Intelligent Transport Systems Market Radar Report 2026

ITS Sectorial and Market Study:
Connectivity Industry, Suppliers and Vehicle Manufacturers

March 2026

FOREWORD

Issue 3

Suppliers

Vehicle Manufacturers

Connectivity Industry

Dear Reader,

Welcome to our third edition of the ITS Market Radar!

ERTICO-ITS Europe was established in 1991, driven by the European Commission's initiative to foster innovation in the transport value chain. Since then, we have successfully completed over 100 EU-funded projects, hosted 30 ITS Congresses, and engaged in numerous research activities. Our journey continues with a focus on European leadership in smart and sustainable mobility. Innovative technologies and new ways of moving and living have deeply integrated our sector into daily life, whether as consumers, businesses, associations, or public authorities. Our eight sectors within the ERTICO Partnership, where we connect the dots, exemplify this integration.

The ERTICO Partnership remains committed to advancing Intelligent Transport Systems and services. As part of our thought leadership and advocacy efforts, we continuously assess trends, challenges, barriers, and opportunities in our sector. The first ITS Market Radar report, published in January 2024 (link), focused on service providers and traffic & transport industry sectors. The second edition, released in January 2025 (link), examined public authorities, research and user sectors.

I am pleased to present this third ITS Market Radar report, which explores three additional sectors within the ERTICO family: Suppliers, Vehicle Manufacturers, and the Connectivity Industry.

Enjoy the read and stay tuned on www.ertico.com.

Joost Vantomme
CEO of ERTICO – ITS Europe

Brussels, March 2026

REPORT OVERVIEW

*Welcome to the Intelligent Transport Systems (ITS) market report, a partnership between EY Belgium and ERTICO, focusing on **suppliers**, **vehicle manufacturers**, and the **connectivity industry**.*

ITS have the extraordinary capacity to transform the way we move, leading to a transport ecosystem that is more sustainable, safe, and efficient. In line with the European Union policies and initiatives for Smart and Sustainable Mobility, and with ERTICO's projects, events, and expert insights, the analysis presented here explores key domains, delving into the principal trends, challenges, and opportunities shaping the ITS landscape.

This publication offers a concise overview of the ITS landscape across three key sectors: suppliers, vehicle manufacturers, and the connectivity industry. It highlights the main trends, challenges, and opportunities shaping a safer, more sustainable, and more efficient mobility ecosystem.

The insights are based on a general metadata exercise conducted with selected ERTICO members. This edition complements earlier ITS market reports (2024 and 2025). Together, these reports contribute to a more comprehensive and holistic view of the overall ITS ecosystem. This report is not intended to be exhaustive, nor does it aim to provide a detailed or representative assessment of individual companies or institutions. Instead, it offers a high-level, holistic overview of the ITS market, designed to support strategic understanding, inform discussion, and highlight overarching market dynamics.

This report is structured as follows:

- **Introduction and sectorial transition** provides an overview of the ITS sector, the scope of the report, historical context, and evolution, as well as the ecosystem of ERTICO's strategic areas.

- **Role of the sectors in ITS** explains the evolution of each of the analysed sectors and their contributions to the development and deployment of Intelligent Transport Systems.

- **Key trends** delves into the mobility developments related to automation, connectivity, efficiency and sustainability that are reshaping transport.

- **Envisaged developments** outlines anticipated advancements and future directions for ITS technologies and services.

- **Research and innovation** highlights ongoing research initiatives and innovative solutions driving progress in the mobility sector.

- **Challenges and potential way forward** identifies major obstacles and issues facing the mobility sector, discussing their implications and the efforts to address them.

- **Key projects and partnerships** showcases significant initiatives and collaborations that are accelerating innovation and deployment.

- **Annexes** conclude the market report with the methodology used, namely regarding the stakeholder consultation and data collection processes.
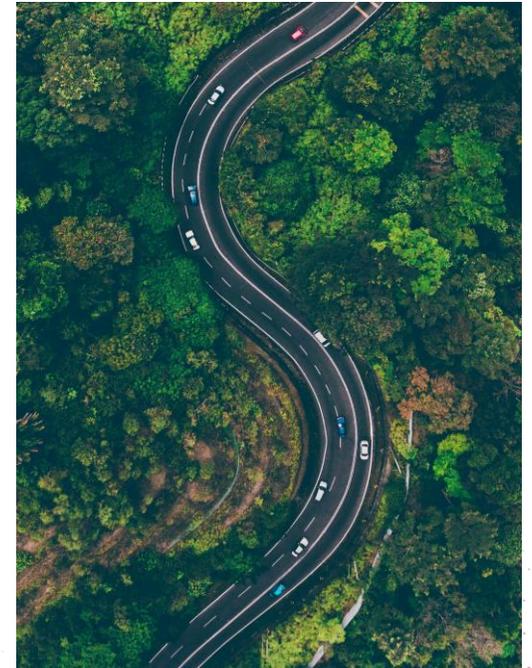
**ITS Market Radar
Issue 3, 2026**

1. INTRODUCTION AND SECTORIAL TRANSITION

INTRODUCTION AND SECTORIAL TRANSITION

European Union's focus on automotive and ITS

In 2025, the European Union's focus on the automotive and the ITS sector is embodied in its [2025 Industrial Action Plan](#), which aims to secure long-term competitiveness while accelerating the shift to clean, connected, and autonomous mobility. The plan prioritizes innovation and digitalisation, promoting large-scale testing of autonomous vehicles and launching the European Connected and Autonomous Vehicle Alliance to develop software-defined vehicles and AI solutions. Complementing this, the EU is accelerating fleet electrification, harmonizing incentives, expanding charging infrastructure, and enhancing cybersecurity frameworks to support ITS deployment.

Regulatory developments and communications at EU level shaping the ITS industry

- **Regulation (EU) 2025/258** establishes new harmonized approval procedures for vehicle components and systems, including those relevant for emissions and consumption calculations. From January 1, 2026, only approvals meeting this regulation will be valid across the EU, ensuring unified vehicle certification for ITS applications.

- The **EU's 2025 Work Programme** focuses on simplifying regulations and reducing administrative burdens, supporting faster innovation deployment in ITS and related digital sectors. The continued emphasis on digital infrastructure investment and harmonization across Member States fosters the growth of a unified and competitive ITS market.

- The **2025 Industrial Action Plan for the European Automotive Sector** is a strategic initiative by the EU to drive the industry's transition towards zero-emission and highly automated vehicles, while ensuring supply chain resilience and competitiveness. It fosters fleet electrification, harmonizes incentives across member states, and promotes advanced R&D in connected and autonomous vehicle technologies. For the automotive ITS industry, this plan accelerates the adoption of intelligent transport systems by enabling large-scale deployment of autonomous driving, enhancing digital connectivity, and supporting innovation in AI-powered mobility solutions (further information can be found [here](#)).

- The **EU Digital Decade 2025 package** accelerates transport digitalisation by expanding gigabit networks, 5G coverage, edge computing, and AI, with a strong emphasis on Connected, Cooperative and Automated Mobility. For ITS, the proposed **Digital Networks Act** is particularly impactful. By modernising telecom rules, harmonising spectrum use, and strengthening network resilience, it supports faster deployment of 5G cross-border corridors. This enables more reliable real-time V2X communications essential for road safety, traffic efficiency, and automated functions? while reducing fragmentation risks and reinforcing cybersecurity obligations under **NIS2**.

- The **EU Apply AI Strategy** builds on these digital foundations by accelerating the deployment of artificial intelligence across strategic sectors, including mobility, transport and automotive. By promoting an "AI-first" approach, sectoral flagships and support mechanisms, it enables the large-scale adoption of AI-driven ITS solutions such as automated driving, intelligent traffic management and data-driven mobility services.

- The **2025 Automotive Package** supports the automotive sector's efforts in the transition to clean, competitive and resilient mobility. It prioritizes easing CO_2 emission targets, mandating corporate fleet electrification, and investing in battery supply chains. This indirectly benefits ITS by reducing regulatory burdens on vehicle manufacturers, freeing resources for ADAS/AV research, and accelerating EV adoption, which expands markets for connected telematics and V2X.

European Connected and Autonomous Vehicle Alliance (ECAVA) is a high-level, industry-led forum which aims to strengthen Europe's competitiveness and digital sovereignty by coordinating technological development and innovation in software-defined vehicles (SDVs), AI-powered systems, connected and autonomous driving technologies. The Alliance brings together leading automotive companies, suppliers, and associations to collaborate on open-source software ecosystems, automotive hardware including chip platforms, AI model development, and large-scale deployment of autonomous vehicles through cross-border testbeds and pilot projects.

ERTICO ITS EUROPE | **INNOVATION FOR TOMORROW'S JOURNEY.**

INTRODUCTION AND SECTORIAL TRANSITION

European Union's focus on automotive and ITS

The progress achieved in 2025 builds on the foundations laid in 2023 and 2024, when the EU prioritised collaborative, ecosystem-building initiatives to prepare the mobility sector for large-scale digitalisation. During these years, the European Mobility Data Space stakeholder forums and pilot projects advanced cross-sector data sharing between cities, operators, and automakers, enabling more integrated urban traffic management and multimodal travel services. These initiatives also accelerated the development of Connected, Cooperative, and Automated Mobility, with cross-border 5G test corridors and AI-enabled traffic management demonstrations funded through Horizon Europe and the Digital Europe Programme.

Regulatory developments and communications at EU level shaping the ITS industry

The **2023 Communication establishing a common European Mobility Data Space (EMDS**), aims at facilitating access, pooling and sharing of data from transport and mobility data sources. This initiative breaks down long-standing data silos between operators, authorities, and private mobility providers. The EMDS strengthens ITS by creating a framework for cross-border data sharing, improving interoperability and real-time traffic management (further information can be found here).

The **EU Digital Decade Policy Programme** defines Europe's digital ambitions towards 2030, focusing on digital skills, secure and sustainable connectivity, business digitalisation, and digital public services. These priorities directly support the deployment of ITS by enabling advanced connectivity, data-driven services, and interoperable digital infrastructures. In doing so, the Digital Decade creates the conditions for smarter, safer, and more sustainable mobility solutions across Europe.

Regulation (EU) 2023/2854, the EU Data Act, applicable since September 12, 2025, established horizontal rules governing access to data generated by connected products and their related digital services. In the ITS ecosystem, it enables public authorities, road operators, and third-party service providers to access high-value vehicle and infrastructure data that was previously proprietary, supporting more accurate traffic monitoring, hazard detection, and connected vehicle services.

