

POLIS

CITIES AND REGIONS FOR TRANSPORT INNOVATION

ANNUAL
CONFERENCE

2022

30 November
1 December, 2022
Brussels, Belgium



#POLIS2022

Local & Regional authorities: unlock your data power now!

5B – Digging into data

Joint session brought to you by: DATA4PT (ITxPT), DAT.Mobility, MaaS Alliance, MobilityData, Mpact, and Open Mobility Foundation

Agenda

- Meet the speakers
- Setting the scene
- Introduction to existing standards & specifications
- Workshop time

Let's meet!



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Project Director, Shared Mobility –
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Why this session?

- **Help you with data**, its standardization, its quality
 - Overview of what is existing
 - Updates on what is going on
 - Answer all your questions
- Our very **first joint workshop** to facilitate an open MaaS ecosystem
 - Capacity building for all
 - Cooperation between all standards & specifications in real-life
 - Listening to your needs to better address them

Setting the scene

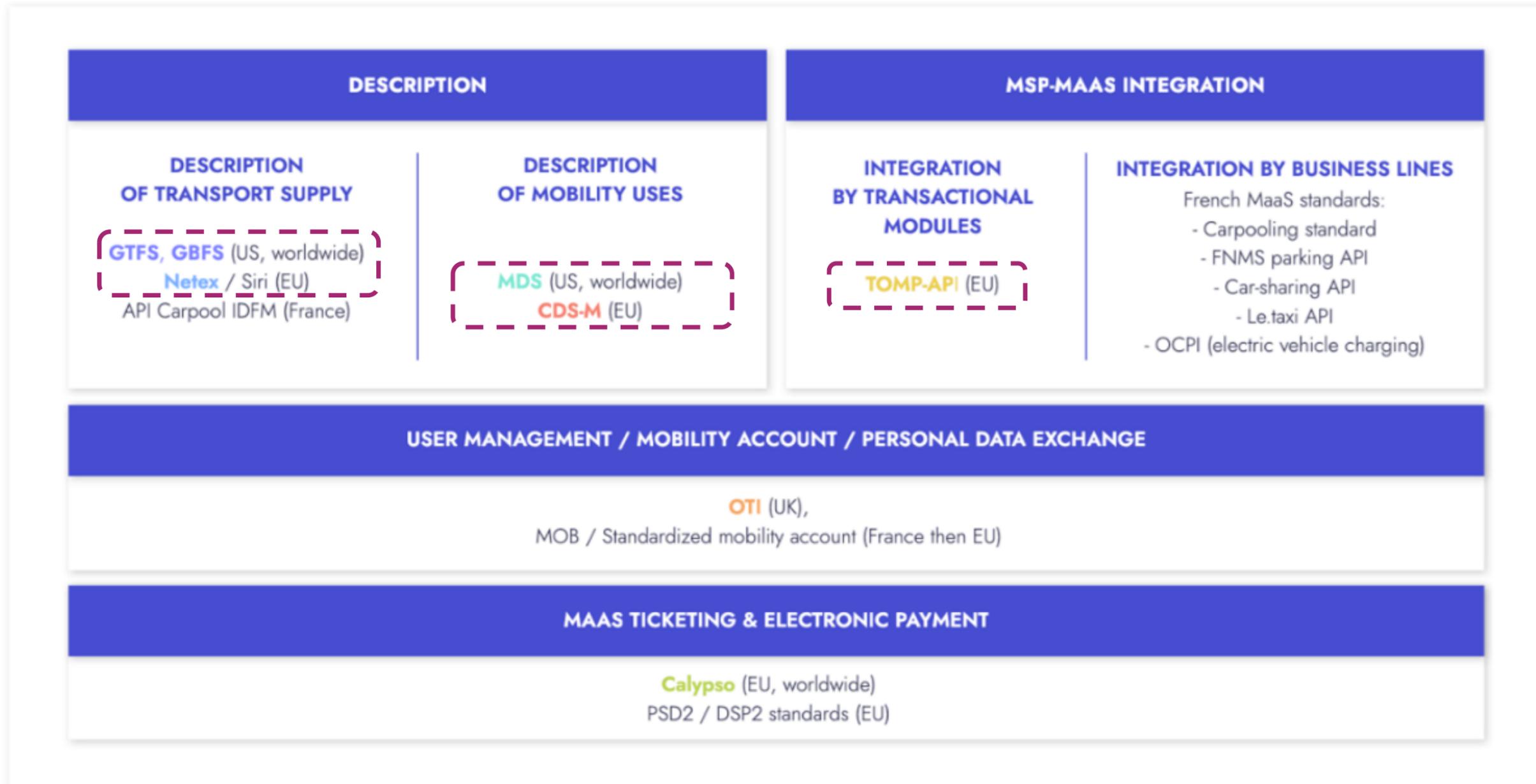


FIGURE 2: FUNCTIONAL SCOPES OF THE INITIATIVES STUDIED AND SOME OTHER STANDARDIZATION EXAMPLES (NON-EXHAUSTIVE)

Source: Fabrique des Mobilités (FR) - MaaS Standards Benchmark - April 2022



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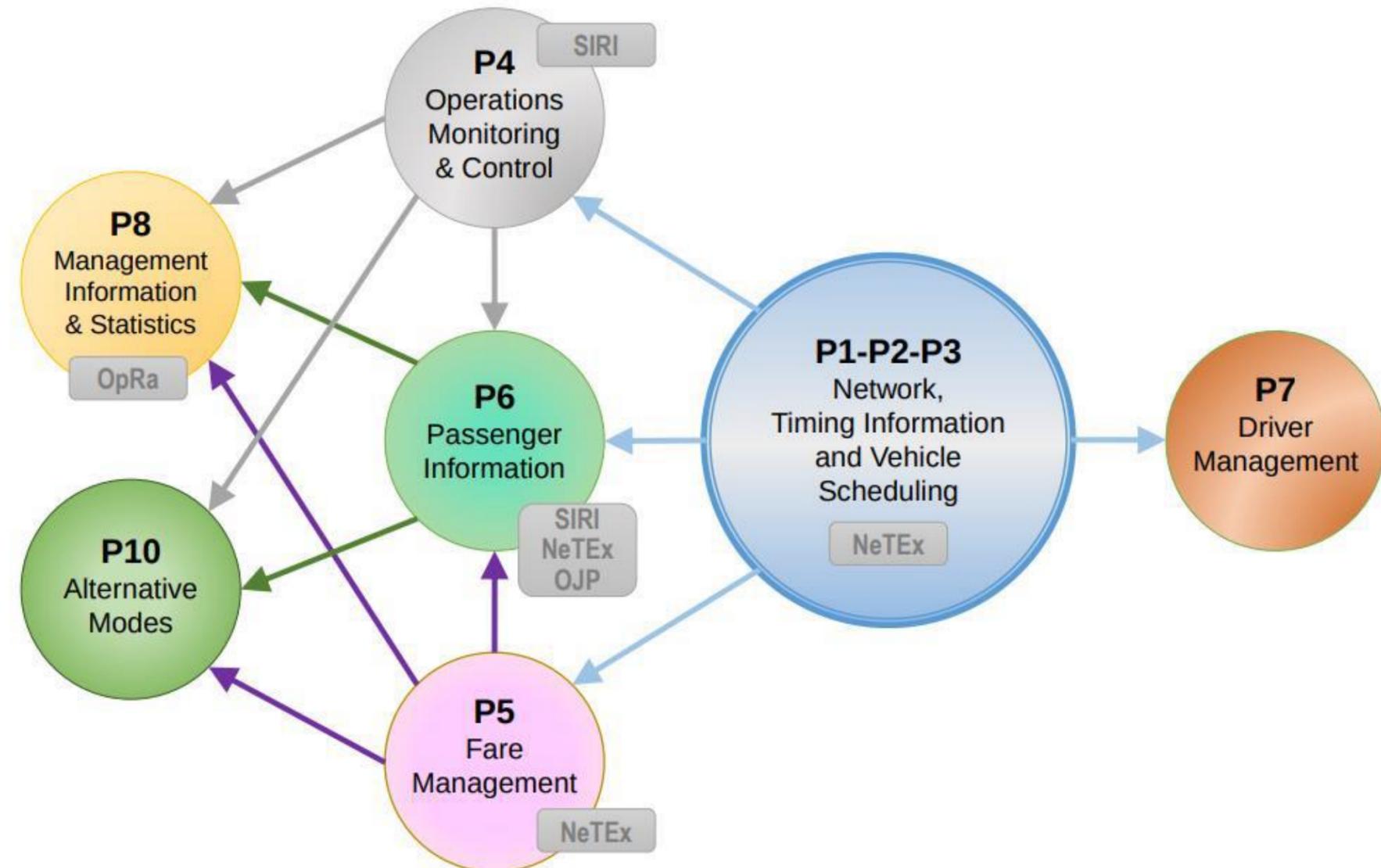
Transmodel suite (NeTEx, SIRI & OpRA)

