



Workshops 2022-2024 report from the cycling data ambassadors

Report 2 (December 2024)

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Abstract

This is the report of the workshops driven by cycling data ambassadors.

The topics can vary per workshop, but in general will deal with topics as:

- Cycling data types in the Delegated Regulations (counting, infrastructure, parking, real-time information for cyclists)
- Standards for cycling and cycling infrastructure data
- Availability of cycling and cycling infrastructure data in NAPs

Abbreviations

Abbreviation	Meaning
EC	European Commission
CAT	Core Alignment Team
NAP	National Access Point
NAPCORE	National Access Point Coordination Organisation for Europe
SC, SCOM	Steering Committee
SCS	Steering Committee Support
SWG	Sub-working Group
WG	Working Group
WP	Working Programme

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1. Mobility Data Days – Paris – cycling session - 2nd November 2022

“CYCLING AS A KEY USE CASE FOR NAPS”

driven by Cristina BURAGA (Cerema) and Ronald Jorna (Moveco), Ambassadors for cycling and cycling infrastructure data in NAPCORE

12 participants, special session reserved for NAPCORE members

Objective:

Since NAPs have been made numerous datasets accessible, the question raises how to increase their use and reuse. Given the increased interest in cycling as a green transport mode, at EU, national and local level, also the interest in cycling data is increasing. It is clear that at present cycling is not as much present in the mobility data as is the case in motorized transport. Therefore, cycling and cycling infrastructure data looks a promising use case.

This special session identifies the position of cycling data in NAPCORE and explore to what extent NAPs are already today being used for cycling applications and how to increase their usefulness for cycling.

Various speakers active in the collection and use of cycling data were invited, in order to share their experience and explain their aspirations to build a common working structure at European level.

Program:

After the presentation of the Ambassadors for cycling and cycling infrastructure data and their role within the Napcore project, several speakers explored the issues of cycling data in the NAPs:

1. *“Strategic perspective for cycling data development and the need to collaborate”* - Kevin Mayne, Chief Executive of “Cycling Industries Europe” (CIE), an international association for cycling businesses, that brings together Expert Groups on key industry topics, including ITS and cycling intelligence
2. *“A short introduction of the French strategy and feedback”* - Yohan Planche representative of the “Cycling and walking mission”, at the Ministry in charge of Transports
3. *“How to develop cycling thanks data”* - Stéphanie Mangin, Head Officer of the “observation” unit at Vélo & Territories org., responsible for cycling data collection and analysis (from infrastructure to traffic) in charge of the National Platform of bicycle Traffic
4. *“How to ease private service providers sharing their data on the NAPs?”* - Vincent Dieulesaint, Engineering Manager at Eco-Counter, in charge of the team developing software analysis solutions and services to supply traffic data

Conclusion:

This special “cycling session” organized at the first Mobility Data Days (2nd November 2022 in Paris), allowed to give an overview of the stakeholders involved in the cycling domain, both public authorities and private partners, and to understand their aspirations towards the project NAPCORE in its role as a coordination interface and facilitation of cycling data exchanges.

- The French Ministry of Transport created a specific mission for “Cycling and walking”, in order to encourage soft modes and increase their modal share in traffic. Various subsidy programs allow French regions and cities to develop cycling infrastructure and set up experiments for new alternative mobility. In particular, several public and private partners driven by the Ministry have developed a national standard for cycling counting, infrastructure and parking.
- Among the partners involved in the cycling standard implementation, the association “Velo & Territoires” brings together more than 200 members with the aim to develop the use of bicycles in all territories and set up a “National Frequentation Platform” (PNF) which aggregate bicycle information at the national level on the basis of counting data collected at the local level. Their challenges concern technical issues on data availability, standards, indicators..., and strategical due to variety of actors for data provision, also acceptability, interoperability issues.
- Cycling Industry Europe (CIE) represent the world’s leading cycling companies with the objective of building a European cycling consortium, to promote cycling within other sustainable mobility strategies, particularly in the context of multimodal transport MMTIS more broadly, in complementarity to other soft modes of transport such as walking.
- An example of a private provider of technical solutions, market-leader in the cycling measurement, Eco-counter presented the difficulties and solutions for counting soft modes such as cycling, compared to motorized traffic in terms of technological devices (variety of cycle types) or user behavior (non-linear trajectories, ride abreast, platoons...)

All of these presentations showed overall the need to create an exchange interface about cycling data, which can be played by the NAPCORE project via the cycling Ambassadors, in order to allow better consideration in the NAPs and increase their visibility within mobility policies at European level. More concretely, this first “cycling session” gave directions of work for the cycling Ambassadors concerning internal/external communication with technical experts and strategical partners of NAPCORE.

2. Webinar - 18 April 2023

“KEY CYCLING DATA STANDARDISATION PRIORITIES”

Moderators: Jørgen Wanscher (Hermes Traffic Intelligence), Bard de Vries (NDW Netherlands)

Organisers: Ambs Cristina BURAGA (Cerema) and Ronald Jorna (Moveco), with Sam Pierce (CIE)

Number of attendees: 21 participants (NAPCORE, industry, authorities)

Objective:

The main objective of this workshop reserved for the cycling working-group involved in the project NAPCORE, is to prioritize the type of data that needs to be standardized, with a focus on counting, infrastructure and bike parking data (bike sharing is covered by SWG4.3 MMTIS).

Program:

In the 1st part, 6 speakers were invited to present standards and protocols for mapping and routing, definitions of cycling infrastructure, bike parking and counting:

1. Mapping, routing and turn by turn navigation (Antoine Laporte Weywada, Géo Vélo). In France a national standard for bikeway description has been developed with a free app and SaaS platform. It provides comparable metrics across France and is interoperable with OpenStreetMap. Lateralization of the bike infrastructure is key to describe the infrastructure. It could be the basis for an EU standard describing bike infrastructure.
2. Counting and Measuring Cycling (Vincent Dieulesaint, EcoCounter). There are mainly three standards for counting cycling: DATEX II (EU standard), Mobility Counting Schema (France) and the Federal High Way Standard (a US standard that hasn't been globally adopted and only a few US states use it). These standards are all quite different. For companies and public authorities, it increases costs of publishing and sharing data in the various formats.
3. Finding Bike Parking and Usage Conditions (Nigel Williams, European Parking Association). There is already a European standard for parking based on DATEX II. EPA now wants to include (secure) bike parking in this standard. It does not necessarily have to be one standard, as a converter between two (or more) standards could be possible. This is currently the case for parking with the APDS standard and other standards in parking.
4. Informing Cyclists about Real Time (and Future) Disruptions of the Available Cycling Infrastructure (Reiner Dölger, Rheinland Pfalz). In Germany a new data standard for cycling infrastructure has been agreed, and Germany is working on a database for RTTI on roads (data feeds for restrictions, works, event on cycling routes).
5. Delivering Real-Time Traffic Data to Cyclists (Stephanie Chaufton, TISA). TISA would like to expand their traffic information services with information for cyclist on e.g. traffic events, traffic flow, weather, bike parking, emergency warnings, e-bike charging, etc. They see a challenge in location referencing.
6. Integrating Better Cycling Data into Google Maps (Britta Duerscheid, Google). Google has added cycling infrastructure to their maps, allowing for trip planning indications of hills, car traffic, road type, available bike lanes, etc. They distinguish between separate bike lanes, painted bike lanes and shared roads, including information e.g. on road surface, opening hours, direction. Also bike sharing is included. Important is to have access to high quality bike lane data. Can NAPCORE be the repository to bike lane information in Europe?

The speakers answered questions on the use-cases for cycling data standardisation (static or dynamic):

- i. What is the state of play in your field regarding the availability of the relevant data?
- ii. What are the main challenges?
- iii. What exactly are the priorities for cycling data standardisation?



