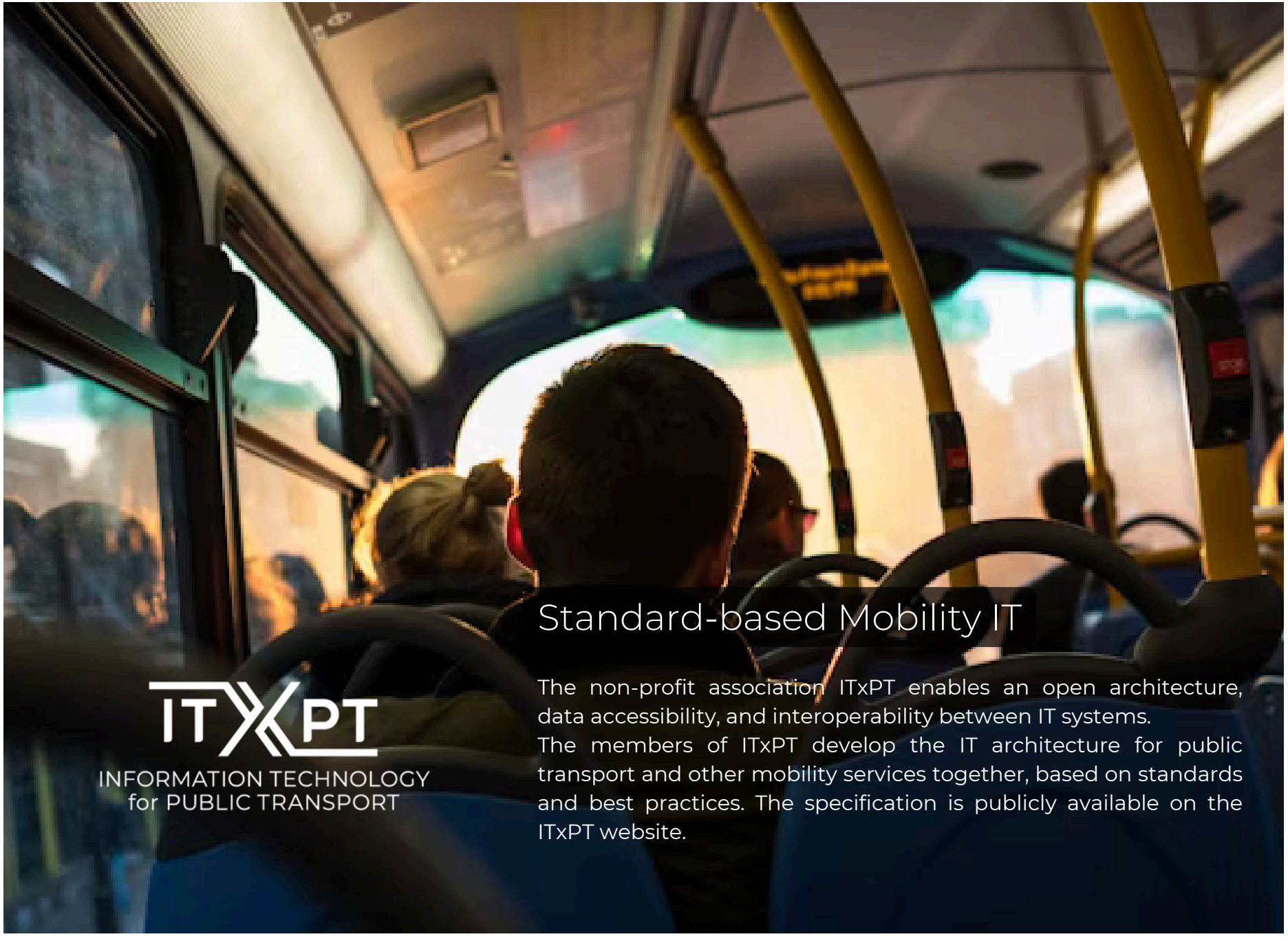
ACTIVITY REPORT 2024

ITXPT
INFORMATION TECHNOLOGY
for PUBLIC TRANSPORT



ITXPT

INFORMATION TECHNOLOGY
for PUBLIC TRANSPORT

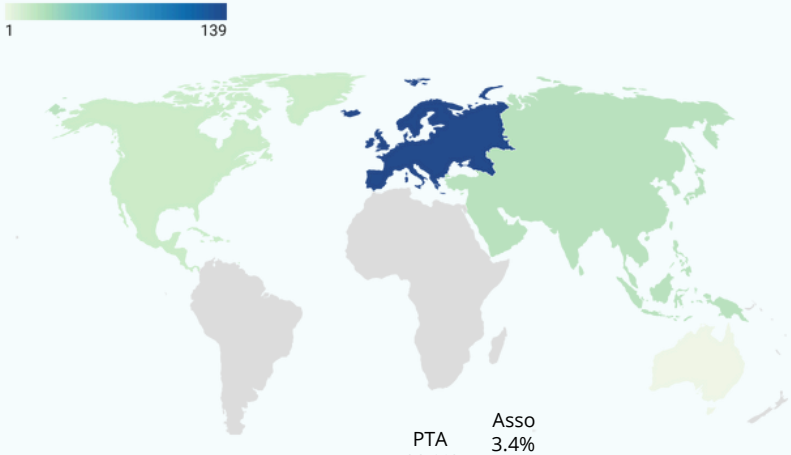
Standard-based Mobility IT

The non-profit association ITxPT enables an open architecture, data accessibility, and interoperability between IT systems.
The members of ITxPT develop the IT architecture for public transport and other mobility services together, based on standards and best practices. The specification is publicly available on the ITxPT website.

