

## **Airline Service Process at Ataturk Airport: An Analysis of the Current Situation**

**SavaşSelahattinAteş**

Anadolu University  
Faculty of Aeronautics and Astronautic  
Department of Aviation Management  
Eskişehir, Turkey.

**Celal Hakan Kağnıcıoğlu**

Anadolu University  
Faculty of Economics and Administrative Sciences  
Department of Business Administration  
Eskişehir, Turkey.

### **Abstract**

*Air transportation service is to transport passenger, luggage and freight by an aircraft between two points so as to provide place and time benefit. This service is the combination of the service processes from more than one business field complementary to each other. In order to be able to design the new service process steps and improve the airline services, the current airline processes need to be analyzed and the relationships of the companies that are involved in airline services need to be understood. The study has been carried out to define the service process steps available at Istanbul Ataturk Airport and to develop the process network diagram. In the first section of the study, the basic operations constituting the airline service process are provided through a literature review, and in the second section, the operations constituting the airline service process and the companies responsible for providing these operations and the service process steps have been determined through semi-structured interviews. In the last part of the study, operation-based network diagram of Ataturk Airport service process has been developed via assessment of the study data.*

**Key words:** Airline, Service Process, Airline Management, System Analysis, Flow Diagram, Istanbul Ataturk Airport

### **Introduction**

The civil aviation system is a whole which gets together to perform the civil aviation operations and is comprised of the sub-systems interacting with each other. The air transportation business provided under civil aviation system includes the passenger, luggage and freight transport processes that provide place and time benefit by the aircraft between two airports. The air transportation operations are performed by the airline companies. However, the airline companies are not adequate alone while operating in air transportation. The airline companies need other companies which offer such civil aviation services as airport, airport ground handling, catering, fuel, security, customs and air traffic to perform the service provision. It shows the importance of considering the airport service as a whole such as G2G (Gate to Gate Concept) that consists of the process from the beginning to the end point of the airline service and such projects as A-CDM (Airport Collaborative Decision Making) that supports the shareholders to work in cooperation (Eurocontrol, 2011a). The airline service process (ASP) is defined as the combination of the different operation steps complementary to the various companies that contribute directly and indirectly to each other at the airport. The study has been performed in order to define the ASP at Ataturk Airport and to develop the operation-based network diagram of the airline services of the various companies that contribute to the process.

### **Literature Review**

The air transportation service consists of the strategical, tactical and operational activities that begin months before the date of travel. Therefore, the steps can be divided into two parts as the preliminary steps of airline service process and airline service process steps.

## **Preliminary Steps of Airline Service Process**

The most important step prior to ASP is that the airline company publishes their flight schedule. The airline company first conducts a market survey in the market where they want to perform flights. Commercial departments of the companies search for the frequency of airline service in the market, pricing policies, competitor's behaviors, and code sharing within the region and cooperation opportunities to decide the city pairs (Bazargan, 2004:30). The company creates a draft flight schedule consisting of the city pairs that meet the priorities and technical requirements. The airline company requests for the flight permission from the authority of the country in order to access to the markets in the draft schedule. In addition, the airline company requests for slot allocation for the time slots when they are intended to perform the flights from the airport company (Diederiks and Butler, 2006:19-24). The airline company whose slot and permission requests are accepted publishes two flight schedules as summer and winter schedules (IATA, 2012b).

When an individual buys a ticket a legal connection is created between the person and the airline company. Thus, the person gains an airline passenger status (Vukmirović et al., 2007:354). Air cargo passes through the customs documentation issuing operations such as packaging, marking, coding, AWB (Air Waybill) before the flight moment (IATA, 2011b:141; IATA, 2009:1-5).

## **Airline Service Process Steps**

The moment when the service process is performed constitutes a small part of the operation process but includes the most important part of it due to its structure (Carlzon, 1990). For the leaving passengers, the process begins with entry into the airport. During the check-in operation, the passenger and luggage are separated from each other. The leaving passenger passes through the security check. If the flight is one of the international flight, the passenger is subject to the passport check. The passenger passes through the boarding stage and to the aircraft (Curcio, Longo, Mirabelli and Pappoff, 2007; Ma, Kleinschmidt, FookesveYarlagadda, 2011). The leaving luggage is separated from the passenger after the check-in operation, and subjected to luggage scanning operation. In the following step, the luggage is sorted in accordance with the flights, and the loading operation begins (Jim and Chang, 1998:395). For the departure cargo, the process begins with the acceptance of cargo. Cargo is unloaded from the land vehicles, and the documentation and security control operations are completed. In the following step, the re-packaging (pallet packaging) operation is performed, and the cargo is transported to the aircraft and loaded (Khan, 2000:104). The departure crew gets on the aircraft after the security check and passport check.

