

SMART TRANSPORTATION

We ensure seamless, secure, sustainable and data-driven mobility services for people, goods, assets and infrastructures.



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Many years of employment experience with companies from various sectors have allowed Antonio to develop a strong aptitude for goal-oriented work (with full responsibility for strategies, costs and revenues) and significant inter-personal and management skills. Due to his in-depth knowledge of the dynamics of the transport ecosystem, he has held the role of Business Development Manager for Engineering's Department of Transportation & Infrastructures since 2020, and is responsible for evaluating the best business models to enter new market segments.

1 TRENDS, CHALLENGES, OPPORTUNITIES



Speaking of smart transportation means **rethinking the way people and goods move**, while also rethinking the **infrastructure** that enables their movement in the light of the new paradigms dictated by intelligent mobility and in line with changing consumer needs.

To explain what smart transportation is, we can begin with cities, where transport is increasingly migrating towards the adoption of services and solutions that exploit technologies such as IoT, Cloud and Artificial Intelligence.

But technology is not what makes the world in which we move and the ways in which we move "smart": **technology enables a "smart" transport ecosystem as soon as it enables sustainable, safe, and shared mobility.**

These are the guidelines that enable us, for example, to rethink our use of cars, which are becoming increasingly electrified (and therefore more sustainable) and increasingly connected and able to communicate with other vehicles and pedestrians (and therefore safer). They are also regarded less and less as a private vehicle and more as a collective mode of transport.

This vision also brings along with it another vision: that of a city that has less pollution and less traffic congestion (and is therefore once again more sustainable). The topic of sustainability is crucial: simply think of the most recent measures adopted by the European Commission in July 2021, which include a package of proposals to bring the Union's policies on climate, energy, land use, **transport**, and taxation in line with a net reduction in greenhouse gas emissions of at least 55% by 2030, compared to 1990 levels.

It is precisely when we place **sustainable, safe and shared mobility** within an ecosystem such as the city that it becomes clear that the application of technology alone cannot be a sufficient condition, but must bring with it the activation of **new scenarios** linked to our needs for movement.

This is where the concept of mobility as a service **arises**, in which an intelligent system centred on the user unites the elements of a transportation service and combines the use of cars (obviously as car sharing) public transport (trains and buses), lighter means of transport (bicycles, scooters or scooter), and services such as Uber, with none of these elements excluding others. Because in smart cities, **transport systems are only "intelligent" if they are cooperative and not competitive**, offering citizens safe, easy, and fast ways of reaching their destinations.



The new technologies offer the user an increasingly profiled travel experience that can be managed from any device (smartphone, laptop, etc.), with the option of planning routes (by train, plane, boat, etc.) to find the one that is most suitable for their geographical location, time needs, and budget. AI, IoT, and Cloud, as well as Blockchain (which is used in loyalty programmes, for example) and Cybersecurity (necessary for risk-free data management) thus make it possible to create a secure, assisted and personalised customer journey. On the other hand, however, it is necessary to rethink the way we use means of transport and to support this *revolution* with **infrastructure** that is adequate and adequately innovative: again, the use of data, AI & Advanced Analytics can allow us to go beyond **the maintenance (ordinary or planned) of roads, railways, stations, and airports** to reach a form of predictive management, which anticipates malfunctions, criticalities, and failures, and guarantees the efficiency and safety of **transport routes and places of concentration** (airports, railway stations, terminals, etc.).

Places of concentration where medium- and high-capacity lines depart are linked in particular to **long-distance transport** (medium- and short-distance transport lines also belong to these places, but these often live a life of their own). Integration of the networks involved in door-to-door transport has developed a great deal in terms of **interconnection**; it is still, however, somewhat deficient from the point of view of integrated planning and even more so from the point of view of operational integration.

The free market has multiplied the options for travellers on the most frequently used networks, but it does not yet offer an integrated and unified view (especially at the time of the journey) and these options do not correspond with a real increase in opportunities. Furthermore, the free market penalises low-demand networks, slowing down the development of lesser-used territories.

A legislator wishing to promote the optimisation of options in "rich" territories while at the same time developing the situation in "poor" territories (for example through incentives or service contracts) therefore requires census tools, analysis tools, and simulation tools in order to correctly establish effective intervention policies. These tools must also be capable of supporting them in the improvement of existing activities: data that is gathered and processed by AI algorithms, for example, can help the decision-maker to prioritise specific actions and objectives.

In turn, long-distance transport operators need solutions that increase production efficiency, optimise prices compared to competitors, and promote customer loyalty.

Production efficiency is achieved by making transport material more readily available, minimising and optimising maintenance cycles through forms of automation that reduce the need for personnel, or business intelligence and artificial intelligence solutions, which streamline the supply chain of consumables and spare parts. **The marketing of** transport products and services, to which the development of digital channels has given a very strong impetus, requires the continuous adjustment of prices and combined offers to keep up with competition.

In each of the scenarios described, we at Engineering have technology, professionalism, expertise with high-performing processes in terms of reliability and functionality, which enable an increase in the overall efficiency of transport processes, whether they are linked to **people or to goods, intermodal transport, long- or medium-distance transport, or high- or low-capacity transport**. Our technologies and our experience **support all actors in the complex ecosystem that enables movement**: whether we are talking about **the monitoring of infrastructure, maintenance** of vehicles and locations, **protection of critical assets**, the **efficiency of investments**, or **making the customer journey** simple, memorable, and safe.



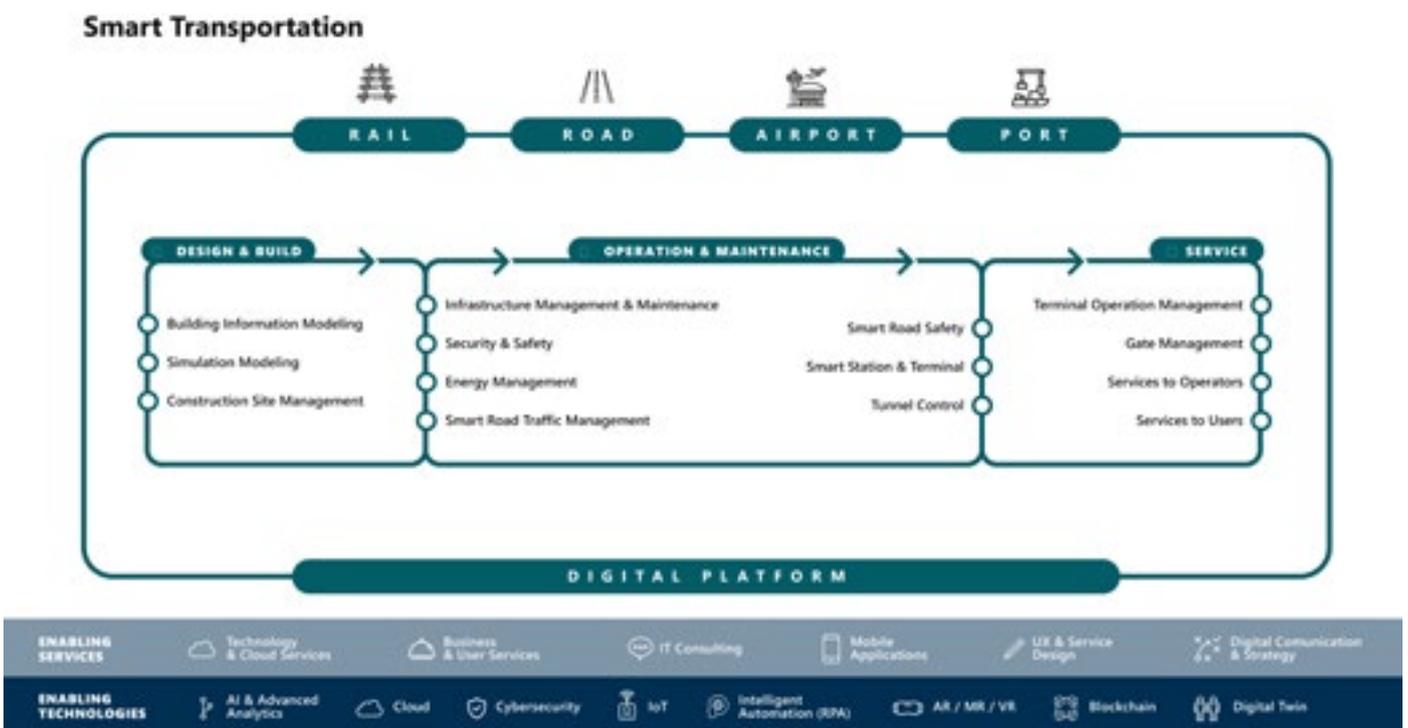
2 ENGINEERING IN SMART TRANSPORTATION



Our strong position in the Smart Transportation sector offers unique experience and value to customers and their end users. We are able to combine a wide range of **innovative technologies**, tried-and-tested **experience** in project management, strong **expertise** in terms of core processes, as well as **IT infrastructure** that is extremely **reliable** and powerful software applications.

This allows us to ensure the reliability and security of data-driven mobility services for people, goods, and infrastructure.

We at Engineering have developed a specific framework - the Portfolio Map - to describe our end-to-end expertise in the field of intelligent transport and infrastructure.



