2017 ANNUAL REPORT

Driven by the future
ACTIVITY

“Ineco has continued to provide its services to its shareholders -Enaire, Adif, Adif Alta Velocidad and Renfe- and to other national clients, consolidating its international presence mainly in Europe,America and the Middle East.”

María Sánchez Palomo, Managing Director of Operations
In 2017, Ineco registered a revenue of over 50 million euros from its activity in the aeronautical business. These results mark the positive trend that Ineco has experienced for years in the sector. This was added to by the development of major projects such as the design of the new terminal at Schiphol airport, the recruitment of ORAT Phase I of Newark airport in the United States, or its crucial participation in the Galileo Programme, as well as the works carried out in the national market for Enaire and Aena, among other clients.
Global air transport continues to grow at a relentless rate. In 2017, passenger demand increased by 7.6% over the previous year and exceeded the average growth rate of the last decade, which was 5.5%, according to the International Air Transport Association (IATA). In Spain, figures are equally encouraging: in 2017, a total of 294.4 million passengers was registered at Spanish airports, an increase of 8.3% over the previous year. Along the same lines, Enaire managed 2.18 million operations, 6.3% more than in 2016.

In this context, Ineco maintained its aeronautical activity at levels similar to previous years, with a turnover of more than 50 million euros, slightly higher than in 2016. The company continued to work for its shareholder Enaire, and other clients in Spain, including the Spanish Aviation Safety and Security Agency (AESA), the General Directorate of Civil Aviation (DGAC) and Aena. Abroad, the company consolidated its presence in geographic markets such as Europe, the Middle East, Latin America and Africa, and launched projects in new strategic countries such as the United States and the Netherlands.

In relation to the national market, Ineco continued to support AESA in airport certification during 2017. As a result, Spain managed to certify all its airports under EASA (European Aviation Safety Agency) regulations. After approval in early 2017 of the Airport Regulation Document (DORA) developed by Ineco, it continued to provide support to the Civil Aviation Department (DGAC) for monitoring compliance with this regulatory document. In addition, and in line with previous years, Ineco maintained its collaboration with the DGAC in the revision and analysis of all urban plans that may interfere in the correct functioning of the airport infrastructure, support in the environmental processing of the proposed plan and support in the management of documentation to be processed in expropriation records.

Another of Ineco’s major clients is Aena, for which it prepared projects (T1 south of Barcelona airport - El Prat), technical management (major investments in the refurbishment of terminal buildings in the airport network), airport planning and implementation and monitoring of energy efficiency and renewable energy in the airport manager’s network.

2017 was a key year in the international airport business, with the design of the new terminal at Schiphol airport in Amsterdam being awarded to the Spanish-Dutch consortium, KL Air, of which Ineco is part, to bring its in-depth knowledge and experience in planning, design and operation of airports. The new terminal, which will be completed in 2023, will enable the airport to handle up to 14 million more passengers a year, thus enabling it to maintain its benchmark position as a European hub.

Another milestone to be highlighted in the last year is the recruitment of Phase 1 of the Newark Airport ORAT. An achievement that allowed the company to win its first project in the US market due to its extensive experience in airport transition.

During 2017, airport activity was consolidated in regions where Ineco has been present for years. In Mexico, for example, work is underway on the supervision of the construction of the New Mexico City International Airport, and work is being carried out for the Grupo Aeroportuario del Pacífico (GAP), which includes the functional design of the terminal buildings of Tijuana and Puerto Vallarta airports.

In Central America, activity was focused on the continuation of work on Sangster-Montego Bay International Airport in Jamaica, developing planning, design and supervision projects.

New projects were also achieved in Costa Rica: the International Civil Aviation Organization (ICAO) and the drafting of the construction project for the rehabilitation of the airfield of the Daniel Oduber Quiros International Airport (AIDOQ). Also worthy of mention are the Master Plan for the Germán Olano Airport of Puerto
Carreño and the airport planning schemes for the airports of San Bernardo de Mompox and Contador de Pitalito in Colombia.

In Peru, assistance was provided for improvements to the Jorge Chavez airport in Lima, as well as the modernisation of Chiclayo airport. Work was also carried out to improve pavement management at Pucallpa, Iquitos and Pisco airports.

The Middle East is a key region for Ineco’s international expansion. Projects such as the expansion of two airports in the United Arab Emirates, where the company continued to work in 2017, are clear examples of the relevance of Ineco airport activity in this area: the MTC (Midfield Terminal Complex) of the international airport of Abu Dhabi, for which it has been providing operational readiness and transfer (ORAT) since 2014, and comprehensive project management of the enlargement works of Fujairah Airport. The company was also awarded the Master Plan for Dammam King Fahd International Airport in Saudi Arabia, the first Aeronautical project to be developed in this country.

Activity in 2017 on the African continent was focused on Cape Verde, where important projects were carried out. On the one hand, the company supervised the most recent works to expand the passenger terminals of the international airports of Boa Vista and Sal, which registered the highest tourist traffic. On the other hand, it developed two consultancy studies to analyse the feasibility of developing new airport infrastructures in the country, for the aerodromes of the islands of Santo Antão and Brava, and for the airport of São Filipe, on the island of Fogo.

In air navigation, Ineco continued to provide specialised services to Enaire, the national manager of Spanish air navigation. In the field of TMA operations (Terminal Maneuvering Area), the A-CDM (Airport-Collaborative Decision Making) system was commissioned at Palma de Mallorca airport, and the procedures of the same system optimised in Barajas and El Prat. Support was also given to the development of APP Drones, which allows flight planning and consultation of the applicable regulations depending on the characteristics of the operation and the drone to be used.

Regarding the development of the Air Navigation System, it continued to collaborate with MITRE (main source of technical support of the FAA - Federal Aviation Administration). Ineco also participated in the development of new tools that allowed Enaire to supply runway capacity studies, improving the scope of current applications.

In terms of structuring and organising the airspace, the company participated in the restructuring of the RNAV I departure and arrival manoeuvres as well as in transitions to Barcelona airport.

With regard to safety activities, more than 100 safety studies have been developed due to changes in the Air Navigation System, highlighting the safety analysis of the BRAIN Project that modifies the Barcelona TMA and of the implementation of new PBN manoeuvres at the airports of Vigo, Madrid, Valencia and Asturias.
Regarding security, during the course of 2017, Safety Programmes were developed for 91 facilities from which air navigation services are provided. At the beginning of the year, the Enaire Security Training Plan (2017-2018) was also drawn up.

In terms of aeronautical communications, Ineco carried out studies covering T/A communications for planning the deployment of ATN/VDL mode 2 stations. It also focused on the digitization of voice communications for ATC in control towers by monitoring and controlling installation, integration and acceptance tests, as well as coordinating the commissioning of the new voice communications systems (SCV) and Ground/Air communications (SCTA) based on VoIP technology at the airports of Alicante and Almería.

During 2017, more than 100 radio simulation studies were carried out at the Enaire and Aena air navigation facilities.

In 2017, Ineco supported the deployment of radio aids for approach procedures at the airports of Ibiza, Gran Canaria and Alicante to update navigation and surveillance systems. It also collaborated in the deployment of three automatic dependent surveillance stations (ADS-B) Extended Squitter, as well as in the performance study.

Its work in CNS remote monitoring systems includes support for projects involving the deployment of the radio navigation integrated management system (SIRA).

In the field of satellite navigation, Ineco continued to collaborate in activities prior to the publication of RNP APCH approaches based on GNSS in several Spanish airports and in the elaboration of the Concept of Operations (CONOPS) of RNP approaches with different minimum LNAV, LNAV/VNAV and LPV (APV SBAS) in the airports of Valencia, Lanzarote and Madrid.

As part of the automation of the air traffic control system, Ineco actively participated in the replacement of the hardware platform for the servers of the Canary Islands COMETA B systems, both in the Area Control Centre (ACC) and in the ATS Simulation and
Contingencies (SIM/CATS) area. It also collaborated in the analysis, specification, testing and commissioning of the SACTA version 3.Z5.60 Linux Mixed.

Another important activity in 2017 was its collaboration with Enaire for the completion of the first version of the Air Navigation Master Plan, which determines the facilities necessary for the provision of different air navigation services and reserve spaces that ensure its development and growth in 15 years’ time.