Directive (EU) 2023/2661 revised the legal framework for ITS to improve data accessibility, interoperability, and integration with other transport modes. the updated framework ensures harmonised publication of essential datasets, supporting continuity of ITS services across borders. It also strengthens interoperability requirements and aligns ITS deployment with the needs of connected and automated mobility, ensuring that digital infrastructure, traffic data, and traffic management systems are prepared to interact with C-ITS and automated vehicles consistently throughout the EU. Member States were required to ensure full implementation by 21 December 2025.

Regulation (EU) 2024/1689 the EU Artificial Intelligence Act, fully applicable from August 2, 2025, introduces a risk-based regulatory framework for AI systems that significantly affects ITS applications relying on advanced automation and decision-making. In road transport, autonomous driving systems, AI-assisted driving functions, and AI-enabled traffic management tools fall under high-risk categories, requiring rigorous testing, validation, transparency, and human oversight. This regulatory approach increases the reliability and safety of AI-powered ITS solutions.

New data-sharing rules will reshape business models

ITS are evolving into **data-driven ecosystems** where the key challenge is no longer data collection, but **trusted and scalable data sharing across sectors**. Data spaces represent a structural step in this evolution.

The EMDS embodies this shift at EU level by translating core ITS goals; interoperability, cross-border services, and efficient traffic management, into a **data-centric governance framework** focused on usage rights, trust, and data sovereignty.

By enabling secure, low-latency data sharing, EMDS supports advanced use cases such as automated driving, dynamic traffic management, and smart charging. It promotes a **co-governance model**, combining public-sector regulatory authority with private-sector innovation.

Within this framework, **new data-sharing rules are expected to reshape mobility business models**, giving drivers more control over vehicle data and transforming services such as insurance, servicing, and customer-facing mobility solutions while strengthening trust in digital mobility.

INTRODUCTION AND SECTORIAL TRANSITION

Overview of the ITS sector and ERTICO strategic areas

*ERTICO acts as a **catalyst for innovation in ITS**, driving the transition to a **connected, sustainable, and user-centric mobility ecosystem** across Europe, shaping the future of mobility through collaboration, technology, and deployment. ITS integrate **digitalisation, automation, and connectivity** to create a **safe, sustainable, and user-centric transport ecosystem** across Europe.*

ERTICO' Vision 2035 foresees ITS creating an integrated, multimodal, and automated transport network that ensures climate neutrality, drives digital leadership, and provides inclusive, resilient mobility for all.

Why ITS matters?
ITS are essential delivering the sustainable, efficient, and safe mobility, enabling transport networks with reduced environmental impact, zero delays, and improved safety outcomes. They also form the digital backbone of an integrated, user-centric mobility system that enhances connectivity, boosts economic growth, and streamlines the movement of people and goods across Europe.

Transport for people
User-centric mobility services that **connect modes of transport**, enhance accessibility, and deliver safe, reliable, and sustainable travel experiences for all passengers.

Transport of goods
Digital and automated systems to **optimize freight logistics**, improve supply chain efficiency, and reduce environmental impact through smart routing and real-time tracking.

Urban and suburban networks
Integration of **smart mobility solutions in cities and surrounding areas**, ensuring multimodal, accessible, and sustainable transport for growing urban populations.

Cross-border corridors, inter-urban networks
Development of **seamless, interoperable transport corridors** connecting countries and regions, enabling efficient long-distance travel and freight movement across Europe.

Sustainability
By supporting electrification, eco-routing, and intelligent traffic management, ITS helps **optimize vehicle performance and minimize environmental impact**, contributing to a cleaner and greener transport system.

Resilience
By enabling adaptive, data-driven responses to disruptions, ITS strengthens the transport network's capacity to maintain **smooth operations**, ensuring **dependable mobility** even when conditions change.

Safety
Through real-time insights, cooperative systems, and automated support, ITS actively **reduces risk on the road**, helping prevent accidents and safeguarding all users.

Efficiency
ITS optimise traffic flow and multimodal operations, reducing delays and **improving the overall performance of transport networks**.
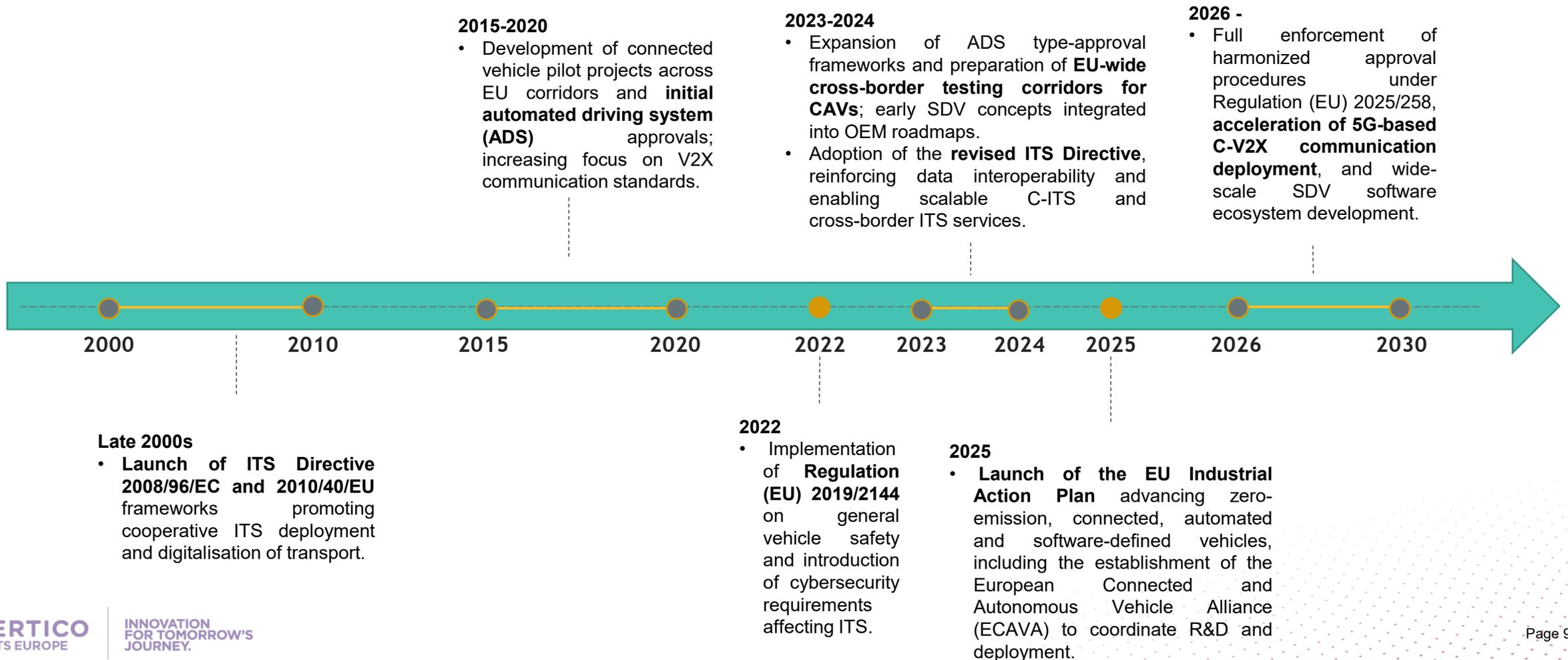
Human-centricity
ITS deliver **personalized, convenient, and equitable transport solutions**, ensuring that services meet the needs of all users, including vulnerable groups.

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INTRODUCTION AND SECTORIAL TRANSITION

Sector evolution

The ITS sector is **undergoing a profound transition** driven by digitalisation, connectivity, and sustainability imperatives. ITS technologies are transforming traditional transport infrastructure into intelligent, data-driven networks, enabling safer, more efficient, and environmentally friendly mobility solutions. Through strategic funding, regulatory frameworks, and collaborations like cross-border C-ITS corridors and autonomous vehicle pilot programmes, the EU is accelerating the deployment of ITS solutions that support climate goals, reduce congestion, and enhance transport network resilience across both passenger and freight sectors.

2015-2020
- Development of connected vehicle pilot projects across EU corridors and **initial automated driving system (ADS)** approvals; increasing focus on V2X communication standards.

2023-2024
- Expansion of ADS type-approval frameworks and preparation of **EU-wide cross-border testing corridors for CAVs**; early SDV concepts integrated into OEM roadmaps.
- Adoption of the **revised ITS Directive**, reinforcing data interoperability and enabling scalable C-ITS and cross-border ITS services.

2026 -
- Full enforcement of harmonized approval procedures under Regulation (EU) 2025/258, **acceleration of 5G-based C-V2X communication deployment**, and wide-scale SDV software ecosystem development.

Timeline: 2000 — 2010 — 2015 — 2020 — 2022 — 2023 — 2024 — 2025 — 2026 — 2030

Late 2000s
- **Launch of ITS Directive 2008/96/EC and 2010/40/EU** frameworks promoting cooperative ITS deployment and digitalisation of transport.

2022
- Implementation of **Regulation (EU) 2019/2144** on general vehicle safety and introduction of cybersecurity requirements affecting ITS.

2025
- **Launch of the EU Industrial Action Plan** advancing zero-emission, connected, automated and software-defined vehicles, including the establishment of the European Connected and Autonomous Vehicle Alliance (ECAVA) to coordinate R&D and deployment.

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SCOPE OF THE REPORT

*This report aims to raise awareness among EU and international stakeholders about the innovations driving ERTICO's strategic focus areas. By highlighting key challenges and bottlenecks in the mobility sector, **it seeks to mobilize authorities, policymakers, and industry leaders to take effective action.** In particular, the report focuses on developments within **three key sectors: suppliers, vehicle manufacturers, and the connectivity industry,** all of which play a central role in the transformation of intelligent transport systems.*

The overarching goal is to accelerate the adoption of safer, smarter, and cleaner transport services. Through a comprehensive analysis of market trends and sector dynamics, this report contributes to the development and deployment of ITS that will shape the future of mobility and deliver tangible benefits for society, the economy, and the environment.

