



Intelligent Transport Systems (ITS) Market Radar

ITS sectorial and market study

January 2024

More information on ERTICO is available on the Internet (<https://ertico.com>).

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ITS Market Radar | Issue 1, 2024



Traffic & transport sector Service providers sector Issue 1

Dear Reader,

Welcome to our first edition of the ITS Market Radar !

Transport and mobility has become a horizontal topic where various sectors have been growing together in partnership. Moving people and goods are now complemented by moving data. New relationships have emerged such as the linkage between vehicles and road infrastructure, charging infrastructure, grid management, smart digital twins of the physical world that guide devices to move from point A to B. These devices have become IoT systems with new potential in the twin transition of green and digital.

ERTICO-ITS Europe was built on the European Commission's impetus in 1991 to bring innovation in the transport value chain. Since then, over 100 EU funded projects, 30 ITS Congresses and many research activities made this happen. The journey continues with a European leadership on smart and sustainable mobility. Innovative technologies, new ways of moving and living, new realities made our sector truly embedded in each other's daily environment, be it as a consumer, business entity, association or public authority. Our eight sectors in the ERTICO Partnership, where we connect the dots, are the manifest of this.

Pleased to present to you our first market Radar report focusing on two of the eight sectors: the traffic & transport sector and the service providers sector. Other sectors will follow in forthcoming editions.

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

Joost Vantomme
CEO
ERTICO – ITS Europe

How to read this report

*Welcome to the Intelligent Transport Systems (ITS) market report established in partnership EY-ERTICO, focusing on **the Traffic & Transport Industry sector** and **the Service Providers sector**. ITS hold immense potential to revolutionise transportation, creating a cleaner, safer, and more efficient transport system. In alignment with the European Union policies and activities on Smart and Sustainable Mobility, combined with ERTICO's projects, thought leadership and congress activities, this report aims to provide a comprehensive analysis of these sectors, exploring key trends, challenges, and opportunities.*

The report is structured as follows:

- **Introduction and Sector Transition** highlights the transformative impact of ITS on transportation, outlining the value chains of both sectors.
- **Market section** presents the market figures as reported by ERTICO's Partners and provides valuable insights into future market dynamics.
- **Employment section** delves into employment figures and reflections, specifically among ERTICO Partners.
- **Trends section** uncovers the key technological trends and innovations that are reshaping the transportation landscape.
- **Challenges section** identifies the hurdles and obstacles faced by ERTICO Partners within the two sectors and delve into the issues.
- **Projects and Partnerships section** highlights key projects and Partnerships within the Traffic and Transport Industry Sector and the Service Providers sector.
- **Annexes** conclude the report with a description of the methodology behind the data presented (Annex 1), information about the authors (Annex 2), and list of acronyms (Annex 3).



1. INTRODUCTION AND SECTORIAL TRANSITION



Market Report

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ITS Market Radar

ITS overview and introduction

EU's ITS initiatives align with its mission for climate-neutral cities by 2030 and foster innovation hubs for climate-neutral cities by 2050. They emphasise zero-emission vehicles, sustainable alternatives, digitalisation, connectivity, and comprehensive data spaces. The EU is actively engaging various stakeholders to build a resilient and sustainable transport system. By collaborating with industry players, policymakers, and local communities, the EU is fostering an environment conducive to innovation and development.

This report builds on key directives and communications shaping the advancements in the ITS industry:

- ✓ **Directives 2010/40/EU & 2023/2661/EU:** Framework aiming to accelerate ITS deployment in Europe.
- ✓ **COM(2016) 766 final:** EU strategy for Cooperative ITS, promoting cooperative, connected, and automated mobility.
- ✓ **Regulation (EU) 2019/2144:** General Safety Regulation.



- ✓ **Sustainable & smart mobility strategy:** Making the EU transport system sustainable, smart and resilient



- ✓ **Communication from the Commission on the European Green Deal:** EU's commitment to sustainability and reducing greenhouse gas emissions in transport.



- ✓ **The Commission's communication focuses on establishing a single European data space** and strengthening coordination mechanisms for the ITS Directive review.

ITS support the climate-neutral and smart cities Mission

- ✓ Deliver at least **100 climate-neutral and smart European cities** by 2030
- ✓ Ensure these cities support all European cities to become **climate-neutral by 2050**.
- ✓ **112 Mission Cities selected**

Intelligent transport systems (review of EU rules)

The recent revision of EU rules assesses the availability of infrastructure and traffic/travel data across the EU transport network. It also covers new developments such as:

- ✓ **Connected and automated mobility**
- ✓ **Online multimodal platforms for users**

The extension of the scope of the directive 2010/40/EU will also mandate:

- ✓ **Availability of crucial data**
- ✓ **Deployment of essential services**

Scope of the report

This report aims to provide a detailed analysis of ITS sector in the European Union. The report covers the examination of various ITS technologies, applications, and their impact on modern transportation systems, as well as interlinked topics such as sustainability, innovation, and digitalisation. This market report provides the latest trends and innovations driving the ITS market in a single place.

High-level overview of the ITS sector & ERTICO Focus Areas

ITS optimises transportation, reducing congestion and enhancing mobility in the EU. ERTICO leads this transformation with a focus on four key areas:

CCAM, Clean & Eco-Mobility, Urban Mobility & MaaS, Transport & Logistics



Connected, Cooperative & Automated Mobility (CCAM)

- CCAM integrates advanced technologies and digital connectivity in vehicles and infrastructure.
- It enhances road safety, traffic efficiency, and driving comfort.



Transport & Logistics

- T&L creates digital infrastructure for efficient freight operations, targeting congestion and carbon emissions.
- It aims for full intermodal transport across Europe, striving for fully digitalised and automated freight and logistics operations by 2035..



Urban Mobility & MaaS

- Urban Mobility aims for seamless, sustainable solutions, promoting Mobility as a Service (MaaS) and cooperative ITS services.
- ERTICO strives to establish a unified MaaS market with the MaaS Alliance that it established in the previous decade and continues to facilitate, standardised transport integration tools, and extensive ITS implementation in cities.



