Consulting Services for advanced Air Cargo & Logistics Solutions

Services

Realog Consulting GmbH

2016/2017
Realog Consulting GmbH
Company Overview
**Company Name:** Realog Consulting GmbH

**Short Description:** Realog is an international consulting company specializing in on-airport cargo operations, planning, strategies, and forecasts.

**Offices:** Germany, UAE, Canada, and Russia

**Business Areas**

Realog provides air cargo planning, strategies, and forecasts for governments, airports, carriers, handlers, institutional investors, investment banks, commercial banks, and air cargo facility developers. In addition, Realog provides design and engineering consulting in logistics, cargo terminal operations, and material handling systems and automation; airport planning, design and supervision; design, specification and supervision of automated cargo terminals and logistic warehouses; automated airport systems including cargo handling equipment, baggage handling systems; transportation system planning; project management.
Realog Consulting GmbH is one of the leading on-airport logistics, process and engineering consultants in the world with a vast resume of experience in air cargo.
Realog is an independent, analytic, planning, and engineering firm specializing in air cargo, airport systems, and logistics operations, planning, design, forecasts, and strategies.

**Realog is an independent Air Cargo and Logistics Consultant**

- **Experienced Specialists**: Our team has extensive air cargo, airport and logistics experience, seniority, and expert know-how.
- **Technical Precision**: Realog provides technical precision in analytics, design, tender management, and site supervision.
- **Business Solutions**: Realog focuses on business-oriented solutions to meet stakeholder operational and financial expectations.
- **Global Reach**: Realog has designed logistics facilities and systems of all sizes and complexity at airports worldwide.
- **Independent Representation**: Realog is an independent consulting firm that offers outside and impartial assessments and representation.
Project Experience

- Anchorage
- New York
- Cincinnati
- Miami
- Stockholm
- Gothenburg
- Hannover
- Frankfurt
- Munich
- Leipzig
- Amsterdam
- Zurich
- Paris
- Khartoum
- Entebbe
- Lagos
- Dubai
- Abu Dhabi
- Bahrain
- Jeddah
- Muscat
- Moscow
- Brisbane
- Sydney
- Singapore
- Hanoi
- Shanghai
- Rio de Janeiro
- Singapore

- Development Projects
- Consulting and Planning Projects
Realog has developed some of the largest cargo facilities in the World

- **Etihad Cargo Terminal**, Abu Dhabi International Airport.
- **Emirates Cargo Mega Terminal**, Dubai International Airport.
- **Moscow Cargo Terminal**, Sheremetyevo International Airport.
- **DDF Logistics Centre**, Dubai International Airport.
- **Lufthansa Cargo Hub**, Frankfurt International Airport.
- **Munich Cargo Centre**, Munich International Airport.
Realog provides in-depth strategies/forecasts for leading airports.

- Abu Dhabi International Airport
- Dubai International Airport
- Dubai Logistics City
- Stockholm Arlanda Airport
- Munich International Airport
- Al Maktoum International Airport
Forecasts and Strategic Profiles

Approach and Methodology
Forecasts and Strategic Profiles
Approach and Methodology
Realog provides annual and peak air cargo forecasts from 5 to 30 years measured in tonnes based upon capacity and demand and expressed in Mode, Flow, and Mode-Flow.

Illustrative
AOID+S allows for Realog to provide an annual forecast and a peak hour forecast as it relates to stress on the various processes over the life of the cargo terminal.

Realog uses the peak hour forecast to find the required capacity at various time nodes to determine the ability of the cargo terminal to meet performance requirements.
Dynamic Simulation

Realog provide 3D simulation that can be used to compare different terminal layout options and workflow strategies.
AOID+S disaggregates flows into processes and storage based upon the functionality of the air cargo facility being employed and further disaggregates the processes by cargo type (Bulk, ULDs or Intact), classification (General or Specials), and mode (PAX, FTR, RFS) into sub-processes and storage.
Realog interprets the results in the context of benchmark comparisons.
Planning & Design
Approach and Methodology
## Airport Master Planning Approach

Realog provides comprehensive cargo master planning, including design, sizing, capacities, phasing and investment.

