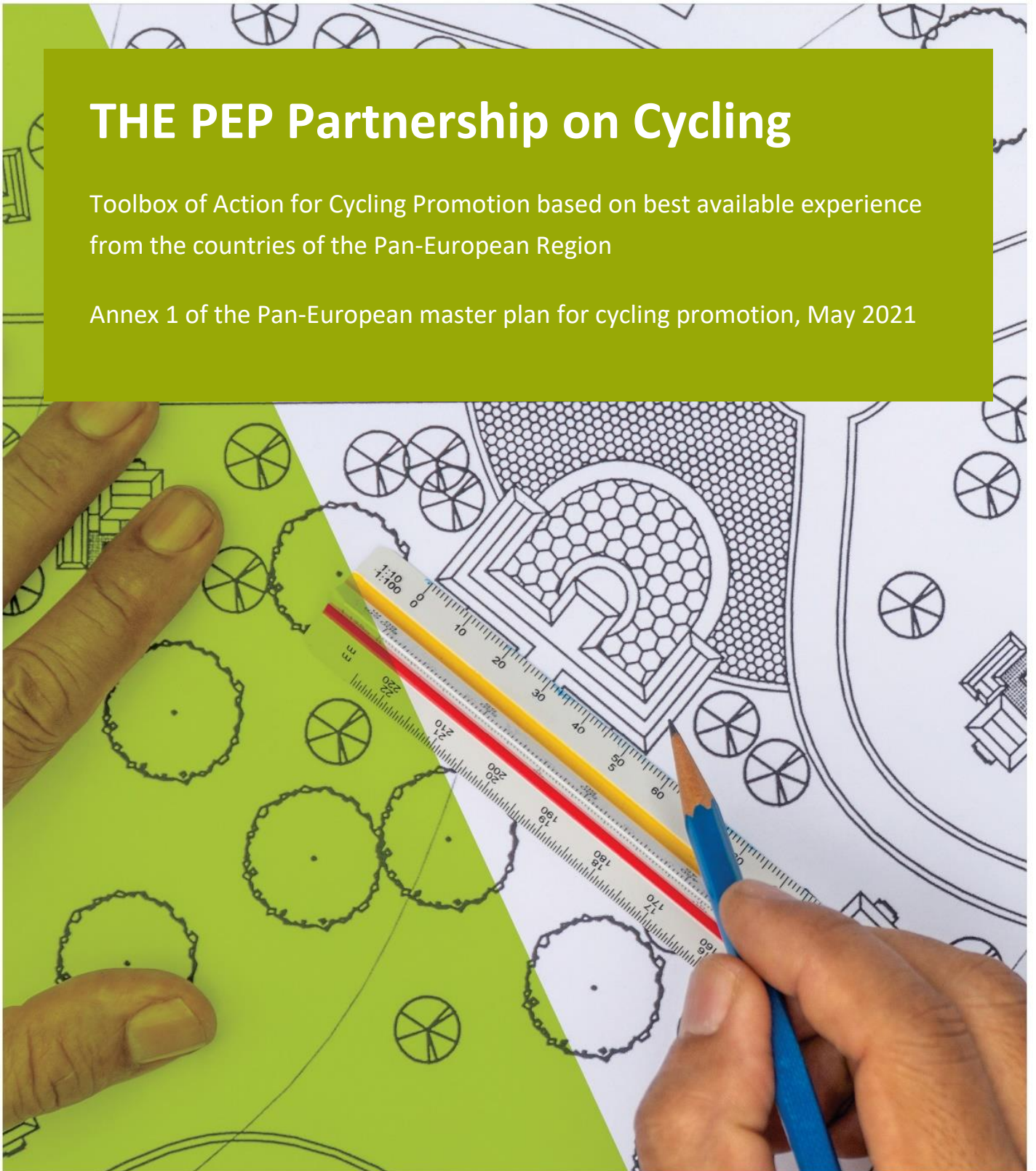


# THE PEP Partnership on Cycling

Toolbox of Action for Cycling Promotion based on best available experience  
from the countries of the Pan-European Region

Annex 1 of the Pan-European master plan for cycling promotion, May 2021



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Dept. II/6 – Active Mobility and Mobility Management, DI Robert Thaler

Contributions:

United Nations Economic Commission for Europe (THE PEP Secretariat)

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Armenia: Ministry of Nature Protection of the Republic of Armenia

Austria: Austrian Federal Ministry Climate Action, Environment, Energy, Mobility, Innovation and Technology

Azerbaijan: Ministry of Ecology and Natural Resources of the Republic of Azerbaijan

Belgium: Belgium Federal Ministry of Transport

Bosnia and Herzegovina: Federal Ministry of Health of Bosnia and Herzegovina

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Vienna, May 2021

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# Expression of Acknowledgement – First Pan-European Master Plan for Cycling Promotion

The development of the first Pan-European Master Plan for Cycling Promotion was agreed in the Ministerial Paris Declaration adopted at the 4 High Level Meeting Transport Health Environment 2014 and elaborated under THE PEP Partnership on Cycling, jointly launched by the Federal Ministry of Climate Action, Environment, Energy, Mobility, Innovation and Technology of Austria and the Ministry for an Ecological Transition of France. It was supported by the UNECE Sustainable Transport, the Environment Division and the World Health Organization Regional Office for Europe, the EU Commission's Directorate-General for Mobility and Transport (DG MOVE) as well as the European Cyclists' Federation (ECF) and the Confederation of the European Bicycle Industry (CONEBI)

It brings together the experience and expertise of cycling experts from 28 countries all over the pan-European region:

1. Armenia: Ministry of Nature Protection of the Republic of Armenia
2. Austria: Federal Ministry Climate Action, Environment, Energy, Mobility, Innovation and Technology
3. Azerbaijan: Ministry of Ecology and Natural Resources of the Republic of Azerbaijan
4. Belgium: Belgium Federal Ministry of Transport
5. Bosnia and Herzegovina: Federal Ministry of Health of Bosnia and Herzegovina
6. Bulgaria: Bulgarian Association for Alternative Tourism
7. Croatia: Ministry of Maritime Affairs, Transport and Infrastructure of the Republic of Croatia
8. Czechia: Czech Partnership for Urban Mobility
9. Denmark: Danish Road Directorate
10. Finland: Finnish Transport Infrastructure Agency and the Network of Finnish Cycling Municipalities
11. France: Ministry for an Ecological Transition of France
12. Georgia: Georgian Environmental and Biological Monitoring Association
13. Germany: German Federal Ministry of Transport and Digital Infrastructure
14. Ireland: Department of Transport, Tourism and Sport of Ireland

15. Italy: Italian Federation of the Environment and Bicycle
16. Luxembourg: Ministry of Mobility and Public Works of Luxembourg
17. Malta: Ministry for Health of Malta
18. Netherlands: Ministry of Infrastructure and Water Management of the Netherlands
19. Norway: Norwegian Public Roads Administration
20. Poland: Ministry of Infrastructure of the Polish Republic
21. Romania: Romania Ministry of Tourism and the Romanian National Institute for Research and Development in Tourism
22. Russian Federation: Ministry of Transport of the Russian Federation
23. Serbia: Serbian Ministry of Agriculture, Forestry and Water Management
24. Slovak Republic: Ministry of Transport and Construction of the Slovak Republic
25. Slovenia: Slovenian Ministry of Infrastructure
26. Spain: Spain: Ministry of Transport, Mobility and Urban Agenda
27. Sweden: Swedish Road Administration and Cykelfrämjandet
28. Switzerland: Swiss Federal Roads Office

During 15 partnership meetings since 2014, cycling experts from these countries and institutions worked together elaborating the 11 topics and 33 recommendations that now build the core content of the master plan.

For this commitment and outstanding result of pan-European cooperation work let me express my special gratitude to the countries, institutions and experts leading the different eleven topics and providing substantial input for the elaboration of the chapters of the master plan in particular to:

- the German Ministry of Transport and Digital Infrastructure for Topic 1 (Develop and implement a national cycling policy, supported by a national cycling plan),
- the French Ministry for an Ecological Transition for Topic 2 (Improve the regulatory framework for cycling promotion),
- the ECE Sustainable Transport and Environment Divisions for Topic 3 (Create a user-friendly cycling infrastructure),

- the European Cyclists' Federation for Topic 3 (Create a user-friendly cycling infrastructure), Topic 4 (Provide sustainable investment and efficient funding mechanisms), Topic 6 (Promote cycling through incentives and mobility management) and Topic 9 (Promote cycling tourism),
- the Hungarian Ministry of Innovation and Technology for Topic 5 (Include cycling in the planning processes and facilitate multimodality),
- WHO/Europe for Topic 7 (Improve health and safety),
- the Belgian Federal Ministry of Transport and the Austrian Federal Ministry of Climate Action, Environment, Energy, Mobility, Innovation and Technology for Topic 8 (Improve cycling statistics for use in efficient monitoring and benchmarking),
- the Dutch Ministry of Infrastructure for Topic 10 (Make use of new technology and innovation)
- the Czech Partnership on Urban Mobility for Topic 11 (Promote cycling for a more resilient transport system).

These joint efforts of members states, international organisations, European institutions, and NGOs resulted finally in the adoption of the first ever Pan-European Master Plan for Cycling Promotion as the visible highlight of the Ministerial Vienna Declaration at the at the 5<sup>th</sup> High Level Ministerial Meeting on Transport Health Environment 17–18<sup>th</sup> May 2021 in Vienna.

This iconic master plan is a milestone in the promotion of cycling as climate-friendly zero-emission healthy and sustainable active mobility all over Europe – good for the environment and climate, good for health and recovery after the pandemics, good for the economy and creation of green jobs good for social inclusiveness and wellbeing of our citizens. It will support all countries in the pan-European region in their efforts to promote cycling, develop national master-plans, strategies and to launch investment programmes for cycling and cycling infrastructure. Its further development and implementation will contribute to the Vienna Declaration and its political commitment for building forward better by transforming to new, clean, safe, healthy and inclusive mobility and transport.

Robert Thaler

Chairman of the Transport-Health-Environment Pan-European Programme (THE PEP)



# Toolbox of Actions for Cycling Promotion

This good practice collection is following up on the recommendations defined in the pan-European Master Plan for Cycling Promotion. This collection of best available experience from countries of the pan-European Region should act as a toolbox of action for cycling promotion.

The examples were collected by the members of THE PEP Partnership on Cycling and reflect their current state of knowledge. As the promotion of cycling is becoming more and more popular in many countries, new examples will appear offering new or other possible actions for the different stakeholders. Therefore this toolbox does not and can not claim to be complete or representative. It should give stakeholders from different levels and countries the possibility to get a first impression of possible actions to promote cycling. The links provided throughout the document can be valuable sources for additional information as well as new examples.



# 1 Develop and Implement a National Cycling Policy, Supported by a National Cycling Plan

In some countries in the pan-European region, cycling is not viewed as an equal mode of transport and is not fully incorporated into national policies on transport, health and environment, nor, in many cases, is it included in curriculums for future town planners.

A systematic plan, adopted internationally, will help national and local stakeholders streamline their efforts to promote cycling in order to address the aforementioned issues. National cycling plans are strategically important policy documents, providing a framework for expanding cycling at various policy levels and supporting regional and local authorities' efforts.

The following additional measures have proved effective in implementing national cycling plans: training (capacity-building) for the main stakeholders; establishment of a network of stakeholders and appointment of a national cycling officer to steer the cycling promotion process.

## **Recommendation 1.1: Develop (and/or update) and implement a national cycling plan**

A national cycling plan provides a framework for the promotion of cycling at the national level. The plan and its objectives and recommendations should reflect the country's characteristics and include cycling policies and strategies. National authorities should coordinate, monitor and update implementation of the plan and ensure the involvement of all relevant stakeholders at the regional and local levels.

Existing National Cycling Plans differ from one country to the other. In many cases they reflect the current political priorities in the country.

**Austria:** The first national cycling plan was established 2006 combined with a national cycling objective to double the share of cycling on the national level in the agreement of the national government. To facilitate the implementation of the cycling plan a special financial support scheme to promote cycling and extend cycling infrastructure within the Austrian nation support programme klimaaktiv mobil was established. As a result, the modal share of cycling increased to 7% on the national level. The second national cycling plan was developed for the period 2015-2025 including the overall objective to double cycling to 13%. <https://www.klimaaktiv.at/english/mobility/cyclingmasterplan.html>

**Germany:** Germany's first National Cycling Plan (NCP) was valid from 2002–2012. The second National Cycling Plan (NCP 2020) was developed in a broad dialog and consensual process with various stakeholders (on different public and private level) and adopted as an official document by the Federal Government. <https://nationaler-radverkehrsplan.de/en/federal-initiatives/national-cycling-plan-nvp-2020>

The new National Cycling Plan 3.0, which was presented to the public for the first time at the National Cycling Congress in April 2021, was informed by not only the outcomes of the process of dialogue with professional associations and representatives from federal states and local authorities but also by ideas resulting from an online public participation exercise. [https://www.bmvi.de/SharedDocs/DE/Anlage/StV/nationaler-radverkehrsplan-3-0.pdf?\\_\\_blob=publicationFile](https://www.bmvi.de/SharedDocs/DE/Anlage/StV/nationaler-radverkehrsplan-3-0.pdf?__blob=publicationFile)

**Hungary:** The Hungarian Transport Administration launched the “National Cycling Programme Hungary 2014-2020” which is very much focusing on investment in cycling infrastructure (incl. the development of regional cycling routes), inter-modality and cycling, traffic campaigns and awareness raising as well as evaluation and monitoring. [http://bringaznielmeny.hu/wp-content/uploads/2016/01/KKP\\_EN\\_screen.pdf](http://bringaznielmeny.hu/wp-content/uploads/2016/01/KKP_EN_screen.pdf)

**The Netherlands:** The Dutch Ministry of Transport issued the first national cycling plan (“Master plan Fiets”) which was set out for the period of 1990-1997. The plan had several goals, principally improving the quality of the environment, improving public health, increasing accessibility, and making streets safer for citizens, particularly for children. It received significant national funding. A general policy of decentralization at the end of the 1990s led to more local strategies and municipal policies on cycling. The national Ministry was only involved in the background. In 2015 the initiative of the TOUR de FORCE was launched. A comprehensive coalition of governments, companies, civil society organisations, research institutes, and associations responsible and involved in the bicycle policy of the Netherlands are united in the Tour de Force. Since 2020 an additional

ambition is added to the Tour de Force, called the 2nd Etappe of Tour de Force, with more focus and a higher ambition. [www.tourdeforce2020.nl](http://www.tourdeforce2020.nl)

**Spain:** The Spanish Ministry of Transport, Mobility and Urban Agenda is developing the first National Cycling Plan, which is expected to be launched by the end of June 2021. Its different sections include actions related to infrastructure, health, education, campaigns, sharing knowledge, cycling tourism... One of the main goals is to turn the new National Cycling Office into a point of reference for the local and regional administrations, as well as to create a new web in which citizens can find all the information and useful issues related to cycling.

**Slovak Republic:** The Ministry of Transport and Construction of the Slovak Republic launched the document “National Strategy of Development of Cycling Transport and Cycle Touring in the Slovak Republic” which was approved by the government in May 2013. The strategy created conditions for adopting a permanent financial mechanism for its implementation in 2014 and for approving by the parliament the law on providing subsidies for self-governing regions, cities, towns, municipalities and non-governmental organisations for support of cycling transport and cycle touring in 2019. In 2020 in accordance with this law approximately 13 mil. € was provided as subsidies by the ministry of transport.

**Recommendation 1.2: Create strong cycling working groups and appoint a national cycling officer**

Contacts and regular exchange of ideas between stakeholders at the local, regional and national levels and between the transport, health, environment and economic sectors should be ensured in order to improve understanding of cycling needs and requirements.

Countries should establish a national cycling officer, NCO (for countries that are just beginning to promote cycling) or a national cycling competence centre (for countries with longer experience). The officer/competence centre should ideally be supported by all relevant ministries and should have a specific mandate and a clear profile or description.

The officer or the director of the competence centre should spend 100 per cent of his or her working time on cycling issues, have a strong technical competence, be empowered to reach out to a variety of stakeholders, play a coordinating and enabling role, be committed to and enthusiastic about cycling and cycle on a regular basis.

**Germany:** In order to coordinate cycling activities, a **working group** including representatives of the Ministry of Transport, members of ministries of the 16 Länder and members of other institutions and further stakeholders (e.g. cycling associations, municipal associations, federal agencies and research institutions, cycling industry, safety organisations, railways...) has been established. The group organised meetings twice a year. For the implementation of the National Cycling Plan an **advisory board** (18 experts) was appointed by the Federal Transport Minister. This board meets twice a year. Representatives cover health, sports, tourism, business, environment and transport planning issues and are from the public, private and NGO sector (e.g. federal states, municipalities, universities, bicycle industry, cycling associations). A yearly budget of more than 3 Mio € is available for studies, research concepts and pilot projects for cycling promotion.

**Czechia:** Czechia has been involved in the CentralMeetBike project in which also expert working groups have been established.

The Ministry of Transport (the bicycle transport department) is the main promoter of the implementation of the cycling strategy and the Ministry for Regional Development is the sub-promoter (tourism department). Other ministries (e.g. the Ministry of Environment and Ministry of Health) support the implementation in a symbolic way. The key success in working together towards the cycling strategy is the co-operation with local authorities, since the municipalities are responsible for the cycling infrastructure. The Czech National Cycling Development Strategy for 2013–2020<sup>1</sup> was updated by the Urban and Active Mobility Concept for 2021–2030 and approved by the Czech Government on January 11, 2021, as a strategic document for walking and cycling and as a methodological document for sustainable urban mobility solutions at the local and regional levels.