On the one hand, we manage and monetise **data** collected from infrastructure, means of transport and mobility, services, and users. On the other hand, we provide industry stakeholders with the **tools that are required to** provide integrated mobility services **that are secure, reliable, and represent added value, through the exploitation of existing data.**

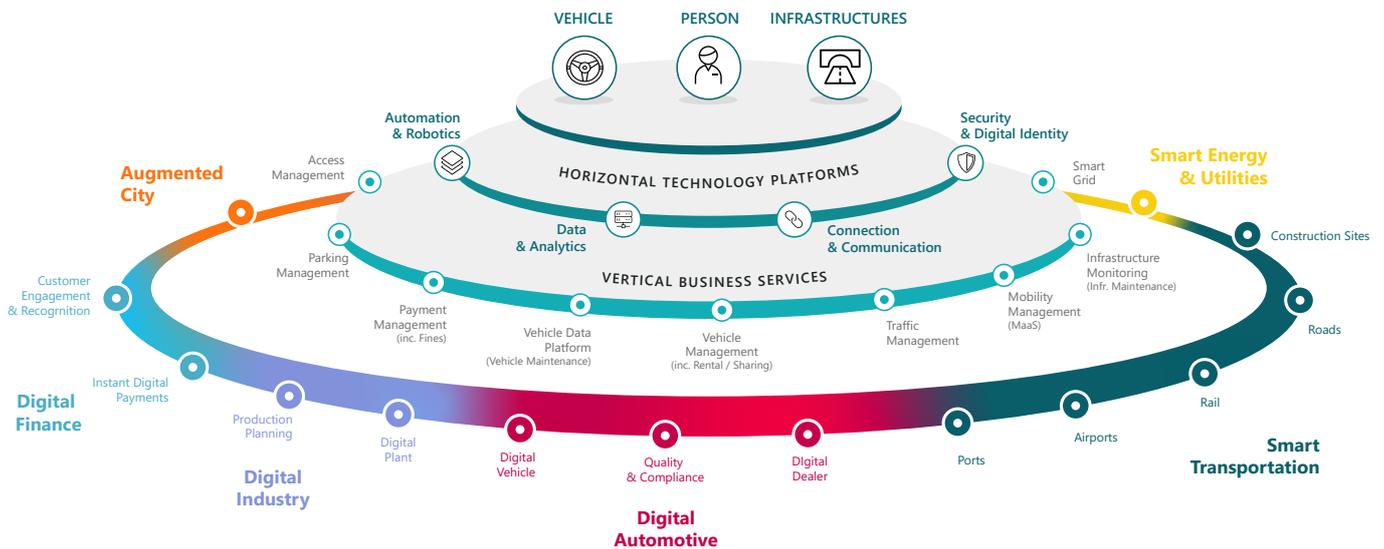
Our extensive range of services for infrastructure diagnostics and maintenance, automation and control, TLC and security systems, and mobility management is combined with an ecosystem of targeted partnerships, enabling us to offer our partners a holistic platform of services and solutions.

Our strong expertise (products, services, and projects) covers the whole world of transportation, including infrastructure, mobility, and the various modes of long/medium/short-haul transportation by, road, rail, air, and sea. Within these worlds, we support the entire process chain: infrastructure design, management and operations, through to end-user involvement.

Mobility Ecosystem

Thanks to our cross-market experience and our in-depth knowledge of both traditional and enabling technologies, we at Engineering are able to support the creation of digital ecosystems that can create new connections, even between very distant stakeholders.

Digital ecosystems are open, distributed, and adaptive systems that are used by different stakeholders with varying interests and needs to achieve digital value through digital services, exploiting technological platforms and capabilities combined with business platforms and vertical knowledge platforms. This enables the creation of modular solutions, which rapidly bring together digital resources from different sources to provide a tailor-made digital service that is highly adaptable to stakeholder needs that are continuously evolving.



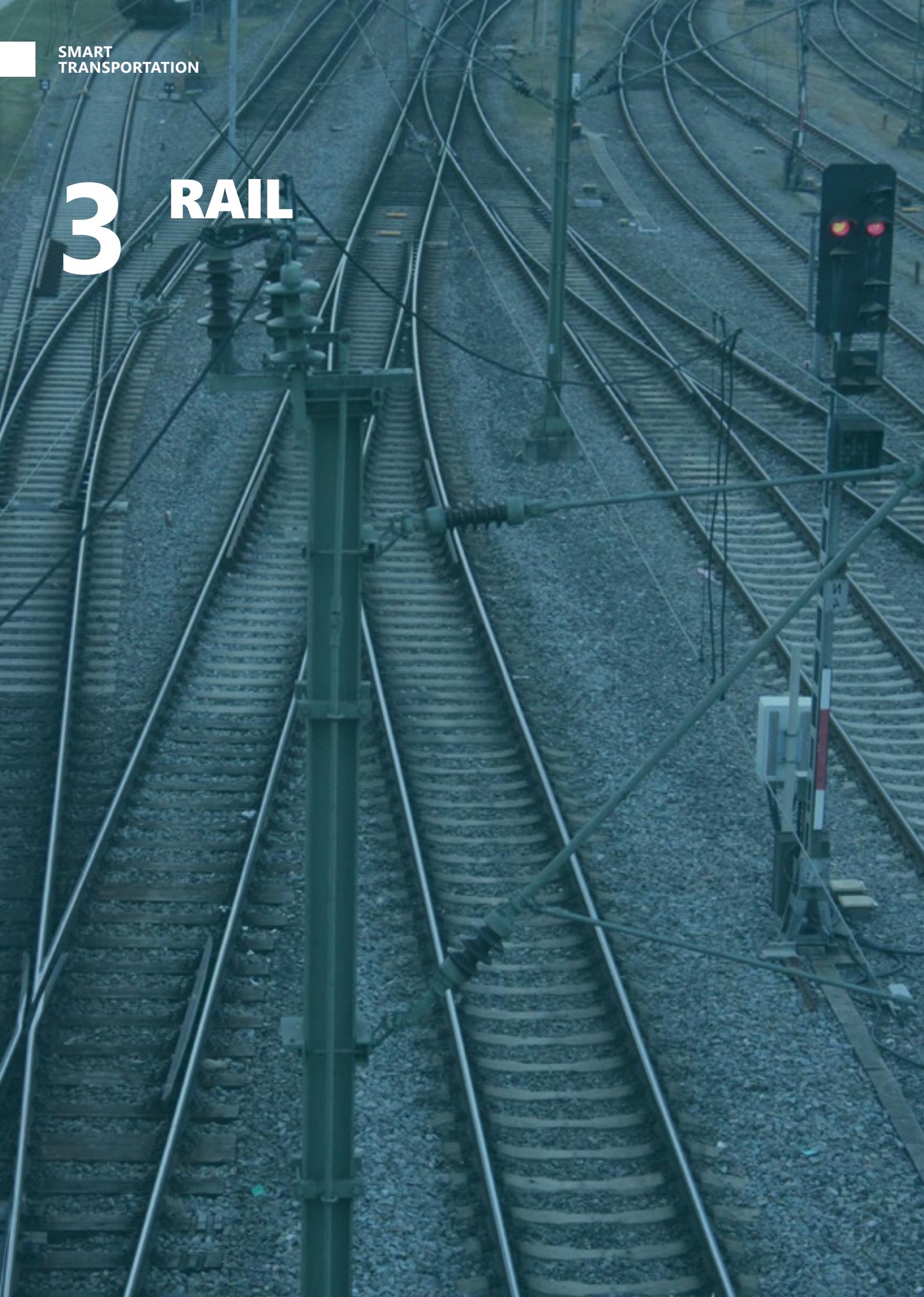
Applied to the world of mobility, these ecosystems are built around three main stakeholders: the people who need to move, the vehicles they use to move, and the infrastructure that enables this movement. In this way they manage to cover all aspects of transport: from access to the city, parking and payments, through real mobility management, regardless of the type of vehicle used (private or public), even including infrastructure management and the related energy network. **This ecosystem is ready to facilitate the long-awaited change from private mobility (a personal car) to a "mobility as a service" platform** that is integrated and has the traveller at its centre, taking advantage of all available options and with predictive maintenance that takes care of both vehicles and infrastructure.

Our stakeholders

Strong expertise in the field of automation and control, an end-to-end approach to projects, the ability to operate in business critical contexts relying on a technical and organisational structure of absolute value: these elements allow us to work with the main players in the transport and infrastructure market, in Italy and worldwide. We are able to quickly provide solutions to the major stakeholders in **passenger and freight logistics**, to collaborate with the managers of rail and metropolitan transport networks, **and to provide services and solutions for the management, maintenance, and safety of infrastructures and passengers**. We operate with both central public administration **and** local public administration **in the development of** solutions for local and regional public transport management, integrated sustainable mobility projects, and public investment management. We cooperate with prime contractors in the realisation of major infrastructure projects. Our vision based on digital ecosystems, our approach, and our ability to rethink, explore, and innovate allow our stakeholders to look with confidence at their core business and to entrust a major international player with the technological component it needs.



3 RAIL



Here at Engineering, we carry out countless projects in the rail transport sector, for both large-scale infrastructure managers and local public transport operators.

Our solutions range from maintenance management, using 3D visualisation and **artificial intelligence**, augmented and virtual reality technologies (which are especially useful in technical inspections) to solutions for the continuous monitoring of unattended critical infrastructures.

We integrate the world of infrastructure with the world of logistics and workshops to ensure an efficient and optimal supply chain in the procurement, construction and maintenance of materials.

We also implement Digital Twin systems to simulate and support decision-makers in avoiding potentially critical crowd management situations related to traffic congestion or potential critical events such as accidents.

We develop complex data reporting and representation systems to provide intuitive and clear information on maintenance, investment (including for the production of legally required reporting documentation) and performance data on customers' financial targets.