Suppliers

Provide the hardware and software components that are essential for ITS, including sensors, control units, traffic signal systems, and the software platforms that analyse and manage the data collected.
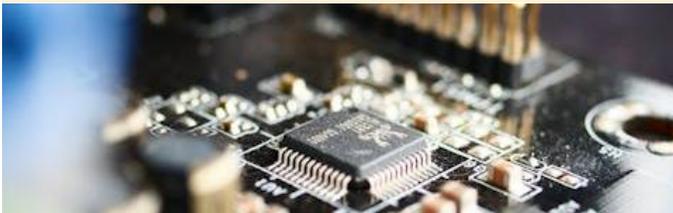
Vehicle manufacturers

Integrate ITS technologies into their vehicles, enabling features such as ADAS, in-car navigation, and automated driving capabilities. They work closely with suppliers and connectivity providers to ensure their vehicles can communicate with the ITS infrastructure.

Connectivity industry

Provides safety-critical direct V2X connectivity that allow for information exchange between vehicles (V2V), infrastructure (V2I), or vulnerable road users (VRU) like cyclists (V2B), and in addition, 4G/5G networks for non-safety applications (V2N).

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2. ROLE OF THE SECTORS
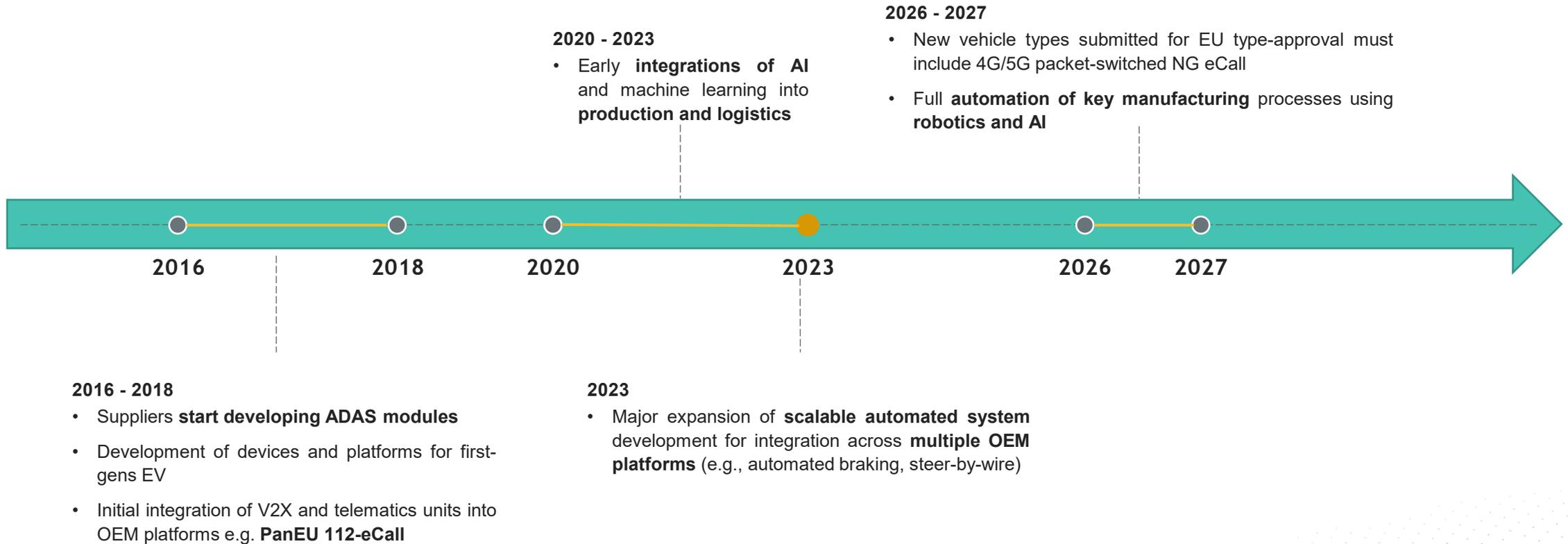IN THE ITS ECOSYSTEM

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ROLE OF THE SECTORS IN THE ITS ECOSYSTEM - Suppliers
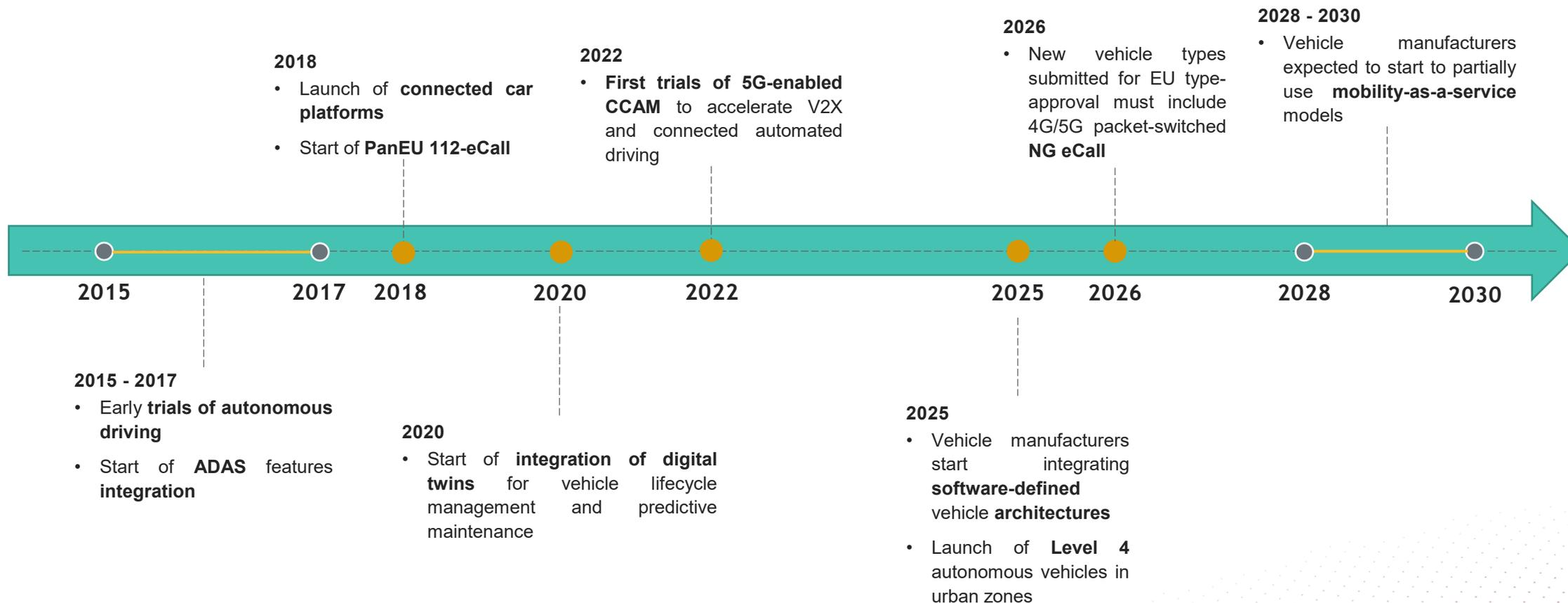
Overview of suppliers' role

*The role of suppliers within ITS has evolved significantly over time. Initially focused on providing discrete hardware components like sensors and communication devices, suppliers have increasingly moved toward delivering integrated software and digital solutions that enable connectivity, automation, and real-time data processing. Today, suppliers play a strategic role in developing modular, software-defined platforms essential for connected and automated vehicles, collaborating closely with vehicle manufacturers and technology firms. This evolution reflects the **ITS transition from traditional vehicle parts to complex ecosystems** that integrate AI, V2X connectivity, and assisted and autonomous driving capabilities, positioning suppliers as key innovators driving the future of mobility.*

2026 - 2027

- New vehicle types submitted for EU type-approval must include 4G/5G packet-switched NG eCall

- Full **automation of key manufacturing** processes using **robotics and AI**

2020 - 2023

- Early **integrations of AI** and machine learning into **production and logistics**

2016 | **2018** | **2020** | **2023** | **2026** | **2027**

2016 - 2018

- Suppliers **start developing ADAS modules**

- Development of devices and platforms for first-gens EV

- Initial integration of V2X and telematics units into OEM platforms e.g. **PanEU 112-eCall**

2023

- Major expansion of **scalable automated system** development for integration across **multiple OEM platforms** (e.g., automated braking, steer-by-wire)

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ROLE OF THE SECTORS IN THE ITS ECOSYSTEM – Vehicle manufacturers

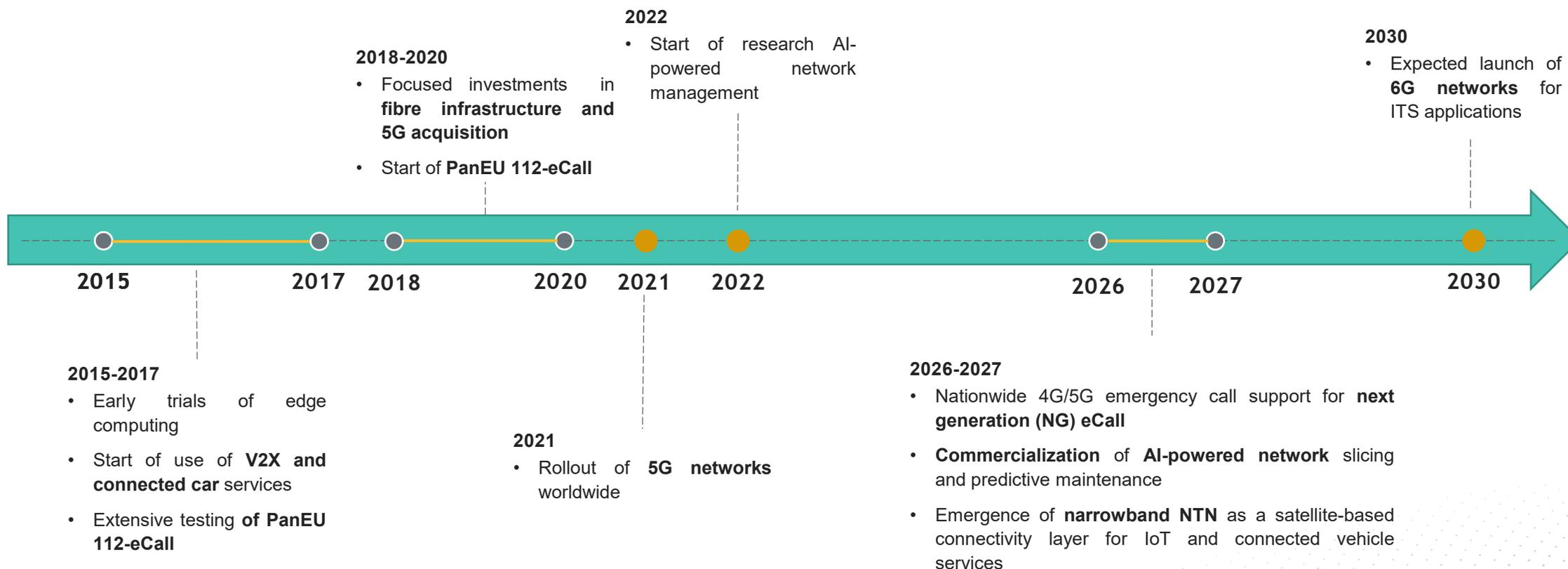*Overview of vehicle manufacturers' role*