After the incoming aircraft land in the airport runway, they use the taxi road and pass into the park position. GPU (Ground Power Unit) is connected to the aircraft and chocks are placed. The anti-collision lights are switched off. Following this process, the bridge is connected to the place and the doors are opened, the loads are unloaded and the aircraft is evacuated from the passengers. The arrival aircraft is met by the departure crew. After the crew has taken over the aircraft, they enter the flight information to the flight management system(FMS), weather condition is assessed, and performance calculations are performed. At the same time, the flight gets refueling, cleaning, water, air condition unit and necessary other services. After the technical checks, weight balance calculation, passenger and load taking are completed, the doors are closed. GPU and wedges are displaced from the aircraft. The anti-collision lights are switched on, and the push-back operation and de-icing/anti-icing activities are performed based on the requirement. After the clearance of the air traffic control tower, taxing starts and then departure is performed in the runway (Norin, 2008:31). By the way, the arrival passengers get off and are transported to the incoming passenger terminal and wait for the luggage. After the acceptance of luggage, the passenger gets out of the terminal (GaterslebenveWeij, 1999:1229). The incoming luggage is unloaded from the aircraft, and is loaded into the luggage conveyor, and meets with the passenger (Jim and Chang, 1998:395). The pallets are distributed, after the incoming cargo is unloaded from the aircraft. The cargo is passed through the document check, and loaded into the land vehicles (Khan, 2000:104). The transit-transfer passengers get out of the aircraft and are transferred to the connected flight.

## ***Purpose of the Study***

Ataturk Airport is the first airport in Istanbul introduced in 1912 for military purposes. There are cargo terminal, international terminal, domestic terminal and general aviation terminal facilities at Ataturk Airport.

The international flights terminal with capacity of 25.500.000 passengers/year and general aviation terminal facilities within an area of 2300 m<sup>2</sup> is operated by Build-Operate-Transfer (BOT) model (TAV 2013). The domestic flights terminal with a capacity of 12.800.000 passengers/year is operated by government institutions.

In 2012, Ataturk Airport was the 6th busiest airport in Europe by providing service for 45 million passengers (Wikipedia, 2013). Ataturk Airport has the highest passenger, load and cargo traffic in Turkey. In 2012, 34.45% of the total airline passenger transport in Turkey, 22.23% of the cargo traffic, and 33.40% of the flight traffic were performed by Ataturk Airport (DHMI, 2013).

This study is conducted to analyze the current condition of the service processes of the companies providing airline, airport, airport terminal, airport ground handling services (ASP shareholders), which are complementary to each other among the companies which directly contribute to ASP at Ataturk Airport and are responsible for the critical operations within the process.

The outputs of research can be used in determining and solving the problems and in giving decisions on investments at Ataturk Airport.

### ***Research Method***

The study includes the airline companies, airport companies and airport ground handling companies involved in ASP, which are operating as based in Ataturk Airport. Since the terminal operation at Ataturk Airport has been performed by a private company through BOT leasing method since 1997 (TAV, 2012), the terminal operation is involved in the study under a separate title. As the study context, the operation directors of the companies involved in ASP at Ataturk Airport were taken in 2012 by means of convenience and judicial sampling methods. The qualitative research methods were used within the scope of the study. The literature review conducted within the scope of qualitative data analysis and semi-structured interviews were dealt with by Miles and Huberman's data reduction, visualization of data, and result-verification method (Miles and Huberman, 1994:10-11).

The operation-based network diagram which shows Preliminary Steps of Airport Service used in the semi-structured interview was specially developed for this study. The figure of logistic processes at the airport suggested by Norin (2008) was taken as the basis for the preparation of the network of Airport Service Process Steps.