At the international level, in particular in Europe, Ineco consolidated its active participation in the development and deployment of the infrastructure that the European Commission is carrying out for Global Navigation Satellite Systems (GNSS) and operation of the services of same, mainly in the state-of-the-art European system, Galileo. In 2017, Ineco continued to lead the activities of the European User Services Centre of the Galileo programme (European GNSS Service Centre - GSC) located in Madrid, a hub that assists users of Satellite Navigation Systems (GNSS) all over the world. Work on the EGUS (European GNSS User Support) project was also finalised in 2017, where for 4 years specialised support was provided to the European Agency - GSA.

Ineco also continued to provide support to the European Space Agency (ESA) for the development of the European satellite navigation system EGNOS focused primarily on project validation and verification.

Within the European SESAR 2020 programme, it contributed with 8 solutions for different projects, and it participated in forums and international groups such as Eurocontrol and Eurocae WG28 of GBAS; Eurocae WG-62 (Galileo) and JRC of the European Commission.

It also continued to be involved in the development of existing air navigation contracts in Singapore, Taiwan, Cape Verde and Mozambique. It also continued its advisory work for the transition in the Singapore-Changi Airport, consisting of the identification, selection and calculation of the KPIs involved in the operational analysis of the airport. Also worthy of mention are the design of operational procedures at five airports in Oman and the improvement of CNS systems at Fujairah airport in the United Arab Emirates.
RAILWAYS

Its activity in the railway business, Ineco’s major source of income, registered revenues of around 125 million euros in 2017, which was higher than in the previous year. Major projects such as high-speed lines in Saudi Arabia and the United Kingdom, as well as the modernization of the Danish network, among many others, add to the company’s important contribution to the development and improvement of the Spanish railway network.
Today, Spain is a world leader in the design, civil works, signalling, safe and efficient management of rail traffic, the supply of rolling stock, operation and maintenance. Ineco achieved this by specialising in the railway sector in its almost 50 years of history. An activity that continues to be the largest and which, in 2017, increased slightly compared to the previous year.

Last year marked 25 years since the inauguration of the first high-speed line in our country (one of the first in the world): Madrid-Seville, 471 km in less than 3 hours. Ineco, as reference engineering company in the development of the entire network since the very beginning, joined the celebration of this important milestone that placed Spain at the forefront of world railway technology.

In Spain, Ineco continues to provide services for both the high-speed network and the conventional network throughout the infrastructure life cycle: planning studies, projects, technical assistance for works, commissioning, support in maintenance and operation; also covering all techniques, including: infrastructure, track, energy, signalling and communications.

With regard to the drafting of projects for Adif, it is worth mentioning the work carried out for the implementation of the standard gauge in several sections of the Mediterranean Corridor, that performed for the Cantabrian-Mediterranean Corridor at the stations of Ourense, Sants (Barcelona) and Chamartín (Madrid), and for the new access channel for the integration of high speed in Valencia. Projects for Systems have also been drafted for the Madrid - Extremadura and Madrid - Galicia high-speed lines, as well as for the underground network between Madrid and Barcelona and for the analysis of tunnel operating conditions of more than 1,000 metres of track in the conventional network. Also worthy of mention is the drafting of the security installations project for Chamartín station in Madrid.

Preparation of the master plans for the different Commuter hubs is also part of the important projects developed for Adif, a major client with which Ineco also collaborates in construction management in both the high-speed and conventional networks. It also participates as technical assistant for the quantitative and qualitative control of same.

In this regard, in terms of systems, work continued on fixed telecommunication, protection and security and GSM-R system, with a view to the implementation and commissioning of ERTMS in train protection systems, centralised traffic control and auxiliary detection systems. Ineco was also responsible for track assembly and change of gauge in different sections of high-speed lines.

Of special relevance is the support provided for the implementation of the standard gauge in the current conventional network, more specifically in the Mediterranean Corridor and in the section Astigarraga - Irún to link San Sebastián with the French border in international gauge.

At the cutting edge of railway technology
In the field of maintenance, which is fundamental to guarantee the operation and safety of railroad traffic, the company continued providing technical assistance for all high-speed lines. This also includes high performance lines of the conventional network and the variable gauge changeover facilities in the 16 installations in service throughout the network allowing the compatibility of the two gauges in the network.

In terms of operation and commissioning, Ineco continued to collaborate in risk analysis and ISA (Independent Security Assessments), coordination of operational risk management and application of the common safety method in Adif’s activities.

Work was done for Renfe on the improvement of network stations, more specifically in the drafting of construction projects, project management and health and safety coordination, in the management and coordination of projects and in capacity building studies for travellers in the Madrid Commuter network. Work was also carried out on the implementation, development and maintenance of systems and rolling stock.

Collaboration with the Ministry of Public Works in the railway sector mainly includes the drafting of informative studies for new sections of the Spanish network, such as the Burgos-Vitoria and Seville-Huelva high-speed lines, the new Marbella and Estepona railway access, the new railway network in the Basque Country, the tunnelling of railway in Torrelavega, the high-speed rail access to Adolfo Suárez Madrid-Barajas airport and the new south railway access to the port of Barcelona. Also of interest are other studies and projects such as support for the development of convergence studies to ensure the interoperability of cross-border traffic on the Zaragoza-Canfranc-Pau line or the functional study of railway integration in Vitoria.

Ineco also provided support for the Spanish Railway Safety Agency (AESF) in various works related to the Agency’s competences in terms of railway safety and interoperability, as well as those related to the issuance of risk analysis reports, identification of essential requirements and normative development for tramway operation of certain sections of the General Interest Railway Network (RFIG).

Outside Spain, it is also important to mention Ineco’s involvement in the British high-speed project, HS2, since phase 1 of the contract that began in 2012 and that allowed the company to establish itself in the United Kingdom was completed in 2017. Subsequently, in the same year, Ineco, together with Aecom and Capita, was awarded the contract for the civil design and environmental services of lot 2 of phase 2b of the same line (linking London to Manchester and Leeds), which enables the company to continue work in the United Kingdom until 2022. Continuing with the work in Europe, the operational scenarios for the public company, Banedanmark (BDK), must be mentioned, as part of an ambitious renewal programme for railway signalling in Denmark. The project involves the drafting of operational test specifications for the commissioning of the ERTMS subsystem.
The high-speed line between Mecca and Medina in Saudi Arabia was another of the relevant projects in which Ineco continued to be involved in 2017. The company provided design, technical assistance and quality assurance, rail traffic control and project management, which achieved an overall progress of 83%.

In Turkey, Ineco participated in one of the most important railway projects in the country. It is the adaptation of the Ankara-Istanbul line, where it continued with consulting, supervision and control of the works of the İnönü-Köseköy section, the longest of the route under construction. Also relevant in the same region is the modernisation of the line between Samsun and Kalin in which Ineco is involved in supervising the signalling, communications and power supply, as well as the coordination of the electromechanical equipment team. In addition, the consortium of international companies, including Ineco, completed the project on advice on the Turkish rail market and its regulation in 2017.

In South America, activity was focused on monitoring services for the testing and commissioning of rolling stock. In this area, Ineco was responsible for work on line 2 and the extension of line 1 of the Panama metro, as well as the rehabilitation of trains for the subway of Santiago de Chile, supervision of the manufacture of trains for the first metro line in Quito and supervision of the acquisition of rolling stock for the Medellín metro, as well as for line 13 CPTM in São Paulo, Brazil. This same continent also includes projects for the Bi-Oceanic Railway (first railway project in Peru) and assistance for the Ministry of Transport of Uruguay in the preparation of the concession of the country’s Central Railway. In the city of Rosario, the company developed the LRT (Light Rail Train) project, which meant a return to the railway projects in Argentina where the company has been present almost from the very start.

In Mexico, work on the expansion of Mexico City’s metro line 12 is particularly relevant, consolidating Ineco’s experience in projects in this mode of transportation and placing it in a strong position in the numerous projects that will be developed in the coming years in the region.

In Africa, Ineco was responsible for the technical and financial feasibility study for the construction of the Cairo-Luxor high-speed line in Egypt, where over 1,000 kilometres of network was analysed.

Finally, Ineco maintained its presence in Asia due to the continuation of projects in India such as feasibility studies for the New Delhi-Calcutta and Mumbai-Calcutta high-speed lines, as well as the award of the first contract for the development of the suburban railway network in the Delhi metropolitan area.
Ineco managed to increase its revenue by over 50% in the Intermodal and Road activity: it went from obtaining 33.8 million euros in 2016 to surpassing 52 million in 2017. The work carried out last year in planning, urban transport, environment, ports, building, information technology and roads, both in Spain and abroad, meant not only substantial revenue but also the addition of relevant business strategies for the company.
Future mobility

The future of mobility in cities and between different territories involves the establishment of sustainable models that combine crucial and other aspects such as commitment to the environment, commitment to innovation, use of technology to improve the experience of users and, consequently, their quality of life, or the involvement of all agents of the ecosystem to take coherent and integrated action.

