



Interoperability and multimodality in public transportation system

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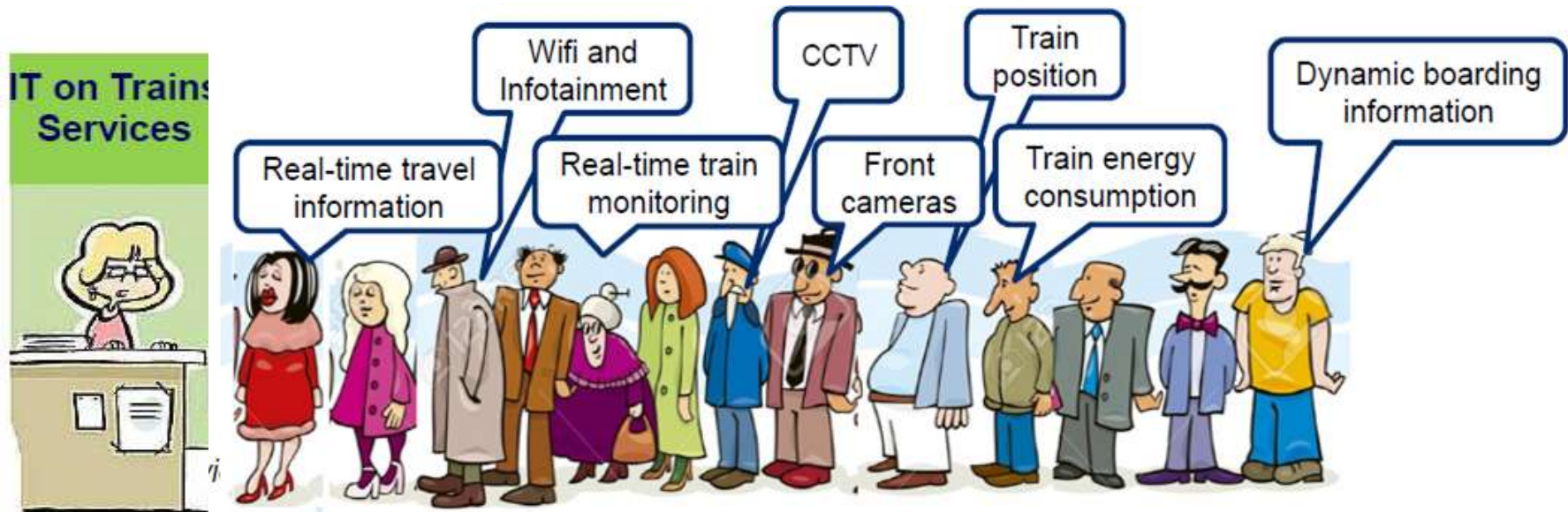
Sylviane is senior expert in train to ground communication and network system with a large experience in radio communication. She is member of IEC TC9 WG43 & WG46.

Laurent is leading development of Train and Passenger Information system with a background experience in rolling stock system engineering. He is member of IEC TC9 WG43, WG46 & WG48, CLC WG15 and CENELEC TC9X/TC256/WG36.