Vehicle manufacturers have become central system integrators of complex digital, connectivity, and automation technologies. They now develop and deploy in-vehicle ITS subsystems that enable vehicle-to-vehicle and vehicle-to-infrastructure communication, supporting safety, traffic management, and environmental goals. They increasingly collaborate with suppliers and technology providers to incorporate SDVs, autonomous driving capabilities, and connected services. Vehicle manufacturers also play a leading role in complying with regulatory requirements around cybersecurity, data privacy, and interoperability, ensuring that ITS solutions are scalable, secure, and harmonized across markets.

2018
- Launch of **connected car platforms**
- Start of **PanEU 112-eCall**

2022
- **First trials of 5G-enabled CCAM** to accelerate V2X and connected automated driving

2026
- New vehicle types submitted for EU type-approval must include 4G/5G packet-switched **NG eCall**

2028 - 2030
- Vehicle manufacturers expected to start to partially use **mobility-as-a-service** models

Timeline: 2015 — 2017 — 2018 — 2020 — 2022 — 2025 — 2026 — 2028 — 2030

2015 - 2017
- Early **trials of autonomous driving**
- Start of **ADAS** features **integration**

2020
- Start of **integration of digital twins** for vehicle lifecycle management and predictive maintenance

2025
- Vehicle manufacturers start integrating **software-defined** vehicle **architectures**
- Launch of **Level 4** autonomous vehicles in urban zones

ROLE OF THE SECTORS IN THE ITS ECOSYSTEM – Connectivity industry

Overview of connectivity industry role

The **connectivity industry** within ITS has evolved from providing basic in-vehicle telematics and simple data services to delivering **highly sophisticated, seamless, and scalable communication ecosystems** that underpin connected and automated mobility. Initially focused on cellular-based systems for infotainment and emergency services, the sector now drives next-generation direct V2X connectivity. It allows for information exchange between different road users for safety critical applications, for vehicle-to-vehicle (V2V), vehicle-to-infrastructure (V2I), and vehicle-to-bicycle (V2B) interactions, and in addition, connectivity via 4G/5G networks integrating mobile edge computing technologies for non-safety driver-awareness applications (V2N). This shift enables advanced safety features, autonomous driving capabilities, and over-the-air software updates, transforming vehicles into software-defined platforms.

2022
- Start of research AI-powered network management

2018-2020
- Focused investments in **fibre infrastructure and 5G acquisition**
- Start of **PanEU 112-eCall**

2030
- Expected launch of **6G networks** for ITS applications

Timeline: 2015 — 2017 — 2018 — 2020 — 2021 — 2022 — 2026 — 2027 — 2030

2015-2017
- Early trials of edge computing
- Start of use of **V2X and connected car** services
- Extensive testing **of PanEU 112-eCall**

2021
- Rollout of **5G networks** worldwide

2026-2027
- Nationwide 4G/5G emergency call support for **next generation (NG) eCall**
- **Commercialization** of **AI-powered network** slicing and predictive maintenance
- Emergence of **narrowband NTN** as a satellite-based connectivity layer for IoT and connected vehicle services

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3. KEY TRENDS

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KEY TRENDS

General key trends in ITS

The ITS industry remains a dynamic and fast-evolving sector, driven in 2025 by breakthroughs in electrification, connectivity, and automation. As vehicle manufacturers, suppliers, and connectivity providers adapt to shifting consumer expectations, sustainability needs, and regulatory demands, the sector is undergoing deep transformation. From AI-powered predictive maintenance and digital twins to embedded SIM technologies and vehicle-to-everything (V2X) communication, these developments are reshaping mobility across Europe.

This section aims to present :

- ✓ **Key sectoral trends** enabling the successful adoption of ITS across suppliers, vehicle manufacturers, and the connectivity industry, including advancements in automation, data-driven services, electrification, cooperative systems, collective perception via sensor and intention sharing.

- ✓ **Core roles and benefits** of suppliers, vehicle manufacturers, and connectivity providers in accelerating ITS deployment, highlighting how each contributes to innovation, interoperability, safety, and market scalability.

- ✓ **Current and emerging ITS trends** identified by ERTICO's member organisations, with specific insights into evolving business models, regulatory drivers, technological priorities, and expected market shifts.

- ✓ **Future research priorities** for ITS, focusing on automation pathways, connectivity protocols, quality of service (QoS) provisioning, data governance, multimodal integration, and sustainable mobility solutions.

Latest key trends in the ITS sector that help foster a more sustainable, safe and inclusive transportation ecosystem

Suppliers

- Autonomous mobility
- AI-enabled predictive ITS solutions
- Remote driving
- Cybersecurity by design
- Data governance
- Cloud & edge computing

Vehicle manufacturers

- Vehicle charging solutions
- Automated driving systems
- Connectivity as a commercial pillar
- Software Defined Vehicles

Connectivity industry

- V2X communication (V2V, V2I, V2B)
- IoT connectivity and sensor networks
- 5G/6G and wireless communication
- Digital twins of physical infrastructure

KEY TRENDS

Key trends that are shaping the future of ITS for Suppliers:

> **#1 Cybersecurity by design**
>
> *#2 ADAS & automated driving technologies*
>
> *#3 Cloud adoption & enhanced connectivity (5G/6G)*
>
> EY, ERTICO partners survey (2025)

Survey insights on the #1 trend

Suppliers increasingly recognize cybersecurity as a non-negotiable requirement for connected and autonomous vehicles. With growing data exchange between vehicles, infrastructure, and the cloud, the need for secure communication, compliance with data privacy regulations, and AI governance is critical. Cybersecurity is not only a technical challenge but a strategic differentiator, as vulnerabilities can undermine trust in ITS solutions.

Suppliers' role in key trends

Suppliers are emerging as pivotal enablers of next-generation ITS and automotive innovations, driving the transition toward software-defined vehicles and secure, connected ecosystems.

#1 Suppliers are developing centralized and zonal vehicle architectures, which organise the vehicle's electronics into regional zones manages by high-performance controllers. This approach supports higher computing power and efficient integration of components, enabling advanced mobility features. This shift is driven by the rise of SDVs, which require high-performance computing, flexible architectures, and over-the-air (OTA) updates. Suppliers are investing in edge computing and AI integration to enable real-time adaptability and ADAS.

#2 They are evolving from hardware providers to software-driven system integrators, delivering AI-based driving stacks and holistic ITS solutions across the value chain. AI is becoming a cornerstone of this transformation, accelerating development cycles, optimizing production resilience, and enhancing in-vehicle perception systems. Suppliers are embedding AI into both design and operational processes, enabling predictive analytics and improving safety features.

#3 With increasing data exchange between vehicles, infrastructure, and cloud platforms, **suppliers embed cybersecurity and compliance as core design principles.** They also collaborate on standardization and interoperability to address fragmentation in V2X connectivity (mobile 5G/6G vs. short-range safety-critical direct communication solutions), which currently slows deployment and raises costs. Standardization is essential to unlock economies of scale and accelerate ITS adoption.

KEY TRENDS

Key general trends among Vehicle manufacturers

The selection of trends presented below is based on the contribution of ERTICO's vehicle manufacturer partners in determining the top key trends considered to have the strongest impact on ITS in their respective field, with #1 being the trend with the most anticipated impact. This section dives into the factors and the benefits of the most important ITS trends and defines the role of vehicle manufacturers for each of them.

Key trends that are shaping the future of ITS for Vehicle manufacturers:

> **#1 Automated mobility**
>
> #2 Cooperative mobility through V2X and V2I
>
> #3 Software defined mobility acceleration

EY, ERTICO partners survey (2025)

Survey insights on the #1 trend

Vehicle automation remains a major technological driver, but the sector is entering a decisive phase: within the next five years, automation must demonstrate viable business cases. Automation has pushed the development of high-end technologies, but its mass deployment is now progressing mainly through ADAS and Level 2 features, where new UN regulations allowing legal hands-free L2 will accelerate adoption. Level 3 serves as a strategic bridge toward higher automation, drawing on near-Level 4 capability and opening opportunities for targeted consumer and commercial use cases. L4, however, is gaining traction in commercial applications such as hub-to-hub freight and autonomous shuttles, where operational control, efficiency gains, and cost savings create tangible business cases.

Vehicle manufacturers' role in key trends

Vehicle manufacturers are at the forefront of shaping **next-generation mobility**, driving innovation across **autonomous technologies**, **software-defined architectures**, and new **service-based models**.

#1 As **automated mobility matures**, vehicle manufacturers are expanding **L2/L2+ hands-free systems** in response to **new regulations**, delivering practical automated features with clear consumer value. At the same time, they focus higher-level automation on commercial domains, such as **hub-to-hub freight, shuttles, and controlled robotaxi services**, where **Level 4 capabilities** offer stronger business cases and operational feasibility. **Level 3** continues to evolve selectively, serving as a transitional step toward more **advanced automation**.

#2 Cooperative mobility and V2X is progressing, and manufacturers are preparing vehicles for **5G-V2X**, enabling future **cooperative safety and traffic functions**, even though V2X deployment remains fragmented across Europe. vehicle manufacturers participate in pilot projects and standardisation efforts but emphasise that consistent, **cross-border infrastructure** deployment is essential for large-scale integration and for realising the full value of **cooperative ITS**.

