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European Fare Rail Profile NeTEx - Call for Experts

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Call for Experts: Development of the NeTEx EU Fare Rail Profile - CEN Technical Specification

Introduction

The European Committee for Standardization (CEN), in collaboration with relevant stakeholders across the transport sector, is seeking experts particularly with knowledge of the railway transport business and operations to contribute to the development of a **new EU Rail Fare Profile under the NeTEx** (Network Timetable Exchange) series (CEN/TS 16614). This initiative is part of the wider efforts to enhance the interoperability of data exchange in passenger transport services across the European Union, aligning with the objectives set out in the recent draft revision of the Technical Specifications for Interoperability (TSI) for telematics applications.

The NeTEx series has become a crucial standard for the exchange of transport data, ensuring that different stakeholders, including public transport operators, authorities, and third-party vendors, can communicate using interoperable data formats. The development of the EU Multimodal Fare Profile in the longer term will further support the harmonization of fare structures and pricing schemes across the EU, promoting seamless ticketing, multi-modal travel, and transparent fare product combinations.

Background

As outlined in the draft **TSI Telematics**, the integration of ticketing and fare data is essential for achieving the European Union's goals of creating a Single European Railway Area. To this end, standards such as NeTEx, and other International standards, play a key role in ensuring that systems used by different operators and modes of transport are compatible and interoperable.

The NeTEx standard (CEN/TS 16614 series) is part of the suite of standards that facilitate the exchange of public transport data, covering timetable, operational, and fare data. However, with the evolving needs of the market and the increased focus on cross-border and multi-modal travel, there is a recognized need for a new **EU Rail Fare Profile** that standardizes the way fare information is managed and exchanged across different transport operators and systems.

Objectives

The key objective of this call for experts is to develop a comprehensive and technically sound **EU Rail Fare Profile** in the short term within the NeTEx series of standards, building on the existing CEN/TS 16614 series. The new EU Rail Fare Profile is a step towards a more developed Multimodal Fare Profile that will:

- **Ensure Interoperability**: Create a harmonized framework for the exchange of fare data across different transport networks and operators,

supporting the integration of national and regional fare systems into a unified European structure.

- **Support Multi-Modality**: Enable seamless integration of fare data for journeys that involve multiple modes of transport, including rail, metro, bus, and other forms of public transport.

- **Promote Transparent Pricing**: Facilitate the standardization of fare structures and pricing schemes, ensuring that passengers can access clear, consistent, and comparable fare information, regardless of the provider or transport mode.

- **Encourage Innovation**: Provide a foundation for new services and applications, such as dynamic pricing, integrated ticketing, and mobility-as-a-service (MaaS) solutions, by ensuring that fare data is accessible and standardized across systems.

Scope of Work

Experts selected for this project will work within the framework of CEN to develop the **EU Rail Fare Profile** for NeTEx. This work will involve:

1. **Reviewing Existing Standards**: Understanding and building upon the existing CEN/TS 16614 NeTEx series, as well as related standards such as:

   o **EN 12896 series**: Public transport – Reference data model (Transmodel).

   o **ISO 24014-1**: Public transport - Interoperable fare management system - Part 1: Architecture.

   o **IEC 60870-5-101/105**: Telecontrol equipment and systems - Part 5-: Transmission protocols.

   o **EN 15531 series**: Service interface for real-time information relating to public transport operations (SIRI).

2. **Developing New Specifications**: Creating a detailed specification for the EU Rail Fare Profile, covering:

   o Fare structures, including flat fares, distance-based pricing, zonal pricing, time-based fares, and yielded fares.

   o Fare products, accounting for factors such as discounts, season passes, special rates, and subsidies.

   o Rules for fare interoperability between different operators, ensuring that fare data can be integrated across national borders and modes of transport.

      o   Data exchange protocols, ensuring compatibility with other telematics applications and data-sharing standards.

3. **Ensuring Compliance with European Legislation**: Aligning the new EU Fare Profile with relevant EU legislation, including:

      o   **Directive 2016/797** on the interoperability of the rail system within the European Union.

      o   **Regulation (EU) 2021/782** on rail passengers' rights and obligations.

      o   **Delegated Regulation (EU) 2024/490 amending Delegated Regulation (EU) 2017/1926** on the provision of EU-wide multi-modal travel information services.