By Fabrizio

Transmodel CEN EN 12896 1 to 10

Transmodel covers most of the Public Transport domains. The overall model is divided into 10 parts:

1. Common Concepts;
2. Public Transport Network;
3. Timing Information & vehicle scheduling;
4. Operations Monitoring & Control;
5. Fare Management;
6. Passenger Information;
7. Driver Management;
8. Management Information & Statistics;
9. Informative documentation;
10. Alternative modes –renewed publication.



Transmodel PT standards ecosystem



NeTEx

Exchange data format for scheduled information



SIRI

Exchange data format for real time information



OpRa

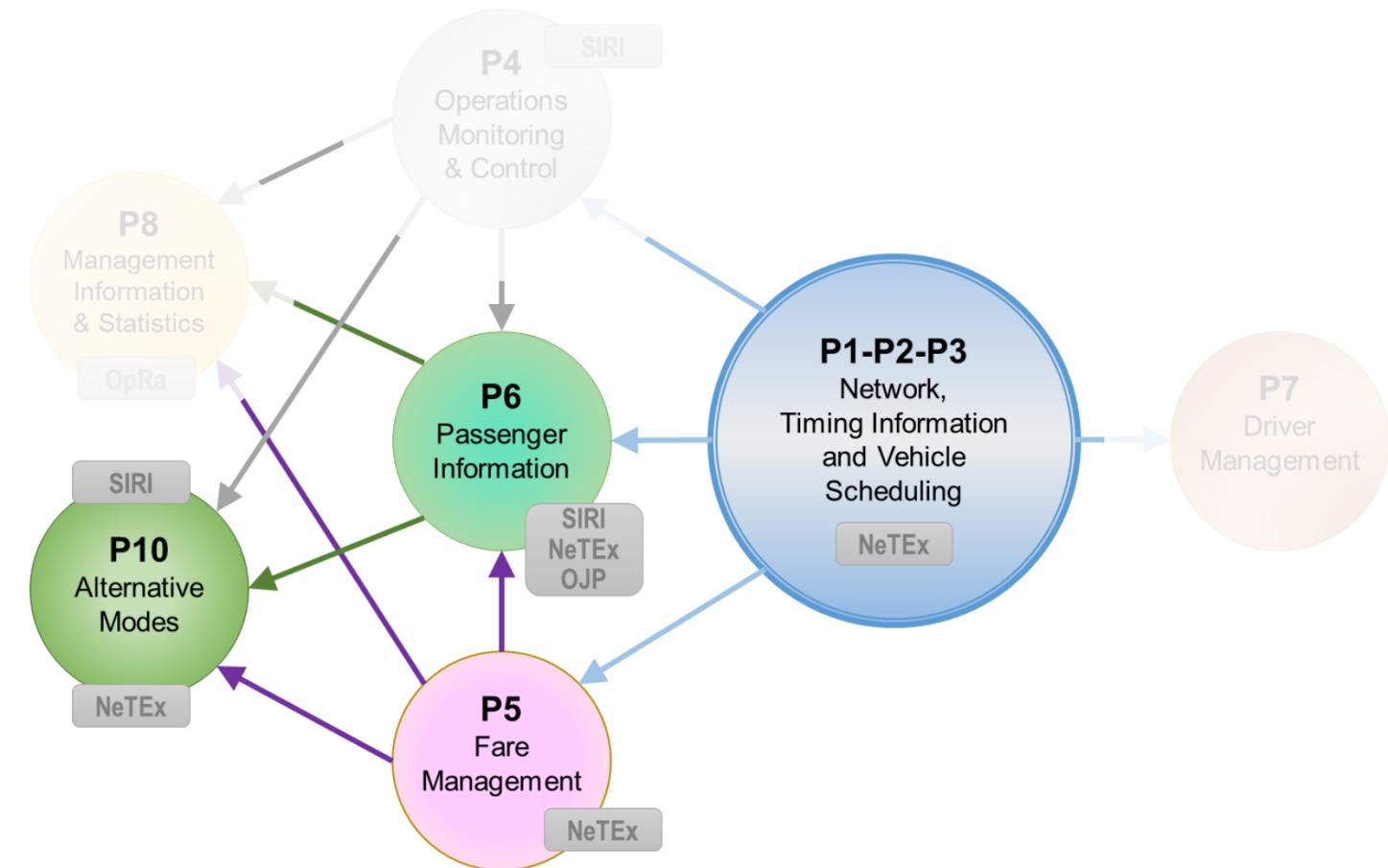
Exchange data format for observed information



NeTEx CEN TS 16614-1 to 5

NeTEx is a data exchange protocol for **scheduled data** divided into 6 parts:

1. Common concepts and Network description;
2. Timing information;
3. Fare Information;
4. EPIP – EU Passenger information Profile;
5. New Modes;
6. EPIAP – EU Accessibility Profile (under review)



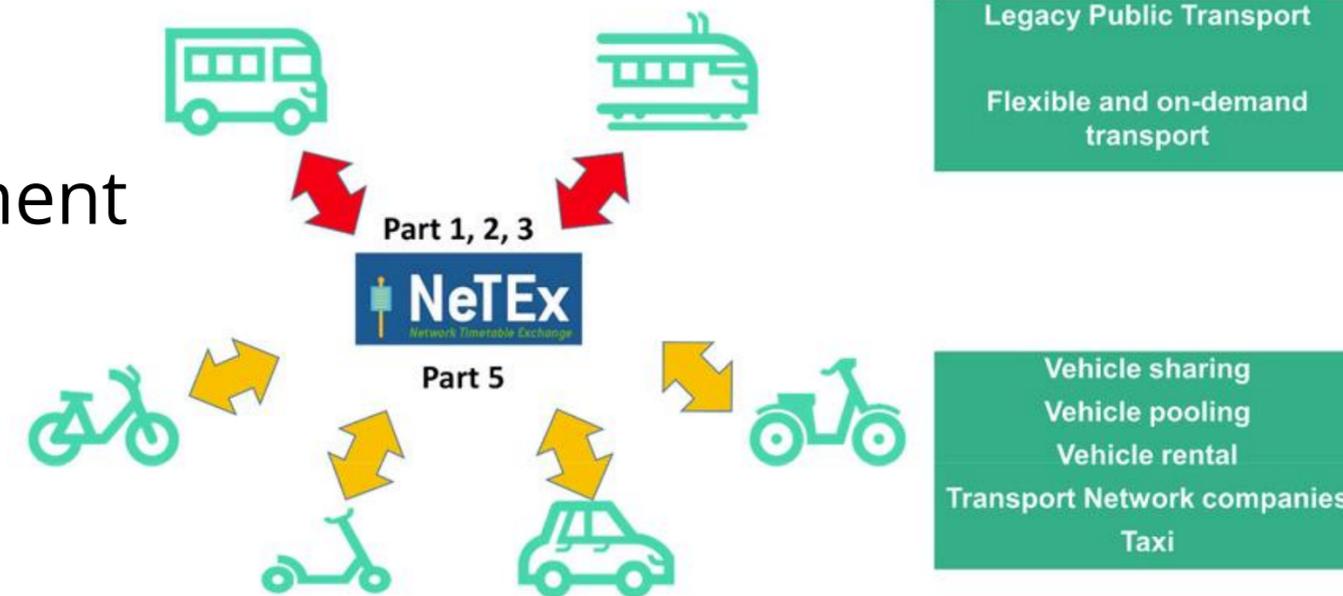
NeTEx CEN TS 16614-1 to 5

Use Cases



NeTEx covers several *Use Cases* like:

1. To feed journey planner;
2. Exchange Passenger information system feed;
3. Open data feed (often as an enhanced complement to GTFS);
4. AVMS feed;
5. Exchange for co-operated network;
6. Late schedule update (on a specific day); dissemination;
7. Ticketing system feed.