Clean & Eco-Mobility

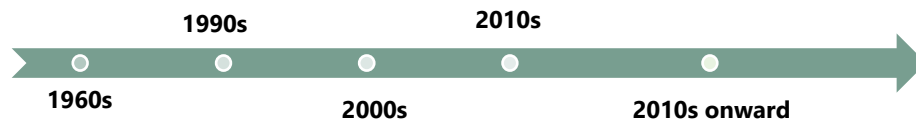
- Smart mobility for a greener future, aligned with the European Green Deal's vision for climate neutrality by 2050.

Historical context and sector evolution

The ITS sector has experienced a remarkable journey of development and evolution over time. The sector has witnessed remarkable advancements and achievements that have revolutionised the way we perceive and experience transportation. ITS emerged as a response to the growing challenges posed by the increasing complexity of transportation systems and the need for smarter, more efficient, and sustainable mobility solutions.

Key milestones and breakthrough moments that have shaped the industry

ITS emerged as a response to the growing challenges posed by the increasing complexity of transportation systems and the need for smarter, more efficient, and sustainable mobility solutions.



- ✓ **First Traffic Management Systems (1960s):** ITS foundation emphasising data-driven traffic control.
- ✓ **Electronic Toll Collection Introduction (1990s):** Automated toll systems enhancing traffic flow.
- ✓ **Enactment of ITS Legislation and Standards (2000s):** Global recognition leading to interoperability and integration standards.
- ✓ **Smartphone App Introduction & Autonomous Vehicle Testing (2010s):** Travel planning and navigation. Successful trials signal a future of efficient and driverless transportation.
- ✓ **21st Century Automation and Connectivity:** Connected vehicle technology and IoT paving the way for C-ITS and full autonomy.

Notable Advancements/Achievements in the Field

The ITS sector has achieved significant milestones, including:

- ✓ **Connected and Automated Vehicles (CAVs)**
- ✓ **Mobility as a Service (MaaS)**
- ✓ **Electrification and Clean Mobility**
- ✓ **Big Data and Predictive Analytics**
- ✓ **5G Connectivity**



Value Chain - Traffic & Transport Industry

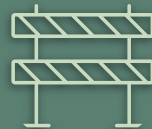
The **Traffic & Transport Industry** value chain is a comprehensive and interconnected system that drives the optimisation, safety, and efficiency of transportation. This value chain integrates various technologies and stakeholders to create a seamless and intelligent transportation ecosystem.

The Traffic & Transport Industry Value Chain encompasses various crucial components, including **traffic management tools**. It further extends to **intelligent traffic management solutions**. Additionally, the sector integrates **connected mobility solutions**. The value chain also incorporates **smart intersection technologies**. Moreover, **AI and digital solutions** contribute significantly with offerings such as AI-based traffic and smart city mobility solutions, data-driven mobility services, and tailored mobility applications.



TRAFFIC MANAGEMENT

- ✓ Roads marking
- ✓ Tools for traffic control
- ✓ Traffic detectors
- ✓ Traffic lights



INTELLIGENT TRAFFIC MANAGEMENT

- ✓ Traffic control
- ✓ Adaptive traffic control
- ✓ Dynamic tolling solutions



CONNECTED MOBILITY SOLUTIONS

- ✓ V2I communications
- ✓ Intelligent bike solutions
- ✓ Traffic prioritisation



SMART INTERSECTION

- ✓ Intelligent street lighting
- ✓ Adaptive traffic control
- ✓ Traffic detectors & new technologies
- ✓ V2X



AI & DIGITAL SOLUTIONS

- ✓ Traffic balancing
- ✓ AI based traffic & smart city mobility solutions
- ✓ Data-driven mobility
- ✓ Apps for tailored-made mobility services

Value Chain - Service Providers sector

*The **Service Providers sector** in the transportation industry plays a critical role in offering innovative solutions and facilitating seamless operations. This value chain comprises diverse origins that converge to provide essential services and data-driven solutions to the transportation ecosystem.*

The **Service Providers sector** Value Chain encompasses **diverse origins** such as software-based services, standards, aeronautics, automotive services, digitisation of documents, and insurance. It contributes to **navigation systems**. Additionally, it provides real-time and meta-data services, **integrates data** from third parties into applications, and focuses on building **data infrastructure** including cloud infrastructures and digital twins.



DIVERSE ORIGINS

- ✓ Software based services
- ✓ Standards
- ✓ Aeronautics
- ✓ Automotive
- ✓ Digitisation of documents
- ✓ Insurance



NAVIGATION SYSTEMS

- ✓ Supplying static digital maps
- ✓ Supplying navigation systems
- ✓ Mobility planning



PROVIDING RT AND META DATA

- ✓ Data for maps
- ✓ Dynamic map content
- ✓ Visibility beyond sensors with location data sources



APPS INTEGRATING DATA

- ✓ Developing and customising applications
- ✓ while integrating data from the 3rd parties



DATA INFRASTRUCTURE

- ✓ Building data infrastructure (Cloud Infrastructures)
- ✓ Digital Twins

2. KEY TRENDS AND INNOVATION



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Sector driving the future: Key trends in ITS

The ITS sector is a **dynamic and ever-evolving industry** that continuously embraces new technologies, concepts, and practices. With the rapid advancement of digitalisation and the emergence of transformative innovations, the transportation landscape is undergoing a profound revolution. The industry's agility and adaptability are evident in its constant pursuit of improved efficiency, safety, and sustainability.

This section aims to provide a comprehensive overview of the dynamic landscape of the industry:

- ✓ focusing on **key technologies**, innovative practices, and transformative concepts that are shaping the future of transportation.
- ✓ Highlighting the technological trends that are propelling the ITS sector **as reported by ERTICO's Partners** into a new era of intelligent, connected, and sustainable mobility.



Navigating the Latest Trends in the ITS Sector

- **Automated Vehicles and Self-Driving Technology:** Promising safer and more accessible transportation.
- **Clean & Eco Mobility:** Driving the shift to electric and alternative energy vehicles for sustainable transportation and greener cities.
- **Artificial Intelligence (AI) and Machine Learning:** Driving data-driven decisions and optimising traffic flow.
- **Quantum Computing and Computing Power:** Exploring quantum computing's potential in solving complex transportation problems and enhancing data processing capabilities in the ITS industry.
- **5G and Wireless Communication Technologies:** Revolutionising connectivity and enabling advanced V2X communications.
- **Blockchain and Decentralised Systems:** Enabling secure transactions and transparent data sharing in transportation.

