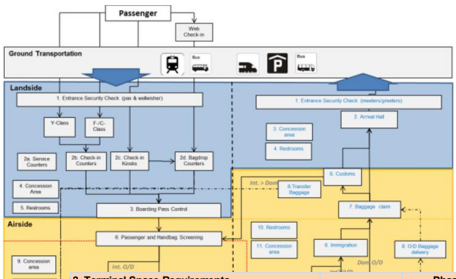
APIS is a suite of modules for airport infrastructure sizing and modeling. It allows for project specific modeling of infrastructure and sizing of all relevant airport facilities. It has been developed and is being utilized solely by Planport GmbH.

All modules contain core model and calculation algorithms which are modified to reflect project specific planning parameters and operational assumptions. The modules utilize forecasts, industry standards, guidance material and rules and regulations, along with practical applications derived from different airport development projects. All modules offer the feature of modeling different development years or project phases with the results displayed side by side. The results typically include the number of functional units such as the number of check-in counters and security screening devices, as well as area and or space requirements. The modules are highly flexible allowing modification of parameters and assumptions while utilizing minimal or extensive data sets. The modules can be tailored to meet specific project needs, and they can be applied to both large and small airports. The utilization of such modules has proved beneficial during planning, design and construction phase services, and during normal operations as a means of improving daily operations while enhancing operational capacities.

APIS-T

The Passenger Terminal module models all outbound, inbound and transfer processes associated with passenger and baggage flows across landside-airside boundaries for different development years and or project phases. Desegregated peak hour passenger forecasts for domestic and international (Schengen/Non-Schengen) outbound, inbound and transfer passenger and baggage flows form the terminal module basis, along with forecasted aircraft movements by ICAO Code. Various planning and operating assumptions pertaining to planning intervals, passenger and baggage processing times and rates, equipment sizing and area space requirements, and circulation requirements based on IATA Service Level standards also form the basis of the module.

Meeter and greeter ratios, baggage ratios, peak hour staff and flight crew forecasts are also included along with assumptions concerning



2. Terminal Space Requirements		Phase 1	Phase 2
2a. Outbound Terminal Space Requirements			
2a1. Landside			
Security Screening (Entrance)	m2	4'399	6'480
Check-In	m2	12'430	14'471
Boarding Pass Control	m2	1'818	2'090
Landside Concession Area	m2	4'381	5'099
Restrooms	m2	34	40
Subtotal Landside Outbound	**m2**	**23'060**	**28'180**
2a2. Airside			
Passenger/Staff Security	m2	3'831	4'343
Passport Control (Emigration)	m2	1'332	1'527
Transfer Desks	m2	2'562	3'141
Airside Concession Area	m2	42'627	51'298
Airline Lounges	m2	15'000	18'000
Departure Gates	m2	13'731	15'635

Mechanical, Electrical and Plumbing (MEP), connecting circulation areas and the construction of the actual structure.

The peak hour passenger forecasts, aircraft movement forecasts and the various planning and operating assumptions can be modified for each development year and or project phase to reflect changing operating environments.

Area requirements and the number of counters or devices associated with key areas such as check-in, boarding pass control, security, emigration/immigration, departure lounge and or retail area, baggage claim and customs are determined.

APIS-C

The Air Cargo module models all outbound, inbound, transfer and transient cargo flows for all air cargo and express mail carried on dedicated cargo and express mail aircraft, and in the belly hold of passenger aircraft. It also includes all Road Feeder Service (RFS) cargo processed within dedicated cargo facilities. Desegregated annual and peak hour inbound, outbound, transfer and transient cargo forecasts form the cargo module basis along with dedicated cargo and express mail aircraft fleet forecasts, and various planning and operating assumptions pertaining to IATA cargo processing times and rates according to automation level, equipment and truck processing times and rates and equipment sizing and space requirements.

APIS-M

The Aircraft Maintenance module determines the required aircraft hangars to perform all Line maintenance, Level A, B, C, D and E aircraft maintenance checks along with the required aircraft paint and refurbishing facilities, and engine repair and run-up facilities. Annual airline and dedicated cargo and express mail fleet forecasts for narrow and wide bodied aircraft form the module basis along various planning and operating assumptions pertaining to maintenance check frequency and duration, the location of the checks and equipment sizing and space requirements.

APIS-G

The Ground Support Equipment (GSE) module forecasts the number of GSE required to handle all airline and dedicated cargo aircraft while determining the number of maintenance bays and workshops required to repair and maintain all GSE. GSE paint booth and body shop facilities are also determined along with fueling facilities and staging and storage areas. Annual and peak hour aircraft movement and fleet mix forecasts by ICAO Code form the basis of the module along with various planning and operating assumptions pertaining to aircraft seat load factors, number of bags per passenger, and the handling location of the aircraft. The frequency and duration of the maintenance checks, the location of the checks and equipment sizing and space requirements are also included.

APIS-F

The Fuel Farm module determines the number of storage tanks required to support forecasted aircraft operations along with the area requirements associated with fuel upload and download areas and administration and testing area. Fuel upload and download areas and fuel truck staging and storage areas located on the various apron areas are also determined. Forecasted annual aircraft movements by ICAO Code form the basis of the module along with planning and operating assumptions pertaining to storage reserves, fuel delivery methods, upload ratios and times and equipment sizing and space requirements.

APIS-A

The Airport Maintenance module forecasts the number of airport maintenance equipment and vehicles required to operate and maintain the airport, while determining the number of maintenance bays and workshops required to repair and maintain all airport equipment and vehicles. Paint booth and body shop facilities are also determined long with fueling facilities, and staging and storage areas. Forecasted annual passenger and air traffic movements form the basis of the module along with the amount of existing and future paved and unpaved surfaces, and number, type and size of airport facilities. Various planning and operating assumptions pertaining to frequency and duration of maintenance checks, the location of the checks, and equipment sizing and space requirements are also included.

APIS-R

The Runway length module determines the runway length required to accommodate all aircraft wishing to arrive and or depart the airport. For each aircraft type the reference aerodrome field lengths are modified to reflect the airport elevation, reference temperature, and runway slopes. Critical aircraft types per runway length can also be determined.

APIS-S

The Aircraft Stands module determines the number of aircraft stands required to support peak hour passenger terminal operations. These stands include contact, remote and remain overnight positions. Aircraft split by ICAO aircraft type combined with seat configurations and seat loads factors form the basis of the calculation along with stand utilization times.

APIS-E

The Aircraft Catering module forecasts the number of daily meal equivalents, the number of catering truck loading and unloading bays for peak hour operations and sizes the overall catering facility including truck staging and maneuvering areas on both the airside and landside. All operational planning parameters can be modified to reflect specific site conditions and unique facility operating requirements.

APIS-L

The landside traffic module models airport traffic volumes associated with passenger terminal and air cargo operations. For both types of operations, the transport user categories are identified and the modal splits and the trip distribution and number of trips generated are determined. The number of passengers per vehicle is estimated along with the vehicle size and dwell times. Utilizing this information, this information passenger terminal curb frontages are calculate along with the number of vehicle parking spaces, taxi cab, coach bus and ground transportation staging area requirements, and the number of roadways lanes and train platforms required.

For more information, contact:

Planport GmbH
Higgiweg 7
8308 Illnau, Switzerland
Phone: +41 52 345 36 34
info@planport.com