



AIR TRAFFIC MANAGEMENT SYSTEMS FOR AIRPORTS

SELEX Sistemi Integrati is able to supply ATM solutions to support the efficiency of the Airport Environment which is facing a growing demand for air traffic as well as an increasing demand for safety and security.

A number of operational and user requirements have been identified to provide a reliable and complete "System" solution to the existing constraints related to the airport ground operations. These needs can be summarized in few words:

"Safety, Economy, Efficiency" and are considered as the main drivers behind system design.

The rapid growth of air traffic experienced in recent years and the continuing increase forecasted for the future results in a demand for the extensive implementation of automated tools for ATM Services.

The application of such concepts is particularly important in the larger airports that represent a high proportion of traffic capacity worldwide. With this in mind, it is important to ensure that airport capacity is not affected by weather conditions.

SAIL - MAIN FEATURES AND CAPABILITIES

SELEX Sistemi Integrati A-SMGCS Integrated Solution (SAIL) is a modular and flexible A-SMGCS designed for a wide variety of airports.

In order to meet Customer needs, SAIL architecture supports the implementation of a "core" system, capable of satisfying the most urgent needs and which is easily upgradeable.

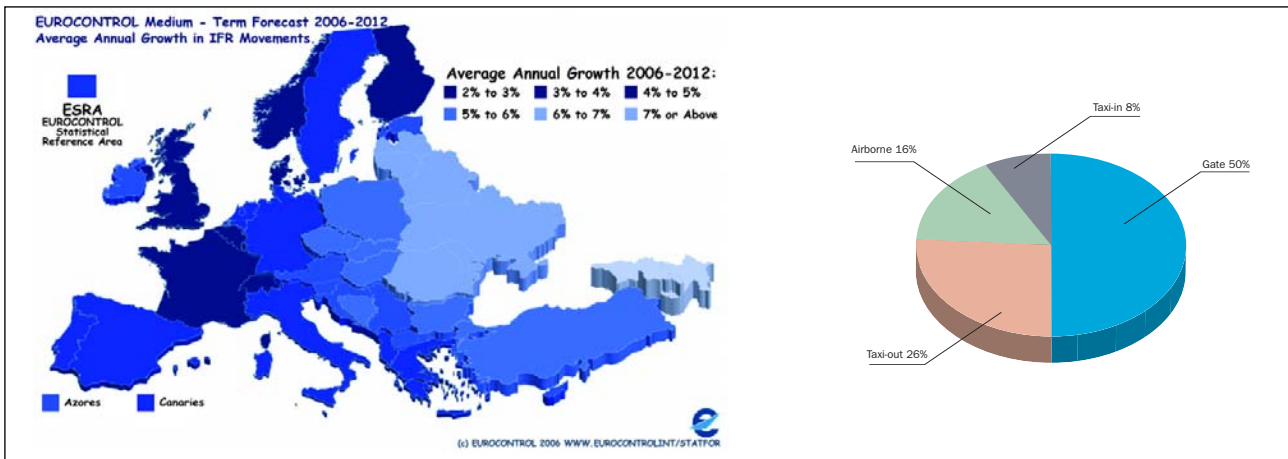
SAIL supports the following functions:

- Surveillance
- Monitoring & Alerting
- Automated Guidance
- Route Planning
- HMI
- Auxiliary functions

SAIL - SURVEILLANCE

Surveillance is based on the integration of data from several different sensors:

- Surface Movement Radar
- High Resolution Radar



- Terminal Area Radar
- Multilateration
- ADS-B

High performance Tracking and Multi Sensor Fusion algorithms output local and system tracks, creating targets with reliable positioning and unique identification (Automated Labelling).

SAIL - MONITORING & ALERTING

The increasing complexity of aerodrome layouts, the large number of simultaneous ground operations, and the need to maintain Safety and Efficiency levels under all weather conditions demand the implementation of automated tools to ensure avoidance of dangerous situations.