Other Emerging Trends: IoT, AR, VR, Edge Computing and Distributed Computing, Predictive Modelling and Analytics, Datafication of the World, High Volume and Heterogeneous Data, Software 2.0 – New Programming and Integration, Talent Engagement and Retention, and The Internet of Behaviours.

Key trends in the Traffic & Transport Industry

ERTICO Partners from the Traffic & Transport Industry were asked to select the top three technology trends they believe will have the most significant impact on their business and the ITS, with 1 being the trend with the highest anticipated impact. In this section, we delve into these factors, examining how they converge to drive innovation and efficiency within ITS, while also addressing critical societal and environmental imperatives.

Key technology trends shaping business, sector, and the future of ITS

#1 Trend AI and machine learning

#2 Trend 5G and wireless communication tech

#3 Trend Edge and Quantum Computing Power

EY, ERTICO PARTNERS SURVEY, TRAFFIC & TRANSPORT INDUSTRY, 2023

ERTICO Partners believe **that AI and machine learning technologies**, along with **5G and wireless communication technology** directly facilitate the deployment of advanced ITS solutions. These technologies automate critical tasks, optimise routes, and enhance real-time decision-making, offering practical applications that drive the adoption of ITS. They also enhance data transmission and enables seamless connectivity, paving the way for more efficient and responsive ITS operations.

ERTICO acknowledges **quantum computing's potential** for revolutionising data processing, yet practical implementation within the transportation sector remains a long-term objective.



In the Traffic & Transport Industry, **AI and machine learning** are acknowledged as transformative tools, **enhancing mobility, sustainability, and operational efficiency across Europe and the globe**. Industry Partners emphasise the pivotal role of these technologies in addressing current and future challenges in transportation, including **climate change action**.

They also highlight the necessity for a **skilled workforce in Europe and Africa** to effectively:

- ✓ manage real-time traffic and promote clean mobility solutions for emission reduction, alongside the growing trend of mass electrification.

Key trends in the Service Providers sector

*In this section, **ERTICO Partners from the Service Providers** were asked to choose the top three technology trends expected to impact their business and the future of ITS significantly, with 1 representing the trend with the highest anticipated impact. Their insights navigate complex technological advancements and evolving market dynamics, reshaping business operations and the delivery of services in the service provider sector.*

Key technology trends shaping business, sector, and the future of ITS

#1 Trend Clean & Eco Mobility

#2 Trend Internet of Things (IoT) connectivity

#3 Trend 5G and wireless communication tech

EY, ERTICO PARTNERS SURVEY, SERVICE PROVIDER SECTOR, 2023

Service Providers Partners highlight that the existing landscape, which may prioritise protecting current positions, **can hinder the real deployment of eco-friendly solutions within ITS**. The status quo will impede the transition to cleaner mobility. Also, a perception of a **lack of decisive actions** within the industry is noted. They mentioned:

- ✓ The pace of adoption of clean and eco mobility solutions has been **slower** than expected
- ✓ **Infrastructure availability** emerges as a critical factor for the successful implementation of clean and eco mobility services within ITS.



Partners within the Service Providers sector underscore **the critical role of sustainability and clean mobility solutions in shaping the future of transportation**. Key considerations for the industry's growth:

- ✓ Emphasis on data sharing among transport stakeholders.
- ✓ Potential conflicts between public and private expectations.
- ✓ Concerns regarding legal implications for ITS solutions.
- ✓ Recognition challenges among road operators regarding the value of data solutions.

Funding challenges and potential Partnerships for advancing eco-friendly mobility.



3. MARKET FIGURES

Market Report

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ITS Market Radar

Future outlook and expected developments

*In this section, we delve into the **market figures** and explore **the envisioned future evolution**. The ITS industry has witnessed remarkable progress over the years, with ERTICO playing a pivotal role in driving innovation and collaboration among its Partners. This section aims to provide insights into the ITS market, shedding light on the transformative potential it holds for the transportation and mobility landscape.*



The future of the ITS sector is marked by transformative technologies that promise to reshape the ITS landscape.

- ✓ Revolutionary impact of wireless communication technologies like **5G and 6G**.
- ✓ Central role of **AI and machine learning** in enhancing transportation systems.
- ✓ Transformational influence of **AR and VR** on user experiences.
- ✓ Reshaping mobility through the **integration of Automated vehicles and self-driving technology**.
- ✓ Enhanced data security and transparency through **blockchain and decentralised systems**.

Service Providers emphasise the promise of **data-driven decision-making, IoT connectivity, and predictive analytics** in shaping the future of transportation.

- **Edge and distributed computing technologies** support real-time data processing, boosting connectivity and response times.
- **The Internet of Behaviours** personalises mobility services, catering to user preferences and fostering dynamic transportation networks.

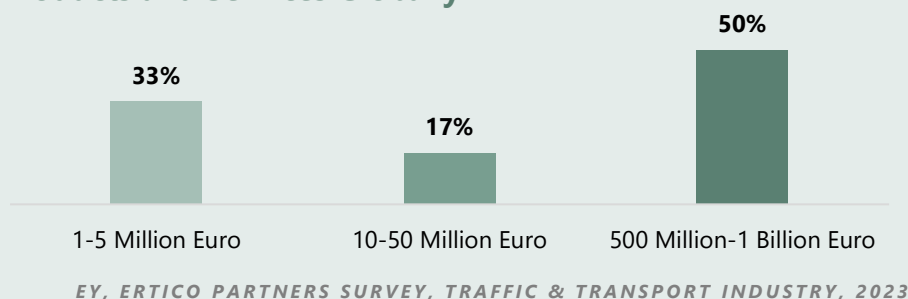
Service Providers partners also added:

- **Quantum computing** promises breakthroughs in data processing and analytics, propelling the ITS industry toward unprecedented computing power.
- **Software 2.0** revolutionises OEMs with autonomous vehicles, ushering in a new era of software integration in transportation.
- **Talent engagement and Clean & Eco Mobility initiatives** drive innovation and sustainability, reducing carbon emissions and improving air quality in the ITS sector.