This study is comprised of two basic stages designing current processes with literature review-interviews and verification of the designed form. The interviews were performed by 20 operation directors. At the first step of the design stage, a draft operation-based network diagram was created for the ASP steps through literature review. After each interview the draft network diagram were changed if it's necessary and then, the next interview was performed. The important points of the data from the semi-structured interviews were summarized and analyzed. The operation-based network diagram at Ataturk Airport developed at the design stage was checked by the medium- and senior-level managers in verification stage whether the diagram reflects the real operations, or not.

### ***Findings and Analysis***

During the interviews conducted, the differences between the figure of ASP as obtained from the literature review and the application at Ataturk Airport were tried to be revealed. The semi-structured interview questions were divided into three groups as general questions, the questions related to the preliminary steps of Ataturk Airport service process and Ataturk Airport service process steps.

The general questions were about the profession, duty, graduated school and experience of the interviewed specialist. The questions related to the service process were asked to get how to understand the service process of the employees at the ASP. Finally, an ASP flow diagram was provided for the interviewees and their opinions were asked.

At the stage of design, 10 people between 30 and 63 ages who work at the operation management departments of the companies providing airport, airline, airport terminal and airport ground handling services were questioned during the semi-structured interview. The interviewees have 8 to 33 years of experience in aviation sector. Of the directors with whom interviews were conducted, 6 directors stated that they work at different levels (officer, chief, manager, etc.) of different departments.

At the stage of verification, a presentation including ASP network diagram was prepared. With the presentation prepared, the interviews were performed with 10 managers at operation director level. The semi-structured interview steps were followed during the interviews. The interviews were conducted with the operation directors at the airline companies who provide airport ground handling services, airport terminal operation and passenger-cargo transport. The directors with whom the interviews were conducted are between 31 and 55 ages, and they have aviation sector experience between 3 and 35 years.

When the replies were assessed, the ASP network diagram was confirmed by 9 directors. 1 director suggested the order of the steps for ASP network diagram need to be changed.

### **Preliminary Steps of Ataturk Airport Service Process**

At Ataturk Airport, the aviation authority, airline companies, airport companies, and ground handling companies, freight sender, and passenger were taken as the focus group of preliminary steps of ASP. The aviation authority is managed by General Directorate of Civil Aviation of the Ministry of Transportation (SHGM). SHGM has the right and authority to issue legal regulations and audit at each steps of service processes. In addition, the permission applications made by the airline companies are assessed by the aviation authority.

Airport companies are the most important infrastructure provider of ASP. The airport enterprise at Ataturk Airport is operated by General Directorate of State Airports Authority (DHMI), and the international flights and general aviation terminals are operated by TepeAkfen Ventures (TAV). The site selection during the construction phase of the airport and the investment planning are performed. DHMI Slot Coordination Committee performs annual slot allocation for the airline companies depending on the analyses and plans. The airport enterprise performs capacity allocation for seasons in two different sections as air side and land side in accordance with slot allocations. For the passenger terminal capacity allocation, the planning is performed based on the number of counter, passport, customs and security check points. The main subject of these plans is the assignment of the equipment and personnel. For cargo facilities, the planning of storage area assignments are done.

On the air side of the airport, the PAT (Runway, Apron, Taxiway) capacity is allocated based on the airline schedules. Another operation performed before airline service process is the air side and parking position allocation plans that directly affects the ground times. On the air side, another important plan is performed based on navigation facilities.

Airport ground handling services plans on tactical level based on the flight schedules before the airline service process. A ground handling agreement is prepared between the airline and ground handling companies according to the quality and quantity of the services to be received by the airline enterprises. The airline companies prepare service agreements based on the content of GOM (Ground Operation Manual). The ground handling companies plans separately the equipment and personnel, ramp, passenger services, operation and cargo departments according to the agreement they prepare with the airline and frequencies on the flight schedule.

Individuals' different reasons for travel can be named as travel sources. On the passenger part, some of the factors determining the transportation type include the purpose of travel, the destination and the socio-economic characteristics of the individuals. For the preference of the airline company, the flight schedule is one of the most effective factor. In addition, the ticket price, number of transfers, timeliness, duration of travel, comfort, image and other factors are effective.