Interoperability and multimodality in public transportation system

Services

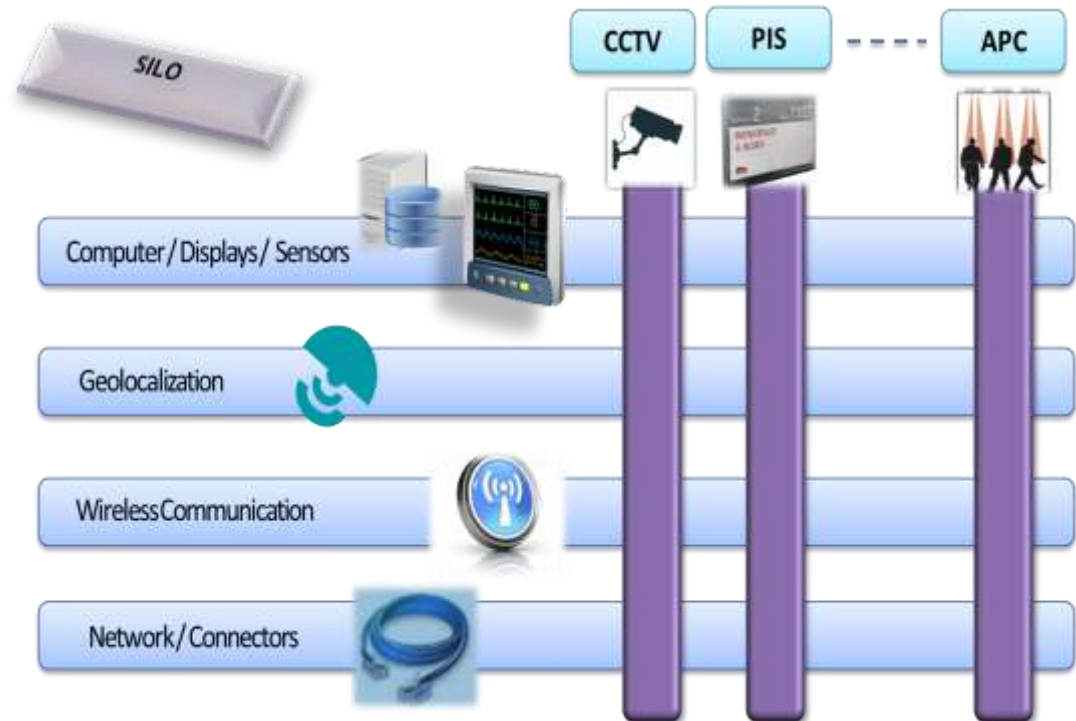
An increasingly **high demand** for new **services** to be implemented on board **quickly and easily**



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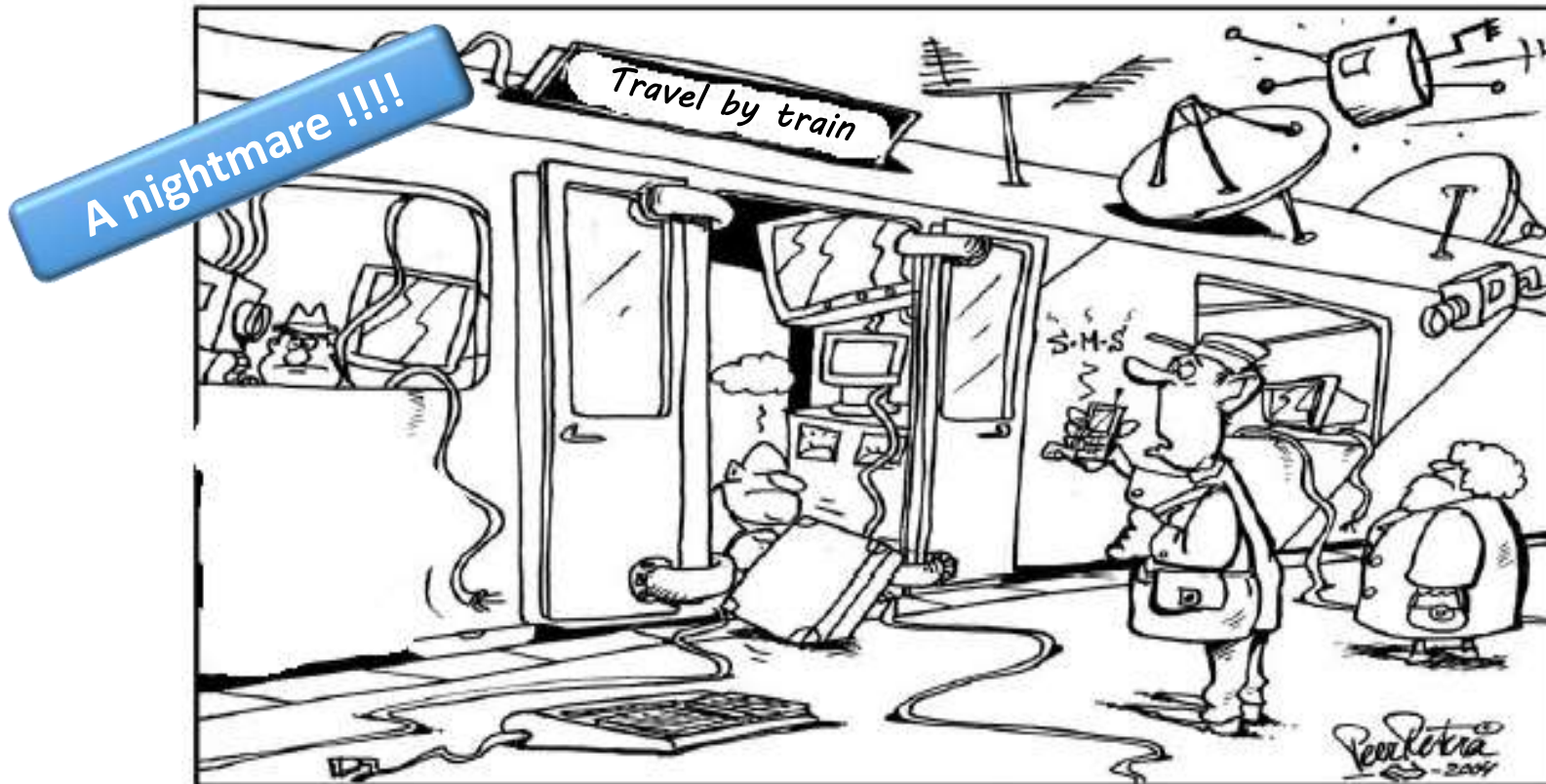
Response to demand

