

indra

THE UNSTOPPABLE DIGITALIZATION OF AIR TRAFFIC

The digitalization of air traffic is radically transforming global aviation management through technological innovation. International bodies such as the International Civil Aviation Organization (ICAO), the Federal Aviation Administration (FAA) and the SESAR programme estimate that around 70% of air traffic operations could be automated within the next 10 to 15 years. Indra is playing and will play a key role in this transformation. The company is leading the way in the sector's digitalization and air traffic automation. Its innovative solutions guarantee safety and service continuity while achieving a previously unseen level of flight management accuracy, thus increasing capacity and punctuality, reducing emissions and giving all of the players in the industry the flexibility required to adapt to demand and react to any unforeseen event.

TRENDS SHAPING THE FUTURE OF THE SECTOR

The main trends set to modify how we fly and manage the airspace in the coming years include artificial intelligence, virtualization, new as-a-service business models and the management of new users (eg drones, supersonic/hypersonic flights, suborbital vehicles, etc).

By means of the foregoing, flight management will be digitalized from the boarding gate until it

reaches the departure gate at its destination, and Indra can play a vital role in the above, given that it is one of the few companies in the world with a portfolio of next-generation solutions capable of participating in the entire process.

One of the flagship programs in this field is iTEC; the iTEC Alliance formed by the air navigation service providers of Germany (DFS), Spain (ENAIRES), the United Kingdom (NATS), Poland (PANSO), the Netherlands (LVNL), Lithuania (Oro Navigacija), Norway (Avinor) and NAVCANADA (Canada) that are seeking to modernize their air traffic control centers.

Indra is the iTEC Alliance technology partner, having developed one of the most

advanced 4D trajectory air traffic management systems in the world. This is a technology that has opened the doors to Free Route, a way of flying that enables airlines to choose the most convenient route to save on time and fuel.

Over the past two years, to take this process a step further, the Alliance has been working on the iTEC SkyNex air traffic control system. This platform can further optimize flight trajectories in real time through the use of advanced algorithms.

Thanks to the development of this system, airlines will be able to adjust their flight routes to make them more efficient by adapting to any changes in air traffic and weather conditions.

In this regard, in September 2024 the iTEC alliance announced the start of the phase for the construction of the next generation of the iTEC SkyNex system. Once its deployment is complete, iTEC SkyNex will manage 12 million flights a year across 26 million square kilometers of airspace.

Indra has demonstrated its ability to lead projects that transform the way the airspace is managed. One example is its partnership with EUROCONTROL, a Europe's leading air traffic management organization, to secure the digitalization of the Integrated Network Manager (iNM). This system facilitates the coordination between 68 air traffic control centers, 500 airports and over 6,600 airlines, making it an essential part of European aviation. Moreover, the incorporation of technologies such as artificial intelligence, big data and virtual reality will enable the iNM to significantly reduce CO₂ emissions and contribute to more sustainable aviation now and in the coming decades alike.

Another major step in air traffic management will involve virtualization and as-a-service solutions. This process entails

support for new air traffic service provision models, whereby the current air navigation service providers become end users and integrators of different specialized data services such as radar, flight plans and weather information that are provided by other entities. These may be geographically decoupled from the end user and they will be able to offer services to different customers, as occurs with those in the cloud.

This will ensure continuity of the service throughout Europe, increase network capacity, reduce fragmentation, bring forward the construction of an integrated European sky and contribute to more efficient and cleaner aviation.

Indra has demonstrated its ability to lead projects that transform the way the airspace is managed.

WHAT ABOUT DRONES?

When we refer to air traffic we must not neglect the role to be played by drones in this area. These unmanned aircraft will radically transform sectors such as transportation and logistics, with a major impact on our cities and lives in the coming decades.

Indra is already at the forefront of this field, as it is deploying, in partnership with ENAIRES, the first unmanned traffic management (UTM) platform that complies with European regulations to contribute to managing the expected large number of drones and their co-existence with manned aviation.

In a changing and increasingly interconnected world, the digitalization of air traffic requires the joint efforts of all of the players in the industry. As a result, this is one of the priorities that Indra fosters to achieve the cooperation of different entities, airlines around the world and the main international aviation organizations to enable them to work together to achieve an even safer, more efficient and sustainable form of aviation.

