Indra has a wealth of experience in the Airport IT systems, providing solutions across airport operations: ATC-Tower, Ramp/Airfield and Terminal.

Indra solutions provides modularity, operability and scalability. These solutions are adaptable to different requirements, offering solutions for greenfields, expansion, and existing airport projects, as well as multiple airport networks.

Indra’s Airport Services include Integration Services, ranging from IT Systems Integration (SI), to the broader Master Systems Integration (MSI) role.

Indra’s Integration methodology ensures project deadline and overall systems performance through risk free and pragmatic airport systems integration approach.

Indra’s integration solution aims at enhancing interoperability between all airport systems. Integration is achieved through Enterprise Application Integration paradigm by developing specific common language adapters for new and current legacy systems, and by an extensive use of the middleware platform in order to guarantee seamless systems communication.

**Services**

- Turn-key project management
- Assessment of current and future systems needs
- Design and engineering of the integration architecture, the systems Interface Control Document and its adapters
- Simulation and Testing through extensive usage of Test and Integration Centres (TIC)
- IT Systems deployment and commissioning (including contractor management and coordination)
- Transition coordination and support

**Features and Benefits**

- Terminal Opening Trials coordination and support
- Design of high level architecture aligned with customer needs, deployed, installed and integrated to meet opening day
- Simple architecture design maximizing utilization of middleware and usage of alternative pathways for critical interfaces, enabling a great reduction in the number of interfaces
- All airport stakeholders involvement in pre-opening activities and comprehensive knowledge transfer
- Modular and scalable open-architecture based on a simple and enhanced data exchange process with a unique information model
- Ability to integrate any existing or newly deployed HW/SW architecture, facilitating independence of the airport from any COTS product
- Overall life-cycle cost reduction

**Business Management**

- AODB
  - Airport Operational Data Base
- CDM
  - Collaborative Decision Making
- ISS
  - Integrated Security System
- EMS
  - Environmental Management System
- MMS
  - Maintenance Management System

**Airport Message Oriented Middleware**

- FIDS
  - Flight Information Display System
- CUTE
  - Common Use Terminal Equipment
- BHS
  - Baggage Handling System
- RMS
  - Resource Management System
- BMS
  - Building Management System
- Parking Management
- AQs
  - Air Quality System
- WQS
  - Water Quality System
- NMS
  - Noise Management System
- COM/AIS
  - AIS Information Management
- VoIPCom
  - Voice over IP Commun.
- Website and Intranet

**Centro de Gestión Aeroportuaria**

**Indra Airports**

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Integration key drivers

**Analysis & Design**
- In depth understanding of Airport Operational and global Airport IT systems needs, in order to align high level architecture definition with airport requirements (no shortcuts taken)
- Systems and Interface characterization, identifying critical infrastructure elements to enable specific tracking of these elements
- Rationalization (standardization) of IT system components
- Exhaustive System supplier selection through a complete testing plan and definition of standard and common rules for all of them

**Testing & Commissioning**
- Strong involvement of all stakeholders during Testing through strict coordination and adequate resource allocation avoiding delays which can be critical during this phase
- All IT system suppliers are subject to a Functional – Integration Scenarios Testing Plan
- Comprehensive and extensive Terminal Opening Trial activities

**Programme Management & General**
- Programme Management goal is to successfully meet Opening Day, strict subcontractor activity and milestone compliance tracking
- Integrated Global Programme Management that combines and coordinates all projects; IT Systems deployment must be aligned with networks and power
- Anticipate all possible pitfalls, and create correction and recovery working groups for unexpected events
- Collaborative and transparent project follow-up: Concessionaire, Main Contractor, Subcontractors; through utilization of a set of common project management tools in order to ensure fluent communication between project teams
- Extensive and thorough Knowledge Transfer to all airport stakeholders (Airport Concessionaire IT Systems white book)

Technical characteristics

**Standardization process**
Indra Integration Services standardize complex airport systems through a simple and logical approach:

1. Defining a “common language” to be followed by all systems with information exchange needs. Regarding each possible type of possible data:
   - Asynchronous data sending
   - Load requests
   - Services definition
   - Other
2. Choosing a “middleware” platform to support the information exchange.
3. Developing specific adapters for each system as required:
   - Embedded or isolated adapters for new developments
   - Isolated and specifically developed adapters for legacy systems.

**State-of-the-art technologies**
Enterprise Application Integration (EAI) paradigm and use of XML standards

Use of proven technological platforms:
- Database: MySQL, Microsoft SQL, Oracle
- Optimization and Visualization: ILOG
- Application: JBOSS
- Middleware: TIBCO, Oracle

**Associated services**
- Consulting services
- Airport Management Centre
- Outsourcing services
- On-site support and maintenance

**References**
Indra has provided Integration Services for Airport Operational and Management Systems. Some examples of Indra’s integration services are:

- Consulting project to define the middleware for Aena’s airport network
- Collaboration with Aena in system integration for Madrid-Barajas and Barcelona-El Prat
- Complete system integration for Castellón Airport

Indra reserves the right to modify these specifications without prior notice.
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