Siamos AMS Airport Management System
Seamless Airport Operations Planning

siemens.com/mobility
Ensuring mobility is one of the big challenges in our society. That is why, with “Complete mobility”, Siemens creates integrated networked transport and logistics solutions – for safe, cost-effective and environmentally friendly passenger and cargo traffic: from infrastructure equipment for rail and road traffic, rail vehicles through to airport logistics and postal automation.

Siemens is addressing the needs of airport operators with a completely new approach. Based on thorough analysis, in 2007 development started on a new generation of airport and aviation IT products. Siamos, short for Siemens Airport Management and Operations Suite, is the result of these efforts.

At the heart of experience
The extensive experience Siemens holds from major airport IT installations all over the world flows into Siamos. The IT solution is based on previous projects such as Total Airport Management (TAM), which involved major airport stakeholders and analyses of large-scale airport and airline IT systems. Innovative aspects like Collaborative Decision Making (CDM) have also been included in the new generation of airport IT products as a fundamental design feature.

Fit for the future
The new generation of airline and airport management software has been designed on the basis of leading-edge, future-proof technology, and includes high-performance databases, modular application server architecture and Enterprise Service Bus (ESB) technology. These components have been put together to form a comprehensive set of products, including the Airport Operational Data Base (AODB), resource management, an airport process integration platform, a flight information system and data warehouse, among others.
With these innovative airport IT products, Siemens provides an integrated system that meets the demands of airport operators today and in the future.

Customized to your needs

The range of Siemens applications are compiled for a customer-specific system. But it doesn’t stop there. The individual components are further tailored to meet the exact needs of our customers. Furthermore, the extremely flexible and standardized Siemens integration platform makes a high degree of individualization possible.

Our solution

Siemens combines its strength in industry automation with its in-depth knowledge of airport and airline processes. The result is an excellent reputation worldwide as a trusted supplier of first-class products, solutions and services ranging from integrated airport IT solutions and baggage and cargo handling systems up to delivery of entire runways airports.

AMS is a highly modular system suite that makes use of the latest service oriented architecture (SOA) principles of loosely coupled components:

- Siamos AODB - Airport Operational Data Base
- Siamos APIP - Airport Process Integration Platform based on an enterprise service bus
- Siamos SFM - Seasonal Flight Management
- Siamos OFM - Operational Flight Management
- Siamos RMS - Resource Management System for immobile resources
- Siamos statistics, reporting and billing

Modules and components can be integrated and configured easily in different combinations to build customized system solutions. With AMS, airport IT specialists can easily extend the system and introduce innovations down the road. Moreover, Siemens is a vendor - and they can even make adaptations and integrate further modules on their own.

Siamos has already successfully proven its integration capabilities with existing and completely new airport IT products from different vendors. Furthermore, Siemens supports the SDO directions of SESAR to offer new features and sub-systems, and to provide airport customers with future-proof solutions. Already today Siamos supports SESAR concepts like seamless airport operations planning and Total Airport Management. AMS is also a backbone for joint Airport Operations Control room (APOC) operations.

Siamos Airport Operational Data Base (AOBD)

The core component is the AOBD. It stores and provides reliable and consistent information concerning all operations and processes. The data stored in the AOBD are updated continuously with the consolidated information messages from connected systems using AMS. This makes it possible to create an integrated data base for all systems and users.
The APIP also correlates flight schedule information with data from the airlines and the airport coordinator – in an A-CDM context as well as with ATC flight plans. The simplified message-handling architecture allows fast deployment and commissioning. The APIP's simplified message-handling architecture along with robust error handling and logging mechanisms contribute to low maintenance costs. A number of features integrated in Siamos APIP enable extensions and innovations of airport IT:

- Decoupled and service-oriented architecture (SOA)
- Shared and consistent operational data
- Jointly agreed routines, rules and formats.

