITS)/ dynamic traffic management measures. Supply or demand measures are, for example, stimulating public transport, improving the road infrastructure, new carpool lots, and Park and Ride lots. In addition, the results vary from the development of over 17,000 new bicycle parking lots to the development of five (multimodal) information services consumers can use to make smart travel plans. In the area of dynamic traffic management, traffic lights were optimised and traffic management schemes were introduced.

Together, these measures had the following results:

- *A 19 % reduction of congestion in the Optimising Use routes during the morning and evening rush hours.*
- *Some 48,000 rush hour avoidances per average working day. More than 2,100 employers and some 176,000 employees actively participate.*

Even though sustainability was not an objective as such, the measures made a positive contribution to sustainability:

- *A CO_2 reduction of more than 70,000 tons annually.*
- *A reduction of nitrogen (NO_x) emissions of 150 tons annually.*

Photo: © Ministry of Infrastructure and Water Management 2018

THREE HIGHLIGHTS OF EFFECTIVE MEASURES

Rush-hour lanes on A7 and A8 motorways in Amsterdam metropolitan region

Rush-hour lanes were introduced along the busy A7 and A8, enabling a faster flow of traffic from Purmerend to Amsterdam.

Approach: The national road and water authority ('Rijkswaterstaat') introduced rush-hour lanes along the A7 and A8 between Purmerend and Zaandam. On the route north and on the southbound route, the national road and water authority had an entirely new rush-hour lane put in. This way, the capacity of these motorways was better geared to that of the renovated Coen tunnel (2013). The construction of the rush-hour lanes has optimised the use of the existing roads and enables a faster flow of traffic.

Intended result:
Reduction of 400 vehicle loss hours per (working) day

Rush-hour reduction of freight traffic in Rotterdam

Example of a demand measure
Target group: businesses and individual drivers and employees

'De Verkeersonderneming Rotterdam' rerouted the freight traffic on three fronts to avoid the rush-hour traffic.

Approach: As an incentive for businesses, 'De Verkeersonderneming Rotterdam' rewarded them financially for each structural rush-hour avoidance they realised. For containers and chemicals, a spearhead group of innovative and influential companies was brought together to jointly resolve sector-wide issues. This led to concrete actions that made the logistical chain more efficient and thus reduced transport during rush hours. In 2015, 'De Verkeersonderneming Rotterdam' launched a Marketplace for logistics on the Rotterdam ring way. On this Marketplace, companies could submit plans for efficient, responsive, sustainable and reliable transport. Drivers and employees, too, submitted improvement measures.

Result:
760 rush-hour avoidances per (working) day:

- At companies: 568 rush-hour avoidances per (working) day
- In chains: 89 rush-hour avoidances per (working) day
- Via drivers and employees: 103 rush-hour avoidances per (working) day

Shockwave traffic jam service as starting point for upscaling ITS services

Example of a: Intelligent Transport Systems (ITS) / dynamic traffic managementmeasure
Target group: car drivers (commuters) on the A58

A service that can reduce traffic jams caused by shockwaves. That is the basis for the project partners in 'Spookfiles A58' to develop building blocks for new mobility services on which numerous new ITS-applications can easily be accessed.

Approach: Private partners and the government jointly developed the ingredients for a shockwave traffic jam service. Road users receive customised speed recommendations via an app. As the foundation needs to be in order, the project partners developed various building blocks, such as a wifi-p infrastructure and fast data access. Large-scale tests of new technologies are performed in a real environment for the first time. Everything is based on international standards, so the project's significance far exceeds the regional scope: it is relevant both inside and outside the Netherlands.