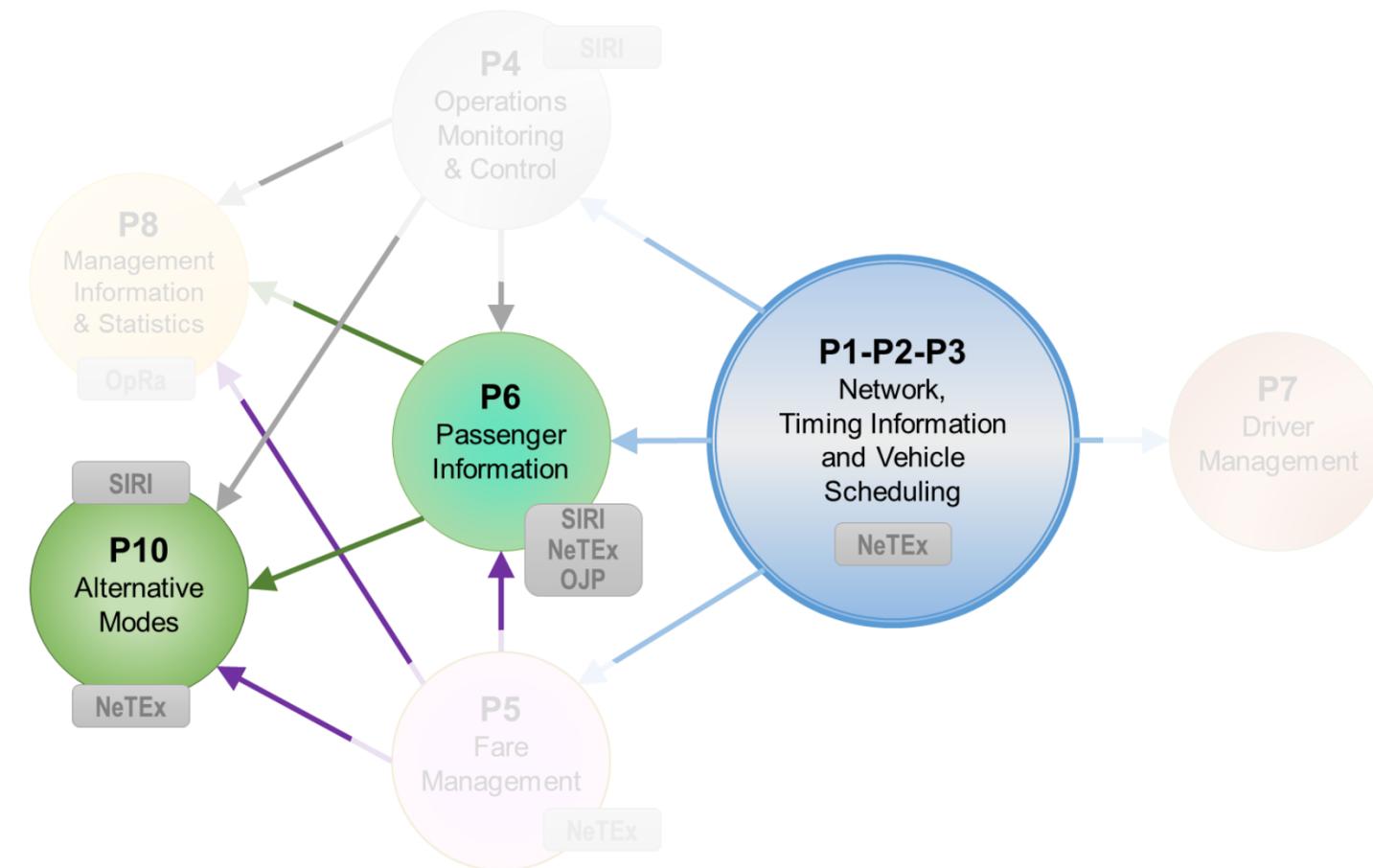


SIRI CEN TS 15531-1 to 5

SIRI is a data exchange protocol for **real-time** data divided into 5 parts:

1. Business case (EN);
2. Communication (EN);
3. Services (EN);
4. Facility monitoring service (TS);
5. Situation exchange service (TS).

Part 6 should be available in 2022 for a detailed description of Control Actions.



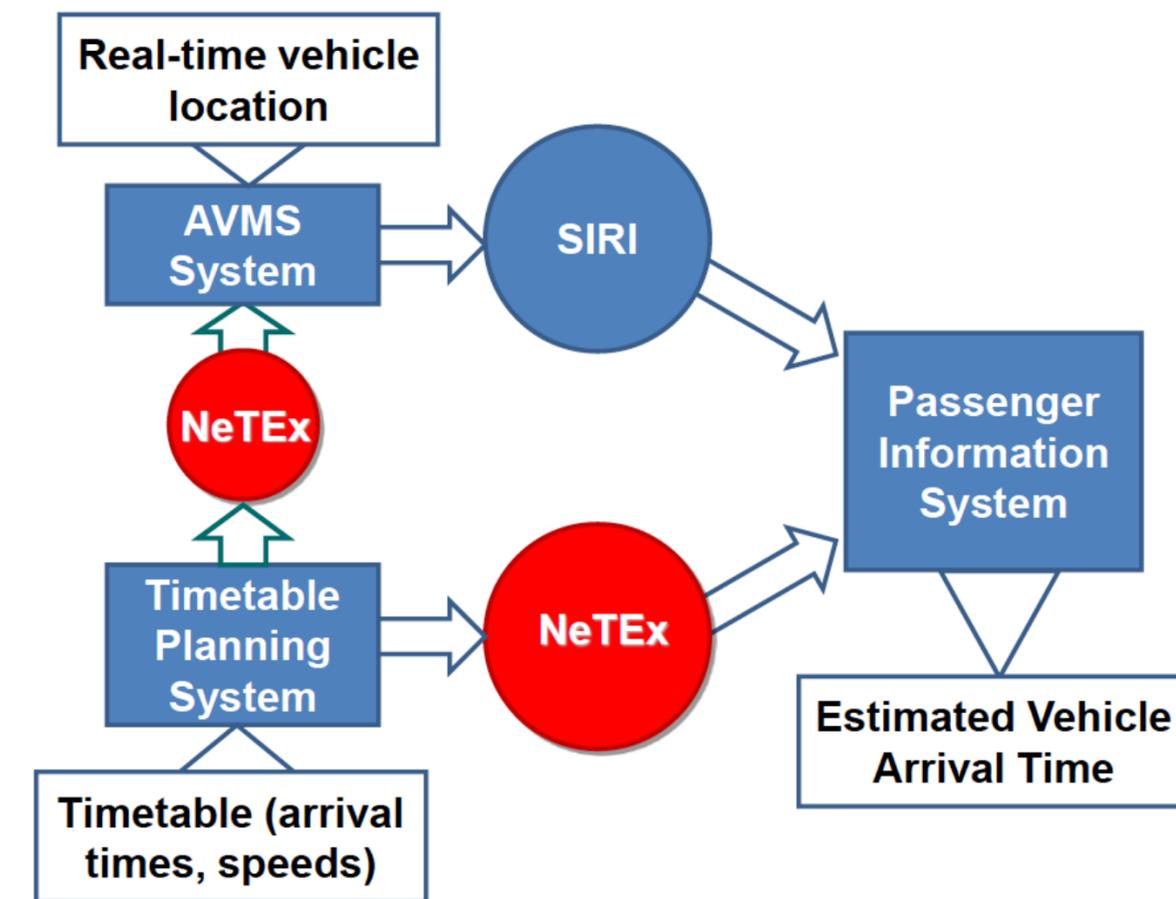
SIRI CEN TS 15531-1 to 5

Use Cases



SIRI covers several *Use Cases* like:

