MIT School of Distance Education

A PROJECT REPORT

ON

Principles of Airline And Airport Management

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PGD IN OPERATIONS MANAGEMENT

MIT SCHOOL OF DISTANCE EDUCATION, PUNE.

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MIT School of Distance Education

YEAR 2021-2023

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To

The Director

MIT School of Distance Education,

Respected Sir,

This is to request you to kindly exempt me from submitting the certificate for Project

Work due to the reason mentioned below:

Thanking you in anticipation of your approval to my request.

Regards

Student Sign: -

Student Name: -Manish Sankhere

Student ID: MIT202101996

DECLARATION

I hereby declare that this project report entitled **"Principles of Airline And Airport Management"** bonafide record of the project work carried out by me during
the academic year **2021-2023**, in fulfilment of the requirements for the award of **"Post
Graduate diploma in Operations Management"** of MIT School of Distance Education.
This work has not been undertaken or submitted elsewhere in connection with any
other academic course.

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I would like to take this opportunity to express my sincere thanks and gratitude to
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successfully.
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endurance and encouragement during the course of the project.

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Principles of Airline And Airport Management

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1. History of aviation

- *1.1 Kites*

The history of aviation dates to the 5th century with the invention of kites in China.
The history of aviation has extended over more than two thousand years, from the earliest forms of
aviation. Kite flying in China dates back to 5 BC and slowly spread around the world.

- *1.2 Drafts of Aircrafts*

The famous artist Leonardo da Vinci created the first drafts for a rational aircraft in his paintings in the
15th century.
In 1647, Tito Livio Burattini developed a model aircraft featuring four pairs of glider wings. But it never
supported the weight of a person.

- *1.3 Hot Air Balloon*

The discovery of hydrogen in the 17th century led to the development of the first hydrogen balloon. In
1783, the Montgolfier brothers, including Jacques-Étienne and Joseph-Michel, flew the first unmanned hot
air balloon over Annonay, France. The same year, they flew a piloted, tethered hot air balloon with Giroud
de Villette, Jean-François Pilate de Rozier, and Jean-Baptiste Réveillon onboard. Later, they launched
their first untethered hot air balloon flight, which flew nine kilometres in about 25 minutes.
The hot air balloon became exceptionally popular during the late 18th century, which led to the discovery
of the relationship between altitude and atmosphere. However, the main downside of hot air balloons was
a lack of manoeuvrability.
Kites Festival in China Hot Air Balloon in Europe

Timeline of Aviation history

- *1.4 Theory of Flight*

The invention of airships came to solve the issue with hot air balloons. Unlike hot air balloons, airships
used hydrogen or helium gas to lift and were the first ones to carry passengers over long distances. The
Man Who Discovered theory of Flight: Sir George Cayley (27 DEC 1773- 15 DEC 1857) was English
engineer, inventor and the Aviator. He is the most important person in the history of aeronautics.
Modern aircrafts design based on those discoveries and on the importance of cambered wings identified
by Cayley.
Alberto Santos-Dumont was the first person to fly an untethered airship designed with an internal
combustion engine. In 1901, Santos-Dumont launched his airship known as ―Number 6‖ over Paris in less
than thirty minutes. In 1899, Ferdinand von Zeppelin started building the first Zeppelin airship, which
featured two Daimler engines. In 1902, Leonardo Torres Quevedo launched his version of The Zeppelin,
which dealt with the balancing problems of the first Zeppelin. However, the fatal crash at Lakehurst, New
Jersey, in 1937 marked the end of the airship era.
So many inventors, including Orville and Wilbur Wright, tried to invent a flying machine. Most airplane inventors at the time were impulsive and disorganized; they would think of an idea, build a
plane as quickly as they could, and then try to fly it as soon as possible. Some people tried strapping
wings to their arms.