The air cargo sender decides the type of transport they use considering the characteristics of the load to be sent. Such factors as the value, weight, and possibility of disruption are effective in determining the type of transport. The customer who decides on the air cargo dispatch makes a decision considering such factors as the dispatch price and number of transfers while choosing the airline company.

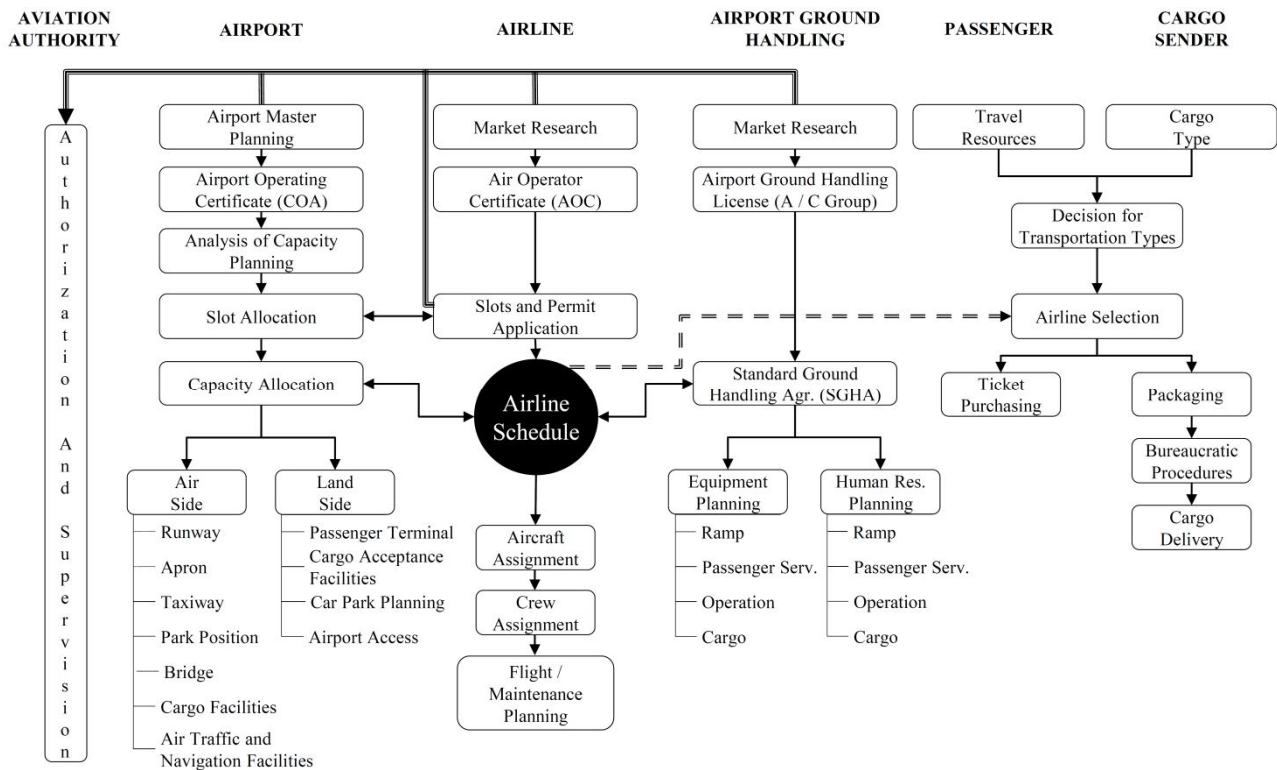


Figure 1. Preliminary Operations of Airline Service Process

**Ataturk Airport Service Process Steps**

The airline service process is performed within the process beginning from the point where the passenger, luggage and cargo enters into the departure airport using the land transport systems to the point where the flight ends, and the passenger, luggage and cargo departs from the arrival airport. Although the services provided differ in their physical characteristics, passenger and cargo type, the basic purpose is to provide the flight service safely and efficiently. The services provided by the aviation companies have the similar structure with respect to the international rules. At the passenger, luggage, cargo and mail airport terminal, they get the service from one of the three different categories including arrival (domestic-international flights), departure (domestic-international) and transit.