#3 Software-defined mobility is accelerating so vehicle manufacturers are shifting toward **software-defined vehicle architectures**, consolidating hardware into powerful **central computing platforms**, especially in **EVs**. This enables more advanced connectivity, cybersecurity, and automation capabilities. **OTA** updates are expanding in scope, allowing continuous feature upgrades, performance enhancements, and new **digital services** throughout the vehicle lifecycle, positioning vehicle manufacturers as integrators of technology and services rather than traditional hardware manufacturers.

KEY TRENDS

Key general trends among Connectivity industry

The selection of trends presented below are based on the contribution of ERTICO's connectivity provider partners in determining the top key trends which they believe has the most impact on ITS in their respective field, with #1 being the trend with the most anticipated impact. This section dives into the factors and the benefits of the most important ITS trends and defines the role of connectivity providers for each of them.

Key trends that are shaping the future of ITS for the connectivity industry:

#1 Vehicle-to-everything (V2X) communications

#2 Digital twins of physical infrastructure

#3 5G/6G & wireless communications

EY, ERTICO partners survey (2025)

Survey insights on the #1 trend

Stakeholders across the connectivity industry and the automotive sector acknowledge the importance of accelerating V2X deployment. EU-level intervention is often discussed as a potential lever to accelerate deployment and help unlock the benefits of connected mobility. In this context, the rollout of autonomous mobility is associated with broader availability of V2X solutions across vehicles and infrastructure.

In addition, ubiquitous connectivity and distributed edge computing are identified as critical enablers for scaling advanced ITS use cases. Without these foundational technologies, higher-level trends such as automation and real-time services cannot be fully realized.

Connectivity industry role in key trends

The connectivity industry is a cornerstone of ITS deployment, enabling seamless communication between vehicles, infrastructure, and cloud platforms.

#1 By developing interoperable communication protocols, deploying roadside units (RSUs), and integrating cellular and short-range technologies, **connectivity providers ensure vehicles can exchange real-time data with infrastructure, pedestrians, and other vehicles.** This reduces latency, enhances decision-making, and supports cooperative driving

#2 Connectivity providers supply **direct communication V2X technologies, high-speed data networks and cloud platforms that make digital twins possible**. They enable continuous data collection from sensors, vehicles, and infrastructure, feeding real-time information into virtual models. This allows operators to simulate traffic scenarios, predict maintenance needs, and optimize infrastructure performance. Without robust connectivity, digital twins cannot function effectively, as they rely on constant, accurate data streams for predictive analytics and resilience planning.

#3 The connectivity industry is leading the **rollout of 5G and preparing for 6G,** which are essential for ultra-low latency and high bandwidth communication. These networks support edge computing and distributed data processing, supporting real-time ITS services, coordinated and automated driving, remote vehicle control, and immersive passenger experiences. Connectivity providers also **ensure system reliability and security**, which are critical for safety in autonomous and cooperative mobility scenarios.

EMPLOYMENT TRENDS

Employment and skills in the ITS domain

Within ERTICO's suppliers, vehicle manufacturers and connectivity industry groups, the ITS workforce is small but strategically important and demand for skilled talent is rising. While suppliers and connectivity industry anticipate gradual growth in ITS roles over the next five years, driven by automation, AI, and connectivity innovations, vehicle manufacturers report growing pressure on employment, driven by declining sales, stringent control costs, and global competitive dynamics. In addition, skill shortages combined with limited training resources and high competition, pose significant barriers.

The ITS workforce remains relatively small but strategically important. Across surveyed ERTICO members, ITS roles account for approximately 1–10% of total employees. he majority of staff work on ITS-related activities within broader mobility or technology domains rather than exclusively on ITS.

The number of ITS employees is expected to increase in the next 5 years, though growth will be uneven across sectors.

- In the connectivity industry, **the outlook is for a slight increase**, while suppliers anticipate mixed trends, ranging from no change to slight increases or even slight decreases, as some focus on efficiency and cost optimization. Vehicle manufacturers are experiencing employment contraction and are looking towards shifting towards outsourcing models.

- The European industry faces a widening **skills gap**, particularly in software engineering, AI, data analytics, sensor fusion, and semiconductor technologies. This creates strategic vulnerabilities and limits the pace at which ITS solutions, especially automation and software-defined vehicle architectures, can be developed and industrialised. While the number of ITS-related roles may grow, the shortage of qualified candidates remains a significant barrier.

- Across all sectors, expansion in ITS-related employment will be **driven primarily by business cases, regulatory alignment, and ecosystem-level interoperability**, rather than large-scale hiring surges. Growth will be incremental and strategically targeted, focusing on high-value technical roles rather than broad workforce expansion.

Role of AI in ITS employment trends

AI is emerging as a transformative force in ITS, reshaping job profiles across the value chain rather than eliminating roles. Organisations increasingly view AI as an enabler of efficiency, automation, and advanced analytics, creating new opportunities while reducing routine tasks.

- **Shift in job profiles**:
  - AI and automation are expected to augment human roles, moving employees toward analytical, integrative, and governance functions. Traditional operational tasks will decline as AI systems handle predictive and repetitive processes.
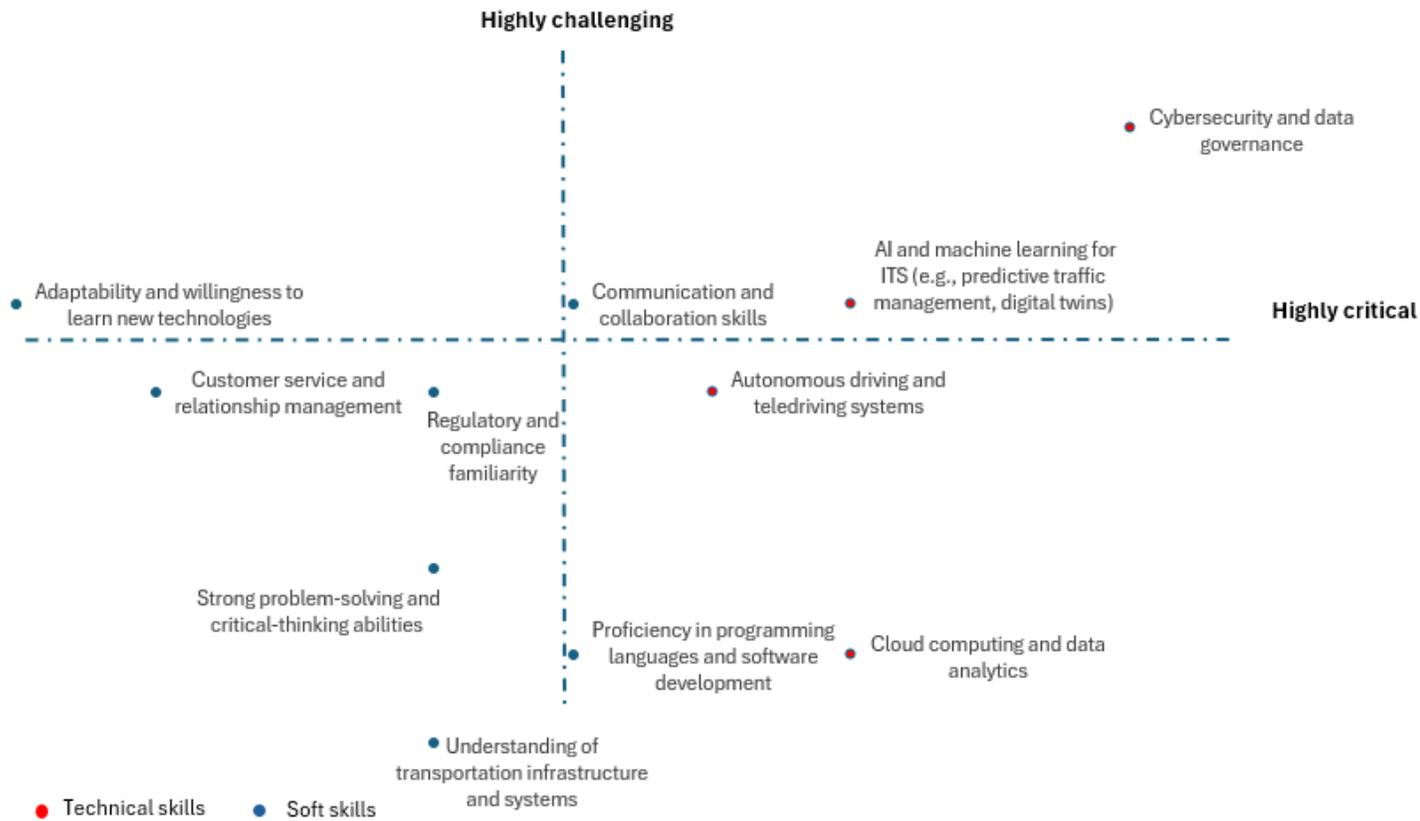
- **Sector-specific changes**:
  - Suppliers: AI optimises supply chains through predictive maintenance and inventory management, reducing manual logistics roles but creating demand for data analysts and AI algorithm specialists.
  - Vehicle manufacturers: AI drives quality control, robotics, and real-time production reconfiguration, cutting routine factory roles while expanding needs for AI simulation experts and robot operators. For vehicle manufacturers, Machine learning has been integral to automated-driving development for over a decade, and experts emphasise that AI represents an evolution rather than a sudden revolution.
  - Connectivity industry: AI enhances network management, cybersecurity, and predictive analytics for connected and autonomous vehicles (CAVs), supporting smart city ecosystems and creating roles in AI-driven network optimisation.

EMPLOYMENT TRENDS

Employment and skills in the ITS domain

The ITS workforce requires a blend of technical expertise in AI-driven systems and soft skills for multidisciplinary collaboration to advance smart mobility. Technical skills focus on emerging technologies like machine learning for traffic prediction and cybersecurity for V2X networks, while soft skills emphasize adaptability amid rapid ITS evolution.

Which ITS-related skill areas and competencies are most critical for your organisation, and which are the most challenging to recruit for?

- **Highly challenging** (vertical axis)
- **Highly critical** (horizontal axis)

Data points:
- Cybersecurity and data governance
- AI and machine learning for ITS (e.g., predictive traffic management, digital twins)
- Adaptability and willingness to learn new technologies
- Communication and collaboration skills
- Customer service and relationship management
- Regulatory and compliance familiarity
- Autonomous driving and teledriving systems
- Strong problem-solving and critical-thinking abilities
- Proficiency in programming languages and software development
- Cloud computing and data analytics
- Understanding of transportation infrastructure and systems

Legend:
- ● Technical skills
- ● Soft skills

EY, ERTICO partners survey (2025)

Organisations face **two major challenges**: acquiring advanced **technical skills** for emerging ITS technologies and **ensuring employees have the transversal skills** needed for cross-sector collaboration.

