Redefining the mobility of tomorrow.
What is ERTICO?

ERTICO brings together private companies and public institutions to make mobility more sustainable, efficient and safe. Together with our Partners, we lead the digitalisation of transport with cutting edge technologies, services and mobility solutions to move people and goods. Partners represent a range of sectors including service providers, suppliers, traffic and transport industry, research, public authorities, user organisations, mobile network operators, and vehicle manufacturers.
Rising to the challenge

2020 will be a challenging year, but ERTICO intends to rise to this challenge – we will continue to implement the initiatives close to our vision of transferring knowledge, focusing on users and encouraging innovation. These initiatives include the ERTICO Academy and Start-up Initiative. ERTICO also aims to create a new mobility wave across European and international cities by bringing to them knowledge about the benefits of ITS solutions and sharing best practice. Equally important for us is to ensure that as an organisation we maintain a global perspective by encouraging international cooperation between our Partners and mobility pioneers.

We have an extraordinary and resilient ERTICO network of Partners and collaborators, and we will continue to ensure that we make the most of this support.

Jacob Bangsgaard
ERTICO CEO
ERTICO develops, promotes and deploys intelligent mobility services by providing a multi-stakeholder platform for action.

Bringing intelligence into mobility towards:

**SUSTAINABLE MOBILITY**
Reduced impact on the environment

**EFFICIENT MOBILITY**
Zero delays and fully informed users

**SAFE MOBILITY**
Zero accidents

ERTICO develops, promotes and deploys intelligent mobility services by providing a multi-stakeholder platform for action.

‘Together with our Partners and through the use of innovative technologies, services and mobility concepts, we at ERTICO strive towards the creation of a sustainable future for the generations of tomorrow.’

Angelos Amditis, ERTICO Chairman
Delivering the Driverless Dream

There are many benefits associated with the development of driverless vehicles. Travellers will be able to use the time they currently spend driving to get on with anything they want to do - work, watch movies, read, play games or sleep.

But while these advantages are important, the key reason that driverless technology began to be developed is down to three core transport goals that ERTICO is constantly working to achieve: safety, efficiency and sustainability.

Research for the European Commission suggests at least 90 per cent of all accidents on our roads have some sort of human error involved - humans make mistakes; they misunderstand, they lose concentration, they are distracted. Then accidents happen. By allowing technology to take some or all of the driving pressure off humans, it is anticipated safety can be improved.

Of course, for machines to be safe, they must be able to read conditions and make decisions better than a human can; for this, much work is going into the development of the sensors, driving style, interaction with other road users and a multitude of other aspects of driving.

In the future hybrid world of driven and self-driven vehicles, connected and automated vehicles (CAV) will go beyond simply scanning the environment with their infrared scanners and cameras, as modern cars already do, but also to interacting with it and the sensors and vehicles within it in real time to ensure the maximum level of safety for the vehicles’ occupants.

ERTICO is either leading, or involved in, a range of activities to develop driverless vehicles including agreeing a common approach to testing and validation. It is not just the vehicles themselves, but how they are connected to other vehicles and the infrastructure that needs to be understood and optimised.

The sheer complexity of the task ahead of us, turning the ideas into safe interoperable systems, is immense. Research is ongoing to analyse interoperability between different networks - you cannot have a vehicle which suddenly stops when it crosses a border, for example, and loses connectivity. The connectivity infrastructure itself needs to be robust, and connected solutions in the infrastructure must be tested and perfected.

The benefits of CAV go way beyond safety. These vehicles, as they “talk” to each other, will introduce greater efficiency into the transport network. As humans brake hard and make lata lane changes, other vehicles have to react, and this causes traffic jams. Drivers like familiarity, so they tend to go the way they know rather than the most efficient way, and end up in jams where other routes are clear. CAVs will take the optimum route and drive in a controlled, smooth way, reducing congestion and accidents in the process and making the entire network more efficient.

CAVs will also reduce the reliance on the private car. They will offer a greater level of convenience for people to use the right mode of transport for their journey at that time. The development of Mobility as a Service makes multi-modal shared journeys for more attractive and cost-effective for travellers and CAVs offer a crucial role in this by delivering “last mile” solutions, connecting people to the public transport network when and where they need it.

Furthermore, CAVs increase mobility options for the most disadvantaged in society. People with limited mobility or disabilities may not have to stop driving, and they can also solve the problem of excessive insurance premiums for drivers deemed to be “at risk”. Because the cost of travel is predicted to be lower thanks to driverless vehicles – especially where ride sharing is involved - this could also open up more cost-effective transport options for socio-economically challenged individuals.

Shared mobility, and fewer single-person private car journeys have the potential to be much more efficient. Moving more people using fewer vehicles is clearly a key way to make transport more efficient - and more efficient transport makes more sustainable transport. During a health crisis, shared driverless schemes also offer an excellent mobility alternative providing a germ-free interior, passenger monitoring and no risk of contaminant exposure to the driver.

CAVs do not just deliver benefits to the travelling public; automating the movement of freight is also a key aspect of work ERTICO is involved in. Truck platooning, where several vehicles are connected and drive in a close-following convoy, has the potential to deliver greater safety, better conditions for drivers and fewer emissions. Vehicles travelling closer together means less wind resistance while connectivity allows for smoother braking and simultaneous acceleration. Research is ongoing to analyse the technology and, again, ensure cross-border interoperability even outside the EU members. Similar pilots are taking place to ensure connectivity works seamlessly across borders.

Work is ongoing to understand how CAVs will fit into existing transport networks, and how human-driven vehicles will interact with them. CAVs on closed networks, such as at airports and in business parks or shopping centres, are already becoming commonplace, while fully driverless vehicles are undertaking longer and longer test routes.

When you think of Connected and Automated Vehicles, robotics, automation, next generation AI, virtual and augmented reality, cloud services, data analytics in conjunction with 5G and cybersecurity, these are not seen as science fiction anymore. As the world becomes increasingly connected, automated and safer critical, extremely robust cybersecurity enablement becomes mandatory.