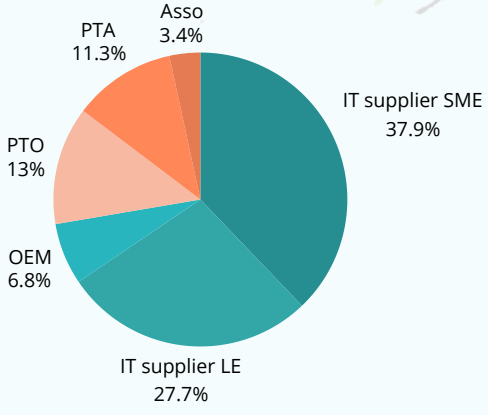
2024 in numbers

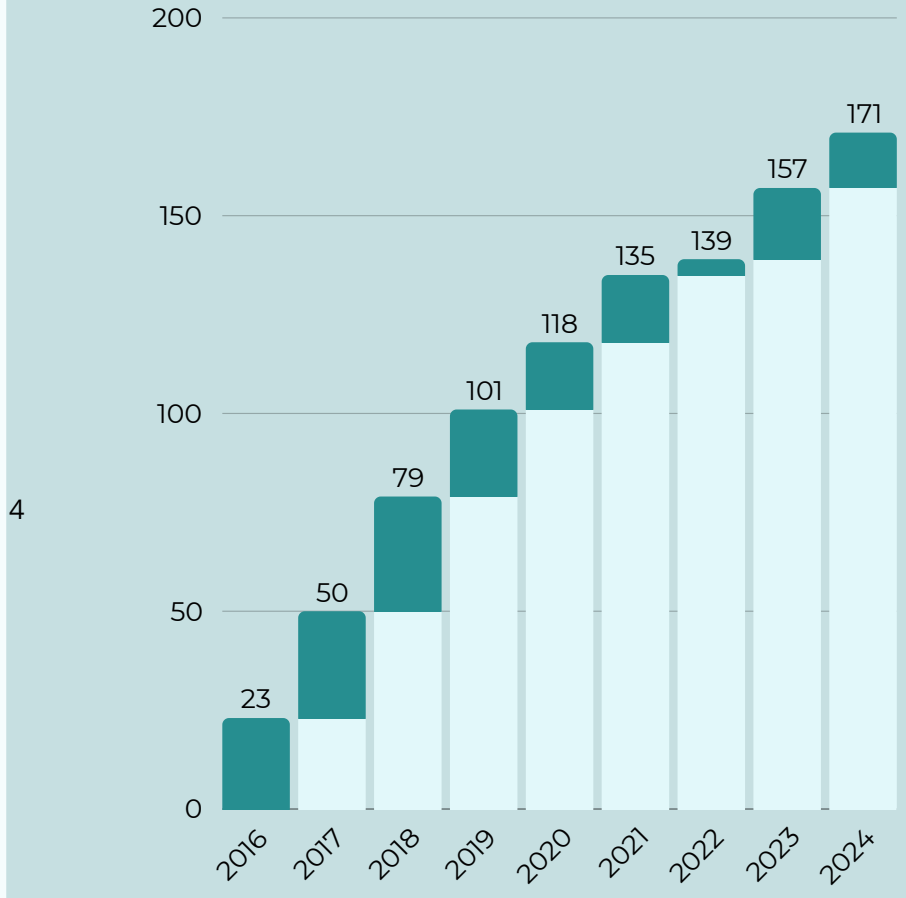
Members from the whole world

In 2024, ITxPT counted **177** members and partner associations from **28** countries. With that, ITxPT is an essential factor in Mobility IT standardization, working to facilitate standardized data and develop innovative open IT solutions.



A quarter of the ITxPT members consist of Public Transport **Authorities**, **Operators**, and **Associations**.

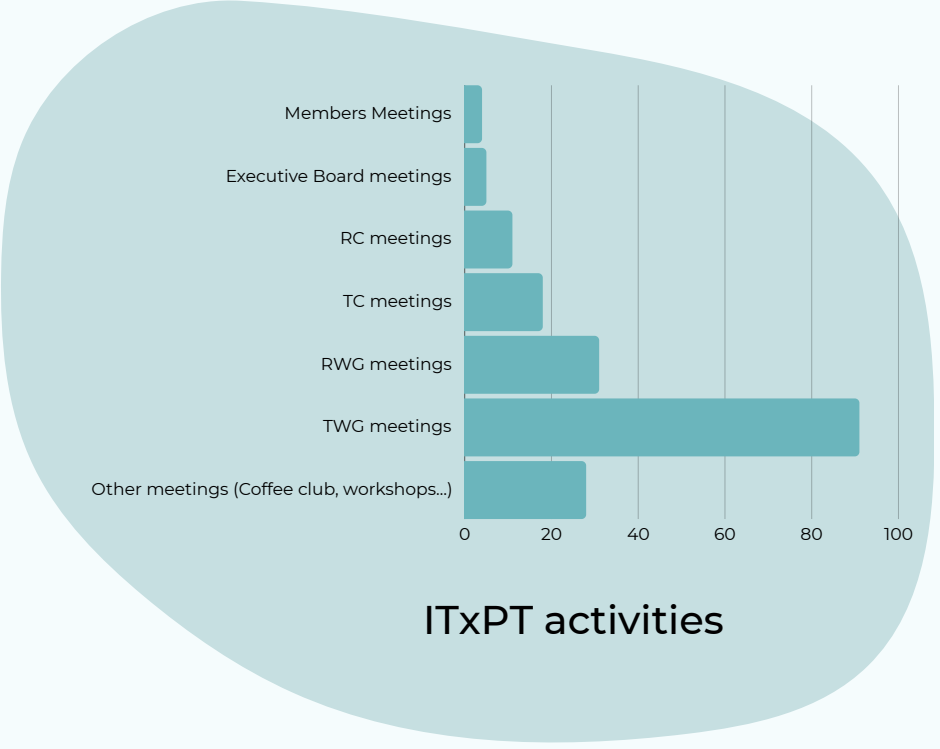




Membership development over the years

Meetings and activities

With over **188 working meetings and activities in 2024**, the ITxPT collaborative community was highly active in developing new specifications, including the release of the **Linden** package.