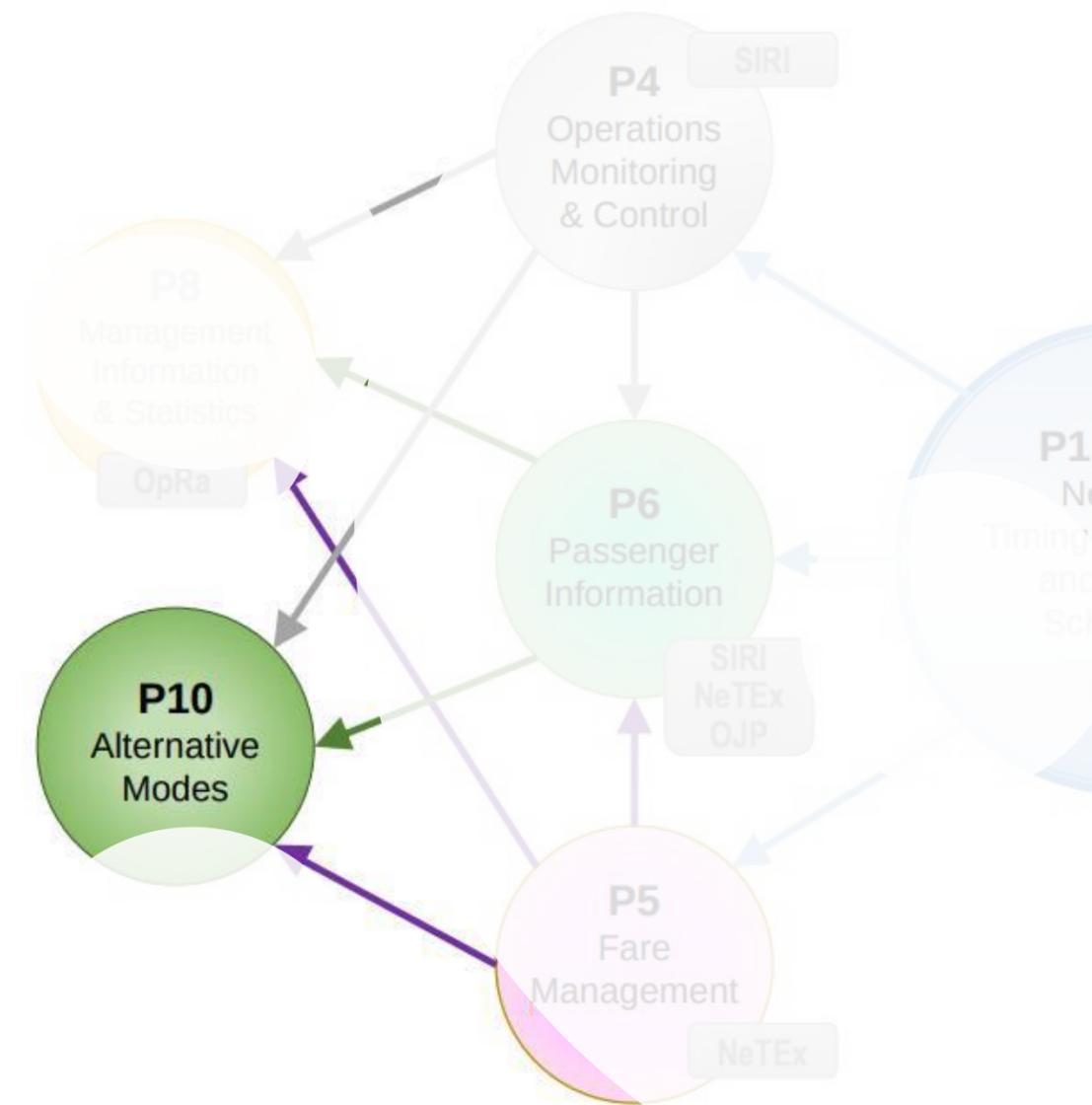
1. To provide real time-departure from stop information for display on stops, internet and mobile delivery systems;
2. To provide real-time progress information about individual vehicles;
3. To manage the movement of buses roaming between areas covered by different servers;
4. To manage the synchronisation of guaranteed connections between fetcher and feeder services;
5. To exchange planned and real-time timetable updates;
6. To distribute status messages about the operation of the services;
7. To provide performance information to operational history and other management systems.



OpRa CEN TR 17370

OpRa (Operating Raw Data and statistics exchange) is an exchange protocol of **measured raw data**, to enable PT Service quantitative analysis:

1. Situation analysis: to examine and study the Service operating status (e.g. delays because of traffic lights, road construction, traffic jams, etc.);
2. Contractual reporting: to report Service analysis to local, regional or national administrations, that are responsible for public transportation provision on the territory;
3. Providing data for Quality-of-service analyses and processes: based on the planned timetables and the exchanged data, quality-of-service (QoS) analyses may take place, including delays and cancelled vehicle journey.