ERTICO will accelerate the technology revolution globally.
### Activities

#### AUTOPILOT

**Achievements:**
In 2019, AUTOPILOT tested five different use cases - Urban driving, Automated Valet Parking, Platooning, Real-time Car Sharing, Highway Pilot - in six different countries: Finland, France, Italy, Korea, the Netherlands and Spain. Public demonstration events were organised in the pilot site locations in anticipation to the final event held in February 2020.

**Impact:**
AUTOPILOT’s services can improve the road safety of passenger vehicles and provide better traffic efficiency through optimised routing, including to available parking places. These services can also improve driving comfort through smoother navigation and reduce fuel and power consumption.

#### 5G-MOBIX

**Achievements:**
5G-MOBIX is developing and testing automated vehicle functionalities using 5G core technological innovations. This is happening along multiple cross-border corridors and local trial sites, under conditions of vehicular traffic, network coverage, service demand, as well as considering the inherently distinct legal, business and social local aspects.

**Impact:**
The variety offered by the trial sites allows the testing of multiple CCAM use cases as well as business cases that are of relevance to the local as well as the European industry and stakeholders. 5G MOBIX is showcasing and progressing the most suitable and scalable solutions for pan-European deployment and future for connected and autonomous driving.

#### ARCADE

**Achievements:**
In 2019, ARCADE co-organised with the European Commission the Second European Conference on connected and automated driving (EUCAD) and released the CAD Knowledge Base, a unique database gathering information on Connected and Automated Driving from past and ongoing R&I projects, testing and pilot activities.

**Impact:**
The Knowledge Base establishes a common baseline of CAD knowhow, and ensures the transferability of knowledge for future research, development and testing of connected and autonomous driving.

#### 5G-DRIVE

**Achievements:**
In 2019, 5G-DRIVE deployed the trial site for eMBB and V2X. There are trial plans in place for EU test sites as well as joint trials between EU and China.

**Impact:**
5G-DRIVE will have an impact on the validation of standards and trigger the rollout of real 5G networks and innovative V2X solutions that will help drive new business opportunities, new jobs and business models.

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**Activities**

- **2018** Common framework for CAD pilots
- **2019** CAD progressed by cloud computing, IoT, Big Data and ultra-V2X
- **2020** Testing and valuation of automated mobility
- **2022** CAD using Big Data trusted platform for Open Data Access
- **2025** Next generation V2X enabled SAE L4 automated mobility
- **2030** Driverless mobility commercial deployment

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**5G-DRIVE** will trial and validate the interoperability between EU and China 5G networks operating at 3.5 GHz bands for enhanced Mobile Broadband (eMBB) and 3.5 & 5.9 GHz bands for V2X scenarios. In doing so, the project involves 17 European partners from 11 countries, including industry, mobile operators, car manufacturer, SMEs, research institutes, academia and consulting partners.

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5g-drive.eu
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5g-mobix.com
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CONCORDA is preparing the European motorways for automated driving and high-density truck platooning with adequate connected services and technologies. CONCORDA will improve the environment for existing pilot projects for three main use cases: automated highway chauffeur, truck platooning and automated collision avoidance functionalities.

Activities

**CONCORDA**

CONCORDA is defining testing and validation procedures of Connected and Automated Driving functions including key-enabling technologies such as communications, cyber-security and positioning. The tests will be carried out in five facilities in both simulation and real-world fields to validate safety and security performance according to the needs of key user groups (technology developers, consumer testing and type approval).

**Headstart**

Headstart is defining testing and validation of automated driving and high-density truck platooning with adequate connected services and technologies.

**InterCor**

InterCor supports vehicles and the related road infrastructure to communicate data through cellular, ITS-G5 or a combination of both and Cyber-ITS (hybrid) networks on road corridors through the Netherlands, Belgium, UK and France to achieve safer, more efficient and more convenient mobility for people and goods.

**ICT4CART**

ICT4CART will design, implement and test in real-life conditions a versatile ICT infrastructure, which will support the transition towards higher levels of automation. ICT4CART infrastructure will address existing gaps and work with specific key ICT elements, hybrid connectivity, data management, cyber-security, data privacy and accurate localisation.

**SAFE STRIP**

SAFE STRIP has developed an innovative technological solution to enable C-ITS applications on existing road infrastructure. The low-cost integrated smart strips provide personalisation in-vehicle messages for all road users and in all vehicle types.

Impact:

- **CONCORDA** will improve localisation services and contribute to a new standard of evaluation of the existing ones such as ETSI (European Telecommunications Standards Institute) and C-ITS (Cooperative Intelligent Transport Systems). The project specifications will be applied on all test sites to guarantee the interoperability of services.
- **Headstart** compiled the worldwide state-of-the-art of scenario based validation and testing initiatives of several stakeholders, including OEMs and Tier Xs, type approval authorities and technical services, commercial testing and academia. The project has also established an Expert Network and organised its first series of workshops to engage the expert community into validating the project approaches and preliminary results.
- **InterCor** supports vehicles and the related road infrastructure to communicate data through cellular, ITS-G5 or a combination of both and Cyber-ITS (hybrid) networks on road corridors through the Netherlands, Belgium, UK and France to achieve safer, more efficient and more convenient mobility for people and goods.
- **ICT4CART** will respond to the requirements of higher levels of automation, improving cyber-security, data protection and privacy mechanisms aligned with the EU policy objectives. ICT4CART will create new business models and market services for the innovative use of cross-sector data, including the creation of services linked to the ICT infrastructure for automated driving.
- **SAFE STRIP** will contribute to a safer, cleaner and more efficient mobility future on the European roads.
The road to greener transport

The EU’s Green Deal set out in December 2019 committed to make the continent carbon-neutral by 2050. According to the European Environment Agency, transport is responsible for nearly 72% of all the CO₂ emissions across the European Union.