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<sup>1</sup> <https://en.dobramesta.cz/cycling-strategy>

**Austria:** Austria installed a national working group for bicycle transport with cycling officers, representatives of all federal states and federal state capitals, representatives of the Austrian Federal railways and umbrella organisations for cities and municipalities supporting the implementation of the national cycling plan. The working group meets twice a year in different locations. It is chaired by the national cycling officer who is employed by the Ministry of Transport and is mentioned as measure in the national cycling plan<sup>2</sup>. The working group accelerated the communication and increased know-how exchange between national, regional and local level. The national cycling officer is also responsible for the national funding scheme promoting sustainable mobility, a powerful instrument to promote cycling.

**Luxembourg:** The NCO is directly nominated by the Minister of Mobility and Public Works. He cooperates closely with decision makers. He checks each and every infrastructure investment project (which is in the responsibility of the national level) if the requirements of cyclists and pedestrians have been taken into account. He reaches out to other institutions such as other ministries, municipalities and administrations to understand needs and to develop national best practice guidelines that are typically based on an international best practice's analysis. The NCO presides or advises several working groups with these institutions as well as with NGOs that are relevant to active mobility.

**Belgium:** Belgium is currently implementing a bike commission with regional and federal cycling officer and the main Belgian cycling association. The objectives are: communication and exchange of information on bicycle policy; When members deem it useful, provide recommendations / opinions to the various Ministers of Mobility in the area of bicycle policy. The Commission will meet on regularly basis 4 times a year, plus ad hoc meeting on special topics if necessary.

**Slovak Republic:** In 2013 in accordance with the document "National Strategy of Development of Cycling Transport and Cycle Touring in the Slovak Republic" an official position of national cycling coordinator was created at the Ministry of Transport and Construction of the Slovak Republic by the minister of transport. The national cycling coordinator is cooperating in terms of supporting cycling with regional and local cycling coordinators in Slovakia, non-governmental organisations, other relevant ministries,

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<sup>2</sup> Federal Ministry of Environment, Masterplan Cycling, 2015

organisations of academic research, operators within the system of public passenger transport and managers of infrastructure.

**Recommendation 1.3: Establish a national knowledge centre or “bicycle academy” for the training of professionals and enhancement of skills**

Education, training and awareness-raising are the most efficient methods of transferring knowledge and disseminating cycling-friendly solutions. “Bicycle academies” – platforms for the exchange of know-how– can provide the necessary professional training and skill enhancement. They can be linked to existing research, academic and information institutions (of relevance to cycling), advocacy groups, non-governmental organizations, cycling embassies and international and local expert groups. To facilitate the exchange of know-how and cooperation among Member states a pan-European cooperation among the relevant institutions of the members states should be strengthened e.g. by developing centre of competence at the pan-European level.

The starting phase in many cases needs to be subsidised by the government. Once the system is established, more specific courses could be implemented in cooperation with business companies.

**Subsidised concepts:**

**Germany:** Since 2007 the German “Bike Academy” has been financed by the German Federal Ministry of Transport. In the last ten years more than 13,000 people participated in the different offers of the German Bike Academy (conferences, excursions, workshops, seminars, E-Learning/ Webinars, etc.) <https://nationaler-radverkehrsplan.de/de/fahrradakademie>

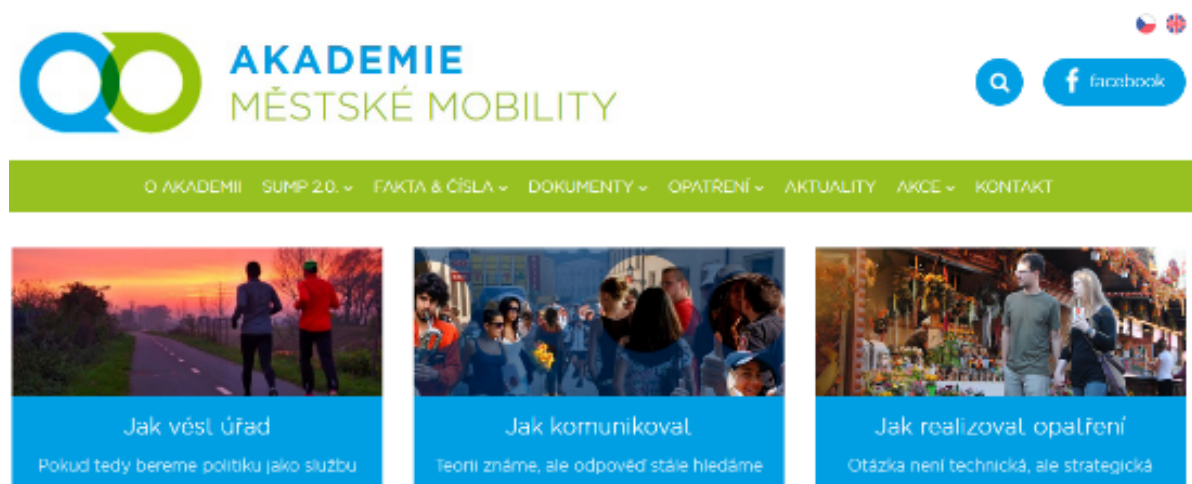
The Academy offers an extensive “Cycling Literature Data Base” with more than 5,000 sources as well as an RSS-/Newsfeed <https://nationaler-radverkehrsplan.de/de/search/site/literaturdatenbank>

The German Federal Ministry of Transport and Digital Infrastructure (BMVI) is for the first time funding chairs for cycling at seven institutions of higher education. The aim is to pay due regard to cyclists’ interests in a sustainable mobility mix – from infrastructure

planning through mobility management to cycling-friendly legislation. Over a period of five years, the institutions will receive financial assistance totalling a maximum of 400,000 euros per chair. During this period they will accredit consecutive Master's programmes with a focus on cycling.

**Czechia:** The Urban mobility academy was developed as an analogue of the mobility portal [eltis.org](https://www.eltis.org/). (<https://www.eltis.org/>). The Urban Mobility Academy aims to publish all relevant information on sustainable mobility planning. It compiles a "library" with information, guidance and inspiration useful for those who struggle for regional and urban mobility support; the library content aims at various target groups, such as local politicians, engaged citizens and associations, professionals, business sector, or transport service providers. <https://www.akademiemobility.cz>

Figure 1: Website of Městské Mobility



**Business concepts** (= consultancy, not for free). Probably a phasing out of subsidies might be possible once the system runs successfully.

Within the **Netherlands** (the “Fietsberaad”) offers trainings and courses. Internationally, “Mobycon” and “DTV-capacity building” are organising (both virtual and local) capacity building via de “Mobycon Cycling academy” and DTV-courses respectively; the Dutch Cycling Embassy is also exporting hardware and consultancy knowledge.

In **Denmark** (the “Cycling Embassy”) is rather exporting consultancy than capacity building/skill-enhancement. The Cycling Embassy of Denmark (CED) in itself is a forum for knowledge sharing among cycling professionals in Denmark and through that offers

capacity building and skill-enhancement to municipalities in Denmark. In addition, the Danish Cyclists' Federation also consults and cooperates with municipalities on its many campaigns and projects. It also offers online access to scientific papers, debates, activities and various knowledge of planning and construction.

A number of municipalities ("Det Kommunale Cykelfagråd") cooperate/network to promote cycling. The Danish Road Directorate holds specific knowledge about i.e. tourist cycling, working together with the Danish Cycling Tourism. Additionally, there are several private actors who offer consultancy about cycling. <https://cyclingsolutions.info/cycling-embassy/>



## 2 Improve the Regulatory Framework for Cycling Promotion

Several countries have adopted standards and regulations adapted to the needs of cyclists and other countries might benefit from their experience.

Despite differences in regulatory frameworks, national authorities might adopt the good practices of other countries: steps taken in order to ensure the safety of cyclists and pedestrians (e.g. traffic regulations, directional signage and traffic lights) should be compiled on a systematic basis and evaluated for use in other countries. Setting common standards for heavy goods vehicles (HGVs) can reduce or even eliminate blind spots and improve pedestrian and cyclist safety.

Improving regulatory frameworks can facilitate the smooth coexistence of all modes of transport. It improves safety, provides clear guidance for all concerned and acknowledges cycling as an attractive mode of transport.

Other types of vehicles such as cargo bicycles, delivery tricycles, handcycles and electrically assisted cycles offer a wide range of possibilities for new groups of users, compete for the existing infrastructure and are often not subject to regulation or standardization. They should be used as effectively as possible in order to tap their potential and increase the share of cycling, walking and public transport while taking care not to compromise the safety or convenience of other vulnerable users.

### **Recommendation 2.1: Consider incorporating cycle-friendly regulations into traffic laws and guidance documents**

Many traffic laws and guidance documents still lack regulations designed to promote cycling and increase the safety of cyclists. Rules and principles that have proved effective should be considered for adoption by ECE and WHO member States. New rules that are consistent with national priorities and circumstances should be tested and evaluated from the point of view of their impact on safety, traffic and comfort.

Figure 2: Cycle Street Netherlands



In 1996 the first cycling street (“Fietsstraat”) of the Netherlands was constructed in Utrecht. Although it wasn’t a success back then, because cars and buses weren’t allowed to overtake. So it was changed to its original situation. In 2010 a new attempt was made, which did succeed. Only the ‘Fietstraat’ doesn’t have an official legal status until today, because it’s not adopted in the Dutch Traffic Law 1994 (“Wegenverkeerswet 1994”).

Figure 3: Different Road Signs for Cycling, Netherlands



<https://files.fietsersbond.nl/app/uploads/sites/43/2013/01/12130539/Ventiel-150B-juni-2013.pdf>

The first cycling street (“Fahrradstraße”) was established in Bremen, **Germany**, in 1980. In addition to the already existing cycling streets in spring 2020 Germany introduced a sign to declare certain areas as cycle zones (“Fahrradzone”; sign 244.3) in which in general only bicycle traffic is permissible. Furthermore there is a new sign to prohibit multi-track powered vehicles to overtake bicycles and other single lane vehicles where necessary – (sign 277.1) and an additional sign to declare parking lots solely for cargo bikes (additional sign 1010-69).

Figure 4: Different Road Signs for Cycling, Germany



**Belgium** has introduced in 2003 a so called “street code” which put the focus more on active mobility and less on the traditional motorized traffic. This was the start of a new view on traffic rules, the so called “STOP-principle” is the new measure of things, meaning that the order in priority of measure should be 1) people walking 2) people cycling 3) public and collective transport. This has over the years resulted in specific rules in the traffic code to promote cycling. For example, the introduction of mobility devices, the concept of a cycling street where cyclists have priority, school streets which allows municipalities to forbid the motorized traffic during school hours, traffic signs and traffic lights which allow cyclist to pass a red light, specific rules for speed pedelecs, streets reserved for pedestrians and cyclists, pedestrian zones, etc. In 2021 Belgium started a screening of the traffic code, with input from all stakeholders, in order to identify the traffic rules which could be an obstacle for active modes of transport and how to resolve them.

**Luxembourg** introduced cycle streets into the highway code in 2017. Before they introduced the new signs they carried out a comprehensive evaluation of similar regulations in other countries.

Figure 5: Cycling Street Luxembourg



The preparation of the **French** masterplan with a “**Code de la Rue**” (Street code) approach by Cerema and French Cycling Coordination: After collecting demands from different stakeholders, two days debates about present and prospective rules took place, incorporating good practices from other countries. As a result of the involvement process a list of rules supported by all stakeholders was presented.

Experimentation and implementation of **yield and pass the red light (France)**: The new sign was tested in Nantes for 6 months from spring to autumn 2011. After the evidence had been carried that it had no negative impact on safety and the efficiency for cyclists was proved, the introduction in the highway code occurred in February 2012. This was improved again with the “all direction signs” introduced in the French regulation in September 2015.

Figure 6: Road Sign, France



[https://www.fub.fr/sites/fub/files/fub/Amenagements/panneau\\_tad.jpg](https://www.fub.fr/sites/fub/files/fub/Amenagements/panneau_tad.jpg)

Several studies have shown that contraflow cycling improves traffic safety<sup>3</sup>. In any case the possibility of contraflow cycling improves travel times significantly by avoiding detours. Austria, Belgium, Denmark, France, Germany, Italy, the Netherlands, and the UK are examples of countries that have implemented contraflow cycling<sup>4</sup>.

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<sup>3</sup> [http://www.mobielbrussel.irisnet.be/static/attachments/partners/na/248/vm-1-sul\\_ENG\\_.pdf](http://www.mobielbrussel.irisnet.be/static/attachments/partners/na/248/vm-1-sul_ENG_.pdf)

<sup>4</sup> [http://webshop.ibsr.be/frontend/files/products/pdf/44180dc835ad150c9c63fbf2ed011304/2013\\_sul-draft\\_lowres\\_e.pdf](http://webshop.ibsr.be/frontend/files/products/pdf/44180dc835ad150c9c63fbf2ed011304/2013_sul-draft_lowres_e.pdf)

## **Recommendation 2.2: Create cycle-friendly traffic conditions**

On high-speed or high-density roads, a divided infrastructure increases cyclists' perception of safety and may attract more people to cycling. Where appropriate, traffic speeds should be limited to 30km/h or less where bicycles and motorized traffic mix but care should be taken so that speed control devices do not create hazards for cyclists. Where speeds cannot be lowered, or where justified by traffic densities, authorities should seek to separate bicycle and motor traffic whenever feasibly<sup>5</sup>

All over the **UK** local authorities are implementing a default 20mph limit policy for most residential streets and city centres. In many places public health expertise and funding is being used to engage with the public to gain behaviour change. These range from large urban megacities such as London, provincial cities such as Bristol and also rural and mixed areas such as Lancashire and Calderdale. Already a quarter of the UK population lives in such 20mph places.

**France:** Grenoble metropolis has introduced a 30km/h speed limit in 2016 for 90% of the streets of the 43 cities belonging to the metropolitan area.

**Spain:** The General Traffic Regulations have established a 30 km/h speed limit for all the streets with only one lane for each direction -either one way or both ways roads-.

**Austria** is preparing a revision of the National Traffic Act to bindingly implement more cycling friendly regulations (as of February 2021).

The **Netherlands:** a new law is adopted in Oct.2020 by the Dutch Government that the leading maximum speed within urban areas will be 30 km/h instead of the current 50 km/h. 50 km/h is still allowed when it's a 'going through' road and if traffic safety will not be limited. The goal of this measure is to reduce traffic deaths, following the example of Oslo and Helsinki.

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<sup>5</sup> Organisation for Economic Co-operation and Development, *Cycling, Health and Safety* (Paris, 2013).

### **Recommendation 2.3: Improve and harmonize vehicle (equipment) specifications**

For other vehicles such as cargo bicycles and delivery tricycles, regulations should harmonize authorization and classification procedures in order to establish safety and behaviour rules and set up transnational standardization with a view to the development of a new ECE–WHO/Europe norm. To reduce the number of injuries and deaths from collisions with cyclists, local, national and international specifications for HGV design should address the blind spot problem and guidelines on HGV or lorry access restrictions and public procurement of HGVs in urban areas should be developed. The European Union initial qualification of professional drivers now includes references to cycling and urban driving.<sup>6</sup>

**Electric Power Assisted Cycles (EPACs or pedelecs)** are an excellent addition to the bicycle fleet. The small electric assistance to pedalling overcomes some of the barriers to cycling. They provide assistance up hills, in hot weather, over longer distances, to more elderly cyclists or those with problems moving their legs. Those EPACs that have a similar power and speed as a bicycle should be treated the same as a bicycle and be allowed to use cycling infrastructure. EPAC riders should not have to register or obtain a licence, or be forced to wear a helmet. Faster or more powerful assisted bicycles could have different regulatory obligations than the bicycle given the higher speed/power.

For the **standardisation of batteries chargers**, it would be interesting to have the same approach as the one of the phone battery (another example: USB).

Good practices for increased bicycle safety interactions with heavy good vehicles (HGV):

- Improving vehicle cab design of large vehicles including lower cabs, the development and implementation of a direct vision standard within EU Type Approval<sup>7</sup> and Regulation (EU) 2019/2144<sup>8</sup> for new HGV and buses and ECE Regulation No. 71<sup>9</sup> “Drivers field of vision (agricultural tractors)”.

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<sup>6</sup> <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32018L0645>.

<sup>7</sup> [https://ec.europa.eu/growth/sectors/automotive/technical-harmonisation/eu\\_en](https://ec.europa.eu/growth/sectors/automotive/technical-harmonisation/eu_en)

<sup>8</sup> <https://eur-lex.europa.eu/eli/reg/2019/2144/oj>

<sup>9</sup> <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A42010X0731%2802%29>

- Providing training programmes within the EU Professional Drivers Qualification Directive<sup>10</sup> to have an urban dimension and to make drivers of large vehicles aware of cyclists' safety and local testing authorities to run them effectively (e.g. French educational tools (CIDUV Cerema 2015)).
- Incorporating safer vehicles within public procurement contracts by cities and public authorities (e.g. safer construction vehicles with good vision to be used in building and construction).
- Making stricter requirements for exempting construction lorries to not have side underrun protection in urban areas.
- Restricting access of HGVs to parts of the road network heavily frequented by pedestrians and cyclists or during certain times of the day.