Market - Traffic & Transport Industry

This section will delve into **key insights from Traffic and Transport industry figures and Partners** within the ITS sector, shedding light on critical aspects such as **budget allocation to ITS**, research and development (R&D) investment patterns, **funding sources**, and **service focus**. These insights provide a comprehensive understanding of the operational landscape and strategic focuses within the ITS industry, offering valuable perspectives on the sector's direction and priorities.

Revenue Generated from Sales of ITS and ITS-Related Products and Services Globally



- **1 to 5 Million Euro bracket:** Dominated by a diverse array of smaller and mid-sized organisations, fostering innovation and diversity.
- **10 to 50 Million Euro range:** Signifying a substantial 20% market share, illustrating the potential for mid-sized companies to scale and meet increasing demand.
- **500 Million to 1 Billion Euro range:** Representing 50% of the market, showcasing the significant impact of established players.

Partners see advantages and challenges in different revenue brackets while they state collaboration can fuel innovation and market expansion.

Key industry figures reported by ERTICO Partners

Budget Allocation for ITS: 50% of organisations allocated budgets of less than 1 Million Euro and the other 50% directed higher budgets, ranging from 5-50 Million Euro.

R&D Budget Distribution: The diverse spread of R&D budgets, ranging from less than 0.5 Million Euro to over 10 Million Euro.

National and EU Grant Funding: With 67% of industry partners receiving less than 0.5 Million Euro in national and EU grant funding. The 33% that secured funding in the 0.5-1 Million Euro range.

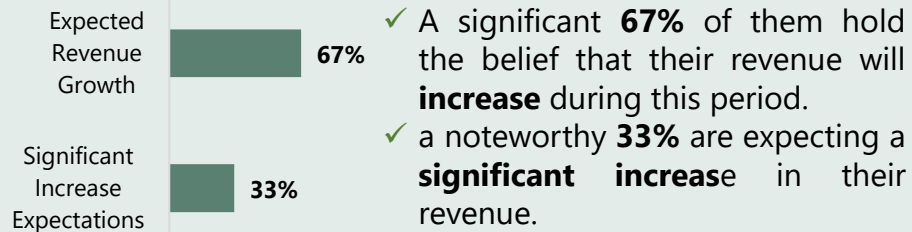
European Subsidiaries: The substantial majority of 71% indicating the presence of European subsidiaries among the ERTICO Partners underscores the significance of European operations and the regional focus of many organisations within the ITS sector.

Service Focus: The considerable share of approximately 62.5% of respondents primarily focusing on business-to-government (B2G).

Market: Traffic & Transport Industry

ERTICO Traffic & Transport Industry Partners' **Revenue Expectations for ITS**. The insights gathered from ERTICO Partners within the Traffic & Transport industry regarding their revenue expectations for ITS over the next **3 to 5 years provide a valuable snapshot of the industry's outlook**.

According to responses from ERTICO Partners within the Traffic & Transport Industry



EY, ERTICO PARTNERS SURVEY, TRAFFIC & TRANSPORT INDUSTRY, 2023

Driving Transformation: Key Factors Shaping Revenue Trends in ITS, as Identified by ERTICO Partners

The future of the ITS sector holds significant promise, driven by the convergence of cutting-edge technologies and innovative solutions.

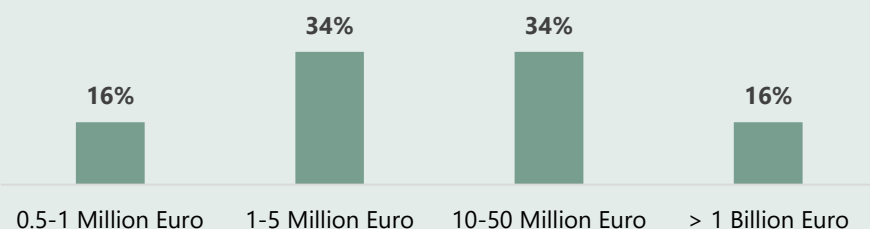
- **Changing consumer demands and societal challenges** driving the adoption of ITS solutions.
- **Increased commitment** of organisations to actively participate in the development and implementation of intelligent transportation systems.
- **Industry-wide digitisation**, especially in logistics, standardising digital technologies and emphasising ITS's pivotal role.
- Anticipation of leveraging **IoT, digital twins, and extensive data resources** to develop advanced mobility services.
- Expectation of forging more **partnerships** and attracting new customers as a driver for revenue growth in the ITS sector.
- **Increasing organisational involvement** acknowledges ITS's crucial role in transportation's future.



Market: Service Providers sector

This section will delve into **key insights from Service Providers figures and Partners** within the ITS sector, shedding light on critical aspects such as **budget allocation to ITS**, Research & Development (R&D) investment patterns, **funding sources**, and **service focus**. These insights provide a comprehensive understanding of the operational landscape and strategic focuses within the ITS industry, offering valuable perspectives on the sector's direction and priorities.

Revenue Generated from Sales of ITS and ITS-Related Products and Services Globally



EY, ERTICO PARTNERS SURVEY, SERVICE PROVIDER SECTOR, 2023

- **The 1 to 50 Million Euro revenue range with 34%** signifies a vibrant ecosystem of smaller and mid-sized players, fostering innovation and diversity within the sector. Notably, a significant portion,
- **34%, operates in the 10 to 50 Million Euro range**, indicating the potential for mid-sized companies to expand and address the increasing demand for intelligent transport solutions.
- Simultaneously, the significant representation of **larger enterprises (over 1 billion Euro), accounting for 16% of the market**

Key industry figures reported by ERTICO Partners

Budget Allocation for ITS: 62.5% with less than 0.5 Million Euro, 12.5% in the 0.5-1 Million Euro range, highlighting modest budgets and the need for efficient resource utilisation and collaboration.

R&D Budget Distribution: 50% allocated less than 0.5 Million Euro, suggesting limitations that might impact the pace and scale of innovation in ITS-related products and services.