### Areas include:

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<th>Airside:</th>
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<td>Support Facilities (e.g. Canteens, Mosques)</td>
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<td>Government (Customs, Police, Veterinarian)</td>
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Airside Apron

Realog provides the design, dimensioning and configuration of maneuvering areas, aprons and parking stands, along with transfer access to the passenger terminals.
Automated Systems in Air Cargo and Logistics

Typical air cargo handling methods range from very manual and labor intensive to highly automated and depend largely on the volume and speed of cargo handling required at each airport. Realog assesses the level of automation required and its modular implementation.
Baggage Handling Systems and Sorter Systems

The scope of services includes the design and site supervision of the installation of screening equipment and CCTV systems.

The Baggage Handling System will include:

- Number of check-in counter for economy class passenger, business class passenger, VIP
- Hold baggage screening system and procedures (in close cooperation with the Client and the Police)
- Sorting system (a tilt tray sorter system could be considered for this size of the Airport)
- Number of make-up positions (sorting chutes, make-up carousels, laterals)
- Size respectively capacity of an Early baggage storage (EBS)

- Number of input positions (loading belts) for transfer baggage
- Number of reclaim carousels and feed lines
- Customs screening system for arrival baggage (if required)
- Handling of oversize baggage
- Baggage reconciliation system
The scope of services includes the design and site supervision of the installation of screening equipment and CCTV systems.

- Screening equipment
  - Passenger and Carry-on Bag Screening
  - Employee Screening
- CCTV Video Surveillance Hardware and Software for the Passenger Terminal
  - Platform based scalability via open architecture and protocol.
  - Modular application design providing flexible system configuration
  - Single point of management and control
  - Sophisticated Interoperability
  - Web-based management and communication
  - System interworking scenario with user defined rules
The scope of services includes the design and site supervision of the installation of airport IT systems. The airport IT system will include:

- CUTE/CUSS/BRS including hardware and software
- IT Backbone Hardware including cables, panels and IT management system
- AIMS including hardware, work stations, software (BIS, FIDS, ARMS) and interfaces
Airport Passenger Boarding Bridges

The scope of services includes the design and site supervision of the installation of the passenger boarding bridge ("PBB") systems.

The PBB design will be based upon the apron plan and its related aircraft and the operational requirements. The airport PBB system will be tailored to the specifications of the airport and include as appropriate:

- Telescopic PBBs
- 400 Hz converters
- Pre-Conditioned air units,
- Potable Water and
- Baggage chute systems.
- A preventive maintenance and inspection services
Cargo Handling Areas

Realog conceptualizes the air cargo processing area and its ability to meet forecasted demand as to conversion (break down and buildup of cargo pallets and ULDs), sorting, (arranging ULDs and cargo by airline, destination, and flights), storage (on a short term basis), facilitation (customs, etc.) and documentation.
Landside Interface

The landside interface includes sizing and dimensioning of truck docks, truck maneuvering areas, access roads, employee and customer parking.
Attached and Support Facilities

In addition to the cargo handling facility, Realog master plans second and third level attached and support facilities for agents, forwarders, distributors, manufacturers and value added logistic providers.
Realog focuses on integrated solutions.

JFK: Fragmented cargo area

DWC: Integrated cargo area
Realog acts as a guide in this process to consolidate different contextual perspectives:

**Design and Technology**
- Future and process oriented "green" Cargo Terminal
- Innovative Handling and Storage Equipment
- IT-System (Software, Hardware)
- Automation and IT flows
- Security Technology
- e-freight

**Financial Assessment**
- Investment planning and evaluation
- Allocation and validation of process cost
- Application of process-benchmarks
- Definition requirements of cycle and throughput time and other logistics requirements

**Strategic Alignment**
- Business model (Products, supply chain, value stream depth, operation model)
- Trends/future developments in Airfreight
- Partnership / Gateway concept
- Split Operation / Network
- Future Flexibility

**Future Cargo Hub and Gateway**

**Operation**
- Development of Hub Control Center
- Definition and Description optimized and visualization of processes
- Application of organization and management methods
- Interface with third party provider (e.g. Ground handling, landside)
- ULD and Shipment Prioritizing
Cargo Facility Planning and Design Approach

Realog incorporates these design requirements into the design of the material handling system...
Cargo Facility Planning and Design Approach

... and the design of the cargo facility.
Realog uses value engineering to further refine and harmonize the design:

**Cargo Facility Planning and Design Approach**

- A – Pits, Floor Openings and Ducts
- B – Floor/Operational Surfaces
- C – Floor Loadings (Extreme High Point Loads from racking systems)
- D – Wall/Door Openings
- E – Special Rooms
- F – Customs and Police Operational Requirements
- G – Integration and Coordination of IT, Specialist Systems, MEP Services and Supplies, Lighting etc.
- H – Construction Around MHS assemblies
- I – Environmental Conditions
- J – Building Safety Systems such as Fire Detection/Suppression
- K – Spatial Planning of the Facility
Dynamic Simulation