One of the strong points of Ineco is the wide range of jobs that it is able to perform due to its experience and knowledge in all modes of transport and to its multidisciplinary teams. The company focuses on intermodality as one of the pillars for the development of sustainable mobility, which involves planning, architecture, sustainability and environment projects, urban transport, ports and information technologies. The company has many years of experience in terms of roads, which leads to close collaboration with the Ministry of Public Works, and with the development of major projects outside Spain.

Ineco is also responsible for planning an annual work schedule in the intermodal area for the Transport and Logistics Observatory in Spain that is part of the Ministry of Public Works. This includes, among others, the preparation of the annual report and maintenance and improvement of the database. The experience acquired from this has allowed the company to consolidate its presence in Brazil, where it started technical cooperation with EPL for the implementation of an observatory of the same characteristics, but with the challenge of the continental dimensions of the country, which has almost double the surface area of the European Union and more than 200 million inhabitants. Another example of Ineco’s competitiveness in transport planning is the development of the Qatar Master Transport Plan, to be completed in 2050 and focused on the national level, encompassing all networks (roads, public transport, pedestrians, bicycles, freight transport in truck, parking and private vehicle).

In terms of ports and their connections with land transport networks in 2017, collaboration with Puertos del Estado continued with the process of renewal of the public concessions. Technical assistance provided to the Port Authority of Valencia was completed with the raising of the draft at the Levante pier. The Port Authority of Castellón began preparing the new South Railway access project.

The work related to information and communication technologies is becoming increasingly important in Ineco. In 2017, work continued on the technological modernisation of the Administration of Justice, and on support provided in shared communications services to Public Administration. It also collaborated with the
Spanish Patent and Trademark Office in the maintenance of computer applications and started collaboration with the Spanish General Directorate for Cadastre for the support and maintenance of the Electronic Headquarters of Cadastre and with the Sub-Directorate of Information Technologies and Electronic Administration of the Ministry of Public Works.

Ineco’s commitment to improving mobility, due to the development of more sustainable and secure transport systems, is reflected in its collaboration with the Ministry of Energy, Tourism and Digital Agenda for the coordination of smart city initiatives, their modernisation and national and international dissemination as well as support for the dissemination of the initiatives of the Spanish Smart City Network.

Mobility in cities also includes inspection of the new Paseo del Bajo in Buenos Aires, one of the major civil works in Argentina that will create green spaces and decongest the city’s traffic.

As part of its intermodal activity, Ineco also develops building projects; in 2017 work continued in the management and coordination of health and safety for the rehabilitation of the future headquarters of the Ministry of Foreign Affairs, European Union and Cooperation at Plaza del Marqués de Salamanca in Madrid.

Finally, in terms of work related to the environment, we should mention collaboration with the Ministry of Agriculture, Food and Environment in the protection of avifauna on high voltage power lines.

Outside Spain, in addition to the projects mentioned in Qatar and Brazil, Ineco also participated in the most ambitious Programme of the last 25 years in the development of infrastructures in Costa Rica (PIT, Transport Infrastructure Programme), which included road works (mentioned below), a breakwater and the remodelling of three cabotage terminals.

Ineco continued to provide support in terms of roads to the General Directorate of Roads of the Ministry of Public Works.

In 2017, projects were drafted for two major interventions in Cantabria, the extension of the A-67, between Sierra Espuña and Barrera, which aims at eliminating traffic jams in the area of Torrelavega, and the improvement of road access to the Port of Santander. Also in Cantabria, work began on drafting the following projects: extension of the A-67 between Polanco and Santander, expansion of the A-67 and S-10 in the Santander-Aeropuerto section, extension of the A-8 between Solares and the PL Vizcaya, the variant of Potes, the conditioning of the N-627 in the Port of Los Tornos and the Lanestosa bypass.

Ineco is collaborating in the drafting of preliminary projects and feasibility studies within the framework of the Extraordinary Road Investment Plan (PIC) launched by the Ministry of Public Works. This includes the feasibility studies of two interventions in the area of Murcia (expansion of the A-7 between Crevillente and Alhama de Murcia and north-south axis - alternative A-30 between Archena and Paloma knot) and the preparation of draft projects and feasibility studies for the adaptation of six sections of first-generation dual highways (A-1 highway between Madrid and El Molar, A-2 highway between Igualada and Martorell, A-3 highway between Madrid and PL (Province Limit) Cuenca, the A-4 highway in the sections between Ocaña and Puerto Lápide and between PL Jaén and PL Seville and the A-5 highway between Madrid and Maqueda). Another noteworthy intervention is the preparation of the four-lane draft projects included in the N-II corridor between Orriols and La Jonquera.

Work was also carried out on the remodelling of the A-55 in the section of Avenida de Madrid in Vigo and for the improvement of the capacity and environmental integration of the AC-11 in Avenida de Alfonso Molina in La Coruña. Work also began on the A-68 highway project in the stretch between Calahorra and PL Návarra.

Control and supervision, health and safety coordination and environmental monitoring have also been provided in more than 20 projects for the construction of new road sections and highway. Work continued on the preparation of 29 tunnel adaptation projects of the Spain’s road network under RD 635/2006 on minimum safety requirements (projects involving the operation of almost 100 tunnels), which is included in the tunnel adaptation plan implemented by the Ministry of Public Works.

In the foreign market, the company continued to develop projects already started in previous years. These include work on roads the administrative, legal and environmental management of the Transport Infrastructure Programme (PIT) of Costa Rica. The company participated in the design and construction of 100 km of roads and in the design of another 140 km of roads including access links to the second city of the country and the Pacific Coast Master Plan.

Mexico is one of the countries where Ineco develops major projects. Management and administration work carried out by the company since 2011 and continued in 2017 on the Guadalajara-Colima highway continue to be a reference model for Banobras, which is implementing the model of said highway in other new ones throughout the country. The work of an independent engineer in the mountain section of the aforementioned highway reflects the application of the specialist knowledge of Ineco in one of the most complex stretches of the Mexican territory.

Other important milestones include the supervision of the expansion of the Pifo-Papallacta road in Ecuador, as well as the coordination of the Rodoanel works in São Paulo, Brazil.
PROJECTS IN FOCUS

The positive results achieved in 2017 are undoubtedly due to the work carried out for our shareholders - Enaire, Adif Alta Velocidad, Adif and Renfe, as well as for our clients both inside and outside Spain. Projects such as the design of the new terminal at Schiphol Airport in Amsterdam, the preliminary design of civil engineering and environmental impact studies for HS2 Phase 2b (British High-Speed) or the Qatari Transport Master Plan, all awarded in the past year, are a good example of the Ineco’s consolidation in international markets.
Throughout 2017, Ineco continued its work for the authorities responsible for the management of the metro networks of three important Latin American cities: Medellín, Santiago de Chile and Quito. In all three cases, it acted as consultant for the renewal of the train fleet. The metro plays a key role in the development of these cities, as it acts as a vehicle for urban integration and allows trains to connect between different areas in a quick, efficient and environmentally-friendly manner.

Metro de Medellín
Since 2011, Ineco has collaborated with Metro de Medellín on renewing its fleet, supervising the design, manufacture, reception and commissioning of its new 24 CAF trains, including onboard signalling equipment (ATC). After 20 years in operation, Metro de Medellín modernised its public transport network that includes metro, metrocable, buses and trams. Through a single-ticket system, it has managed to unite the city’s districts and take people out of the ghettos. It has also helped reduce traffic congestion and noise and pollution levels.

Metro of Santiago de Chile
Ineco supplies consulting services for the renewal of the fleet of 49 trains, model NS-74, circulating on lines 2 and 5 of the Metro of Santiago de Chile. The trains, manufactured by Alstom, date back to the 1970s and the company wanted to modernise them to extend their useful life for a further twenty years, in addition to reducing their energy consumption and making them more comfortable for users.

Previously, the company had participated in the development phase of basic engineering that enabled the drafting of technical specifications for the bid.

Metro of Santiago de Chile is the second largest in Latin America, with six lines and 136 km of track.

Metro de Quito
Ineco supervised the manufacture of the 18 units of the first metro line in Quito. In addition to the 18 units, each composed of 6 cars, Ineco also supervises the manufacture of the 4 auxiliary vehicles, the acquisition of equipment and workshop tools and the spare parts lot.