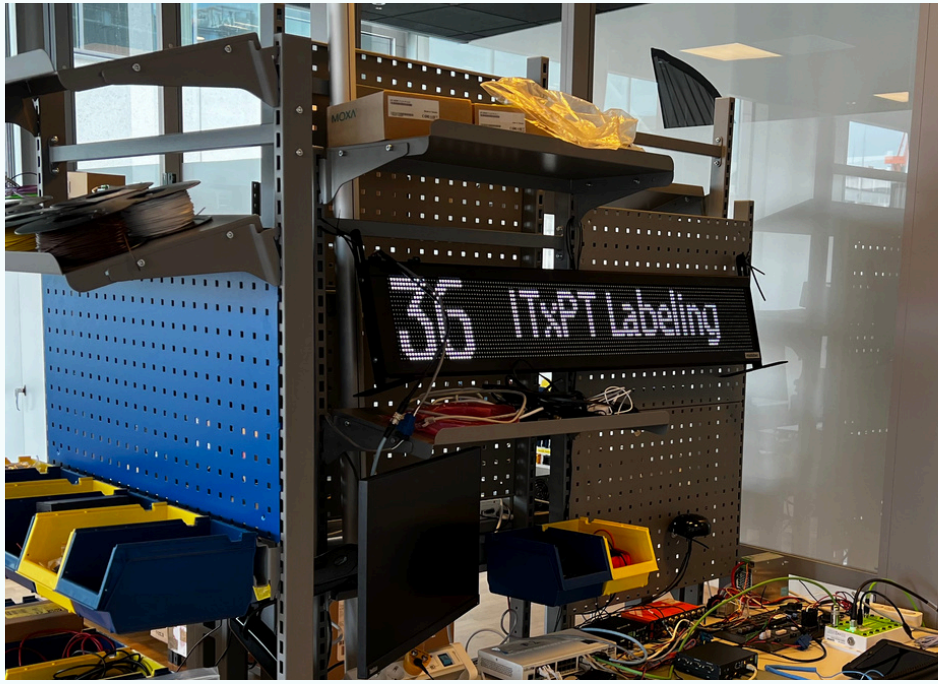


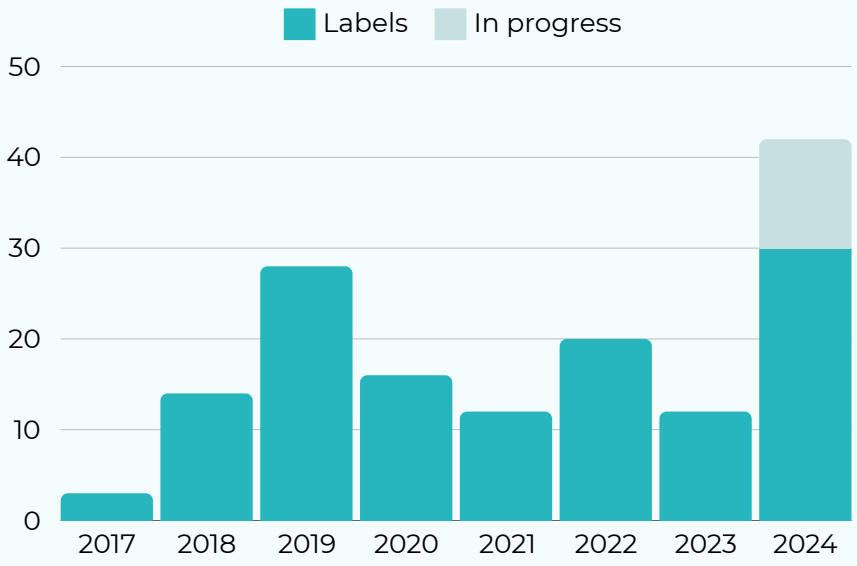
ITxPT activities

Label deliveries

The ITxPT label proves that a device has passed the ITxPT compliance tests in the ITxPT laboratory and meets specifications. This label simplifies the tender process for both buyers and sellers.

The granted labels are listed in the ITxPT online catalogue.





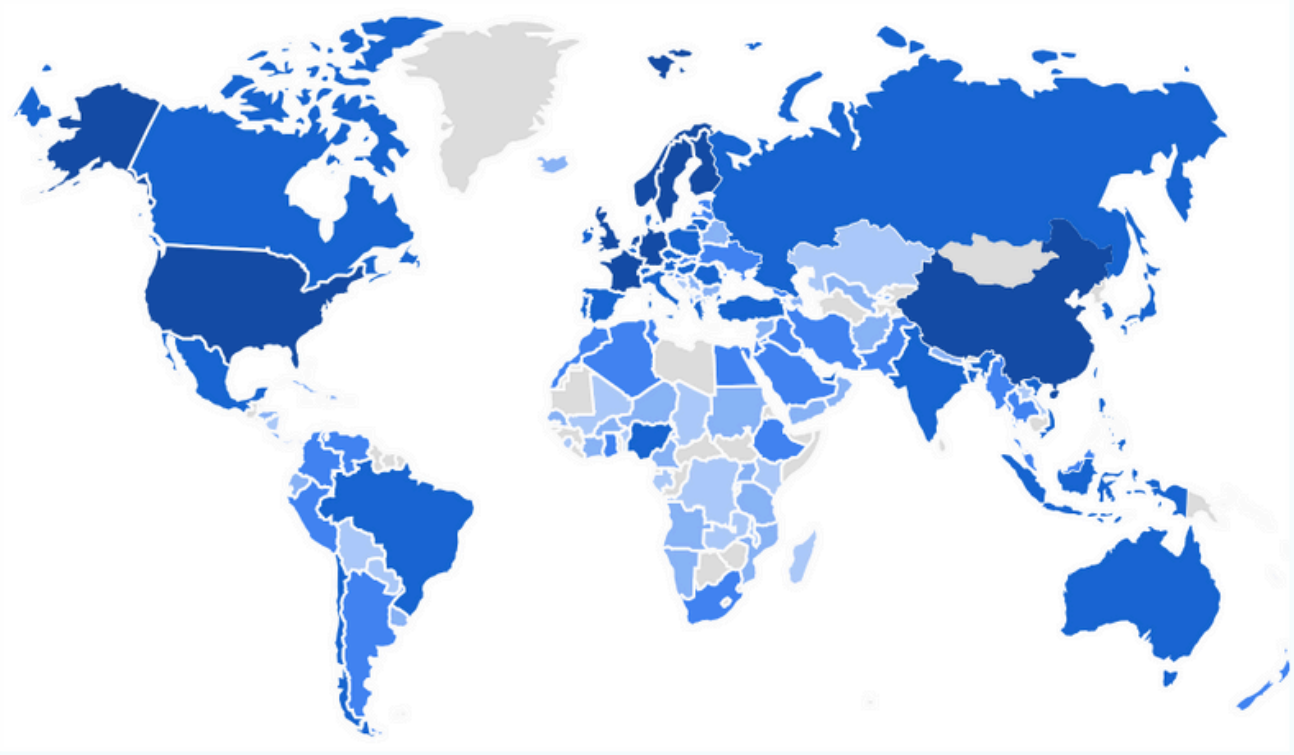
The label growth

Key information about labeling:

- **135 delivered labels** since ITxPT creation
- **+400% processed** in 2024 vs 2023
- **Average duration for a label:** 162 days

ITxPT knowledge center - Wiki

Anyone can register an account in the ITxPT documentation center and find the **ITxPT technical specifications**, the detailed **labeling process**, and other information about the association. ITxPT members have access to complementary information depending on their level of membership.



Country	Active users
Total	9,901 100% of total
France	1,381
United States	1,127
Netherlands	622
Sweden	605
Germany	583
China	568
United Kingdom	468
Finland	393
Norway	309
Spain	289

Wiki users are spread worldwide and include authorities, operators, vehicle manufacturers, IT suppliers, academics...

838 new registered users in 2024

9.9K active users in 2024

3min average engagement time

2024 ITxPT highlights

1

Release of a new package of the Technical Specifications named **Linden**. The Linden package focuses on **updating the current Sequoia package**, covering Service oriented Architecture (**SoA**). Linden includes minor and major releases of the specifications (read here) about the version levels. Linden package will be made available to the public on 01-April-2025.

Requirements for **power management**, **vehicle location** and **electric bus data related interfaces** were defined.

2

3

Expanded our member communication through two new initiatives:

1. "**Coffee Club**" sessions—informal, topic-focused meetings with members.
2. A series of **awareness sessions conducted in native languages**, beginning with a French session in December.

A word from the **Secretary General**

ANDERS SELLING
ITxPT Secretary General

2024 marked the eighth year of ITxPT - a year of growth, progress, and increasing real-world impact.

As more implementations roll out, we continue to see a rising number of inquiries and support requests from public transport authorities (PTAs), operators (PTOs), and suppliers. This growing engagement is a clear sign of ITxPT's relevance and the value we bring to the industry.

At the heart of our association is the continuous evolution of the ITxPT specification. In 2024, we moved forward with what we call the Chestnut release, a specification designed to support broker architectures and data-centric design and planned for release after the second quarter of 2025. Meanwhile, our service-oriented architecture release underwent a major review and was updated as the Linden release before the end of the year.

One of our key focus areas in 2024 was strengthening implementation support, particularly for authorities and operators. Implementing ITxPT, whether in tenders or technical integration requires specific knowledge and expertise beyond the traditional scope. As a collaborative community, ITxPT benefits from engaged and innovative first-to-market PTAs and PTOs who generously share their experiences, driving the continuous improvement of ITxPT support.

ITxPT continues to grow as a recognized partner in mobility, attracting increasing interest from stakeholders worldwide. We're seeing a rise in website engagement, labeling, new members from Asia and the Americas, stronger collaborations with other associations, and growing recognition from authorities and the EU.

While our core team remains small, our ability to deliver is powered by close collaboration with our members. However, in 2024, we expanded our expertise, further strengthening our capability in specification design and enhancing our technical support through the ITxPT laboratory.