Of this, nearly three-quarters of all the CO₂ emissions across the European Union comes from road transport.

Therefore, transport must change dramatically to achieve the carbon goals, while still enabling people and goods to move about.

It is clear that increasing average occupancy – which currently stands at less than two people per car across the EU as well as facilitating the use of available public transport, cycling, or walking alternatives, is vital to make transport more efficient and less impactful on the environment.

The development of Mobility-as-a-Service (MaaS) makes multi-modal shared journeys far more attractive and cost-effective for travellers by offering them seamless solutions to plan and buy multi-modal journeys, relying less on the private car without compromising price or convenience. Digitalising mobility to move more people using fewer vehicles is clearly a key way to make transport more efficient and in turn more sustainable.

Intelligent Transport Systems (ITS) has been used for decades to reduce congestion and to smooth traffic flow. Congestion is better managed to reduce the size and frequency of jams and cut stop-start traffic, for instance by changing the phasing of traffic lights based on real-time information about traffic conditions, giving busier roads more green time and significantly reducing the time when a green light is showing on a road with no approaching cars.

However, the growing number of vehicles on the road counters improvements in traffic management and engine efficiency, meaning technological changes themselves cannot be enough to deliver the environmental improvements we need. The vehicle fleet, and how it is used, and how different modes and infrastructure are used, must change too.

The replacement of traditional internal combustion engine vehicles with other powertrains such as electric or hydrogen is one way to remove CO₂ emissions from the vehicle, although how electricity is generated is also a key success factor in decarbonisation. However, given that electric vehicles (EVs) make up just 1.5 per cent of Europe’s total vehicle fleet, targets will not be achieved without significant support.

Policymakers are introducing a range of solutions to encourage the take-up of electric vehicles, and ITS expertise is helping with the transition. This includes work on interoperability and standardisation. A charging infrastructure will not work if it has different connectors for different vehicles or in different countries. At the same time, transport modellers are working with power companies on the design and placement of the charging network.

The ERTICO Partnership was involved in creating an electro-mobility Hyper-Network to enable an open charging infrastructure. This network is designed to facilitate increased service availability across the continent, involving better planning and more secure electric grid operation. In order to deliver an effective charging network, there must be standard charging equipment and the charging points must be optimised to both demand from consumers and to the supply of electricity on the network. The activities ERTICO is involved with also help understand the commercial and technical implications of the move to EVs such as ICT interfaces, standardised software services and data models to enable interoperability.

Interoperability within and between electric vehicles and the smart grid is a key issue for the deployment and full optimisation of transport electrification. Ensuring a standardised network for all consumers is vital to drive the uptake and user-friendliness of EVs.

Researchers are also developing the best way to integrate renewable energy sources and storage, deploy innovative energy-related services, and enable further features such as automatic billing and a more efficient energy management.

Research does not end at the borders of Europe. These pilots involve working with developers in the USA, China and elsewhere to help create global, rather than regional, standards.

However, while electric vehicles will affect CO₂ emissions on the transport network, vehicles will still produce particulates from powertrains, brakes, and tyres. Therefore, ERTICO is also leading a pilot to increase knowledge of these factors and to create tools such as awareness campaigns and assistance apps to help drivers modify their behaviour to support smoother driving and reduce these emissions.

Freight is another major area where research is delivering tangible results. The automotive industry has developed powertrain technologies to improve the fuel efficiency of Heavy-Duty Vehicles and is now using Big Data analytics, predictive algorithms, embedded software systems and engine and after-treatment systems modelling to reduce their environmental impact. For example, using Driver Assistance Systems to anticipate the road ahead based on map data and vehicle position resulted in 5% reduction of fuel consumption.

The road to a low-carbon transport network is a long one. However, technology can make a significant impact to help on the journey.
ELVITEN demonstrates how light electric vehicles can be used in urban areas and be integrated into the existing transport network, through long-term demonstrations of electric bicycles, scooters, tricycles and light quadricycles in six European cities. The project also proposes replicable usage schemes for light EVs, including sharing schemes for residents and visitors, corporate schemes for staff travel to the city and schemes aimed at city logistics and light deliveries.

ELVITEN-project.eu

Achievements:
A fleet of 223 different types of light EV for a total of over 25,000 trips was deployed in six cities: Genoa, Rome, Berlin, Bari, Malaga and Trikala. The usage of these vehicles, offered free to registered users as part of the demonstration, is supported by ITS tools. These include apps for booking, eco-driving, a fleet relocation tool for operators, and gamification to help tourists discover the city using a light EV, while also giving information about the benefits of light EVs.

Impact:
ELVITEN supports efficient and more sustainable mobility in Europe by promoting light EVs as an alternative to the use of cars or fossil-fuel powered two-wheelers, and as a complement to public transport. In Southern European cities where there is a high use of petrol-driven scooters, ELVITEN is raising awareness of electric-powered alternatives, which will reduce air pollution and noise in cities.

MODALES is working to reduce air pollution from all types of road vehicles by encouraging adoption of low-emission driving behaviour and appropriate maintenance. The project focuses on emissions from three main sources: powertrain, brake wear and tyre wear and looking into innovative and complimentary solutions to reduce them.

MODALES-project.eu

Achievements:
Launched in September 2019, MODALES has so far worked on developing driving profiles and categorising the characteristics of different emissions, in order to correlate them to driver behaviour and formulate low-emission driving requirements.
On-road and simulator-based measurements of driving behaviour have been planned, the former using Portable Emissions Measuring Systems (PEMS). These will be used as the basis for defining low-emission driving styles and guidelines that will feed the development of driver education activities and ITS support for driver assistance apps.

Impact:
MODALES is the first major project that considers the interaction of powertrain, brakes and tyres together with the driver’s behaviour, to develop knowledge and guidance for “low-emission driving”, together with maintenance, retrofit and legal aspects.