- **Cybersecurity and data governance stands out as the most critical and hardest-to-fill skill gap**, reflecting growing concerns around secure communication and data protection.

- Other high-priority technical areas include **AI and machine learning**, autonomous driving/tele driving, and problem-solving, all essential for predictive analytics, automation, and decision-making.

While technical expertise dominates the skill demand, soft skills, such as adaptability, communication, and collaboration, are also difficult to source, underscoring the multidisciplinary nature of ITS roles.

Additional needs to deepen employee expertise in navigating evolving regulatory frameworks, customer engagement, and traffic-management domain knowledge, highlighting the value of talent that combines technical depth with operational and interpersonal skills.

Main barriers to ITS workforce development

Organisations face several challenges in building and maintaining a skilled ITS workforce. These challenges hinder recruitment and upskilling efforts.

- Shortage of qualified candidates in the market: Limited availability of professionals with ITS-specific technical and domain expertise.

- Insufficient internal resources for upskilling: Budget and capacity constraints hinder continuous training and skill development.

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AI'S INFLUENCE ACROSS THE BOARD

AI's influence in the ITS domain

AI has become a transformative force in ITS, influencing every layer of development, production, and operation. Its role is not limited to incremental improvements; rather, it is driving a fundamental shift in how vehicles, infrastructure, and connectivity interact. ERTICO's framework emphasizes AI's ability to enhance efficiency, reduce environmental impact, and improve user experience through automation and data-driven decision-making. Combined with industry trends, AI is not only accelerating development cycles but also reshaping the entire transport ecosystem, from vehicles and infrastructure to connectivity and compliance.

Suppliers

Suppliers are undergoing a profound digital transformation, adopting **Industry 4.0 principles to integrate AI-driven automation** into manufacturing and supply chain operations. They are expanding into new markets by developing processors tailored for AI workloads, aiming to deliver superior performance with minimal power consumption. This shift from low-power architectures to high-performance computing reflects the **growing demand for real-time AI capabilities** in vehicles and infrastructure.

Connectivity industry

The connectivity industry is positioning itself as a key enabler of ITS by deploying secure, high-speed networks and edge computing infrastructure to support real-time applications. **Compliance with cybersecurity and privacy standards is now a strategic imperative**, shaping investment priorities and operational models. This sector also plays a critical role in ensuring interoperability across diverse systems, which is essential for the scalability of AI-driven mobility solutions.

Vehicle manufacturers

Vehicle manufacturers are leveraging AI to accelerate product development and integrate advanced features that redefine the driving experience. Predictive maintenance, enhanced perception systems, and centralized electronic control unit (ECU) architectures are becoming standard, although challenges remain in balancing centralization with wiring complexity and power constraints. These advancements require significant investment in technology and workforce capabilities, as traditional automotive roles evolve toward software engineering, AI integration, and data science.

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4. ENVISAGED DEPLOYMENTS

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Envisaged Deployments

Envisaged deployments across key sectors

The automotive and ITS ecosystem is entering a decisive phase of implementation. Large-scale cross-border testbeds and urban pilots will validate connected and autonomous technologies, while vehicle manufacturers, suppliers, and connectivity providers align on software, chips, and infrastructure. These deployments aim to accelerate innovation, ensure regulatory compliance, and support Europe's sustainability objectives.

2026

- **Cross-border CAV corridors & sandboxes**
EU-level pilots for L2+/L3 validation, streamlined type-approval, and common software/chip standards.

- **AV pilot cities network**
Urban trials of robo-shuttles and L3/L4 features integrated with V2X and traffic management.

- **Fleet electrification law**
New EU mandate triggering OEM programs for zero-emission corporate fleets.

2027

- **Scale-up of L3 highway automation**
Vehicle manufacturers expand SDV-based L3 functions with OTA capabilities to more vehicle models (Germany, France).

- **Battery scale-up accelerates**
EU lines expand; recycling partnerships operational.

- **EU battery gigafactory opens**
First large-scale EU battery plant operational under Innovation Fund support.

2028

- **Multi-city AV clusters operational**
Cities (Italy mainly, Spain, and France) integrate AV fleets with traffic management systems.

- **Standardised OTA compliance framework adopted**
EU cybersecurity and data-access rules enforced for SDVs.

- **Production launch of fully centralised SDV platforms**
Vehicle manufacturers start production of consolidated compute architecture for autonomy.

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5. RESEARCH & INNOVATION

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RESEARCH AND INNOVATION

Research and Innovation across key sectors

The automotive and ITS sectors are accelerating innovation toward software-defined, autonomous and sustainable mobility. EU initiatives such as the CAV Alliance and new AI-focused programmes are speeding up deployment, while investment in battery industrialisation, SDV architectures, cybersecurity and V2X connectivity is reshaping the competitive landscape for vehicle manufacturers, suppliers and connectivity providers. In this context, the European Commission's Joint Research Centre (JRC) released Research and Innovation in Smart Mobility in Europe, a consolidated review of 247 EU-funded projects driving advancements in connected, automated, digital and sustainable mobility. Drawing on the TRIMIS monitoring system, the report highlights rapid progress in AI-enabled transport, data-driven mobility services, digital infrastructure and V2X connectivity, areas that closely align with core priorities across the ITS value chain.

Private R&I

Suppliers	Vehicle manufacturers	Connectivity industry
Vehicle manufacturers will **leverage VR/AR in R&D** to enable virtual prototyping and optimized manufacturing, accelerating design cycles and reducing physical testing costs.	Connectivity providers plan to innovate with **5G/6G to deliver ultra-low latency, edge computing, and precise synchronization**, enabling autonomous vehicles and real-time data exchange.	Suppliers will shift to software-driven system integration, embedding AI-based driving systems to **enable advanced automation** and **seamless functionality.**

Public R&I

EU CAV Alliance	Battery Innovation & Industrialisation	Apply AI / AI in Science
EU plan to unite industry and policymakers to set common standards and accelerate connected and automated vehicle deployment.	**EU invests in advanced technologies and recycling** to build a competitive, sustainable battery value chain.	**EU will scale AI adoption** in research and industry through shared infrastructure, ethical frameworks, and funding.

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6. MAIN CHALLENGES &
POTENTIAL WAY FORWARD

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MAIN CHALLENGES - OVERVIEW

Challenges and recommendations

The automotive and mobility sector is shifting toward software-defined, connected, and sustainable solutions while facing strict EU regulations, complex integration, and high innovation costs. Fragmented ecosystems, data gaps, limited funding, and low public acceptance slow deployment, highlighting the need for coordination, political backing, and strong governance.

Such challenges can be addressed by fostering stronger collaboration across industry and governments to harmonize standards and close data gaps. Increased funding and public engagement can accelerate innovation and acceptance, while clear governance frameworks and supportive EU policies will ensure compliance and enable large-scale deployment.

Suppliers

•**Data accessibility & quality** limit suppliers' ability to test, validate, and scale technologies.

•**Funding & budget constraints** hinder ITS development.

•**Fragmented ecosystem and validation gaps** slow maturity and large-scale development.

Vehicle manufacturers

•**Regulatory constraints** limit advances in automation, connectivity, and software-defined functions.

•**Supply chain vulnerabilities** undermine strategic autonomy and slow the development of core ITS building blocks.

•**Limited incentives and fragmented investment** slow the rollout of cooperative and automated mobility.

Connectivity industry

•**Funding & budget constraints** limit deployment and business viability.

• **Lack of political support** create uncertain business conditions for investing in V2X and C-ITS infrastructure.

• **Limited cooperation among stakeholders** create major barriers to deploying C-ITS and V2X infrastructure at scale.

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NAVIGATING THE CHALLENGES

Challenges for Suppliers

This subsection explores the primary obstacles that suppliers have identified as impeding the implementation of ITS solutions, as revealed during the ERTICO consultation process. These challenges are detailed with specific insights on the way that they may be addressed or alleviated, as suggested by the relevant stakeholders.

Main challenges identified	Actions to overcome the challenges
#1 - Data accessibility and quality to test and refine ITS technologies Suppliers struggle with **restricted access to high-quality, standardized data**, which is essential for developing and validating ITS solutions. Fragmented data ownership, privacy regulations (GDPR, AI Act), and lack of common frameworks hinder AI-driven innovation and predictive analytics.	• Advocate for a European mobility data space and common data strategy to enable secure, standardized data sharing. • Form data-sharing consortia with vehicle manufacturers, tech providers, and public authorities to pool anonymized datasets for testing and simulation. • Invest in synthetic data generation and simulation environments to reduce dependency on real-world data while accelerating development cycles.
#2 - Funding and budget constraints ITS development requires significant investment in high-performance computing, AI-driven platforms, and connectivity modules, but **suppliers face tight margins**, **limited R&D budgets**, and **pressure from global competition**	• Leverage public-private partnerships and EU innovation funds (e.g., Horizon Europe) to co-finance ITS projects. • Adopt modular development strategies to reduce upfront costs and enable incremental deployment. • Explore strategic alliances with technology firms to share R&D costs and accelerate time-to-market.
#3 - Fragmented ecosystem and validation gaps The ITS ecosystem suffers from lack of standardization, insufficient stakeholder cooperation, and scarce testing environments, slowing maturity and large-scale deployment. Competing connectivity standards (5G/6G vs. short-range V2X) and **unclear regulatory frameworks** add complexity.	• Drive standardization efforts through industry alliances (e.g., 5GAA, ERTICO) to harmonize connectivity protocols and interoperability requirements. • Participate in shared testbeds and pilot programmes with vehicle manufacturers, cities, and telecom operators to validate technologies under real-world conditions. • Promote cross-sector collaboration platforms to align technical roadmaps and reduce fragmentation.

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NAVIGATING THE CHALLENGES

Challenges for Vehicle Manufacturers

Vehicle Manufacturers face significant barriers in accelerating ITS deployment, driven by regulatory misalignment, skills shortages, supply-chain dependencies, and insufficient infrastructure investment. These challenges slow down automation, connectivity, and software-defined mobility. Three domains that require rapid iteration, strong industrial ecosystems, and coordinated public–private action.