4. **Testing and Validation**: Participating in the validation and testing of the proposed EU Fare Profile to ensure its practical applicability, accuracy, and interoperability with existing systems.

NOTES:

1. Some work on a "NeTEx EU Fare Profile" has been initiated in the frame of the [DATA4PT project](#) (which can be also part of the "Expertise Required" – see below). The work described in the present CALL is expected to complement it with rail use-cases related to TSI Telematics.
2. Some preliminary NeTEx implementations of TAP TSI B1/B2/B3 fares have been developed with ERA as [NeTEx examples](#).

Expertise Required

We are seeking experts with deep knowledge and experience in the following areas:

- **Public Transport Fare Systems**: Expertise in fare structures, pricing models, and fare management in public transport.

- **Transport Data Standards**: Experience with transport data exchange standards, particularly NeTEx (CEN/TS 16614), Transmodel (EN 12896), SIRI (EN 15531) series, and relevant ISO/IEC standards.

- **Multi-Modal Transport Integration**: Understanding of the complexities involved in integrating fare systems across different modes of transport, such as rail, bus, metro, and urban transport.

- **Interoperability and Data Governance**: Familiarity with EU legislation on data governance, particularly in the context of transport and telematics applications.

- Railway transport business and operations

Those experts should have an in-depth **knowledge of the railway transport business and operations**.

Roles and Responsibilities

The experts will be responsible for:

- **Developing Specifications**: Drafting the technical specifications for the NeTEx EU Fare Rail Profile, ensuring alignment with the CEN/TS 16614 series and other relevant standards.

- **Collaborating with Stakeholders**: Engaging with key stakeholders, including public transport operators, technology providers, and EU regulatory bodies, to ensure that the new standard meets the needs of the industry.

- **Reporting and Documentation**: Providing regular progress reports to CEN and contributing to the development of technical documentation and guidelines for the implementation of the EU Fare Profile.

Timeline

The project will follow a structured timeline, with key milestones as follows:

1. **Kick-Off Meeting**: Initial meeting to establish the project framework, define deliverables, and assign tasks (within **1** month of the Call closure).

2. **Initial Draft of Specifications**: Submission of the first draft of the EU Rail Fare Profile specifications (within **2** months of the project start).

3. **Exchange with ERA Telematic TSI revison WP**: With the aim to have a broader validation by railway experts (within **4** months of the project start).

Submission of Applications

Interested **experts are invited to contact their NSBs indicating that they wish to be registered to CEN/TC 278 WG 3 but with the aim to work on the particular EU Fare Rail Profile.** The outcome of this work will further allow based on the work undertaken within the NAPCORE X project to finalize an EU Fare Multimodal Profile. This CEN TS should be finalized by end 2026.

For more details, please contact Emmanuel De Verdalle (CEN/TC 278 WG 3 Convenor): emmanuel.de-verdalle@itxpt.org

The project being due to start early December 2024, registration should take place prior 23rd December 2024.

For more information on the background **see Annex 1**.

Analysis of the Draft TSI Telematics: Integration and Development of the NeTEx EU Fare Rail Profile

Introduction

The European Commission's draft TSI (Technical Specifications for Interoperability) Telematics is a significant step toward improving the interoperability, standardization, and transparency of data exchange in the European rail system. This initiative will supersede previous TSIs, including the Telematics Applications for Freight (TAF TSI) and Telematics Applications for Passenger (TAP TSI), to create a more unified approach to data sharing across rail networks, freight services, and passenger services in the EU.

This analysis delves into the core elements of the draft regulation, including its focus on multi-modal integration, the elimination of technical barriers, and the necessity for fair competition. Furthermore, it evaluates the role of key standards such as the NeTEx (CEN/TS 16614) series and related EN, ISO, and IEC standards listed in the TSI Telematics Annex. One of the aims of the draft proposal is to establish a new EU Fare Profile within the NeTEx standard, which is crucial for achieving interoperable fare systems across the European Union. This short report also provides an understanding of how the new TSI aligns with existing EU transport policies and the challenges of implementation.

1. Overview of the Draft TSI Telematics

1.1 Objectives of the initiative

The primary goal of the draft TSI Telematics is to create a standardized framework for data exchange in the European rail network. It aims to:

- **Enhance Interoperability**: Ensure that all telematics applications across the EU's rail network can communicate through a common, harmonized system. This includes railway undertakings, infrastructure managers, and service facilities.