SOLUTIONSplus is an International Cooperation flagship project that will support sustainable electrification of road transport in large urban areas across the world. The project’s work is implemented in the context of the Paris Agreement, the UN Sustainable Development Goals and the New Urban Agenda.

SOLUTIONSplus was launched in January 2020 and is in the process of setting up a work plan with over 40 stakeholders from Europe, South America, Africa and Asia and with the following cities: Hamburg, Madrid, Quito, Montevideo, Kigali, Dar es Salaam, Kathmandu, Hanoi, Pasig and Nanjing.

Impact:
SOLUTIONSplus will support the transition towards low-carbon sustainable urban transport by boosting the availability of integrated e-mobility solutions for goods and people across all transport modes. Solutions and business models successfully implemented in the selected demo cities will be used for capacity building and replication in other neighbouring countries, other neighboring countries.
Rebuilding urban mobility even smarter

Efficient transport is vital for people’s quality of life, and intelligent transport systems are designed to maximise efficiency in a transport network. Making best use of resources is only going to become more important in the future, as the number of people living in cities continue to grow at a rate that any infrastructure improvements could ever be made, with the UN predicting that seven out of ten people will live in urban centres by 2050.

Continuing to move people and goods around our cities in the same way we have always done is no longer enough. This will simply result in even bigger traffic jams and appalling air quality. A whole new approach is required.

Sustainable mobility must be a key component of future cities. Initiatives to improve safety and convenience for people walking and cycling are key to delivering the liveable cities of tomorrow. After decades of focusing on the car, understanding the needs and preferences of pedestrians are now central to mobility research, while supporting cycling is becoming a priority. From bicycle-sensing technology on trucks and on the roadside, to green light priority for cyclists at intersections, cyclists in cities are being supported in order to feel more confident that they will be safe when making their journeys. As more micromobility solutions such as e-scooters become available to people, cities need to manage their effective integration into the overall transport network.

The move to shared, sustainable transport in cities will not happen overnight. However, by delivering the solutions currently being developed across Europe to make the private car a less dominant and convenient option for people, transport can lead the way in creating the liveable city of the future that is not just desirable, but essential.

Encouraging and facilitating people to use a multi-modal transport modes for their journey is another key solution for cities to manage their transport network. Mobility as a Service (MaaS) – a seamless, convenient multi-modal solution to allow people to plan and pay for their journeys – is essential to delivering efficient and convenient travel and solving the inconvenient parts of shared journeys. Fully understanding people’s end-to-end journeys will open up opportunities for them to share most, if not all, of their trips, which means fewer vehicles on the road and lower costs for travellers. In the “new normal” post COVID-19 pandemic, shared and sustainable transport can be carefully integrated into a range of public transport solutions so that large numbers of commuters and passengers can be safely transported in the various mobility modes that form MaaS schemas.

To enhance liveability by improving air quality in cities, the vehicle fleet will move to become electric. New initiatives not only support development of the vehicles themselves, such as longer battery life to increase range, but also the charging network that must be installed to support the massive increase in the number of electric vehicles. This research is ensuring standardisation of chargers, how they will be placed most efficiently within the power network, and where chargers might be placed in cities’ residential areas where people often have little or no off-street parking.

Along this revolution and emergence of new user-focused services for people, traffic management in cities is being reimagined too. This involves connectivity and the establishment of a set of common interfaces, principles and business models, to facilitate and standardise the exchange of information between a vehicle and traffic management centre. This means traffic management centres are completely aware of demand on the network based on knowledge of people’s end-to-end journeys. This will allow a holistic approach to traffic control, while helping the individual users make the most informed decisions on journey planning.

Research is ongoing to analyse the potential of connectivity, automation and how to digitalise the physical infrastructure. This will eventually migrate traffic management from a human-controlled function within a traffic management centre to a digitalised, AI based solution where the vehicle and the infrastructure communicate directly with each other. Likewise, much work is being done to optimise efficiency of the much needed freight movements and last-mile deliveries in urban areas while at the same time reducing their negative impacts. This includes automated deliveries using small electric pods and modelling the optimum location for delivery lockers.

The work by ERTICO and its Partners is a component of wider work to support the migration of people from private vehicles towards effective, sustainable transport solutions, using technology and new business models to set new priorities. The priority is on understanding the opportunities offered from connected, autonomous, shared and electric vehicles to deliver demand-responsive transport. Eventually the goal is to make the life of citizens better, reduce the total number of vehicle kilometres in cities, and facilitate partnerships between the private and public sector.
C-Mobile is delivering large-scale deployment of C-ITS services in both urban and inter-urban areas to improve mobility for all road users (including vulnerable road users) in Barcelona, Bilbao, Bordeaux, Copenhagen, Newcastle, Thessaloniki, Vigo, and the North Brabant Region.

c-mobile-project.eu

C-MaaS Alliance is creating a common approach to Mobility as a Service and facilitating a single, open market and full approach to Mobility as Service and MaaS Alliance is creating a common

c-mobile-project.eu

The MaaS Alliance is becoming a global partnership with 100 members, in and outside Europe and engaging with new sectors. The MaaS Alliance organised the fifth MaaS Summit, together with the European Commission and the Finnish Ministry Transport and Communications, in October 2019 to actively contribute to shaping the future of more sustainable urban mobility.

maas-alliance.eu

SHOW is the biggest project piloting AVs in urban environments, with over 20 cities hosting demonstrations. SHOW is going to support the deployment of shared, connected and electrified automation in urban transport, promoting automated transport towards seamless and safe, sustainable mobility.

show-project.eu

The TM 2.0 Innovation Platform brings together 40 members from all ITS sectors to focus on new solutions for advanced interactive traffic management. Based on the win-win-win among users, service providers and public stakeholders, traffic management principles and practices are being re-defined and set on a new framework of public-private cooperation.

www.tm20.org

ERTICO teamed up with ITS America and ITS Asia-Pacific at the ITS World Congress in Singapore in 2019 and co-signed a Memorandum of Understanding to collaborate on MaaS and MOD (Mobility on Demand). This marks an important milestone to push the rapid development of seamless, integrated transport systems and services throughout the three global regions. The MoU will facilitate the development of common policies, standards, governance, business models and technologies in the MaaS industry, together with all stakeholders. It will also strengthen the interoperability and scalability of solutions and services.