Since recent past, the railway embedded systems were based on a legacy of **silo concept** and **proprietary** systems with the drawbacks of being costly due to **redundancy of functions** and **complex interfaces**, some **obsolescence management** issues, a **scalability** even not possible and at least room less for innovation.



Challenge

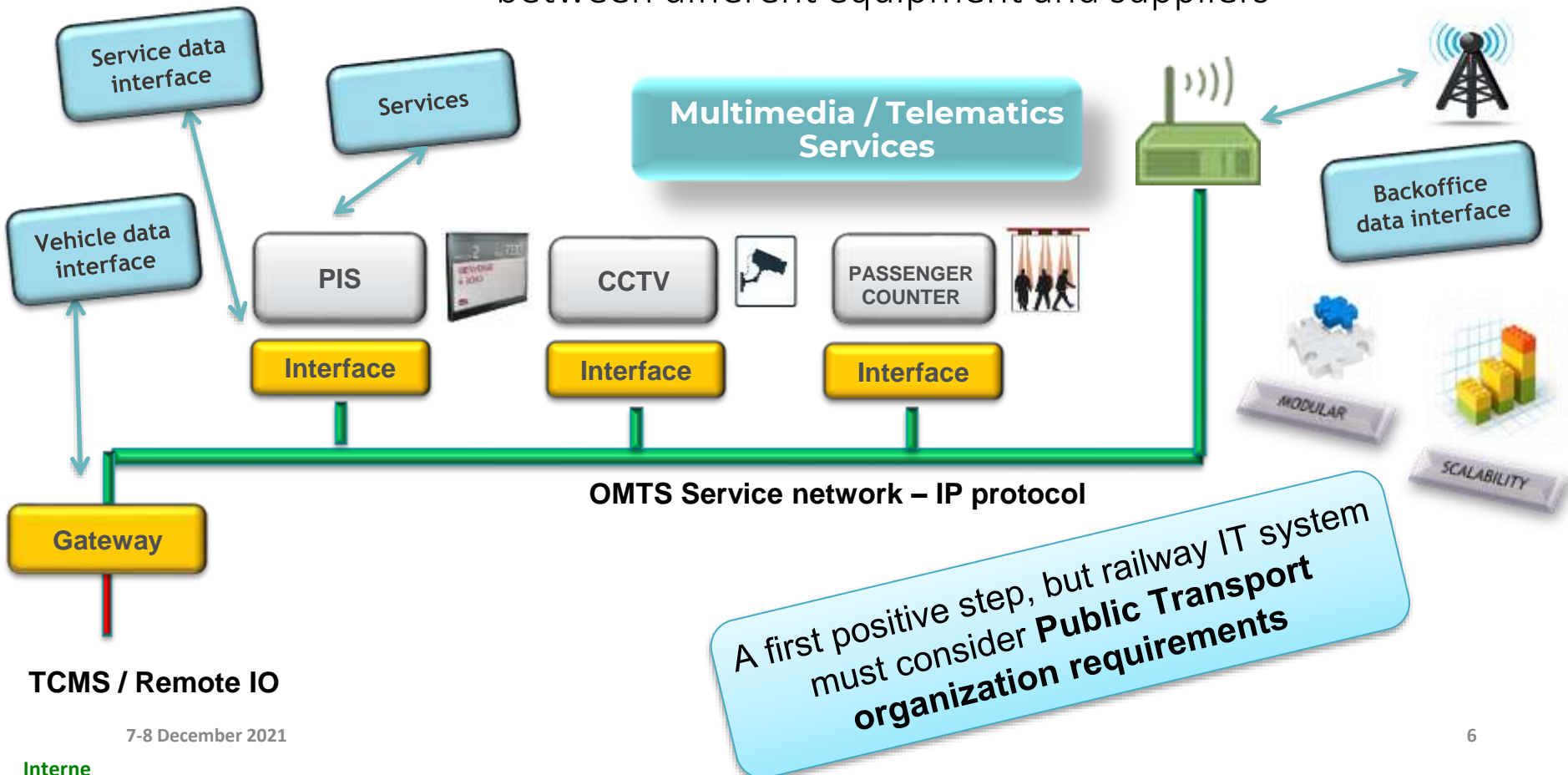
How to deal with obsolescence, up grade,
new services in that context ?