- *1.5 Flying machine*

Following a step by step method, discovering aerodynamics forces then controlling the flight, the brothers

built and tested a series of kite and glider designs from 1900 to 1902 before attempting to build a powered
design. Their first glider, launched in 1900, had only about half the lift they anticipated. Their second
glider, built the following year, performed even more poorly. Rather than giving up, the Wrights
constructed their own wind tunnel and created a number of sophisticated devices to measure lift and drag
on the 200 wing designs they tested. As a result, the Wrights corrected earlier mistakes in calculations
regarding drag and lift. They conducted a program of aeronautical research and experimentation that led
to the first successful powered airplane in 1903 and a refined, practical flying machine two years later by
1905. Still, few are remembered so well or mentioned so often as the Wright Brothers, whose "Flying
Machine" was the first powered airplane to execute controlled and sustained flight.

2. Indian Aviation

Indian Aviation started in the year 1932. Mr. Jehangir Ratanji Dadabhoy Tata is known as the 'FATHER OF

INDIAN CIVIL AVIATION'.

Aviation Defined in three terms:

1. General Aviation- This term is used for all civil aviation operations other than scheduled air services and non-scheduled air transport operations for remuneration or hire. General aviation flights range from gliders and powered parachutes to corporate business jet flights.
2. Civil Aviation (Commercial Airlines & Cargo)- Civil aviation is one of two major categories of flying, representing all non-military aviation, both private and commercial. Civil
aviation includes two major categories: Scheduled air transport: - including all passenger and cargo flights operating on regularly scheduled routes; and Non Schedule Flights:- can be only cargo or only passenger. Usually not a planned service.
3. Military Aviation (Army, Navy & Air Force)- Military Aviation is the use of military aircraft and other flying machines for the purposes of conducting or enabling aerial warfare, including national security, national airlift (air cargo) to provide logistical supply to forces stationed in a theatre or along a front or border.

2.1 Development of Air transportation in India

Types of Air Services in India

Compared to what aviation was 20 years ago, aviation is accelerating itself in a high speed. Reduced numbers of FSC(Full Service Carriers) or liberalization of LCC(Low Cost Carrier) and
ULCC(Ultra Low Cost Carrier)is a development for air transportation in India. More number of LCC or
ULCC helps the middle class and lower class passengers to travel in air. Indian government has come up
with a bigger step to develop the air transportation with the help of RCS (Regional Connectivity
Scheme).

All the above types of airlines explained in detail:

2.2 • **FSC- Full Service Carriers** give all services which is included in a ticket. Example: Food
and beverages, Wheel Chair Service, Lounge access and so on. A full service airline typically offers
passengers in flight entertainment, checked baggage, meals, beverages and comforts such as blankets
and pillows in the ticket price. The seats generally have more recline than a low cost carrier as well as

more leg room. The cost of a ticket can only be afforded by a high class traveller. There were only FSC
until 1990s in India.

2.3 • **LCC- Low cost Carriers** give only few services as included in the ticket while others have to
be paid for. Example: Wheel Chair Services, Water in flight, and PPE kit are free but window seats, food
and beverages, priority of baggage will be charged.

A low-cost carrier or low-cost airline (also known as no-frills, discount or budget carrier airline, or LCC)
is an airline without most of the traditional services provided in the fare, resulting in lower fares and
fewer comforts. A LCC developed the air transportation in India as Middle class and lower class
travellers could afford these tickets. Simplify Deccan was the first LCC in India started in 2003.

2.4 • **ULCC- Ultra Low Cost Carriers** give nothing free of cost. Everything from water bottle
to a specific seat should be paid for. The term "ultra low-cost carrier" (ULCC) has been used to refer to
carriers that do not provide services and amenities
like assigned seating, catering, differentiated premium cabins, satellite or ground- based Wi-Fi internet,
and in-flight audio and video entertainment. The tickets of an ULCC is cheaper than a LCC which again
helps middle class and low class travellers in flying. This is an upcoming development in Indian Air
transportation as it was proposed by government in the year 2019 and there are only 2 Airlines as
ULCC currently (Go First and Air Akasha).