ERTICO is ensuring that Intelligent Transport Systems and Services (ITS) and solutions such as Mobility as a Service (MaaS) are being brought to the attention of urban mobility planners and local decision-makers through ERTICO’s involvement in publishing a guidance on Sustainable Urban Mobility Plans (SUMPs). For the first time, ITS and MaaS are put in the context of sustainable urban mobility planning and can respond to the dynamic and rapidly evolving challenges in the urban mobility sector.

As part of its ambition to deliver smart, safe and sustainable mobility solutions for all, ERTICO joined the EIT Urban Mobility cluster, recently launched to foster development and deployment of innovative solutions for cities. To empower cities and citizens to benefit from ITS innovations, the ERTICO Partnership needs to develop urban solutions in collaboration with cities. Working together with the cluster-governance, an even richer understanding of cities’ objectives and challenges, which is then fed into ERTICO Partnership’s work in urban mobility. In the EIT UM, ERTICO is an Associate Partner, developing proposals and joining projects on specific, focused themes addressing directly the main urban challenges raised by cities, such as the need for regulation on MaaS or standardisation in data sharing between European cities.
Solving the logistics dilemma

Transport is not only about the movement of people. Current world events have shown us the importance of logistics. Every day millions of journeys take place to move goods around, from factories to warehouses, from shops to homes and businesses.

The rise in just-in-time stockroom management in stores and the explosion in online shopping offering next day or even same day delivery has dramatically changed the logistics sector, and a good combination of technology, policy and user behaviour is needed to ensure it is as efficient and sustainable as possible. The current situation, where multiple orders from the same company arrive in different vans on the same day, is not sustainable. Intelligent solutions are needed for every stage of the movement of goods.

The logistics sector cannot be described as “joined up”. Different software systems manage different aspects of the supply chain: ports, cargo, customs and road transport. The sector is further fragmented with more than half a million different transport companies across Europe, 85 per cent with fewer than five trucks. There are many extremely effective planning and routing solutions available to these companies, but many operators are reluctant to invest in software which will offer a significant return on investment in two-to-three years when they are worried about their profitability and cash flow in the next two-to-three months.

When companies do invest in this software, it is far from the norm for it to be interoperable with other systems. Although solutions exist to reduce journeys by truck where no goods are carried, statistics suggest at least 15 per cent of all truck kilometres on the road are so-called “empty runnings”. Solutions to reduce this figure and make the logistics industry more efficient are vital to improving sustainability, and they will also deliver greater profits for the largely private-sector logistics companies.

In order to overcome these challenges of market fragmentation, lack of collaboration and interoperability of ICT-based information systems, ERTICO has implemented a new and innovative multi-layered platform approach to bring visibility across the supply chain and ensure further cross-border interoperability.

These layers involve the architectural framework, which requires secure, reliable connections and interfaces with a multitude of logistics information systems. It also requires the development of a framework that will enable logistics users to easily build and configure their own user interfaces as flexible, configurable intelligent information dashboards. Plus, there must be a toolkit, which will be an expandable set of software tools that can manage the multitude of logistics information flows.

The improvements to logistics company planning tools will reduce delays and therefore their costs and enable optimal load factors for shippers and transport operators. It will also ensure scalability and interoperability in line with standards and EU policy rules and should lead to a 30 per cent reduction in greenhouse gases.

Connected and automated driving systems for heavy commercial vehicles have great potential to bring a disruptive change to the trucking industry. Fleet operators and the whole logistics sector. They can improve safety and efficiency of height transport and make vehicle operations more comfortable.

Fuel efficiency gains can be achieved through automated truck operations, such as platooning. Various automated trucks and truck platooning concepts will be part of our daily life. Positive impacts can be seen when highly automated systems will be used in logistics operations going from hub to hub including both operations in mixed traffic and in confined areas. In the city, delivery as a Service will be used in logistics operations going from hub to hub including both operations in mixed traffic and in confined areas. In the city, delivery as a Service will be used to deliver the same volume of goods to transport goods from one place to another, ultimately we will be able to match all planned transports and make sure that every single truck is full. This translates into fewer trucks required to deliver the same volume of goods, providing a more sustainable, cleaner and efficient logistics network fit for the future.

By investing in data sharing and digital documents to share information between relevant parties, about who is planning to transport goods from one place to another, ultimately we will be able to match all planned transports and make sure that every single truck is full. This translates into fewer trucks required to deliver the same volume of goods, providing a more sustainable, cleaner and efficient logistics network fit for the future.
Activities

**2018**
- Multimodality in T&L operations

**2019**
- Automation of freight processes and data exchange

**2020**
- Establish European Digital Innovation Hub for data exchange in supply chain and logistics
- Hubs and traffic management for seamless mobility management systems

**2022**
- Full digitalisation and automation of T&L interoperability on trusted data exchange in T&L

**2025**
- Seamless and interoperable T&L

**2030**
- Towards physical internet

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**Achievements:**
COREALIS services have been developed and tested in all the pilot sites. Demos and trainings will start in Helsinki and Livorno. COREALIS will reduce waiting time at ports’ gate for trucks as well as downtime for ports mobile assets. The project will also improve better energy management in ports.

**Impact:**
COREALIS will support future ports to maximise their capacity and efficiency with minimum infrastructure upgrades, whilst at the same time improving port-city relations. COREALIS will have an impact on the environment by significantly reducing CO₂ port emissions and noise. It will also positively impact operations by improving terminal operations efficiency, maximising the use of infrastructure and equipment, and decreasing operational costs as well as congestion, waiting and idle times.