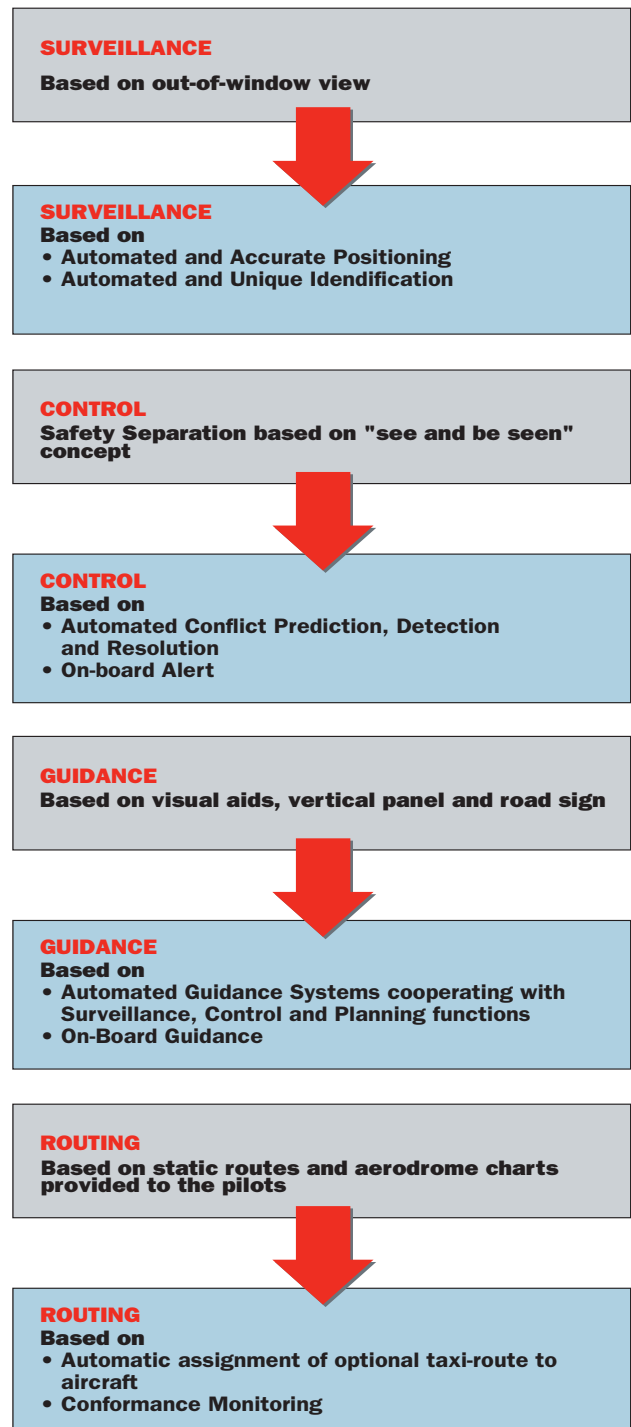
The SAIL Monitoring & Alerting (Conflict Detection) analyses traffic situation in real time and, according to airport layout, predicts and detects conflict situations. Controller's alerting is based on a multilevel degree of situation awareness, differing in terms of visual and audible alarming and warning advisories. Runway Incursions, target vs. target taxiway conflicts, prohibited area Infringements, and stop bar protection are continuously monitored.