National and EU Grant Funding: 63% received less than 0.5 Million Euro, while 25% fell into the 0.5-1 Million Euro bracket, indicating the challenges faced by many Service Providers in securing substantial funding for ITS-related initiatives.

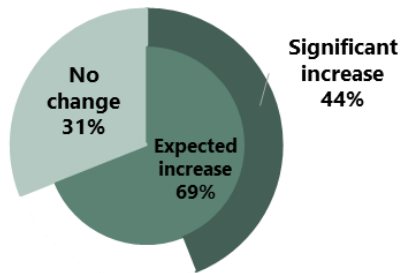
European Subsidiaries: Only 37% of entities indicated the possession of European subsidiaries, indicating a moderate presence of international extensions within the industry.

Service Focus: 55.6% primarily focusing on B2B services, showcasing a strong orientation towards serving businesses and organisations, reflecting the collaborative nature of the ITS sector.

Market: Service Providers sector

ERTICO Service Providers Partners' **Revenue Expectations for ITS**. The insights gathered from ERTICO Partners within the Service Providers sectors regarding their revenue expectations for ITS over the next **3 to 5 years provide a valuable snapshot of the industry's outlook**.

According to responses from ERTICO Partners within the Service Providers sector



EY, ERTICO PARTNERS SURVEY, SERVICE PROVIDER SECTOR, 2023

✓ **69%** believe that their **revenue will increase** with **44%** of them expecting a **significant increase** and **25%** expect a **slight increase**.

✓ **31%** foresee "**No change**" in ITS revenue.

Driving Transformation: Key Factors Shaping Revenue Trends in ITS, as Identified by ERTICO Partners

The recognition of a "**growing need for our solutions**" reveals a significant proportion of Partners who anticipate heightened demand for their specialised ITS offerings.

- Emphasising the strategic orientation of "**turning innovations into business**" underscores a deliberate effort by organisations to commercialise their technological advancements.
- The heightened focus on sustainability integration within ITS solutions is identified as a critical factor driving revenue growth, as organisations prioritise eco-friendly practices and solutions, aligning with global sustainability initiatives.
- Partners foresee advancements in **AI, HPC, data analytics, and digitisation** as catalysts driving the adoption of advanced and efficient ITS solutions.
- Service Providers foresee ITS advancements fuelling revenue growth and enhancing **crisis management capabilities**, amplifying the impact on disaster response and mitigation.





4. EMPLOYMENT

Market Report

Issue 1, 2024

ITS Market Radar

Employment figures, sector, and ERTICO Partners

The purpose of this section is twofold: firstly, to provide a comprehensive **analysis of the current employment trends within the ITS sector**, and secondly, to **highlight the future outlook and expected developments**. A deep understanding of the employment figures is vital for stakeholders, policymakers, and industry leaders to make informed decisions and devise strategies that will propel the ITS sector forward.



Anticipated Trends in ITS Workforce Engagement Over the Next 3-5 Years

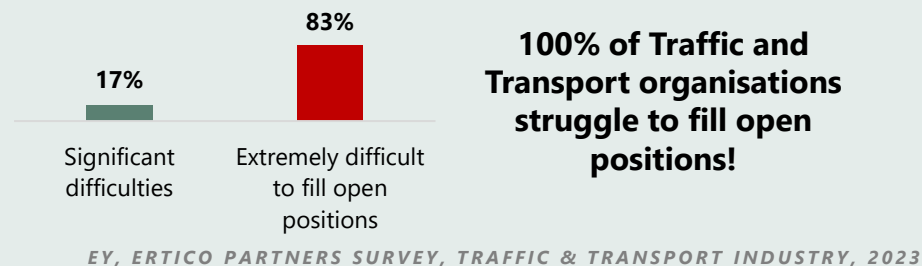
- Expectations of minimal job displacement due to automation
- Anticipation of new job roles to replace eliminated positions.
- Increased demand for expertise in managing FIDIC type contracts.
- Optimisation and reutilisation of service personnel in certain positions.
- Introduction of targeted mentorship programs to foster seamless integration of AI and machine learning technologies in existing roles.
- Emphasis on green, sustainability, inclusion, diversity, and positive company culture.
- Strategies to accommodate growth in ITS through hiring and education initiatives.
- Focus on automation for streamlining ITS processes.
- Emphasis on workforce upskilling through enhanced training services.
- Adoption of data-driven recruitment strategies to target candidates with specialised ITS expertise.
- Establishment of industry-academia partnerships to facilitate a seamless transition for graduates with specialised ITS qualifications into the workforce.



Employment - Traffic & Transport Industry

The purpose of this section is to provide **a comprehensive analysis of the current employment trends within the traffic & transport industry sector** while assessing **the challenge of recruiting qualified talent in the ITS sector** and future outlook and expected developments.

Assessing the Challenge of Recruiting Qualified Talent in the ITS Sector



The responses provided by Traffic & Transport industry Partners regarding the strategies employed to retain qualified or talented/skilled employees in the ITS sectors:

- ✓ One strategy for retaining employees involves **offering higher salaries and lifestyle benefits.**
- ✓ Partners suggest a broader approach that emphasises **promoting sustainability, inclusion, diversity, and company culture.**
- ✓ Emphasising the impact of ITS, showcasing **its role in saving lives and enhancing transportation efficiency.**

ERTICO Partners from the Traffic & Transport Industry indicates that they **all plan to hire in the next 6 to 12 months primarily to replace departing employees in ITS-related roles.**

- Additionally, 80% plan to hire for business expansion in the ITS sector.
- Furthermore, 60% aim to upgrade their workforce's skills and introduce new ITS products or services.