The first Metro de Quito line will be approximately 22 km long, with 15 stations, and will help reduce the travel time of public transport users by around 90 minutes. This will be one of the highest metros in the world, at 2800 MSM and it will carry over 400 thousand people a day from the date it started operating.

› 24 units for Metro de Medellín
› 49 units for Santiago de Chile
› 18 units for Metro de Quito
Construction of Saudi Arabia’s first high-speed line continued throughout 2017. The overall progress of the project reached 83%. During the year, integration tests on the different systems were carried out, including dynamic tests at speeds up to 320 km/h. Ineco, as a member of the Hispano-Saudi consortium, continued to provide design, technical assistance and quality assurance services for works, rail traffic control and project management.

The Haramain High Speed Rail Project - Haramain project - is one of the major railway infrastructures in the world due to its technical complexity and because it is the first railway of its kind in the region. The Haramain project, launched in 2009, will link the two holy cities of Islam, Mecca and Medina, with a high speed line equipped with the most modern technology and rolling stock - trains - manufactured in Spain. The 450 km line will have 5 passenger stations, a railway branch to the new terminal of King Abdulaziz International Airport, 2 train maintenance workshops, 3 track work bases and systems and 2 traffic control centres.

In 2011, a consortium of twelve Spanish companies, amongst which was Ineco, Renfe and Adif, and two Saudi companies, was awarded the contract for the so-called Phase 2 of the Haramain project (Phase 1, previously awarded to another consortium, includes the construction of stations and track infrastructures).

Phase 2 of the Spanish-Saudi consortium is organised in two phases: construction, which includes the supply, installation and commissioning of the track and railway systems, i.e. overhead line, signalling, communications, etc. and the manufacture and commissioning of 35 trains; and commercial, which includes the operation and maintenance of the line for 12 years. The construction phase showed good progress during 2017, reaching an overall development of 83%.

Ineco continued to participate in the Haramain project throughout 2017. Its participation was fundamental as supervisor of design, quality assurance, technical assistance and rail traffic management during construction. To develop its activities in the Haramain project, Ineco mobilised a multidisciplinary team made up of engineers from more than 10 different countries, demonstrating its technical expertise, experience, adaptability and client orientation. It should be noted that Ineco will continue to provide its experience in the maintenance of the line during the twelve years in which the Hispano-Saudi consortium is entrusted with its commercial operation.

- Overall progress of the project: 83%
- Speed reached in tests: 320 km/h
- Commissioning of 35 trains
- Maintenance for 12 years
SUPPORT FOR ENAIRE: PLAN 2020, SACTA, ÍCARO AND COMETA

Ineco has been working for Enaire for over 30 years in the modernisation and improvement of air navigation in Spain. In 2017, Ineco collaborated in the drafting of the Strategic Plan 2017-2020 and continued with the operational implementation of new versions of ATM systems (SACTA and ICARO) and the ACC voice communication system (COMETA), for air traffic control.

The manager of air navigation services in Spain, Enaire, had a strategic plan for 2017-2020, which included an investment of 294 million Euros in this period. The traffic growth forecast for the following four years is 16%, which means 2.2 million flights in 2020. Increasing security levels and capacity of the system, improving the quality of services, contributing to environmental sustainability, ensuring economic and financial viability, and highlighting the work of its professionals are the objectives of the plan, also called Flight Plan 2020.

The support provided by Ineco included, in particular, the Commercial and Business Development Plan, where it participated in the definition of strategic lines, drafting of a catalogue of products and services in line with the Transport and Infrastructure Internationalisation Plan of the Ministry of Public Works. It also participated in several Programmes of the People Development Plan, as well as in the Programme for Improvement of Meteorological Information.

The SACTA and ICARO systems and the ACC voice communication system (COMETA) provide all aeronautical information necessary for air traffic control in Spain and are constantly updated. Ineco has been involved since 1990 in the development and implementation of new versions in Spanish airports and control centres. During 2017, the hardware platform was replaced for servers of COMETA B systems in the Canary Islands. Many activities relating to the ICARO system were carried out, including the geographic separation of main and continuous architectures. Moving forward in collaboration with other Enaire systems meant another important milestone in the year. In relation to the SACTA system, it is important to mention specification activities, verification tests and commissioning of version 3.25.60 Linux Mixta on the Spanish Mainland and in the Balearic Islands. It must also be pointed out that the Ineco team managed migration, supply and start-up of the new SACTA architecture without any impact being registered.

Over 30 years working with Enaire
Flight Plan 2020: investment of 294 M€
The Spanish-Dutch consortium KL AIR, formed by the architects Kaan and Lamela and the engineering companies ABT and Ineco, won the international tender in 2017 to design the new terminal at the Amsterdam-Schiphol airport, beating other firms of outstanding prestige in the final phase.

The future terminal, with a surface area of approximately 100,500 m², built with a capacity for up to 14 million passengers, will be located next to terminals 1, 2 and 3, to the south of the Schiphol Plaza. It is expected that the works will be finished in 2023. The spatial distribution of the new terminal, its design and the treatment of its façades seek integration with Schiphol Plaza, the railway station and other possible future expansions. This will be possible due to the clarity of the architecture and the wide scope of the proposal.

One of the fundamental aspects of the design of the new terminal is its urban integration with the rest of the airport, which will guarantee a perfect connection between the new and the existing. Inside the building, the overlapping of passenger flows at different levels will make it possible to distinguish perfectly the departure hall and the luggage collection area on the ground floor. On the other hand, the access roads to the terminal will be integrated urban elements that will contribute to keeping Schiphol a “compact city”.

The new large-scale terminal will offer travellers different scenarios in an environment full of natural light. The subtle design proposed will contribute to the use of the intuitive spaces without reducing its functionality.

The façades will be formed by large glass elements that will allow the views of the vibrant activity of the airport, as well as the open sky over the Dutch landscape. The sustainability of the design will be evident in the different materials used and the abundant vegetation on the large patios.
Ineco is supporting the Ministry of Public Works and Transportation of Costa Rica in the development of the PIT projects - the Transport Infrastructure Programme 2020. During 2017, the company continued to work for this nationwide plan, whose main objective is to contribute to the development of transportation, improve the mobility of people and goods, and facilitate Costa Rica’s regional trade and economic integration.

In 2016, the Ministry of Public Works and Transport of Costa Rica contracted a consortium led by Ineco along with another Spanish firm to manage its Transport Infrastructure Programme (PIT). This is a national plan to promote local transport, through the improvement of road and port infrastructures with a view to facilitating the flow of trade and regional economic integration in Costa Rica. The PIT is financed by the Inter-American Development Bank.

This programme, which is in line with the National Transport Plan 2011-2035 (PNT) - and also developed by Ineco - includes actions in seven road projects and three port projects, with rehabilitation, reconstruction, paving, road expansion, improvements in road safety, bridge expansion or the construction and improvement of ports.

The company will provide consulting services for the administrative, technical, legal and environmental management of the Programme, ending in 2020. Ineco has been present in Costa Rica since 2004, where it has developed works such as the National Transport Plan, the Integral Plan for the Modernisation of the Airport Network or the study for the implementation of a rail transport system in the metropolitan area of the capital, San José.

- 7 road projects
- 3 port projects
- PIT horizon: 2020
Ineco has collaborated with the company Arcadis in the definition of the scope of the project for the commissioning and Operational Readiness and Transfer (ORAT) of the new terminal at Newark Liberty International Airport in New Jersey, for the Port Authority of New York & New Jersey.

The New York and New Jersey Port Authority (PANYNJ) is developing a programme to build a new terminal to replace the current Terminal A, built in 1973. The new Terminal 1 will start operation in two phases: partial opening for 1 September 2021 and full opening before 1 September 2022.

Ineco has proposed an ORAT process (Operational Readiness and Transfer) tailored to the needs of the new Terminal 1 with 5 different stages, which would be executed in parallel with the activities included in the design and construction contracts, project management and operation, maintenance and commissioning.

The ORAT defined will act as a process to ensure that the new Terminal 1 is ready for opening. Its general objectives will be: confirm the processes and procedures that will be proposed and developed; confirm that all interested parties are operationally ready to provide a safe and high quality service to customers; ensure that the physical systems, tools and networks required to operate the terminal are stable and compatible; ensure that the training provided meets the requirements of the relevant operational unit and that there is a complete training plan; and ensure that the appropriate customer experience is provided.