2.5 • RCS/ Udan - Regional Connectivity Scheme are only used to connect small destination with a metro station and it is usually similar to LCC or ULCC.UDANRCS,
UDAN (Ude Dash ka Aam Nagarik) is a regional airport development
and "Regional Connectivity Scheme" (RCS) of GOI with the objective of "Let the common citizen of the
country fly", aimed at making air travel affordable and widespread, to boost inclusive national economic
development, job growth

***2.6** How does development of RCS help in India*

The RCS has two components.

a. The First component is to develop new and enhance the existing regional airports to increase
the number of operational airports for the scheduled civilian flights from 70 (in May 2016, total 98
operational including army airports) to at least 150 airports (by December 2018) with regular scheduled flights. Out of total 70 airports included in round-I, 43 are regional airports to be newly

operational, RCS-Udan operations have commenced from 13 regional airports and additional 12
regional airports are ready to receive flights, 18 regional airports still require significant upgrade
(November 2017).
b. Second component is to add several hundred financially-viable capped-airfare new regional
flight routes to connect more than 100 underserved and un-served airports in smaller towns with each
other as well as with well served airports in bigger cities by using "Viability Gap Funding" (VGF) where
needed.
UDAN-RCS Round-I concluded in April 2017, 5 airlines companies were awarded 128 fixed- wing
flight routes to 70 airports (including 36 newly made operational airports, taking the total number of
operational airports with civilian scheduled flights to 106 and total 131 airports operational with civilian
and army operation including dual use airports).

- **2.7 Segregation of Carriers and the Airlines in India**

Full
Service
Carriers
Low
Cost
Carrier
s
Ultra Low
Cost
Carriers
Udan/
Regional
Connectivity
Scheme
Air India Air
India
Express

s
Go Air
(Go First)
Star Air
Vistara Indigo Akasa Air Air Alliance
Jet Airways Air Asia
Spice Jet Air Odisha
Fly Big

3. Major players in Airline Industry

• The aviation sector in India is one of the fastest growing in the world with around 18.9% growth in domestic passenger traffic in last two years. By five years, the domestic passengers‘ traffic in India is set to increase up to 240 million.

Major players in Indian industry :

The boom in the aviation sector started during the last ten years with the entry of various private players
in the domestic market leading to a significant reduction in air fares. Till then, domestic flying in India
was as costly as international flights. But today, there are at least ten different airlines operating in the
domestic routes, thereby giving Indian travellers competitive prices.
The biggest headline maker in the global aviation industry in recent times is not Cathay Pacific or
Lufthansa but a domestic player from India, known as _Indigo Airlines ‘. It made headlines by placing the biggest order in the history of Airbus worth 16$ billion to buy 180 A320s. This
includes 30 classic A320s and 150 upgraded versions called A320neo.
At a time when the developed economies are complaining about slow growth rate and high unemployment, such new investments are indeed a boon. They are creating jobs and helping these
companies to sustain at a time of global crisis and reduced profits.
As things stand today, the three largest domestic airlines are IndiGo, SpiceJet, and Air India. Recently launched airlines that lag slightly behind are GoAir and Vistara.
Their market shares are as follows:
Market share of airlines across India in financial year 2022
While the existence of smaller, regional airlines across the country is undeniable, there are a handful of
key players in this market that will benefit greatly from the growth of the Indian aviation industry. In

fact, the largest airlines (mentioned above) have already seen a large level of upside owing to the
growth of the industry in the past 5 years.\

3.2 Major Players in World Airline Industry Qatar Airways

In a relatively short time, Qatar Airways has grown to more than 140 destinations worldwide, offering

levels of service excellence that helped the award-winning carrier to become best in the world. Qatar
Airways network spans business and leisure destinations across Europe, Middle East, Africa, Asia Pacific,
North America and South America irrespective of the fall due to Covid-19.