Main challenges identified	Actions to overcome the challenges
#1 – Regulatory constraints The regulatory environment, while essential for safety, often evolves more slowly than the underlying technology. **In the EU**, **type-approval frameworks struggle to keep pace with rapid advances in automation**, connectivity, and software-defined functions. This mismatch places a brake on innovation, as vehicle manufacturers cannot commercialize technology until approval pathways exist. Manufacturers emphasize the need for more flexibility in regulations and greater reliance on OEM responsibility and liability frameworks to accelerate deployment.	• Demonstrate robust internal safety and liability processes to build trust in faster, more dynamic regulatory cycles. • Accelerate internal validation and safety-case development to reduce approval bottlenecks once regulatory windows open. • Adopt modular, certifiable-by-design system architectures that allow components (e.g., ADAS modules, software stacks) to be approved independently.
#2 – Supply chain vulnerabilities and limited capabilities A major barrier lies in the shortage of elements required for automation, AI, cybersecurity, and SDV architectures. **Europe lacks sufficient software and semiconductor capacity**, making vehicle manufacturers dependent on suppliers in Asia and software ecosystems in the US. This undermines strategic autonomy and slows the development of core ITS building blocks. Without expanding the talent pool and strengthening local technology ecosystems, Europe risks lagging behind global competitors.	• Develop strategic partnerships with trusted global suppliers to integrate expertise where Europe lacks capacity. • Invest in in-house software teams and chip co-design capabilities to reduce dependency on external suppliers. • Establish joint ventures with tech firms to share R&D risk and accelerate capability building.
#3 – Limited incentives and fragmented investment ITS deployment requires large-scale, coordinated investment, particularly in digital road infrastructure, V2X deployments, high-speed connectivity, and traffic management systems. However, **manufacturers often face a lack of clear incentives**. National projects remain fragmented, and funding is insufficient to achieve EU-wide harmonisation, slowing real-world rollout of cooperative and automated mobility.	• Co-develop pilot corridors and testbeds with cities, road operators, and telecoms to create early, high-value use cases. • Pre-equip vehicles with scalable or dormant V2X capabilities, reducing marginal costs once infrastructure matures. • Collaborate through industry alliances (e.g., 5GAA, C-ITS platforms) to push for harmonised deployment models that align with vehicle lifecycles. • Adopt open, interoperable standards to reduce integration costs and accelerate cross-border functionality.

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NAVIGATING THE CHALLENGES

Challenges for Connectivity industry

This subsection dives into the top specific challenges hindering the deployment of ITS solutions as identified by ERTICO partners under the connectivity cluster. The proposed actions aimed to overcome or mitigate these barriers focus on driving regulatory alignment, interoperability, and sustainable business models that foster innovation, transparency, and public-private collaboration.

Main challenges identified	Actions to overcome the challenges
#1 – Insufficient political support and deployment mandates Stakeholders see V2X/C-ITS technology as mature, yet **rollout stalls without clear EU/national mandates**. High infrastructure costs and limited road authorities' budgets result in fragmented deployments, which leads to uneven coverage and a persistent "chicken-and-egg" problem between vehicles and roadside infrastructure.	• Form coalitions to push for EU/national mandates for V2X deployment in vehicles and roadside infrastructure. • Launch high-visibility corridor pilots showing interoperability and societal benefits to influence political will.
#2 – Funding constraints and strengthening value proposition ITS deliver significant societal benefits, such as improved safety, efficiency, and sustainability, but these benefits are often shared across multiple stakeholders, making traditional monetization models less straightforward. **Deploying ITS at scale requires significant investment in roadside units** (RSUs), sensors, connectivity, and ongoing operations such as maintenance and cybersecurity.	• Package public-good services (safety, traffic efficiency, environmental monitoring) with commercial add-ons (premium fleet services, analytics) to strengthen ROI and attract private investment. • Engage policymakers through evidence-based advocacy and high-visibility pilot projects to demonstrate the benefits of V2X adoption. • Collaborate with public authorities to design incentive programmes that foster innovative business models, combining public-good services with commercial offerings for sustainable deployment.
#3 – Limited cooperation among stakeholders While technology for ITS is mature, the biggest challenge lies in collaboration and trust among diverse actors. **Fragmented interests, unclear roles, and lack of shared governance** slow and sometimes prevent the integration of emerging ITS technologies. This also impacts funding alignment and coordinated deployment of roadside sensing, communication systems, and C-ITS applications, all of which are essential for improving safety and unlocking the next wave of ITS innovation.	• Launch collaborative projects that integrate roadside sensing, RSUs, and 5G infrastructure to showcase interoperability and shared benefits. • Develop secure, open data frameworks and neutral platforms for sharing non-sensitive ITS data, fostering transparency and innovation.

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WAY FORWARD

The previous analysis and the identified challenges, show that there are still barriers that need to be overcome for the further deployment of ITS solutions and services. While the recommendations presented might help mitigate these obstacles, further action is required from all stakeholders to accelerate the process. In this context, ERTICO can play a pivotal role in driving ITS deployment across Europe by promoting best practices, fostering collaboration, and supporting harmonized implementation strategies.

Drivers for ITS adoption

- Rising **congestion** and **road safety needs**: Implementing systems like incident detection, lane control, and automated monitoring enhances traffic flow and reduces accident rates.

- Further interest on the **integration of 5G and V2X connectivity**: the development of smart corridors and connected highways can create new opportunities for vehicle manufacturers, by extension suppliers, and the connectivity industry

- Expansion of **smart city programmes**: Smart city initiatives are increasingly integrating ITS to enhance mobility and reduce congestion. Deploying connected public transport, adaptive traffic signals, and digital tolling systems helps streamline traffic and improve efficiency.

Laying the groundwork for ITS deployment

To support the widespread uptake of ITS, a combination of strategic actions is required:

- Shift **from pilots to scalable operations**, ensuring projects transition into sustainable services supported by local authorities, private investors, and long-term funding models.

- Create **structured collaboration frameworks** that bring together telecom, automotive, infrastructure managers, and public authorities to align on standards, interoperability, and lifecycle planning.

- Develop and share a **European ITS roadmap**, including technology evolution paths towards 5G NR-V2X and harmonized profiles to guarantee cross-border interoperability.

- Invest in **full-stack infrastructure**, covering roadside sensing, RSUs, edge computing, and connectivity to enable intelligent highways and resilient services.

- **Showcase real-world benefits** through corridor pilots, using measurable KPIs (e.g., reduced accidents, improved travel times, lower emissions) to build trust among users and decision-makers.

- **Engage end-users and cities early**, through co-creation pilots and transparent impact dashboards, to overcome scepticism and accelerate adoption.

- **Promote autonomous electric shuttles** as a scalable growth path, improving rural–urban mobility and driving a promising ITS innovation.

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7. KEY PROJECTS AND PARTNERSHIPS

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KEY PROJECTS AND PARTNERSHIPS

Key partnerships favouring the uptake of ITS

ERTICO operates one of the most extensive collaboration networks in the mobility sector, bringing together more than 120 public and private organisations to accelerate the deployment of ITS across Europe. These partnerships span vehicle manufacturers, suppliers, technology providers, research institutions, road authorities, and cities, each contributing to a shared mission of enabling a safer, cleaner, more efficient and more connected transport system.

Key Strategic Partnerships

ERTICO maintains strategic partnerships with key actors across the physical and digital infrastructure ecosystem, ensuring alignment between policy, research, standardisation, and large-scale deployment of intelligent transport and mobility solutions. These collaborations strengthen interoperability, accelerate innovation uptake, and support the coordinated development of connected, cooperative, and automated mobility across Europe and globally. In particular, ERTICO works closely with:

- CEDR
- IRF Geneva and IRF Global
- ACEA-EUCAR
- ERTRAC-ALICE
- E-mobility Europe
- SAE
- IEEE
- SNS Joint Undertaking

- CCAM Partnership
- AIOTI
- 6GIA
- ITF/OECD
- ESA (European Space Agency)
- TTF (Transport Technology Forum, UK)

Project-Based Accelerators

Beyond institutional partnerships, ERTICO leads and participates in several cross-sector alliances that accelerate innovation through concrete deployment projects:

- **ECAVA** - The European Connected and Automated Vehicles Alliance (ECAVA) unites automotive, digital and mobility stakeholders to align CCAM roadmaps, support automotive action plans, and coordinate industry-led innovation in automation and software-defined mobility.

- **European Mobility Data Space Initiatives** - Through deployEMDS, FEDORA, and related projects, ERTICO drives the development of the European Mobility Data Space, enabling trusted data exchange for cross-border logistics, multimodal transport services, and next-generation connected vehicle applications. In this context, ERTICO also contributes to BoostEDIC, a Digital Europe Programme project that supports the creation of the European Digital Infrastructure Consortium for Mobility and Logistics (EDIC M&L) by establishing governance structures, interoperability foundations, and cross-country use cases for the EMDS.

- **National ITS Associations Network** - ERTICO supports the ITS Nationals network, enabling knowledge-sharing and coordinated action among national ITS organisations across Europe. This strengthens the dissemination and adoption of ITS best practices at local and national levels.

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KEY PROJECTS AND PARTNERSHIPS

Innovation platforms & ERTICO initiatives (examples, full list available on www.ertico.com)

Data for Road Safety (DFRS)

Data for Road Safety (DFRS) is a pioneering initiative that improves road safety through public-private collaboration. The platform has created a Safety-Related Traffic Information (SRTI) ecosystem, enabling its members to share data for the safety warnings under the principle of reciprocity. National ministries and road authorities, vehicle manufacturers, associations and service providers work together to support the large-scale use of safety-relevant data on a mutual basis. The European data space falls under Delegated Regulation 886/2013 of the European Commission on SRTI.

DFRS achieved a major milestone with the signing of a Memorandum of Understanding (MoU) with Euro NCAP, the consumer vehicle safety performance assessment programme. The signing, which took place at the ITS European Congress in Seville, formalises a collaboration to enhance vehicle safety assessments through the integration of real-time road hazard data. The DFRS ecosystem is now positioned as a reference cloud-based communication framework for use by vehicle manufacturers. As a result, the ecosystem has grown significantly, with new vehicle manufacturers and public authorities that contribute to further refining its ecosystem.