In the 2nd part, Bard de Vries (NDW, Netherlands) presented “What could be the role of DATEX II or other standards on cycling”:

In NAPCORE mainly dealing with 3 standards (the latter two are now being integrated):

- Transmodel (public transport)
- DATEX II (traffic information & traffic data)
- TN-ITS (static road attributes)

Cycling specific use cases (which require extension of existing parts or creation of new parts):

- Network, Safe and secure parking infra
- Charging infra for e-bikes, Delivery areas for cargo bikes
- Road user charges (e. g. ferries), Infrastructure closures, Poor road conditions
- Traffic volume/speed, Congestion, Travel times

In the 3rd part concerning the Policy responses, the Dutch, French, German Representatives from Ministries of Transport comment about challenges and solutions they’re developing.

1. The Netherlands (Rick Lindeman): in NL (and Flanders!) nine data types for cycling distinguished. Asset data is really badly kept. Eurovelo has a standard for cycling network.
2. France (Myriad Ali): Schema’s in France are available in cvs and JSON (French and English):
 - bikeways:
<https://docs.google.com/document/d/1wnvp7NILE1GILLCoLJmmlyczUp9cNXqcJ3tJbgrCKM0/edit?usp=sharing>
 - bicycle parking:
<https://docs.google.com/document/d/1hjCM8OkUR5RALOUwP6cldUPstFuT0ckbR-Dq1FRbTHo/edit?usp=sharing>
 - Mobility counting:
https://docs.google.com/document/d/1u2S_TVg2tT2BorHWI2syjrisXH49SH4m-PFKE3Mj840/edit?usp=sharing
 - Some data are already available in the French NAP.
3. Germany (Jörg Freudenstein, Reiner Dölger): Not necessarily one standard, conversion is also possible option. For routing advice, you need network information and real time information. German national agency promotes schemas relevant for Service Providers. European approach needed.

In the 4th part, concerning the development of a Roadmap, participants were invited to identify the way in which this standardization can be done, and to give inputs via an online workshopping tool (Miro/GoogleJam) towards the areas listed below:

- What are priorities?
- What is the process?

The responses allow to the organizers to define future steps towards the standardization of cycling and cycling infrastructure data, with most likely smaller groups will be formed around the four types of cycling data to progress on standards for these cycling data types.

Conclusion:

Standardisation of cycling data is especially necessary to improve the efficiency for the ITS industry. If proper standards are agreed, the ITS industry doesn't have to make separate interfaces for each new client, but can use one single standard for all clients. This is not only beneficial for the ITS industry, but will also lower the costs of their services to local authorities and end users, since it will require less customized services. **Standardisation of cycling data is also important since it will support the European policy to promote active mobility.**

The following steps forward have been formulated:

1. To set up a task force to lead the standardisation of a number of cycling data types. This task force will be lead by the cycling ambassadors and people mentioned above, possibly extended with experts in the standardisation cycling domain. The task force will lead the standardisation process and supervise the working groups.
2. To set up a number of working groups for a specific cycling data type:
 - Cycling counting data
 - Bicycle parking data
 - Bicycle infrastructure data
 - Realtime data for cyclist (road works, disruptions, etc.)

The working groups should consist of public authorities (representatives of national platforms like Vélo-Territoires, Tour de Force, etc.), cycling advocacy groups (e.g. ECF), industry and standardisation experts. The work in the working groups should be based on requirements and use case collection from the cycling sector.

3. TN-ITS meeting – ERTICO Brussels hybrid - 26 September 2023

“NEEDS FOR MAP INNOVATION” => New map content (cycling)

Moderators: Frank Daems (ERTICO)

Ambs cycling: Cristina BURAGA (Cerema)

Cristina Buraga presented the Ambassadors role for the cycling data in NAPCORE to TN-ITS and ERTICO members, in order to help them to understand what is going on in the cycling domain and what impact it might have on TN-ITS standard. More specifically, she presented the new content for cycling data and the needs related to the cycling infrastructure.

In the same way as for classic motorized traffic, we need to map the cycling data, enriched with:

- Types: segregated cycle routes, on-road/on-path shared with vehicles/pedestrians
- Attributes: route surface, gradients, accessibility (forest path, private, etc.), parking
- Users: classic bike, e-bike, mountain bike, trailer, cargo, taxi, etc. and other soft modes

This need concerns:

1. the classification of the cycling infrastructure, according to the speed and traffic volume (motorized and cyclists vs. cars) for:
 - dedicated sites (as cycle routes/paths/tracks, greenways...) allowed only for the soft modes (cycles, pedestrian, but also personal travel engines, mopeds...)
 - shared sites (as cycle lanes/streets, velorues...) allowed for mixed modes: soft/motorized traffic (cycles, cars, motorcycles...and pedestrians)
2. the classification of users:
 - how to define a cycle (in relation to its silhouette, dimensions, speed, other characteristics)?
 - who is a pedestrian (coordination between: road safety, accessibility, metrology, traffic management, infrastructure...)?

For counting cycling a lot of measurements, indicators and data process could be important to be map-matched and several use cases may be concerned by standardization.

The work that continued after the webinar made it possible to initiate the merger of Datex II and TN-ITS standards under the WG4 of the project NAPCORE, with a reflection on possible extensions of these standards to consider cycling data for the infrastructure mapping.

4. Mobility Data Days – Budapest – cycling session - 8 November 2023

“CHALLENGES AND OPPORTUNITIES FOR CYCLING DATA STANDARDISATION”

Moderators: Jørgen Wanscher (Hermes Traffic Intelligence), Bard de Vries (NDW Netherlands)

Organisers: Ambs Cristina BURAGA (Cerema) and Mirelle PETERS (NTM), with Sam Pierce (CIE)

Number of attendees: 21 participants (NAPCORE, industry, authorities)

Objective:

The Cycling Ambassadors noted the need to harmonize current national standards for cycling and cycling infrastructure data, and to come to European standards. In the framework of Mobility Data Days in Budapest, the cycling session explored the challenges and priorities concerning cycling data standardization (static/dynamic data), by considering stakeholders' feedback and necessary actions focused on specific cycling topics (counting, infrastructure, parking, and real-time data).

Program:

After the introduction by the cycling Ambassadors and the presentation by the local authority representatives from Budapest BKK, in the 1st part concerning the Challenges, 4 speakers exposed priorities on the cycling data standardisation (static/dynamic data) for: counting (NDW), infrastructure (ECF), parking (EPA) and real-time information (HIT).

The 2nd part dedicated to Feedback and opportunities, several policy and associations representatives (POLIS, TISA, ITxPT, ECF...) talked about their expectations on cycling data needs and perspectives for future common actions.

The last part allowed exchanges with the assistance on the community building, especially on cycling data standardization (for who, why and what needs to be standardized).

Conclusion:

The goal of the session was to collect challenges, priorities and value in the standardisation of cycling data (needs, beneficiaries, types) and to understand how does cycling data relate to other modes of transport. Among the lessons learned, the main point is the paradigm shift regarding the approach to data provision, which features different actors from the domain of traffic management: mobility services, authorities and community representatives, service operators, industry suppliers and maintainers, associative and user community directly.

If traditionally the cycling data are a municipal competence, there are no homogenous cycling data between countries and no official standard on cycle infrastructure on the European level (cycle track/lane/street...). We can even point out that researchers and policymakers desperate for data!

Concerning the availability of the cycling data, there is better consideration in the Delegated Regulation (EU) 2017/1926 on the MMTIS, which allows better interfacing with other transport intramodality services (public transport, parking, sharing...). But for the cycling infrastructure, the big question remains the street/road safety for cycles in mixed traffic (without segregated infrastructure).

This implies an expansion of the community, in order to take into account the different stakeholders involved in traffic management, road safety, logistic or real-time travelers information.

In this perspective, the cycling Ambassadors and the Taskforce organize a series of webinars and workshops with POLIS which is member of the Advisory Board of NAPCORE and has signed a [cooperation agreement](#) to improve data provision in urban areas and regions. Indeed, due to its wide network of involved communities, the association is an ideal partner for the organization of joint sharing workshops with the regions and cities concerned by the cycling data provision.