- **Support Multi-Modal and Cross-Border Travel**: Encourage seamless integration between different transport modes (rail, bus, metro, etc.), making it easier for passengers to travel across borders using a single, unified ticketing system.

- **Promote Market Competition**: Ensure fair competition by making ticketing and service data more transparent and accessible to third-party service providers and smaller railway operators. This prevents larger, incumbent operators from monopolizing ticketing systems and allows new entrants to compete on a level playing field.

- **Improve Passenger Experience**: Simplify the process for passengers to access real-time travel information and purchase tickets across multiple operators and transport modes.

1.2 Regulatory Framework

The draft TSI is aligned with Directive (EU) 2016/797 on rail system interoperability and builds upon previous TSIs that govern the exchange of data in passenger and freight rail services (TAP TSI and TAF TSI). It integrates these previously separated technical specifications into one unified system, offering a clear and cohesive framework for both freight and passenger services.

The new draft TSI also considers recommendations from the European Union Agency for Railways (ERA), which plays a central role in managing the technical documents and standards necessary for compliance with the TSI.

1.3 Key Components

The TSI Telematics outlines several key areas for data exchange and system interoperability:

- **Capacity Management and Train Preparation**: Standardized processes for managing infrastructure capacity, train scheduling, and preparation are crucial to ensure that rail networks run efficiently and without delays.

- **Passenger Ticketing and Fare Data**: The TSI emphasizes the need for harmonized fare structures and data-sharing protocols to facilitate cross-border and multi-modal travel. This is where the development of the NeTEx EU Fare Rail Profile becomes essential.

- **Cybersecurity and Data Governance**: The TSI includes provisions for securing data exchange, ensuring that systems are robust against cyber threats, and that personal and commercial information is adequately protected.

- **Integration with Other EU Legislations**: The TSI Telematics aligns with existing EU legislations, such as the Rail Passenger Rights Regulation (EU 2021/782) and the Data Act (EU 2023/2854), to ensure that all aspects of data sharing comply with broader legislative requirements.

2. The Role of Standards

The success of the TSI Telematics depends heavily on the adoption and integration of several key standards, particularly those developed by CEN, ISO, and IEC.

2.1 CEN/TS 16614 Series (NeTEx)

The **NeTEx (Network Timetable Exchange)** series is at the heart of the TSI Telematics, particularly concerning passenger services and fare data exchange.

NeTEx is a CEN Technical Specification that facilitates the exchange of transport-related data, including timetables, route information, and fare structures.

NeTEx is based on the broader **Transmodel (EN 12896)** standard, which provides the reference data model for public transport operations. NeTEx covers three key areas:

1. **Scheduling and Timetabling**: Defines how data related to routes, schedules, and vehicle circulation should be exchanged between systems.

2. **Fares**: Specifies how fare structures, pricing schemes, and fare validation should be represented and exchanged.

3. **Passenger Information**: Details how information should be communicated to passengers, both before and during their journey.

The development of an **EU Fare Profile** within NeTEx is a key requirement of the TSI Telematics. This new profile will standardize the way fare data is managed and exchanged across different rail operators and transport modes in the EU, facilitating cross-border travel and multi-modal ticketing.

2.2 Other Relevant Standards

Several other standards are critical to the TSI Telematics, particularly in the areas of data exchange, cybersecurity, and system interoperability:

- **EN 12896 series (Transmodel)**: Provides the reference data model for public transport, ensuring that all aspects of data related to operations, fares, and timetables are interoperable.

- **EN 15531 series (SIRI)**: Service Interface for Real-Time Information (SIRI) is used to exchange real-time information about public transport services, including vehicle locations, delays, and service disruptions. It is essential for the provision of up-to-date passenger information.

- **ISO 24014-1**: This standard defines the framework for interoperable fare management systems. It is critical for ensuring that passengers can purchase tickets for cross-border journeys and use them across different operators and transport modes.

- **IEC 60870**: Provides basic standards for telecontrol in transport, ensuring that control and signaling systems used in railways are interoperable and secure.

3. NeTEx EU Fare Rail Profile: A Key Element of the TSI Telematics

3.1 Purpose and Scope of the EU Fare Profile

The **NeTEx EU Fare Rail Profile** will standardize the exchange of fare-related data across the European transport network, ensuring that passengers can

seamlessly access pricing information, make reservations, and purchase tickets for journeys that cross national borders or involve multiple modes of transport.