There are low entry cabin HGV with a high direct vision standard already available at the European vehicle market (e.g. the Econic Concept). London will be banning construction trucks that do not have good direct vision. There are currently some CPC professional driving courses that incorporate cycling safety.

**Germany** funds the voluntary fitting and retrofitting of HGVs with turn assist systems. Local authorities and municipal facilities as well as bus operators are eligible for funding through the "Turn Assist System Funding Programme", which has a budget of 14.25 million euros in 2021. Since 2020, road haulage companies with vehicles subject to tolls can apply for funding to cover their turn assist systems through the Programme to Promote Safety and Environmental Protection in Road Haulage Companies ("de minimis programme") with a total budget of 276.9 million euros in 2021.

There are other countries like Austria with similar programmes in place.

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<sup>10</sup> [https://ec.europa.eu/transport/road\\_safety/users/professional-drivers\\_en](https://ec.europa.eu/transport/road_safety/users/professional-drivers_en)

## 3 Create a User-Friendly Cycling Infrastructure

Cycling infrastructure is constructed, managed, promoted and maintained at various administrative levels. Strategic planning is needed in order to connect these levels (e.g. flagship cross-border infrastructure, such as EuroVelo, and denser national networks). In many countries, existing design standards do not reflect cyclists' needs or ensure a coherent, attractive cycling network; a trans-European cycling network with a consistent interlinked structure should be created. European cycling routes should be planned with national routes as the backbone of the network, regional and local routes linking communities and some sections serving multiple needs. The development of a common methodology and framework, as initiated in the ECE Working Party on Transport Trends and Economics in the Infrastructure Module for the pan-European Master Plan for Cycling Promotion<sup>11</sup>, can serve as a guideline for national, regional and local authorities. Each level of cycling infrastructure needs to be further managed, promoted, monitored and maintained. The outcome of this approach will provide greater safety, convenience and satisfaction for current cyclists and encouragement for potential ones.

### **Recommendation 3.1: Develop or expand a methodology for and monitor implementation of a trans-European cycling network**

Through a coordinated approach involving ECE and WHO/Europe member States, ECE should support the development of a trans-European cycling network based on official national cycle routes and EuroVelo networks and incorporating urban networks and regional cycle routes.<sup>12</sup> The establishment of such a network will help national and regional governments to identify, design and prioritize backbone cycling corridors (see recommendation 3.2).

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<sup>11</sup> [http://www.unece.org/fileadmin/DAM/trans/doc/2020/wp5/WP5\\_id\\_2020\\_06e.pdf](http://www.unece.org/fileadmin/DAM/trans/doc/2020/wp5/WP5_id_2020_06e.pdf)

<sup>12</sup> Information on cycling infrastructure in the ECE area can be found in a study under preparation and that will be made available at the Fifth High-level Meeting.



National, regional and local governments might approach international financial institutions and other international donors with more structured and ready-to-be-financed project proposals (see recommendation 5.2).

### **Trans-European Railway (TER) Project**

UNECE TER Project is a sub-regional cooperation among Central, Eastern and South-Eastern European countries. It was established in 1990 with initial financial support provided by the United Nations Development Programme (UNDP). Its main objective is to develop a coherent and efficient international railway and combined transport system in accordance with the UNECE Pan-European infrastructure agreements. It is proposed that the earlier development of the TER masterplan by UNECE could form a model for a Trans-European Cycling (TEC) Project.

The annual and longer term action plans are set by the Steering Committee and the work is undertaken by the project's personnel, working groups, ad hoc expert groups, and, when required, by external consultants in close co-operation with member countries.

<https://www.unece.org/trans/main/ter/ter.html>

### **EuroVelo**

The European Cyclists' Federation (ECF) coordinates the development of EuroVelo, the European cycle route network, a network of high-quality cycling routes that connect the whole continent. The routes can be used by cycle tourists, as well as by local people making daily journeys.

EuroVelo implementation and quality assurance is coordinated by the ECF in collaboration with national EuroVelo Coordination Centres and coordinators. The network can be supplemented by the addition of new routes, provided these fulfil EuroVelo criteria, meet EuroVelo quality standards, complement the existing EuroVelo routes in spatial terms and increase the implemented percentage of the current network. [www.eurovelo.com](http://www.eurovelo.com) / [www.eurovelo.org](http://www.eurovelo.org)

**Recommendation 3.2: Coordinate the establishment and maintenance of trans-European, national, regional and local cycling networks including parking facilities**

The development of national cycle route networks should be coordinated at the national level while regional and local cycle networks should be coordinated by the relevant bodies. These may include trans-European routes (see recommendation 3.1) and/or connect with those of neighbouring countries. Such networks should be created in partnership with the relevant national, regional and local authorities and stakeholders, in light of their respective competencies, in order to ensure that the appropriate infrastructure for various purposes including bicycle parking facilities is in place.

**Tour de Force and Fietsplatform (The Netherlands):**

Fietsplatform (the Dutch cycling platform) was founded in 1987 as a public-private partnership financially supported by its member organisations (Dutch tourist' union 'ANWB', the Dutch cyclist' union 'Fietzersbond', the Union for cycle-touring clubs 'NTFU' and the national organisation for the cycling industry in the Netherlands 'RAI'.) and the 12 Dutch provinces/regions. It is responsible for the development (signing), maintenance, improvement and promotion of the Dutch network of long distance cycle-routes (4.500 km). It also coordinates the development and promotion of the complementary regional route networks. Since 2017, the Tour de Force program is coordinating the National Cycling Network within one of their working groups, together with the National Government, Provinces and Municipalities. Also, the bike-train combination and cycling parking is adopted as one of the working groups. [www.tourdeforce2020.nl/](http://www.tourdeforce2020.nl/) / <http://www.fietsplatform.nl/informatie/english>

### **Recommendation 3.3: Standardize cycling infrastructure**

Minimum infrastructure quality standards that ensure the coherence, directness, safety, comfort and attractiveness of cycling networks should be adopted at the highest possible level and, at a minimum, as a condition for all projects financed by states, the European Union or international financial institutions (see recommendation 3.1). In order to increase its acceptance, the standardization process should be accompanied by promotion and training activities. Other infrastructure standards, such as those for bridge or tunnel design, should take these minimum quality standards into account.

**The Netherlands:** CROW-Fietsplatform is a Dutch technology platform for transport, infrastructure and public space. It is a not-for-profit organisation in which government and businesses work together in pursuit of common interests through the design, construction and management of roads and other traffic and transport facilities. Active in research and in issuing regulations, CROW focuses on distributing knowledge products to all target groups. Its core tasks involve:

- Research in the area of traffic, transport and infrastructure
- Standardisation in this sector
- Transfer of knowledge and knowledge management

CROW's *Design manual for bicycle traffic* describes the steps required to achieve 'Dutch-style' bicycle-friendly infrastructure and is widely used across the continent.

<http://www.crow.nl/publicaties/design-manual-for-bicycle-traffic>

**UK:** LTN 1/20 Cycle infrastructure design. The note provides guidance to local authorities on delivering high quality, cycle infrastructure including: planning for cycling, space for cycling within highways, transitions between carriageways, cycle lanes and cycle tracks, junctions and crossings, cycle parking and other equipment, planning and designing for commercial cycling, traffic signs and road markings, construction and maintenance.

<https://www.gov.uk/government/publications/cycle-infrastructure-design-ltn-120>

**UK:** CD 143 – Designing for walking, cycling and horse-riding and CD 195 – Designing for cycle traffic. The documents are a part of the Design Manual for Roads and Bridges and contain the requirements for cycle traffic on the motorway and all-purpose trunk road network in the United Kingdom.

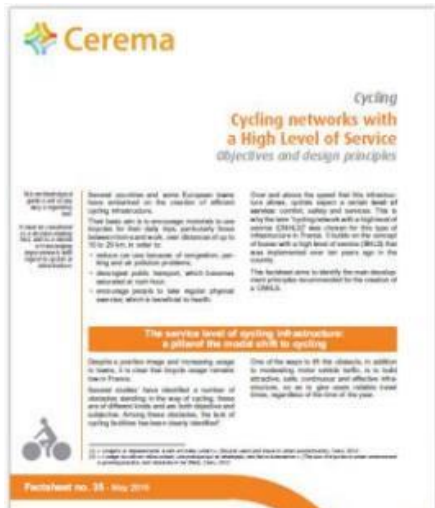
CD 143: <https://www.standardsforhighways.co.uk/dmrb/search/543c502a-e16c-450d-8dc1-d98bca255d9e>

CD 195: <https://www.standardsforhighways.co.uk/dmrb/search/5bb8f60c-737b-49f8-8c40-522a49038eff>

Route planning in multi-lane high traffic urban areas (NACTO Urban Bikeway Design Guide) <http://nacto.org/publication/urban-bikeway-design-guide/>

**France:**

Figure 7: Documentation and comprehensive Guidelines, France



<http://www.certu-catalogue.fr/>

**Danish** Road Standards are guidelines for planning and design, construction and maintenance of roads (known as Vejregler). They are developed by standing committees with representatives from the whole sector and different stakeholders, as e.g. The Danish Cycling Federation, municipalities etc. Bicycle traffic is integrated in the Road Standards when relevant. With funding from the Danish Cycling Fund 2009-2014 all paragraphs from the Road Standards concerning bicycle traffic have been gathered in a Bicycle Traffic

manual (called Håndbog i Cykeltrafik in Danish, 400 pp). The Manual is a useful tool and a shortcut for road authorities and consultants when planning and designing infrastructure for cyclists.

Figure 8: Handbook Cycle Traffic, Denmark



<https://www.celis.dk/>

### **Germany: “Radschnellwege” (Cycle Highways)**

Cycle highways are cycle paths that are intended for fast, trouble-free traffic due to independent traffic significance and special construction standards. This makes cycle highways particularly interesting for urban areas and metropolitan areas. They serve to increase the way commuter traffic is handled by bicycle, to avoid traffic jams and to liquefy the traffic as a whole. Cycle highways can thus reduce negative traffic consequences such as noise pollution and pollutant emissions and contribute to climate protection.

The German Ministry of Transport supports the planning and construction of cycle highways in the Länder and municipalities with an average of 75% of the costs.

### **Technical design standards for cycle highways are:**

- usually over 10 kilometres long
- have predicted at least 2,000 bike rides daily
- are usually 3 meters (set-up traffic) and 4 meters (two-way traffic) wide;

- are structurally separated from other traffic participants (especially pedestrians);
- have safe and comfortable crossing points;
- have a high covering quality and a low incline;
- are operated and maintained on a permanent and safe basis, including winter service.

This makes cycle highways particularly interesting for urban areas and metropolitan areas. They are well suited for commuting.

Figure 9: Road sign used for cycle highways in Germany



Picture: Bundesanstalt für Straßenwesen (BASt) Germany

## 4 Provide Sustainable Investment and Efficient Funding Mechanisms

In order to achieve modal shift towards cycling, investment in infrastructure and promotion is needed (see recommendation 5.6). However, cycling is rarely valued as an equal mode of transport or included in national investment plans. Ensuring the allocation of sufficient budgetary resources should be an integral part of the development of national cycling plans. Experience shows that a sustained minimum level of investment is a prerequisite for significant improvement in cycling conditions. Financing should be provided at all administrative levels in order to foster the implementation of cycling measures and guarantee the maintenance of infrastructure. Since competencies in areas related to cycling vary from country to country, a set share of the national transport budget should be allocated to cycling over all levels of governance. In order to justify the allocated budget, new indicators that take the benefits of cycling into account should be used in cost-benefit analyses. This will raise the awareness of those benefits and change the perceptions of public authorities and sources of funding. International funding schemes might provide front-end financing but are seldom used to their full potential.

### **Recommendation 4.1: Set up sustainable national funding schemes to promote cycling**

One option for national authorities is to set up funding schemes to support local or regional authorities in their efforts to promote cycling. Cycling should be treated equally with other modes of transport when identifying and accessing financing measures including for infrastructure (examples are included in annex II of the Plan). It is crucial to sustain adequate investment levels over the long term in order to achieve a perennial modal shift. In addition to the financial engagement of the public sector, possibilities for private sector financing (e.g. for public bicycle-sharing systems) and other financial transport regulators (e.g. congestion charges, parking fees and a gasoline tax) should be explored. In the light of the substantial health benefits of cycling, financing from the prevention funds of health insurance providers may be an option, especially for promotional measures (see recommendation 6.1).

Examples from all around Europe show that depending on the level of cycling in the respective country the aggregated investment level per capita and year vary from 5–10€, 10–25€ for more ambitious countries and 25–30€ for countries which already have a very high level of cycling.

For several countries, estimations have been made on how much resources should be invested in cycling in order to achieve substantial progress in terms of modal shift.

In order to achieve the national goal of increasing modal share funding needs and costs have been analysed. According to the results of a study investments for towns and cities will be around 8–19 € per inhabitant and year whereas funding needs for districts will be around 1–6 € per inhabitant and year<sup>13</sup>.

The **United Nations Environment Programme (UNEP)** recommends that 20 per cent of the transport budget be allocated to walking and cycling. The **Netherlands** invests about 7 per cent of its transport budget – about €30 per person annually – in cycling. The **United Kingdom** (outside London) recommends 17 £/capita/year (approx. 22.5 €) to double number of cycling. In 2020, the **Irish** government in its government programme decided to follow the UNEP recommendation and allocate 20 per cent of the capital transport budget to walking and cycling – 10 per cent to walking and 10 per cent to cycling.<sup>14</sup>

The **Danish** Cycling Fund 2009–2014 was established when most of the political parties agreed on allocating DKK 1 billion (approx. € 133 Mio.) for a Cycling Fund for the period 2009–2014. During these years subsidies were awarded to a total of 338 projects out of 1,013 applications. The financial support is typically 40 per cent, but for particularly innovative projects, subsidies of 100 per cent have been awarded. The recipients of subsidies thus often provide 60 per cent of the funding themselves. The Cycling Fund has awarded DKK 717 million in subsidies, meaning that the Fund has stimulated investment of more than DKK 2 billion (approx. € 166 Mio.) in activities aimed at promoting cycling. The main recipients of subsidies are municipalities, but organisations and businesses have also received subsidies from the Cycling Fund.<sup>15</sup>

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<sup>13</sup> PGV Hannover: Financing of cycling, Hannover 2012 as quoted in the German NCP

<sup>14</sup> <https://drive.google.com/file/d/12TNmlz1a4B56dI31zyixzRT493Cv7sgl/view?usp=sharing>

<sup>15</sup> <https://www.yumpu.com/en/document/read/54880444/cycling-fund-2014>



**Austria:** Austria's federal financial support for cycling has been multiplied by ten in 2020 (from 4 to 40 million €/y). Infrastructure, signposting, company bicycles, e-bikes and cargo bikes are subsidised. Some of the Federal states additionally give support for biking facilities and bikes. The klimaaktiv mobil consulting and support programme has again been enlarged, e.g. by a free of charge consulting programme on active mobility or the "Jobrad model" where companies give bicycles to employees for a small monthly charge for business and private use and free of taxes for both sides.

<https://www.klimaaktiv.at/mobilitaet/radfahren/radfahren-foerdern-mit-system.html>

City level: Setting first steps (**Sevilla**): 10.5 €/capita/year during 4 years to create city-wide cycling infrastructure network of almost 200 km → rise in modal share from 0.5% to 7%

Advances cities (**Helsinki**): currently 11.12 €/capita/year, proposed 31.77 €/capita/year (modal share: 11%)

Long cycling tradition (**Copenhagen**): 21.16 €/capita/year (modal share: 45%) → this is for the period 2005-2014; the number would be higher for years between 2010 and 2014 (30.71 €); Amsterdam spends up to 80 €/capita

**Denmark:** In December 2020 the Danish government designated € 80 mio. For bicycle infrastructure (57 mio. for the national roads and 23 mio. to be used as subsidies for bicycle projects primarily in the municipalities). In the current political negotiations for a national infrastructure plan with a 2035 horizon, about € 307 mio. for various bicycle investment is being discussed.

#### **Recommendation 4.2: Establish close cooperation with international financial institutions in order to ensure funding for cycling infrastructure**

Cycling infrastructure projects have a very high rate of return on investment, of up to 17 times (see annex II of Plan). Therefore, investments in cycling should be attractive for international financial institutions and other donors. Involving financial institutions could be the basis for additional funding opportunities. Often, donors have special conditions and rules for the financing of infrastructure projects, which require standardized key performance indicators and other relevant data (see recommendation 8.1). International funding workshops should support applicants in providing the necessary information and raise financial institutions' awareness of the benefits of investing in cycling projects.