5. Webinar POLIS - 11 April 2024

“PEDALLING TOWARDS CYCLING DATA STANDARDISATION”

Organisers: Laura Babio, Andréia Lopes (POLIS)

Ambassadors: Cristina BURAGA (Cerema) and Mirelle PETERS (NTM)

Taskforce: Sam Pierce (CIE), Jørgen Wanscher (HTI), Tu Tho Thai (ITxPT)

Objective:

POLIS and the NAPCORE cycling ambassadors organised this first common webinar aimed to discuss the challenges and opportunities around cycling data. The integration of cycling as a viable mode of transportation relies heavily on data to provide comprehensive insights into cycling patterns, usage dynamics, and infrastructure requirements. The webinar brought together the City of Copenhagen, the European Commission ([DG Move](#)), the [deployEMDS](#) consortium, the Research and Development Centre [IMEC](#) (Interuniversity Microelectronics Centre), and the mobility data company [Vianova](#).

The timing of the webinar coincided with the signing of the [European Cycling Declaration](#) by the European Council, the Commission, and the Parliament, which highlights the importance of cycling in our transportation systems and the development of sustainable mobility in Europe.

- The [Cycling Ambassadors](#) presented to POLIS members their role within NAPCORE and emphasized that improving the collection and quality of cycling data would positively impact infrastructure quality and cyclist safety, connected modalities, new routes and secure spaces.
- An example was done with the [City of Copenhagen](#) which collects cycling data by means of sensors, cameras or software, completed by manual counts, surveys, and traffic model. Greater improvements could be made with access to more data from alternative sources as Floating Bike Data (FBD), mobile applications, video streams or from private companies.
- The representative of EC [DG Move](#) highlighted the importance of collecting bicycle data at the local, national and EU levels, including cooperation between member states and Eurostat. In the context of the ITS directive and the implementation of National Access Points, the vision of a common European Mobility Data Space (EMDS) enables data sharing with clear rules on data use and access, while aims to tackle the challenges for data security and heterogeneity (depending on stakeholders, transport modes, or data types).
- The [deployEMDS](#) project was launched to map the existing data ecosystems and to create a decentralised technical infrastructure for urban mobility use cases. The project connected the Network of Followers Cities across Europe, as well the private sector to foster collaboration and develop scale innovation solutions. For example, the Sofia use case aims to improve cycling conditions in an urban environment, by integrating real-time data for shared bicycles to optimise the duration and cost of travellers' trips while reducing the carbon footprints.
- IMEC is one of the partners of MegaBITS project, working to gather in-depth information on interoperability aspects of the [Floating Bicycle Data](#) (FBD), which include raw positioning from GNSS, but also aggregated or pre-processed data (routes, stops, seeds) and functional data of bikes (battery status). The challenges and needs of stakeholders are different depending on each stage of the processing from data collection to analysis and insight diffusion:
 - the “hidden gems” at the beginning of the pipeline, as multimodal route planners and bike manufacturers, lack a business model for its sale;
 - the “seekers”, as cargo bike operators and policymakers, seek data for insights;
 - the “intermediaries” include in-bike tech providers, IT and data companies and “all-rounders”, like smartphone applications for cycling intelligence.

The ability to share data depends on one's pipeline position, but the first reason is governance and privacy concerns. Standardisation emerges as a potential solution, favoured by stakeholders in the insights sector, but less so by those in data collection due to their property. **The stakeholders such as European bodies (NAPCORE, CIE, EIT, CE), national bodies (NAPs, NDW), as well as standardisation bodies (MobilityData, CEN) and smartphone applications for cycling ITS developers should be more involved in defining new FBD standards.**

- According the tech company Vianova, most mobility use cases can be sustained by anonymised and aggregated data. Vianova succeeded in producing FBD following the prevalent data standards from the shared mobility industry, as GBFS which is a real-time data specification that describes the current status of a mobility system. GBFS provides a common language to share services available to travellers, and includes information about all types of vehicles, stations, or pricing. The primary use case for GBFS data is to communicate where vehicles are and which ones can be rented. As data from GBFS is publicly accessible, it can be used by MaaS applications. However, GBFS does not provide a wide variety of data (e.g. no precise data on the origin/destination of trips), which calls for another standard of data collection. The development of shared mobility and dockless systems led to the use of another type of data standard, the [Mobility Data Specification](#) (MDS), which standardises communication and data-sharing between cities and private mobility providers for e-scooters and bikes, natively equipped with GPS or GNSS which operate in a standardised format. There is then possible to build the right metrics as computation of trips, origin/destination pairs, distance, duration and count of trips per road segment. MDS also has disadvantages, as the bias created on the types of trips and the uneven distribution of data among cities, since shared data are not available.

Insights and relevant points raised from the discussion (problems vs. solutions):

- Traditional data collection and analysis approaches, shaped by motorised traffic patterns, may not fully capture the complexities of non-motorised modes like cycling.
- The adoption of new data sources poses technical challenges and infrastructure requirements for cities, often accompanied by significant costs.
- Private data owners often prioritise collaborations with more lucrative partners over cities, leading to limited data accessibility for urban planning and management.
- Adapting attributes, protocols, and methodologies to these modes might be needed for meaningful insights, and open collaboration will make this happen in a harmonised way.
- Collective data purchasing initiatives, especially beneficial for smaller cities, can amplify their influence in the data marketplace, enabling access to valuable insights.
- Enhanced collaboration between different entities could incentivise to share data, helping to bridge the gap between private interests and public needs.

Conclusion: A roadmap of the NAPCORE cycling community

The NAPCORE cycling ambassadors put forward the need to harmonise standards for cycling data, as standards exist for certain domains but are not the same for all countries, and they need to be adapted to use cases where standardisation would be an added value.

- ⇒ This should be done with the cooperation of cities and regions and through workshops and conferences with NAPCORE, POLIS and associated entities.

The goal is to bridge the gap between the different stakeholders that are relevant to the cycling data community by focusing on the needs, challenges and desires of cities and regions while exploring the opportunities that data can bring to cycling and more sustainable and inclusive mobility systems.

This will not be a simple exercise, as many steps lay ahead of us, but by looking locally at the specificities of different cities and regions, we can build a comprehensive European scenario for cycling data that can accommodate the different advancements and paces.

6. Meeting POLIS - [Bike data workshop](#) - 22 May 2024 (Utrecht)

“WHAT ARE THE NEEDS AND REQUIREMENTS OF CITIES ON CYCLING DATA?”

Organisers: Laura Babio, Andréia Lopes (POLIS)

Ambassadors: Cristina BURAGA (Cerema) and Mirelle PETERS (NTM)

Taskforce: Tu Tho Thai (ITxPT)

Objective:

The meeting kicked off with a workshop on bike data organised jointly by the Active Travel and Traffic Efficiency POLIS Working Groups in collaboration with NAPCORE, represented at the meeting by the Nationaal Dataportaal Wegverkeer (NDW), the Dutch National Access Point, and POLIS member Cerema.

The workshop aimed to gather the needs and requirements of cities on cycling data: what type of information is needed, and for which purpose should the data be used? (*see Questions below*)

The participants initially identified the ten most important questions encompassing various aspects of cycling information, including infrastructure, cycling habits, modal shift, and multimodality. The main themes selected were the trip purposes (commuting, leisure), the preferred destinations and roads, the peak times management, the average speed, the multimodal mobility and the safety.

For each of these themes, the members were invited to think about specific **use cases**. The safety topic generated many questions, such as identifying the most accidental spots, improving infrastructure, and improving crossing safety.

Regarding multimodal traffic management, the main questions raised were about cyclists' prioritisation of traffic lights, the location of multimodal hubs, and improving traffic modelling. The participants were then asked to consider the required datasets to answer these questions.

The most **needed datasets** mentioned were infrastructure data, data on weather conditions, crash data, user data (counting data, mobile data and behaviour surveys) and floating bike data.

Everybody agreed that a special focus should be placed on the quality, latency, privacy, and disaggregation of this data to ensure these datasets produce relevant analysis.