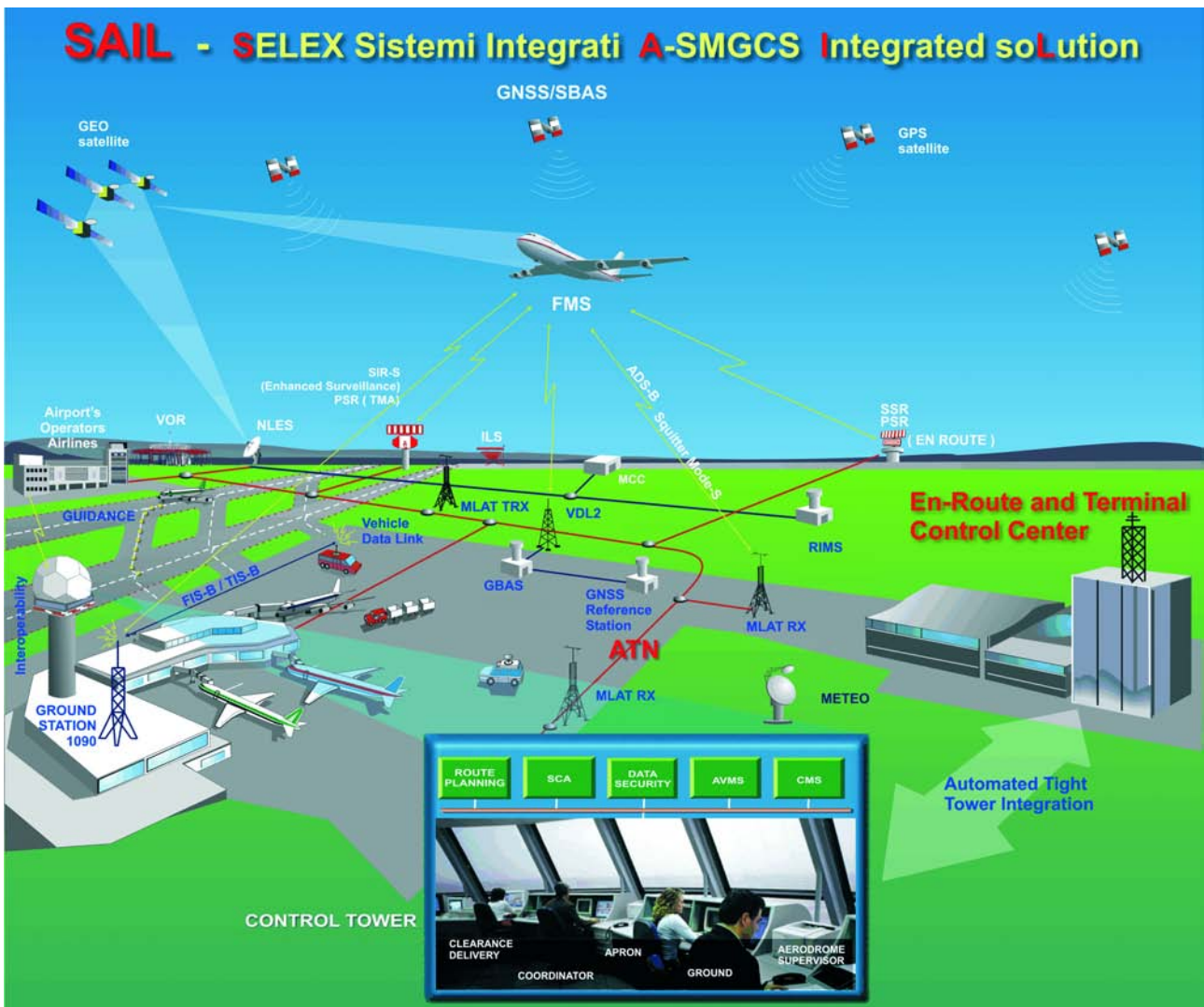
SAIL - AUTOMATED GUIDANCE

SAIL Automated Guidance interfaces the Airfield Lighting System providing automated smart lamps control. The automated lamp control drives aircrafts along the assigned path, from runway to apron and vice-versa, avoiding conflict situations (Automated taxiing lights and stop-bars activation and deactivation). Each Controller Working Position displays lamp and stop-bar status.

SAIL - ROUTE PLANNING

Route Planning computes, for each aircraft, the "best" path (the fastest and conflict free route) from gate to runway and vice-versa





Furthermore, taking into account the surveillance information on ground movements, it checks any deviation from the assigned taxi route, performing a complete re-planning in case of consistent deviation. Route Planning is integrated with the Arrival/Departure management and with Tower Flight Data Processing.

SAIL - TECHNICAL MONITORING AND CONTROL

Technical Monitoring and Control provides a complete graphical view of all System/Subsystem functions. SAIL is available on UNIX/LINUX platforms and COTS hardware platforms.

SAIL - HUMAN MACHINE INTERFACE

SAIL Controller Working Position (CWP) provides an integrated representation of airport surrounding airspace and surface traffic.

CWP supports different kinds of operational roles (Tower, Ground and Apron). The functional and operational integration with the Approach Centre (APP) guarantees labelling continuity (track/call sign association) and the Transfer Of Control (TOC) between Tower and APP (hand-over).



TWR-APP-ACC INTEGRATION

SELEX SI ATM Systems, geographically located at different Control Centres, monitor the different phases of a flight, controlling different airspaces. Integrating these airspaces requires the seamless monitoring of an airplane. The TWR-APP-ACC integration provides the following benefits:

- Fully integrated ATM scenario
- flight plan availability in tower
- silent coordination with APP/ACC
- Transfer Of Control (TOC) between tower controllers
- Fully integrated surveillance scenario:
- ground surveillance complemented by air surveillance
- real data fusion of local sensors and data received from remote locations

AIRPORT STAKEHOLDERS INTEROPERABILITY (CDM)

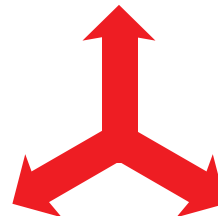
The Interoperability System allows information sharing between Air Traffic Service Providers, Airport Operators, and Airlines.

The Collaborative Decision Making (CDM) process is realised via the exchange of flight, surveillance, and operational information among all airport operatives.

ACC-APP CENTRE



CONTROL TOWER



AIRPORT OPERATOR



AIRLINE OPERATORS