**Achievements:**
The ETPC Platform has built up a dynamic community that meets twice per year to provide inputs and share knowledge. The “ETPC Vision 2022”, published in November 2019, sets a common vision and requirements to actively deploy truck platooning in Europe.

**Impact:**
The ETPC Platform contributes to raise awareness in Europe about truck platooning, building knowledge standards that will support policy makers and ease market uptake for platooning.

**Achievements:**
Several workshops focusing on standardisation, interoperability and system architecture were held since the launch of the project in September 2019. This was done in coordination with sister project FeDERATED.

**Impact:**
FENIX will overcome today’s fragmentation and lack of connectivity around ICT-based systems for logistics decision making. It will interconnect the different digital platforms and harmonise the services they offer. Through a neutral open-solution, FENIX will allow data sharing in the form of digital corridor information systems serving the European logistics community.

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**Activities**

COREALIS proposes a strategic and innovative framework for cargo ports to handle upcoming and future capacity, traffic, efficiency and environmental challenges. It is supported by disruptive technologies, including the Internet of Things (IoT), data analytics, next generation traffic management and emerging 5G networks. Innovations will be implemented and tested in real operating conditions in five Living Labs ports: Piraeus, Valencia, Antwerp, Livorno and HaminaKotka.

corealis.eu

ENSEMBLE will pave the way for multi-brand truck platooning in Europe, demonstrating it under real-traffic conditions and providing the specifications at the tactical layer for both levels of platooning: support function and autonomous function.

platooningensemble.eu

FENIX is developing the first European federated architecture for data sharing, serving the logistics community to offer interoperability between any existing and future individual platforms. The 11 pilot sites will roll out in 9 European countries and will build on the work done under the AEOLIX and SELIS Living Labs.

fenix-network.eu

The ETPC Platform is a knowledge and experience hub about truck platooning and supports the coordination of activities and the future deployment of truck platooning in Europe.

eutruckplatooning.com

FENIX will overcome today’s fragmentation and lack of connectivity around ICT-based systems for logistics decision making. It will interconnect the different digital platforms and harmonise the services they offer. Through a neutral open-solution, FENIX will allow data sharing in the form of digital corridor information systems serving the European logistics community.
Standardisation – the vital step in bringing innovation to market

To create a market and bring advanced services to a wide range of users, it is vital to have interoperability and standards. It is a complex environment to navigate so understanding the various ways that standards are implemented is helpful. As part of its work, ERTICO’s Partners regularly introduce new and sophisticated ITS services and solutions to the mobility sector. As a public and private partnership, ERTICO – ITS Europe plays an important role by bringing experts together to discuss the requirements necessary to combine ITS services in Europe and to make interoperable service platforms happen. This cooperation makes it possible to deploy new mobility services, solving some of the most stringent mobility challenges that our society faces today.

Standards also create a level playing field allowing new market entrants, such as start-ups to enter the market without the need for tight monopolies. By requiring the use of standards in procurement processes, public authorities eliminate the risk of vendor lock-in and safeguard infrastructure investments towards the future. Standards assure the availability of compatible spare parts, extensions and software updates for many years after the initial expense of the first ITS project. Let’s remember as the world becomes more globalised, the expansion of services is another very good reason for standardisation.

Let’s now consider the example of eCall, a system that works by sending a message from your car to the emergency services following a serious road crash. Thanks to a lengthy standardisation effort, driven by the European Commission, eCall is now supplied by all car manufacturers. It is available in all vehicles sold in European Member States and works cross-border without restrictions. This provides a standard to ensure we can save the lives of European drivers, but also offers the opportunity to car manufacturers and service providers to add additional services to the platform and in this way differentiate themselves from their competitors.

There is another great advantage when adhering to standards. Software and hardware developers do not have to worry about low-level and time-consuming software development, but can focus on the implementation of new services instead. Standards implementations are available off-the-shelf and do not need specific development time. Hence, standards make products cheaper, bringing them faster to the market and above all, these products are of a better quality since they are based on proven and well-tested specifications. Standardisation comes in different shapes and sizes. Standards can appear in an official form or in other cases as mandated standards, and sometimes more simply as industry agreements. An explanation of these standards is useful.

Industrial, de facto standards are the result of an agreement between industry stakeholders. For example, ERTICO is leading the standardisation process within the Maas Alliance, which discusses the advances made in the field of on-demand and shared mobility. The platform brings all stakeholders, public and private, around a single table to discuss a common approach, best practices and a reference architecture to deploy mobility as a service according to commonly agreed standards. Such an agreement is recorded and accepted by the industry as a de facto standard. ADASIS is another good example. ADASIS is an ERTICO Innovation Platform that standardises interfaces for realising Advanced Driver Assistance Systems (ADAS) systems, whose work is driven by industrial partners including OEMs, Navigation System Manufacturers, Map data and ADAS system providers.

Industrial Official Standard or Industry Standard is an industrial agreement that can evolve into an official industrial standard. These standards are backed by industrial standardisation bodies such as IEEE and ETSI. For example, IEEE802.11p forms the basis for V2X specification, ETSI ITS-5G, a standard important for the deployment of the connected and automated drive (CAD) vehicles of tomorrow.

Local, European or global standards need a more rigid standardisation procedure as they result in more critical applications or applications which are required by a local or higher-level public authority. The eCall standard is such an example. Broadcasted traffic information is also a good example of standards developed by established standardisation bodies such as CEN and ISO. An ERTICO initiative became the TISA Innovation Platform, which develops the TPEG standard in the framework of the ISO standardisation body. The type of standardisation process or approach to select depends on the need to be addressed. If the standard is needed by industry, a swift industry standardisation process is sufficient. In case there is a need for more stringent standards required by law, official standardisation organisations such as CEN, ISO, ETSI are more suited. An industry agreement does not necessarily prevent official standardisation by standardisation organisations. In many cases, industry standards turn “official” once they have proved their value. Beyond standards, ensuring interoperability across sectors also implies the testing of communication interfaces and data platforms. For this purpose, ERTICO has created the TESTFEST™ concept: a series of technical workshops to test interoperability. The TESTFEST™ events have become a reference for all ERTICO activities on cooperative ITS, eCall, IoT, logistics, and traffic management and remain a crucial point of reference for the industry as a whole.