Singapore Airlines

Singapore Airlines is one of the most respected travel brands around the world. Flying one of the youngest
aircraft fleets in the world to destinations spanning a network spread over six continents, the Singapore Girl
is an internationally-recognisable icon providing the high standards of care and service that customers have
come to expect of Singapore Airlines.

ANA All Nippon Airways

ANA All Nippon Airways is the largest airline in Japan. Founded in 1952, ANA flies to around 80
international routes and over 110 domestic routes. ANA has been a member of Star Alliance since 1999. Its
Frequent Flyer Program, ANA Mileage Club, has more than 29 million members. ANA was the launch
customer and is the biggest operator of the Boeing 787.

❖ *3.3 Market potential of Indian Airline Industry*

The International Air Transport Association (IATA) released a comprehensive report on India‘s aviation
market. The report focuses on the challenges of realizing the economic and social benefits of an Indian
aviation industry that has tremendous potential for continued high-speed demand growth.

3.4 Comparison of Airline Industry in 2010 to 2020 and 2030

Indian aviation is growing fast:-

• In 2010, 79 million people travelled to/from/or within India. By 2022 that doubled to 138 million. That
number is expected to treble to 520 million by 2037.
• Air transport makes a significant economic contribution to India
• Aviation in India supports 7.5 million jobs: 390,000 directly, 570,000 in the value chain, and 6.2
million in tourism.
• Aviation contributes some US$30 billion annually to India‘s GDP.
• India will be the third largest domestic market (behind the US and China)
• Domestic load factors are high, hitting a record 90% in February 2018.
• The 98 million domestic passenger trips in 2022 equal 7.3% of India‘s population.
• After adjusting for inflation, average domestic fares fell by more than 70% since 2005.
• The number of domestic airport pairs is 700 (a 50% increase on 2015 levels).
• Low cost carriers account for about 70% of domestic seats.
• In 2017 there were about 60 million international journeys to/from India.
• Airbus has forecast that India will require 2,210 new aircraft over the next 20 years.
• Foreign carriers have captured 94 per cent of the growth in the long-haul market over the last
20 years. The Airbus officials pointed out that India only has 57 wide body aircraft across its airline fleet, compared to 458 in China and 686 in the US.

• Low cost operators account for about 25% of international capacity.
• India is directly linked to 304 international destinations, up from 230 in 2008.
• About 41% of India‘s direct international connectivity is to the Middle East—much of it to super connector
hubs of UAE and Qatar.
• The Indian outbound air cargo market topped 1 million tonnes in 2017 (+16.9% on 2016)
• UAE is India‘s largest cargo market (30%); Ethiopia is the fastest growing of the main markets
(+114% on 2016).
• Delhi and Mumbai are India‘s largest cargo hubs; Mumbai and Chennai are the fastest growing
(+18.1% and +17.2% respectively).

❖ *3.5 What is expected from the Indian Airline Industry in the future!*

• Fundamentals supporting Indian market growth are strong. By 2036 India‘s population is expected to
reach 1.6 billion and average incomes are expected to rise to almost $5,000 per capita (a five-fold increase
on 2006). With that, the number of ―middle class‖ households should reach 20% by 2036 (up from 2% in
2006).
Domestic markets will continue to drive industry growth. Of the 359 million additional passengers
expected to fly in 2036, 228 million will be on domestic routes and 131 million will be connecting
internationally.
• In October 2021, the average daily domestic passenger flight departures stood at >5,857, with average
daily domestic traffic being >7,00,000 air passengers
• Between FY16 and FY21, freight traffic declined at a CAGR (compound annual growth rate) of -1.77%
from 2.70 million tonnes (MT) to 2.47 MT. Freight traffic on airports in India has the potential to reach 17
MT by FY40.
Aircraft movement declined at a CAGR of -7.79% from 1.60 million in FY16 to 1.20 million in FY21.
From FY16 to FY21, domestic aircraft movement decreased at a CAGR of -6.44% and international
aircraft movement declined at a CAGR of -18.52%. India‘s domestic and international aircraft
movements reached 1,062 thousand and 135 thousand, respectively, in FY21.
To cater to the rising air traffic, the Government of India has been working towards increasing the number of
airports. As of 2020, India had 153 operational airports. India has envisaged increasing the number of
operational airports to 190-200 by FY40

Further, the rising demand in the sector has pushed the number of airplanes operating in the sector. The
number of airplanes is expected to reach 1,100 planes by 2027.