Example for **funding schemes / packages**: The European Investment Bank (EIB) has announced funding of urban mobility projects. EIB criteria for providing loans to transport infrastructure projects include 'climate-friendly', 'sustainable and safe' and 'innovative'. The EIB also mentions 'cycling' in the description of urban mobility project types: "Construction and extension/rehabilitation of public transport networks such as metro and tramway lines, and rapid transit bus systems; acquisition of rolling stock and buses; promotion of cycling and pedestrian networks; development of intelligent traffic management and information systems to improve public transport...". The support for walking and cycling infrastructure was made more explicit in the EIB's Climate Bank Roadmap published at the end of 2020,<sup>16</sup> where investments in walking and cycling infrastructure are now explicitly mentioned as supported activities, opening up possibilities for more systematic support in the future. During the last years, the EIB has already sporadically financed projects centred on cycling, for example by granting a € 12 million loan to a German manufacturer of innovative e-bike drive systems in 2019.<sup>17</sup> In 2020, it provided € 95 million to the City of Barcelona to finance 40 climate action projects, including improvement of cycling infrastructures and investments to regenerate

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<sup>16</sup> <https://www.eib.org/en/press/all/2020-307-eu-member-states-approve-eib-group-climate-bank-roadmap-2021-2025>

<sup>17</sup> <https://www.eib.org/en/press/all/2019-256-eu-investment-plan-eib-lends-fazua-eur-12-million>

an area covering some 200 000 m<sup>2</sup> across the city, reshaping urban design around the concept of “superblocks”<sup>18</sup>

Examples for **workshops with IFIs**:

- Joint, Euro-Asian Transport Links project – Trans-European Motorways (TEM) and Trans-European Railway (TER) projects – and Working Party on Transport Trends and Economics, workshop on “Financing Transport Infrastructure, [http://www.unece.org/trans/main/wp5/wp5\\_workshop6.html](http://www.unece.org/trans/main/wp5/wp5_workshop6.html)
- Second workshop on “Good practices and new tools for Financing Transport Infrastructure” jointly organized by Euro-Asian Transport Links project Tran-European Motorways (TEM) and Trans-European Railway (TER) projects and the Working Party on Transport Trends and Economics, [http://www.unece.org/trans/main/wp5/wp5\\_workshop7.html](http://www.unece.org/trans/main/wp5/wp5_workshop7.html)
- Workshop on road and rail transport corridors along Europe and Asia, [http://www.unece.org/trans/main/wp5/workshop\\_rail\\_road\\_corridors\\_europe\\_asia.html](http://www.unece.org/trans/main/wp5/workshop_rail_road_corridors_europe_asia.html)

### **Recommendation 4.3: Consider the impact of cycling during investment decisions**

Considering the impact of and on cycling should be standard procedure in cost-benefit analyses of transport projects and should include transport, environment and health impacts. The issue should be addressed at the transnational level by developing an internationally agreed methodology for transport or urban development in cooperation with the international financial institutions, the international development agencies, ECE and WHO. This process should include a review of existing cost-benefit analyses in ECE and WHO/Europe member States and identification of the benefits and costs used. Guidance for assessing the health impact of transport or urban initiatives (e.g. using HEAT) that include their impact on cycling should be developed (see recommendation 8.3).

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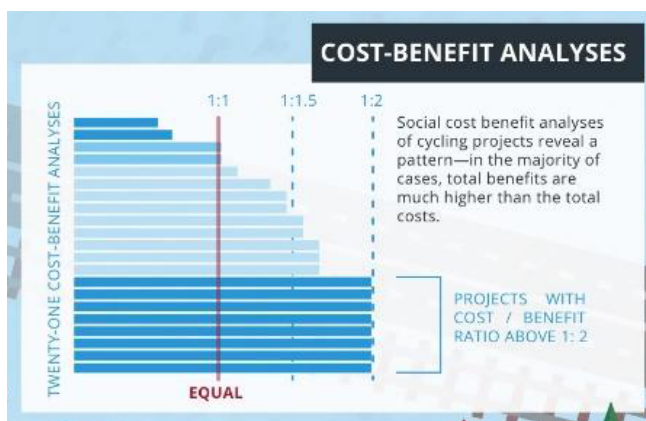
<sup>18</sup> <https://www.eib.org/en/press/all/2020-215-eib-to-provide-eur95-million-to-finance-40-climate-action-projects-in-barcelona>

Environmental impact assessment or, if appropriate, strategic environmental assessment should be standard procedure for transport projects, plans, programmes and policies.

**Netherlands:** The Ministry of Infrastructure and Environment (MIE) uses the OEI methodology (Overview Effects Investments) to analyze the social costs and benefits of investments in infrastructure and other policy measures. For large infrastructure projects the use of this method is mandatory. For bicycle infrastructure, up till now this method has hardly been used, partly because the investment costs usually are relatively small. For smaller projects a social cost-benefit analysis (SCBA) is also a useful means of structuring the discussion and providing objective information for the purpose of decision making. Therefore, MIE has commissioned a study to evaluate the possibilities of applying the OEI tools to bicycle measures. [http://dutchcycling.nl/library/file/Decisio%20-%20Social%20costs%20and%20benefits%20of%20bicycle%20-%20Summary%20\(1\).pdf](http://dutchcycling.nl/library/file/Decisio%20-%20Social%20costs%20and%20benefits%20of%20bicycle%20-%20Summary%20(1).pdf)

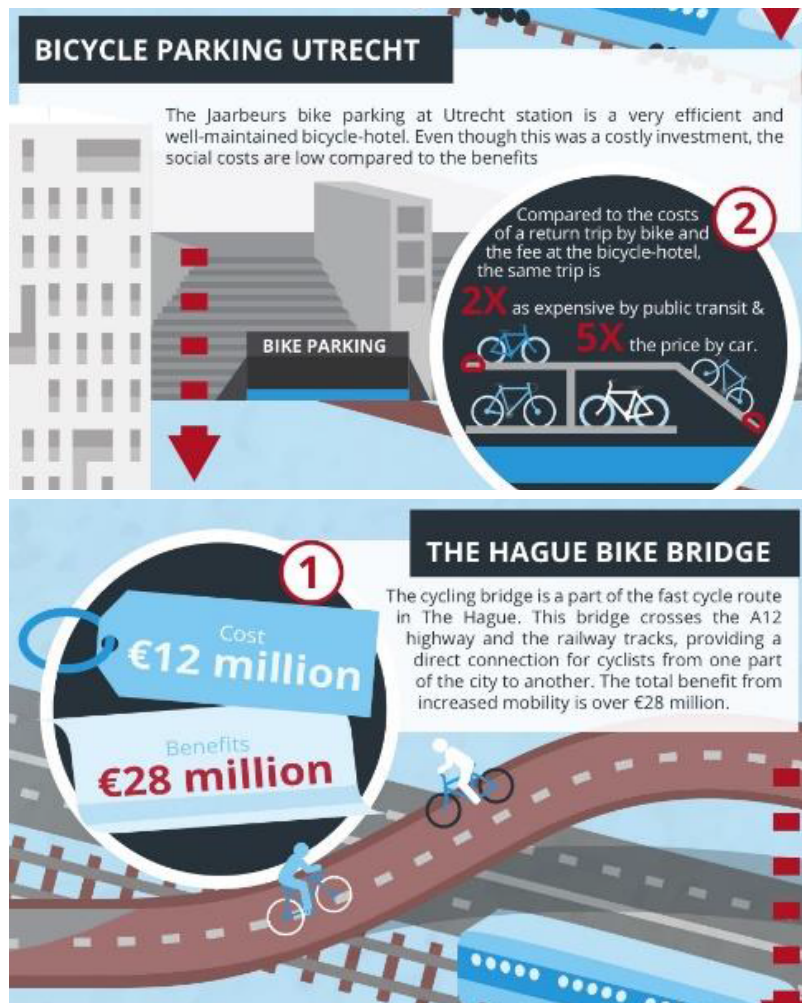
Along with the updated national cycling plan the Dutch cycling experts came up with an infograph highlighting the many ways that investments in cycling project have highly positive social returns.

Figure 10: Cost-benefit analysis



Picture: Decisio, [tourdeforce2020.nl](http://tourdeforce2020.nl), <https://www.fietsberaad.nl/getmedia/1c52943f-8948-4539-8b0d-4fda6048b1a2/Tour-de-Force-Bicycle-Agenda-2017-2020.pdf.aspx>

Figure 11: Bicycle Parking Utrecht, Netherlands



Picture: Decisio, [tourdeforce2020.nl](http://tourdeforce2020.nl), <https://www.fietsberaad.nl/getmedia/1c52943f-8948-4539-8b0d-4fda6048b1a2/Tour-de-Force-Bicycle-Agenda-2017-2020.pdf.aspx>

**Norway:** EkspressEffekt is a user-friendly tool for demand and cost-benefit calculations of bicycle highways. The tool is based on the willingness-to-pay for travel time savings and comfort improvements (reduced number of crossings and increased share of separated cycle path). For 6 of 10 studied bicycle highways, a positive net benefit is calculated with the given assumptions. The Institute of Transport Economics (TØI) has on commission from, and in cooperation with, the National Public Roads Administration (SVV) developed a simplified tool for demand and cost-benefit calculations of bicycle highways (BH). <https://www.toi.no/getfile.php/1344738/Publikasjoner/T%C3%98I%20rapporter/2017/1561-2017/1561-2017-sum.pdf>

# 5 Include Cycling in the Planning Processes and Facilitate Multimodality

Cycling is often insufficiently integrated into the transport system, limiting the potential for everyday cycling over short distances. Cycling infrastructure is not considered until a very late stage of development projects, when all other infrastructure and facilities are already in place, raising the cost of subsequent adaptation.

Cycling should be included in the drafting of regulations on infrastructure planning. Cycling-friendly planning principles should be applied consistently during the planning process unless they are proved irrelevant. Cycling for everyday trips is most common over short distances and might be expanded by integrating it into the transport system as a whole. Close cooperation with all relevant stakeholders will help to operate the transport chain more efficiently.

Cycling-friendly spatial and land-use planning will make the most fundamental change visible: it will reduce transport needs, provide space for non-motorized traffic and result in more liveable and attractive cities and settlements.

## **Recommendation 5.1: Incorporate cycling into all infrastructure planning**

Regulations at all administrative levels should establish basic principles for cyclist-friendly infrastructure planning. All relevant technical details should be provided in cycling planning guidelines, manuals and design standards, while ensuring flexibility in order to take local, regional and national circumstances into account. Guidelines, manuals and standards should be promoted and regularly updated. Close cooperation and harmonization with relevant institutions, agencies and affected stakeholders in adapting existing regulations is also necessary. The process should culminate in regulations and plans, followed by monitoring of their implementation.

**France:** According to the French regulations (Environmental Code) public space must be provided for cyclist. On the occasion of developing new roads or renovating the existing ones, appropriate cycling facilities must be provided in urban areas.

**Luxembourg:** Since 2014, the Minister in charge of Mobility and Public Works authorises any public terrestrial transport infrastructure project only under the condition that the recommendations of the national cycling officer are included. This principle must be applied for road and rail projects as well as for multimodal transport hubs. Based on this regulation, during the renovation of the iconic Adolphe Bridge in Luxembourg-City, a new suspended cycle track was built for cyclists in 2017.

Figure 12: Adolphe Bridge, Luxembourg



Picture: Ministère de le Mobilité et des Travaux publics

**Germany:** The City of Kiel employs a cycling officer within the city administration. The city cycling officer is head of office of the cycling forum – a general decision board with representatives of the city council, cycling clubs, senior clubs, city administration, public transport companies and of the police. The city cycling officer of Kiel has to check and approve all details of transport planning documents regarding their cycling friendliness and their conformity to the cycling forum decisions. Due to this structure consensual cycling decisions and consequent implementation are guaranteed.

**EU:** directive 2019/1936 amending directive 2008/96/EC on road infrastructure safety management (RISM2) obliged the member states to ensure that the needs of vulnerable road users are taken into account in the implementation of the directive's procedures.

The annexes to the directive provide indicative details how to take the needs of pedestrians and cyclists into account. For example, the road safety impact assessment should include estimated pedestrian and bicycle flows, determined from adjacent land-use attributes. Road safety audits should consider separation of pedestrians and cyclists from high speed motor traffic or the existence of direct alternative routes on lower class roads, density and location of crossings for pedestrians and cyclists, as well as provisions for pedestrians and cyclists on affected roads in the area.

**EU Regulation 1315/2013/EU** on Union guidelines for the development of the Trans-European Transport (TEN-T) network is a good initiative since it refers to the synergies with other policies, like EuroVelo routes

**Recommendation 5.2: Consider cycling during spatial planning and incorporate it into building regulations**

Spatial planning should facilitate short trips suitable for cycling by ensuring an adequate land-use mix and considering the needs of cyclists and non-motorized traffic in general. Where all basic public services are provided at the local level, car trips can be replaced by cycling and walking.

Cycling-friendly building regulations should set detailed requirements (including secure bicycle parking, chargers, positioning of entrances, wide doors, oversized elevators, changing rooms, lockers and repair stands).

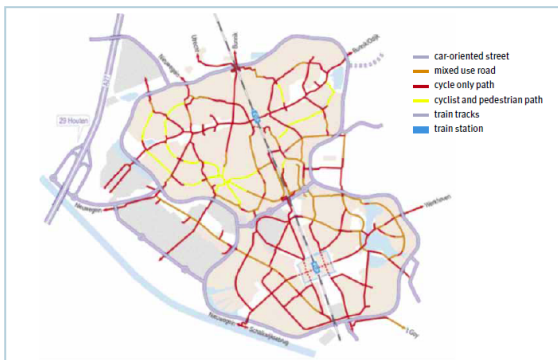
Spatial planning in the **Netherlands** has a long tradition and involves the national strategy on the allocation of land and water resources for sustainable economic and social development. The Spatial Planning Act (WRO) lays down how the spatial plans of the state, provinces and municipalities are to be affected. Example: According to the regulations in The Netherlands, commercial units must be accommodated in the cities. Suburban commercial units have to justify that the project cannot be implemented in the city area. An update of this Act is planned 01-01-2022, called NOVI, National Vision Environment (“Nationale Omgevingsvisie”). <https://www.government.nl/topics/spatial-planning-and-infrastructure>



City of Houten (The Netherlands) is a unique example of an entire city designed and built to prioritise cyclists and pedestrians. It is a greenfield development with good transit access, high-quality bicycle infrastructure, provision of public bikes and car-sharing, and application of employer contributions and educational programs to promote cycling.

<https://www.itdp.org/wp-content/uploads/2014/07/22.-092211-ITDP-NED-Desktop-Houten.pdf>

Figure 13: Street layout of Houten



ITDP Europe, Nicole Fioretta

Figure 14: Vauban, Freiburg



Vauban, Freiburg (Baden-Württemberg, Germany) limits car use through parking-free residential streets, spatially and fiscally separated parking and filtered permeability to prevent through traffic. Vauban also features high quality non-motorized transport infrastructure.<sup>19</sup> Picture: <https://stadtteil-vauban.de/>

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<sup>19</sup> Low-Car(bon) Communities: Inspiring Car-free and Car-lite Urban Futures, Foletta-Henderson, 2016, Routeledge

Since 2017, all state financed projects for public buildings (new or renovation) in **Luxembourg** include a checklist of 50 criteria aimed at creating appropriate conditions for cyclists and pedestrians. These criteria were developed by the national cycling officer based on an international best practices study and in cooperation with the Administration for Public Buildings. The criteria cover the following topics: site selection, position of the various entrances, design of the entrance areas and sidewalk facing ground floors, paths from the plot limit to the entrance, bicycle parking outside and inside, signage, changing rooms, positioning of car parking, protection of existing cycle or pedestrian routes during the construction phase.

Seestadt Aspern is a totally new district in Vienna (**Austria**) on an area equivalent to 340 football pitches, accommodating high-quality living environment for some 20,000 people plus about the same number of workplaces. Aspern is connected to Vienna by metro (two stops of U2 line) bus and railway. Within Aspern, priority was given to sustainable mobility. A local bike rental scheme, cargo bike rental scheme, secure bike parking facilities, and car sharing scheme is in operation. Most of the public space belongs to pedestrians and cyclists.

Figure 15: Public space and cargo bike in Seestadt Aspern



Picture: Cycle Competence Austria

**Hungary:** A Governmental Decree (mandatory for all municipalities) on spatial planning and building regulations requires bicycle parking for all buildings, where cycling “could be expected”. In practice, authorities require bicycle parking for most of commercial, public (including schools), and residential units. The minimum number of parking spaces for bikes calculated as follows (examples):

- 1 spaces for each residential unit
- 2 spaces for every 150 m<sup>2</sup> area of commercial units
- 2 spaces for every 500 m<sup>2</sup> area of commercial units (above 1000 m<sup>2</sup> total area)
- 2 spaces for every 15 rooms in hotels
- 2 spaces for every 75 m<sup>2</sup> in restaurants
- 2 spaces for each 50 m<sup>2</sup> in schools and universities
- 1 spaces for every 10 employees for industrial units
- 1 spaces for every 100 m<sup>2</sup> area for offices

**Slovenia:** Technical standards for designing bicycle parking infrastructure are defined in the Rules on Cycling Areas (Pravilnik o kolesarskih površinah (Uradni list RS, št. 36/18)) and the Rules on Minimum technical requirements for the Construction of Appartement Buildings and Apartments (Pravilnik o minimalnih tehničnih zahtevah za graditev stanovanjskih stavb in stanovanj (Uradni list RS, št. 1/11 in 61/17 – GZ)) There is also a handbook included in the Decree on Spatial Order of Slovenia (Uredba o prostorskem redu Slovenije (Uradni list RS, št. 122/04, 33/07 – ZPNačrt in 61/17 – ZUreP-2))

Examples from Slovenia, following above mentioned rules and regulations:

Figure 16: Secured and easy accessible bicycle parking in an apartment building in Ljubljana



Pictures: Stasa Kraljic

### **Recommendation 5.3: Facilitate multimodality (cycling, public transport and walking)**

In order to facilitate bicycle transport, public transport vehicles should be able to carry bicycles comfortably and affordably. A smooth transfer between the bicycle network and the platform should be ensured by ramps, special staircases or elevators. The responsible institutions should include the necessary vehicle or service specifications in the tender documentation for public procurement and introduce attractive tariff systems.