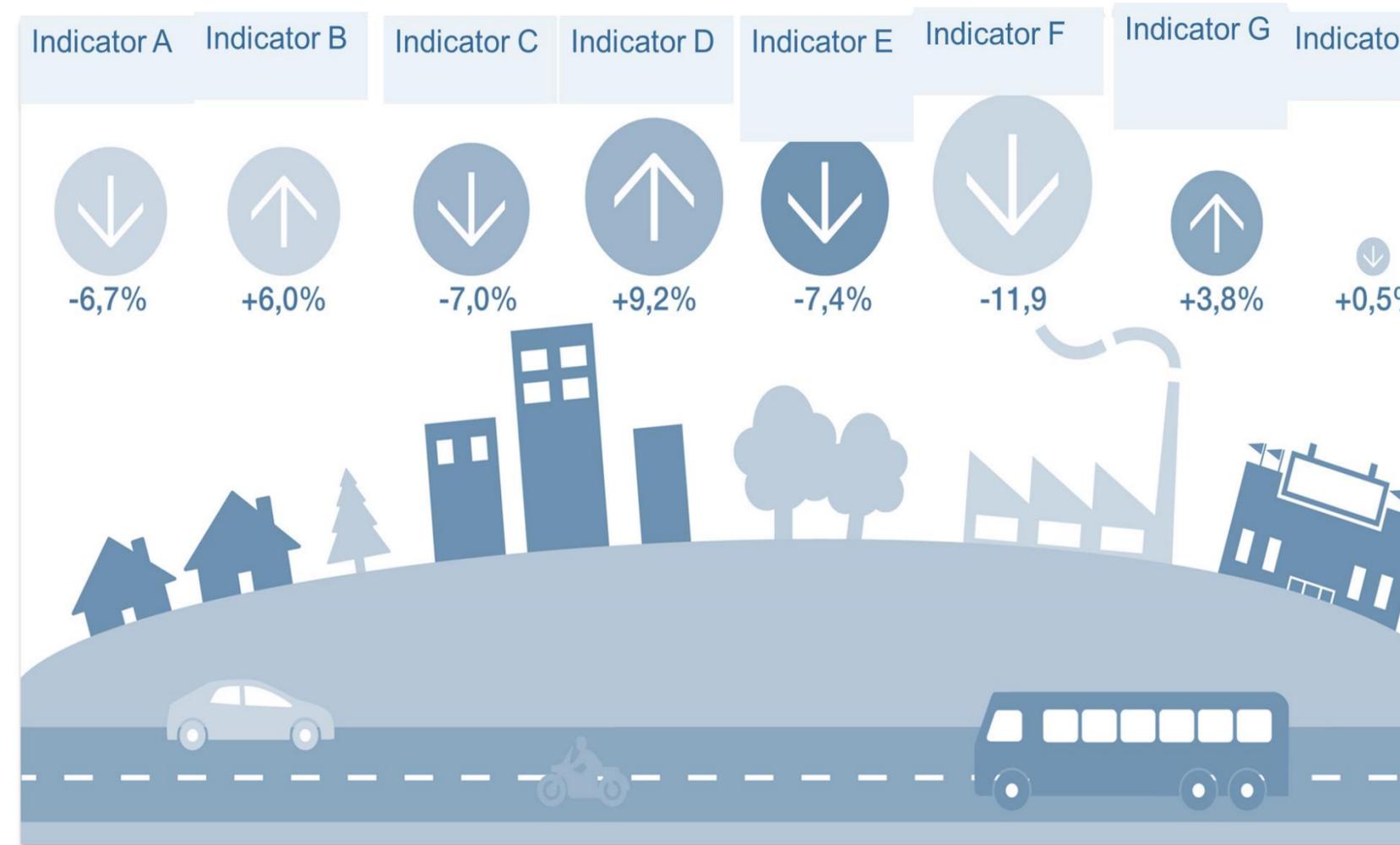
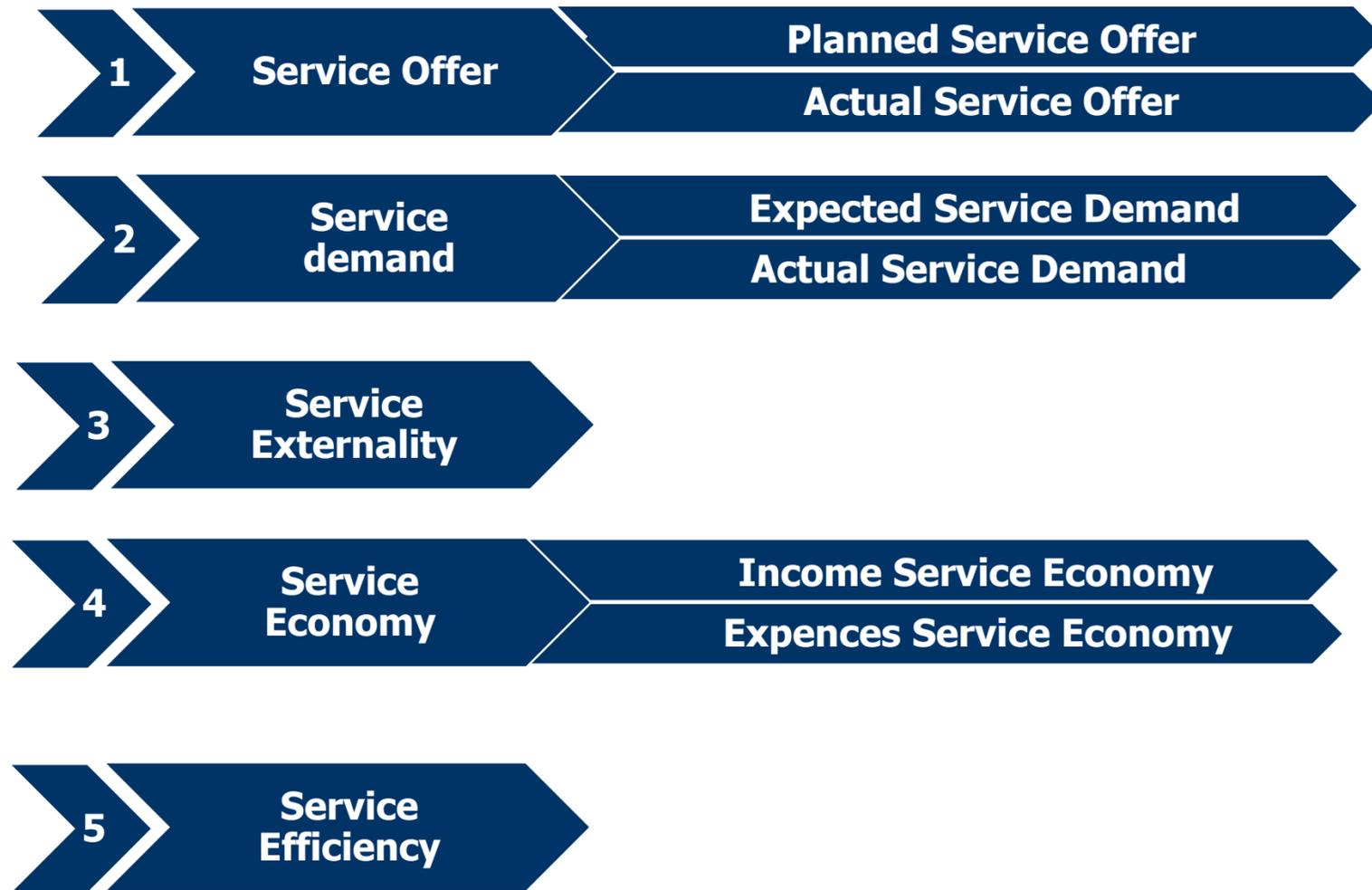




OpRa

OpRa CEN TR 17370

Use Cases



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GxFS suite (GBFS, GTFS Schedule & GTFS Realtime)

By Tu-Tho

General Transit Feed Specification (GTFS)

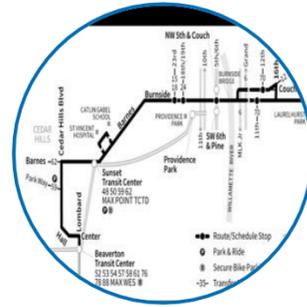
Schedule: 6 core areas + 12 extensions



Agencies



Stop times



Shapes



Station entrance



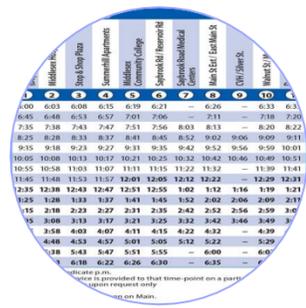
Vehicles



Stop
Text to Speech



Stops



Calendar



Continuous stops



Pathways



Boarding areas



Fares



Routes



Trips



Transfers



Pathways routing



Translations



Attributions



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GTFS Realtime: 4 main use cases



Trip Updates



Localisation of Vehicles



Service Changes



Service Alerts

General Bikeshare Feeds Specification (GBFS): 6 core areas



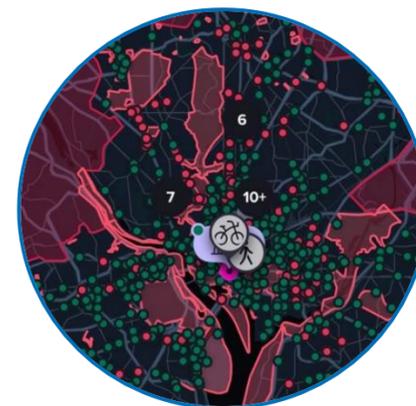
System



Stations



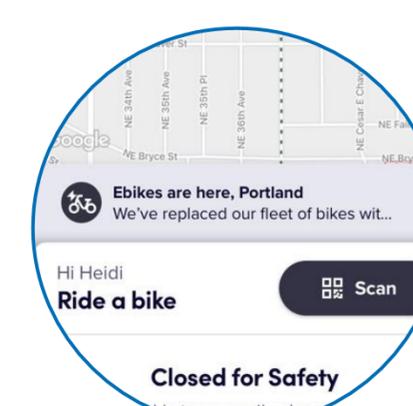
Vehicles



Travel Rules



Pricing



Alerts

GBFS: available modes



(e-)Bikes



(e-)Scooters



(e-)Mopeds



Car-sharing



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xDS suite (MDS and CDS)

By Andrew

Mobility Data Specification (MDS)



An API connecting mobility companies with local governments

- 130+ cities in 14+ countries
- Marketplace of tools for cities built on MDS
- NOW: e-scooters, mopeds, carshare
- NEXT: Taxis, TNC, delivery bots, car share

openmobilityfoundation / mobility-data-specification

Unwatch 94 Unstar 305 Fork 120

Code Issues 31 Pull requests 12 Projects 0 Wiki Security Insights Settings

A data standard to enable communication between mobility companies and local governments. Edit

mds scooters cities carshare bikesharing scooter-sharing mobility-as-a-service bike-share bike-sharing Manage topics

500 commits 18 branches 10 releases 59 contributors View license

Branch: dev New pull request Create new file Upload files Find file Clone or download

jfh01 and hunterowens Updated license to CC BY 4.0 for OMF transition (#390) Latest commit cb85cbb 5 days ago