Results:

- Development of wifi-p infrastructure, data security, test protocols for new services; all based on international standards
- Multiple services connected, including Road Works Warning – ITS-Corridor service successfully tested
- Data quality much improved
- Market cooperation and knowledge development
- More than 4,000 people have downloaded the apps. Since February 2016, regular road users have been able to test the shockwave traffic jam service in practice on the wifi-p infrastructure

Photo: © Ministry of Infrastructure and Water Management 2018

Lessons learned

The added value of the Optimising Use programme is in:

1. THE COMBINATION OF SUPPLY AND DEMAND MEASURES

So, not just put a bicycle path in place, but also involve the nearby employers to encourage their employees to use it.

2. COOPERATION BETWEEN THE STATE, THE REGIONAL GOVERNMENT AND THE BUSINESSES

Travellers do not want to be confronted with State, provincial or municipal borders. They want to travel from A to B in a smart, seamless way. The cooperation we now have in place, the networks that offer solutions to a problem – these are now also applied to other societal issues.

Photo: © Ministry of Infrastructure and Water Management 2018

3. APPLYING BEHAVIOURAL KNOWLEDGE, BROKEN DOWN INTO THREE RESULTS

- **It increases the effectiveness of the project:** In projects in which behavioural principles have been applied, the number of rush hour avoidances is almost twice as high per participant as in projects where this was not done.
- Of the behavioural principles applied, **trial programmes and the application of social influence stand out:** Projects with trial programmes yield almost twice as many rush hour avoidances per participant as other projects. In projects where social influence was used, the effect is 1.5 times as strong.
- **A good start is half the battle:** The better you understand the behaviour of your target group, the better the chance that you will 'get through' to those people. By starting with a thorough target group analysis, the behaviour principles can be geared better to your target group. To illustrate: using social influence is effective only if your target group considers important what other people do, for example in terms of travel behaviour.

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COUNTRY FACTS AND FIGURES[27]

Number of inhabitants	63,181,775 (2011 Census)
Land area	242,495 km^2
Population density	255.6 persons per km^2
Total travel kilometres per year	186 billion
Modal Split (covering England only)	42.0 % car / van drivers 22.0 % car / van passengers 10.0 % public transport 2.0 % bike 22.0 % pedestrians 2.0 % miscellaneous

27 Sources used: United Kingdom Census 2011 and National Travel Survey 2015

Introduction

The United Kingdom – consisting of England, Wales, Scotland and Northern Ireland – has a total population of 63,181,775 (2011 Census) and a land area of 242,495 km^2. The population density is 255.6 / km^2 overall, although England has a higher population density than Wales, Scotland and Northern Ireland.

According to the National Travel Survey 2015 (covering England only), the modal split is 42 % car / van driver, 22 % car / van passenger, 22 % walking, 7 % bus and coach, 3 % rail, 2 % cycling and 2 % other. This is based on travel diaries of approximately 16,000 people surveyed each year over one week. From 2005 to 2015, the modal split has remained relatively stable.

The exception has been a steady increase in the number of people using rail over the 10-year period, although there has been stability in the average number of trips and distance travelled per rail user. In addition, cyclists are cycling more than a decade ago and drivers are driving less. [28]

London stands out from all other regions in England with lower levels of car ownership. Therefore, the proportion of trips made by car is lower in London (40 %) than in other regions (all above 60 %). [29]

The policy context

The policy objectives are numerous and their relative importance tends to change over time with shifting politics. The main objectives include reducing traffic congestion, reducing air pollution, supporting the local economy, improving public health through physical exercise, reducing the contribution to climate change and encouraging non-car based alternatives to promote social equity and accessibility.

Regarding air pollution, almost every city in the UK has illegal levels of air pollution, and local authorities have generally not succeeded in reducing emissions to legally permissible levels.