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A solution

Several initiatives from railway stakeholders tend to adopt a concept of an **open on-board platform** based on an **IP backbone** architecture and **standardized interfaces** between different equipment and suppliers



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Multimodal transport : Railway position ?

A PTO can operate **multiple type** and **range of fleet vehicle** and want to offer a seamless service to the travelers.



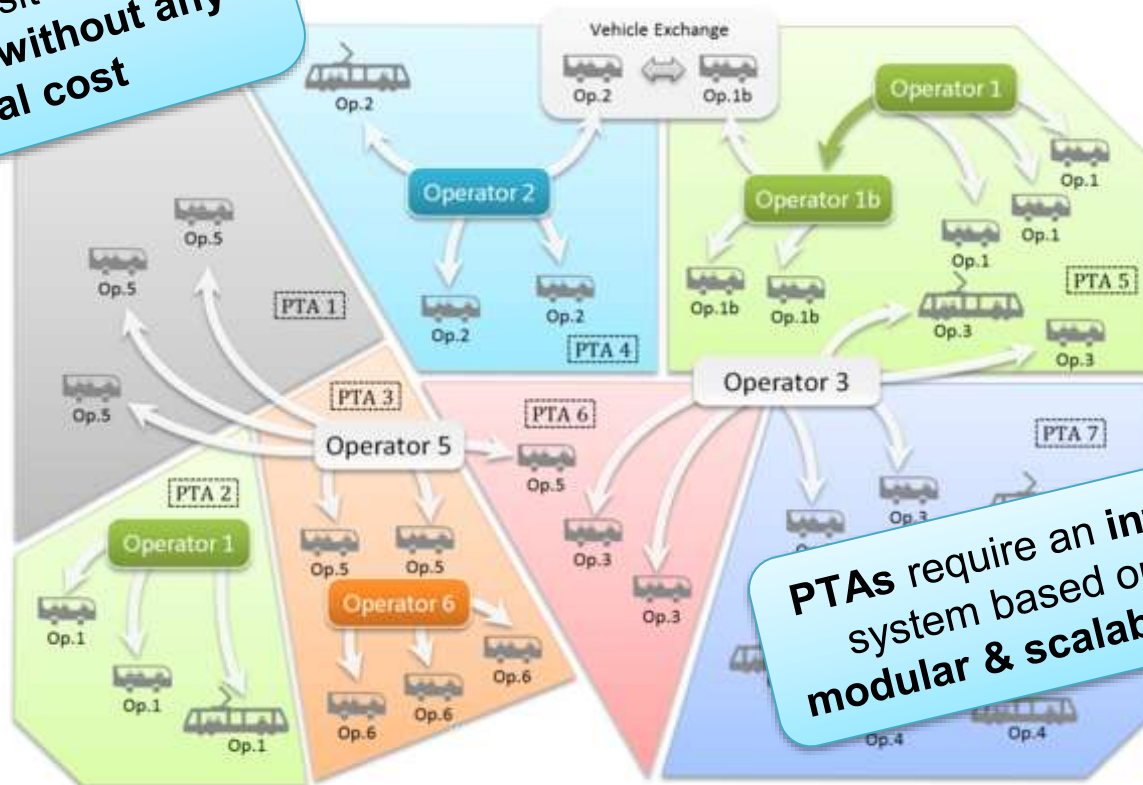
PTO : Public Transport Operator

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Public Transport organization needs

PTAs want to easily manage the awarding of a transit network to a new operator **without any additional cost**

PTA should manage different modal transport system either directly or through a subcontractor (PTO) leading to important cost due to **diversity of configurations** and the **multiplicity of stakeholders** with **several IT systems**.