❖ *3.6 Current challenges in airline industry*

The aviation industry is a world in itself, encompassing a massive workforce and contributing a significant
percentage to the global economy. The sector was set for major growth, challenges notwithstanding, until the
pandemic hit, post which it plummeted to a considerable extent. Yet, it is fair to state that despite the
economic impact of COVID -19 on airline industry, it has been on the road to recovery, and may very well
get back to the mainstream in a few years.
According to a research released by the Air Transport Action Group (ATAG) in 2018, the global aviation
market outlook had been quite positive over a couple of years earlier. The report stated that at the time, the
global air transport sector supported more than 65.5 million jobs and was responsible for a mammoth USD
2.7 trillion in economic activity worldwide. Additionally, the report claimed that a free-trade approach will
help further the growth in air transport, and it will come to record USD 5.7 trillion in economic activities by
2036, while supporting around 97.8 million jobs.
The airline sector does, therefore, play a fundamental role in today‘s society, but it is also important to
highlight that it has its own fair share of challenges. From battling recessions to government regulations and
terrorism to labour shortage, there are innumerable issues this sector has been facing.
The paragraphs below enlist some of the challenges of the aviation industry prior to the pandemic:

 # 3.7 Fuel Efficiency :- Aviation fuel availability and costs have remained one of the major economic
factors affecting the airline industry since nearly three decades. High jet fuel prices have a direct impact on
the airline‘s financial portfolio. With the number of airline companies rising year-on-year, fuel prices were
on an all-time high, creating a vicious circle. Alternative fuels haven‘t really been that impactful, thereby,
maintaining fuel efficiency falls among a battery of key challenges of the aviation industry.

 # 3.8 Global Economy :- The state of the world economy is one of primary challenges of the airline
market. The 2008 economic recession for instance, had a disastrous impact on the aviation industry size. As
global economy collapses, travel and fuel costs increase, while passenger numbers decrease. The impact of
the recession on the tourism sector is also one of the key economic factors affecting the airline industry. As
air travel companies seek expansion across various nations and explore new routes, they must keep in mind
the market conditions and volatility in the regional zones. Also, various nations have different economic
conditions for growth, a factor which airline companies must remember when they seek international

expansion.

 # 3.9 Passenger Comfort & Experience:- The aviation industry is service-driven; its success depends
enormously on how satisfied passengers are. The reason passenger comfort forms the crux of challenges
faced by the airline industry is that no passenger is alike; at some point, a section of customers may always
be dissatisfied. However, this is what has pushed airline companies to ensure seamlessness throughout –
the actual air travel, excellent security, less/no hassles in airport lines, convenient baggage claim, customer
care, and more.

To achieve these in a flawless manner is a consistent tussle of sorts. Customer surveys and feedback
always depict that not all passengers have great travel experiences. For instance, IATA's 2017 Global

Passenger Survey depicts that only around 56% of North American customers were happy with their last
travel experience. To that end, there's always space for bettering customer comfort, which airline
companies will continue to battle with.

#3.10Airline Infrastructure:- Airports must consistently upgrade their infrastructure – the runways,
terminals, concourses, hotels, shopping centres, lounges, and more. There is major competition in this
area; to maintain the reputation of the airline and remain ahead of competition, onsite amenities such as
aircraft ground handling systems will need to be periodically renovated. While doing so occasionally is
advantageous no doubt, leading to increasing passenger numbers, repeating the upgrade every now and
then will have a significant impact on the airline company's finances.