Open questions:

Prioritize questions:

INFRASTRUCTURE

1. *What are the cyclists' preferred routes in my city/region?*
2. *Which are the safest cycling routes?*
3. *Where do we have cycling traffic jams?*
4. *What is the perceived safety of our cycling infrastructure?*
5. *Where do we have the most extreme rating of safety for our cycling infrastructure?*
6. *What kind of cycling infrastructure is required in my city/region?*
7. *How many cycling parking areas do we have?*
8. *Do we have crossroads/nodes with longer waiting times or delays for cyclists?*

CYCLING HABITS

9. *How many cyclists does our city/region have?*
10. *What are the cycling patterns (commuting, leisure, etc.)?*
11. *Do we have peak cycling hours/days/periods?*
12. *What are the average speeds of cyclists? What are their variations during the day/week?*
13. *Do we have top departure/destination points in the city/region for cyclists?*

MODAL SHIFT & MULTIMODALITY

14. *How many cycling commuters do we have?*
15. *How many cargo-bikes do we have for families? For delivering goods?*
16. *Do cyclists take their bikes on public transport? Do we have park & ride options?*
17. *How do we reach out to cyclists in our city/region in case of road maintenance?*
18. *Are bike-sharing services included in local MaaS solutions?*
19. *Which bike-sharing stations or nodes are the most popular in our city/region?*
20. *How many trips are taken by shared bicycles in our city/region?*

Canva : https://www.canva.com/design/DAGF1_mNO4Q/8nli_xNquslpewF3Uzblkw/edit

Most relevant questions:

How many cyclists does our city/region have?

What are the cycling patterns (commuting, leisure, etc.)?

Do we have peak cycling hours/days/periods?

What are the average speeds of cyclists? What are their variations during the day/week?

Do we have top departure/destination points in the city/region for cyclists?

How many cycling commuters do we have?

What are the cyclists' preferred routes in my city/region?

Which are the safest cycling routes?

What is the perceived safety of our cycling infrastructure?

Do we have crossroads/nodes with longer waiting times or delays for cyclists?

Extra: What's the start and ending point of all cycling trips?

Follow-up to the workshops on use cases:

Based on the POLIS meetings that collected the use cases, we organized a series of thematic workshops to explore together what is missing and find the corresponding types of data needed for:

- Workshop on Functional requirements on **parking data** for cycling: Monday 7th October 2024 15:00-17:00
- Workshop on Functional requirements on **counting data** for cycling: Wednesday 16th October 10:00-12:00 => reported on Thursday 5th December 15:00-17:00
- Workshop on Functional requirements on **real time cycling data**: Thursday 17th October 10:00-12:00
- Workshop on Functional requirements on **infrastructure data** for cycling: Thursday 17th October 14:00-16:00

The interactive work carried out with the networks of partners and experts made it possible to provide the first recommendations for the European commission.

7. Workshop Parking cycling data - [Canva](#) - 7th October 2024

“WHAT ARE THE FUNCTIONAL REQUIREMENTS ON PARKING DATA FOR CYCLING?”

Organisers: Mirelle Peters, Jonathan Harrod Booth (EPA)

Ambassadors: Cristina BURAGA (Cerema) and Mirelle PETERS (NTM)

Taskforce:

Objective:

On Monday the 7th of October the workshop on functional requirements for parking data for cycling was held online by the NAPCORE Cycling Taskforce.

After a warm welcome to everyone by cycling ambassadors Mirelle Peters and Cristina Buraga, Mirelle gave a short introduction on our goal in NAPCORE and looks back at what we have done so far on the sessions on use cases by POLIS.

After this introduction Jonathan Harrod Booth takes us through some possible relevant existing data standards that already relate to car parking and which might be suitable for bicycle parking as well. DATEX II, coming from the traffic management/information sector, NeTeX coming from the public transport sector and APDS coming from the parking sector, where DATEX II part 6 mirrors APDS.

He also shows which characteristics these standards support already, such as details of location, capacity and availability, restrictions and including sub division of facility for different type of users.

But there are also points of difference for which standards likely require some extension to support cycle parking, like: types of vehicle for categories of bicycles, any critical physical characteristics of interest and possibly form of recharge for e-bikes.

Delegated regulations issue requirements to make certain information available through National Access Points. It would be good to determine which differences there are and needed for cycling and if we can bridge the gap with existing data standards or if we have to create a new standard.

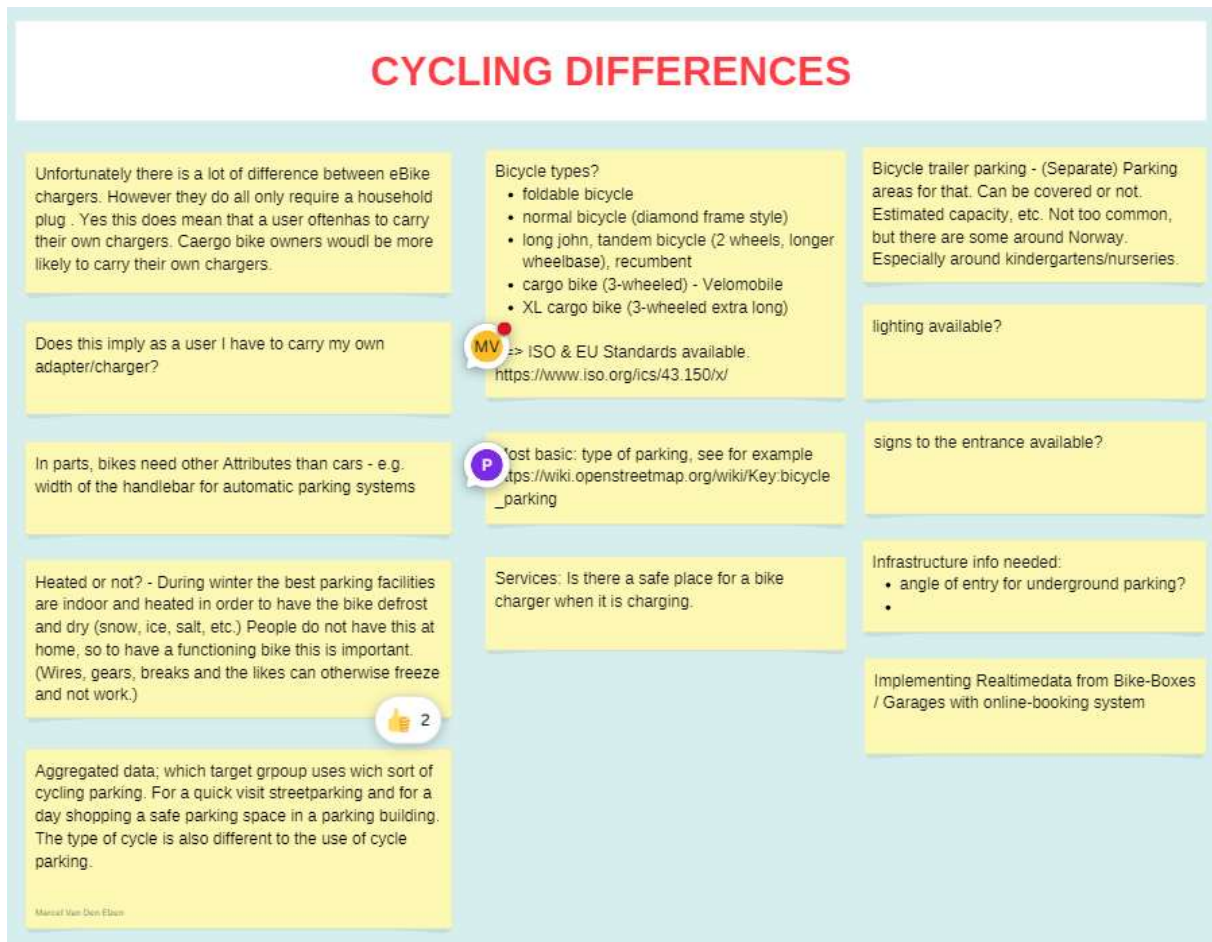
With this we went on to the Canva board to start the discussion both on the board as well as in the meeting.