Part IV of the Environment Act 1995, which covers England, Scotland and Wales, and the Environment (Northern Ireland) Order 2002, requires all local authorities

28 Department for Transport (National Travel Survey Mode Use, 2005-2015: A View into a Travel Week)

29 Travel Patterns by Region, National Travel Survey: England 2014

in the UK to review and assess air quality in their area. If any standards are being exceeded or are unlikely to be met by the required date, then that area should be designated an Air Quality Management Area (AQMA) and the local authority must draw up and implement an action plan aimed at reducing levels of the pollutant. [30]

A new Cycling and Walking Strategy for England was published in April 2017, which for the first time includes legally binding targets as well as a five-year plan and funding for implementation (£ 1.2 billion, of which £ 316 million is from central government). The Government wants cycling and walking to become the norm by 2040 and will target funding at innovative ways to encourage people onto a bike or to use their own two feet for shorter journeys, or as part of longer journeys. Plans include specific objectives to double cycling, reduce cycling accidents and increase the proportion of 5 to 10-year-olds walking to school to 55 % by 2025. In addition, local authorities will be encouraged to implement Local Cycling and Walking Infrastructure Plans (LCWIPs) and there will be strategic and technical support provided by the Department for Transport and its partners.

Roles and responsibilities

The UK has devolved responsibility for transport to Scotland, Northern Ireland, and to some extent, Wales. Transport Scotland is the body responsible for Scotland's transport governance. The Department for Transport covers England and Wales, although Wales itself is responsible for some aspects of transport policy. Greater London is also quite distinct from the rest of the UK in terms of its lower rate of car use and ownership and its integrated public transport system, managed by Transport for London (a local government body controlled by a board whose members are appointed by the Mayor of London). Local authorities in London have also been ineligible for national government funding such as the Local Sustainable Transport Fund (LSTF) and more recently the Access Fund.

The government gives funding to local transport authorities in England to help them develop their local transport services. To improve and maintain the infrastructure of local public transport, funding is provided in a number of ways, from using formulas that calculate how much local councils need to deliver specific services, to grants that are paid to successful bidders in a competition.

30 Environmental Protection UK: http://www.environmental-protection.org.uk/policy-areas/air-quality/air-pollution-law-and-policy/air-pollution-laws

The approach

The term 'mobility management' is not widely used in the UK. Rather, there are two distinct disciplines of 'transport planning' and 'travel planning'. Mobility management measures would mostly fall into the latter category, which has an emphasis on behavioural change as opposed to infrastructure and service provision. Travel planning is often a requirement for large workplaces, educational sites and residential development sites as a condition of planning approval. There is no national consistency regarding the requirements. Unfortunately, many travel plans are produced and filed away rather than being proactively managed and maintained. There are however many successful examples of travel plan implementation, where modal shift of 15-20 % has been achieved through engagement, incentives and disincentives.

Each local transport authority, being a city or county level government, is responsible for producing and following its own Local Transport Plan (LTP). The current incarnation is 'LTP 3' runs from 2011 to 2026 – a longer planning horizon than previous LTPs. For the first time the LTP is not a document that helps local transport authorities to secure money from central government for transport. The LTP is arguably the domestic version of the Sustainable Urban Mobility Plan (SUMP), and was influential in the development of the European SUMP concept, but the LTP often has less emphasis on sustainability and public participation. Depending on the geographic scope of the local transport authority, the LTP area may be largely urban or cover a mix of urban, small town and rural areas. In Scotland and Northern Ireland there is a need for increased awareness of the SUMP concept and how it contributes to better planning and to show how it has worked in those cities that have a SUMP.

The national government (for England and Wales) has recently (April 2017) produced a Cycling and Walking Strategy, which drives policy on active travel. Each local authority is now encouraged to develop a Local Cycling and Walking Investment Plan (LCWIP) designed to increase cycling and walking by encouraging modal shift away from short car trips. By 2040 the Government wants to make cycling and walking the natural choice for short journeys or as part of a longer journey. Local authorities interested in engaging with the strategy are eligible for technical and strategic support, as well as potential future funding.