In line with these objectives, this document includes a general description of the content of ORAT’s core activities (ORAT Plan), the timeframe for its development and the required duration (ORAT master program), as well as a proposal for the role of each stakeholder in the development of each task. An initial assessment of the resources needed to successfully develop the ORAT Plan is also included.

This work is included within the framework contract for Project Management of the expansion programme and is the first contract executed by Ineco in the USA.
In 2017, in an international competition, Ineco was awarded the contract for the development of the Master Plan of Dammam King Fahd International Airport in Saudi Arabia for DACO (Dammam Airports Company). Planned to be completed in 2047, this project aims to turn the airport into a regional hub and an important intermodal node for the movement of passengers and freight in the region.

This plan includes the study of the expansion of all airport facilities, both airside and landside, to adapt them to growing demand, as well as the study of the connection between the cargo area and the main freight railway line in the country. A new Airport City is also being developed in which the airport is considered an important node of activity in the economic development of the region.

Dammam airport, Saudi Arabia’s third largest in terms of numbers of passengers, increased its numbers by 10.7% to 9.8 million between 2009 and 2016. It is the main gateway to the entire eastern part of Saudi Arabia and its position allows it to serve large business and residential cities.

With this contract, Ineco enters the aeronautical market for the first time in Saudi Arabia and consolidates its position in the Middle East.
In mid-2017, Ineco, along with its other partners in the consortium it leads, submitted the final report of the feasibility study on the high-speed line between New Delhi and Calcutta to the authorities of the state-owned company High Speed Rail Corporation of India (HSRC), after two years of work.

The study includes: demand studies; preliminary analysis of alternative routes; calculation of travel times; selection of railway technology to be implemented (gauge, superstructure, electrification, security and communications facilities, etc.); necessary singular works; rehabilitation and resettlement of the populated areas concerned; environmental analysis; rolling stock and operation and maintenance.

It also conducted an economic-financial study to determine the viability of the new line, as well as the most appropriate financing method.

The project is part of the so-called Diamond Quadrilateral Programme, an ambitious high-speed rail development programme in India that the new government launched in the summer of 2015. It is a diamond formed by the cities of New Delhi, Calcutta, Bombay and Chennai, which are more than 1,000 kilometres apart.

- Population covered: 38 million inhabitants
- Length: 1,475 kilometres
- Commercial speed: 250 km/h
In 2017, Ineco continued to lead the activities of the European Centre of Services to users of the Galileo programme (GNSS Service Centre, GSC), located in Madrid. A nerve centre that serves users of Satellite Navigation Systems (GNSS) from all over the world. The 18 satellites initially deployed by the Galileo have been operational since December 2016 and will increase to form a constellation of 30 satellites in 2021.

In mid-2017, work was completed on the preparation of this GNSS User Services Centre, where Ineco has provided highly qualified engineering services for the development and operational validation of same by designing the procedures and processes for the operation, maintenance and definition of products and services, leading a consortium formed by Isdefe, ESSP and INTA.

Following completion of the preparatory work, Ineco became responsible for the operation and maintenance of the centre, integrated and coordinated with the two control centres of the Galileo System, located in Germany and Italy, within a global framework contract, awarded to Spaceopal (formed by the Italian company Telespazio and the German company DLR GfR) for an amount of over 1 billion euros and a period of 10 years.

Ineco’s participation in the Galileo project began in 2010 when it carried out a study to define the scope of the GSC Centre for the European Commission, funded by Aena under the supervision of the Ministry of Public Works. In addition, key Spanish space engineering companies participated: Indra, GMV, Deimos, Hispasat, INSA and INTA. However, since 1998, the company has been providing engineering services in the field of satellite navigation under various contracts signed with the European Commission, the European Space Agency (ESA) and the European Global Navigation Satellite Systems Agency (GSA).

- 43,000 km of roads in Europe with GNSS tolls
- Over 460 runways in Europe with GNSS procedures
- 36,000 new aircraft since 2014 with GNSS equipment
HIGH SPEED
CAIRO-LUXOR

Ineco carried out a feasibility study for the Egyptian government of what could be, from 2026, the first high-speed line in the country of the Nile. An study was carried out on over one thousand kilometres connecting the capital, Cairo, with Luxor, Aswan and Hurghada, to the shores of the Red Sea at a speed of more than 230 kilometres per hour.

Egypt is currently in the process of modernising and improving its railway. The implementation of the high-speed train will transform Egyptian rail transport. The Government is studying two large corridors connecting the capital, Cairo, with the north and north-east, including the Delta area, the city of Alexandria and the port hubs of Suez and Port Said, with the south; and to the south along the Luxor-Aswan axis and the Red Sea coast to the east. The study conducted by Ineco focuses on this second corridor, approximately 1,087 kilometres long, with six stations: Cairo-6 October, Minya, Asyut, Luxor, Aswan and Hurghada, and a maximum commercial speed of 240 km/h between Cairo and Luxor.

According to the demand study - which includes three possible scenarios, mainly linked to the evolution of international tourism - development of a corridor is proposed in different stages, over a period of 15 years. The first would include the stretch of 650 kilometres between the capital and Luxor, which would be operational in 2026; Luxor-Aswan, in 2031 and the branch to Hurghada, in 2036.

The feasibility study was developed in four large stages. The first one involves an analysis of the current situation and the main conditions for the design of the new infrastructure. The second one includes a study of alternatives to the 1:50,000 scale and was carried out along with a multicriteria analysis to evaluate the advantages and disadvantages of each one. Once the optimal alternative was identified, in the third phase a more detailed design was developed at a scale of 1:25,000, including future demand estimates and the corresponding operating plans, with the type of rolling stock recommended. Finally, the fourth phase of the study assesses the necessary investments and operating and maintenance costs of the system, as well as the income, as well as an analysis of the country’s macroeconomic and institutional framework and a proposal for a management model of the high-speed system.

- Total length: 1,087 kilometres
- 6 stations
- Maximum commercial speed: 240 km/h
- Commissioning of the first section: 2026
Ineco continues to work in the African archipelago so that the growing number of international visitors enjoy the best airport facilities that are vital in an island country. Until 2018, it will supervise the enlargement of the passenger terminals of the airports of Sal and Boa Vista.

In 2016, the airports in Cape Verde -four international airports and three for domestic flights- registered a total of 2,215,892 passengers, 11.5% more than in 2015. Particularly noteworthy is the growth of international passengers, 22%. Tourism is the key and the engine of the dynamism of the flights’ market in the country, which already contributes a third of its GDP. Cape Verde is an archipelago, a former Portuguese colony, located on the African Atlantic coast, around 500 kilometres from Senegal, and consists of ten islands, seven of which have an airfield. Its long beaches and natural riches attract more and more visitors every year, which has boosted international air transport.

Ineco has been working closely and uninterruptedly with the authorities of Cape Verde for 14 years to ensure that its airport network, managed by the public entity Aeroportos e Segurança Aérea (ASA), lives up to the growing demand for air transportation. Currently, and since July 2015, the company has been supervising the most recent expansion of the passenger terminals of the international airports of Boa Vista and Sal, both of which have the greater number of tourists.

The company has drafted the work projects, which focus on external renovation, enlargement of saturated areas and increased comfort and quality of passenger service. The construction is carried out by a Spanish company, Acciona, while Ineco, with a team of five people, supervises the works at both airports, each located on a different island, Sal and Boa Vista. The work is expected to be completed by early 2018.

Ineco has also developed two consultancy studies to analyse the feasibility of developing new airport infrastructures in the country. On the one hand, the “The Feasibility Study on the location of the aerodromes on the islands of Santo Antão and Brava”, and on the other, the “Technical feasibility study for night operations at the São Filipe Airport, on the island of Fogo”. Both projects are expected to be completed in mid-2018.

> 14 years of close collaboration
> Growth of international passengers: more than 20%
HS2 PHASE 2b: HIGH SPEED BETWEEN BIRMINGHAM AND SHEFFIELD

In 2017, the United Kingdom Government awarded Ineco, in consortium with US-based Aecom and the British company, Capita, the contract for the preliminary design of civil works and environmental impact studies for lot 2 of phase 2b of the HS2 high-speed line. More than one million people will be connected to the capital city of London in just one hour.