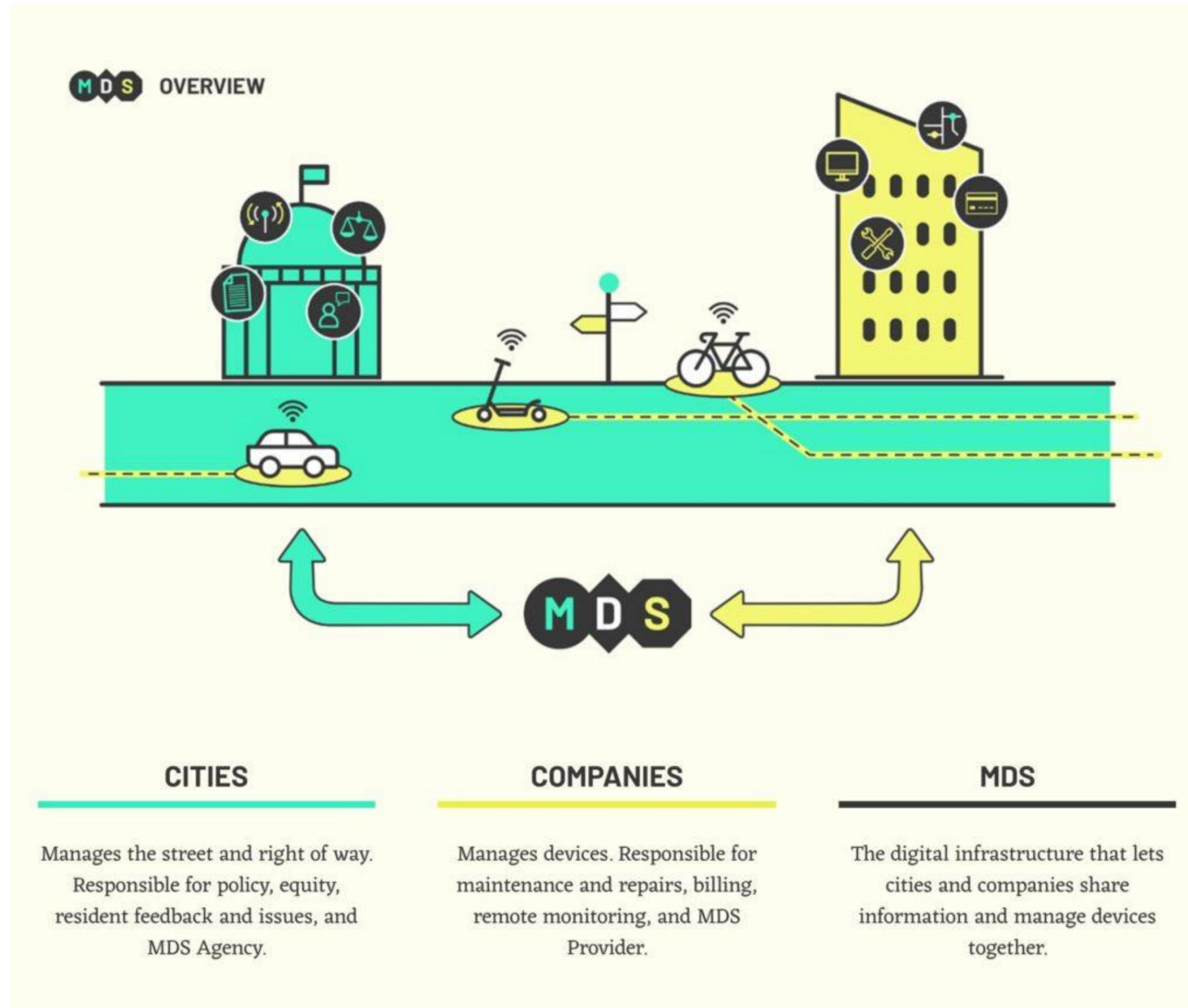
.github	Updating templates to include policy spec (#393)	11 days ago
agency	Updates to various documentation to support code transfer from LADOT ...	5 days ago
policy	add clarity on rule status field	11 days ago
provider	Clarify currency units and default behavior (#388)	14 days ago
schema	Merge branch 'dev' into hunter-policy-api	11 days ago
.gitignore	adding Pipenv	last year
CODEOWNERS	Update CODEOWNERS	5 days ago
CODE_OF_CONDUCT.md	Updates to various documentation to support code transfer from LADOT ...	5 days ago
CONTRIBUTING.md	Updates to various documentation to support code transfer from LADOT ...	5 days ago
LICENSE	Updated license to CC BY 4.0 for OMF transition (#390)	5 days ago
README.md	Updates to various documentation to support code transfer from LADOT ...	5 days ago
ReleaseGuidelines.md	Update ReleaseGuidelines.md	27 days ago
ReleaseNotes.md	remove typo	11 days ago
providers.csv	Update providers.csv	11 days ago

README.md

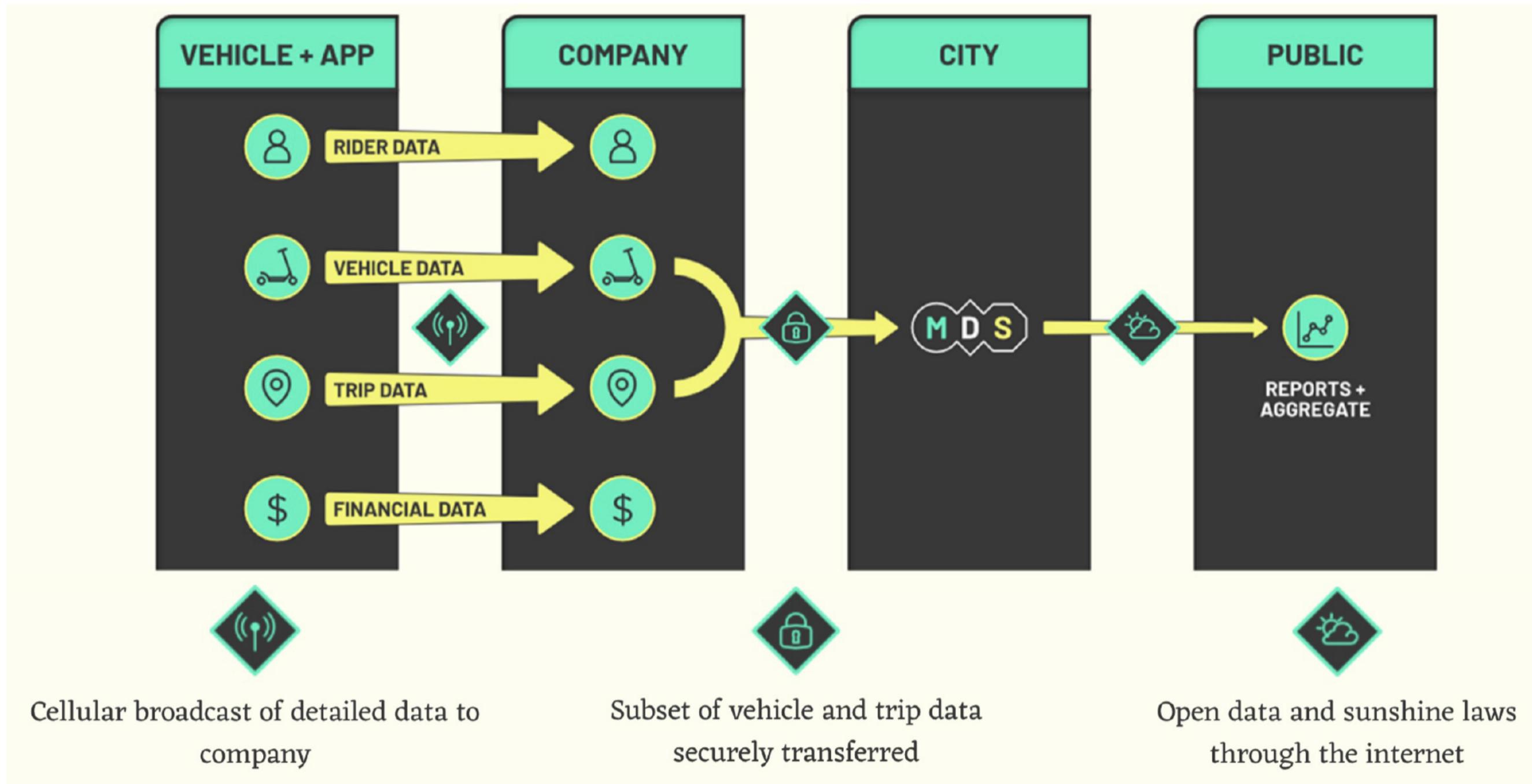
Mobility Data Specification

The Mobility Data Specification (MDS), a project of the [Open Mobility Foundation \(OMF\)](#), is a set of Application Programming Interfaces (APIs) focused on dockless e-scooters, bicycles and carshare. Inspired by projects like [GTFS](#) and [GBFS](#), the goals of MDS are to provide a standardized way for municipalities or other regulatory agencies to ingest, compare and analyze data from mobility service providers, and to give municipalities the ability to express regulation in machine-readable formats.