Services provided for the departure passenger: The services provided for the departure passenger begins with the entry into the airport and use of the interior ways within the airport. The car park may be required based on the type of the transport used by the passenger to access to the airport. The passenger and if any, the companions are subjected to the security checks at the entry to the terminal building. After the entry security check, the passenger arrives at the passenger terminal where such facilities as post office, bank, cafe and restaurant, etc. The passenger goes to the check-in counter, and gets a boarding card and delivers their luggage. The luggage to be loaded under the aircraft is separated from the passenger after the check-in operation. For the international flights, the passenger is subjected to passport control by the customs and security units, and then, pass through the security check. This phase is the last point where the companions can go together with the passenger. The passenger goes to the boarding gate as written on the boarding card or specified on the passenger information boards using the passenger conveniences. After the boarding operation, the passenger is transported to the aircraft and get on the aircraft.

Services provided for the departure luggage: The luggage separated from the passenger during check-in process is transferred to the chuteara through conveyor belts. The luggage is sorted and subjected to the security scanning. If the flight is an international one, then the luggage passes through the customs check and loaded into the luggage trolleys. The luggages on the trolleys are transferred to the aircraft, and loaded into the aircraft after baggage identification (Baggage ID).

Services provided for the departure crew: After the crew arrives at the airport, they use the interior ways at the airport, and if necessary, they get to the terminal building using the car park. The crew members are subjected to the security check operations at the gate to the terminal building. Then, the crew go to the department responsible for the operation check (flight operation office, operation control center, etc.) to get the necessary documentation and information for the flight. Dispatch and cockpit crew make a brief related to operation conditions, and approve the flight feasibility (dispatch release). After the approval, the cockpit and cabin crew get together, and share the approved flight conditions (crew briefing). If the flight is an international one, the crew members have to pass through the passport check. The crew gets on the aircraft prior to the passenger and checks the aircraft and service processes.

Services provided for the departure cargo: The services provided for the land side of air cargo process steps are different from the services provided for the other members (passenger, luggage, crew, and companions) in the focus group. The incoming of the air cargo can vary depending on the type of cargo (especially cargo or last minute cargo). After the entrance of the cargo to the airport, the cargo uses the interior ways of the airport and arrives at the cargo terminal. At the entrance of the cargo to the terminal site, the vehicle carrying the cargo is subjected to security check. The documentation related to the air cargo is received from the vehicles and checked. Then, the cargo is unloaded to the cargo terminal.

The cargo is subjected to the security check at the entry of cargo terminal building and then to the classification (hazardous, precious, etc.) based on the type and packaging (pallet packaging, loading onto the container, etc.). The mandatory documents are issued, and if necessary, the cargo is stored. If the cargo is an international one, it is cleared through the customs and transferred to the aircraft, and loaded into the holds of the aircraft.

Services provided for the arrival passenger: The passenger who gets off the aircraft is transferred to the terminal building. If the arrival passenger comes through an international flight, then the passenger is subjected to passport check. The passenger gets to the luggage conveyor belt assigned to the flight and takes their luggage. The arrival passenger who comes from the international flights uses facilities like duty free shops, and they are subjected to the customs check. The passenger gets to the area where they can make use of such facilities as rent-a-car, bank, etc., following to the free terminal zone. If the passenger has any greeters, then the greeters can accompany the passenger following to this point. The passenger makes use of the car park, after getting out of the terminal building, if they need to do so, and leaves the airport using the interior ways of the airport.

Services provided for the arrival luggage: The incoming luggage is transferred to the terminal building after being unloaded from the aircraft, and they are loaded onto the luggage conveyor belts.

Services provided for the arrival crew: If the arrival crew does not proceed with the next flight, they can get off the aircraft after the passenger deboarding operation is completed, and the technical crew get on the aircraft. The arrival crew is transferred to the passenger terminal. For the international flights, the crew has to pass through the passport and customs check. If the crew does not have any documentation required to be submitted with respect to the flight performed by the crew (captain report, etc.), they can pass through the free zone and leave the terminal building. If necessary, the crew makes use of the car park, and leaves from the airport using the interior ways of the airport.

Services provided for the arrival cargo: After the arrival cargo is unloaded from the aircraft, it is transferred to the cargo terminal. The cargo is sorted after their documentation operations are completed, and if necessary, the cargo is stored. If the flight is an international one, then it is subjected to the customs operations. Later, the cargo is loaded onto the land vehicles to deliver it to the customer. The cargo leaves the airport using the interior ways of the airport.