Looking ahead to 2025, our challenge and opportunity is to further develop how we collaborate with members while expanding our capacity to support the growing community. From lab services and technical development to implementation support and participation in innovation projects, we're committed to making ITxPT an even stronger enabler of data interoperability in mobility.

ITxPT - a strategic choice

In a world with continually accelerating **IT evolution**, it is beneficial to become a strategic or principal member of ITxPT and join the **world-leading mobility actors** in developing the future of mobility IT. In all areas of mobility and smart city solutions, there is a need for **sharing standardized data between systems and services**, which the ITxPT specifications support.

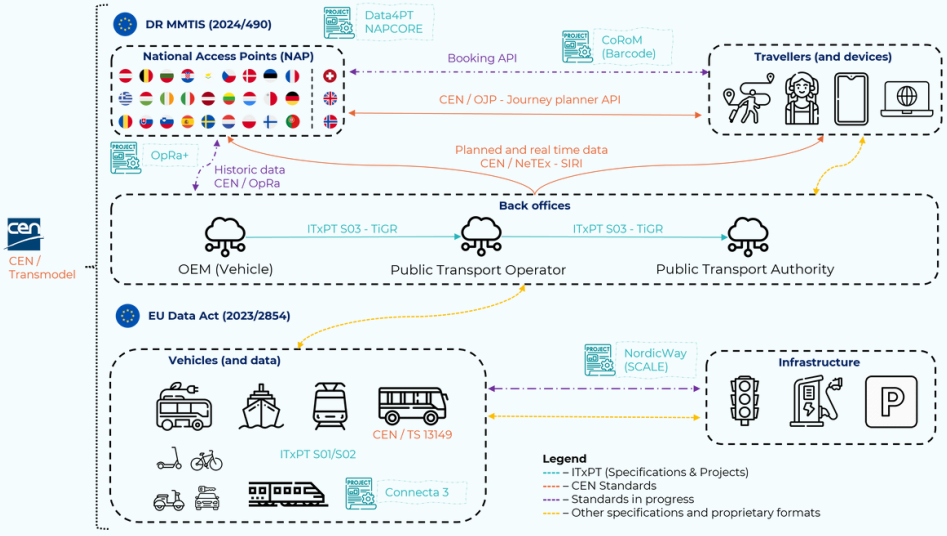
Access to data – a strategic necessity

Innovative PTAs have expressed that access to their data is critical to their operations and competitive advantage. **Interoperable systems with data in a standardized format enable direct access to all data** – something proprietary solutions do not provide.

Tenders - streamlined procurement

The ITxPT Specification reduces the time and costs of specifying IT systems during tenders. With the standard-based ITxPT specifications as basic requirements for a tender, **the buyer and the supplier can focus on specific services and requirements** without wasting time on specifying basic IT functionalities.

LANDSCAPE OF MULTIMODAL MOBILITY DATA INTERFACES



Strategic benefits of ITxPT

Improved efficiency:

Standardization facilitates **interoperability** between different systems and operators, reducing integration costs and enabling seamless data exchange.

Common data standards and interfaces eliminate the need for custom solutions, lowering development and maintenance expenses.

Enhanced customer experience:

Standardized systems and data formats enable **seamless travel experiences** across multiple modes of transport and different operators.

Consistent information presentation and ticketing systems improve user-friendliness for passengers.

Facilitated innovation and competition:

Open standards promote competition by allowing **new players to enter the market** without being locked into proprietary systems.

Interoperability encourages innovation by enabling the **integration of new technologies and services** with existing systems.

Increased sustainability and environmental benefits:

Standardized systems can optimize routes, schedules, and resource allocation, leading to **reduced emissions and energy consumption**.

Improved travel experiences and accessibility may **encourage modal shifts towards public transport**, further reducing environmental impact.

Costs saving:

Investment versus long-term savings. Invest in an architecture that will make systems sustainable in the future and more efficient today.

Future opportunities and challenges:

Address emerging trends (e.g., mobility-as-a-service, autonomous vehicles) and the importance of standardization in enabling **seamless integration and scalability**.

Address potential challenges, such as change management, legacy system integration, and the need for **ongoing collaboration among stakeholders**.

Established standards-based approach:

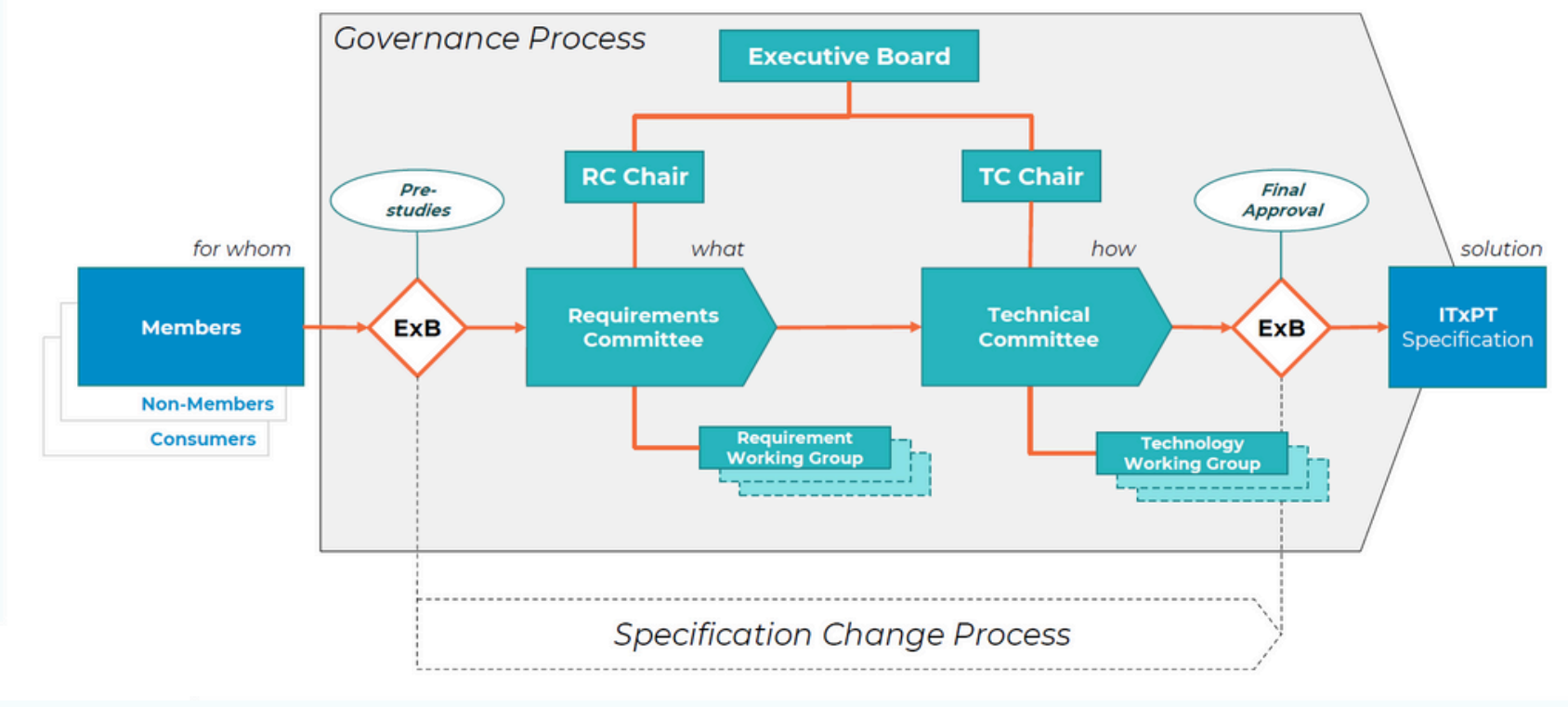
Be based on **Public Transport European standards (Transmodel ecosystem)**, means having a strong foundation for ITxPT to support end-to-end interoperability from vehicles to travellers. **CEN standards** are recognized as formal standards by the European Commission, making part of delegated regulations on mobility data. Stable governance process of CEN gives **credibility** and ensures **sustainability of ITxPT specifications**.