Standardisation is a key enabler for interoperability. Smart mobility solutions include a variety of technologies across different sectors. ERTICO works within its Partnership to facilitate the adoption of common or harmonised standards to seamlessly combine a variety of devices and platforms into one service and bring innovative solutions to you - the user.
**Activities**

**ADASIS**

ADASIS defines an interface to exchange information between in-vehicle map database, ADAS (Advance Driver-Assistance Systems) and automated driving applications.

[adasis.org](http://adasis.org)

**Achievements:**

In 2020, ADASIS will release the new ADASIS v3.1 specification for Automated Driving, engaging global stakeholders, including Japanese, Chinese and Korean counterparts.

**Impact:**

The use of ADASIS specifications has facilitated the market introduction of new vehicle systems like Truck Predictive Powertrain Control, leading to reduced fuel consumption of 5% and a consequently a decrease in CO₂ emissions. These achievements extend also to passenger vehicles. The new specification will help the automotive industry to meet the EU’s Green Deal targets.

**SENSORIS**

SENSORIS provides an interface for exchanging information between in-vehicle sensors and the dedicated cloud, as well as between other clouds.

[semgearis.org](http://semgearis.org)

**Achievements:**

In 2020, SENSORIS will release a new specification, the v1.1.0, for vehicle-to-cloud sensor data exchange, closing the loop with request messages from the cloud to the vehicle.

**Impact:**

By uploading vehicle sensor data to the cloud, SENSORIS’ v1.1.0 standard will support many services related to traffic management, speed advice and much more. The expected impact of the standard can range from a 5% reduction of emissions for green wave applications or even a higher percentage for in-vehicle speed advice supported by the infrastructure, i.e. with I2V.

**TISA**

TISA is an international market-driven Innovation Platform that creates standards to communicate information to mobility service providers, including weather, parking, traffic and flow prediction.

[tisa.org](http://tisa.org)

**Achievements:**

In 2019, TISA released the TPEG-EAW – Emergency Alerts & Warnings, which targets public policy objectives and provides a simple, extensible format for the digital representation of official emergency alerts and public warning messages to both domestic and international travellers. Two white papers were published in 2020 about the impact of Automated Driving on traffic and traveller information from a business and technical perspective.

**Impact:**

Through these standards, TISA is empowering an increased traffic safety and efficiency, offering travellers an easier and more environment-friendly journey.

**eMI3**

eMI3 harmonises ICT definitions, formats, interfaces and exchanges mechanisms to enable interoperability of EV charging and services with a common language amongst all ICT systems.

[emi3group.com](http://emi3group.com)

**Achievements:**

eMI3’s v1.1 standard assists the development of smart charging applications that will lead to a better management of the electric grid.

**Impact:**

The Platform will support the seamless use of electric vehicle by increasing the interoperability of eMobility services.

**TN-ITS Go**

TN-ITS Go and its platform TN-ITS facilitate and foster the exchange of ITS-related spatial road data between road authorities, as trusted data providers, and data users, as mapmakers, and other parties.

[tn-its.eu](http://tn-its.eu)

**Achievements:**

TN-ITS Go is currently piloting update services for static map data in six Member states (Sweden, Ireland, Belgium, Finland, Norway, United Kingdom) to make road maps more reliable.

**Impact:**

TN-ITS Go and its platform will improve road safety thanks to the update of the changes occurring in static safety-related road features and data. With regard to that, TN-ITS will be of great support to ISA implementation.
The ITS Congresses

The ITS Congresses organised by ERTICO in collaboration with ITS America and ITS Asia-Pacific represent the ultimate showcase of mobility innovation and are the largest event focused on smart mobility and the digitalisation of transport globally.

Every year, ERTICO organises a European or World Congress in a major European city, with the ITS World Congress taking place in Europe every third year. It brings together mobility experts, policy makers, solutions providers and the public to share ideas, best practices, and debate policy, implementation and budget considerations. The ITS Congress is the perfect place to network with thousands of industry peers.

CONGRESSES are the yearly celebration of smart mobility: they underline the importance of ITS, particularly in cities and regions where they are hosted and are important for raising awareness about smart mobility solutions amongst policy makers, experts and the public. More importantly, it offers the opportunity to our Partners and mobility players to showcase their latest products and innovations alongside ground-breaking technical demonstrations. At the 26th ITS World Congress held in Singapore from 21-25 October 2019, an 18-propeller drone-like flying taxi made its first manned test flight around Singapore’s Marina Bay district, a first in the world.

The health crisis has created significant challenges for all events, yet ERTICO and the ITS Congress team will rise to the challenge in 2020 to ensure the ITS conversation continues with the same enthusiasm and dedication. The value of face-to-face interaction and networking is clearly important, but in the meantime, ERTICO will take this opportunity to keep the ITS community connected and engaged with virtual solutions.

The ERTICO Annual Think Tank

This annual event brings together ERTICO’s 120 Partners from eight different sectors of mobility and transport to discuss the future of Intelligent Transport Systems (ITS).