Employment - Traffic & Transport Industry

*The purpose of this section is to understand the **primary reasons for struggling to fill its positions with qualified talent, challenges in recruiting qualified talent for its positions, hiring plans of Traffic and Transport organisations with the next 6 to 12 month in the ITS sector**. This section also delves into the critical skills and competencies required for the workforce in the Traffic and Transport industry.*

Understanding the Primary Reasons for Struggling to Fill ITS Positions with Qualified Talent

#1 Reason	Lack of candidates with ITS skills
#2 Reason	The number of candidates is too low
#3 Reason	Salary conditions requested are difficult to meet

EY, ERTICO PARTNERS SURVEY, TRAFFIC & TRANSPORT INDUSTRY, 2023

Challenges in recruiting qualified talent for its positions:

- Scarcity of engineers with specialised **ITS skills**
- Need for smaller ITS firms to build their **brand reputation to attract top talent**

To addressing workforce capability gaps in the ITS sector:

- ✓ Advocating for **industry rebranding and a focus on showcasing the impactful nature of the ITS sector**, aligning it with the values and aspirations of potential employees, alongside promoting flexibility and tailored skill development initiatives.

Partners indicate a strong likelihood of hiring within the next 6 to 12 months in the ITS sector

A unanimous 100% of the sector's organisations surveyed plan to hire within the next 6 to 12 months. Main reasons are:

- Plan to replace departing employees
- Intend to hire for business expansion and market entry
- Aim to upgrade workforce skills
- Plan to hire for new ITS products and services

Critical skills and competencies in the sector workforce identified by industry partners

#1

Domain knowledge in specific areas such as traffic management, public transportation, or logistics.

#2

Project management and organisational skills.

#3

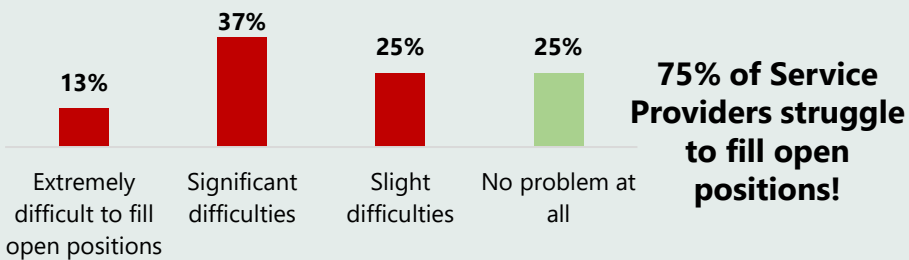
Customer service and relationship management skills. Technical expertise in areas such as data analytics, machine learning, and artificial intelligence.

EY, ERTICO PARTNERS SURVEY, 2023

Employment - Service Providers sector

*The purpose of this section is to provide a comprehensive **analysis of the current employment trends within the Service Providers sector** while assessing **the challenge of recruiting qualified talent in the ITS sector** and **future outlook and expected developments**.*

Assessing the Challenge of Recruiting Qualified Talent in ITS Sector



EY, ERTICO PARTNERS SURVEY, SERVICE PROVIDER SECTOR, 2023

Service Providers face challenges when filling open positions with qualified and talented employees due to several factors. Two key reasons for these struggles are:

- **Inflation vs. Salary Expectations:** Balancing budget constraints with competitive salaries poses challenges as candidate salary expectations rise due to inflation and increasing living costs.
- **Perception of ITS Transport Sector:** Overcoming the perception of the transport sector as less glamorous within the ITS industry is crucial in expanding the pool of interested and qualified candidates.

Only 29% ERTICO Partners from the services providers sector indicate that they **plan hire in the next 6 to 12 months:**

- for business expansion and market & entry for new ITS products and technologies
- addressing increased customer demand
- focusing on employee replacement and succession planning



Employment - Service Providers sector

*The purpose of this section is to understand **the primary reasons for struggling to fill its positions with qualified talent, challenges in recruiting qualified talent for its positions, hiring plans of Traffic & Transport organisations with the next 6 to 12 month in the ITS sector.** This section also delves into the critical skills and competencies required for the workforce in the Service Providers' sector.*

Understanding the Primary Reasons for Struggling to Fill ITS Positions with Qualified Talent

#1 Reason	Lack of candidates with ITS skills
#2 Reason	Salary conditions requested are difficult to meet
#3 Reason	The number of candidates is too low

EY, ERTICO PARTNERS SURVEY, SERVICE PROVIDER SECTOR, 2023

ERTICO Partners from the Service Providers sector aim to retain qualified and skilled employees through:

- Engaging employees in innovative and **impactful projects** such as the ones related to **climate change** can serve as a compelling reason to stay with an organisation.
- Prioritising a **flexible culture** and integrating the **leadership foundation** within performance management, also **competitive rewards** and the **well-being** of its employees.

Any strategies to reflect a proactive approach to bridge workforce capability gaps, ensuring competitiveness within the dynamic ITS sector? Sector Partners stated the following:

- ✓ Organisations prioritise technical skill enhancement through **targeted training programs**.
- ✓ **Extensive onboarding initiatives** ensure employees stay updated with industry advancements.
- ✓ Fostering **knowledge sharing** between experienced and new employees to promote continuous skill development.

Critical skills and competencies in the sector workforce identified by sector Partners

#1

Technical expertise in areas such as data analytics, machine learning, and artificial intelligence.

#2

Strong problem-solving and critical-thinking abilities.

#3

Domain knowledge in specific areas such as traffic management, public transportation, or logistics.

EY, ERTICO PARTNERS SURVEY, 2023

5.KEY CHALLENGES



Market Report

Issue 1, 2024

ITS Market Radar

Navigating the Challenges

The purpose of this section is to shed light on **the critical challenges encountered within the ITS** sector and emphasise their significance in shaping the industry's trajectory. By recognising and understanding these challenges, stakeholders, policymakers, and industry players can devise effective strategies and collaborative approaches to address them.

- “The ‘do-it-yourself mentality’ is prevalent in the industry, potentially hindering cooperation and the adoption of ITS solutions,” - a Traffic & Transport Partner
- “The lack of public awareness and understanding significantly impacts the future of ITS,” - a Service Provider Partner

EY, ERTICO PARTNERS INTERVIEWS, 2023



Navigating the challenges ahead

- **Conflicting Objectives and Policies:** Aligning diverse interests amongst stakeholders is crucial for efficient ITS implementation.
- **Customer Understanding/Awareness:** Educating the public about the benefits of ITS is vital for increasing acceptance and uptake.
- **Interoperability Issues:** Establishing common protocols is necessary for efficient communication and collaboration.
- **Lack of Infrastructure:** Expanding and enhancing infrastructure is essential to support advanced ITS solutions.
- **Limited Data Availability:** Access to comprehensive data sources is vital for data-driven decision-making in ITS applications.
- **User/Public Acceptance:** Addressing user concerns is essential to encourage adoption and usage of ITS services.
- **Privacy and Security Concerns:** Robust privacy measures and cybersecurity protocols are necessary to safeguard user data.
- **Regulatory Challenges:** Streamlining regulations and creating supportive policies will facilitate the integration of ITS solutions.
- **Lack of Public Funding:** Ensuring sufficient investment for sustainable ITS development.