The ITxPT process

The ITxPT association is the only technical organisation offering a forum to discuss and work on hot topics concerning all **public transport stakeholders** : interoperability, data-centric architecture, data mining, electric vehicles, IoT, MQTT, smart industry, MaaS, new transport modes, data exchange, protocols...

All the Strategic and Principal members have access to the **Requirements** and **Technical Committees**, and their related **Working Groups**.

The ITxPT Governance Process, from customer need to detailed specification :



The Collaborative Community

Collaboration between members is the heart of the ITxPT operation, with committees and working groups composed of members carrying out the work. The ITxPT Office supports and leads the processes extending beyond the members.

How do we work ?

We work in a straightforward and **open collaboration**. The small ITxPT team and the Executive Board support a community of members working together to develop new and existing **ITxPT specifications**. With continuous improvement and iteration of the specifications based on customer needs, the specifications created are always highly relevant.

Committees drive specification development

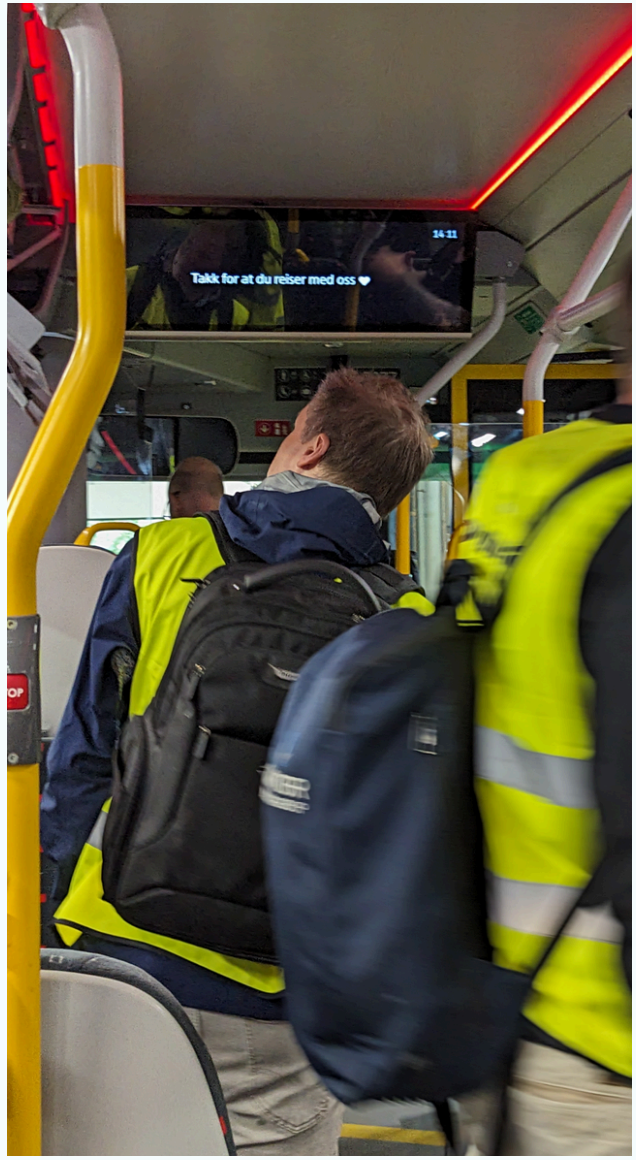
The ITxPT Collaborative Community drives the specification development through two committees.

- The **Requirements Committee** collects and **defines customer needs**.
- The **Technical Committee** turns the requirements into **specifications**.

Collaboration beyond ITxPT members

In previous years, ITxPT welcomed collaborations with other **associations transport companies** like **VDV** and **APTA**, **Mobility data** (Google/GTFS) through the Data4PT project, **EUSPA** (Galileo/EGNSS), **Smart Ticketing Alliance**, and **MaaS Alliance**.

In 2024, the collaborations with VDV, Calypso, Bus Word and MaaS alliance led into the first output



ITxPT inspires ITxMaritime

Moreover, besides the continuation of existing partnerships, new collaborations arose during 2024, beyond the public transport domain.

The recognition of ITxPT philosophy and its added value was the inspiration for the **Maritime stakeholders** to reach out to learn about our success story.

As a result, ongoing work is being done to bring solutions to the maritime sector facing similar hurdles (e.g. lack of interoperability, vendor lock-in, data access, etc.).

ITxPT in advisory board of projects

The recognition of ITxPT as “expert” in the field of multimodal data standards, led to its participation in the advisory board of two EU funded projects: **deployEMDS** and **Delphi**.

- DeployEMDS project aims to help making the **common European mobility data space a reality**. The initiative focuses on sixteen use cases from nine EU countries which contribute to the development of innovative services and applications.

- DELPHI project focuses on the **strategic dimension of integrating passenger and freight transport in a single federated system**, working towards integrating sectors, harmonizing data, and leveraging advanced methodologies, to transform transportation systems, for a sustainable future.

ITxPT got invited in the Advisory Board of both projects with the objective to review and advise the consortia regarding existing standardised interfaces in the field of multimodal data, inform about ITxPT specifications, and link with Transmodel relevant use cases. In the same time, gets a privilege position to learn and discuss the impact on the mobility field of European Mobility Data Spaces and freight transport.

Members events

Members meetings

On the 16th of June, ITxPT held the in-person **Members Meeting** in Oslo. The 41 participants had the opportunity to **network** and enjoy the city in connection to the comprehensive meeting agenda.

In addition to the 41 participants attending in person, 45 more joined the Members Meeting online, further enriching the discussions and collaboration.

The meeting day included a General Assembly and Members Meeting, followed by an **overview of ITxPT activities planned for the second quarter of 2024**.

The event also featured engaging workshops on topics such as **EU legislation, and in particular the Data Act,** and ITxPT's role, **label strategy with cloud lab insights**, and the **BaaS** (Bus-as-a-Service) project.

A visit to Nobina's electric bus depot offered participants an in-depth look at advancements in sustainable transport, and informal networking opportunities were facilitated during coffee breaks, lunch, and bus rides to and from the depot.

Attendees had also the privilege to hear from keynote speaker Mr. Bernt Reitan Jenssen, CEO of **Ruter**.

