

# Integrated Airport System



The Integrated Airport System is the Selex ES solution designed to deliver a fully operational airport system in a very short time, based on the fast and modular development of integrated airside and infrastructure landside systems to answer the problem of increasing air traffic. This total airport management solution is built on four main pillars covering security, safety, services and sustainability.

**THE CONTEXT**

The increase of air traffic and passengers represents a challenge for airport infrastructures that are required to manage growing volumes without affecting routine airport operations and safety. Airports are becoming the bottlenecks of the Air Traffic Management network and the capacity crunch at airports poses a threat to safety, efficiency and competitiveness of all stakeholders in the air transport sector.

Airport end-users require scalable and modular systems, able to quickly expand with no impact on current operations to follow air traffic and passengers growth. New airport operational concepts aim at integrated management, where all major players e.g. aircraft operators, Air Navigation Service Providers (ANSP), aerodrome ATC and ground handling facilities use a common picture sharing required information to execute their tasks. Individual tools and systems evolve towards an Integrated Airport System, conceived as System of Systems (SoS), a global element for all airport partners.

The whole system is able to expand with a smooth and timely evolution to guarantee service continuity. The complexity of this scenario has driven Selex ES to define the Integrated Airport Solution, tailored on all stakeholder's requirements within a unique centralized management approach.

**THE SOLUTION**

Selex ES approach considers an airport as a system of systems, able to:

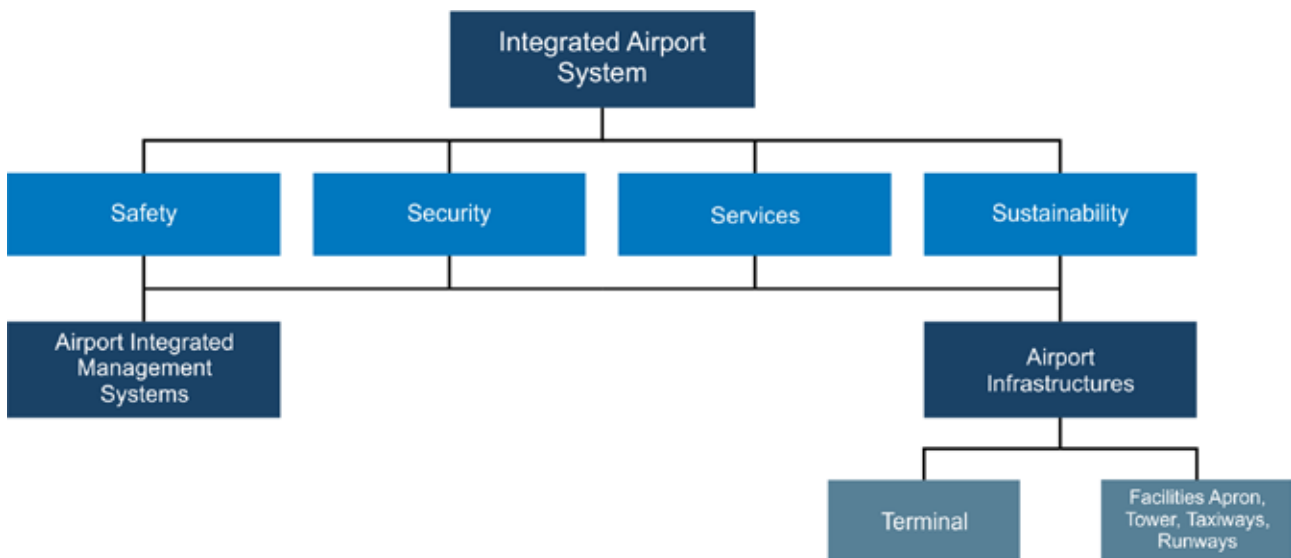
- Integrate airport stakeholders' data and knowledge
- Coordinate and plan the usage of airport resources
- Support the timely introduction of innovative services
- Improving the "airport as a whole".

Already System Integrator and prime contractor in the Finmeccanica Group for the development of complex systems for Homeland Security, the Company considers the Integrated Airport System as a complex integrated system with centralized project management and capability to operate in partnership with many stakeholders. Designed and delivered in response to the emerging operational needs of new airports, the Integrated Airport is scalable to different sizes and types of airports. It can be tuned to different levels of complexity, at the same time expanded and integrated with existing elements. At the foundation of this total airport approach Selex ES puts its longstanding experience in Air Traffic Management and Airport Operations.

The deep understanding of airports problems and issues makes this solution a natural evolution for answering Services, Security, Safety, Sustainability increasing needs.

The four main layers managed by the system include:

- Safety: ATC, Meteo, Navigation and Visual Aids
- Security: Access Control, Perimeter Intrusion Detection, Screening system, Video Surveillance, Fire alarm, Integrated Control Rooms
- Sustainability: Air quality control, water quality, noise control, energy saving
- Services: Fingers, Check-in counters, Flight Information Display system, Integrated Building Management system, Baggage Handling system, Networking



## THE SYSTEM

The Integrated Airport System is based on two complementary elements: the Airport Integrated Management System (AIMS) and the Airport Infrastructures, designed in compliance and within the same time framework of the other components.

The AIMS represents the suite of all the technologies required to manage the information flows for supporting daily airport operations, while the Airport Infrastructures include the terminal and the other facilities like the apron, taxiways, runways and tower.

### **Airport Integrated Management System (AIMS)**

AIMS provides an advanced Support System to Operations Management in terms of processes and information for coordinating the overall airport activities through the integration and correlation of all airport related systems. AIMS manages the different airport information flows by means of two major elements:

- an integration platform enabling real-time information exchange among systems and subsystems of all involved stakeholders
- an advanced Collaborative Decision System providing a common picture to support the daily activities of airport operators.

### **Airport infrastructures**

The Airport Infrastructures design supports the fast development of modular and configurable airports having different sizes, through the buildup of flexible modules that can be easily expanded over the years along with air traffic needs. It includes an expandable Terminal with Apron, taxiways, runways and the tower.

The terminal is based on a design approach which consists of standard modular building blocks that can be assembled in a building to be enlarged by steps, covering a range of capacity between 500.000 up to 2'000'000 passengers per year. Every expansion step can be accomplished without affecting the airport daily operations. In addition, the Integrated Infrastructure is developed in full compliance with requirements able to minimize environmental impact, toward a "green airport".

## KEY POINTS

Leveraging advanced technical expertise in the design and development of complex systems and many years' experience in the realization and provision of ATM systems, the Integrated Airport System features the following key points:

- Provide a greater control of development costs and risks during all design and realization phases, thanks to a centralized management interacting with many different project partners
- Optimise airport efficiency by means of collaborative decision processes which fully integrate airport systems operated by heterogeneous stakeholders
- Follow air traffic expansion increasing airport capacity with a seamless approach, by adding modular infrastructures and systems
- Guarantee a sustainable airport, minimizing environmental impact in both design and operation phases
- Cover Cyber Security and Information Assurance Capability thanks to the Integrated Cyber Shield™ solution, realized by Selex ES.