During the discussion it is noted that besides the formal European standards there are also standards locally, in the Netherlands, France and Oslo. At this point there is no gap analysis or mapping between these and highly recommendable.

For the rest of the discussion you can watch the recording which is placed on Canva:

https://www.canva.com/design/DAGF1_mNO4Q/8nli_xNquslpewF3Uzblkw/edit

Use case parking data: results on Canva



8. Workshop Infrastructure cycling data - [Canva](#) - 17th October 2024

“WHAT ARE THE FUNCTIONAL REQUIREMENTS ON INFRASTRUCTURE DATA FOR CYCLING?”

Organisers: Aleksander Buczyński (ECF), Sam Pierce (CIE), Stephen T'Siobbel (Ertico)

Ambassadors: Cristina BURAGA (Cerema) and Mirelle PETERS (NTM)

Taskforce:

Objective:

On Thursday the 17th of October the workshop on functional requirements for infrastructure cycling data was held online by the NAPCORE Cycling Taskforce.

After the welcome by Mirelle Peters, Cristina Buraga gave a short introduction about the Napcore project to specify the mission of the cycling Ambassadors and the workshops objectives.

This is followed by a presentation on usecases collected for cycling infrastructure by ECF (Aleksander Buczyński) and CIE (Sam Pierce). Concerning the Routing for cyclists, the important infrastructure parameters are safety, comfort, time / physical effort needed, accessibility for different users/cycle types. For the Infrastructure managers, there are: the performance evaluation, maintenance and investments considerations. For the Policy makers / funding institutions, the questions concern the need/existing ratio, priorities and budget.

Then ECF presented Existing data standards or data standards possibly suitable for infrastructure. A reminder of the European delegated regulations made it possible to list the cycling data to be provided according to different levels of service. ECF also recalled the work carried out on cycling data in the European standardization commissions, as Eurostat in cooperation with UNECE and ITF.

A network-wide road safety assessment was carried out including safety of VRUs, but it remains limited and subjective.

For that DG Move wants to define a common methodology for the collection of relevant cycling data (Terms of reference: [EC-MOVE/2024/OP/0029](#)).

In the cycling tourism domain, EuroVelo define an European Certification Standard based on the quality criteria for infrastructure and services for long-distance cycle routes.

Concerning the mapping tools, OSM (Open Street Map [Bicycle – OpenStreetMap Wiki](#)) was presented as internationally relevant source, but not sufficient at local level.

ECF questioned on the reference standards (Inspire Euro Directive which provides standardized static infrastructure data, Open Street Map cooperatively developed...) compared to the specific formats of data collected by regional authorities, mostly provided by suppliers (as Google or other private companies). This provides a set of reference data, but implies an economic model to ensure operation and maintenance costs.

Several national standards were developed for specific needs (France, Germany, Austria...).

France:

<https://schema.data.gouv.fr/etalab/schema-amenagements-cyclables/latest.html>

<https://transport.data.gouv.fr/datasets?locale=en&type=bike-way>

Germany:

https://www.balm.bund.de/SharedDocs/ExterneLinks/DE/Download/BALM_Documentation_National-data-scheme_cycling_infrasctructure_geodata_.html?nn=4256154

Austria:

<https://www.gip.gv.at/en/index.html>

Concerning the standards, Stephen T'Siobbel (Ertico) explained the objectives of TN-ITS describing a data model and exchange method for road attributes (as speed limits and other).

This made it possible to initiate joint work with the Datex II standard related to dynamic data (counting, RTTI...). TN-ITS which is an Ertico entity, does not collect data, but collaborate in a platform community (via Datex II, with partners as Google, Here, Tomtom).

Current specifications are road/car centric, yet support the exchange of some of the 'cycling data', as Road Sign Types related to cycling or Cycling network (international, national, regional, local) and specific names (e.g. Fietsostrade/Cyclostrade).

This all leads us into the discussion on Canva:

https://www.canva.com/design/DAGF1_mNO4Q/8nli_xNquslpewF3Uzblkw/edit

Use case real time: results on Canva

USE CASES, DATA TYPES: HOW IS CYCLING DATA DIFFERENT?

Data collection frequency/scale/details

The change to data collection need to be more frequent, since infrastructure is less standardized and more affected by micro interventions.

Data collection by commercial is very expensive, high quality, but no regular updates. hope is on OSM, but limited policy willingness.

Infrastructure functions differently for cyclists

Different data needs in terms of attributes.

Road-related attributes not useful for off-road paths

The infrastructure can be used for either vehicles as cyclists. The differences can be addressed by attributes and road characteristics

Motorized and cycling is connected. Safety of cycling is defined largely by motorized traffic. The data should therefore be joinable. There is of course difference between infra and traffic.

Width restrictions - its quite rare to have bollards, lanterns, trees etc. on the carriageway for cars that impose additional restrictions

Hard to define typologies

there are specific attributions related to cycling infrastructure that need to be documented and such attribution should be part of a standard, that can be seen as an extension to existing standard for road infrastructure. Such extension should be a new standard

DATA STANDARDS AND EXPERIENCES WITH USING THEM

INSPIRE:

<https://knowledge-base.inspire.ec.europa.eu/>

Difficult to represent for example contraflow cycling (direction of transport link is not vehicle specific)
"Dirty" workaround possible

Flemish work on a standard for cycling infrastructure

<https://data.vlaanderen.be/standaarden/applicatieprofiel-fietsinfrastructuur/>

note : this work is on hold at present

The province of Antwerp is in a way between waiting for a broader standard and co-shaping its own and the Flemish standard (as above). We are also looking at the usefulness of OSM, but datasets are very limited.

iRAP Star Ratings /CycleRAP

Video data decoded
Automatic detections under study
Guidelines and data requirements to ensure standardization
Benchmarking possibility

9. Workshop Real-time cycling data - [Canva](#) - 17th October 2024

“WHAT ARE THE FUNCTIONAL REQUIREMENTS ON REAL-TIME DATA FOR CYCLING?”

Organisers: Jørgen Wanscher (HTI), Sam Pierce (CIE)

Ambassadors: Cristina BURAGA (Cerema) and Mirelle PETERS (NTM)

Taskforce:

Objective:

On Thursday the 17th of October the workshop on functional requirements for real time cycling data was held online by the NAPCORE Cycling Taskforce.

After a warm welcome to everyone by cycling ambassador Mirelle Peters, cycling ambassador Cristina Buraga gave a short introduction on our goal in NAPCORE and looks back at what we have done so far.

This is followed by a presentation of Sam Pierce on Real time usecases. Sam tells about MegaBITS, a North Sea Region Interreg project. The predecessor BITS was unique and innovative and recently received an award. MegaBITS pushes a bit further. Examples of use cases are green waves for the cyclist, real time information on parking and also safety for cyclists.

IMEC in particular is mentioned for its cycling data space. You can find more information here:

<https://www.interrognorthsea.eu/megabits/pilots>

There are some best practices presented. Like the City of Hamburg who is working with a mobile phone connected to an app, to get a green wave for cyclists. It also gives a signal on the side of the road to show if they have to speed up or slow down to get the green light.

In the city of Enschede an app is used to collect the number of cyclists, which can also be used to detect the cyclist at traffic lights: intelligent light systems.

The City of Copenhagen works on a number of projects. Like the green wave technology and trying to develop this further. But also intelligent bike parking: finding a spot in a bicycle parking. And routes for cycling VMS based on real time data for cyclists.

IMEC published a paper on recommendations on a specification for Floating Bicycle Data:

<https://www.interregnorthsea.eu/megabits/news/floating-bike-data-current-landscape-challenges-and-recommendations-by-megabits-and>

Jørgen Wanscher takes us into the data driven decision support and standards. He talks about the value of data: the value of data becomes real if you can use it for making real world decisions. And what is real time data: is it yesterday, 2 seconds ago or just a minute? Real “real time” can be less than one minute and historic/static data is likely more than 1 day old. Better is it to use “near real time”, where the concept is dependent on the decision maker. But also privacy compliance is connected when we talk about real time as raw undelayed data might reveal precise home and work locations, which might be challenging privacy.