> **I promise we will continue to contribute to the standardization work, because this is really important. ITxPT is a part of our success.**
> **It will be a part of the rest of the world's success, and an essential part of our future success.**

Bernt Reitan Jenssen,
CEO managing director, Ruter

Ruter#

A fully integrated information system

CEO managing director of Ruter, highlighted that “Public Transport is instrumental for a **sustainable future”**. From Ruter’s perspective, “to succeed with data, we need to understand the ecosystem in real-time. We need a digital platform that can collect all the data and use it to create useful digital products that **bring solutions to the consumer**. Automatic capacity adjustment of public transport, automatic maintenance of roads and infrastructure and new flexible modes of mobility adapted to individual needs. Now data collection is instantaneous."

- **AI** and **use of data** are key to unlocking the full potential of the public transport sector.
- Through smarter operation we can solve transport needs better and **use the resources better**.
- A holistic view of the transport needs is important for defining the options and help with prioritization.

Focus on supporting Public Transport Authorities and Operators

Public transport has never been under more pressure with demands from increased legislation, reduced public funding and an increase in public expectations as to what a public transport service is. The ITxPT scope is primarily, technology, but we believe that investment in public transport technology should outlive the vehicles or projects that originally installed it. Therefore we help PTAs and PTOs to implement their technology using specifications that ensure that the choice of It system does not become controlled by a single vendor, that at the end-of-life, the IT system can be changed at a modular level and that new developments can be added to an existing IT system without tearing the system apart.

We do this in a couple of ways. First we help by publishing our specifications , but we also provide a community to enable PTA's and PTO's to meet and work with colleagues on both the specifications themselves, but also in a constructive environment with peers and colleagues to discuss key issues and share best practice.

- **Implementation workshop in native language**

In November 2024, we hosted a dynamic and interactive session designed to **facilitate the exchange of experiences** and challenges faced by transport authorities and operators, ITxPT members, during the implementation of ITxPT specifications.

The session was conducted in French to ensure ease of communication and **foster a collaborative environment** among participants from France and Switzerland. The session brought together representatives from nine transport authorities and operators, all of whom were already integrating ITxPT specifications into their tenders or architectures, in particular in the area of new electric fleets, on ticket validation projects and other.

Participants shared their successes and challenges in incorporating the specifications across diverse transport modes. Attendees stressed the need for **broader adoption of the specifications by suppliers** and **clearer requirements in the tenders**.

This was a first attempt to organise an event in local language and its success will spark in similar events held in different languages in 2025.

- **Coffee clubs**

We know that finding times in diaries for on-line meetings is a huge challenge and with many members working in virtual environments with multiple diary constraints, the challenge becomes even stronger.

Yet, we can always find time for a quick drink. This is where the concept of the Coffee Club was born. 20-25mins on a specific topic with no presentation, no huge agenda and just a single topic. The idea proved very successful and we have run many sessions under the heading of **"Saving money with ITxPT"**:

- **Labelling**. We discussed how labelling works and what it means when a supplier states that their product is ITxPT compliant and how you can check what they are labelled for.

- **How to tender with ITxPT**. Can we just put " ITxPT compliant" as a mandatory requirement in our tenders? Is that it? Is that enough? The answer was a strong "no" and we discussed the pitfalls of putting the wrong thing in your tender and how to look at and use the ITxPT catalogue.

- **ITxPT is not just for buses**. Although ITXPT came from the EBSF2 bus project it has spread to maritime installations, to trams and we now have a growing community focusing on implementation in heavy-rail. Members SNCF were able to showcase how the are using the ITxPT principles to add applications to their platform in the rail industry.

- **Bilateral meetings**

Communication is a difficult thing to get right and there is no single model that works for all. We are always interested in discussing our mission, the goals of our members, and checking if we are mutually aligned and how we can help our members achieve success.

For all new authority members we offer an hour's introduction. In 2024, we enjoyed sessions with Translink (Vancouver) and ATM (Barcelona).

Working together with members on expos

In 2024 ITxPT team took part in several events to keep on spreading knowledge about ITxPT and supporting the collaborative community.

Highlights of the year were:

- **IT-Trans**. ITxPT was present in IT-Trans through its members and by co-organising with UITP the final conference of the DATA4PT project. The staff met with the exhibiting members discussing emerging technologies and how ITxPT can help to overcome interoperability issues.

- The **DATA4PT final conference** was run successfully on the 15th of May, with more than 50 participants. After more than 4 years, partners, experts, EU Member States, National Access Points operators, transport authorities and operators, among them also ITxPT members, and other stakeholders got together to discuss project results, hear success stories and look into the future of the DATA4PT legacy. During the session, EU Member States representatives presented how the project has supported them with the implementation of EU standards for a more smooth, seamless mobility system.

- The **3rd NAPCORE Mobility Data Days** (6th - 7th November 2024), where the ITxPT team's expertise was featured in total 6 sessions, as organiser (in 2), and as a speaker (in 4). The usage of the data, the data quality (for all data categories and for parking in particular), the alignment of data standards and the future strategies were the key topics where ITxPT contributed. ITxPT was also recognized widely for its contribution to this large EU-funded project deliverables. Proceedings of the conference sessions can be found here: https://napcore.eu/proceedings-of-the-mobility-data-days-2024/.

- **World Passenger Festival**. ITxPT participated in the World Passenger Festival held in Vienna on the 25th of June 2024 by holding a session regarding ITxPT and heavy rail. The session was held by Laurent Llerena, an ITxPT ambassador. It drew a large crowd with over 150 attendees, particularly interested in the presentation on ITxPT's work in heavy rail, highlighting the growing interest in standardization and interoperability within the public transport field.

- **InnoTrans 2024**. Many ITxPT members participated in one of the world's largest trade fair for transport technology, promoting ITxPT at their booth.

Requirements Committee achievements

Functional Requirements on 3 different topics

Requirements Committee members worked collaboratively in dedicated workshops, leading to the delivery of use cases and functional requirements. In all those groups, all Strategic and Principal members are invited to share their expertise in relevant topics, representing all kinds of ITxPT stakeholders (vehicle manufacturers, public transport authorities, operators and IT suppliers) depending on the topic.

- **Electric Bus data**

Electric bus data was one of the three priorities of RC community in 2024, with the view to update existing specifications taking into account the first feedback from electric fleets implementations and ITxPT input. The working group which is composed by vehicle manufacturers, authorities, operators and IT suppliers, analyses uses cases on charging, energy optimization and safety aspects.

- **Vehicle location**

Vehicle Location is another important topic dealt in 2024. The Working Group defined functional requirements to standardise the interfaces between a vehicle location system and systems that consume vehicle location information. The group considered use cases where high resolution of vehicle positioning is required, while vehicle is at depot and on route or track. It also covered transport modes such as buses, heavy and light rail.

- **Power Management**

The definition of functional requirements for Power Management topic was the third significant milestone of the year. The objective of this work was to enable the update of existing specifications to address the needs of power management for all transport modes and vehicle energy technologies. The power control and power monitoring of different groups of devices were some of the fields of discussion.

In 2024, besides the three working groups, Requirements Committee contributed to the revision of S01 ITxPT specifications dedicated to installation requirements, by creating a detailed action plan to allow the smooth transition of the specifications towards all vehicle modes and vehicle energy technologies. The first output was the Linden Package, paving the way for further advancements (Chestnut Package in 2025).

Technical Committee achievements

ITxPT Dictionary

ITxPT has published the first release of its Dictionary, now available to the public in the Documentation Center in a searchable online format.