Effects and impact

The Department for Transport funded the £ 540 m Local Sustainable Transport Fund (LSTF) 2011-2015 programme. LSTF itself was designed to implement the 2011 Creating Growth, Cutting Carbon Strategy – delivering, via 77 local authorities, 12 large projects receiving over £ 5 m of funding and 84 smaller projects receiving under £ 5 m funding. LSTF was an objective-based fund that sought to achieve two primary core objectives:

- Supporting the local economy and facilitate economic development, for example by reducing congestion, improving the reliability and predictability of journey times, or enhancing access to employment and other essential services; and

- Reducing the carbon emissions, for example by bringing about an increase in the volume and proportion of journeys made by low carbon sustainable modes, including walking and cycling.

Alongside these were a number of secondary objectives: wider social and economic, safety, air quality, environmental, increased physical activity and health benefits. The Fund supported a range of activities including reinforcing modal shift from car use to more sustainable modes, broadening travel horizons, using vehicles more efficiently and other interventions including public realm enhancement and activities to reduce road casualties and the need to travel.

Each project reported on 37 headline indicators, which sum up its achievements in 15 areas of activity that were widespread across the Fund. The aggregated totals of these indicators give an indicative overview of the breadth and scale of what was delivered over the whole lifetime of the Fund.

- 33,600 new or improved cycle parking spaces were installed, improving security for cyclists and making them welcome at more destinations.

- 780 km of new routes and 340 new crossings are now helping cyclists and pedestrians get to more places, more easily. Of these new routes, 110 km are on-road cycle lanes, 80 km are off-road cycle paths, 540 km are off-road shared cycle / pedestrian routes and 40 km are pedestrian routes. A further 940 km of existing routes were made better with new signs and / or resurfacing.

- 88,600 people took part in led walks and cycle rides, building their confidence and knowledge of local routes. In addition, 62,000 adults learnt how to service their own bike or had it serviced by a trained mechanic, 27,900 adults had cycle training and 7,800 were loaned a bike, giving these people the skills and equipment they need to be able to cycle regularly.

- 69,400 children had pedestrian training, enabling them to walk safely to local destinations. 26,100 had scooter training, a first step on the road to cycling.

- 230 rail stations were upgraded to improve passengers' access to the station and make their journeys better and easier. Enhancements at these stations included better routes and facilities for those arriving by foot, cycle and public transport, upgraded waiting areas and information. At 30 of these stations, train services were improved. Two stations were completely new.

- 200 bus services were started or improved to run more frequently, further or for longer hours, giving more people the option of travelling by bus. In addition, 360 bus routes had improvements such as newer buses, on-board WiFi and information screens, making it more convenient and pleasant for people to travel by bus. 340 congestion hotspots received new technology or highway alterations to give buses priority over other vehicles, making bus journeys quicker and more reliable.

- 3,800 bus stops received major improvements, such as real-time information displays showing when the next bus is due, new shelters to keep bus users dry or raised kerbs to make boarding easier. 7,800 bus stops received smaller improvements.

- 6,600 workplaces and 3,600 schools received new services, facilities, or activities in order to encourage walking, cycling, car sharing or travel by public transport for the commute or the school run.

- 73,900 job-seekers were given travel advice and support so they can get to job interviews and new work opportunities by sustainable transport, keeping their costs down in the process.

- About 409,400 people were given personalised travel planning support (or a free ticket to trial public transport) to show them the sustainable transport options available for their day-to-day journeys. Of these people 206,100 were contacted at home and 203,300 in their workplace.

Lessons learned

National funding has been critical to giving local authorities the necessary financial resources to progress with programmes to encourage modal shift, both through improved infrastructure and behavioural change.

The UK has a strong tradition of monitoring and evaluation, which has extended to national funding programmes such as LSTF. As one important example, the Department for Transport Commissioned the consultancy Transport for Quality of Life to analyse the effectiveness of LSTF. The resulting 73-page paper, 'Local Sustainable Transport Fund: What Works?', provides lessons learned in seven areas as follows: (1) increasing bus use, (2) increasing cycling, (3) encouraging sustainable travel to work, (4) increasing train travel and sustainable travel to stations, (5) helping jobseekers into work, (6) marketing sustainable travel and (7) strategy and leadership.