We make sure that all the people who carry out their work (which is critical in terms of safety for themselves and travellers) always comply with their professional certifications and updates.

Our consolidated experience in automation & control allows us to design tunnel management solutions that can be applied to railway networks to increase safety and to offer highly customisable solutions for:

- **the management of auxiliary services:** ventilation, lighting, installations
- **physical security** based on complex video analyses
- **the supervision and remote control** of plants, equipment, mechanical systems, and electrical systems.

On behalf of major subways in Italy and abroad, we create remote control systems, operating rooms, video analysis, management of auxiliary systems, and advanced tunnel control.

We also implement video analysis solutions with dedicated functionalities for the railway world, integrated with IoT systems to manage and report:

- the presence of abandoned objects
- crossing of the yellow line
- smoke and fire detection
- the counting of people
- track tracking.

EPC Contractor

Here at Engineering, we work with leading EPC Contractors on major international transport infrastructure projects, transferring the capabilities and technological solutions designed by the **Industries eXcellence Global Centre of Excellence**.

We remain at the side of these large groups for the entire duration of the project, guaranteeing end-to-end- support and a fundamental technological contribution during all phases of analysis, design, planning, management, and maintenance, as well as all activities for the implementation and customisation of solutions:

- construction site management
- the safety of construction sites and infrastructure
- the supervision of infrastructures and plants
- the management of maintenance and camp activities
- asset management including physical traceability of assets
- vertical solutions for the various transport sectors: road, rail, port, air.



CASE STUDY / RFI: (EXTRA) ORDINARY MAINTENANCE

RFI Rete Ferroviaria Italiana is the company within the Ferrovie dello Stato Group that manages Italy's railway infrastructure, with around 16,000 km of network and thousands of stations throughout the country, guaranteeing the safe and efficient circulation of the entire network thanks to its 10,000 maintainers.

With the intention of pursuing a path of innovation and digital transformation, RFI requested our support in the implementation of new methods for the assignment of maintenance activities and reporting to the operating teams, and in the enhancement of information exchanges between the work centre manager and the maintenance teams, with the aim of facilitating and simplifying the activities of the teams during maintenance operations.

To meet these requirements, we developed the I-MAN system, which allows RFI to:

- manage processes for assigning tasks to teams, visible directly from the mobile app
- access the technical documentation of each activity and the quality indicators provided
- carry out maintenance activities in complete safety, enabling the tracking of PPE (Personal Protective Equipment) assignment to resources and providing agents with information on the equipment required for various activities
- report on the work carried out in "hands free" mode, through the use of voice commands and communication with the operations centre via an instant messaging system
- check the status of activities in the field in real time, manage photos, approve interventions, and validate quality measurements.

I-MAN integrates seamlessly with RFI's SAP systems and enables the exchange of information on activities between the operators and the territorial operations rooms.

CASE STUDY / TWO NEW METRO LINES FOR LIMA

With more than 9 million inhabitants, Lima, in Peru, is one of the world's most populated cities; according to Forbes, it is the third busiest in the world in terms of traffic.

Lima's metro consists of 35km of railways, 35 stations, 2 depots, and 42 trains. We are supporting our client with a project to build two new metro lines for more environmentally friendly and efficient transport. In particular, we are designing, installing, and activating systems of video surveillance (equipped with video analysis of abnormal behaviour and situations), public address systems, emergency telephone systems, as well as power distribution systems in the stations and tunnels of the metro's various lines.

To this end, we have established a local laboratory where we produce system models to test the various functionalities required and the dynamics of system integration, in order to predict and anticipate possible problems during the implementation and execution phases.



4 ROAD



In recent decades, road transport infrastructures have become incredibly important: they enable the mobility of citizens and the transport of goods, and represent an essential asset for many industrial sectors in our country.

Many of these infrastructures are now outdated (having been built during the economic boom years), subject to climate change and extreme weather, and exposed to the exponential increase in heavy vehicles moving along the motorways every day. These are all factors that adversely affect the strength of these structures and entail a significant reduction in safety standards for travellers. In this context, the full availability of infrastructure is diminished, road freight transport is penalised, and the national rail network is not always a viable alternative.

To overcome these critical issues, regular monitoring of the infrastructure and constant technical checks are necessary to plan and implement preventative maintenance activities. Furthermore, where there is a high risk factor, traffic management initiatives must be implemented, using intelligent systems for dynamic lane management and the provision of timely information to passengers.

In this context we have developed integrated systems and solutions with traffic management software modules that are able to:

- **detect** the flow and type of traffic
- **quantify** the weight of vehicles in transit
- **manage** access ramps
- **provide** advanced tunnel management systems
- **create technical inspection systems** using new technologies (such as artificial intelligence, augmented reality, and virtual reality), to allow dynamic comparison with previous inspections
- **implement** solutions for the continuous monitoring of motorway sections, using advanced sensors that are capable of signalling the tendency of infrastructures to deteriorate.

In the event of incidents, our solutions support the management of operations necessary to minimise their impact on the motorway network.

Traffic management solutions are complemented by tunnel management solutions, capable of increasing safety and highlighting infrastructure issues through technical inspection solutions, which use augmented reality and artificial intelligence technologies to detect critical situations. **All our solutions are highly customisable and range from the management of auxiliary services (ventilation, lighting, installations etc.) to physical security systems** based on complex video analysis, to the supervision and remote control of installations and equipment as well as mechanical and electrical systems. They are also integrated with systems for dynamic traffic management by controlling lanes before tunnels and assigning lanes within tunnels, and provide automatic detection of accidents in tunnels through real-time analysis of CCTV images. All major incidents are detected within seconds (stopped vehicles, drivers travelling in the wrong direction, queues, pedestrians, smoke, slow-moving vehicles, and dropped objects).

But the detections enabled by our systems are primarily aimed at prevention. We are talking about modules that are based on video analysis integrated with IoT systems:

- intelligent video surveillance of roads
- vehicle identification and dynamic speed
- dynamic weight in motion
- weather conditions on the road
- truck control system.

The design understanding and the ability to adopt all the technologies required for the **construction of intelligent roads and motorways** make Engineering the right technology partner for all EPCs (Engineering, Procurement & Construction) that operate in international contexts.

We accompany our partners all over the world right from the design phase, taking care of all technological initiatives during the project and during the subsequent phases of operation and management, employing our solutions to ensure the monitoring, management and maintenance of infrastructure assets over time, the safety of travellers, and all the services required to govern a critical infrastructure.

We support maintenance companies and motorway concessionaires with solutions for field maintenance management; integrated systems for traveller safety, communication, and information; and software tools for diagnosing the state of the infrastructure and implementing new services for travellers.



Concessionaires

For many years, we have provided technological support and solutions for the planning, design, construction, maintenance, and management of roads and motorways. Today more than ever, we support our clients in bringing their transformation plans to life with integrated management of the lifecycle of mobility infrastructures.

Our distinctive ability to follow end-to-end projects, integrating hardware components and software solutions, third-party systems, and customer legacy systems into a single platform, enables the centralisation of field data and unified management of operations.

We provide solutions for **road network monitoring** (video analysis and IoT sensors) and maintenance management through "virtual collaboration" technologies for the execution of tasks in remote mode and services for the design, development, and assistance of computer systems to **process motorway traffic data** and the payment of tolls.



CASE STUDY / DIGITAL HIGHWAYS

The concessionaire of one of Italy's most extensive toll motorway networks, representing thousands of kilometres of network and serving dozens of regions and provinces, has in recent years embarked on a challenging path of digital transformation with initiatives aimed at ensuring effective territorial articulation and indispensable mobility in Italy's major metropolitan areas. To support the indispensable digitalisation and continuous improvement of the services offered to users, we have developed analysis software for the concessionaire in various application areas:

- **Travel analytics:** to manage the analytical detail of transits, from their acquisition on central systems to their storage and analysis.
- **Fraud management:** includes applications able to detect and analyse anomalous and fraudulent behaviour.
- **Traffic synthesis:** refers to all processes that produce syntheses to feed the traffic data statistical system, generating data on trips, traffic volumes, and kilometres travelled.
- **Intercompany department:** manages the traffic accounting cycle
- **Toll calculation:** allows calculation of possible routes on the motorway network to establish, produce, and distribute toll tariffs.

The introduction of innovative technologies such as advanced analytics and big data has allowed:

- a faster and more accurate calculation of tolls
- a reduction in costs for the end user and for the concessionaire company
- better compliance with European anti-pollution regulations
- greater accuracy and ease of processing statistics and traffic forecasts.

5 AIRPORT



In any country's system, airports are a very critical asset due to the large number of passengers, luggage, and cargo in transit, which must be moved at speed and in a synchronised and safe way. This is a sector that has suffered from the worldwide contraction in demand resulting from the pandemic crisis, and where planned investments seem to be mostly intended to cover operating costs. In such a context, it is more important than ever to adopt **solutions that optimise costs and times** in the management of operational processes or in the allocation of resources, and to employ **sustainable technologies and systems** that are able to guarantee the safety of passengers and operators. These solutions must be developed on the basis of sound analysis, whether in areas such as **dynamic public information** or **terminal management**.