Key challenges in the Traffic & Transport Industry

ERTICO Partners from the Traffic & Transport Industry were asked to select the top three most challenging barriers hindering the uptake of their solutions and services, as well as the implementation of ITS, with 1 representing the most challenging barrier.

What are the primary challenges hindering the uptake and implementation of your ITS solutions and services?

#1 Challenge **Lack of cooperation among stakeholders**

#2 Challenge Conflicting objectives and policies

#3 Challenge Unclear or lack of business models

EY, ERTICO PARTNERS SURVEY, TRAFFIC & TRANSPORT INDUSTRY, 2023

Challenges identified by ERTICO Partners for the transportation industry:

- **Lack of stakeholder cooperation** results in fragmentation, hindering the smooth integration of ITS solutions into broader transportation systems and impeding innovation.
- **Conflicting objectives and policies** pose regulatory challenges, impeding the seamless deployment of ITS technologies and obstructing the achievement of unified, sustainable solutions.
- **Ambiguity in clear and sustainable business models** for ITS projects hinders their long-term success, necessitating the establishment of viable and sustainable business models.



The challenges associated with the 'Lack of cooperation among stakeholders' are identified as a key obstacle for several reasons:

- **Strong competition** among industry stakeholders, slowing down progress and innovation.
- **Reluctance** to adapt and fear of disrupting existing industry positions.
- **Lawsuits and compliance issues**, influenced by regional variations, impede the scalability and implementation of ITS.
- **Lack of standards** and prevalence of proprietary solutions obstruct interoperability and collaborative innovation.

Key challenges in Service Providers sector

ERTICO Partners from the Service Providers sector were asked to select the top three most challenging barriers hindering the uptake of their solutions and services, as well as the implementation of ITS, with 1 representing the most challenging barrier.

What are the primary challenges hindering the uptake and implementation of your ITS solutions and services?

#1 Challenge **Conflicting objectives and policies**

#2 Challenge Lack of public awareness and understanding

#3 Challenge Interoperability, Privacy, and Regulations

EY, ERTICO PARTNERS SURVEY, SERVICE PROVIDER SECTOR, 2023



Challenges identified by ERTICO Partners Service Providers' sector:

- **Conflicting objectives** among stakeholders coupled with **diverse policies** set by different EU member states and institutions lead to **inconsistencies** in regulations, standards, and approaches to ITS implementation across the EU.
- Many potential users **lack awareness** and understanding of the benefits and functionalities of ITS technologies, making adoption and acceptance more challenging, leading to market uncertainties.
- Navigating **technical complexities, privacy concerns, and regulatory** hurdles remains crucial for effective ITS implementation.

The challenges associated with "**Conflicting objectives and policies**" are identified as a key obstacle for several reasons:

- Barriers to **data sharing** caused by conflicting objectives and policies disrupt the seamless flow of information vital for ITS functionality.
- Conflicting policies may create **uncertainty about the benefits of data-driven solutions**, exacerbating resistance to ITS technologies.
- Conflicting policies affecting financial agreements and resource allocation impact the **funding necessary for widespread ITS adoption**.

Strategies and solutions

This section discusses on the potential strategies and solutions to address the challenges and overcome the identified issues in the ITS sector.

Strategic Recommendations from Traffic and Transport Industry Partners for ITS Development

- Prioritise funding for **deployment** rather than R&D projects.
- Less priority for new overarching data sharing initiatives and technologies as this leads to market insecurities and regulatory inconsistencies.
- Seek collaboration with **OEM's to share real-time status data** of vehicles.
- **Standards** for better alignment platforms for the industry.

EU policies or interventions to overcome these challenges:

- ✓ EU funding can support the deployment of **mature ITS technologies**.
- ✓ **Green procurement policies** can promote sustainability by integrating requirements into public tenders.
- ✓ **EU-wide projects and cooperation**.
- ✓ Fostering **standardisation** and more **granular regulations**.
- ✓ Ensuring **fair competition** in the industry.
- ✓ Assistance for regions like Africa to address infrastructure challenges.
- ✓ Encouraging the inclusion of ITS within the **EU taxonomy**.
- ✓ Increasing **financial support** for ITS is essential.

Key Recommendations from Service Providers Sector for ITS Advancement

- Emphasis on **interoperability** and swift deployment.
- Call for **standards and legal obligations**.
- Steering ITS development toward the **public interest** and advocating successful cases is a key recommendation.
- **Education about ITS** among the general population.
- Fostering **agreements and cooperation** among various players in the ITS sector.





6. KEY PROJECTS AND PARTNERSHIPS

Market Report

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ITS Market Radar

Driving innovation: Traffic & Transport Industry sector



FENIX pioneered the first European federated architecture for data sharing within the logistics community. The project successfully enabled interoperability between various existing and future platforms, serving both business and administrative data exchange. *"FENIX harnessed cloud-based technology to foster horizontal collaboration and optimise freight routing, with a focus on Supply Chain planning and operations. Leveraging IoT and intelligent algorithms, FENIX streamlined routes and delivery schedules, enhancing overall logistics efficiency,"* Dr. Eusebiu Catana, ERTICO I&D Senior Manager.



5G-LOGINNOV aims to revolutionise port and logistics hub operations through the integration of 5G technologies, IoT, and data analytics. *"5GMETA's objective is to expand the mobility data marketplace by involving a wide array of stakeholders, leveraging the 5GMETA platform. This open and flexible platform facilitates data-driven business models, paving the way for innovative CCAM applications and services that cater to diverse industry needs,"* Dr. Tamara Djukic, ERTICO I&D Senior Manager.