For example, the summary for lessons learned on 'increasing bus use' states: "Target your project by identifying your area's strategic public transport needs and opportunities. Factor in extended lead-in times for network-wide improvements, especially where there are multiple operators involved and think about timely provision of services to compliment the activity e.g. embed behaviour change with a new housing development. When developing and marketing an attractive offer, take a holistic approach and cover all aspects of the service, i.e. infrastructure, information, promotion and marketing. Designing tourism services for the leisure economy may deter resident use of the service so be clear about your market, and establish key relationships to help with rising above competitive tensions and delivery."

This type of aggregated project evaluation at the national level enables us to capture the key lessons learned as well as the most common success and failure factors.

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5 | Conclusion

To sum up, there are varying approaches to mobility management in different countries. Some countries have gone a long way in their national regulatory framework, for example having legislation on workplace travel planning or on Sustainable Urban Mobility Plans (SUMPs). Others have chosen a partnership approach, having active and effective co-operation between the state, cities/regions and the private sector. In some countries, there are comprehensive national financing programmes, where cities or regions can apply for subsidies for their actions in mobility management. On the other hand, there are countries where cities and municipalities have worked independently with sustainable mobility for a long time and reached remarkable results. There are countries where monitoring, evaluation and evidence-based policy are of top priority, and thus they produce valuable information on the effects and impacts of mobility management. Others have deep knowledge on behavioural change, and they apply this knowledge for targeted actions. In addition, the main motivation for mobility management varies too, from climate targets or health issues to rush hour mitigation.

DESPITE OF ALL THE DIFFERENCES, SOME EMERGING TRENDS CAN BE SEEN THROUGHOUT EUROPE:

- Transport policy and mobility itself are in transition – some even speak of mobility in disruption. Digitalisation and the gradually strengthening sharing economy are changing the way people move. The concept of MaaS – Mobility as a Service – is gaining ground. Transport policy is about services as much as about infrastructure.

- Following this transition, there is more and more need for partnerships and public-private-cooperation. Public bodies cannot solve the problems they are facing alone, and often the most effective solutions are found by working together with public and private stakeholders. This concerns also sustainable mobility.

- New digital tools make it easier for people to participate in transport and city planning. In addition, new shared modes can make customers also transport providers. Mobility management can also make use of digitalisation and the easier collection of mobility data: ICT-based methods for mobility management are developed further all the time. “Smart City” is another popular concept that is gaining ground, and mobility management measures can be integrated in smart city strategies and policies.

- Our knowledge on behaviour change has accumulated. “Nudging” is a trendy term in public policy, referring to action that shapes and influences people's everyday choices by almost invisible methods: travellers should feel invited to choose sustainable modes. In general, behavioural knowledge is at the heart of mobility management, and understanding it makes MM more effective. It is already “common knowledge” in mobility management that we should use soft and hard measures together to get best results. The same goes for Mobility as a Service: understanding people's behaviour helps to disseminate these new, sustainable transport modes.

- Mobility management measures have often focused on cities and city regions. However, most European countries are now facing the fact that it is difficult to sustain profitable public transport in the countryside. New, innovative mobility solutions are needed so that the only transport option would not be the private car.

- In many European countries, mobility management has mostly concentrated on passenger transport. However, urban freight and green city logistics are a new and developing element in MM.

- Last but not least, new climate policy targets set by the Paris Agreement underline the importance of sustainable mobility. Sustainability is not a marginal issue any more, but rather at the heart of European, national and local transport policy. In addition, as there are strict numerical targets for CO_2-emissions in each country, the role of mobility management in reaching the targets needs to be defined and measured. We need clear evidence on impacts and effectiveness of various measures. However, all possible measures are needed to reach the climate goals.