Multimodality should be facilitated by providing secure and convenient bicycle parking at public transport stations as well as services such as public bicycle sharing schemes. While extending the catchment area of the stations, such facilities would enable attractive multimodal alternatives to car use for a large share of commuters. Multimodal route planners and applications and traffic information systems should include cycling networks and bicycle-sharing schemes. The introduction of innovative e-ticket systems and mobility cards should cover all sustainable transport modes, including public transport, car-sharing, bicycle-sharing and secure bicycle parking.

In order to support multimodality and the integration of cycling into the infrastructure network, multimodal transportation agencies should be established. To that end, the relevant agencies must be identified and an agreement on basic cooperation principles reached



**Netherlands:** The bike parking facility of the new Utrecht central station will have a capacity of 12,500 bicycles and provide quick and direct access to railways, buses, and trams.

Figure 19: Bike parking in Jaarbeursplein, Utrecht



Picture: Gemeente Utrecht

BiTiBi (Bike-Train-Bike) is a three-year project funded by the **European Union** aimed at improving the livability of European cities and improving the energy efficiency combining the bicycle and the train, it provides a seamless door-to-door transport connection. Pilot projects were implemented in the regions of Barcelona, Milan, Liverpool and in Belgium with the help from ten partners. In the framework of the project, a Guideline document was prepared that helps to implement multimodal projects.

Figure 20: Bike-Train-Bike project



Source: <http://www.bitibi.eu/>

**Slovenia:** In 2019 Slovenian Railways prepared a project for safe bike parking at main railway station in Ljubljana (340 parking spaces). At the same time, within the Ministry of Infrastructure, the expert group was established to set the guidelines for safe bike parking within the national railway system. The Slovenia Railways elaborated the documentation for implementing safe bike parking at 220 railway stations nationwide (out of 272 total). The project is funded by the Ministry of Environment through the Climate Fund. In 2020 the project is still on-going as Slovenian Railways Infrastructure Company is building the bike parking facilities within the internal investment plan.

The bike parking is free of charge and the number of bike parking spaces is defined from statistics on the number of passengers daily commuting to/from railway stations. At the same time (only in bigger urban centers), at railway stations space was reserved for setting up the Public Bike Sharing System and all pre-installations were put down for telecommunications and water.

Figure 21: Bike parking at Ljubljana railway station



Pictures: Gregor Steklačič/Ministry of Infrastructure, Slovenia, <https://www.slo-zeleznice.si/sl/novice/potniki/uedba-dodatnih-brezplacnih-parkirnih-mest-za-kolesa-z-video-nadzorom>

Figure 22: Safe bike parking at Maribor railway station



Picture: Cycling network Maribor



# 6 Promote Cycling Through Incentives and Mobility Management

Many countries offer tax benefits to people who use their cars or public transport for their daily commute; only a few countries do the same for cycling. Monetary incentives are a powerful tool that can change behaviour and enhance cycling's status. The recent introduction of electric bicycles expands the scope of bicycle use far beyond that of conventional bicycles in terms of distance and convenience. However, this potential is not being fully tapped owing to considerably higher purchase cost. The aim is to have cycling acknowledged and promoted as an equal mode of transport in the fiscal system, while improving public awareness and appreciation of it.

Monetary incentives might include, tax benefits, the installation of cycling infrastructure by companies and subsidies for commuting by bicycle. Electric mobility funding schemes should promote both electric cars and electric bicycles. Promotional campaigns should raise awareness of cycling and its benefits with a view to behaviour change and endeavour to attract groups that have not previously cycled.

## **Recommendation 6.1: Introduce fiscal incentives for cycling**

Depending on the national fiscal system, the aim of a level playing field for commuting can be achieved in various ways. Examples of fiscal incentives include the introduction of a tax-free mobility budget, tax-free kilometric reimbursement for cycling to work, tax incentives for bicycles, cycling infrastructure for employees and facilitation of bicycle usage for business trips. Where there is no political majority for the introduction of a specific tax benefit for cycling, the elimination of subsidies for commuting by car can level the fiscal playing field for all modes of transport. Once fiscal incentives have been introduced, it is crucial to promote them in order to raise awareness among employers and other potential beneficiaries.

**Abolishing/not introducing subsidies for commuting by car:** Since commuting is far less costly by bike than by car, abolishing (indirect) subsidies for commuting by car (like low taxation of company cars, low fuel taxation or commuting allowances for car driving) can already have a significant steering impact on commuting behaviour towards cycling, even without the introduction of specific incentives.

**Mobility budget:** In countries where company cars that can be used for private purposes are an important part of salaries, the introduction of a tax-free “mobility budget” for employees could be an alternative to the complete abolishment of the tax incentives for these cars. The mobility budget could be used for commuting by all means of transport, and the saved amount transformed into other fringe benefits. Cycling being the most cost-efficient form of commuting after walking, this would make taking the bike to work more attractive.

Example **Netherlands:** By gradually increasing the taxation of company cars and offering mode-neutral forms of reimbursement, mobility budgets are becoming more and more attractive in the Netherlands. In 2014, 5% of employees had a mobility budget as part of their salary package. Projects to avoid peak-time congestion and to support sustainable commuting help to increase the effectiveness of the measure.

**Tax-free kilometric reimbursement for cycling to work:** The amount of the reimbursement should be high enough to provide a real incentive, and ideally higher for shorter distances since they represent the greatest potential for modal shift.

In **Belgium**<sup>20</sup> a kilometric reimbursement scheme for cyclists is in place since 1999 (currently 0.24 €/km per day). 84% of employees in companies with over 100 employees are offered cycling reimbursement. In 2020 approx. 20% of workforce received a cycling reimbursement (including those who only cycle to work occasionally); 60% more than in 2015<sup>21</sup>. The scheme has a high impact on modal share of cycling: 12% of regular cycling to work in companies offering reimbursement against 7% in companies not offering it.

**Tax incentives for bikes and cycling infrastructure offered to employees:** While company cars that can be used for commuting and private trips are offered as a fringe benefit with advantageous tax treatment to employees in many countries, offering bikes as an addition

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<sup>20</sup> [https://mobilit.belgium.be/sites/default/files/resources/files/final\\_report\\_www\\_2017-2018fr\\_0.pdf](https://mobilit.belgium.be/sites/default/files/resources/files/final_report_www_2017-2018fr_0.pdf)

<sup>21</sup> <https://www.acerta.be/fr/a-propos-dacerta/dans-la-presse/la-mobilite-en-2020>

to the salary is still much less common, but there are more and more countries that incentivise such schemes through low taxation of the fringe benefit, including **Germany, Austria, Belgium** and **Finland**. Offering (high quality) bikes to employees as an alternative to company cars could prove highly beneficial for changing commuting habits. Tax benefits could also be granted to companies for the instalment of cycling-friendly infrastructure like bike parking or showers.

In the **United Kingdom**<sup>22</sup> over 1.1 million employees participated in the bike to work scheme since its introduction 1999. Over 500,000 people currently commuting to work by bike through the scheme and 65% of independent bike retailers say that the scheme is important/very important for their business

**Recommendation 6.2: Provide communities, companies and consumers with financial support for the purchase of bicycles (e.g. electric or cargo)**

Wider diffusion of high-quality conventional bicycles and innovative bicycles such as pedal electric bicycles (pedelecs), folding bicycles and cargo bicycles can steer behaviour away from car or van trips. Therefore, all electric-mobility strategies and funding schemes should include electric bicycles. In markets with low sales figures, a general subsidy of €500 for electric bicycles and €1,000 for electric cargo bicycles might help to bridge the price gap with conventional bicycles and facilitate market uptake. In countries where electric bicycles already have a large market share, fiscal incentives should focus on cycle use although financial support schemes (particularly for pedelecs and electric cargo bicycles, owing to their higher price, and for small businesses) may still be an option

**France:** Since March 2017, the French state gives a financial support of 20% of the purchase price of an electric bicycle capped to 200 € for people living in towns in which no such financial support is provided. A subsequent evaluation showed that more than 300,000 subsidies were given out during the first year period, practically doubling sales of electric bicycles in France. The survey also showed that trips with the electric bicycles for 61 per cent replaced trips with motorised modes.

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<sup>22</sup> <https://www.employment-studies.co.uk/system/files/resources/files/509.pdf>

The regional administration of Île de France gives a financial support of 50% on the purchase price of a pedelec, max. € 500,-

**Spain:** Within an e-mobility financial support programme of the national government, buyers of e-bikes can get a financial support of € 200. Within the Barcelona Metropolitan Area, 1,000 buyers per year can receive an additional € 250.

**Austria** offers subsidies for companies in the case of purchase and operation of pedelecs. They have to be powered by sustainable energy and the funding amount varies from € 250 to 850 per pedelec. There are also subsidies for installing charging infrastructure (depending on power, type and public or non-public availability between € 900 and € 30.000).<sup>23</sup> This funding scheme has been introduced in 2008, since then the sales of e-bikes have increased extraordinarily (39 % market share in 2019).<sup>24</sup>

**Sweden** provided 25 % subsidies of e-bike purchase (“elcykelpremie”) in 2018. Everyone (individuals not companies) who bought an e-bike got this discount of the price up to 10 000 SEK (€1.000) per bike. You had to be above 15 years of age and could only buy one bike per person and year. The budget was 350 million SEK (€35 million) for the year the scheme was in place.

**Ireland:** The Cycle to Work Scheme is a tax incentive scheme which aims to encourage employees to cycle to and from work. Under the scheme employers can pay for bicycles and bicycle equipment for their employees and the employee pays back through a salary sacrifice arrangement of up to 12 months. The employee is not liable for tax, social insurance (PRSI) or the Universal Social Charge on their repayments. The employer is not obliged to take part in the scheme. The limit for pedelecs is € 1.500 and for other bicycles and related safety equipment it is € 1.250. The scheme can only be availed of once every 4 years.

[https://www.citizensinformation.ie/en/travel\\_and\\_recreation/cycling/cycle\\_to\\_work\\_scheme.html](https://www.citizensinformation.ie/en/travel_and_recreation/cycling/cycle_to_work_scheme.html)

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<sup>23</sup> [https://www.klimafonds.gv.at/wp-content/uploads/sites/6/Leitfaden\\_E-Mobilitaet\\_Gewerbe\\_2021.pdf](https://www.klimafonds.gv.at/wp-content/uploads/sites/6/Leitfaden_E-Mobilitaet_Gewerbe_2021.pdf)

<sup>24</sup> [https://www.wko.at/branchen/k/handel/mode-freizeitartikel/vsso\\_factbox-fahrrad-2019\\_20-05-14\\_FINAL.pdf](https://www.wko.at/branchen/k/handel/mode-freizeitartikel/vsso_factbox-fahrrad-2019_20-05-14_FINAL.pdf)

### **Recommendation 6.3: Promote the use of cycling through mobility management**

Campaigns to promote cycling, for both daily and touristic purposes are a necessary part of efforts to create a cycling culture. Mobility management offers a wide range of instruments designed to promote cycling and other sustainable modes of transport by including demand management for car use and changing travellers' attitudes and behaviour. At the core of mobility management are "soft" measures, such as information, promotion, organization, coordination, education and training, location and support, that enhance the effectiveness of "hard" measures (e.g. new bicycle lanes). In many cases, responsibility for these measures lies at the local and/or regional level. National authorities should have a clear understanding of their roles and responsibilities and provide a suitable framework to support local and regional efforts.

#### **Cycle-Friendly Employer Certificate**

Cycle-Friendly Employer certification was already developed in several European countries such as Germany, Denmark and Austria. In order to give European companies a special incentive to increasingly focus on bicycle friendliness, the EU-funded Bike2Work project developed an EU-wide certification framework for bicycle-friendly companies, based on six main criteria. Each bicycle-friendly measure would contribute to define the CFE level of a company. A minimum number of measures must be achieved per action field in order for employers to receive certification. The success of the project led to the establishment of the Cycle-Friendly Employer Certification Consortium, which promotes and coordinates the implementation of the framework across Europe. <https://cfe-certification.eu/>  
[https://ecf.com/sites/ecf.com/files/ECF\\_report\\_bike2work.pdf](https://ecf.com/sites/ecf.com/files/ECF_report_bike2work.pdf)

**Sweden:** Malmö discovered that half of all car trips made in the city were less than 5 kilometres. The municipality found it "ridiculous" that traffic is jammed and expensive infrastructure is necessary, while many trips are short and people only get in the car out of habit or convenience. To change the situation Malmö started the campaign "No ridiculous car trips" in 2006 (part of EU-project Civitas SMILE). Residents were challenged to write about their most nonsensical car trips for a chance at winning a prize. Anyone who wrote such a description would feel its meaning and resolve to do something about it. In 2007, the campaign resulted in 12,000 inhabitants making less short trips by car.

Source: EPOMM (2013), Mobility management: The smart way to sustainable mobility in European countries, regions and cities. <http://www.copenhagenize.com/2010/09/no-ridiculous-car-journeys-malmo-sweden.html>

**Austria:** To improve the image of cycling the City of Vienna made 2013 a campaign for all-day cycling (“Radjahr Wien”). 190 events - from cost-free bicycle repair at swimming baths to the bicycle fashion show – were attended by a media campaign, which communicates the joy of life through cycling. The campaign evaluation showed, that 39% of the interviewed person recognized a more positive attitude for all-day cycling.<sup>25</sup>

Figure 23: Promotion for a joyful all-day cycling: Bike-Fashion-Show Velo Style in Vienna



Picture: City of Vienna / Sebastian Philipp

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<sup>25</sup> Mobilitätsagentur Wien GmbH, Das RadJahr 2013 – Evaluierungsbericht zur Radkampagne der Stadt Wien, 2014.

**France:** A new regulation obliges all companies over 100 employees to work on a Company Mobility Plan (company travel and commuting plan) before January 2018 in order to promote commuting by sustainable mobility. Within this framework, they provide tax-free mileage allowance; eventually company bikes (tax free for the company) for commuters

**Russia: THE INTERNATIONAL GREEN MOBILITY AWARD**

(<https://en.greenmobilityaward.com>) is a notable year-end closing event for those who develop and put forward the best sustainable mobility practices in Russia (and all over the world). The award is annually given to the cities, which are implementing innovative projects and development strategies for sustainable transport, improving mobility for all citizens, reducing greenhouse gas emissions and air pollution, improving road safety and creating an accessible environment for pedestrians and cyclists. It is also awarded to the experts and organizations for promoting the principles of sustainable mobility towards building the “Cities for People”. The award is established by The Green Mobility International Partnership Initiative - a unique strategic platform, aimed to develop sustainable mobility in the cities and regions of Russia, building upon the best international and Russian experience in implementing an effective transport policy and sustainable urban systems.

## 7 Improve Health and Safety

Each year, about 1 million deaths in the WHO/Europe region are attributed to insufficient physical activity.<sup>26</sup> Active mobility in the form of cycling as a means of transportation is a highly promising approach to the integration of physical activity into daily life. Measures designed to increase cyclists' safety should be incorporated into national and international road safety policies.

**Recommendation 7.1: Strengthen awareness among health professionals and build their capacity to advocate cycling as a tool for promoting physical activity and improving public health**

Regular cycling has significant health benefits. Public health professionals can be a strong voice in advocating for the inclusion of cycling in health policies and interventions. This requires developing well-structured, user-friendly guidelines for physicians and public health professionals, raising awareness of the links between active mobility and health and addressing issues related to specific health conditions. The guidelines, underpinned by strong scientific evidence, should include cycling as a preventive or rehabilitative treatment for some health conditions and in order to prevent various non-communicable diseases. They should also provide clear information on the recommended speed and duration of cycling for specific diseases in light of factors such as age and weight. Advocacy for and promotion of cycling should extend beyond the health sector to address the educational, occupational and recreational settings in which people live and work. In view of the reduced risk of non-communicable diseases, health insurance companies may wish to consider providing financial incentives for subscribers who cycle regularly.

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<sup>26</sup> <http://www.who.int/nmh/publications/ncd-status-report-2014/en/>.



**Netherlands:** The National Prevention Program started in 2014 and aims to reduce the growing number of people with chronic illness. In addition, the program should also reduce the major health differences between high and low skilled people. The focus of the program is on less alcohol, smoking, depression, diabetes, overweight and more movement.

The National Program Prevention wants to achieve its goals through the deployment of laws and regulations, and programs that stimulate health policy.

For example, the Healthy School, Sport and Movement in the neighbourhood, and JOGG: Jongeren Op GezondGewicht (Young people on Healthy Weight). This program aims at more physical activities for youngsters, especially stimulating them to walk or bike to school. The 'Netherlands' Norm Healthy Movement (NNGB), is a standard for healthy movement. At least 30 minutes a day of activity can be easily included in daily commuting

**France:** In order to fight against sedentariness and mobility's inequalities which are connected with social inequalities and health's inequity, the city of Strasbourg put into practice a programme called "Sport-santé surordonnance".

In this experimental system, the physician prescribes physical activity to people suffering from chronic diseases. In 2017 the budget allocated to the action is 410 000 €, 1 400 people have been addressed, 300 physicians are included, 14 NGO associated (and the programme delivers more than 85 hours training per week). The experimentation led to a decree at the end of 2016 to allow every city to implement such a programme.