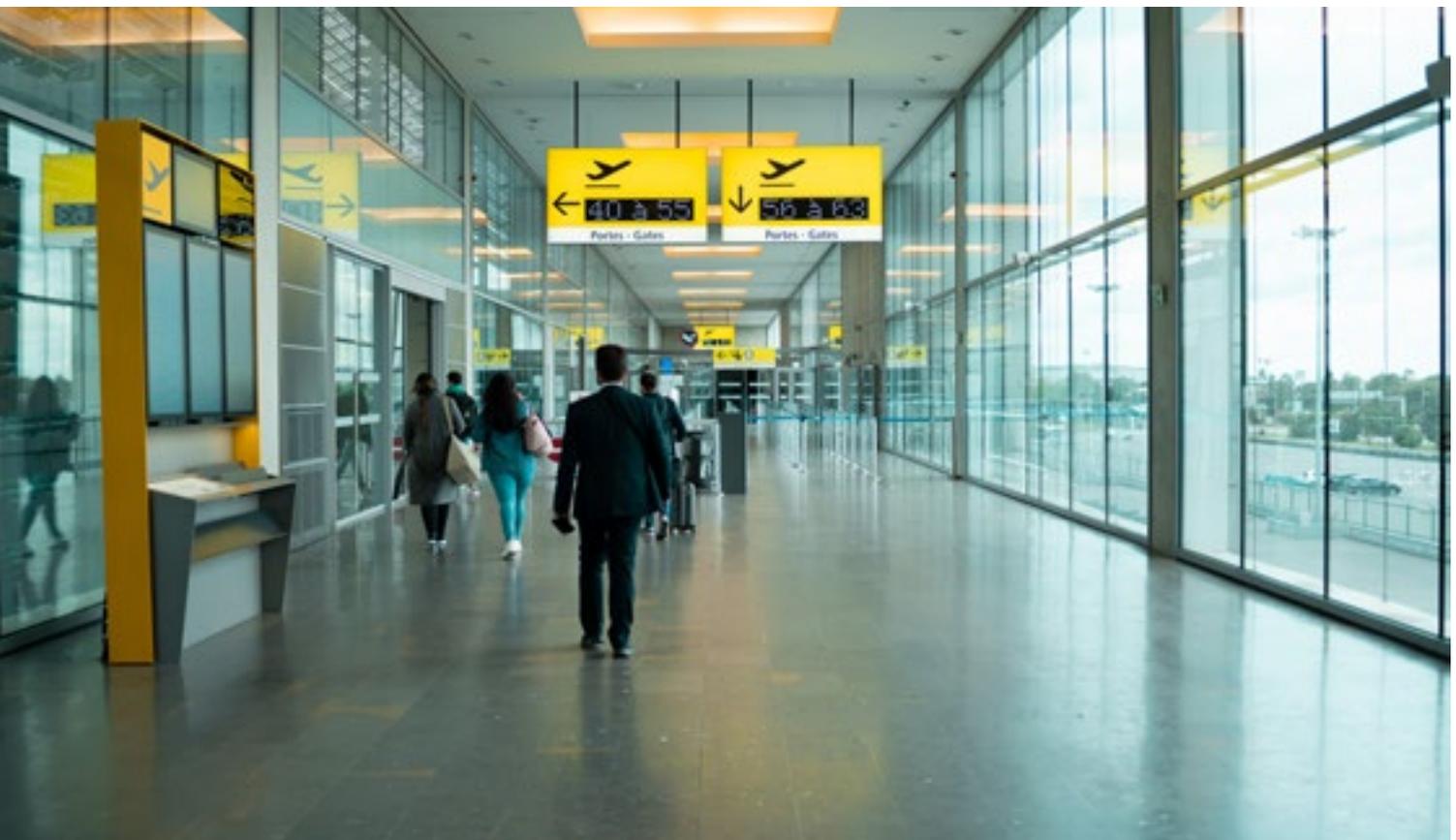
Here at Engineering, we have integrated solutions that provide a concrete response to the changing needs of the airport sector:

- **Flights Information Display System:** this provides **accurate and comprehensive information**, which can easily be configured to operate automatically and provide the user with an attractive display of data. The system interfaces with external systems to allow the rapid display of information pages to increase the effectiveness of communication to the public and reduce congestion at the terminal.
- **Departure Control System:** this manages the departing flights generated by the planning system and allows flight data and operations to be managed.
- **Weight and Balance System:** this enables full load control and balance for passenger, mail, and cargo flights.
- **Resource Planning Simulation:** this allows planners to **improve sizing and resource allocation** in relation to the effects generated by the scenarios included in the plan.
- **Vehicle Maintenance System:** this covers all planning and operational aspects, including integration with SAP for spare parts management. The system encompasses all phases of the vehicle maintenance lifecycle, from the first notification of damage to check-out and return to service.
- **Message Distribution System:** this provides immediate routing of message traffic between airport subsystems with end-to-end monitoring and management, complete processing of air messaging on any message transport system.
- **Baggage Reconciliation System:** this uses tags and readers to track the location of baggage within the airport, at the gate, and on the plane, and to match all checked baggage to passengers.
- **Fuel Management System:** this covers all aspects of fuel management, starting from fuel that arrives from external companies and daily quantity and quality checks, to refuelling operations for outgoing fuel and the management of relations and interfacing with customs.

At Engineering we also implement solutions ranging from **automation and control systems** to **monitoring, diagnostics**, and **maintenance** of infrastructures; from physical security systems for operators and users to network security. We ensure **computer security and data protection**, safeguarding the systems that support the infrastructure and services for travellers.

In order to guarantee **efficient performance and passenger safety**, our solutions for **integrated management** in the building management system of airport stations are able to complete the supervision and management of technological systems, **physical safety**, the well-being of occupants, and services for end users. They also enable centralised management of alarms and of all aspects of airport-specific video analysis, allowing real-time detection of potentially hazardous events by statistically examining changes in the framed scene both inside and outside the terminal. Alarms can be signalled to operators directly on the platform interface or on the synoptic screen of the plant supervision system.

From the **application management** services of the airport core applications to the management of the CED infrastructure, to the software and dashboard platforms **that integrate the information** (KPIs) regarding the processes that impact airport management, from Cloud to simulation models (Digital Twin) based on artificial intelligence data, we at Engineering are on hand with an innovation programme that is capable of creating value for all players in the airport sector.



6 PORT



Ports are of crucial interest to all transport operators, considering that, in economic terms, 77% of Europe's external trade and 35% of trade between EU Member States is carried by sea. And although there has been a decline in maritime activity in 2020 due to the Covid-19 pandemic, strong growth is expected in the coming decades, fuelled by increasing demand for primary resources and containerised shipping. ¹

The role of ports is therefore also crucial in international trade and the global economy, but to make a decisive contribution to a country's growth, they must increase and optimise their capacity in terms of infrastructure and operations.

Port authorities are responsible for the operation, maintenance, and development of facilities to make transport more efficient while providing a high standard of customer service and maintaining the highest levels of safety and convenience for freight traffic.

Here at Engineering we implement operational management solutions for **port terminals**: we develop systems for **physical security** through advanced video analysis, systems for the management of **luggage** and of **merchandise**, for the monitoring of **infrastructure** and for maintenance management.

We specialise in providing integrated solutions for port systems and in particular for **containers, Ro-Ro terminals, and cargo** with the integration of rail services necessary for the rapid transfer of goods and the recovery of port spaces.

We implement **environmental monitoring and prediction** solutions through a vast software platform consisting of multi-sensor modules, which operates on the basis of innovative paradigms (including **IoT** and Big Data) to monitor the environmental matrices of water and air in real time and predict potential critical situations for the environment. In this way, the platform supports decision-making with "what-if" simulation scenarios.

We also carry out the **3D reconstruction** of the port area scenario, implementing decision support systems based on the effective use of the digital twin of the port operations. This allows us to guarantee both real-time monitoring and a picture of the "historical vessels" of the days stored in the system. This also allows us to predict ship traffic, optimise access control with biometric recognition, and monitor environmental parameters through data feeds from installed sensors.

We are able to collect different types of simulations on the environmental impact resulting from port operations: from simulations of **pollutant predictions** detected by environmental sensors installed on site, to predictions of **turbidity** in the port; from the calculation of the levels of **carbon footprint** produced by port activities, to the representation and monitoring of the **seabed** in the area adjacent to the port.

For **port stations** we apply our automation and control capabilities to intelligent building management solutions (**Building Management System**), integrating the supervision and management of technological systems, physical security, occupant well-being and end-user services.

¹ European Environment Agency

Local and central public administration

Public transport is increasingly required to provide people-centred systems, to create a unique experience, to build mobility services from data analysis and to make them available to users in a simple and convenient way. Public transport is also required to be sustainable and to take into account the change in consumer habits resulting from the introduction of new systems and technologies, such as electric cars requiring rechargeable columns, self-driving cars, sharing services, etc.

We at Engineering have developed available software solutions within the framework of the Collaborative Intelligent Transport System (C-ITS) that can be installable on the Cloud and allow us to quickly and easily create the technological infrastructure needed to support the new mobility services. We have the domain experience and multi-disciplinary knowledge to competently address the issues of sustainable mobility in a comprehensive way: this requires not only technical skills, but ready solutions and a future-orientated vision, to keep up with user needs and ensure the proper use of resources.



7 DESIGN & BUILD



We at Engineering are able to support our stakeholders from the earliest stages of transport infrastructure planning and construction.

Before the actual construction of these infrastructures, we support the integration of **BIM (Building Information Modelling) solutions** to develop multidimensional models that enable the planning, design, construction and operation of the facilities. We are tackling this issue in order to immediately address the reduction in the total cost of ownership of the work, guaranteeing productivity and quality, while simultaneously reducing delivery times. With this in mind, we also use additional simulation and modelling techniques through Digital Twin. This enabling technology allows us to address potential problems of feasibility relating to the construction and the functioning of the works (e.g., interference, compliance with regulations), and identifying the optimal design according to the expected operating conditions.