Key mobility challenges are discussed within this forum, which crosses both the public and private sector providing a vital channel for communication and knowledge sharing. A specific topic is chosen every year. A range of speakers from the ERTICO Partnership discuss alongside representatives from the European Commission and European Parliament. Partners show how their solutions, technologies and policies influence the deployment of smart mobility across Europe. The goal is to have a comprehensive overview of the most burning questions in the smart mobility sector, bringing inspiration and good examples to and from ERTICO Partners, and offering a view of the next steps forward. 2019 covered the topic of Urban Mobility: from technology to sustainable deployment and in 2020 will look at Automated Driving: from Sci-Fi to reality.
ERTICO CITY MOONSHOT

In the year 2020, ERTICO is launching its ambitious City Moonshot a global survey and a series of interviews that will consult 300 cities world-wide about their smart mobility challenges, needs and trends. This insightful survey will focus on three topics in the sector: data sharing, Mobility as a Service, and policy priorities on sustainability and the role of transport. ERTICO is inviting cities across the world to participate and gain an up-to-date understanding about other cities, their mobility challenges and solutions through the final report. The highly anticipated key findings will be publicly presented at the ITS World Congress 2021 in Hamburg. By gaining valuable insights and better understanding of the needs of cities ERTICO can make a real impact in the daily lives of citizens and ensure the creation of a more efficient, more sustainable and safer future mobility system for all.

ERTICO CITY MOONSHOT

The ERTICO Academy
Guided by the motto “sharing knowledge”, ERTICO’s unique training platform offers public authorities personalised and interactive trainings in smart mobility on a wide range of topics. With over 25 years of experience, ERTICO offers a wealth of knowledge in smart mobility. Skilled mobility professionals in cities and public authorities are a precondition for achieving the goals of sustainable, efficient and safe mobility. The Academy’s current trainings are focused on strengthening the ITS knowledge of public authorities.

The ERTICO Academy facilitates learning and enables upskilling through training provided by experienced mobility experts and state-of-the-art resources in all areas of transport solutions.

Together a Community

ERTICO Start-up Initiative

ERTICO offers young start-ups the unique opportunity to “Connect, Innovate and Grow”. Launched in 2019, the ERTICO Start-up Initiative connects European start-ups with ERTICO’s Partners and creates an ecosystem where new businesses can innovate and develop, as well as interact with some of the most important companies in the smart mobility sector through match-making activities.

Start-ups have the chance to access state-of-the-art mobility solutions, be involved in EU-funded projects and gain visibility through events at European and international level, such as the ITS Congresses, ERTICO’s annual Think Tank and other initiatives, such as the European Startup Prize for Mobility.

European Mobility Challenge

ERTICO is continuously working towards innovative mobility. Future technological developments impact everyone, in particular the younger generation. ERTICO is supporting the quest for mobility leaders by challenging European university graduate students to solve real-world mobility problems. Judged by a jury of mobility experts from industry, research and the public sector, three selected European student teams will compete against each other. The winning team will represent Europe at the ITS World Congress competition. This initiative is part of the Global Mobility Challenge, organised jointly with ITS America and ITS Asia-Pacific.

Looking forward to 2021

28th ITS World Congress 2021 - Experience Future Mobility Now

Connect people, processes, data and technologies to revolutionize cities and communities. Get ready; the mobility of the future is happening now!
Together a Partnership

Partnership is at the very heart of ERTICO and powers its drive and ambition to revolutionise the future of mobility. ERTICO provides cooperation opportunities to Partners in their ambition to drive forward innovation and deployment of smart mobility solutions. ERTICO works closely together with Partners to develop new technologies in common projects to overcome the barriers for deployment and interoperability in the marketplace. Partners benefit from engagement in a wider network of experts across a range of different sectors. ERTICO offers Partners a real opportunity to be heard by policy makers as a voice of change.
Join us for tomorrow’s journey

There are many benefits that ERTICO offers a committed Partner.

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<th>WORK TOGETHER ON EU CO-FUNDED PROJECTS</th>
<th>BENEFIT FROM ERTICO EXCLUSIVE SERVICES</th>
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<th>STAY INFORMED WITH MARKET INSIGHTS</th>
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| Benefit from tailor-made EU co-funded project opportunities supported by ERTICO’s high success rate and a proven track record in project management and technical support. EU-supported collaboration projects provide ERTICO Partners the opportunity to be involved in cutting-edge ITS research and deployment and join a consortium of leading multi-sector players. Projects range from advanced R&D to demonstrations, tests, piloting and business modelling. Through this involvement in projects, partners reap concrete benefits, including economic and intellectual returns on their investments. | Partners have preferential access to ERTICO services that include training, matchmaking and collaboration on innovation. Partners can join activities in the following ERTICO events and initiatives:  
- ITS Congresses  
- The ERTICO Academy  
- Innovation Platforms  
- ERTICO Partner events  
- The Start-up Initiative  
- The ERTICO Moonshot | Join events for knowledge sharing, networking and visibility for the promotion of ITS solutions and smart mobility. Sharing knowledge and experience amongst ITS community is critical to help progress the development and implementation of ITS. Partners can actively participate in ERTICO-organised European and worldwide events and have exclusive access to the Partners-only ERTICO annual Think Tank event and Focus-On workshops. Boost your long-term strategy by attracting new clients and business partners. | Join a vision for a shared future: stay ahead of new developments, anticipate key market trends and be part of THE mobility conversation. The ERTICO Partnership offers the perfect platform to bridge the variety of interests in the mobility sector, offering an environment for knowledge exchange on challenges ahead and facilitating the development of ITS beyond individual interests and into a shared vision. ERTICO-ITS Europe is not a lobbying organisation but acts as a neutral voice for the development and deployment of smart mobility, reflecting the interests and views of authorities at local, national, European level as well as the transport industry and user associations. | Participate in overseas visits and strengthen international contacts. Partners have the unique opportunity to participate in ERTICO organised International Delegations to other countries to be able to establish contacts with technical specialists, business executives and decision-makers. Visits have included China, Russia, Japan and Silicon Valley, US. | ERTICO offers Partners marketing opportunities through targeted Partner news, profiling of innovative products and companies, technology updates, interviews and event announcements. The website ertico.com offers the latest news and events related to ITS. With an outreach of over 5,000 subscribers, the newsletter is sent weekly. |
“Alone we can do so little, together we can do so much”  
Helen Keller

ERTICO Partnership