Siamos Seasonal Flight Management (SFM)

SFM focuses on a collaborative, decision-making process that is initiated months before a flight event happens. The SFM collects active input for a planned flight series or rotation and gives the airport operator an overview to help balance capacity and demand. Using SFM, the airport operator can manage flight series and individual flights from different airlines, and exceptional conditions are also taken into account. The user interface presents flight series, individual flights and Flight details in a tabular form. SFM builds rotations by associating arrival-departure flights. Performance indicators integrated into the SFM display to the operator the quality of the seasonal plan.

Tight integration with the Resource Management System (RMS) allows both the SFM and RMS user interfaces to allocate resources to the flight series. SFM helps identify typical days or weeks so that the operator can work in the most efficient sequence – first dealing with standard situations before moving on to find solutions for the exceptions. An additional “what-if” feature enables the consequences of decisions to be analyzed in advance.

The AODB also correlates flight schedule information with data from the airlines and the airport coordinator – in an A-CDM context as well as with ATC flight plans. Important features of the AODB:

- Consistent data for flight schedules, operational data and processes information
- Data hierarchy combines similar data items from different sources
- Master data management acts as one central data service for many clients
- CDM readiness
- Reliable user roles and rights system provides the necessary data security
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- Reliable user roles and rights system provides the necessary data security
- Multi-client capability stores business sensitive information
- Historiography.
Siamos Operational Flight Management (OFM)

Depending on the business processes of a specific airport, the operational flight plan can either be created manually or derived from the seasonal flight schedule. The operational flight plan is activated a few days in advance. The operational flight plan can either be inserted manually or derived from the seasonal flight schedule. During the day, numerous plan changes can be easily entered into the table-based flight plan, the rotation or the flight-plan details. A combination of OFM and RMS assists the operator on the day of operations. OFM further supports the handling of events, that is, delay causes, landing time or in-block events. In order to properly hand over the day-of-operations data for post-analysis tasks like billing, reporting and statistics, OFM permanently checks data completeness and consistency. A specific user interface gives a preview on the complete post-operational data so the operator can deal with incorrect or missing data.

Siamos Resource Management System (RMS)

The SMS is a function of Siamos used in the planning of OFM and RMS. Resources can be allocated to flight series as well as to individual flights. The SMS is used to indicate which resources are available at any given time. It is easy to maintain resource availability with Siamos SMS with either table or Gantt chart views. The necessary capacities for resources can be calculated quickly without detailed modeling. The master data management is used to define which resources are to be managed by the RMS. The standard resources managed are check-in counters, gates, stands and reclaim belts. The master data management allows the operator to continuously check against a set of operational rules. Warnings are given to the operator who tries, for example, to allocate a large aircraft on a small stand, or place large aircraft on two closely spaced stands. The temporary consistency of resource allocation is checked using a business process model. Detected conflicts are indicated on all relevant user interfaces. For more sophisticated resource management, tasks like staff planning and mobile resource planning can be modeled. Other RMS modules are also compatible with Siamos.

Siamos Statistics, Reporting and Billing

The Siamos reporting software module uses the SAP Business Objects & Crystal Reports data tools. The reporting system offers users graphical and interactive tools as well as dashboards to monitor operations. It also offers different levels of management reports with various levels of aggregation. Reports created with the reporting system can then be exported in multiple formats, for example PDF, HTML and Microsoft Excel. Using the web server functionality it is possible to distribute these reports through HTML browsers.

The Siamos billing uses a selection of well-proven, third-party products to provide a tailored solution for the billing business processes of the airport. It takes into account all the contractual specifics between airport, airlines and ground handling. As Siamos provides complete and consistent data sets to the post-operations functions, integration is straightforward.

Customer benefits

- Open system architecture featuring a modular system based on proven open standard for airports
- Increased overall capacity during peak times while maintaining better operations control and improving decision making, also among different stakeholders
- Compliance to standards from IATA, ACI, SESAR, ETSI and EUROCONTROL
- Measurably fast deployment of an integrated airport IT solution
- Improved solution maintainability by reducing on-going costs
- Integrated and proven applications for scalable and fail-safe solutions
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