<https://www.legifrance.gouv.fr/eli/decret/2016/12/30/2016-1990/jo/texte>

GISMO project: In a clinical study, the GISMO research project (funded by the Austrian Research Programme) ascertained the health effects of measures that promote cycling and walking on the way to work. At the same time, indicators were developed to evaluate the area with regard to its suitability for walking and cycling as well as the quality of public transport. By combining clinical and spatial research, companies are offered a comprehensive information base for the implementation of efficient approaches to mobility management. <https://radkompetenz.at/en/1994/project-gismo-active-commutes-as-health-provision/>

### **Recommendation 7.2: Integrate health- and cycling-related issues into formal and informal education and awareness-raising activities**

The health-related benefits of cycling should be promoted widely through formal and informal education at all educational stages, from early childhood. Ministries of health and education should include the health benefits of cycling, as well as traffic rules and road safety, in teaching curricula. For example, manuals written in a clear, concise and user-friendly style, followed by training and awareness-raising exercises, might be developed for teachers and parents. Children and youth should be given an opportunity to develop cycling skills and practise them safely. Opportunities to develop a safe cycling infrastructure, including protected parking places, and to facilitate regular cycling to school, university and other educational and recreational facilities should be sought. These measures should be integrated into schools' mobility management plans.

New cycling training standard introduced in **Ireland** in 2017: the Department of Transport, Tourism and Sport has developed the new 'Cycle Right' cycling training standard which is designed to give cyclists the knowledge and skills to move safely through the road system. There are three stages which prepare the individual to cycle in increasingly complex scenarios. Various official bodies and cycling organizations have cooperated to create this training. It is administered by Cycling Ireland as the registering body.

<https://www.cyclerright.ie>

**Denmark:** a summary of the Danish concept "cykelleg" (bicycle games), that encourages and teaches kids to cycle through playing is provided by Cyklistforbundet. The website provides the textbook for download as well as a series of short videos.

<https://www.cyklistforbundet.dk/english/cycling-games/>

The Danish Cycling Embassy also has a theme about how to support children cycling from an early age. <https://cyclingsolutions.info/cycling-children-cycle-training-and-traffic-safety/>

**Germany:** Cycling safety education is a subject in the curriculum of German elementary schools including a theoretical and practical education. More than 95% of all school children participate in the bicycle riding education each year. During the first two school years the children receive basic knowledge how to ride a bike, the 3<sup>rd</sup> and 4<sup>th</sup> year include

theoretical and practical bicycle riding tests. The practical tests take place in the road network and are usually accompanied by police officers.

In addition the common Traffic Safety Organisations address several target groups (< 6 years old children, parents, adult and elderly cyclists etc.) in order to develop cycling skills and practise them. <http://www.deutsche-verkehrswacht.de/home/dvw-projekte/kinder/radfahrausbildung.html>

**France:** The ALVEOLE programme, carried out by the French Federation of Bicycle Users (FUB), is the winner of the call for projects launched by the French Ministry of Ecology in 2016 to fight against fuel poverty. The program's direct target are social landlords and local authorities, it aims to promote the use of bicycles among the inhabitants of affordable housing and promote active mobility in general.

The programme is structured around two key stages and one optional:

- Installing secured bicycle parkings (minimum size: for 12 bicycles)
- Bike learning sessions with tenant households
- (optionally) self-repair workshops

The principle and the main innovation of the programme is to deliver white certificates that finance the program up to 60%, thanks to the fact of being winner of the call for projects, as mentioned above.

**Slovenia:** Part of educational programme of elementary school is also theoretical and practical cycling exam for all children that are 12 years of age (4th and 5th grade of elementary school). This is regulated by The Drivers Act (Ur. l. RS, št. 109/10, 25/14 in 85/16 - ZVoz-1), Rules on performing elementary school programme (Ur. l. RS, št. 57/07, 65/08, 99/10, 51/14, 64/15, 47/17, 54/19 in 180/20). Every child received theoretical and practical education first and then takes the exam. Every child that successfully passed the exam receives a cycling license, issued by our Ministry of Education, Science and Sport. To be able to do the practical part of the cycling (education and exam), child's parents need to provide a safe bicycle and helmet for child's use.

Most of the **Austrian** schools offer a voluntary cycling exam following up on a training course for ten year old children (in the last class of elementary school). The training course is covering the topics: partners on the road, road markings and traffic areas, waiting or having priority, what a cyclist has to be able to + has to know, most important traffic signs, how to behave in cases of emergency). The overall organisation of the training course + exam is in the responsibly of the Austrian Youth Red Cross. Main stakeholders are parents, teachers and policemen. Parents are involved from the very beginning in order to overcome existing prejudices or knowledge gaps or fears. Teachers receive the necessary information materials (including exercises, examples, etc.), get support from the schools (access to traffic safety parcour, etc.). Police is supporting the exam. By successfully passing the exam children are allowed to ride a bike on their own at the age of 10 (without exam at the age of 12).

### **Recommendation 7.3: Incorporate cycling into road safety policies**

Improving road safety for cyclists requires a holistic approach and should be integrated into road safety policies. Initiatives such as infrastructure and speed management are discussed in sections 2 and 3. Improving road users' behaviour through better information, education, awareness-raising and enforcement of traffic rules is an important aspect of road safety policy, as is vehicle – and especially motor vehicle – safety. Current technological developments such as Intelligent Speed Assistance (ISA) and Automatic Emergency Braking (AEB) and truck safety features such as better direct vision and turning assist will have a positive impact on cyclists and pedestrians and should be considered when setting ECE vehicle standards.

**Austria:** Within the Austrian Road Safety Programme 2011-2020 cycling safety measures – e.g. the implementation of the bicycle street in the National Road Code or trainings for elderly cyclists - are included. An update of the Road Safety Programme has been prepared (as of February 2021) but not endorsed and published yet.

[https://www.bmk.gv.at/themen/verkehr/strasse/verkehrssicherheit/publikationen/programme\\_berichte/vsp2020.html](https://www.bmk.gv.at/themen/verkehr/strasse/verkehrssicherheit/publikationen/programme_berichte/vsp2020.html)

# 8 Improve Cycling Statistics for Use in Efficient Monitoring and Benchmarking

Assessing the benefits of cycle use requires the systematic collection of statistical data. A comparable, reliable statistical database for the pan-European region is a prerequisite for the monitoring and benchmarking of cycling promotion.

The first step will be to prepare an overview of existing data at the regional, national and pan-European levels. The next step will entail collecting comparable and reliable statistical data using a minimum set of indicators, including the modal share of cycling, the annual number of passenger-kilometres cycled per capita, the number of national cycling plans (status: developed, adopted or implemented), the annual number of cyclist fatalities per kilometre cycled, the number of countries that apply HEAT to cycling and walking, the number of kilometres of cycle infrastructure, the average number of bicycles per inhabitant and per household and the number of bicycles sold annually. With digitization and new technologies, new ways of collecting statistical data may be developed (see section 10). The aim is to collect baseline data at the national level for 2020.

This common database will have an immediate impact on the credibility stakeholders' arguments in favour of cycling and will be used in discussions with financial institutions and taxpayers regarding higher budget allocations to cycling. It will also serve as a powerful monitoring and evaluation tool for comparing the effectiveness of measures and identifying success factors (measures that might serve as best practice for other countries) that will attract available funds to the investments that promise the highest impact.

### **Recommendation 8.1: Provide adequate and reliable statistical data for monitoring the level of cycling**

In order to assess the impact of cycling using a common methodology and to monitor progress in implementing the pan-European Master Plan for Cycling Promotion, a minimum set of data is needed. Based on the aforementioned overview of existing data at the regional, national and European levels (including quality), a minimum set of comparable, reliable and harmonized statistical data will be collected (e.g. by applying the Eurostat Passenger Mobility Guidelines or the outcome of the SHANTI Project).<sup>27</sup> Additionally, it is recommended that a national travel survey be conducted (or updated) in each country. This additional information will offer greater insight into the behaviour, needs and preferences of cyclists.

**Denmark** organises their National Travel Survey *Transportvaneundersogelsen*. The survey is the main source of mobility statistics and covers 365 days a year. Each year the Department of Transport present the main results and they publish detailed data online. [The Danish National Travel Survey - Center for Transport Analytics \(dtu.dk\)](#)

**France** combines two types of data collecting on the national and local level: a general mobility survey (the last was 2018) and the annual updated traditional population and housing census, in which some questions about commuting and bicycle use has been introduced since 2015. <https://www.insee.fr/fr/information/2555376> and <https://www.insee.fr/fr/recherche?q=travail+v%C3%A9lo&debut=0>

With analyse for each region: <https://www.insee.fr/fr/statistiques/2555735>.

**Germany** organizes two nationwide surveys on private mobility. The "Mobility in Germany (MiD)" study as the large national transport survey is conducted at multi-year intervals, most recently in 2002, 2008 and 2017. The "German Mobility Panel (MoP)" is an annual longitudinal survey with data since 1994.

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<sup>27</sup> <https://circabc.europa.eu/sd/a/72b395b9-031e-424a-bee3-a34a1684d048/SHANTI%2520Eurostat%2520June%252017.pptx>.

<http://www.bmvi.de/mid> [german]

<https://www.bmvi.de/EN/Services/Statistics/Mobility-in-Germany/mobility-in-germany.html> [english]

<https://www.bmvi.de/SharedDocs/DE/Anlage/G/mid-analysen-rad-fussverkehr.pdf> report on cycling and walking [german]

<https://daten.clearingstelle-verkehr.de/279/> MiD microdata access [german]

<http://mobilitaetspanel.ifv.kit.edu/english/index.php> [english]

<https://daten.clearingstelle-verkehr.de/192/> MoP Microdata access [german]

**Hungary:** The KENYI database is operated by Magyar Közút and contains data of cycling infrastructure elements operated by Magyar Közút or local municipalities. Data collection is regulated in a Government Decree of national level. This database includes basic lengths, width, surface, quality, type, quality data. The kenyi.hu website is available in English but was not developed for touristic purposes.

**Hungary: Municipality of Budapest contracted Ecocounter for cycling counters.**

On national level, the national highway maintenance company (Magyar Közút) operating 53 automatic counters. Data are available here: <https://veloclass.kozut.hu/hu/map>

Automatic counter data are completed by manual counts in every 2<sup>nd</sup> year covering almost 100 counting points.

Figure 24: Automatic counting machine in Hungary



Picture: VeloClass, <https://holkereparozzak.hu>

**Slovak Republic:** By several cycling routes in the capital Bratislava automatic counting stations are installed. The data are managed by Bratislava municipally. City Trnava is in the phase of installation cyclo counters. In the area of city Žilina processing of cycling data has been done by the non-governmental sector.

The data managed by the city of Bratislava is freely available online at:

[www.opendata.bratislava.sk/page/cyclo](http://www.opendata.bratislava.sk/page/cyclo)

**The Netherlands:** A very broad and extensive overview and monitoring of cycling facts is provided by the Knowledge Institute Mobility (KiM, Kennisinstituut Mobiliteit). [Cycling facts: new insights | Brochure | Netherlands Institute for Transport Policy Analysis \(kimnet.nl\)](#)

**Recommendation 8.2: Support countries' efforts to collect systematic, internationally-comparable data**

The ECE Inland Transport Committee Working Party on Transport Statistics, in cooperation with Eurostat and the International Transport Forum, already provides an internationally recognized framework and methodology for the collection of transport-related statistics, which should be expanded to include detailed cycling-related statistics (such as kilometres cycled and cycling fatalities), using existing data collection systems where possible.

The Eurostat Passenger Mobility Guidelines are a good example on European level on how to collect some basic information about the cycling modal split. Unfortunately, these guidelines only concern EU member states. The UNECE can provide a tool/guideline oriented for cycling only, and for all of the member states. The indicators mentioned in the previous recommendation are an ideal basis for that.

Furthermore, a system of financing for member states who collect data is desirable. The grant scheme of Eurostat for member states organising a national travel survey can be a good example for this.

Existing UNECE/WHO/OECD/UN databases are good practices for the collection of harmonised data on transnational level, although they do not provide cycling data.



Figure 25: Harmonized Data by UNECE



Picture: UNECE

The Eurobarometer are surveys conducted in the **European Union** on a variety of topics. There are different forms: The standard Eurobarometer was established in 1974 and many of the questions have been kept constant over the years to get comparable data. Reports are published twice yearly. Other forms of the Eurobarometer include special ad-hoc surveys for specific topics or target groups. In the special Eurobarometer 406 from 2013 the attitudes of Europeans towards urban mobility was assessed, which included transport habits and bicycle use. [https://data.europa.eu/euodp/en/data/dataset/S1110\\_79\\_4\\_406](https://data.europa.eu/euodp/en/data/dataset/S1110_79_4_406)

In the BITS-project the countries Netherlands, Denmark, Belgium, UK and Germany work together on bicycles and ITS (Intelligent Transport Systems). The Interreg project is supported by the North Sea Programme of the European Regional Development Fund of the **European Union**. Data about cycling is collected and a CyclingDataHub is built to share, analyze and visualize the data.

### **Recommendation 8.3: Highlight the benefits of cycling by developing and applying common tools**

HEAT can be used to estimate the value of the reduced mortality resulting from regular walking or cycling. The tool is designed to help urban planners, transport authorities and health practitioners to make the case for new investment in active mobility and quantify the economic value of active mobility. The newest version of HEAT includes modules on mortality from air pollution and road traffic injury and a module to estimate changes in carbon emissions resulting from modal shifts towards cycling and walking. Further improvements and tools are necessary in order to assess and highlight the impact of cycling on the economy using a common methodology and harmonized data.

#### **The health and economic assessment tool (HEAT) for cycling and walking:**

- is intended to be part of comprehensive cost-benefit analyses of transport interventions or infrastructure projects;
- complements existing tools for economic valuations of transport interventions, for example on emissions or congestion;
- can also be used to assess the current situation or past investment;
- is based on best available evidence, with parameters that can be adapted to fit specific situations. Default parameters are valid for the European context.

HEAT calculates the answer to the following question: if  $x$  people cycle or walk  $y$  distance on most days, what is the economic value of mortality rate improvements. A guidance book and summary address practitioners and experts, focusing on approaches to the economic valuation of positive health effects related to cycling and walking. HEAT can be applied in many situations and has already been applied in several countries.

In **France**, an institute was created to collect and produce surveys on the links between health and exercise. It has published several surveys about the health's benefits of cycling, complementing the HEAT methodology with other factors. <http://www.onaps.fr/l-onaps/>

The **Netherlands** has recently launched virtual “Best Practices Dutch Cycling” with many visionary and practical examples of best practices. With this selection they to inspire and provide insights, background and learnings of famous and perhaps less-famous examples. Besides motivating, they want to offer some perspectives that may help other countries in taking first steps in implementing similar examples in your locality. [Dutch Cycling Embassy - Best Practices](#)

## 9 Promote Cycling Tourism

Cycle tourism and recreational cycling are well established in many European countries and are making an increasingly significant contribution to national economies. According to a study commissioned by the European Parliament in 2012 and a THE PEP/ United Nations Environment Programme study on green jobs in cycling,<sup>28</sup> cycle tourism contributes more than €44 billion per year to the economy of the European Union, Norway and Switzerland combined, in addition to the related environmental and societal benefits. However, there is still a frequent lack of coordination between various levels of responsibility for the design of cycling tourism routes and accompanying services such as public transport and accommodation. In order to ensure the continued growth of cycle tourism and recreational cycling, it is vital to oversee their development at the national level by establishing national cycling tourism coordination centres and bringing together the relevant service providers through cycling-friendly service schemes. It is also necessary to adopt and implement a national standard for cycle route network signalization. If these measures are designed holistically, cycling tourism will reach a wider share of the market and become more accessible, acting as a gateway for subsequent use of bicycles in daily life.

### **Recommendation 9.1: Establish national cycling tourism coordination centres**

The success of cycle tourism destinations requires the establishment of organizational structures to coordinate EuroVelo-related and other necessary actions at the national level. Such coordination would typically include the relevant national tourism ministry or authority, the national highway or transport ministry or authority, regional authorities, cycling organizations (representing users), organizations representing service providers (e.g. accommodation) and public transport operators. In addition to the identification of relevant stakeholders, the structure, legal status, tasks and responsibilities of the coordination centre must be established.

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<sup>28</sup> <https://thepep.unep.org/node/86>.

While countries that are just beginning to promote cycling tourism might begin by establishing a working group with an initial contact point for inquiries, those with a long tradition of cycling tourism might set up a full coordination centre. Priorities and actions should be discussed during stakeholder workshops and financing secured.

**SwitzerlandMobility** is the national network of routes for non-motorised traffic, particularly routes for leisure and tourism. It was launched in 2008 and covers hiking, cycling, mountain biking, skating and canoeing.

The supporting body of SwitzerlandMobility is the SwitzerlandMobility Foundation. By offering various services (route information, complete signing system, network of service providers etc.), the Foundation makes it easy for users to actively experience Switzerland in attractive ways.

Within its network for non-motorised traffic, the Foundation also coordinates cooperation between public sector and private service providers. SwitzerlandMobility Foundation also provides a coordinated and effective marketing of active recreation in Switzerland.