Services provided for the connected passenger: For the connected flights, the passengers or the cargos change the flight, or wait for the next flight without getting off the aircraft at the transit airport to arrive at the destination. In this process, the passenger who changes flight from the domestic flight to the international flight is not subjected to a further customs and passport operation, if they have already passed through the first departure airport. The passenger coming from international flight and going to another international flight is transferred to the departure. If the waiting time is too long for the connected flight, the passengers are transferred into the transit lounge, and the transit/transfer operations are performed.

Services provided for connected luggage: After the luggage owned by the connected passenger is unloaded from the aircraft, the transit/transfer luggage operations are applied. After the transit/transfer operations, the luggage is loaded onto the connected flight.

Services provided for the arrival aircraft: The arrival aircraft is provided with the approach and final approach service from the ATC (Air Traffic Control) clearance and land to the runway. When the aircraft starts the final approach process, the ground handling company pulls over their service equipment to the parking position, and takes ramp safety measures and waits for the aircraft. The ramp safety measures include such operations as FOD (Foreign Object Damage) scan, installing cones, and marshalling service. Following to the taxiway, the aircraft gets to the parking position. The aircraft is marshaled to the parking position by being routed by the ground handling or airline personnel. The Anti Collision Lights are switched off by the cockpit crew, and chocks are placed for the aircraft. A GPU is connected to the aircraft to supply the necessary power required within the process when the aircraft stays on the ground. The ground handling personnel checks the incoming aircraft for the damages by walking around the aircraft (Walkaround Check). In case of any damage, the damage forms are filled in regarding that the aircraft is arrived as damaged from the departure airport, and the airline company is informed thereof. While these processes are going on, bridge-stairs is connected on aircraft, the loading equipment is pulled over, and the aircraft doors are opened with the clearance of the cabin crew and operation personnel, and the passengers get off the aircraft. The passengers who get off and the loads are transferred to the terminal building, and the arrival aircraft service process on the air side is completed.

Services provided for the departure aircraft: The departure aircraft is to be visually checked by the cockpit crew before the departure of the aircraft (Walkaround Check). The operation personnel of the ground handling service company shares the information about the processes carried out for the outgoing aircraft and other subjects (e.g. the payload and properties, the number of the passengers, etc.) by cockpit briefing with the cockpit crew. The operation personnel is informed by the cockpit crew about the fuel and optional services provided for the aircraft during ground time (equipment support based on the requirements) with cockpit briefing. The operation personnel coordinates the fuelling and the loading of catering required for the flight. At the time of these processes, required amount of clean water for the flight is loaded onto the aircraft, and the dirty water is ensured to be discharged from the aircraft. The technical crew holds a technical briefing with the cockpit crew about the technical conditions of the aircraft (technical briefing), and reviews the technical log book of the aircraft. As a result of these, the technical crew and cockpit crew decide on the preventive and/or corrective maintenance operations related to the aircraft failures. Such documentation operations as the documentation used in loading the aircraft, the passenger manifest, the customs documentation for the international flights, etc. are completed at the same time. The crew release is expected to receive the passengers on board. The cabin crew confirms to take the passengers on board, after the cleaning has been completed. As there are special conditions to be complied with for simultaneous performance of boarding passengers and refueling, the refueling is usually performed when the passenger is not on the aircraft. After the loading, the aircraft doors are closed upon the decision made by the cabin crew and operation personnel. The bridge/stairs and loading equipment are taken back, and if any, the GPU is disconnected from the aircraft. If necessary, air starter unit is used. The cones are displaced by taking ramp safety measures. When it is confirmed by the air traffic control unit, the push-back, engine start-up and taxiway processes are started. The anti collision lights are switched on. Following to the taxiway operation, the aircraft gets clearance to enter into the runway at the holding point. In winter season, if necessary de-icing/anti-icing operations are applied onto the aircraft. After aircraft gets the clearance, it enters into the runway and takes off.