Also the comparison with cars is made: if you look at the RTTI for automotive, then for bicycles it is a lot different. Think about road closures, lane closures, road works and temporary traffic management measures. Some cases that are prioritized are mainly interesting for cars, but not for bicycles. Cars are like boxes in one lane who stay in (more or less) the same order, but bicycles go everywhere and lots of different travel speeds. And with the common speed it can also be different per day because of a tailwind or headwind.

He also explains that the standard comes somewhere on the data chain between the data itself (zeroes and ones: no information yet) and the decision makers. In between those the data is transformed, aggregated and enhanced with other data into necessary information. The comparison of the standard as a cake roll which needs to be divided between the providers and the customers is striking: who gets the largest piece? The standard decides where to cut the cake and who has to invest more or less: the decision makers or the market who provide data.

This all leads us into the discussion on Canva, but first Jørgen explains the information on Canva:

https://www.canva.com/design/DAGF1_mNO4Q/8nli_xNquslpewF3Uzblkw/edit

The Workshop at the Mobility Data Days in Turin

The workshop in Turin was built around a common introduction much similar to the online workshop, but where all four main areas were introduced. After this three break-out corners were established in the room. In the real-time corner we were 6-8 participants (some were shopping around) and had good discussion on the already concluded work, but also got some good additions to the canva. These have now been added as extended notes with “MDD Turin” as header.

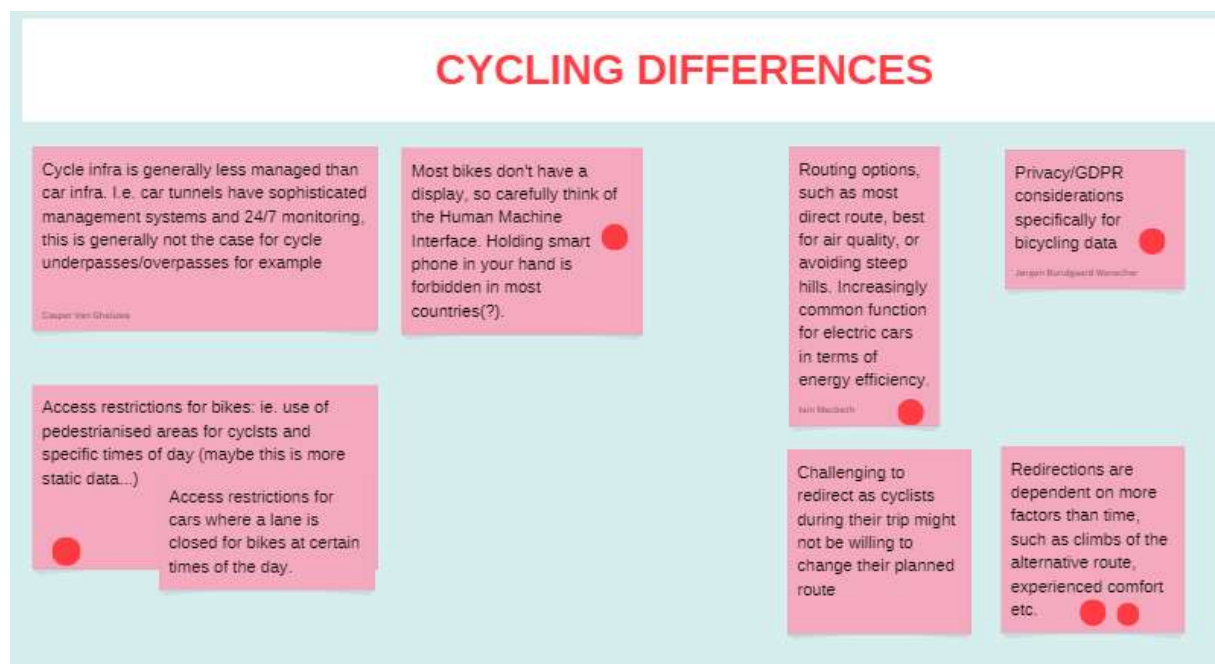
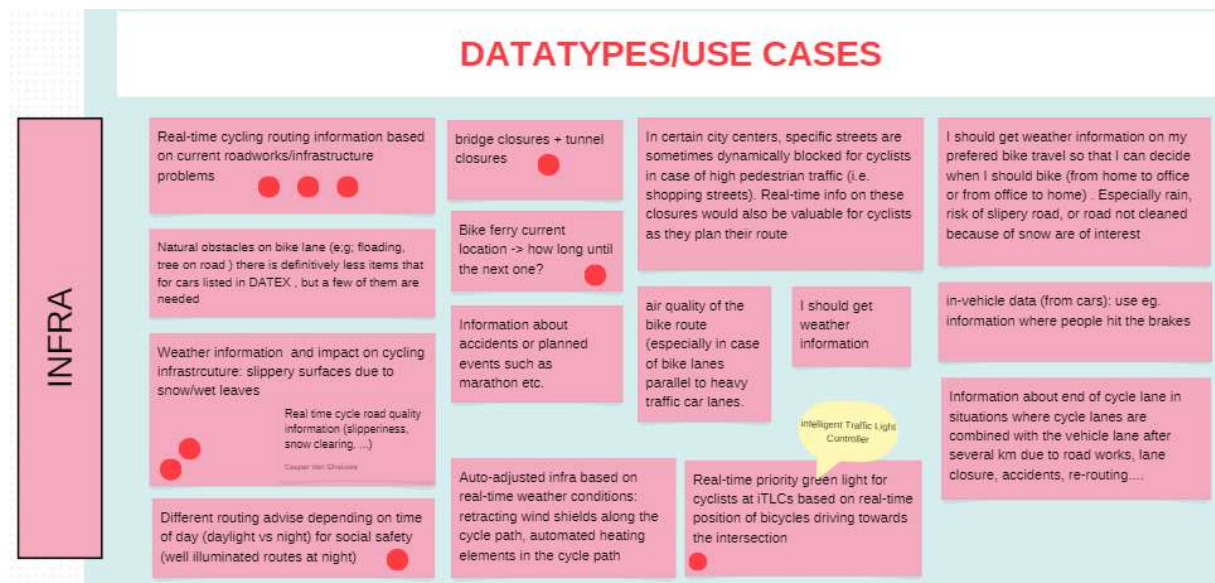
From the discussion and comments in the group four specific use cases or insights were selected.