Another relevant aspect to be addressed in the early planning stages concerns **the issue of asset lifecycle management**, which aims to optimise all planning activities, such as the commissioning, management, maintenance, and disposal of assets. Through an integrated approach we enable our stakeholders to adopt a more robust decision-making process for the introduction or replacement of new assets that have an impact on future capital investment plans.

We therefore provide expertise to govern the different aspects of asset lifecycle management during all project phases: from **Asset Investment Planning (AIP)** for budget forecasting to **Enterprise Asset Management (EAM)** for operations and maintenance execution, and **Asset Performance Management (APM)** to improve asset reliability and availability.

We provide solutions for enterprise asset management (EAM), i.e. the lifecycle management process of physical assets. We facilitate real-time monitoring by managers and also support the end customer in adopting market solutions and implementing all the customisations necessary to adapt them to business processes and integrate them with legacy systems.

The EAM system must be compatible with the software technology used by the company, and must allow predictive maintenance. It must also monitor resources compared to a "degradation curve", which will provide alerts when maintenance is required.

The objectives are to maximise the use of resources, improve their quality and efficiency, and help safeguard security and safety as well as the environment.

From a strictly operational point of view, concerning the **management of operational assets**, at Engineering we have implemented solutions for:

- the localisation of resources and their management, including assets, using different technologies
- the monitoring of means of transport to verify data contributing to maintenance activities and calculation of productivity
- advanced "fleet management" systems.

Design and Construction Management

In the field of **design and construction management**, we support our clients in the management of all the processes involved, contributing not only to their digitisation but also rethinking them with a view to simplification, standardisation, and efficiency. This is the case, for example, with the GLAD (Giornale dei Lavori Digitale) for ANAS, developed on the basis of Regulation DM49/2018: "Approval of the guidelines on how to carry out the functions of the works manager and the execution manager" (Art. 14 ; Art. 15), which enables us to overcome:

- a lack of integration with company systems
- accessibility limits
- poor standardisation of procedures
- the impossibility of completing the mobile journal

The system allows:

- the management of contracts, as it provides general information on the progress of works and the technicians working on the site can be enabled/disabled by the Works Manager
- the compilation of the work log
- printing and integration.

It also allows:

- integration with the Anas SilWeb corporate system, which allows for faster contract management and at the same time avoids misalignments between the two systems
- the compilation of the Journal in a highly facilitated way, reducing the number of typing fields to a minimum: most fields are populated by selecting from a list
- communication between users through the "Integration Request" functionality. If, for example, the Works Manager considers that information is missing from the Work Log, he/she can make this observation directly from the system, and the Site Inspector will display this request from the GLAD interface
- to add photos taken directly from iPad (or other devices) with a watermark showing geolocation.

e-SCM for the management of construction sites

Today, companies managing construction sites for complex works face several challenges:

- errors, which can be frequent and lead to numerous reworks, delays, disputes, and costs
- knowledge that is often hidden because it is embedded in documents, archives, organisational routines, processes, practices, and standards
- activities that are highly time-consuming, voluminous, and complex due to the presence of several sites
- complex management of subcontractors, their information and activities.

Activities on a construction site are complex, highly parallelised and involve different teams and suppliers, often struggling with strict safety constraints. IT solutions must be comprehensive, flexible, and highly integrated to meet all processing needs, including workflows and approval platforms.

It is precisely to meet these requirements that we have developed e-SCM, a (multi-site) software solution, which allows builders to manage processes related to the operation of a construction site in accordance with the shared regulatory protocol for containing the spread of Covid-19 on construction sites.

Comprising several modules, e-SCM allows centralised management of all shipyard sites and their documentation, ensuring that only authorised personnel have access. The solution creates a single register of all external companies, to administer their activities and authorisations, monitoring access and activities of operators at logical, temporal, and geographical levels.



8 OPERATION & MAINTENANCE

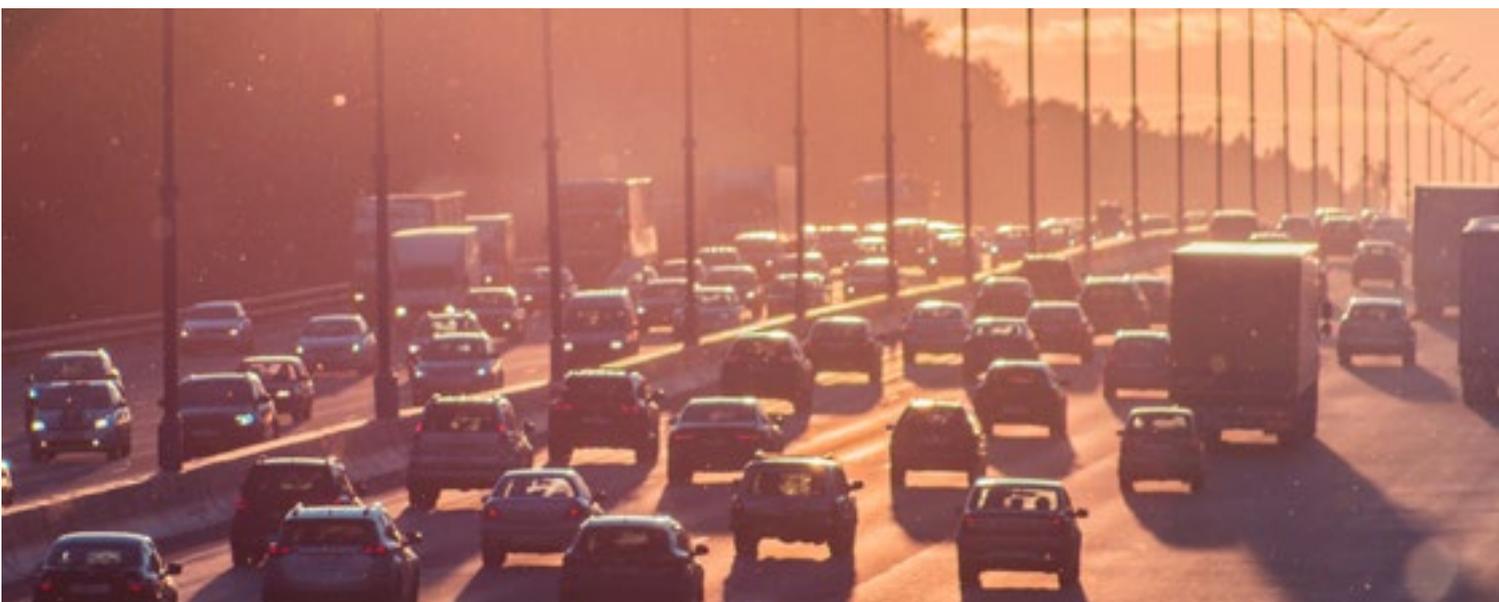


Transport infrastructure is an indispensable national resource because it contributes to the transport of goods and the mobility of citizens as necessary elements for the functioning of the country's economy.

We at Engineering offer transversal solutions to the various transport infrastructures, but we also provide more vertical skills that can be used in different areas of the transport system. The latter is in fact subdivided into specific areas requiring different strategies, with particular reference to traveller safety, traffic management, environmental sustainability, and passenger and freight management:

- rail transport
- metropolitan rail service
- public road transport (local and medium/long-distance)
- goods logistics
- roads and motorways
- systems and services to promote mobility in urban areas, also through the use of electric modes of collective and individual transport.
- parking

In addition to road and rail infrastructures, **nodal infrastructures** should also be taken into account, including the **port network**, the **airport network**, and **logistics nodes**.



Infrastructure Management

Infrastructure, described by some as the world's first social network, is a fundamental building block for providing access to services, economic growth, wealth, and social cohesion. They are no longer just civil engineering products, but complex works requiring different approaches. **This is why we at Engineering understand the need for a design that incorporates and makes full use of the potential offered by technology.** In particular, it is of paramount importance to exploit technology linked to data and communication in order to create smart, aware, and optimised infrastructures. Alongside these, useful technologies for monitoring, control, and enabling user information must also be adopted. Solutions tied to the world of smart infrastructure mainly serve to:

- inform the manager of the state of the infrastructure, also in terms of traffic flow
- permit the manager to inform users of the condition of the infrastructure and/or any other relevant circumstances that may develop into risk situations.
- use on-board technologies, such as driver assistance systems, cooperative systems, and positioning systems.

Here at Engineering, we have implemented software solutions that are necessary for the supervision **and continuous monitoring of infrastructures.** We have used different integrated technologies depending on the scope of application to monitor the state of health of the infrastructure, the safety of travellers regardless of the means of transport used, the management of port terminals and airports, the supervision and remote control of operations, activities related to asset management and to the evolved maintenance management.

A highly relevant theme is that of **the management of critical infrastructure operations,** which impacts several areas: from monitoring to activities for the operation of infrastructures as an enabling factor for the proper functioning of means of transport, from routine, extraordinary, and predictive maintenance, to digital platforms that enable the automation of ports and airports in a practice commonly referred to as terminal management.



The issue of operations is also conditioned by the way in which infrastructures and services are designed and then implemented. An infrastructure, or a system in general, must also be designed with practicability requirements in mind, so that management activities are optimised with respect to cost and service quality criteria.

The boom in artificial intelligence and the Internet of Things, with its intelligent sensors, has led to the increasingly widespread adoption of management and decision-making strategies based on **Digital Twin**: sensors collect information on the current state of the infrastructure and the mathematical model anticipates potential failures and signals the need for maintenance.