PTAs require an interoperable IT system based on a **standard modular & scalable architecture**.

PTA : Public Transport Authority

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An open OMTS platform

For the benefit of PTA and PTO and industry, the railway stakeholders need an **open platform for OMTS**, based on relevant **standards** with the objectives of **interoperability** and **multimodality** required by public transport organization



MODULAR

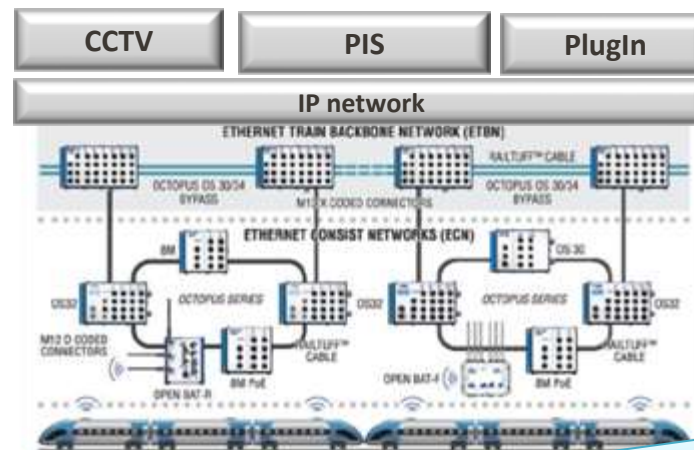


SCALABILITY



DATA ACCESS

Open platform with standard Interfaces



Modular Plug & Play IT architecture



SERVICES CATALOG

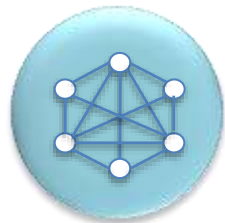
The railway industry needs a **common architecture** for multimedia services to offer a **full interoperability of IT systems** for **Public Transportation**.



INTL STANDARD

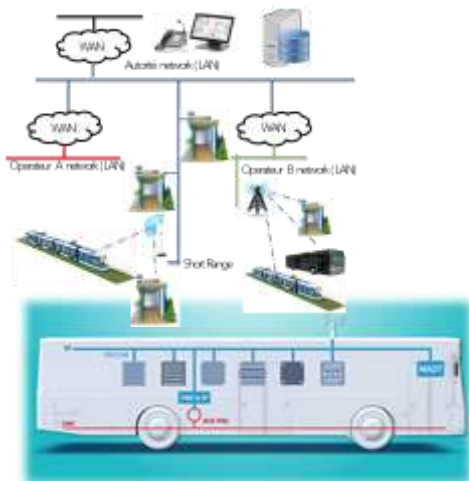
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Opportunity with ITxPT



AN ARCHITECTURE FOR INTEROPERABILITY

The ITxPT **open architecture** brings not only cost advantaged, but also improves services to travellers and supports innovation



Interne

ITxPT : Information Technology for Public Transportation



A COMMUNITY FOR INNOVATION

The ITxPT community **gathers PTAs, PTOs, IT suppliers and Vehicle Manufactures** from all **over the world** to define solutions for the next generation mobility



Light Transport System
[Bus & Trams]