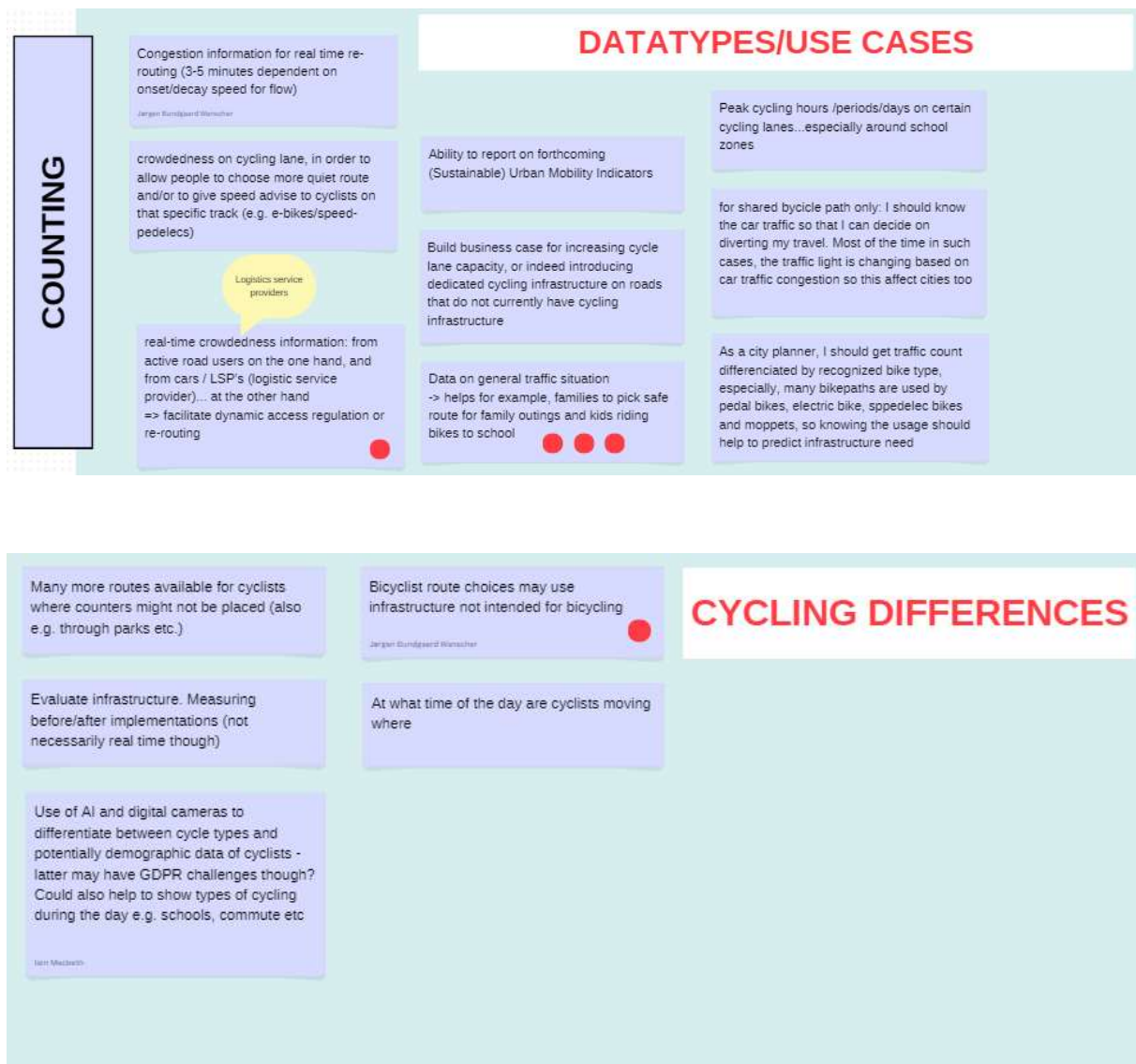
These were:

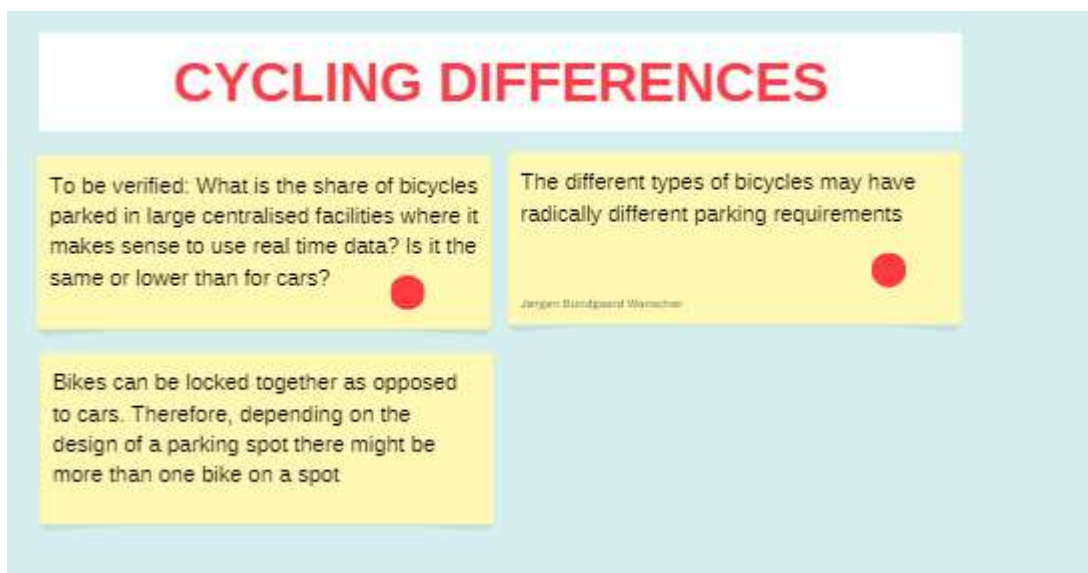
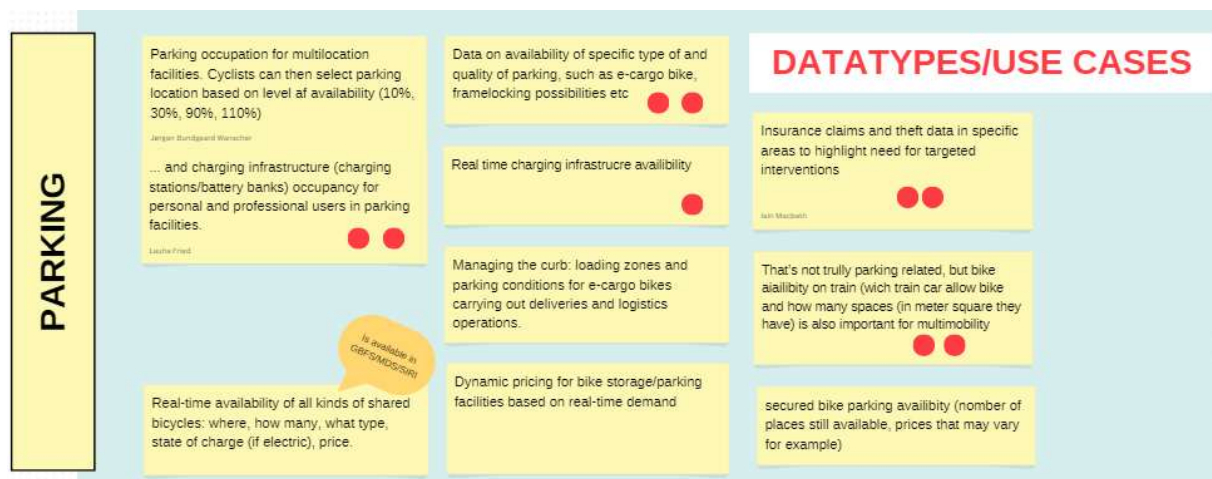
- Seasonal maintenance (5 votes)
- Flow/Congestion (1 vote)
- Parking availability (5 votes)
- Infrastructure blocks or incidents (3 votes)

The numbers in parenthesis are the final prioritization votes, which will be used for the more concrete standards wise work.

Use case real time: results on Canva







10. Workshop Counting cycling data - [Canva](#) - 5th December 2024

“WHAT ARE THE FUNCTIONAL REQUIREMENTS ON COUNTING DATA FOR CYCLING?”

Organisers: Holger HAUBOLD (ECF), Laurent GUENNOG (Eco-counter)

Ambassadors: Cristina BURAGA (Cerema) and Mirelle PETERS (NTM)

Taskforce:

Objective:

On Thursday the 5th of December the workshop on functional requirements for counting cycling data was held online by the NAPCORE Cycling Taskforce.

After the welcome by Mirelle Peters, Cristina Buraga gave a short introduction about the Napcore project to specify the mission of the cycling Ambassadors and the workshops objectives.

This is followed by a presentation on use cases collected for cycling counting on Canva, which identify the objectives for counting: enhancing knowledge of cycling mobility and infrastructure evaluation.

Then the workshop took place in two parts, a first part of presentations followed by an interactive part of work on the Canva.

In the first part, several presentations were made on the issues and practices of counting:

1. Counting methods (equipment) and pro's and con's in data gathering – Cristina BURAGA (Cerema) shows that the counting is essential in order to increase the visibility of cycling and to evaluate the development of cycling infrastructure and practices.