Ineco won a new contract for the high-speed line (HS2) that will link London to Manchester and Leeds. The company, together with US-based Aecom and the British company Capita, will be responsible for the preliminary design of civil works and environmental impact studies for lot 2, a section of Phase 2B of the project (Crewe-Manchester and Birmingham-Leeds). This work will be carried out in the southern section, around 90 kilometres long, from the Leeds’ access point, and extend from the Phase-1 connection, which ends in Birmingham, all the way to the south of Sheffield. The aim of this contract is to submit the project to Parliament for consideration through the so-called Hybrid Bill, which is subject to the scrutiny of a Select Committee that also manages public consultations and requests for change. A study will also be carried out on the origin of the project from the point of view of public interest and the adequacy of its effect on properties, due to which the environmental design and evaluation process is highly detailed and documented.

This phase is preceded by a preliminary study of the route already subject to public consultation by the Department for Transport, under the British Government, and initially approved in November 2016.

The new route will link Birmingham with Manchester and Leeds via two Y-shaped branches: one heads North West towards Manchester with two planned stations at Manchester Airport and Manchester Picadilly, and the other branch heads North East towards Leeds via the East Midlands and Sheffield Meadowhall stations. Phase 2 of HS2 will start its rail operations by 2033, although the Government plans to advance the West Midlands-Crewe section (phase 2A) by a few years to 2027.

Ineco has been operating in the United Kingdom since 2012, in the first phase of the HS2 line between London and Birmingham, participating in the preliminary design and Hybrid Bill of the northern section together with Capita. The first phase, of 225 kilometres, is expected to start operating in 2026. Although Ineco’s participation in the first phase was due to its specialisation in high speed, this second contract is awarded in the context of a mature UK market in which Ineco is already looked upon as a reliable agent and where it participates in the design of civil railway works and the Environmental Impact Assessment.

South section: 90 km
 Participation by Ineco in phases 1 and 2b
 Phase 2 will start operating in 2033
Ineco and the Cedex research centre have collaborated with the Banedanmark railway infrastructure manager since the beginning of 2017 on the F-Bane project to renew the signalling on the Danish railway network. By 2023, Denmark will become the first European country to have a full, and completely renovated, railway signalling network.

The system to be installed is the ERTMS, level 2, version 3.4.0 of Baseline 3, the new version of the European rail traffic management system promoted by the European Commission, which is being implemented in the nine main corridors of the Union. Its objective is to establish a common language throughout the European railway network, a project that brings great improvements in railway operation, allowing the internal and cross-border traffic of all trains with greater capacity, more safety and lower costs.

During 2017, Ineco compiled the generic test specifications for both the Alstom-awarded and Thales-awarded East and West infrastructures. Based on these tests, Ineco has designed the operational scenarios for the two early deployment lines and has run the campaigns in the JTL (Joint Test laboratory) that Banedanmark launched as part of its renewal program. It has also analysed the results of those two campaigns and drafted the relevant test reports.

Finally, Ineco has produced the first draft of the infrastructure validation strategies for the following lines to be commissioned. This is the definition of the subset of test cases to be performed, depending on whether it is a new type of train to be put into operation on an already operational track or not, or if, on the contrary, it is the same type of train that will run on a new track but one that is designed with the same principles as an infrastructure that is already in operation.
MODERNISATION OF THE SAMSUN-KALIN LINE

In 2017 Ineco, in a consortium with two other partners, continued to supervise the rehabilitation works on over 375 km of railway line that connects the centre of Turkey with the Black Sea. Built in the first half of the 20th century, it will be completely renovated and equipped with modern signalling systems.

In 2015, Ineco, in a consortium with two other partners, won the contract to supervise and direct the modernisation of the 377.8 km railway linking the cities of Samsun on the Black Sea coast and Kalin in the centre of the country, where it links with the Ankara - Sivas line. The project, carried out by the Turkish Ministry of Transport, aims to improve the connection between the interior of the country and the Black and Mediterranean seas. Its construction was completed in 1932 and it is a conventional, single-track line, without electrification or signalling, international gauge, that runs through a mountainous zone. It has 47 tunnels totalling 7,259 metres, the longest being 556 metres, and 29 stations.

Within the consortium, Ineco supervises the signalling, communications and power supply works, and coordinates the electromechanical installation team. The ERTMS/ETCS-N1 signalling system will be implemented throughout the line for a design speed of 120 km/h. The new system will be able to perform train traffic operations at 5-minute intervals.

In the track infrastructure, the layout and drainage will be improved and the land stabilised; the platform will be expanded, the bridges and viaducts will be rehabilitated, as well as the retention walls and structures. The superstructure, ballast, track, sleepers and crossings will be renewed and the detours replaced. In the stations, 40,800 meters of track will be rehabilitated and a further 800 will be built, as well as new platforms at Turhal, Zile and Kizoglu stations.

In 2017, progress was made in the works being carried out to renew the platform and the track in approximately 80% of the line. With respect to signalling and communications works, the preliminary designs of the systems were approved and the detailed designs started. Factory tests have also been carried out on the equipment and materials of the various suppliers, in Spain, Germany, Poland and Turkey. After all this, the installation of equipment along the line began.

- Length: 377.8 kilometres
- Design speed: 120 Km/h
- 29 stations
- 47 tunnels
- 123 level crossings
- ERTMS N1
MODERNISATION OF CHICLAYO AIRPORT

Ineco and its partner, CESEL, have been working on preliminary studies to modernise Chiclayo airport, the fourth city in Peru, since the end of 2014. These studies will allow us to define and plan improvement and expansion works aimed at converting Chiclayo into the air hub of northern Peru and boosting commerce and tourism, linked to the enormous archaeological wealth of the area.

At the end of 2015, Ineco concluded the phase one studies of profiles, which focus on the identification of investment alternatives and the preliminary assessment of the technical, economic, social and environmental aspects of the modernisation project. During this stage, both the overall conceptual design of the project and the specific conceptual design of the terminal building and other buildings were developed. The aim of these studies is to outline the key aspects of the project - what is needed and how it will be financed - for approval by both the concessionaire AdP (Peruvian Airports) and the Peruvian Ministry of Transport, Communications and Civil Aviation.

Phase two of the studies, in which work continued throughout 2017, focuses on feasibility, which provides further details of the fundamental technical aspects of phase one, such as the location and size of the new infrastructure, technology to be implemented, work schedule and financial management. Therefore, as regards the air side, the geometric design of the track will be carried out, as well as the design of the pavement, horizontal and vertical signalling and lighting aids, drainage works and air navigation systems and equipment.

The engineering of the land side is centred on the design of the new 41,000 m² terminal building, which uses BIM technology (Building Information Modelling) that Ineco promotes internally, by implementing it in its projects, and externally, by providing support to the Spanish Ministry of Public Works for its implementation in Spain.

- Chiclayo: fourth largest city in Peru
- New 41,000 m² terminal building
- Integration of modernity and culture
Ineco continued to work through 2017 on the expansion of the Abu Dhabi International Airport, which will allow airport traffic to grow from the current 24 million passengers to a total of 70 million. The company has been providing operational readiness and transfer services (ORAT) since 2014.

The airport management company, Abu Dhabi Airports (ADAC), has been promoting the construction of a new terminal, MTC (Midfield Terminal Complex) since 2012. When completed, in 2019, the new terminal will have the capacity for over 40 million passengers. It will occupy 700,000 m², have 65 aircraft stands, 3,000 new parking spaces and a baggage handling system that will process 19,000 suitcases per hour.

In 2014 Ineco, together with Aena, won the international tender to take charge of the Operational Readiness and Airport Transfer (ORAT) services of this enormous infrastructure, thanks to the experience of over a decade in another 20 Spanish airports. The ORAT services comprise the elaboration of the schedule and the Concept of Operations at the new airport terminal, as well as the coordination of the training, familiarisation, tests and transfer of personnel and equipment from the current to the future Terminal area.

During 2017, Ineco saw its team grow in Abu Dhabi to meet the objectives and be ready for the start of the Midfield Terminal Complex in the last quarter of 2019. The decision taken in September 2017 to move the entire operation from the airport to the new terminal building is a challenge as the building was designed for the operation of Etihad Airways and its associated companies only.

Passenger traffic stagnated in 2017 at 24 million passengers, but the opening of the new terminal building and the improvement of the region’s economy will bring important medium-term traffic increases once again.

> **Terminal area:** 700,000 m²
> **Capacity for 70 million passengers**
> **65 aircraft stands**

Photo courtesy of Kohn Pederson Fox (KPF)
Renfe and Adif, with the support of Ineco, have been working for years to ensure the accessibility of the stations. This involved an Accessibility Improvement Plan that has been in place since 2015 at Commuter stations. In 2017, the company continued to provide construction management and project drafting services for these interventions, which have been distributed in stations throughout Spain.