The members of the SwitzerlandMobility Foundation are various Swiss federal departments, the Swiss cantons, the Principality of Liechtenstein and many individual organisations from traffic, sport and tourism. It is also the National EuroVelo Coordination Centre for Switzerland. [www.veloland.ch/en/cycling-in-switzerland.html](http://www.veloland.ch/en/cycling-in-switzerland.html)

**Danish Cycling Tourism** is a non-profit association of public and private partners. Its overall objectives are to develop cycling tourism in Denmark, to create links between cycling tourism initiatives in Denmark and to create growth in the tourism industry through cycle tourism. Its work includes kick-starting new projects, coordinating various actions and disseminating knowledge and best practices on cycling tourism. Danish Cycling Tourism is the National EuroVelo Coordination Centre for Denmark.

<http://cykelturisme.dk/english/>

### **Recommendation 9.2: Introduce a national cycle-friendly service scheme**

Cycle tourists have specific needs (e.g. safe and secure bicycle parking and tools for repairing minor mechanical problems) and service providers that meet these requirements can advertise them to potential customers through national cycle-friendly service schemes; these have been established in many countries and are often run by the National EuroVelo Coordination Centre (see recommendation 3.1). However, some countries do not have such schemes and in others a variety of regional schemes create a confusing situation for users. Existing systems should be coordinated at the national level and a single set of criteria and financing model, including marketing, promotion and training activities, should be agreed.

#### **Germany: Bett+Bike**

The largest cycle friendly service scheme in the world, Bett+Bike is run by the German cyclist federation ADFC and makes it easy for travelling cyclists to find appropriate accommodation across Germany and beyond. Over 5,500 hotels, B&Bs, youth hostels, Friends of Nature houses, and camping sites are currently included in the system. All meet the minimum requirements of the ADFC and offer many comforts and amenities for their bicycling guests, including short-term stays, secure bike storage, wet clothing drying, bike repair services, information materials, etc.

The accommodation providers pay an annual fee. In return they receive publication in diverse media, inclusion on the App Bett+Bike as well as target group-appropriate marketing and advertising. <http://www.bettundbike.de/en>

**France:** Accueil Vélo (CyclistsWelcome) is a national quality mark guaranteeing a high quality of welcome and services for cyclists where its logo is displayed. The national system was developed to replace several regional systems, which had previously provided a patchwork coverage of the country. The quality mark Accueil Vélo covers services like accommodation, tourist offices, bike rental and repair companies, tourist attractions. All those awarded the quality mark are located no more than 5km from an official cycle route and have to respect certain conditions:

- Offering a warm welcome specially geared to cycling tourists via: a personalised welcome, information and advice (on cycling trails, weather, further Accueil Vélo services) and a special breakfast.
- Offering services such as: luggage transfers, clothes washing and drying, rental of bikes and accessories, bike-cleaning.
- Offering special facilities: a secure shelter for bikes and repair kits.

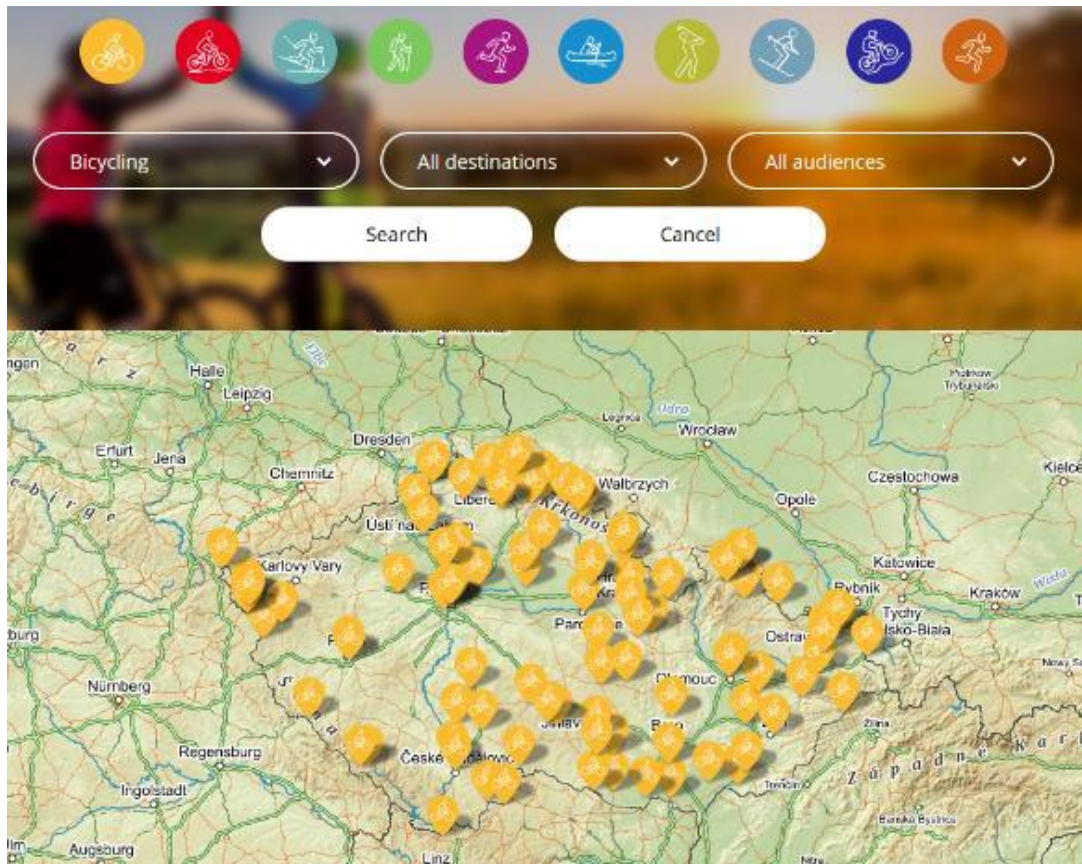
<https://en.francevelotourisme.com/contents/practical-infos/accueil-velo-cyclists-welcome>

### **Czechia: Cyclists welcome**

This quality certification of tourist services is intended for accommodation or catering facilities, campsites or tourist destinations. The given subject must meet specific criteria to obtain the Cyclists Welcome certification. Cyclists Welcome is a protected brand and only certified subjects can use it. Such subjects must either provide general information about the certification, or state their names together with the brand. More details on [www.cyklistevitani.cz](http://www.cyklistevitani.cz)

Moreover, at the beginning of 2021 a new web portal was launched offering the best long-distance cycle routes including EuroVelo, as well as certified Cyclists Welcome services in several languages. <http://www.czechtrails.com/bicycling>.

Figure 26: Czechtrails



Picture: <http://www.czechtrails.com/bicycling>

### **Recommendation 9.3: Adopt and implement national guidelines for the signalization of cycle route networks**

Some countries have no national guidelines or standard for the signalization of cycle routes. This entails the risk of signage that varies from one region to another or of a total absence of signage. National highway or transport authorities and governments should play a coordinating role in developing standards and adopting the corresponding regulations (see annex II of Plan). As they will be implemented at the local or regional level, the involvement of all stakeholders during the preparation phase is essential.



**SwitzerlandMobility** have developed a standard signalisation system for non-motorised traffic (SN 640 829), which has been copied elsewhere in Europe.

The system signs national, regional and local routes for hiking, mountain biking, skating, canoeing and cycling each with distinct colours. Individual routes are given numbers with one-digit numbers indicating national routes, two-digit numbers indicating regional routes and three-digit numbers indicating local routes. SwitzerlandMobility also provide route information panels at regular intervals.

The same colour and numbering system is used by SwitzerlandMobility to illustrate the various routes e.g. on maps, information signs and the Internet.

<https://www.schweizmobil.ch/en/cycling-in-switzerland/more-vl/traffic-regulations-and-signalization.html>

Figure 27: “Landelijke Fietsroutes”, The Netherlands



The **Netherlands**: Landelijk Fietsplatform is responsible for the ‘Long distance Routes’ within the Netherlands (“Landelijke Fietsroutes”), They also publish a monitor of recreational cycling.

<https://www.fietsplatform.nl>

Picture: [fietsplatform.nl](https://www.fietsplatform.nl)

In Limburg, a province of **Belgium** near the Dutch and German border, the system of cycling ‘**knooppunten**’ was invented in the nineties. Each junction is given a number and these ‘knooppunt’ or node points can then be connected by users to make their own journey. Information panels with overview maps are provided at regular intervals, so that people can find their way and to see if the route is a car-free, on and unpaved/paved road, has steep gradients etc.. This system is very popular, and has been quickly adopted by neighbouring regions. Other EU member states consider implementing the same system.

<https://nl.wikipedia.org/wiki/Fietsroutenetwerk>

Figure 28: Bicycle Signs, Luxembourg



Picture: CC BY-SA 2.5, Kenny Moens

<https://commons.wikimedia.org/w/index.php?curid=2389647>

Based on an extensive benchmarking study taking into account different signalisation systems all over Europe, **Luxembourg** have recently introduced a new signalisation system, which they believe combines the best of the existing systems.

**Slovenia:** In Slovenia the signalization for cycle route network is defined in Rules on traffic signalization and equipment from 2016 ([Pravilnik o prometni signalizaciji in prometni opremi na cestah](#)).

Here are some examples:

Figure 29: Bicycle Signs, Slovenia



No. of cycle route.      No. of cycling path.      Directional board for cyclists (also part of Eurovelo 9).

Source: Rules on traffic signalization and equipment

# 10 Make Use of New Technology and Innovation

In recent years, technological development has accelerated and new types of bicycles, similar vehicles and tools that support cycling are ready for market and can make cycling more attractive, safer and more comfortable. Electric bicycles have become increasingly popular among both recreational users and commuters, who are discovering the advantages of electric support. The average distance covered during a daily commute can be almost doubled with the use of electric bicycles and speed pedelecs.

Innovative features such as travel and journey planners, data collection sensors and electric mobility have become available for cyclists as well. The Intelligent Transport System (ITS) can improve traffic management through communication between bicycles and traffic lights and with new technologies, the flow of cyclists can be recognized and prioritized. Data can be collected from tags placed on bicycles or through applications on cyclists' smartphones. Applications can also prevent bicycle theft, alert riders to open spaces in large bicycle parking areas, improve signage and provide Digital Information Services. It should also be borne in mind that the establishment of separate lanes for self-driving cars could reduce space for cyclists in inner cities and should be avoided.

The patchwork of technology associated with the bicycle sector is an unregulated industry that is difficult to compartmentalize. The role of government can be increased by setting agendas, adopting more open standards and encouraging cooperation, thus promoting cycling and benefiting users.

### **Recommendation 10.1: Encourage vehicle and infrastructure innovation**

Governments can play an important role in promoting and funding innovation in bicycles and bicycle infrastructure. Bicycle innovations can, for example, help elderly people to keep cycling safely until a higher age. Such innovations include: saddles that lowers automatically when the cyclist stops, allowing elderly people to place both feet on the ground when stationary; and handle-bars that are automatically stabilized to allow the rider to keep cycling safely at low speeds. An example of a helpful infrastructure innovation is the rain sensor on traffic lights to give cyclists priority when it rains.

#### **The Netherlands:**

Rotterdam: Infrared sensors placed in 2016 with a waiting time reduction of 38%.

<https://youtu.be/j775X7W26N0>

Rainsensors are placed in Rotterdam, Enschede and Groningen.

<https://youtu.be/eZyxbjD1MH0>

In Den Bosch you can get a 'green wave' when you download an app called 'Schwung'.

<https://youtu.be/zPt5rectsWs>

Also in Tilburg they have an app called 'CrossCycle', which on top of the 'green wave', also prioritise larger groups of cyclists.

In Utrecht they have since 2017 'Flo', which indicates a virtual animal 120 meters before the traffic light which indicated if you have to speed up, cycle the same speed or you should slow down to get green at the traffic light. <https://youtu.be/6ZRsky9yJt8>

**Belgium:** Counting down trackers at the traffic light, so people know how long before the light is green again. <https://youtu.be/1TB-W3gH4VA>

**Germany:** In 2014 two German students experimented in Oberhausen with waiting games at the traffic light. <https://www.youtube.com/watch?v=rVb0CMrp-o>

### **Recommendation 10.2: Introduce open standards for data exchange and use smart data to improve cycling conditions**

The rise of numerous forms of data collection and innovative applications has resulted in a non-transparent patchwork of standards. As each developer focuses on the implementation of its own standards, data exchange is restricted. The introduction of open standards at the European Union or ECE level would make applications accessible to a broader public and promote better business collaboration. Possible applications include: multimodal travel information; public bicycle-sharing; bicycle parks; and theft prevention.

A better understanding of when and where people cycle and where they do not, which routes they choose and what speeds are most common will facilitate the development of strategies (see recommendations 8.1 and 8.2) that promote cycling and make it more comfortable.

Governments should cooperate with third parties and develop information-sharing strategies so that data collected from cyclists can be used to improve urban cycling and made available to interested stakeholders. For example, public bicycle-sharing systems in various cities and countries might benefit from open standards and interoperable systems, particularly given the growth of mobility as a service.

**European Standards Organisation CEN** developed and reviewed Multimodal Travel Information data and services standards. This work ranges from collating and defining data sets and models, working groups looking into creating urban access data portals, to making sure that legacy and new services and systems are compatible with public authorities' standards.

The 'Fietstelweek' (Bicycle Count Week) in the **Netherlands** was implemented to encourage cyclists to use an app during a week in September. The app registers all data in the background, and can distinguish between driving, public transport and cycling or walking. About 50,000 Dutch participated in this week. The Fietstelweek was organised in cooperation between national and local government, the cyclists' union and other stakeholders. The data gave insight in the speed, routes and behaviour on different days.

For example, commuters cycle faster on rainy days. Additionally, it also gave insight to missing links and unnecessary detours in local networks. <http://fietstelweek.nl>

Currently, many work has been done 'behind the scenes' at the Dutch Ministry of Infrastructure and Water, which can be seen as the follow-up of the 'Fietstelweek'; we're collecting data from different sources with traffic flow data for monitoring and evaluating our policy goals for cycling.

Also, in **Belgium** a Fietstelweek was held in 2016, with the support of the Cyclist Union and Fietsberaad.

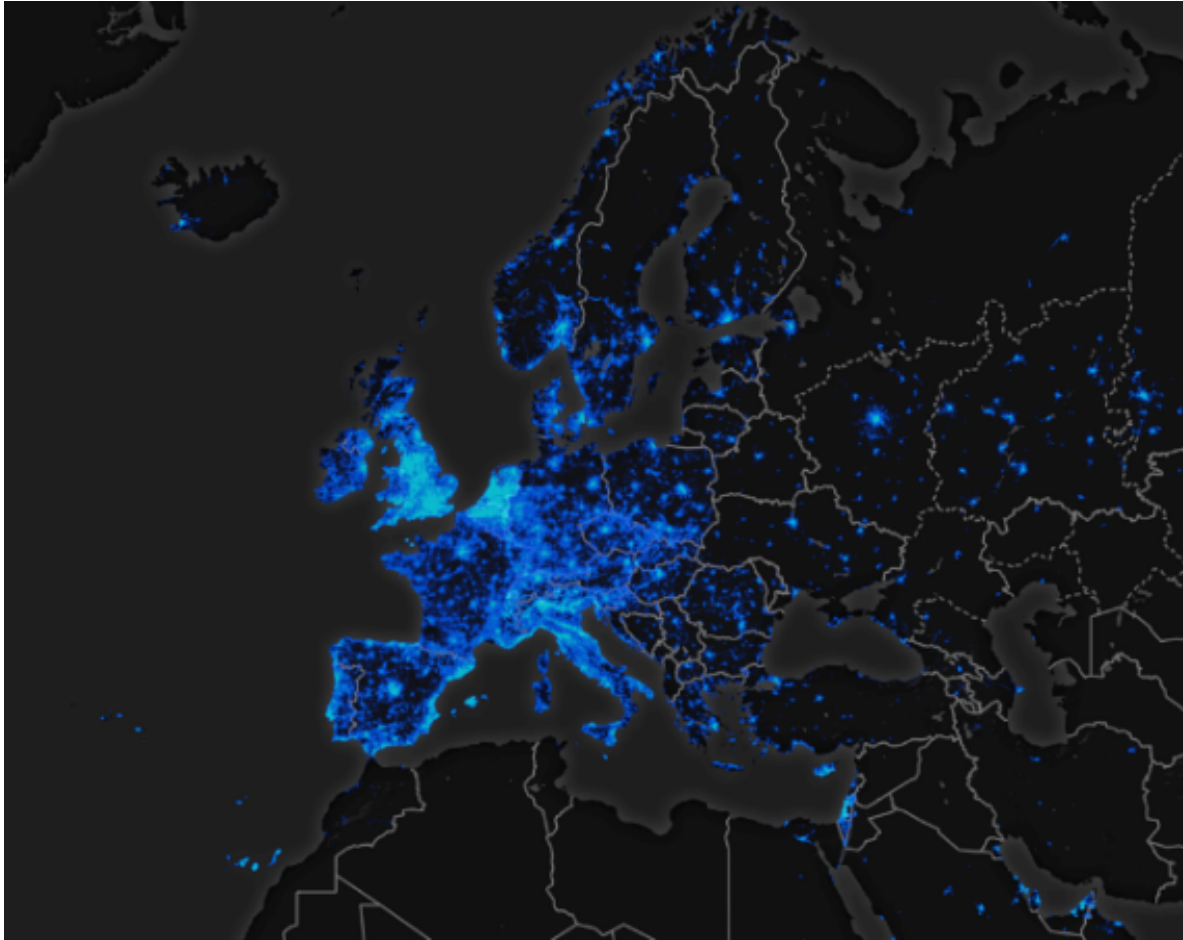
### **Bike citizens**

The Bike Citizen app offers cycle routes in over 450 cities worldwide. The app helps cyclist to navigate and records data in the same time. All routes that are recorded are displayed anonymously in heat maps and are used to assist with urban planning. In this sense it creates a bike community to help one another. The map material on the Bike Citizens cycling app is based on OpenStreetMap, a freely accessible geodatabase. If a cycle route appears not to be recorded correctly, it will be added to OpenStreetMap.