There are different challenges to consider, firstly strategic, but also technical related to data quality, especially for the user's classification (classic bike, e-bike, mountain bike, trailer, cargo... and other soft modes) and the measurements needed (flow, times, speed, modal split, etc.). This requires adapted counting devices (to be developed and to be implemented).

An overview of current counting technologies is presented according to the types of counting (permanent, temporary or point counting) and the types of infrastructures (segregated or shared with vehicles/pedestrians). Performance depends on installation constraints and usages (observatories, NAP, evaluations, surveys).

For cycling data exchange there are several standards, coming from sectors as road traffic and public transport, and implemented by the countries according to their local purposes. This requires an analysis of the needs for harmonization and European regulations for the provision of cycling data.

2. Specific method in surveys – Holger HAUBOLD (ECF) present “historical” manual method for counting cyclists, with qualitative advantages and technical limitations of use. This was illustrated with examples from Brussels since 1998 and Kyiv since 2014. Questions arise about the different methodologies and the variety of parameters collected, which may be subject to errors and leave appreciation margins. This leads to difficulty to standardize, which is carried rather at the national et specific level (in France focused on tourism, in Germany for road traffic counting, bicycles optional).

3. DATEXII for counting data: example NL with lesson's learned, differences, use case example - Remo BROUWER (NDW) tells about the standard for counting data with DATEXII profile in the Netherlands. There was a need in cities and regions for one place to store the data and also being able to compare. The standard contains different methods for counting, propulsion type, bike width and speed category and is for different time frames (5, 15, 60 minutes and 1 day). Difference with the DATEXII is the identification: it doesn't change with each supplier, but stays the same for the same location so comparison is possible. Another difference that it is often not real-time but historic, it depends on the supplier how fast the data will be available in the platform. This standard can easily be converted to a European level.

4. Presentation of a cycling data provider - Laurent GUENNOG (Eco-counter) presents automatic solutions from a supplier with experience since 1998 in cycling monitoring. This area involves broader issues with technical difficulties in detecting vulnerable users and analyzing their behavior.

In order to have efficient tools for dealing with accident situations, Eco-counter develop multi-source data fusion including: bikes count and FBD, infrastructures elements and GIS, accidents reports, weather data..., enriched with video and AI analysis. This allows to calibrate more easily the collected data with the ground truth, and to provide advanced functionalities on smart tracking and automatic incident detection.

Eco-counter participates to develop the standard for cycling counting in France with the NAP transport.data.gouv.fr and Vélo&Territoires (association of voluntary local authorities, which gathers a national data base of more than 1800 counters) in order to facilitate the annual monitoring, the data sharing and large-scale analysis of user panels. This cooperative work has shown an increase of the national cycling frequentation more than 37% since 2019.

In partnership with ECF, Eco-counter contributes to measuring the rate evolution for EuroVelo routes.

Collected use cases in previous sessions for counting:

Planning:

- To identify the most popular cycling routes
- Also counting type of users

Traffic management:

- Determine peak hours and variations through the week
- Preferably speed as well
- Differences in types of cyclists (cargo, normal, kid, speed-pedelec, ...)
- Higher numbers resulting in more green lights for cyclist

Multimodality:

- Determine destinations and/or routes that are unattractive for cyclists
- For safer design of intersections with different traffic flows
- Optimized routing information for different scenario's (fast, attractive, busy, comfort, air quality, less stops, ...)

Modal share:

- Modal split (for different modes, for different groups, per travel goal, per area)
- Understanding performance and mobility transition
- Infrastructure project evaluations (before and after)

Infrastructure performance:

- Effect of changed infrastructure (before/after)
- Wear and tear of cycle path
- Determine change of usage in routes in different circumstances in time and compare for different places
- Safety ratings (CycleRAP/Star Rating scores) or similar

Investments:

- To forecast potential cyclists
- Improve multimodal connections
- Increase number of lanes, broaden the bicycle path
- Additional parkings
- Check efficiency of investments before and after changes
- Prioritize upgrades

Parking:

- Determine possible locations for parkings
- Learn about shortage or possible opening times because of insight in numbers on routes on different moments through day/week/year

Communication:

- Crowded (high amounts of cyclists) or closed routes (planned roadworks combined with zero counted cyclists) to point to alternative routes
- Route planning
- Different kinds of users

In the second interactive part, followed discussions and collaborative work on Canva on differences and needs to have/nice to have for counting cycling.

[POLIS AT/TE Cycling data workshop – Whiteboard](#)

Reasons for the necessity of a European standard:

- Transnational comparisons (e.g. SUMI, per type of practise, environment -urban, suburban, rural, ...)
- Relevance over the years
- Make European supply possible for all data suppliers
- Support research into cycling safety and other factors
- Get insights into dependency on other factors (i.a. is the bike traffic in town X more than average influenced by rain)
- Lower costs/efforts for non-classical data suppliers
- Developing planning tools that can be used in cities across Europe
- Harmonisation of data when reported to the NAP and on EU-level
- Support for countries that start counting, to not make the same mistakes we did
- Support standardized network mapping of cycling routes (on and off-road) needed for crash reporting navigation, etc.

Useful information and existing national standards:

- INSPIRE: <https://knowledge-base.inspire.ec.europa.eu/>
- iRAP: standardised safety ratings (Star Ratings + CycleRAP) based on globally standardised data www.irap.org/cycleraap
- France: <https://schema.data.gouv.fr/etalab/schema-comptage-mobilites/>
- Netherlands: <https://docs.ndw.nu/producten/fietsdata/2023.05.01%20dataformaat%20fietsstellingen%20v3.3.pdf>
- Germany: cycling only optional, basic information): https://www.bast.de/DE/Statistik/Verkehrsdaten/2025/Richtlinien-2025.pdf?__blob=publicationFile&v=3
- Vlaanderen: https://data.vlaanderen.be/doc/applicatieprofiel/verkeersmetingen/index_en.html

Cycling differences: gaps:

- Measuring not only the vehicle, but also cyclists (gender, children/adults, sports/mobility, etc)
- Diversity of users, behaviors
- Variety of bicycles can be difficult to measure (cargo bikes, shared bikes, etc.)
- Propulsion type: difficult to measure
- Too many cyclists at one point/moment which the counting method cannot handle any more
- Bikes can easily “escape” the exact site of the counting device
- Counting bicycles is valuable if also other modes can be detected. The interaction between modes is often missing with the traditional bike counter.
- Lack of infrastructure adapted to the use diversity
- Counting cyclists on infrastructure other than on or next to rads for cars (like parks, along rivers, etc)
- Classification of different types is feasible if correctly defined and uniformized (bike type dictionary)
- There should be a standard procedure to use FBD of various sources (pedelec fleets, Apps s.a. komoot, OpenBikeSensor, etc.) to calibrate to counting sites
- Find a common language to be able to aggregate data and be comparable with other mobility data modes
- Meta data is also important in counting. French data format is including this this to consider the environment , extra parameters and their evolution
- Also consider raw data and other types of data (validated, reconstructed/corrected, abnormal but correct : Tour de France for instance or similar event)
- Measure of quality not standardized/harmonized
- EU wide classification may not cover all countries 100%, there could be incompatible difference between categories, which might ask to subdivide in other characteristics (# of wheels, propulsion method, helmet obligation, max allowed speed, etc..)
- Difference between data granularity and availability. Real time is not always mandatory. Post analysis doesn't need it. Timestamp data can be sent once or multiple times per day
- Cycling facilities also provide critical mobility support for elderly and disabled people, as well as those unable to access or operate motor vehicles, so highlighting the inclusion aspect (and quantifying this through data collection) is important
- Difference with DATEXII: in the identifier: you have to change the nr when you have a different supplier. This is difficult for cycling since suppliers change often and you can't compare or need to maintain a huge was/is list

- Lots of innovative data sources that don't exist in the motorized vehicle world (cycling computers, Lights, Apps, Sensors etc.), but no common data strategy for those devices and technologies
- Chicken-and-egg-problem: limited usage/processes based on this kind of data - no willingness to pay / no market