It is also important to highlight the benefits of Digital Twin at all stages of an infrastructure's life from its design.

Considering the cost of developing a digital twin, it pays to design it before the actual construction. This makes it possible to hypothesise different usage situations and to verify the behaviour of the real system, by identifying and resolving any inefficiencies or risks before they occur.

The fact that the system has been designed and not yet implemented allows it to be modified and improved at a minimal cost compared to making changes to the system once it has already been produced and is up and running.

Even after construction, it is possible to adopt solutions for the management of operations, carrying out suitable and coordinated activities in order to minimise the costs arising from this activity.

The use of modern technology is particularly important here:

- systems for remote monitoring and control of devices in the field
- Digital Twin to understand and predict real-time infrastructure behaviour based on collected data
- solutions to continuously monitor the health of infrastructures
- Virtual collaboration solutions with AR-MR-VR technologies for technical inspection and field maintenance activities, to reduce costs and maximise the skills of the most experienced resources, by putting them at the heart of service delivery.



Security and Safety

When it comes to transport and infrastructure, safety is paramount:

- in the **safety of travellers** and service users in general, which includes a multitude of related factors:
 - user behaviour
 - the safety of the mode of transport used
 - the safety of infrastructures enabling the movement of modes of transport
 - the presence of integrated and functioning safety support systems.
- in the **safety of those who work** in the construction and maintenance of infrastructures, which also depends on:
 - responsible behaviour of workers
 - the presence and observation of company policies that regulate behaviour and identify the first measures to protect workers, i.e. all the actions that companies and workers must put into practice to safeguard their safety
 - technological support tools that allow a drastic reduction of accidents at work.
- in **industrial security**, also called **OT Security (Operational Technology)**, i.e. the hardware and software components dedicated to the monitoring and control of processes and physical resources.



Security management must be orchestrated with dedicated operational centres, adopting innovative solutions to guarantee new services for:

- quickly identifying critical areas and situations with video analysis capable of graphically and intuitively displaying heat maps at high user flows
- remotely managing infrastructures (gates, turnstiles, etc.) for proactive management of passenger flows in crowded areas (crowd management)
- communicating promptly with staff in the field to remedy critical situations.

For the **safety of users and operators it is possible, by means of appropriately designed technological solutions**, to anticipate dangerous events or to take action promptly in the event of critical situations to limit damage to persons and property.

At Engineering, we develop and integrate multiple security systems to meet the needs of companies, workers and end users:

- **systems for supervising the physical security of construction sites:** site access, video behavioural analysis, access to hazardous areas, vehicle access, hazardous substances testing, thermographic checks and everything necessary to ensure the security of construction sites;
- **administrative and regulatory management systems for the construction site:** from the authorisations necessary to operate on site to the assets used, from the status of activities to the allocation of human resources;
- **systems that verify the correct use of PPE** (Personal Protective Equipment) by personnel through video analysis and the use of sensors
- **systems controlling the use of site equipment**, which enable and manage:
 - the location of the means of transport
 - the modality of use
 - the display of technical parameters of the means of transport and of events
 - verification of the driver's ability to drive the vehicle
 - the scheduling and execution of maintenance work.
- **solutions enabling human-machine dialogue** that can anticipate dangerous events.
- **Worker safety solutions** that utilise wearable sensors to verify the positioning of workers in hazardous areas as well as facilitating rescue and evacuation actions.

Video Analysis

Particular importance is attached to video analytics as a technology with a wide range of applications for all players in the transport market.

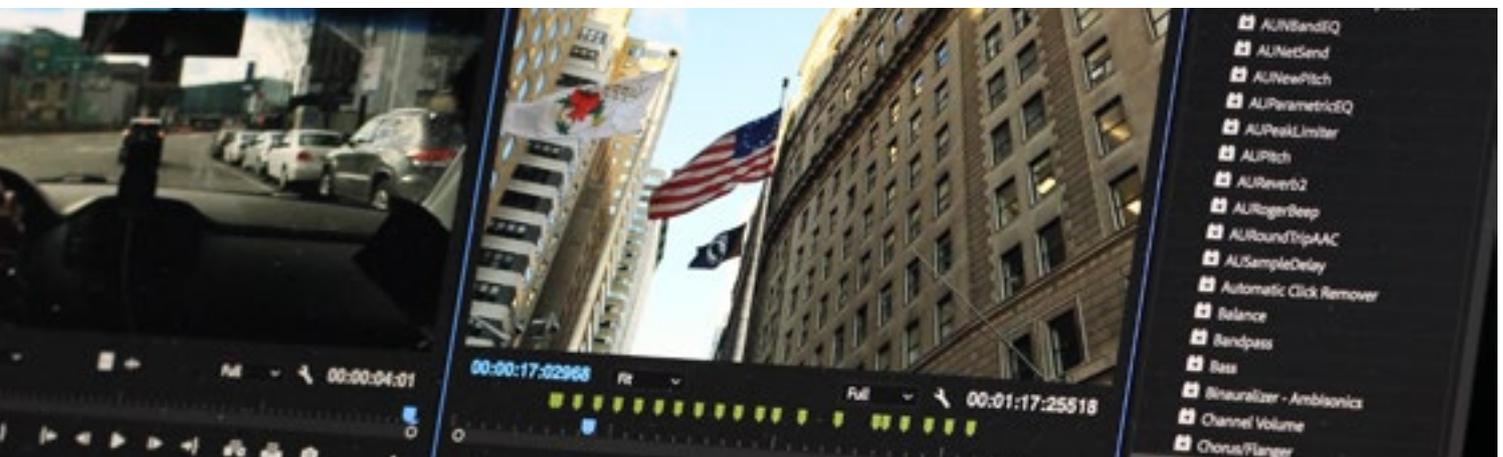
We are capable of **designing a Security Operation Centre** that uses a single aggregated interface to manage the integrated systems for:

- highlighting the correct functioning of sensors and alarms lined to video surveillance, access control, intrusion detection, fire prevention, flooding, gas leaks, and other installed sensors
- highlight the operational status of systems and devices that may be causing disruption;
- detect anomalies in order to automatically initiate the appropriate actions (reports, alarms, notifications to the facility management system, etc.) to the correct interlocutors using the appropriately set scenario logics
- communicate directly with field devices or third-party systems regardless of the communication protocols used.

We design scalable solutions using video analytics for real-time detection of potentially dangerous events. Motion and object tracking analyses on images detect events through the statistical analysis of changes in the framed scene. The scalability of the solution enables customised video analysis for real-time detection of situations and behaviours related to people or static objects occurring in indoor and outdoor areas.

Engineering has its own **SOC (Security Operation Centre), which it can make available to its customers, designed to:**

- ensure the protection of control systems at all levels;
- maintain high visibility and perform multi-vector threat analysis and response;
- guarantee the security of applications and systems through the adoption of anomaly detection tools increasingly based on machine learning techniques (artificial intelligence and machine learning) and static analysis/code review.



OT Security

OT Security (Operational Technology) refers to the security of hardware and software components dedicated to the **monitoring and control of processes and physical resources**, mainly in the industrial sector or in sectors managing critical infrastructures.

The growing popularity of IoT implies the interconnection of systems and devices not originally designed to be connected and the integration of sensors and devices into the network that generate and exchange huge amounts of data in real time. This creates an expansion of the attack surface, where threats are targeted at critical infrastructure and SCADA systems with a direct impact on services as well.

Here at Engineering, we are able to offer solutions and expertise:

- for network segmentation, which is divided into non-communicating parts or parts separated by security controls, in order to limit possible problems to single segments and prevent the spread of the threat
- for control of access to information systems and privilege management, which regulate authorisations for individual components of a system, in order to prevent access by unauthorised and potentially compromised devices or users
- for network monitoring and log analysis, which are useful for detecting possible intrusions and supporting investigation and analysis activities
- for vulnerability assessment and penetration testing
- for the definition of techniques and organisational models (cybersecurity governance).



Social Distancing & Public Transport

Digital Transformation represents a major challenge and an opportunity for transport infrastructure and mobility. The sector is evolving with innovative challenges to support the expansion and sustainability of urban centres, meet the mobility expectations of citizens, and keep pace with new and growing digital experiences.

The Covid-19 pandemic has also made it necessary to develop and use new solutions applied to transport services to:

- ensure adequate transport capacity and minimise the impact of regulations to be applied for the safety of passengers and employees
- promptly comply with health and safety procedures and adapt them to changing regulations
- minimise the impact of these procedures on company profitability
- effectively communicate all measures implemented to ensure the safety of passengers and employees.

In the context of mass transport, the main measure taken by most governments is social distancing and the use of personal protective equipment. Technology can help to guarantee and monitor secure transport services with technological solutions that can be applied in stations and public areas (ticket offices, check-in, waiting rooms, transit areas, etc.), on transport vehicles (buses, metro and railways, ships and ferries, aeroplanes), and in staff areas (offices, depots, etc.).

Advanced video analysis systems are able to provide distancing and behavioural analysis to ensure the safety of travellers and employees.

Systems exist for the measurement of crowding on transport, in stations, and in public areas (stops, stations, platforms, depots) by acquiring and analysing data from heterogeneous sources, such as for example:

- beacon
- images and video streams
- access control systems.

Safe Eye

Safe Eye is our AI-based solution for monitoring and managing social distancing between people in public places by analysing video and images. It helps to safeguard public health by helping people to comply with social distancing measures and bodies to monitor their implementation.