Based on the Transmodel, reference standard for public transport concepts, this dictionary serves as a valuable **reference** for developers of ITxPT specifications and anyone involved in implementing compliant systems. It provides clear, standards-compliant definitions of **all terms used in the specifications**. It is expected to be further extended during 2025, owing to the advance of plans to incorporate broker-based architecture in the next generation of specifications.

Additionally, ITxPT has continued to expand and strengthen its relationships with, and contribution to, other bodies responsible for defining standards and regulations within the public transport domain.

Broker-based architecture

A strategic direction towards a broker-based architecture was agreed in 2023 by the Technical Committee to underpin all future Technical Specifications.

ITxPT's plans to evolve towards a more **data-centric approach**, involving a **broker-based architecture**, have begun to take shape in 2024. After some well-attended workshops on the subject, a provisional specification for an MQTT-based **Active Inventory Service** was published for member review and has received some very useful feedback. Following the successful approval of the Linden release at the end of the year, a plan was presented for developing a new series of MQTT-based specifications (designated as S04) to extend the existing S01, S02 and S03 series specifications in the upcoming Chestnut release.

In some of ITxPT's outreach activities with members and other standards organisations, significant interest has been expressed in the progress of the Active Inventory concept and in the feature sets which depend on it, such as the work being done in several technical working groups (TWG09 – AVMS2, TWG03 – APC2, TWG07 – Logon, TWG06 – PIS) and the MQTT-based version of the GNSS Location service. The plan to integrate all this work during 2025 is ambitious and will start early in the year.

The ITxPT team is currently working on producing a reference implementation of the Active Inventory Service as part of its preparations for ensuring that all specifications are fully testable as soon as possible after release, and to assure the quality and usability of the specifications.

Passenger Information

The Passenger Information System (PIS) working group published a comprehensive Technical Pre-study late in 2023, accessible online to Strategic and Principal members here.

The conclusion of the pre-study was that the group should concentrate on the final stages of the complex chain which extends from ground-based systems to onboard systems, and work has been ongoing to isolate and define those areas where standardisation can prove most useful in promoting interoperability, such as methods for devices to declare their capabilities and the use they are intended to serve in specific installations. The Technical Working Group is currently exploring the possibility of using a minimal subset of HTML5 to express how the data obtained from sources such as AVMS should be formatted and displayed or played on a range of rendering devices which may not be fully HTML-capable.

Vehicle Monitoring

The AVMS2 working group has produced the first draft of its MQTT-based specification and put it out for preliminary review in June 2024.

This important feature set received significant contributions from members, and work is being done by the ITxPT team to integrate the outcome of this work those features on which it depends, like the GNSS Location and Logon features and the Active Inventory. We plan to introduce these connected items during March 2025.

GNSS Location

The MQTT-based version of the GNSS location feature is close to completion.

It will be presented to members for review in January of 2025, so that its results will be available for use to the AVMS2 specification.

Logon

The valuable work done by this working group during the early part of this year has reached the point where it can be collected into a coherent specification.

The task of integrating it with Journey Monitoring and the Active Inventory can now begin, and the ITxPT team will prepare for member review during 2025 Q1. The logon feature set is also needed to complete the Journey Monitoring specification.

Passenger Counting

After some thoughtful and well-informed input from members, the Passenger counting working group has reached the point where a unified, multi-modal solution has become clear.

The outcome of the group will be included in the next named release Chestnut.

Implementation projects drive innovation

As a highly active collaborative community, we are leaders, key contributors, and participants in several projects on the EU and national level. We help to increase implementation of the ITxPT specifications and support standardization.

The added value of the projects on ITxPT community is high! The projects feed ITxPT roadmap, raising new functional areas, and new services that ITxPT can offer. Moreover, projects give credibility to our association, placing ITxPT as the single technical expert for multimodal public transport systems in the mobility ecosystem. The projects are funded by the EU and other external sources.

Overview

NAPCORE (National Access Point Coordination Organisation for Europe) coordinates European mobility data integration across 33 beneficiaries from 26 EU Member States and three associated partners. The organisation's primary function is to coordinate and harmonise over 30 mobility data platforms throughout Europe. NAPCORE implements data standards and exchange protocols to ensure interoperability within the mobility ecosystem.

Programme Activities

ITxPT leads Sub-Working Group 4.3, which addresses multimodal data standardisation, with specific focus on public transport. The group works closely with other NAPCORE groups in the field of cycling, parking, rail whenever conjuncts with multimodal travel to ensure alignment of the standards. In 2024, the working group developed guidance documentation for booking API implementation at the national level, including National Access Point (NAP) integration protocols. The group concluded the development of the MMTIS DR data dictionary and initiated a comprehensive mapping of standards from NeTEx to APDS.

Technical Development

NAPCORE's involvement extends across multiple technical workstreams, providing expertise in multimodal transportation solutions and MMTIS Delegated Regulation implementation. Current projects include:

- Development of the NeTEx to APDS mapping
- Implementation of a quality assessment framework for multimodal datasets

Further Information

Updates on NAPCORE activities are available through LinkedIn (https://www.linkedin.com/company/napcore) and YouTube (https://www.youtube.com/@napcore5166) channels. For further information regarding the project, visit NAPCORE | National Access Point Coordination Organisation for Europe

ITxPT as the technical manager, together with UITP as coordinator and nine EU member states: Austria, Croatia, Czech Republic, Denmark, France, Italy, Portugal, Slovenia, and Sweden, participated in DATA4PT Project from January 2020 until June 2024 (4,5 years). The project was funded by the EU funding instrument Connecting Europe Facility (CEF).

The project aimed to enable union-wide multimodal travel information services and contribute to a seamless door-to-door travel ecosystem across Europe that covers all mobility services.

The achievements of the project throughout its duration can be summarized as follows:

- **The creation of a "helpdesk"** where a pool of experts provided technical support to all type of stakeholders for the successful adoption of NeTEx and SIRI for the in Europe.
- **The maintenance and update of Transmodel website**, which serves as one-stop-shop source of information about Transmodel based standards, incorporating material from different sources. As complementary to website, a wiki page was also provided, where Members States can update information about national and local implementations and best practices.
- **The development of Greenlight validation tool for NeTEx datasets**. It is the first open source user-friendly tool dedicated to NeTEx. The tool is maintained at ITxPT github repository and offers a browser-based interface.
- **The capacity building regarding Transmodel standards** through training events and workshops. Member states praised the opportunity for them to interact directly with their peers and share their challenges, progress, and success and finally getting a better understanding of the standards. Training events assets are now available at Transmodel website under documentation.
- **The contribution to CEN standardization work**, and in particular to the definition of European profiles for NeTEx and SIRI on accessibility data and passenger information (European Passenger Information Accessibility Profile – EPIAP (CEN/TS 16614-6:2024) and (European Real Time Passenger SIRI Information Profile (CEN/TS 15531-7:2024)) and of national profiles for NeTEx for Austria, Czech Republic, Denmark, and Italy based on the European ones.

ITxPT role in the project was critical not only for the accomplishment of technical activities but in some cases also for the maintenance of delivered services, until a sustainable structure is established with the help of future NAPCORE project.