ERTICO Projects

CERTAIN – Safety Assurance Framework for CCAMCERTAIN develops a comprehensive lifecycle safety assurance framework for connected and automated mobility (CCAM). Its work supports validation, safety assessment, and trust-building measures that vehicle manufacturers and suppliers need as automated functions become more complex and software-defined.

Why it matters: It advances the regulatory and operational foundations required for safe deployment of autonomous and highly automated vehicles.

CHORUS – AI-Driven Multimodal Mobility Orchestration. CHORUS focuses on AI-enabled orchestration across multiple transport modes, developing data management structures, governance models, and interoperability frameworks.

Why it matters: Its outputs directly support the connectivity ecosystem, from telematics providers to OEM data platform teams, by enabling more seamless data exchange and vehicle–infrastructure coordination.

SMARTIN – Digitalisation and Infrastructure–Vehicle Integration. SMARTIN uses digitalisation, AI, and analytics to optimise multimodal infrastructure management and enhance infrastructure–vehicle integration.

Why it matters: This is essential for the roll-out of reliable V2X services, digital twins, and predictive infrastructure maintenance—areas where vehicle manufacturers, Tier-1 suppliers, and sensor providers are increasingly invested.

FRODDO – Development of a federated cyber-physical infrastructure that enables adaptable, secure, and scalable Operational Design Domains (ODDs) to enhance the safety, resilience, and real-world performance of automated driving systems..

Why it matters: It strengthens the safety, resilience, and real-world readiness of connected and automated mobility by enabling robust ODD continuity and validating solutions across diverse European test sites.

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KEY PROJECTS AND PARTNERSHIPS

Key projects (examples, full list available on www.ertico.com)

IN2CCAM

IN2CCAM aims to make urban transport safer, more sustainable, and inclusive by implementing and demonstrating CCAM services for vehicles, infrastructure, and users. For 36 months, its 21 partners from 10 countries tested solutions in four Lead Living Labs, including the cities of Tampere, Trikala, Turin, and Vigo as well as two Follower Labs in Bari and Quadrilatero.

IN2CCAM has deployed physical, digital, and operational infrastructures to enable real-world testing of CCAM technologies, including smart traffic lights, dynamic lanes, cooperative V2X communication, digital twins, and AI-based traffic management. Pilot results showed measurable improvements: 17 percent reduction in travel time in Turin, 12 percent fewer stops and up to 18 percent smoother crossings in Trikala, and successful autonomous fleet demonstrations in Tampere. Building on these results, the Tampere Public Transport Committee approved a new autonomous bus pilot without safety drivers. Simulations in Bari and Quadrilatero validated last-mile delivery optimisation, traffic planning, and scalable mobility solutions.

PRIVATEER

6G networks will significantly expand the threat landscape introduced by 5G, creating a strong need for more advanced, privacy-preserving security solutions. PRIVATEER addressed this challenge by developing "privacy-first" security enablers designed to protect stakeholders across emerging 6G environments. The project followed a strict privacy-by-design approach aligned with the EU's 6G vision, GDPR, and the ePrivacy Regulation.

PRIVATEER analysed the evolving risks associated with heterogeneous radio technologies, RAN virtualisation, multi-vendor infrastructures, and AI-driven network management—factors that will make 6G more exposed to attacks than previous generations. Its work focused on designing innovative mechanisms that ensure robust security without compromising user privacy, a key requirement for decentralised, zero-trust 6G ecosystems.

By advancing new security architectures and privacy-preserving techniques, PRIVATEER laid essential groundwork for next-generation "privacy-first" 6G security, supporting Europe's ambition to build secure, trustworthy, and privacy-centred future networks.

DeployEMDS

DeployEMDS accelerated the deployment of the European Mobility Data Space by validating the technical, semantic, and governance frameworks needed for large-scale, cross-sector data exchange in mobility. The project tested how interoperable data-space components (secure data-sharing architectures, common data models, and trust frameworks) can support CCAM services, traffic-management automation, and multimodal operations. Its 2025 activities showcased end-to-end implementations of mobility data-space building blocks, confirming their readiness for EU-wide scaling and reinforcing the role of trusted, federated data spaces in Europe's transition toward connected and automated mobility.

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KEY PROJECTS AND PARTNERSHIPS

Key projects (examples, full list available on www.ertico.com)

ENVELOPE

ENVELOPE advances the 5G-Advanced architecture by adapting it to the specific needs of Connected and Automated Mobility (CAM). Through large-scale trial sites in Greece, Italy, and the Netherlands, the project addresses both business and technical limitations of current systems to enhance network performance, reliability, and connectivity for critical ITS applications.

In 2025, the project launched its first Open Call, inviting SMEs, research institutes and universities to develop and test vertical services on the project's large-scale trial sites, fostering innovation and cross-vertical adoption of its open 5G-Advanced architecture. It also showcased major technical achievements at leading events such as the ITS European Congress, EuCNC & 6G Summit and DATAMITE Meet-Up, presenting live demonstrations and papers on edge computing, multi-connectivity and network exposure. In parallel, the project consortium partners contributed to the SNS JU white paper on 6G KPIs, reinforcing its role in shaping Europe's next-generation connectivity and intelligent mobility ecosystem.

ZEV-UP

ZEV-UP aims to revolutionise urban mobility by introducing user-centric, frugal, affordable, modular, and scalable battery electric vehicles (BEVs). This ultra-compact, zero-emission urban car features a swappable battery system, a solar panel rooftop, and bi-directional capabilities.

The project will deliver three variants of its frugal vehicle concept, tailored to diverse user needs: a two-seater for urban passengers, a four-seater for families, and a two-seater optimised for commercial use. In its second year, ZEV-UP finalised its vehicle architecture and design, key milestones guiding the upcoming prototype phase. Partners made strong progress in developing and manufacturing core components, ensuring a smooth start to prototype assembly in 2026.

The consortium also refined the vehicle demonstration plan, defining the use cases, test sites, and evaluation methods to validate the ZEV-UP design and innovations through demonstrations in real urban environments in Istanbul and Budapest, aimed at assessing performance, user experience, and overall acceptance of the vehicles.

PODIUM

PoDIUM identified and evaluated the connectivity and cooperation requirements needed to advance physical and digital infrastructure (PDI) and support higher levels of automation in CCAM. The project validated demanding CCAM use cases across three Living Labs using a multi-connectivity approach and an interoperable, hybrid data-management environment. It delivered a high-level reference architecture designed to work across different road environments and infrastructure setups.

In 2025, PoDIUM conducted live demonstrations in Germany, Spain, and Italy, showcasing how advanced PDI technologies, such as multi-connectivity, Multi-Access Edge Computing (MEC), and real-time digital twins, can enable higher levels of automation and improve road safety. The project concluded with a final event in Barcelona in November, featuring its findings, achievements, and a public live demonstration of the urban use case on emergency-vehicle priority and vulnerable-road-user protection.

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8. ANNEXES

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METHODOLOGY

Annex 1: ERTICO Market Report Methodology

Commissioned by ERTICO, the ITS Market Report focused specifically on suppliers, vehicle manufacturers, and connectivity industry. Building on the previous issues of this market report, the structure and the content of the report was based on diverse data sources and consultation tools, ensuring a comprehensive and balanced overview of the current Intelligent Transportation Systems ecosystem.

- A review of relevant EU acts, communications, reports, and online resources was conducted to establish a foundational understanding of the ITS landscape. Conducting desk research allowed to identify emerging trends, challenges, market updates, and other pertinent information.

- The creation of a survey composed of specific questions for suppliers, vehicle manufacturers, and connectivity industry was key to collect quantitative information as well as explanatory insights. This allowed to establish gaps in the collection of data which were then complemented by the interview phase.

- As a last step, interviews were performed to validate or contradict the findings of the survey as well as to gather further insights on the report's sections, i.e. ITS trends, barriers to adoption, deployment recommendations, etc.

Trough these different consultation tools, the broader context of the ITS ecosystem was determined for the research sector, public authorities and users.

Survey

A total of 12 organisations participated in the survey, all members of the ERTICO network. The survey was directed to suppliers, vehicle manufacturers, and connectivity industry.

Responses reflected a balanced representation between suppliers and connectivity stakeholders.

Interviews

To validate most quantitative inputs from the survey and get more detailed insights on the specific questions and topics, the following stakeholders were consulted during one-to-one interviews:

- 2 partners under the suppliers group
- 1 partner under the vehicle manufacturers group
- 3 partners under the connectivity industry group

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ACRONYMS

5G/6G	Fifth/Sixth generation network		EV	Electric Vehicle
5GAA	5G Automotive Association		GIP	(Austrian) Graph Integration Platform
ADAS	Advanced Driver-Assistance System		IoT	Internet of Things
ADS	Automated Driving System		ITF	International Transport Forum
AI	Artificial Intelligence		ITS	Intelligent Transport Systems
AV	Autonomous Vehicle		JRC	Joint Research Centre
CAVs	Connected and Automated Vehicle		KPI	Key Performance Indicator
CCAM	Connected, Cooperative, and Automated Mobility		LTE-V2X	Long-Term Evolution Vehicle-to-Everything
CEDR	Conference of European Directors of Roads		MaaS	Mobility-as-a-Service
CEF	Connecting European Facility		NR-V2X	New Radio Vehicle-to-Everything
C-ITS	Cooperative ITS		NTN	Non-Terrestrial Networks
C-V2X	Cellular - Vehicle-to-Everything		OECD	Organisation for Economic Co-operation and Development
ECAVA	European Connected and Autonomous Vehicle Alliance		OEM	Original Equipment Manufacturer
ECU	Electronic Control Unit		OTA	Over The Air
EMDS	European Mobility Data Space		ROI	Return on Investment
EU	European Union		RSU	Road Side Unit

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ACRONYMS

Annex 2: List of Acronyms

R&I	**Research and Innovation**	**V2N**	**Vehicle-to-Networks**
R&D	**Research and Development**	**V2V**	**Vehicle-to-Vehicle**
SDV	**Software Defined Vehicles**	**V2X**	**Vehicle-to-Everything**
TEN-T	**Trans-European Transport Network**	**VRU**	**Vulnerable Road Users**
TRL	**Technology Readiness Levels**		
UN	**United Nations**		
US	**United-States of America**		
V2B	**Vehicle-to-Bicycle**		
V2I	**Vehicle-to-Infrastructure**		

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