Dynamic simulation provides independent confirmation of performance.
Realog presents the concept to stakeholder scrutiny and finalizes the design and specifications.
Supervisory Phase

- Review of Submittals and Site Supervision
  - Realog reviews the detailed design of the MHS Provider and review all material submittals, shop drawing, method statements, and other documents relating to the MHS,
  - Realog manages the on-site installation by the MHS Provider.
  - Realog assists in the training of the personnel of the MHS User in the MHS and Cargo Handling Operation
  - Realog devises and supervises the Operational Readiness and Airport Transfer ("ORAT") program for the cargo terminal (including MHS).
  - Realog will oversee the post-installation defects liability period.
Cargo Logistic Zones
Approach and Methodology
Cargo villages vary greatly in size and scope. Realog helps stakeholders to define expectations as to the functionality of an intended cargo village.
Alternatives include:

**Warehouse:** A cargo village wherein forwarders warehouse/store goods for further transport.

*Example: DEL Forwarder Village (Proposed)*

**Consolidation Center:** A cargo village wherein the facilities consolidate or reconsolidate cargo for further transport.

*Example: Lufthansa Reconsolidation Center.*

**Assembly:** A cargo village wherein the facilities are assemble goods for further transport.

*Example: Ghana Airport Cargo Centre.*
Location

Alternatives include:

**Airside:** A cargo village wherein the airside or cargo terminal security zone extends to include the cargo village.

*Example:* Etihad Cargo Terminal (Proposed)

**Landside:** A cargo village wherein the facilities are located on the second line or landside of the airport.

*Example:* Cargo City South Frankfurt.

**Off-Airport:** A cargo village wherein the facilities are located outside the security zone of the airport.

*Example:* Panalpina Off-Airport Center at MUC.
Alternatives include:

**Standalone:** A cargo village wherein the second line buildings are detached from the cargo terminal and cargo flows generally off-airport and on-airport.

*Example: Stockholm-Arlanda Cargo City*

**Attached:** A cargo village wherein the second line buildings are physically attached to the cargo terminal and cargo flows generally off-airport and on-airport.

*Example: Munich Airport Forwarder Center.*

**Closed Loop:** A cargo village wherein the second line buildings are physically attached to the cargo terminal and cargo flows generally on-airport only.

*Example: Kaohsiung Global Air Logistics Park (Proposed).*
Alternatives include:

**FTZ/EPZ:** A cargo village wherein the facilities are considered outside or exempt from customs or other taxes.

*Example: Far Glory Free Trade Zone at TPE*

**Bonded:** A cargo village wherein the facilities are within the customs zone, but goods are exempt until released from the warehouse for consumption.

*Example: CHI Deutschland at FRA.*

**Taxable:** A cargo village wherein the facilities are within the customs zone and subject to customs.

*Example: Kaohsiung Global Air Logistics Park (Proposed).*
Selected References
Client: Etihad Cargo
Location: Abu Dhabi International Airport

Project Services

- Design and planning of warehouse equipped with automated container and bulk storage systems, automated and manual workstations, truck docks, airside interfaces and several special handling areas
- Preparation of tender documents, evaluation of supplier’s quotation and support in the contractor selection process
- Project monitoring of contractor’s detailed design, manufacturing, installation, commissioning and acceptance procedures

MHS Planning and Design of Fully Automated Cargo Terminal and Formulation of Interim Solution during Construction
**Emirates Cargo Mega Terminal**

Client: Emirates SkyCargo  
Location: Dubai International Airport  

**Project Services**

- Design and planning of warehouse equipped with automated container and bulk storage systems, automated and manual workstations, truck docks, airside interfaces and several special handling areas  
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**MHS Planning and Design of Fully Automated Cargo Terminal and Formulation of Interim Solution during Construction**
Dubai Airports Forecast to 2030 and Forecast Update to 2050

Client: Dubai Airports
Location: Dubai International Airport and Dubai World Central Airport

Project Services

- Unconstrained Forecast to 2030 and Forecast Update to 2050
- Breakdown of the baseline scenario related to aircraft mode, customer cluster and cargo flows in Dubai
- Trend analysis and requirements from shippers, forwarders, airlines and integrators
- Benchmark with competing airports
- Executing of a potential analysis; and
- Preparing of short, medium and long-term strategic recommendations