The development of the EU Fare Profile will involve creating a framework for the following key aspects:

- **Fare Structures**: Including flat fares, distance-based pricing, zonal fares, and dynamic pricing models.

- **Fare products**: Ensuring consistency in how fares are calculated, taking into account factors such as time of travel, discounts, season passes, and special offers.

- **Integration with Multi-Modal Travel**: The EU Fare Profile will enable passengers to purchase tickets that cover multiple forms of transport, such as rail, bus, and metro, under a single fare scheme.

- **Passenger Rights**: Ensuring that passengers' rights, such as the right to reimbursement and compensation, are respected when purchasing tickets across multiple operators and transport modes.

3.2 Challenges and Considerations

Developing the NeTEx EU Fare Rail Profile presents several challenges, particularly in ensuring that it aligns with existing national fare systems and integrates smoothly with other transport modes. Key considerations include:

- **Harmonization Across Different Operators**: Many national and regional transport systems have their own fare structures and pricing models. Creating a unified profile that accommodates all these variations will require significant coordination and flexibility.

- **Data Security and Privacy**: Given the increased sharing of fare data, robust measures must be in place to protect sensitive information, including personal data and commercially sensitive fare structures.

- **Integration with Legacy Systems**: Many railway operators use older systems that may not be compatible with the new NeTEx EU Fare Rail Profile. Ensuring backward compatibility and supporting the migration to new systems will be critical.

3.3 Expected Benefits

The development of the NeTEx EU Fare Rail Profile is expected to bring several significant benefits:

- **Enhanced Passenger Experience**: Passengers will be able to purchase tickets more easily, access transparent pricing information, and make reservations across multiple transport modes and borders. This will

simplify cross-border travel and encourage the use of sustainable transport options.

- **Market Competition**: By standardizing fare data and making it accessible to third-party vendors, the EU Fare Profile will encourage competition among operators, reducing the dominance of incumbent players and allowing new entrants to offer innovative services.

- **Support for Multi-Modal Integration**: The EU Fare Profile will play a key role in enabling seamless multi-modal travel, allowing passengers to combine rail, bus, and metro services under a single ticketing system.

4. Implementation Challenges and Opportunities

4.1 Technical and Organizational Challenges

The implementation of the TSI Telematics, including the development of the NeTEx EU Fare Rail Profile, will face several technical and organizational challenges:

- **Coordination Across Member States**: Each EU member state has its own national rail network and fare systems, which will need to be harmonized under the new TSI. This will require close coordination between national transport authorities, railway undertakings, and the European Commission.

- **Cost of Implementation**: Developing the necessary IT infrastructure and training staff to use the new systems will involve significant upfront costs, particularly for smaller operators. Ensuring that the benefits of the regulation outweigh these costs will be key to its success.

- **Stakeholder Buy-In**: Getting buy-in from all stakeholders, including larger, incumbent operators, will be crucial. These operators may be reluctant to share their fare data or adopt new systems that reduce their market dominance.

4.2 Opportunities for Innovation

While there are challenges, the TSI Telematics presents numerous opportunities for innovation:

- **Mobility-as-a-Service (MaaS)**: By standardizing fare data and integrating different modes of transport, the proposal paves the way for the development of MaaS solutions, where passengers can plan, book, and pay for multi-modal journeys through a single platform.

- **Dynamic Pricing Models**: The new EU Fare Profile could enable the adoption of dynamic pricing models, where fares fluctuate based on

demand, time of travel, or other factors, improving efficiency and revenue management for operators.

- **Real-Time Data Integration**: The TSI's emphasis on real-time data sharing will enable more responsive and efficient transport systems, allowing operators to better manage capacity and provide accurate information to passengers.

Conclusion

The draft TSI Telematics represents a significant step toward creating a more integrated, transparent, and competitive European rail network.

Standardizing data exchange and promoting the development of the NeTEx EU Fare Rail Profile, will help to eliminate technical barriers, support multi-modal travel, and encourage market competition.

While there are challenges to its implementation, particularly in terms of coordination and cost, the TSI also presents numerous opportunities for innovation, particularly in the areas of mobility-as-a-service and dynamic pricing.

Ultimately, the success of the legislation will depend on the willingness of stakeholders to adopt the new standards and collaborate on creating a truly interoperable European rail system.