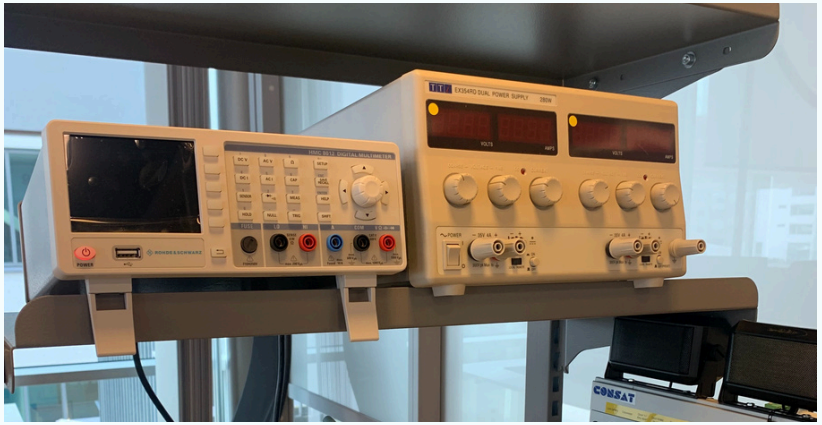
The added value of project was validated by both member states and the European Commission (EC) through the decision to ensure continuation of the DATA4PT activities with future CEF fundings (NAPCORE X project).
Read more at Project Brief and DATA4PT website.

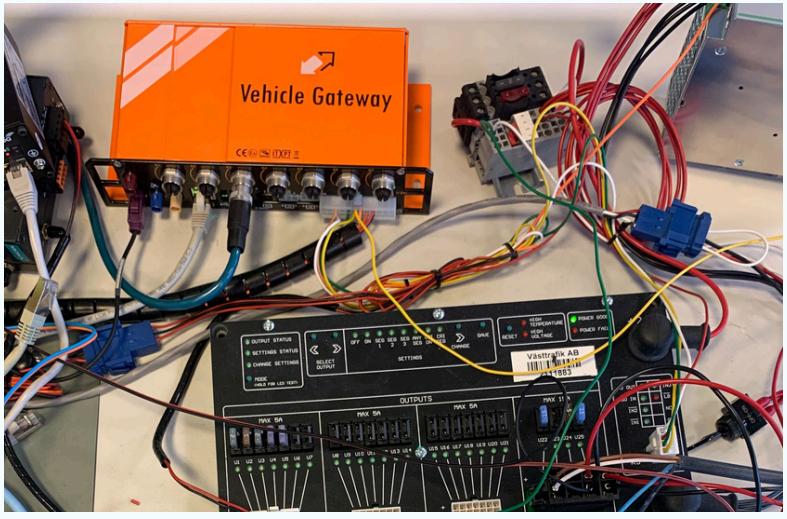
Laboratories and Services

In 2024, our laboratories continued to evolve and expand, reflecting our commitment to innovation.

The development of a proof of concept for **CloudLab** (previously referred to as the Virtual Bus) commenced, marking a new step towards offering a service for verifying and understanding ITxPT architecture and services.

Our collaboration with the Le Mans laboratory (France) remained. This partnership supported an unprecedented **increase in labeling requests**, with a fourfold growth compared to previous years.





During 2024, we have had an intern working at the Gothenburg office. We also welcomed a new software developer in September 2024.

The progress made this year highlights the dedication and synergy within our teams and partners, setting the stage for further advancements in 2025.

ITxPT members 2024

3ONEDATA TECHNOLOGY
4PT (TECHON7 APS)
ACKSYS
ACTIA TELECOM
ADIBUS
ADLINK TECHNOLOGY
AESYS
ALCOM ELECTRONICS
ALLIANCESWISSPASS
ALSTOM
AMNEX
ARCOBEL
ARRIVA
ARRIVA TRAINS
ASIS ELEKTRONIK
ASSTRA
ATB TRONDHEIM
ATRON
AXIS COMMUNICATIONS
BEIJER ELECTRONICS
BELDEN GROUP
BLUEBUS
BOREAL NORGE
BUS EIREANN
BUSTEC
BYD
CAF
CARD4B
CCJPA
CIBEST
CISCO SYSTEMS INC.
CLEVER DEVICES
COLWAY INDUSTRIAL
CONDUENT
CONNECT BUS
CONSAT
CRADLEPOINT
CS GROUP
CUBIC
DAHUA TECH
DAIMLER BUSES
DATIK
DE LIJN
DFI
DIGI
DRESEARCH
DTI
EGIS
ELMEC ELETTRONICA SRL
EQUANS
EUROTECH S.P.A.
EXPLEO
FARA
FLOWBIRD
FOURC
GAIA
GIRO
GMV
GUANGZHOU TONGDA AUTO ELECTRIC
GVB
HANOVER DISPLAYS
HC LINEAR
HIKVISION
HITACHI ENERGY
HIVEMQ
HOGIA
HOSTMOBILITY
HSL HELSINKI
IBASE TECHNOLOGY INC.
ICOMERA
INDRA SISTEMAS
INFODEV
INHAND NETWORKS, INC.
INIT
INTRAFFIC
ISR CORP
ITO WORLD LTD
IVECO BUS
IVU TRAFFIC TECHNOLOGIES
JOURNEO
KENTKART
KEOLIS
KOLLEKTIVTRAFIKKFORENINGEN
KONTRON
KYLAND TECHNOLOGIES
LANTECH
LECIP
LEONARDO S.P.A.
LTA SINGAPORE
LUMINATOR TECHNOLOGY GROUP
LUMIPLAN
MAESTRONIC
MAN TRUCK & BUS
METATRONIX
MLC ITS EUSKADI
MOVIA
MOXA
MULTIQ
NAVOCAP
NBMS - SNCB
NEC
NETMODULE
NEWFLYER
NOBINA
NORDLAND CITY COUNCIL
NORLED
NTA IRELAND
OBSERVIT
ORING INDUSTRIAL NETWORKING CORP.
OWASYS
OXYFI
PARKWAY AUTONOMOUS
PILOTFISH
PLL FINNISH LOCAL TRANSPORT ASSO.
PSI SOFTWARE
PYSAE
QBUZZ NL
R2P
RATP
REGION STOCKHOLM
RIDANGO
RTM MARSEILLE
RUTER
SAFETY VISION
SAFRA
SCANIA
SINTRONES TECHNOLOGY
SKANETRAFIKEN
SKANTECH
SKYSS HORDALAND AUTHORITY
SNCF
SOLARIS BUS
ST ENGINEERING URBAN SOLUTIONS
STA
STAGECOACH GROUP LIMITED
STIB
STRATIO
STREAMAX
SWARCO
TAIT COMMUNICATIONS
TEC
TELESTE
TELEXIS
TELIA
TENIX
TEQ
THOREB
TIDE
TISSEO COLLECTIVITÉS
TP DE LA RÉGION LAUSANNOISE
TPG
TRANSDEV
TRANSLINK VANCOUVER
TRANSPORT FOR GREATER MANCHESTER
TRANSPORT FOR LONDON
TRANSPORT PUBLICS FRIBOURGEOIS
TRAPEZE
TRIMET PORTLAND OREGON
TRIONA
TRONTEQ
UITP
UNIBUSS
VASTTRAFIK
VDS RAIL
VIVOTEK
VIX TECHNOLOGY
VOLVO BUSES
VONTAS
VY BUSS
WAVECOM
WESTERMO
XIAMEN LENZ
XIAMEN MAGNETIC NORTH
XIMEDES
XOVIS
YES EU
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