### **Strava**

Strava is the most popular app among recreational cyclists, as it offers road racers the opportunity to compare their efforts on all kind of tracks. Yet it is also used more and more by commuters, and for other activities as walking, hiking, skiing etc. Since Strava has an enormous amount of users, its dataset is growing by millions of activities a week and comprises nearly a trillion GPS data points. The information in <http://labs.strava.com/projects/> is partially public, and invites to access projects. Besides a global heatmap (below) it shows e.g. interesting places and stops for local economy, clusters and routing errors.

Figure 30: App, currently used in three Dutch cities



Picture: [Ring-Ring® – Fietsers zijn goud waard! \(ring-ring.nu\)](http://ring-ring.nl)

An online service aimed at stimulating bicycle use to improve the health of the residents of the **Netherlands** in a fun way. An app registers the number of kilometers you cycled and in this way you earn points. These points can be redeemed at affiliated stores, local initiatives and your employer. Even a health insurance company can reward this bicycle use. The app is currently used in three Dutch cities (Arnhem, Malden and Nijmegen).

### Recommendation 10.3: Support innovative cycling approaches to last-mile services

The issue of last-mile logistics for e-commerce and home shopping is essential to the sustainability of cities and the safety of pedestrians and cyclists. Innovative cargo bicycles provide solutions to this problem. Relevant products and vehicles must be identified and tested in the local environment with legislation or regulations amended where necessary. The benefits of newly-developed solutions should be evaluated carefully. Support and supervision should be provided by national ministries. To preserve the accessibility and liveability of cities, the number of cars entering inner cities needs to be decreased. Stimulating last-mile solutions for passenger transport, such as “Park and Bike” locations and encouraging bicycle sharing, combined with mobility management measures including higher parking rates, can be implemented in many cities.

Figure 31: K’Ryole, France



Picture: <https://k-ryole.com/en/electric-bike-trailers/>

**France:** K’Ryole is an electric self-propelled trailer for loads transport by bike to plug and unplug on the bike very fast, carrying up to 250 kg, with significant autonomy.



## Light Electric Freight Vehicles

The segment between bicycle and electric vehicle, the Light Electric Freight Vehicle (LEVV) such as a Cargo Bike, offers a result. Research shows that many shipments in cities lend themselves to city logistics with LEVVs. A study of the European CycleLogistics project shows that one in three motorized business transport routes in cities with a Cargo Bike can be performed. Also in the United States, research has been conducted on Cargo Bikes.

In recent years, ambitious starters have been on the market who want to take positions with LEVVs in city logistics or offer the vehicles. Recent starters include Foodlogica, Fietskoeriers.nl, Bubble Post and Greenolution. Also larger players like DHL and PostNL and the more traditional companies are experimenting with LEVVs.

An overview of initiatives of Pedal Powered Logistics can be found here: 'Register of Initiatives in Pedal Powered Logistics': <https://www.ripppl.bike/>

Regarding Light Electric Freight Vehicles, such as cargobikes there is an interesting study of the HvA (Hogeschool van Amsterdam), HAN (Hogeschool Arnhem Nijmegen) and various other partners, published in 2018: "City Logistics: Light and Electric": <https://www.hva.nl/binaries/content/assets/subsites/kc-techniek/publicaties/lefv-logic.english.pdf>

LEFVs are used by a variety of professionals, from briefcase-carrying self-employed entrepreneurs to logistics service providers carrying roll container trolleys. The industry sectors with most potential in city logistics are food, construction, services, non-food retail and post and parcel delivery. It is estimated that 10 to 15 percent of the trips with a delivery vehicle in cities are suitable for cost-effective deployment of LEFVs.

The **Netherlands**:

A list of cargobike initiatives from the Netherlands can be found here:  
<https://www.fietsdiensten.nl/fietskoeriers-en-bezorgdiensten/>

Figure 32: Cargo Bike, Netherlands



Picture: [fietsdiensten.nl](https://www.fietsdiensten.nl)

XXL trailer of CycleSpark during the Innovation Expo 2018 in Rotterdam:

Figure 33: Cargo Bike, Netherlands



Picture: [fietsdiensten.nl](https://www.fietsdiensten.nl)

Other **Dutch** examples:

### **FoodLogica – Last Mile Food Delivery**

FoodLogica is based in Amsterdam. The food of clients is delivered to the edge of the city and Foodlogica take it the rest of the way. Foodlogica works with a small number of clients who are selected for their commitment to sustainability. The trikes are stored and recharged in a shipping container and the container itself can be relocated if necessary and more containers could be added in future if the business grows.

Figure 34: Cargo Bike, Germany



Picture: [radkutsche.de](https://www.radkutsche.de), <https://www.radkutsche.de/blog/posts/foodlogica/#>

### **Twente Care Workers Switch to E-bikes**

Two organisations that organize home care visits in the region of Twente, Livio and Zorggroep Manna, have been trialing e-bikes for employee mobility. The pilot concluded that care workers saved time due to not having to sit in traffic or find a car parking space. The organisations saved money on mileage and parking fees. Cars were still used when distances were too great or to attend appointments at night. Now about 75 percent of the home care workers is using the e-bike.

### **CoolBlueFietst**

In 2018 Coolblue announced that they were going to begin delivering packages by bike. The service is provided in all the major cities in the Netherlands and Belgium. Coolblue is doing to maintain control over their delivery service. Coolblue was the first big e-commerce company to start doing this.

Figure 35: Cargo Bike, Netherlands



Picture: Coolblue

### **GO –FAST**

A bicycle courier service in the city of Groningen. They deliver packages in the city of Groningen and the surroundings. It's a sustainable delivery service founded by Peter Rugge. The company works for print shops, restaurant, pharmacies, bookstores, bakers and liquor stores. GO-Fast uses transport bikes who can carry loads of up to 80 kilograms.

### **Fietskoeriers.nl**

Consists of 20 collaborating bicycle courier companies with over 700 bicycle couriers operating in over 30 cities spread all over the Netherlands. It's a smart, fast and sustainable way of delivering packages. 60 percent less co2 emissions on the total journey of a parcel compared to delivery by van.

### **BestelBieb WestFrieze Bibliotheken**

With the use of three electric cargo bikes from soci.bike volunteers of the WestFrieze Libraries deliver books to the homes of elderly people. The cargo bikes are also used for SeniorLAB activities to introduce them with different kind of digital possibilities.

## **Klusbakfiets**

A concept implemented in different cities in the eastern of the Netherlands. People can hire experts to do home chores like painting and gardening. The experts visits houses by using an cargo bike to do the job for you. It's cheap and sustainable way. The chores can be of a kind ranging from large to small jobs.

## **Fietsen alle Jaren**

Volunteers take elderly or vulnerable people on a bike ride on a rickshaw. During this bike ride they can share their old stories with us and during this ride, we take care of them. For many people, cycling gives a feeling of freedom and unfortunately these people can no longer experience this. Therefore, Fietsen alle Jaren takes them on a bicycle tour to experience this feeling once again.

## **Online Department store Den Bosch**

Local business owners combine their services and products into one online department store where people can order these products. A bicycle courier service delivers the products to the homes of the people.

## **MartineKookt**

MartineKookt is an Amsterdam-based meal delivery business founded in 2012 by Marleen Jansen and Joris Keijzer. For the first six months, the operation was small scale; Marleen did all of the cooking herself and Joris the deliveries, delivering only to their postcode. After this, they started to recruit delivery riders (Bezorgers) and the delivery radius grew. Demand increased over time, more delivery riders were enrolled and more kitchen staff. The company currently has a fleet of 23 cargo bikes. The fleet is growing and new bikes will all be XL Cargo bikes. They have chosen to use cargo bikes because it's highly practical in the city of Amsterdam and it is a sustainable way of delivering food.

# 11 Promote Cycling For a More Resilient Transport System

On 11 March 2020, the WHO declared the COVID-19 outbreak to be a pandemic. The pandemic strongly affected societies and their economies, causing unplanned changes, including to mobility and transport.

During lockdown, transport emissions dramatically decreased, due to limited circulation of vehicles, including motorized ones. Public transportation was most hit, with travellers avoiding using it for fear of contagion, or because the passenger-carrying capacity of vehicles was reduced to maintain physical distancing. Walking and cycling emerged as viable mobility options for essential especially short and medium distance trips for three main reasons:

- a) Provision of physical distancing while travelling;
- b) Changing travel patterns, with many people and children practising teleworking or distance learning due to lockdown restrictions, therefore meeting their daily needs close to home;
- c) Partial substitution of public transport.

The three above-mentioned reasons contribute to increasing cities' resilience to possible future shocks of a similar nature, in addition to contributing to health and environment, and bringing economic benefits. As such, WHO recommended walking and cycling for essential – especially short and medium distance – trips whenever feasible during lockdown (WHO, 2020)<sup>29</sup>.

The link between active mobility and urban resilience is two-fold. On the one hand, increases in cycling (and walking) support a modal shift towards active mobility for short and medium distance trips and help reduce the pressure on public transport during peak hours. On the other hand, these increases are enablers of shifts towards the “city of

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<sup>29</sup> See <https://www.euro.who.int/en/health-topics/health-emergencies/coronavirus-covid-19/technical-guidance/moving-around-during-the-covid-19-outbreak>

proximity”, where citizens can meet their essential daily needs within distances that could be conveniently covered on foot or by bike.

The reallocation of space from cars allows a growing number of cyclists and pedestrians to move safely while maintaining physical distancing during the pandemic. Furthermore, these measures, even if temporary, allowed many citizens to experiment with cycling and walking under safer conditions, possibly contributing to unleashing a new demand and greater political backing for measures supporting active mobility. Many cities and central Governments began creating dedicated cycle paths, reducing speed limits and subsidizing bike purchases to encourage cycling.

### **Recommendation 11.1: Redistribute road space fairly among all road users**

The situation during the pandemic demonstrated that urban areas should consider redistributing road space to include walking and cycling. The main principle should be that pedestrians and cyclists are equal road users on the street and public space should be divided equitably among all involved.

New cycling facilities, for instance temporary bike lanes and widening pavements, make essential travel possible and safe. Reshaping roads in built up areas is another important mean to calm traffic and make it more safe and attractive for cyclists and pedestrians.

**Germany:** During the Coronavirus pandemic the city of Berlin ordered temporary bike lanes (so called pop-up-bike lanes) or broadened existing bike lanes to deal with an increased number of cyclists and to ensure their safety. For this measure road space was redistributed in favour of the bicycle traffic (for example parking lanes were temporarily transformed into bike lanes).

#### **The Netherlands:**

**Tilburg:** The speed limits on road from and to the city centre were reduced from 50 to 30 kilometers per hour. If cars are driving slower, pedestrians and cyclists get more and more space and in this way, the streets are much safer for them. Besides that, a part of the road is closed for cars and being opened for cyclists. In this way, cyclists have more space to

maintain their distance to each other. Also, traffic lights will remain green longer for cyclists and pedestrians.

In Rotterdam, car traffic is restricted in certain areas to make more room for cyclists and pedestrians. The areas are located mainly in the city center of Rotterdam like the Witte de Withstraat. This experiment is part of the mobility transition that Rotterdam is focusing on in order to give walking and cycling explicit attention. The responses on the experiment are varying. Cyclists feel safer, but there are complaints about long traffic jams in the city. Besides that, the city created more room for pedestrians and cyclists to cross the road on the Erasmusbrug.

The city of Amsterdam started another pilot. Cyclists had to use the road so pedestrians had more room to keep their distance, because pedestrians could use the cycle track. However, the traffic situation that arose was really dangerous because no one stick to the new rules and the cars were driving pretty fast right past the cyclists. So you could say that this pilot did not succeed.

### **Recommendation 11.2: Optimizing public spaces and making them attractive and enjoyable**

Besides widening pavements and introducing new cycling facilities, reallocating space from cars should create more enjoyable, attractive spaces for more liveable cities. Relevant strategies could include: creating parklets;<sup>30</sup> installing climate adaptation elements, such as shade; and installing urban art. During the pandemic, tactical urbanism interventions, such as the use of traffic cones, plastic bollards and construction separators, were low-cost, temporary changes in the built environment to reclaim street space from car parking and travel lanes. Properly designed shared spaces are permanent elements in the road network, which can easily be adapted to changing framework conditions Multifunctional street areas could provide adequate means to increase cities' resilience.

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<sup>30</sup> Pavement extension that provides more space and amenities for people using the street.



**Czechia:** The participation and involvement of citizens' initiatives is often the key to the success of transport and mobility measures. The CityChangers initiative in the Czech Republic gathers active and engaged people from local communities. Using websites and social networks, the CityChangers puts together cities, companies, non-profit organizations and civic initiatives which strive for making our cities better places to live. Examples include new cycle paths, landscaping, vehicle sharing, promotion campaigns (10,000 steps) and so on. More on [www.citychangers.eu](http://www.citychangers.eu).

**Slovenian example:** In Ljubljana, capital of Slovenia, one of the main streets (Slovenska street) running through the central part of the city was redesigned and reconstructed in 2016, restricting traffic for motorised vehicles and giving way to cyclists and pedestrians.

Figure 36: Ljubljana, Slovenia

**Before:**



**After:**



**Before:** Four way traffic lane, narrow sidewalks for pedestrians, bicycles are not allowed. On western side of the street, cycling lane is located on the sidewalk, behind the bus stops.

**After:** Introduction of shared space for public transport, cyclist and pedestrians with equal right of way. Cyclist friendly infrastructure (one level, bike stands). Personal motorized vehicles are not allowed (only business deliveries at restricted times).

Picture: City of Ljubljana

**Russia:** How do we create a liveable city, which is accessible, healthy and safe for people? The GREEN MOBILITY HANDBOOK provides hand-on advice and technologies of how to make cities less car-centric and more people-oriented with safe, low-carbon, healthy, smart, multimodal urban transport systems. The handbook is issued annually and is translated into both Russian and English. The latest issue of 2020 answers the vital question - how can we plan and ensure the sustainable development of our cities during the times of uncertainty and social health risks? The Cities of Rapid Reaction Handbook showcases the best practices in transforming urban spaces, freeing them from cars and creating infrastructure for cycling and walking in response to the coronavirus pandemic. More info could be found on the official website of the GREEN MOBILITY Initiative: <https://en.greenmobilityaward.com>

### **Recommendation 11.3: Integrate cycling into recovery and resilience plans**

Even during lockdown restrictions, bicycles can be a means of transport (besides walking) that is still available for essential trips. In addition to ensuring that cycling infrastructure can accommodate a potential wave of new cyclists, decision-makers need to develop plans to increase safety (for instance, by introducing low-speed zones), install new bike parking facilities, provide additional (e-)bikes in existing rental/sharing schemes and introduce new or expand existing subsidy schemes for buying new (e-)bikes or cargo bikes. These measures should be part of recovery and resilience plans on different levels that make it easier to respond to the challenges of pandemic crisis.

**Slovak Republic:** In the draft of the national recovery and resilience plan in Slovakia there is also cycling transport included. The idea is to support sustainable transport modes and to interconnect cycling transport with railroads by building safe access to railway stations for cyclists and creating parking spaces for bicycles around the stations in order to enable interchange between cycling and railway transport.

The consortium of partners from nine European countries cooperating in the **Danube Cycle Plans project** calls for action to include necessary investments in the promotion of cycling into the National Recovery and Resilience Plan, as well as in programmes of the multiannual financial framework for 2021–2027.

For practical information how and where cycling could be included in the National Recovery and Resilience Plan, **ECF** provide a guidance:

[https://ecf.com/sites/ecf.com/files/civicrm/persist/contribute/files/CIE\\_ECF\\_recommendations.pdf](https://ecf.com/sites/ecf.com/files/civicrm/persist/contribute/files/CIE_ECF_recommendations.pdf)

In **Bordeaux Métropole (France)**, local policymakers and administration have developed an emergency cycling plan that responds to the ongoing COVID-19 crisis and social distancing requirements. NGOs working to promote cycling and cycling service operators helped develop it. The plan focuses on 100 priority “zones” within the metropolitan area that have a high potential for cycling but currently lack the appropriate infrastructure. To create an adequate network, lanes previously meant for other modes are being reassigned as bike lanes or shared with bikes, for instance bus lanes. At the same time, existing bike lanes are being widened and new ones created. To boost safety, low-speed zones and changing some two-way streets into one-way streets were introduced. By September 2020, 1,000 new bike parking spaces were planned to be introduced in the city. But the support provided goes beyond infrastructure. A dedicated fleet of 1,000 bikes will be available for students to rent from October, whilst Bordeaux Métropole is adding 200 bikes to its own fleet of e-bikes for hire within a larger geographical area.

Figure 37: Temporary bike parking facilities, Bordeaux



Picture: Vélo-Cité



**Federal Ministry**

**Republic of Austria**

**Climate Action, Environment, Energy, Mobility, Innovation and Technology**

Radetzkystraße 2, 1030 Vienna, Austria

+43 (0) 800 21 53 59

[servicebuero@bmk.gv.at](mailto:servicebuero@bmk.gv.at)

[bmk.gv.at](http://bmk.gv.at)