Making use of existing video systems, it provides real-time, 24/7 video- and image-based analysis of humans and objects and enables the recognition, detection, and highlighting of potentially harmful behaviour in public places: squares, streets, offices, shops, stations, public transport and wherever video systems can be used. If social distancing measures are not respected, the solution automatically generates warning messages (push messages, calls, screen alerts, etc.) to those who are in charge of monitoring the areas in question.

The solution uses AI & Advanced Analytics technologies to examine and monitor data (images/video streams) from available video surveillance systems, analysing in real time the movements and relative distances between humans and objects to highlight potentially dangerous and critical situations.

Safe Eye enables:

- the number of people within a certain (limited) area to be counted to identify potentially dangerous situations
- the sending of overcrowding notifications by measuring the proportion between the distance and the number of people within an area (the camera shot) in relation to the size of the area under observation
- proximity detection by calculating the distance between people within an area and sending alarms if social distancing measures are not being respected
- the checking of DPIs (Individual Protection Devices) worn by the individuals being filmed by the camera, to verify that they are being worn correctly and effectively.



Crowd Management

Through the use of Digital Twin and AI & Advanced Analytics, we have created innovative solutions for the monitoring and management of transport infrastructures and provided tools capable of simulating the flow of passengers arriving at/departing from a railway terminal or airport with the aim of:

- anticipate the emergence of possible critical events (e.g. overcrowding due to delays or other events) and identify (through a what-if approach) the correct configuration of levers to address such problems
- study and validate ex ante the impact of routes for travellers within terminals or the modification of existing conditions.

Using a hybrid approach between modelling and simulation, we are able to carry out graphical modelling:

- of passengers on the terminal layout according to the arrivals and departures of the carriers. The flow of passengers is also influenced by several different points of interest (commercial premises, waiting areas, ticket offices, billboards, etc.).
- entrance and exit doors (to and from the protected area). The authorised operator can act on gates and turnstiles (e.g. opening, closing, changing direction) as an operational lever to handle unforeseen and unwanted situations.



9 SERVICE

Here at Engineering we develop solutions with user functionality for use in different operational contexts that are relevant to infrastructure and transport managers.

These include solutions for:

- **intelligent payment management:** these solutions enable **payment services by profiling users**, who can make secure transactions based on the services being exploited; these solutions also automate the ticketing systems of transportation networks.
- **the management of user information:** these solutions provide a series of aggregated and updated information in real time using multi-channel devices. For example, disruptions and problems affecting the transport network, caused by accidents or malfunctions; weather information that may affect journeys; user guidance (parking, availability of lanes, information on queuing and congestion etc.); information on services (arrival times, departure times, etc.), depending on the scope of the application.

Our teams also implement solutions for other more vertical areas, such as systems for parking management, consisting of several main components: access management, occupation of stalls, functionality for visual indications. They can be integrated with parking payment systems through the use of automatic cash machines and interact with the building's access management system (security), user interaction (reservation and availability of spaces) and real-time information management (location of free spots).

Starting from the strategic objective of modal integration, i.e. intermodality, for us the attribute "Smart" refers to intelligent transport systems. **These must combine information technology and telecommunications, transforming transport into an integrated system whereby traffic flows are distributed evenly between the various modes.** The aim is to achieve greater efficiency, productivity, and above all safety of transport.

Based on these concepts, we support the development of Smart Transportation in the areas of:

- road transport, maritime port systems, rail systems: we apply an integrated vision to ensure access to a production, distribution, and consumption system that acts as an interface for logistics on a national and global scale
- local transport: this is one of the places where people feel at home, perceiving that there is a community that cares for them.

○ CASE STUDY / A FULL DIGITAL SOLUTION ON THE CLOUD FOR ITABUS

Itabus is a start-up company for road passenger transport. When the company turned to Engineering, it needed to design its services and systems in detail and implement the necessary integrations and configurations for the entire technological system. This system is constantly evolving due to the changes in the social and market context that have taken place in recent years. In line with what had been defined at the level of design and strategy by Itabus, we intervened with a full digital solution on the Cloud to guarantee the usability and continuity of the services provided to users and to allow an evaluation of the performance of the various business areas.

It was necessary to create CRM, e-Commerce, and Business Intelligence platforms integrated with other application platforms (ERP, distribution systems, fleet and personnel monitoring, etc.), making it possible to provide scalable and timely intervention to improve the functionality of services and to ensure maximum efficiency of all processes.

In light of Itabus' ambition to be natively digital, we designed the architectural design established by the start-up in a clear and highly innovative way, adopting an agile working methodology, with "sprints" of varying duration depending on the period and needs. These "sprints" were achieved thanks to a strong and constant interaction between Itabus' key users, our business analysts, and product technical specialists. We used many of the services offered by AWS in its three typical types: infrastructure services, container services, and abstract services.

Through the specific skills of WebResults, we implemented some modules of the Salesforce platform for the CRM and Marketing Cloud component (e.g. Service Cloud for the management of tickets, orders, payments, and vouchers - also through the activation of WebtoCase, chat, and other customer contact tools, i.e. digital engagement - and the Marketing Cloud for push geo-localisation, sms, e-mail), ensuring integration with Datalake and the native Itabus app. With a view to business intelligence, analytics applications and interactive dashboards were built and implemented to manage information on business trends in an integrated manner and to carry out in-depth analyses on particular topics of interest.



Smart Mobility

The aim of this area is to combine sustainability and quality of life for citizens on the one hand, and to use enabling technologies to create an inclusive environment, where innovation is with everyone and for everyone. Linked to this is the theme of mobility as a service: this is a new concept of mobility based on the provision of services according to the specific needs of the end user.

Our technological objective is therefore to ensure integration between vehicles, infrastructures, technology, and users. This can be achieved through an open and flexible system, allowing the use of different applications (some of which are already available, while others will be developed in the future), taking advantage of evolving technologies and regulations.

We also work across several functional areas:

- **monitoring:** performing surveys and measurements (including automatically), by means of roadside equipment
- the **planning and programming** of interventions
- **maintenance:** defining and coordinating maintenance work on roads.
- **monitoring,** processing, and activating real-time traffic and mobility measures and interventions.
- **safety:** identifying risk scenarios; activating preventive, active, and passive safety interventions; monitoring (for example) the stability of tunnels, viaducts, bridges, and all major works.



Voos

Voos is a platform for monitoring and managing public transport fleets and disseminating information to users through various communication channels.

It enables transport companies to establish an efficient system for monitoring and reporting on the service provided, while allowing users to enjoy better public transport through innovative multi-channel information systems.

The platform integrates Engineering's development expertise with Moovit's solutions to manage transport services in an innovative way.

Moovit is the world's number 1 app with over 865 million users in 106 countries and more than 3,200 cities. It is available in 45 languages and accessible for visually impaired/blind users and users with impaired mobility.

Engineering has integrated Moovit solutions to create a platform that provides unique functionality and allows transport companies to derive value from their fleet management system.

The Central System integrates Moovit TimePro, allows real-time localisation and monitoring of vehicles, and manages events and alarms.

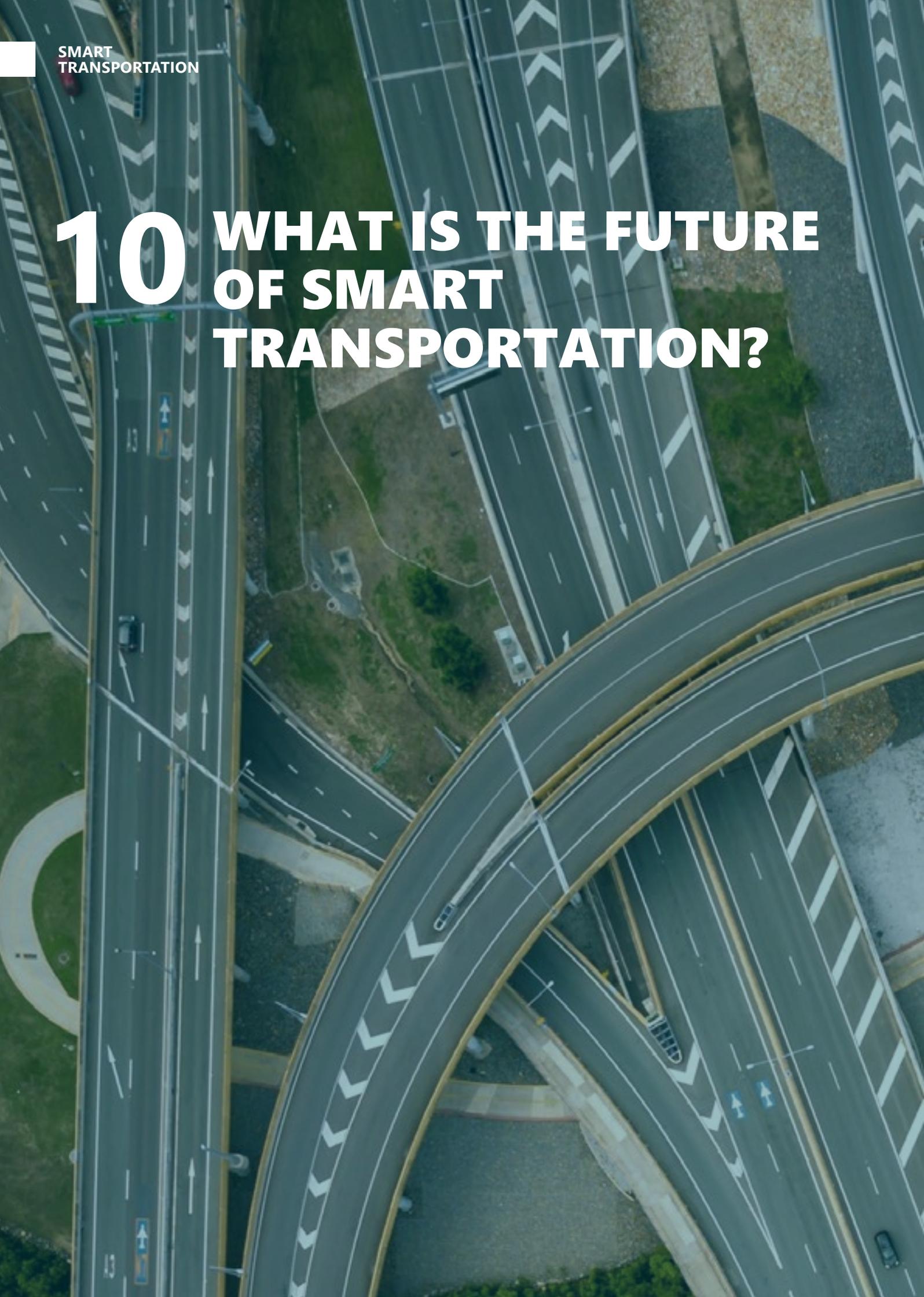
The on-board system ensures multi-modal localisation and real-time monitoring, enables multi-channel communication (long & short range), allows driver identification and automatic vehicle dressing, enables interaction with on-board systems, and manages vehicle data and diagnostics (vehicle and systems) for advanced maintenance.