Mobility Data Specification (MDS)



Mobility Data Specification (MDS)



Curb Data Specification (CDS)

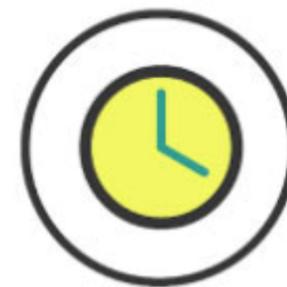


At its core, CDS is a set of APIs (Application Programming Interfaces) which allow cities to digitally represent their curb space and communicate with curb users in different ways.



CURBS API

A standard way for cities to digitally publish curb locations and regulations, which can be shared with the public and with companies using curb space.



EVENTS API

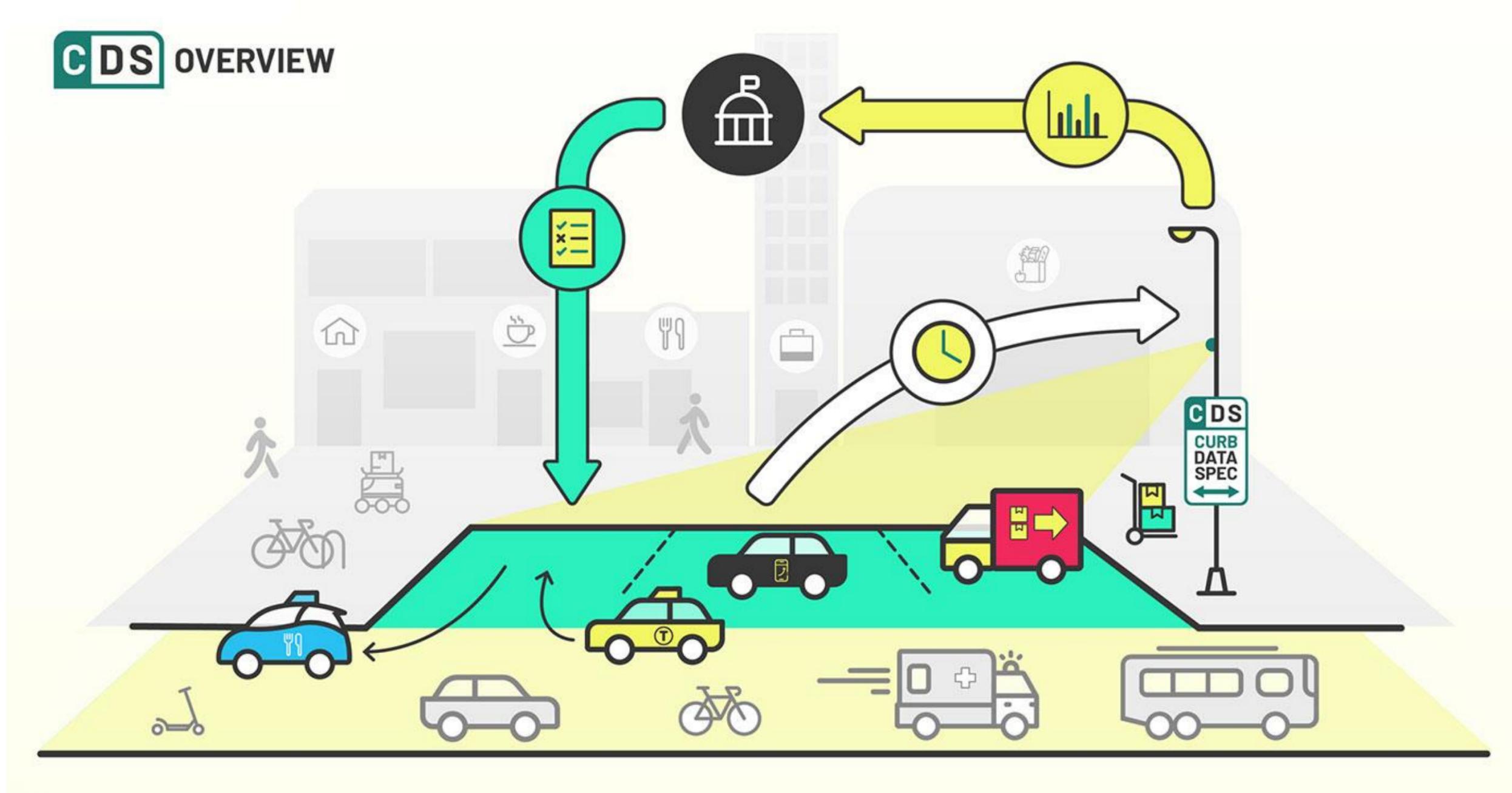
A standard way to transmit real-time and historic commercial events happening at the curb to cities. Event data can be derived from company data feeds, sensors, check-ins, and other city data sources.



METRICS API

Track curb usage session details and define common calculation methodologies to measure historic dwell time, occupancy, usage and other aggregated statistics.

Curb Data Specification (CDS)



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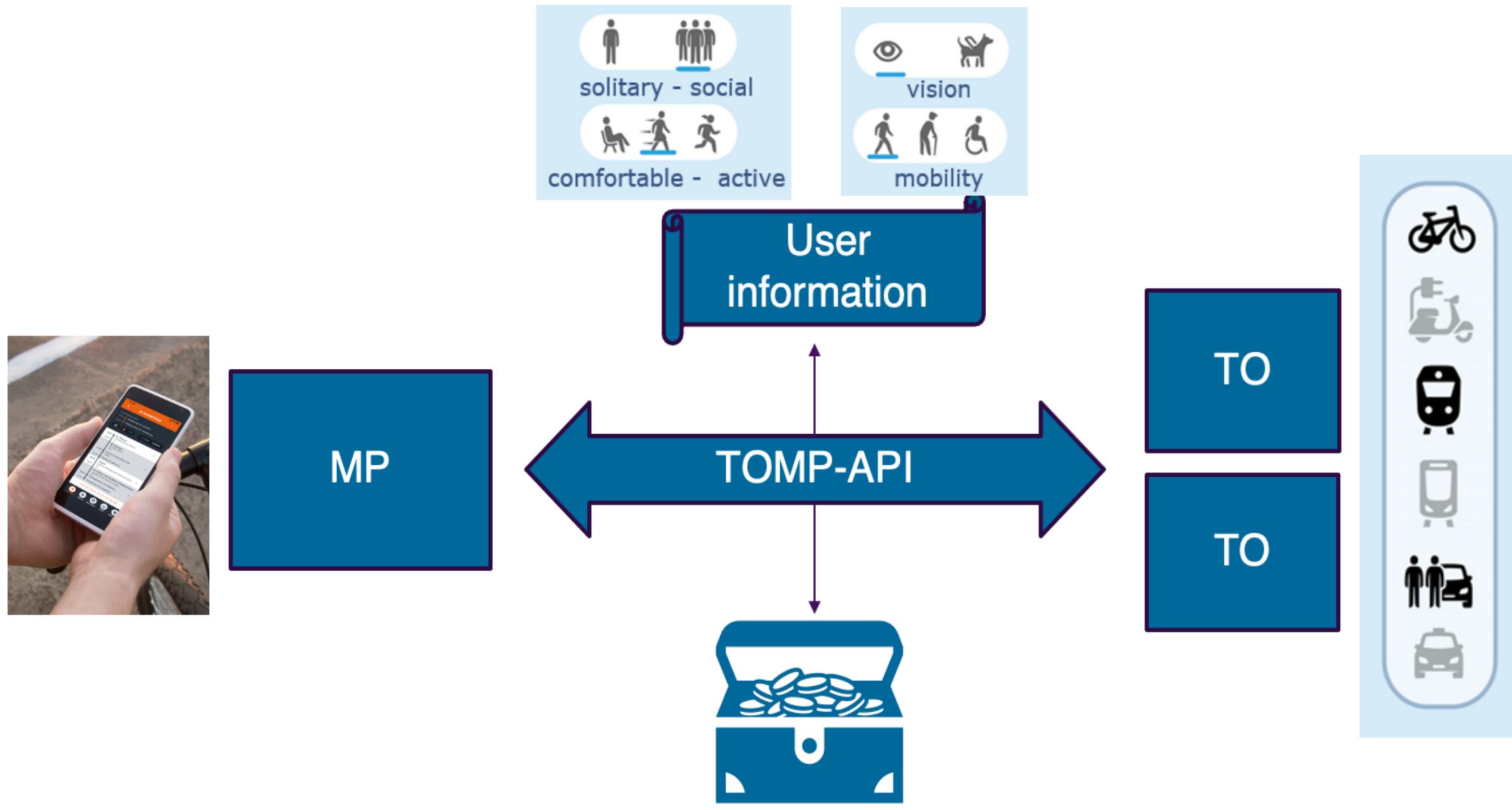