Aircrafts need to be periodically upgraded and maintained as well – this in fact, is even more crucial, as
passenger safety is reliant on the same. Having faulty aircraft doors or aircraft seating is liable to get the
airline sued. Airline infrastructure is one of most vital challenges of the aviation market, as carriers need to
maintain their current fleet and also ensure to purchase new, modern ones, while ensuring fuel efficiency
and lowered costs.

#3.11 Technological Advancements:- To think that technological developments are one of the challenges of
the airline industry may come as a surprise. Technology, however, is a double-edged sword, and despite the
revolution it has brought about, rising dependence on the same can make the entire industry vulnerable. For
instance, in case of a software issue, the operations of the airline may remain crippled until it is resolved. In

case of insufficient funding, upgrading crucial infrastructure such as aircraft communication systems may be
impossible, causing the entire system to collapse.

❖ *3.12 Competition in airline industry:*

Air transport has radically evolved over the last two decades. Liberalisation and deregulation of the sector
have facilitated the entry of new firms, which in turn has had a positive impact on competition and
innovation. Deregulation and liberalisation also significantly altered marked structure, giving rise to mergers
of flag airline carriers and diverse forms of collaboration.
However, in some cases, collaboration can actually be anti-competitive. It is essential to ensure that former
regulatory barriers are not replaced by anti-competitive airline mergers, alliances, agreements and unilateral
practices.

❖ *3.13 Competition inside an Airline*

There is usually a healthy competition in an Airline‘s network. Most importantly for the below
reasons:

• From the time an aircraft is on stop position, First Bag time and Last Bag time of an arrival flight is
always kept note of. It is the discussed and competed with the other stations(hubs) in a particular airline
network.

• Just like First bag and Last bag, On Time Turnaround and On Time Performance of a flight is
calculated. In most airports, if a turnaround time(time from the aircraft was in stop position to the time
aircraft departs) is less than 40 mins, airports don‘t charge parking fees.

• Feedback from Passengers is also considered as a competition. This helps airline to have a tract of
loyal customers and helps in proactive marketing.

• Pax Flow- The number of passengers flew from a specific station is also a competition as this decides
the number of sales and profit made from a specific station.

• At times, extra services given by an airline is counted to identify the number of passengers using the
services. For example- Wheelchair Services.

All of these are taken into account when it comes to giving bonus to the employees as the best station, gets
the most bonus.

❖ 3.14 Competition for an Airport

Just like an airline, an airport also competes with another airports in the country or world. The Reasons as
below:

• Exactly like an airline, an airport also calculates the time of first bag and last bag. This is later

discussed with all other airports and the best airport is decided by the ones which gives fastest services to
the passengers.
• Passengers using an airport are asked for feedback as it decides any amendments in the airport and makes it more customers friendly.
• There is a huge competition when it comes to infrastructure of an airport. From the size of an
airport, to the number of counters, outlines and parking slots available in the airport. This is calculated to
keep improving the services and development of the specific airport.
• Passenger Flow of an airport can be 10 times more than that of an airline. Airports calculate this
to have a track on the development of seats in the airports or the number of belts in an arrival hall.

❖ *3.15 Metro and Non Metro Airports*

When it comes to competition, airports and stations are divided into 3 parts:
Metro: Metro stations are all international airports. They can have more than 1 Terminal or cargo hubs. DEL,
BOM, CCU, HYD, BLR, MAA are the metro stations in India.
These above airports and stations compete with each other while non metro airports and stations are again
divided into 2 parts:
Tier 1: These airports usually have at least 10 departures per day. These can be an International airport and
the airport operators are most of the time private sector. For example: IXE, GAU, TRV, COK, TIR etc.
Tier 2: These airports use the Airport Authority of India building for operations and they operate less than
10 flights per day. These airports can be shut down after departure of a flight or after sun set(as
these airports won‘t have runway lights) For example: TCR, IXG, IXL etc.