The services provided for the passenger, cargo, luggage, crew and the companions are classified in two groups including land side and air side. Different lines are used for each of the focus groups (passenger, companion-greeter, cargo, luggage, crew and aircraft) taking services. Each arrow placed next to these lines represents the service process steps. These generalized operations are supplied by different companies. The services provided for these focus groups are indicated as the complementary operations for each other.

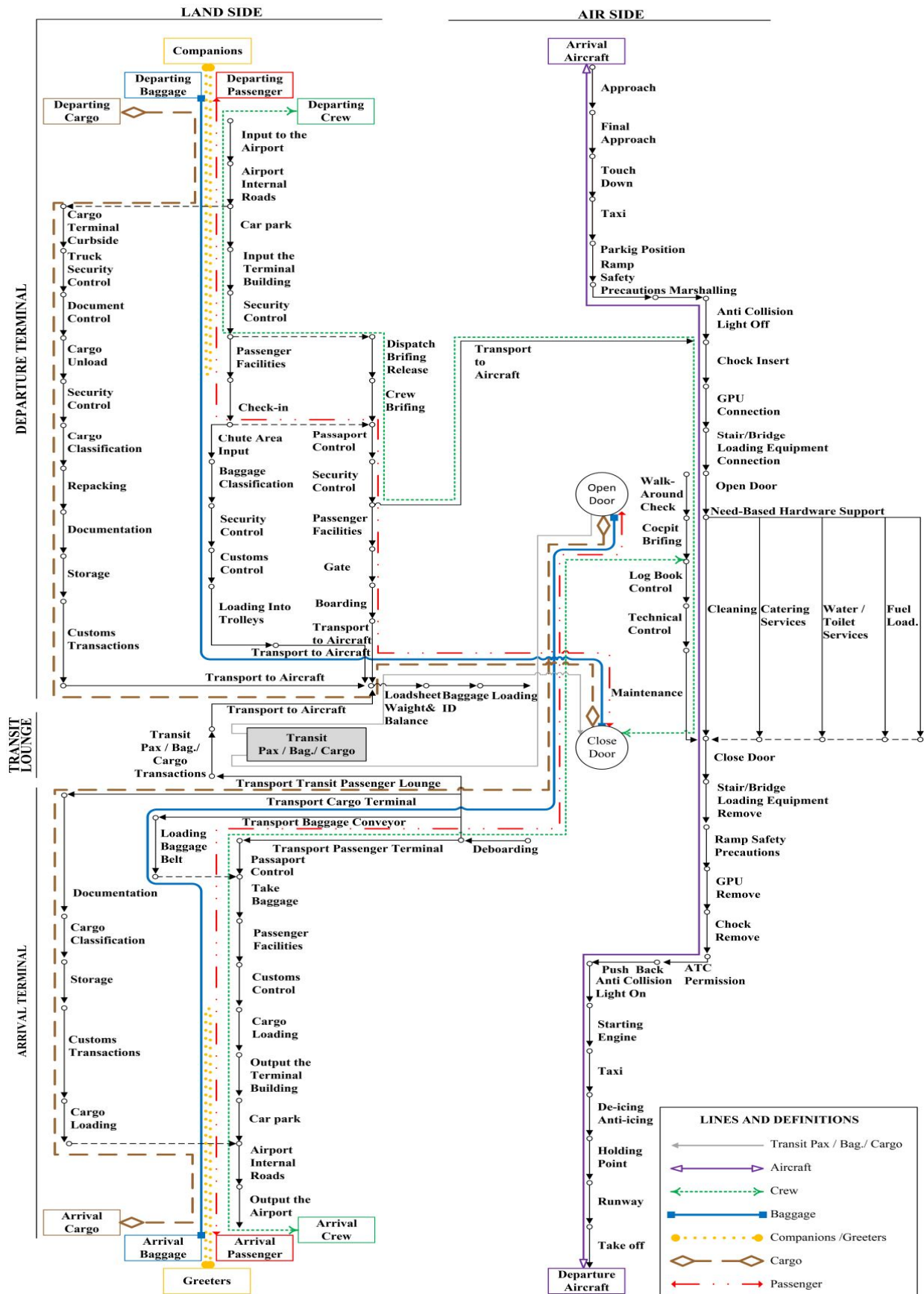


Figure 2. Operation-Based Network Diagram of Ataturk Airport Service Process



## **6. Conclusion**

For the efficiency of the airport service process steps to be measured and improved, the complementary service process steps are to be defined and analyzed as a whole. The framework of the ASP steps is established under the national and international laws and regulations. However, the ASP steps may differ with the applications of the companies involved in the process. As a result of the study conducted, some differences were found between Ataturk Airport and ASP steps as defined in the literature. As a result of the study, the operation-based network diagram for ASP is provided in Figure 2 specifically for Ataturk Airport. Some of the differences are related to operations carried out on the ring road and access roads at the airport, and at the car park and airport entry zone. Some passenger facilities like tax-free stores are different from the literature. The approach and final approach of an aircraft processes are defined as the important steps for such reasons as that the air traffic service is provided by the airport enterprise, and that most of the airport enterprise directors have previously been employed at air traffic control unit. Another step which does not have so much relevant studies carried out on it in the literature and is found to be important as a result of this study is the visual check of the aircraft (walk around check). The walk around check is carried out by the cockpit crew, ground handling operation personnel and technical personnel after the landing of aircraft. In addition, the briefs held by the ground handling and technical crew separately with the cockpit crew are also defined as an ASP step different from the literature.

The order and structure of the ASP steps have found to be changed based on the travel purpose of the passengers using the airline service. In addition, the arrival airports of the passengers cause the change of the processes. For example, the liquid restrictions required to be complied with during the flights to EU and USA as well as domestic flights, and the flights requiring additional measures such as the flights to Israel cause changes in ASP. At Ataturk Airport, especially the liquid restrictions of intense capacity of flights to the EU countries are rendered a standard application for all the flights.

The competition strategies adopted by the airline companies involved in the ASP (cheap, differentiation, focusing), the content of service standards, and characteristics of the passengers choosing the airline company, and the type of cargo and luggage is another factor that cause differentiation at ASP. As a result of the semi-structured interviews, whatever is the type of company and are the strategies of the companies, one of the most important problems with the aviation companies is found to be the delays. Delays affect every side of the ASP providers and especially the customers.