Improve mobility for people who have more problems is a reflection of developed societies with an increased sense of social justice. For a very long time, Spain has looked upon equal access to public transport as a recognised right for which companies like Renfe and Adif have been working on for years.

Ineco, as an engineering and public consultancy company, has extensive experience in the remodelling and modernisation of railway stations and airport terminals, in which accessibility is one of the priorities. Both engineering and architectural teams, in the design and construction management phase, have been preparing and adapting over 150 Commuter stations to cater for commuters with mobility problems from the start of the century.

In order to ensure the improvement of accessibility to stations, Ineco has drawn up implementation projects for each station by identifying shortcomings and requirements, according to more sustainable treatment, and is carrying out works subject to railway operation, so as not to impair passenger traffic.

The main type of activities consist of the installation of communication lifts with underpasses or walkways on tracks that link the platforms with each other or with the other areas of the station; adaptation of the stairs to the width and number of sections established in the regulation; improvements in lighting, including pavement routing; changing of pavements to comply with slipperiness; raising of platforms or adaptation of the height of the edge of the platform; and inclusion of signal bands and platform edge pieces, in accordance with the Royal Decree, changes to shelters, moving staircases, etc.

During 2017, within the Framework Agreement with Renfe, Ineco participated in 29 projects (13 in the Commuter network of Barcelona, 5 in the Madrid network, 3 Bilbao, 2 San Sebastián, 2 Málaga, 2 Valencia, 1 Seville and 1 Alicante / Murcia) and 32 project managements (13 in the Barcelona Commuter network, 6 in Madrid, 4 Bilbao, 4 Valencia, 3 Seville, 1 Málaga and 1 Cantabria).
Since it started operating in 2008, Ineco has collaborated with the Spanish Aviation Safety and Security Agency (AESA), providing support in the development and implementation of the competencies assigned to this Agency, contributing with its long experience in the design, planning and operation of airports.

In this cooperation framework, during 2017, Ineco supported AESA in the certification of airports, collaborating in the production of reference material and carrying out the planning and control of these processes, as well as actively participating in private airport certification. This has been possible due to the fact that Ineco has aerodrome inspectors authorised by AESA.

As a result of this work, AESA overcame “the challenge”, within the deadline set by the European Agency, to certify all national airports under the EASA regulation before the end of 2017, thus making Spain one of the countries with all airports certified under European regulations.

In 2017, in particular, Ineco provided specialised aeronautical consultancy services, which are specifically reflected in the following works: Support in the design of certification and conversion processes under European regulations; Support in the planning and monitoring of the certification processes, to guarantee fulfilment of the objectives and established deadlines; Participation, as inspectors, in the certificate conversion processes of the airports of Castellón and Lleida; Other consultancy work within the framework of the work carried out by AESA as guarantor of airport security.

All Spanish airports are certified under European regulations.
ROAD PROJECTS IN CANTABRIA

Throughout 2017, Ineco continued its collaboration with the General Directorate of Roads in the improvement of the Spain’s road network in the province of Cantabria by drafting seven route and construction design projects and a preliminary project.

In the corridor of the A-67, Cantabria-Meseta highway, Ineco has drafted the project for the branch of the Sierrapando-Barreda road, in order to separate the joint section of the A-8 and A-67, and has drafted the project for the remodelling of the Sierrapando, Barreda and Torrelavega junctions. It has also been in charge of drafting the project for the expansion of capacity in the Polanco - Santander section, through the implementation of a third lane and improvement of its layout.

It is also important to mention its participation in improving the capacity of the A-67 and S-10 highways in the Santander-Aeropuerto section, as well as in the design of direct access to the Port of Santander from the same highway (A-67).

In the Cantabrian corridor of the A-8 highway, Ineco drafted the preliminary project for expanding the capacity of the Solares - Vizcaya boundary to improve service levels and road safety in certain stretches.

The drafting of the Potes bypass project in the corridor of the N-621 road is another important feature of its work, as it also includes the design of a 560-metre tunnel. It is also important to mention the upgrades of the N-629 road conditioning projects in the Port of Los Tornos and in the Lanestosa bypass, which are currently being worked on.

- 7 route and construction design projects
- 82.25 km of highways in Cantabria
- 21.18 km of roads in Cantabria
Ineco has been collaborating with the General Secretariat of the Spanish Justice Administration in its structural reform process since 2016, which involves the implementation of new information technologies to achieve greater efficiency through specific programmes. The work carried out has allowed to define, develop and, in some cases, implement the technological tools necessary to further the modernisation process.

The general secretariat of New Technologies for Justice (SGNTJ) is in charge of the work, and is divided into two sections: support for electronic judicial administration and other actions, and management of a development factory. The main activities of the project include global coordination of work, development of a project office and technical offices, digitization and cataloguing of records, IT governance consultancy, systems engineering for the establishment of a development factory, business architecture consulting for IT governance and use of databases containing administrative records to support judicial activity.

During 2017, work started in 2016 continued, including maintenance of new corporate platforms, as well as the development of new systems and business applications through the Ineco on-site Development Centre. In turn, other more technological lines have been promoted in the field of software architecture, source code security and Big Data, and a technological observatory has been implemented.
The installation of the standard gauge in the Mediterranean Corridor continued in 2017. In addition to continuing to draft different projects for the construction of track, energy and railway safety installations, Ineco has also continued to participate in the provision of construction management and technical assistance services in different sections of the coastal railway line. It is also part of the consortium responsible for the study that defines, prioritises and estimates priority actions, among which to promote the transport of freight by rail rather than by road.

Functionally, one of the most important challenges of this 3,000 km corridor is to efficiently connect the main seaports of the Spanish Mediterranean coast with Europe. Therefore, the most relevant actions aim to link the Spanish ports with a standard gauge track, to adapt the railway network so that trains of up to 750 m can circulate and to eliminate existing bottlenecks. Many of these interventions are underway and/or in the project drafting stage in which Ineco also plays an active role.

On the other hand, a multimodal European axis of southwest-east transport is planned that will favour and enhance economic relations between EU member states, where some of the most important urban centres are located: from Madrid to Budapest. To achieve this, the most important projects focus on the elimination of discontinuities at border crossings between countries, especially between Spain and France (Figuera-Perpignan), France and Italy (Lyon-Turin) and Slovenia (Trieste-Divaca). Base tunnels are one of Europe’s strongest bets for a competitive advantage of the railway over the road.

The consortium responsible for carrying out the study of the Mediterranean Corridor consists of PwC, Ineco, SETEC and Panteia. PwC leads the consortium and is responsible for updating the list of projects on behalf of Italy, Slovenia and Croatia. SETEC and Panteia are responsible for the French and Hungarian part, respectively. Ineco is responsible for updating the Spanish project list with PwC España. The company leads the innovation-related part of task 3b of the study, which analyses the expansion of the list of Mediterranean Corridor projects taking into account more transversal aspects.

It is estimated that, with the complete implementation of the corridor in 2030, 40 million tons of goods could be transferred from the road to the railway.

During 2017, the company continued its management and technical assistance work on the railway line between Valencia and Castellón, where the so-called “three-rail track” is being installed, a multi-track gauge that allows trains to circulate both in Iberian and standard or “international” gauge.

The main actions consist of the connection in standard gauge with the high-speed Madrid-Valencia line near Joaquín Sorolla station, the installation of a track of mixed gauge on the present one, the adaptation of the overhead line and security and communications installations, and the implementation and commissioning of the ERTMS Tier 1 train protection system. All these works have been carried out without affecting the freight and passenger traffic.

Ineco also provides technical assistance for the implementation of standard gauge track in Catalonia, specifically between San Vicente and Castellbisball, with techniques for infrastructures, track, energy and security and communications facilities.
Ineco has collaborated, since the very beginning, in the implementation of the Spanish high-speed network, actively participating in its planning, design and technological development. Over 25 years carrying out design, construction, signalling, communication, maintenance and traffic management projects. In 2017, it is important to mention the maintenance of all line facilities, as well as the preparatory work carried out to implement the high speed in the Basque Country, Galicia and Cantabria.

Since 1992, Ineco has been monitoring and controlling the infrastructure, superstructure and installations of high-speed lines, actively intervening in preventive and corrective maintenance. To this end, the company has 5 technicians in each of the 15 maintenance bases distributed across Spain.

The Basque Country, Galicia and Cantabria advance in the arrival of high-speed lines to their regions. Ineco has participated in different phases of the projects in all three cases.