The 5GMETA project enabling a new platform to harness car-captured data, fueling innovation and a plethora of new services and products. *"5GMETA's core aim is to expand the mobility data marketplace, incorporating a diverse array of stakeholders and newcomers, including tech companies, startups, and Service Providers. Leveraging the 5GMETA platform, with its open and modular architecture, paves the way for the development of innovative CCAM applications and services, fostering a new market ecosystem and enabling the generation of data-centric business models,"* Dr. Tamara Djukic, ERTICO I&D Senior Manager.



SINFONICA aims to facilitate the shift toward innovative, smart mobility concepts in an inclusive and equitable way, through the adoption of an approach that always puts users and their needs at the centre. To fulfill this ambition, the SINFONICA project will develop functional, efficient, and innovative strategies, methods, and tools to engage users, suppliers and other stakeholders of Cooperative, Connected and Automated Mobility (CCAM), to collect, understand and structure their needs, wishes and concerns related to CCAM in a manageable and exploitable way.

Driving innovation: Service Providers sector



The TM2.0 Innovation platform, initiated in 2014 by ERTICO, unites 40 members across various ITS sectors for advanced interactive traffic management solutions. It serves as a discussion forum for stakeholders along the Traffic Management Procedure value chain. *"Traffic and Transport and Service Providers sectors drive the TM 2.0 concept, fostering collaboration among these sectors, public authorities, and other stakeholders for efficient traffic management. Co-opetition is a significant outcome of their joint efforts within the TM 2.0 ERTICO Innovation Platform since 2014,"* Dr. Johanna Tzanidaki, ERTICO Chief Innovation Officer.



MODALES brought together partners from the Traffic and Transport Industry, Research, Suppliers, and Users to study the connection between driving behavior and vehicle emissions. The project yielded guidelines and user tools, benefiting both drivers and industrial partners. *"The MODALES project showcased remarkable cross-sector collaboration within ERTICO, fostering environmentally friendly product development and empowering vehicle users to cut emissions and fuel costs,"* Andrew Winder, ERTICO I&D Senior Manager.



IN2CCAM propels the progress of Connected, Cooperative, and Automated Mobility (CCAM) technologies and services to enhance traffic management throughout Europe, promoting safety, sustainability, and inclusivity on roads. *"IN2CCAM integrates CCAM into European traffic management, building upon the TM2.0 concept. It fosters collaboration between traffic managers and the traffic industry, driving effective stakeholder cooperation as a key outcome of the project."* Coen Bresser, ERTICO I&D Senior Manager.



SOLUTIONSplus brings together highly committed cities, industry, research, implementing organisations and finance partners and establishes a global platform for shared, public and commercial e-mobility solutions to kick start the transition towards low-carbon urban mobility. The project encompasses city level demonstrations to test different types of innovative and integrated e-mobility solutions, complemented by a comprehensive toolbox, capacity development and replication activities. Demonstration actions are being launched in Vietnam, Philippines, Nepal, Rwanda, Tanzania, Ecuador, Uruguay, Spain, China and Germany.

Annex 1: Methodology

Methodology & Sources

The ITS Market Radar, commissioned by ERTICO and concentrating on the Traffic & Transport Industry sector and the Service Providers sector, is underpinned by a multifaceted research methodology. This methodology combines diverse data sources, ensuring an authoritative and insightful exploration of the Intelligent Transportation Systems (ITS) industry.

A review of pertinent communications, reports, and online resources was conducted to establish a foundational comprehension of the ITS landscape. This process identified emerging trends, challenges, market updates and other relevant information.

A thorough understating of **official documents, reports, and publications from ERTICO enriched the report** by providing an in-depth understanding of the organisation's pioneering initiatives, contributions, and the broader context of the ITS ecosystem, in particular the Traffic and Transport Industry Sector and the Service Providers sector.

Official communications, reports, and publications disseminated by the EU were analysed. This critical examination placed the report's findings within the regulatory and policy framework that significantly influences the trajectory of the ITS sector, the Traffic and Transport Industry Sector and the Service Providers sector.

ERTICO's extensive network of Partners contributed to many comprehensive surveys and interviews.

✓ **A survey was carried out among ERTICO's extensive network of Partners.**

The survey encompassed a diverse spectrum of entities within the value chains of the Traffic and Transport Industry Sector and the Service Providers sector. This comprehensive survey methodology captured both quantitative metrics and qualitative insights, yielding a multifaceted perspective on the sectors. **Responses rate among ERTICO Partners was 82,6% while Traffic & Transport Industry sector represent 47% and Service Providers sector represent 53%.**

✓ **Selective and in-depth interviews were conducted with notable ERTICO's Partners.**

Interviewees were chosen to represent a cross-section of the dynamic ecosystems of the Traffic and Transport Industry Sector and the Service Providers sector. These interviews added depth and nuance to the report, offering expert opinions and market insights, and allowed for survey results reactions.

Annex 2: List of acronyms

AI	Artificial Intelligence	MaaS	Mobility as a Service
AR	Augmented Reality	ML	Machine Learning
B2B	Business to business	OEMs	Original equipment manufacturers
B2G	Business to Government	R&D	Research and development
CAVs	Connected and Automated Vehicles	V2I	Vehicle to Infrastructure
CCAM	Connected, cooperative and Automated Mobility	V2X	Vehicle to Everything
EC	European Commission	V2V	Vehicle to Vehicle
EU	European Union	VR	Virtual Reality
EV	Electric Vehicle	5G/6G	The fifth/the sixth-generation network
FDIs	Foreign Direct Investments		
FIDIC	International Federation of Consulting Engineers		
HPC	High Performance Computing		
IoB	The Internet of Behaviours		
IoT	Internet of Things		
ITS	Intelligent Transport Systems		

The background features a series of overlapping, curved lines that sweep from the bottom left towards the right. The lines are colored in a gradient, starting with deep blue on the left and transitioning through purple to a reddish-pink on the right. The lines are thin and create a sense of motion and depth. Centered over this graphic is the text "Innovation for tomorrow's journey." in a clean, white, sans-serif font.

Innovation for tomorrow's journey.