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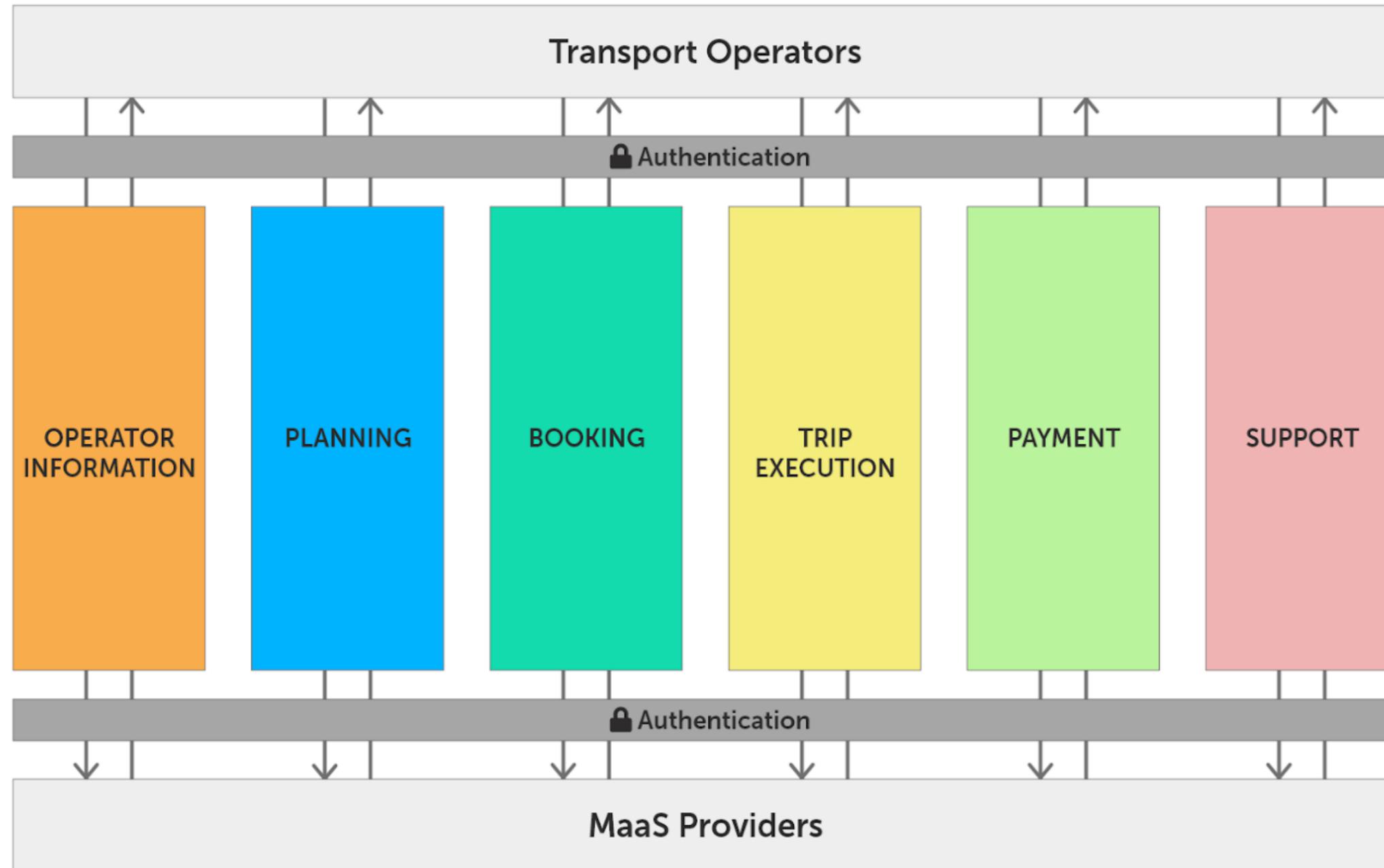
TOMP-API

By Edwin & Tjalle

TOMP-API basis



TOMP-API functional blocks



TOMP-API: services for all modes



TOMP-API v1.4: official launch



Major changes in the release

- **One-stop booking** process for public transport and map-oriented assets
- Added **context to a booking**, allowing reduction
- **Integration** with **other standards and specifications**
- **Better support** of
 - Taxi process
 - Scooters & Bikes in the support module

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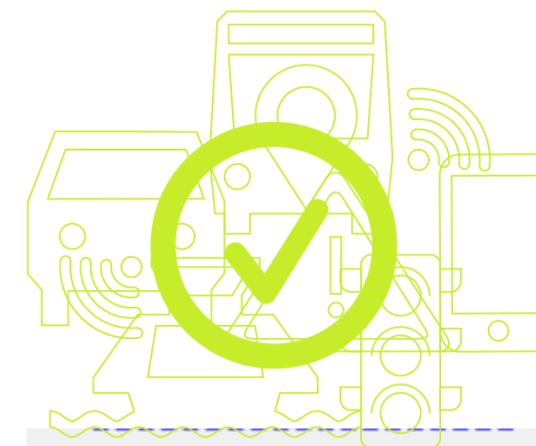
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CDS-M

By Edwin

City Data Specification-Mobility (CDS-M)

- City in control
- Standardized process & tooling to
 - set up data exchange TO – City
 - Ensure privacy, security, legality, and ethics
- Includes “Use case & standards stores” for
 - policy maker’s problems
 - related metrics
 - related standards / specifications
- Produces exact specifications of data exchange, containing
 - A privacy grade
 - A grade on commercial sensitivity
 - All known technical aspects
 - Required legal documents
- Includes supporting documentation



- 1 DEFINE THE PROBLEM
- 2 SELECT THE USE CASE
- 3 PRIVACY ASSESSMENT
- 4 SECURITY ASSESSMENT
- 5 LEGAL AGREEMENTS
- 6 DATA EXCHANGE
- 7 DATA ANALYSIS & EVALUATION



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Workshop time!

Facilitated by Roelof

Ask us everything you want to know!

- Details on any
 - Standard
 - Specification
- Implementation & Usage
 - Tools & Resources
 - Guides
 - Your voice in shaping the standards & specifications
- Policy & Data
 - Tenders & Licensing
 - National Access Points & Data sharing
- MaaS Ecosystem
 - Operators & Cities
 - MaaS providers & Third parties
 - Challenges & Opportunities

Thank you for your attention!