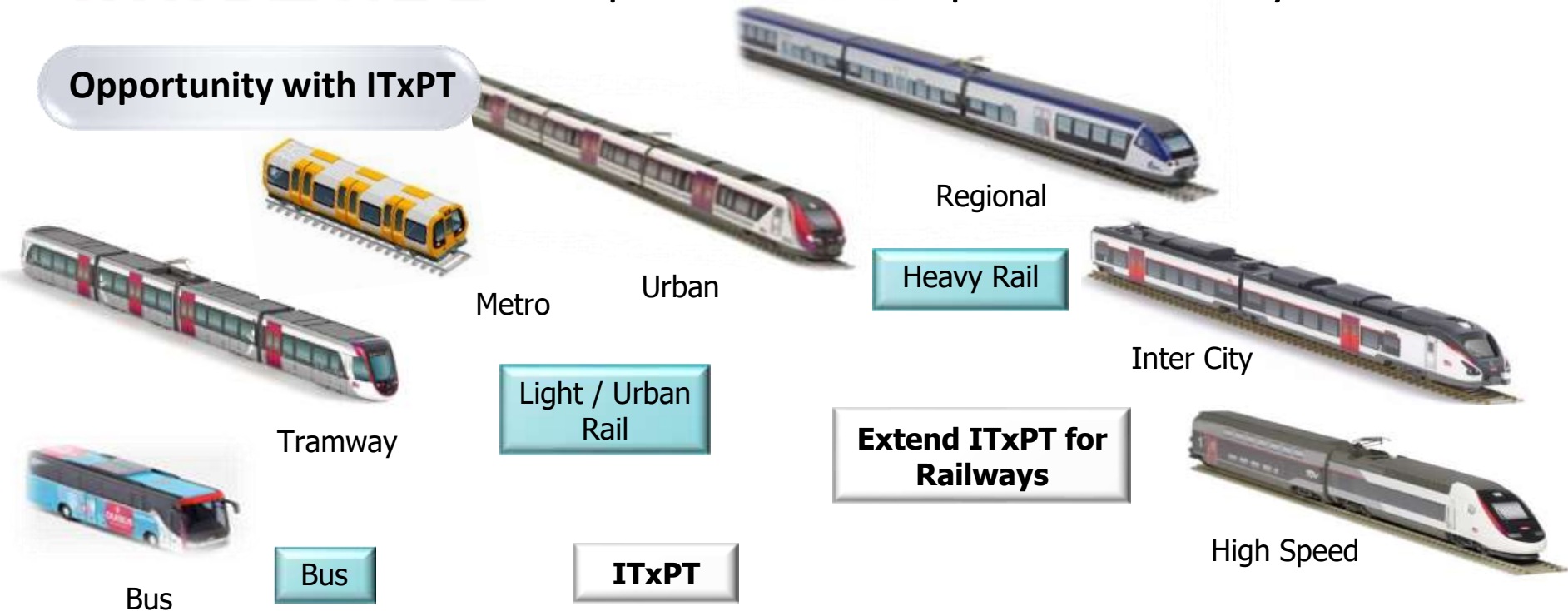
A LABEL FOR COMPLIANCE

The ITxPT **label** is the **quality seal** confirming that équipement, software or service are **compliant** with **Technical Specifications**



ITxPT is an inspiring success story !

Opportunity with ITxPT



Heavy Rail working group with Operators & Authorities



Heavy Rail Use cases analysis



Roadmap, best Practices, Functional requirements,...

Technical specifications for OMTS : Automatic Passenger Counting, passenger Information,...)



Opportunity with Shift2Rail

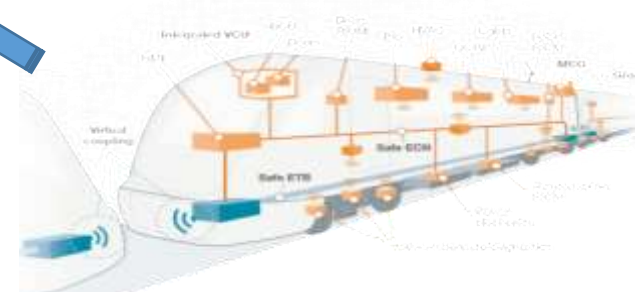
Activity to evaluate interfacing of an **open OMTS platform** to the new generation of TCN (Train Control Network) and TCMS.