- In the 21st European Conference on Mobility Management (ECOMM) in Maastricht, 2017, many speakers and discussions dealt with ongoing changes in mobility. We can see that the future of mobility means "blurring boundaries": between the public, the private and people; between the producer and the consumer; between all the modes, both old and new; between collective, individual and shared mobility; and between transport and other sectors, e.g. housing or health. It is these challenges that mobility management has to work with, not only in the distant future but already now.

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6 | Outlook

Dream Big, Think Big and Act on it together! That's what EPOMM's Maastricht Treaty - agreed on at ECOMM 2017 in Maastricht - is calling for!

By Robert Thaler, EPOMM President

We really have to dream big: Our ambition is to create pleasant cities and pleasant rural areas with happy people and a sustainable planet based on environmentally sound and decarbonized, economically beneficial and socially fair mobility and transport powered by renewable energy.

It is essential not to lose this big picture when looking at our mobility needs as well as when planning for and providing a sustainable transport system. It is not just about e-cars, automatic vehicles or digitalization, it is not just about infrastructure, technology or pricing, it is not just about market or regulation, it is not about one magic measure pretending to make it all.

In fact, it is all about a puzzle. Our big dream and bright mobility picture we are aiming for will need all puzzle pieces of measures and instruments of our basket or tool box. But overall, it will firstly need a clear will to create the nice picture and then an intelligent strategy to manage the challenge of putting all puzzle pieces efficiently together so that finally the nice picture of clean, efficient and fair mobility and transport really will materialize. And we are not lost in despair.

Mobility management – that´s how this intelligent strategy is called – will enable us to bringing all puzzle pieces of mobility and transport measures – technology, infrastructure, regional and urban planning, user oriented and behavioural aspects, market incentives and regulation approaches – smartly together so that we finally achieve this bright picture of environmentally, economically and socially sustainable mobility and transport.

Act on it together! We don't need splendid isolation and sectoral silos, we need cooperation, we don´t need less Europe, we need more Europe, more Europe in partnership! We don´t need to wait, we can start and build on our creativity, experience and implementation power today! And there is urgency!

There is a need of seriousness – building on facts instead of fake news – a need of cleverness – thinking first before twittering - a need of open-mindedness – taking a step across the border for learnings of how things may run better applying mobility management as key policy tool. There is a need of courageousness. To act on it together - as long we have the means and the choices. Action in partnerships is essential – also to bring mobility management forward in Europe – partnerships of cities and regions, Member States and EU as well as public private partnerships.

We definitely need a shift of paradigms – applying and promoting mobility management is not only a local issue, there has to be a national and European approach.

Examples of EPOMM Member States compiled in this strategy book show that mobility management can really make a difference in policies and works best in comprehensive approaches, target group orientated package deals and partnerships of actors.

Member States and the EU are called upon to create conditions for borderless and intersectoral collaboration, taking away barriers, facilitating exchange of good practices and knowledge and developing a strong EU policy on mobility management. We invite the EU entities to embrace best practices and lessons learned from EPOMM members with their successful mobility management programmes as well as to stimulate mobility management in all Member States.

EPOMM is calling for a broad implementation of mobility management in national and EU policies to make mobility and transport more user oriented, environmentally friendly, energy saving and more efficient. Time has come for developing a European Master Plan to promote mobility management all over Europe. This will be essential to mobilize the actors, bundle the efforts and allocate resources for mobility management strategies in Member States and on the European level.

There is a big dream to win, a bright big picture to paint – clean mobility – achievable by putting the puzzle pieces of mobility measures and instruments together guided by intelligent mobility management.

Let´s start to act on in it! Take advantage of sharing inspirations at ECOMM in Uppsala, Sweden, make use of the good experiences of EPOMM members in this strategy book and let´s work together in the European Platform on Mobility Management!

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