Information is provided to users by displaying and announcing the destination of the vehicle, the option of consulting transit times at stops (planned and real-time) via the Moovit mobile app and web portal, smart bollards, PMV and multimedia kiosks, and SMS for consulting service notices.

The benefits of VooS are:

- Flexibility: this is an on-board system that can be installed on industrial equipment or mobile devices; it also allows hybrid set-ups and rapid activation
- Integration with existing peripherals or new solutions selected by the customer. Native with WEB and Moovit APP
- Innovation: it uses advanced algorithms for real-time forecasting based on statistical data collected in the field
- Usability: the public transport service becomes more accessible to users Sustainability: the public transport system becomes more sustainable, both economically and environmentally.

10 WHAT IS THE FUTURE OF SMART TRANSPORTATION?



The full deployment of a new, sustainable form of mobility is one of the cornerstones of government action at global level, but one of the challenges of the **immediate future** will be to deal with the ongoing pandemic, which has led to a dramatic reduction in demand for transport over the past two years.

At the same time, there is no doubt that the transport and infrastructure sector is undergoing a radical transformation, and some of these changes will dramatically alter our habits and experiences in terms of travelling, whether short-distance or long-distance, in both public and private spheres.

We will see the availability of Hyperloop trains and routes and **modular** electric vehicles, whereby the same vehicle can **transform** and act as a car-sharing vehicle or taxi, bus, a last-mile goods delivery vehicle, or a long-distance truck for passengers and goods without transshipment (vehicles can travel alone or *jointo* form a larger convoy).

The coming decade will finally see us enter the era of driverless cars and autonomous **vehicles**. These new means will be able to "perceive" their surrounding environment thanks to sensors and the use of data - dialoguing with **intelligent junctions** and replacing traffic lights and road signs - and will be able to take into account both the type of terrain on which the car is moving, as well as other vehicles or the current weather conditions.

We will become accustomed to travelling new roads, thanks to **networks of underground tunnels** that will allow us to reduce traffic jams and pollution in cities or to validate shipments without going through customs thanks to Blockchain

In this delicate historical phase, we at Engineering will play a leading role: we are able to support all operators in the transport ecosystem as they put in place the necessary measures to counter the impacts of Covid-19 and promote the recovery (and resilience) of the mobility of people (and goods), safely and sustainably.



How?

By activating resources, skills, methodologies, technological solutions, enabling platforms, strong domain expertise and a culture of innovation to synergistically help the actors of the new form of mobility to face the challenges ahead.

Starting with **Design & Build**, where our **IoT, AI & Advanced Analytics** can help, for example, in **collecting data** (with sensor systems) and managing it in a predictive way to:

- **understand the dynamics of mobility behaviour** not only in terms of "trends" but also in terms of the extent of the changes taking place, in order to plan future actions and develop the ability to adapt to emerging needs.
- **channel demand** with real-time information on vehicle filling and alternative routes
- **reduce costs** by eliminating low-demand services and replacing them with alternative forms of mobility (car sharing, active mobility etc.)
- **differentiate the services available**, reorganise spaces, optimise the ratio between occupancy and vehicles through the development of **profitability models** (of transit, ground and train spaces) and increase the profitability of user services, whether commercial (station/bus station shops, commercial activities in general), ancillary services, or new value-added services
- **discourage** non-essential use of (non-electric) cars and provide viable alternatives to motorised individual mobility
- **manage distancing measures for safety** (crowd management, passenger flow analysis, etc.)
- **make decisions** that are capable of meeting the new needs and expectations of users



In the area of Operations & Maintenance we provide solutions ranging from diagnostics to the proactive and automated maintenance of transport vehicles to infrastructure management. These solutions include programming, execution and control of ordinary and extraordinary maintenance, but also simulation models, Digital Twin, automation, cloud computing, and AI, which allow service providers to depend on highly reliable and safe systems that are capable of attracting demand for transport once again.

In the field of **Service**, support is provided by improving the efficiency of the services provided to users through solutions that allow:

- physical **distancing to be controlled**, both in stations and on board vehicles
- the provision to users of **information regarding** actual load factors and **crowd control** to increase perceived security (for example statistical analysis to highlight crowded areas)
- the planning and checking of **cleaning and sanitisation activities** (contract management, activity programming, control of the service rendered on the individual cleaning or sanitisation service, accounting, etc.) in an interconnected way
- the promotion of electronic ticketing with a view to **MaaS** and the adoption of electronic payment systems or their integration into public transport, as well as the development of platforms for accessing multimodal mobility services, etc.
- the coordinated communication of measures implemented (to reassure the user) with innovative methods, which can be understood quickly and natively eliminate language barriers, safeguarding the user experience at every step.

The innovative drive that distinguishes us has played (and still plays) a key role in overcoming the Covid-19 emergency. We at Engineering are preparing to enter the new era with the unchanged ambition of being active protagonists capable of **redesigning models, completely rethinking processes, and supporting projects to transform the world of tomorrow**, in line with principles of sustainability and with an ecosystem perspective.

ENGINEERING

For more than 40 years Engineering has been one of the main actors in the digital transformation of both public and private companies and organisations, with an innovative range of services for the main market segments.

With approximately 11,600 professionals in 40+ locations (in Italy, Belgium, Germany, Mexico, Norway, Serbia, Spain, Switzerland, Sweden, Argentina, Brazil, and the USA), the Engineering Group designs, develops, and manages innovative solutions for the areas of business where digitalisation generates major change, such as Digital Finance, Smart Government & E-Health, Augmented Cities, Digital Industry, Smart Energy & Utilities, and Digital Media & Communication. In the course of 2020, Engineering has supported its partners in the continuation and protection of their businesses and key processes, assisting in the design of their 'New Normal' and the mapping of new digital ecosystems. With its activities and projects, the Group is helping to modernise the world in which we live and work, combining specialist skills in the final frontier of technologies, technological infrastructures organised in a unique hybrid multi-cloud model, and the ability to interpret new business models. With important investments in R&D, Engineering plays a leading role in research, coordinating national and international projects with a team of 450 researchers and data scientists and a network of scientific and academic partners throughout Europe. One of the Group's strategic assets is the expertise of its employees, whose development is promoted by a dedicated multidisciplinary training school that provided more than 15,000 training days over the last year..

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THE WORLD WE LIVE IN

- AUGMENTED CITY
- SMART ENERGY & UTILITIES
- SMART TRANSPORTATION
- DIGITAL MEDIA & COMMUNICATION

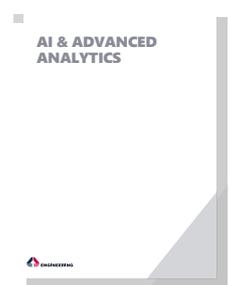
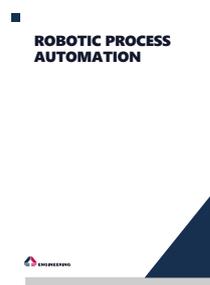
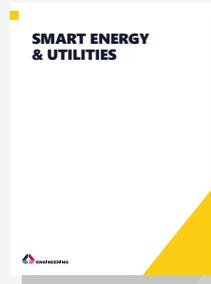
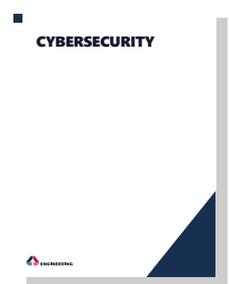
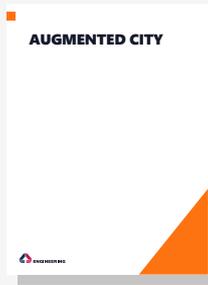
THE WORLD WE WORK IN

- DIGITAL INDUSTRY
- DIGITAL FINANCE
- DIGITAL RETAIL & FASHION
- SMART AGRICULTURE

THE WORLD THAT LOOKS AFTER US

- SMART GOVERNMENT
- E-HEALTH
- DIGITAL DEFENSE, AEROSPACE & HOMELAND SECURITY

Our point of view on



Coming Soon



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