The airports are the most important infrastructure providers in providing the airline service process. The foundation of Ataturk Airport's dating back to 1912, absence of any master plan used as reference for the improvement and investments, the investments' being made after the operational faults have emerged, and failure to conduct strategic risk analyses in the investments are found to be the most important obstacles in front of the efficient use of airport facilities. Ataturk Airport is an airport where the passenger flights are frequently performed, and the freights are usually transported in parts underneath the aircraft. Therefore, the cargo process steps are simple on both air and land sides. In addition, the operation of the terminal enterprise by a private company causes the diversity of the passenger terminal services and car park service steps.

It affects the structure and content of the ASP applications determined by the relevant company that approx. 70% of the passenger traffic is operated by the flag carrier company. For example, it has been determined that usage of Ataturk Airport as a center for Transit/Transfer by the flag carrier company significantly affects the process standards. In addition to the rapid growth of the aircraft fleets of the airline companies which has chosen Ataturk Airport as the hub, it is another important problem that the airport could not achieve the same rapid growth.

The facilities and equipment at Ataturk Airport are among the most important factors that affect the ASP steps. The major faults due to the infrastructure of the airport are problems due to PAT site, terminal building and problems due to the belt conveyor. The problem of not able to use the parallel runways landing operation at the same time are given as an example for the airport runway problems. In addition, inadequate infrastructure causes the lack of parking positions during the peak seasons. The inadequacy of the pockets on apron, and the ways where congestion of land vehicles traffic are the reasons for failure. The problems with the connection between domestic and international transit passengers in the terminal building, insufficient number of boarding bridges which play an important role in the connection between the terminal and air side, and the occasional problems with the flow of belt conveyor, etc. are considered to be the reasons for failure due to the problems of insufficient infrastructure.

Moreover, the meteorological conditions also cause variations in order and content of ASP steps from the literature such as the de-icing service for the departure aircrafts in winter months. For example, if the wind blows to the South at Ataturk Airport, it causes decrease in the capacity of runway during landing and taking-off.

Network diagram of the ASP processes at different airports by expanding the scope of study using similar methods, and different ASP's depending on the airports can be a valuable study subject. The time measurement of the process steps based on different flights is another subject that will be useful in the determination of ASP standards, clearly.

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