3. ICAO – International Civil Aviation Organization

4,1 International body comprising Governments of various Countries Origin

• Overview of ICAO.
It was formed in 4 April 1947. It is a specialized agency of the United Nations. It codifies the principles and
techniques of international air navigation. It fosters the planning and
development of international air transport to ensure safe and orderly growth. The Chicago Convention of 1944 on International Civil Aviation was instrumental in the formation of International Civil Aviation Organization. The organisation serves as a forum for cooperation in all
fields of Civil Aviation among its 193 member states. India became signatory to the Chicago Convention on 01st March 1947.
The ICAO is a specialised agency of the United Nations and is responsible to promote safe and orderly
development of International Civil Aviation throughout the world. It sets standards and regulations necessary

for Aviation safety, security, efficiency and regularity, as well as for Aviation environmental protection.
ICAO has its headquarters in Montreal, Canada with 07 regional offices throughout the world.
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4.4 Functions of ICAO

There are total 19 Annexure issued by ICAO

Annex 1: Personnel Licensing - A person shall not act either as pilot-in-command or as co-pilot of an
aircraft in any of the following categories unless that person is the holder of a pilot licence issued in
accordance with the provisions of this Chapter: — aeroplane — airship of a volume of more than 4 600
cubic metres — free balloon — glider — helicopter — powered-lift.
Annex 2: Rules of the Air- The rules of the air shall apply to aircraft bearing the nationality and
registration marks of a Contracting State, wherever they may be, to the extent that they do not conflict
with the rules published by the State having jurisdiction over the territory overflown.
Annex 3: Meteorological Service for International Air Navigation- The objective of meteorological
service for international air navigation shall be to contribute towards the safety, regularity and efficiency of international air navigation.
Annex 4: Aeronautical Charts- In this Annex, the total flight is divided into the following phases:
Phase 1 — Taxi from aircraft stand to take-off point Phase 2 — Take-off and climb to en-route ATS
route structure Phase 3 — En-route ATS route structure Phase 4 — Descent to approach Phase 5 —
Approach to land and missed approach Phase 6 — Landing and taxi to aircraft stand.
Annex 5: Units of Measurement to be used in Air and Ground Operations- Means and provisions for
design, procedures and training should be established for operations in environments involving the use of
standard and non-SI alternatives of specific units of measurement, or the transition between environments using different units, with due consideration to human performance.
Annex 6: Operations of Aircraft- The Standards and Recommended Practices contained in Annex 6, Part
I, shall be applicable to the operation of aeroplanes by operators authorized to conduct international
commercial air transport operations. Note 1.— Standards and Recommended Practices applicable to
international general aviation operations with aeroplanes are to be found in Annex 6, Part II. Note 2.— Standards and Recommended Practices applicable to international commercial air
transport operations or international general aviation operations with helicopters are to be found in
Annex 6, Part III
Annex 7: Aircraft Nationality and Registration Marks- The nationality or common mark and

registration mark shall be painted on the aircraft or shall be affixed by any other means ensuring a
similar degree of permanence. The marks shall be kept clean and visible at all times.
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Annex 8: Airworthiness of Aircraft- a request for a Type Certificate is submitted by the aircraft
manufacturer when the aircraft is intended for serial production.
Annex 9: Facilitation- Contracting States shall adopt appropriate measures for the clearance of aircraft
arriving from or departing to another Contracting State and shall implement them in such a manner as to
prevent unnecessary delays.
Annex 10: Aeronautical Telecommunications - The standard radio navigation aids shall be: a) the
instrument landing system (ILS) b) the microwave landing system (MLS) c) the global navigation
satellite system (GNSS) d) the VHF omnidirectional radio range (VOR) e) the non-directional radio
beacon (NDB) f) the distance measuring equipment (DME) g) the en-route VHF marker beacon.
Annex 11: Air Traffic Services- — If one State delegates to another State the responsibility for the
provision of air traffic services over its territory, it does so without derogation of its national sovereignty. Similarly, the providing State‘s responsibility is limited to technical and operational
considerations and does not extend beyond those pertaining to the safety and expedition of aircraft
using the concerned airspace. Furthermore, the providing State in providing air traffic services within the
territory of the delegating State will do so in accordance with the requirements of the latter which is
expected to establish such facilities and services for the use of the providing State as are jointly agreed to
be necessary. It is further expected that the delegating State would not withdraw or modify such facilities
and services without prior consultation with the providing State. Both the delegating and providing States
may terminate the agreement between them at any time.
Annex 12: Search and Rescue- Those portions of the high seas or areas of undetermined sovereignty for
which search and rescue services will be established shall be determined on the basis of regional air
navigation agreements. Contracting States having accepted the responsibility to provide search and rescue
services in such areas shall thereafter, individually or in cooperation with other States, arrange for the
services to be established and provided in accordance with the provisions of this Annex.
Annex 13: Aircraft Accident and Incident Investigation- For statistical uniformity only, an injury