Development of the Unconstrained Forecast up to 2030 and Update to 2050

Potential Analysis with Strategic Recommendation

Forecast Consultant
Abu Dhabi Airport Forecast to 2040

Client: Dubai Airports
Location: Dubai International Airport

Project Services

- Unconstrained Forecast to 2040
- Breakdown of the baseline scenario related to aircraft mode, customer cluster and cargo flows in Abu Dhabi
- Trend analysis and requirements from shippers, forwarders, airlines and integrators
- Benchmark with competing airports
- Executing of a potential analysis; and
- Preparing of short, medium and long-term strategic recommendations

Abu Dhabi International Airport

Development of the Unconstrained Forecast up to 2040

Potential Analysis with Strategic Recommendation

Forecast Consultant
Client: Dubai Airports
Location: Dubai International Airport

Project Services

- Design of a state of the perishable terminal with a capacity of 260,000 t/a equipped with modern cargo handling and IT systems allowing handling of temperature sensitive goods like flowers and other perishables
- Preparation of tender documents for an automated container storage system with different temperature zones and handling areas for value added processes, evaluation of suppliers quotations and support in the contractor selection process
- Project monitoring during design, manufacturing, installation, commissioning and acceptance tests

Airport Planning and MHS Design, Specification, Manufacturing and Site Supervision of the Automated Perishable Centre
Dubai Duty Free at Dubai International

Client: Dubai Airports
Location: Dubai International Airport

Project Services

- Dimensioning of storage and throughput capacities, warehouse design with a mixture of automated, manual and special storage / distribution systems for large and small articles
- Preparation of tender documents, evaluation of supplier’s quotation and support in the contractor selection process
- Project site supervision during manufacturing, installation, commissioning and acceptance tests

MHS Planning, Design, Specification, Site Supervision of Fully Automated Cargo Terminal

MHS Consultant
Al Maktoum Airport and Dubai Logistics City Cargo Master Plan

Client: Dubai Airports
Location: Dubai World Central Airport

Project Services

- Analysis of all freight flows and operation requirements
- Development of routing and shuttle transports between DWC, DXB, Jebel Ali harbour and the Dubai Free Zone
- Master plan for the cargo terminals, forwarder and logistic facilities
- Specification and preparation of tender documents for the first cargo terminal
- Supervision of manufacturing, installation and commissioning of the cargo terminal

Planning and Dimensioning of the Multi-Modal Logistic Airport

Cargo Master Plan Consultant
Etihad Cargo Terminal Expansion

Client: Etihad Cargo
Location: Abu Dhabi International Airport

Project Services
- Analysis of the business model, processes and freight flows
- Design, specification, technical tender of the existing cargo terminal
- Assessment of the investment costs
- Design of the two cargo terminal solutions and their material handling systems for 1,5 million tons
- Site supervision for expansion of the existing cargo terminal

MHS Planning, Design and Supervision of Existing Cargo Terminal Expansion
Munich Airport Process Analysis and Security Concept

Client: Munich International Airport (FMG)
Location: Munich International Airport

Project Services

- Benchmark of the security concepts of competitors to set up a USP for MUC
- Preparation of a complete overall freight concept by considering the new security requirements:
- Development of a revenue - and business model including business care
- Benchmark of the relevant key performance indicators with comparable enterprises
- Determination of the target values for the defined key performance indicators
- Compilation of improvement measures

Process analysis and benchmark of Cargo

Development of a Cargo Security Concept in accordance with EU Regulations

Cargo Flow and Process Consultant
Lufthansa Cargo Benchmark Study

Client: Lufthansa Cargo
Location: Frankfurt International Airport

Project Services

- Comparison of best practice approaches of similar handling enterprises.
- Exploration of explanation factors and target values regarding essential deviations.
- Subsequent efforts to derive appropriate measures and future target values.
- Development of a revenue model for improving the results by considering future extensive safety performances for consolidating export.

Cargo Flow and Process Consultant
Lufthansa Cargo at Cargo City North in Frankfurt International Airport

Development of the Cargo Terminal Hub Concept

Client: Lufthansa Cargo
Location: Frankfurt International Airport

Project Services

- Evaluation and Formulation of future concepts for an infrastructural redesign
- Development of a qualitative and quantitative target system.
- Implementation of a conceptual planning of the physical and systemic infrastructure.
- Simulation and evaluation of the planning variants by calculating the economic efficiency.
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