Provide comprehensive inputs from the **railway operators and industry** in terms of user requirements to update existing or create new **OMTS IEC / CEN standards**

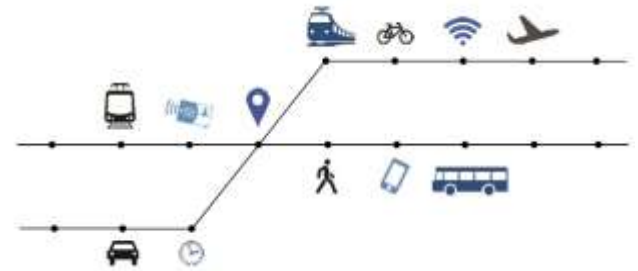
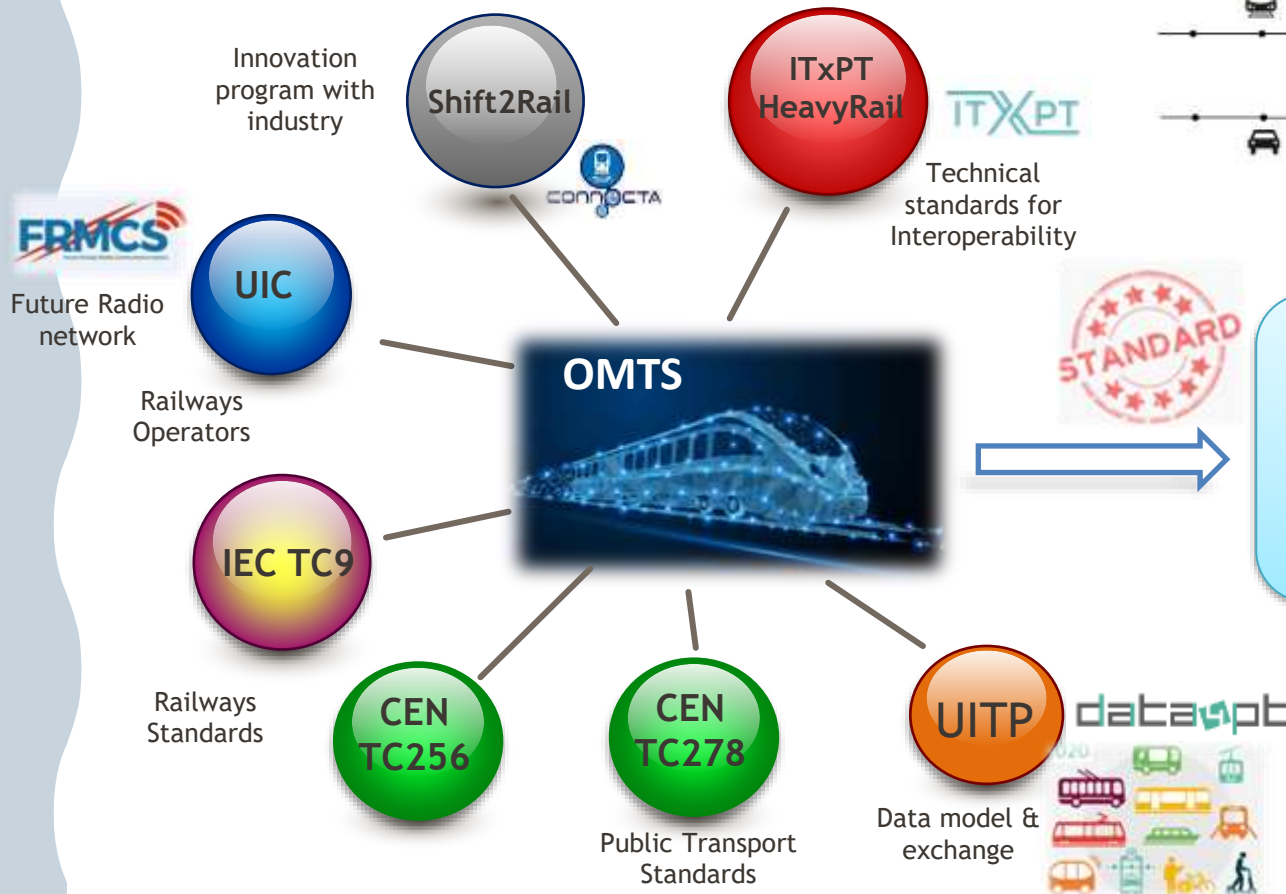


Analysis of the **ITxPT architecture** considering the **interface with TCMS**



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Merging strategy



Consistent actions leading to a **full comprehensive set of standards and technical specifications** for the benefit of PTA/PTO/Industry



Key takeaways

IEC & CEN stds in progress

Harmonized vehicle / ground communication

Modular & Scalable

Standards required

Multimodal

ITxPT is needed !

An open OMTS platform

Public transport ecosystem

