

COMETA: INDRA AND ENAIRE LEAD THE DIGITALISATION OF VOICE COMMUNICATIONS IN THE EUROPEAN SKY

The two companies have taken a decisive step towards digitalising the voice communications of Europe's fourth largest airspace in terms of the number of operations, establishing a milestone in the technological transformation of these infrastructures on the continent.

Last November, ENAIRE and Indra completed the commissioning of the first phase of deployment of the new VoIP digital voice communications system (COMETA) at the Approach Terminal Management Area (TMA) of the Madrid Air Traffic Control Centre.

This is the fourth centre to incorporate Indra's cutting-edge system in Spain, after it was put into operation at the Canary Islands centre in 2014 and at the approach centres in Valencia and Zaragoza in 2018 and 2022, respectively. The company is now preparing to migrate the systems of the centres in Barcelona, Seville, Málaga and Palma.

According to José Luis Rodríguez Castro, ENAIRE's Systems Director: "The project is committed to the future and capitalising on the major benefits brought by voice IP", while Francisco Martínez Rico, the head of the Automation division of the Spanish navigation service provider, highlights ENAIRE's interest in "integrating communications into the air traffic control system".





As for Indra's director for ENAIRE's ATM Programmes, Francisco Sánchez Romero: "The digitalisation of the communications significantly enhances the audio quality of the radio and telephony communications and reinforces the resilience of the entire air navigation network".

Given the critical nature of this project, one of the established requirements was to secure a system that would ensure the constant availability of the service, for which purpose a redundant architecture was implemented, supported by elements allowing the controllers and technical personnel to select one of the two IP systems available, depending on their needs.

The migration had to be also smooth and allow each of the eight major control centres in Spain to be progressively modernised without invalidating the systems already in service. To do so, firstly, the data network was evolved and a series of perimeter gateways were then defined to allow the analogue protocols with which the legacy systems continued operating to be transformed into the new voice IP protocol.

Furthermore, the significant integration of the new voice communication system into the automation systems required having an experienced company capable of product development and the deployment of ATM systems. According to the Head of ENAIRE's Automation division, one of the key factors in the success of this initiative has been "having a technological partner such as Indra, which has supported us throughout the process".

A PIONEERING SYSTEM

The COMETA system is one of the most advanced IP communication systems in existence and it adds functions, which were unimaginable until very recently, facilitating the integration of digital systems with legacy solutions.

The system can move the service to any location in the event of a contingency, thus ensuring the continuity of the operations and preventing safety from being affected.

This improvement also constitutes a major benefit when it comes to training new controllers, as it allows them to perform joint simulation exercises without the need to be in the same place or city, thus reducing time and costs.

In operational terms, the system incorporates safety measures such as the option of replaying the recording of the last communication with the pilot, a tool known as "Say Again". It also facilitates parallel runway approaches by enabling the area centre controller (ACC) to "step on the frequency" of the tower controller if necessary in order to warn the aircraft of any risk, thereby increasing the airport's safety and capacity.

The maintenance of the infrastructure is greatly simplified, saving on significant costs, not only in terms of technical work hours, but also the maintenance of the operator lines.

Finally, it is a system that can be scaled up rapidly and easily, which will enable the navigation service provider to absorb the increases in traffic set to occur in the coming years.

In the opinion of Indra's director for ENAIRE's ATM Programmes, Francisco Sánchez Romero, "the switch to voice IP systems will constitute a decisive step in the construction of a true European Digital Sky and lead to much more efficient and safe airspace management, helping to reduce delays and eliminate any unnecessary CO₂ emissions".

Indra is a pioneering company that has developed the ATM industry's first fully digitalised (native IP) voice solutions. These are among the most mature and reliable ones in the market and they have been used by several navigation service providers for a number of years with excellent results.

COMETA is a project that forms part of the Technological Modernisation Plan of ENAIRE's 2025 Flight Plan, in which Indra is playing a decisive role by facilitating, for example, the digitalisation of the control centres and towers of the country's main airports, which already operate with the SACTA-iTEC automated management system. The company is also working on the implementation of the new iFOCUS controller position, a system that puts the most sophisticated digital tools in the hands of controllers to give them a much clearer view of the situation for a more accurate and seamless control of each operation.