The new Basque rail network is part of the Large Madrid-Valladolid-Burgos-Vitoria-San Sebastián High-Speed Project, which is divided into three branches (Vitoria-Bilbao, Mondragón-Elorrio-Bergara and Bergara-San Sebastián) and is 155 km long. Ineco participated by providing construction management, a coordination and monitoring office, technical assistance, informative studies on access to cities and various projects on platform and track assembly.

The Madrid-Galicia high-speed line has several sections in service or in execution. Work on access from the Plateau is progressing, including the final section of Taboadela to Ourense, which involves complex development and management taking into account deadlines and costs. The line from Olmedo is 306 km long. It is important to mention the participation of Ineco in the drafting of construction projects for platforms, the stations of Ourense and Santiago de Compostela, the Taboadela gauge changeover, and assembly of track and overhead line. It has also carried out construction management, environmental management and monitoring and coordination of contracts.

The Palencia-Santander high-speed line is part of the current Infrastructure, Transport and Housing Plan (PITVI). In 2017, the informational studies of the sections Palencia-Alar del Rey/Aguilar de Campoo and Aguilar de Campoo-Reinosas were developed. Ineco participates in this line through two informative studies as well as the construction projects necessary for the duplication of Commuter Line C1 between Torrelavega and Santander.

5 Ineco technicians in each of the 15 work bases
Over 25 years participating in all phases of the projects
In October 2017, Ineco began to develop the “Observatório Nacional de Transporte e Logística” (ONTL) in Brazil, which the ‘Empresa de Planjamento e Logística’ (EPL) of the Federal Government of Brazil started with the objective of obtaining rigorous, up-to-date and complete information to facilitate analysis and decision-making in matters of transport and logistics.

The National Transport and Logistics Observatory will also serve as an instrument to monitor Brazil’s National Logistics Plan, which defines the actions necessary to address the problems of inadequacy and bottlenecks in its infrastructure network and the high logistical costs that undermine the country’s competitiveness.

The major challenge is posed by Brazil’s continental dimensions. With almost double the surface area of the European Union and more than 200 million inhabitants, it produces 2.4 trillion tons-kilometre, which is similar to the EU as a whole. In spite of having a wide network with 1.5 million km of roads, 29,000 km of railways, 28,400 km of waterways and cabotage routes, 32 public ports and 128 private ports and 255 airports and aerodromes, there is still a need for high investment in transport infrastructures and in the management thereof.

The works carried out by Ineco are divided into 4 large blocks: design of the Information System; definition and implementation of the database and the information portal; implementation of a panel of indicators; and finally, transfer of knowledge to EPL technicians and managers.

- Over 50 sources of information revised and analysed
- 21 partnerships and collaborations with information producers
- 22 working and technological exchange sessions in seminars
- Over 250 data panels produced
Ineco began work on the new Paseo del Bajo in Buenos Aires in 2017, one of the most important civil works in Argentina that will connect the Buenos Aires-La Plata and Illia highways and create green spaces in the lower Buenos Aires area, giving continuity to the Historic Axis of the City. Its objective is to decongest the traffic of the city and improve north-south connectivity through twelve new lanes over six kilometres long.

Also known as “the riverside highway,” the initiative involves the creation of a road system that will include a highway and fast lanes, with green spaces, pedestrian crossings and more. Ineco, in collaboration with its local partner, specifically carries out the inspection of section B “South semi-covered trench”, a semi-underground track of four lanes intended for heavy vehicle traffic. This new route will allow freight traffic to cross the centre of Buenos Aires without traffic lights, and enter directly into the port and Retiro bus terminal, substantially improving travel time.

During 2017, the Master Plan was drafted, the affected services were located, the road and rail traffic in the work environment was adapted and heavy work was begun with the construction of the screen and pile walls for the trench.

- Over 6 km long in all
- Over 25,000 vehicles per day
- Quicker, safer and more sustainable
In 2017, Ineco continued to work on different projects for MBJ Airports, operator of Sir Donald Sangster International Airport in Montego Bay, Jamaica, since obtaining the 30-year concession in 2003. It is the main airport in the country in passenger volume: over 4.2 million passengers, an increase of 8.41% compared to 2016.

During 2017, two major projects were developed. The first involved supervision of the overlaying of the taxiways and part of the airport platform. Ineco previously drafted the construction project for this overlaying, and in 2017, already collaborated with MBJ in the bidding process and selection of the contractor to carry out the work. The overlaying is expected to be completed at the end of 2018. This affects the airport’s entire taxiway system and, throughout this period, operation of the airport’s manoeuvring area must be maintained while the work is being carried out.

The second project concerns the renewal of the airport’s check-in area. The Master Plan of the airport for the next 15 years, prepared by Ineco, foresees major short-term works to be developed in order to be able to meet the expected demand with the adequate level of quality. Among these actions are several renovations and enlargements of the terminal building, including the check-in area. Ineco developed a project to redesign and modernise this area of the terminal, which is about 5,000 m², proposing a renewed image inspired by the natural environment of Jamaica.

Ineco has been working for MBJ for about 10 years. In this time, it has carried out several consulting and planning activities (Master Plan 2009, Master Plan 2016), construction projects (track overlaying, taxiway overlaying, Fire Rescue and Fire Fighting Services building) and supervision of construction.
NEW INTERNATIONAL AIRPORT IN MEXICO

Ineco is part of the international consortium that supervises construction work in the terminal building, intermodal transport centre and control tower of the New Mexico City International Airport (NAICM), which will be able to serve 125 million passengers, more than triple its current traffic. This is one of the major airport projects in the world.

The international consortium is comprised of Ineco, another Spanish firm, a North American one and a Mexican one. Located on the bed of the former Lake Texcoco, the new NAICM airport will have up to six tracks for triple simultaneous operation at the most with a capacity of 170 operations/hour. The new facilities will have a multi-level terminal building of approximately 743,000 m² which, in the future, will be extended with another new terminal.

The contract, awarded in September 2016, includes technical and administrative supervision of construction for the terminal building, the control tower of the new airport, 90 metres high, an intermodal land transport centre with an approximate surface area of 130,000 m² and the main land access, about 6 km long. The architectural design of the terminal building and control tower will be carried out by the architects, Fernando Romero and Foster + Partners, and is inspired by Mexican national tradition and symbols like the eagle and the snake.

During 2017, progress was made in the stabilisation of the land, as well as the construction of the terminal building, the ground transportation centre and the control tower.

The Mexican government will invest 8.5 billion euros in the first stage of the project. The new airport will be located a short distance from the current one and will occupy an area of 5,000 hectares, to the east of Mexico City. In the first stage, it will be able to receive up to 68 million passengers every year and in its maximum development, it will reach 125 million passengers, more than triple the current airport. It will have 95 contact positions for access to aircraft from the terminal building and 68 remote boarding gates. It will be accessed through a completely new network of highways and it will have a new intermodal land transport centre.

- Maximum capacity: 125 million passengers per year
- Total area: 5,000 hectares
- Main terminal: 743,000 m²
MASTER PLAN FOR QATAR TRANSPORT

Ineco participates in the update of the Transport Master Plan 2006-2026 of Qatar’s Ministry of Transport and Communications. The aim is to improve the country’s connections, one of the smallest in the world with a population density of 201 inhabitants per km². The demand for transport in Qatar has experienced a steady increase in recent years as a result of its economic development and population growth, which now exceeds 2.3 million - 80% concentrated in the capital, Doha, and its surrounding areas.

The work consists of the design of a comprehensive transport plan, with forecasts of different medium and long-term traffic scenarios, proposing actions both for the execution and improvement of infrastructures and transport policies, including guides and recommendations for the displacement of pedestrians and the use of car parks.

The Plan covers the entire country and also provides access to international transport nodes: ports and airports, as well as links at the land border. It encompasses the road network, the public transport network (taxis, VTC, buses, BRT, metro, LRT, water-taxi, water-bus, etc.), pedestrian network, bicycle network, freight transport network (Truck Routes) and parking network, as well as private vehicle transport.

Technology is one of the pillars of the Plan. Evidence of this is that, in addition to including aspects associated with public transport services such as tariffs, capacities, frequencies, etc., the MaaS (Mobility as a Service) concept is also incorporated, whose main idea is that all transport services in a city are connected through a single service on mobile devices, for a single monthly fee. Therefore, the implementation of Intelligent Transport Systems (ITS), as well as a GIS (Geographic Information System) portal for traffic data, is contemplated. It is also important to mention that Qatar would be one of the first countries to implement a new activity-based cost management system (ABM) - in the national transport system.