resulting in death within thirty days of the date of the accident is classified, by ICAO, as a fatal injury.
An aircraft is considered to be missing when the official search has been terminated and the wreckage has
not been located. The type of unmanned aircraft system to be investigated is addressed. Guidance for the determination of aircraft damage can be found in this annex.
Annex 14: Aerodromes- As part of the certification process, States shall ensure that an aerodrome
manual which will include all pertinent information on the aerodrome site, facilities, services, equipment, operating procedures, organization and management including a safety management
system, is submitted by the applicant for approval/acceptance prior to granting the aerodrome certificate.
Annex 15: Aeronautical Information Services- Each Contracting State shall: a) provide an aeronautical
information service; or b) agree with one or more other Contracting State(s) for the provision of a joint
service; or c) delegate the authority for the provision of the service to a non-governmental agency,
provided the Standards and Recommended Practices of this Annex are adequately met.
Annex 16: Environmental Protections- Noise certification shall be granted or validated by the State of
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Registry of an aircraft on the basis of satisfactory evidence that the aircraft complies with requirements
that are at least equal to the applicable Standards specified in this Annex.
Annex 17: Aviation Security- Annex 17 deals with safe guarding civil Aviation against the act of
unlawful interference.
Annex 18: The Safe Transport of Dangerous Goods by Air- Each Contracting State shall take the
necessary measures to achieve compliance with the detailed provisions contained in the Technical
Instructions. Each Contracting State shall also take the necessary measures to achieve compliance with
any amendment to the Technical Instructions which may be published during the specified period of
applicability of an edition of the Technical Instructions.
Annex 19: Safety Management- This chapter outlines the safety management responsibilities of the
State, through compliance with SARPs, the conduct of its own safety management functions and the
surveillance of SMSs implemented in accordance with the provisions in this Annex. Safety management
system provisions pertaining to specific types of aviation activities are addressed in the relevant Annexes.
Basic safety management principles applicable to the medical assessment process of licence holders are
contained in Annex 1. Guidance is available in the Manual of Civil Aviation Medicine (Doc 8984).

4.4 Role of ICAO in International Air Transportation

The International Civil Aviation Organization (ICAO) creates regulations for aviation safety, security,
efficiency and regularity and environmental protection. The organization also regulates operating
practices and procedures covering the technical field of aviation. This collection ensures smooth air
transportation and border crossing procedures and ensures you can:

• Ensure fair opportunity to operate international airlines
• Promote flight safety
• Minimize expenses and penalties

IATA- International Air Transportation Association

IATA is the world organization of Scheduled Airlines of all countries Origin

• *4.6 Overview of IATA*

IATA was founded in Havana, Cuba, on 19 April 1945. It is the prime vehicle for inter-airline
cooperation in promoting safe, reliable, secure and economical air services - for the benefit of the
world's consumers. The international scheduled air transport industry is more than 100 times larger
than it was in 1945. Few industries can match the dynamism of that growth, which would have been much
less spectacular without the standards, practices and procedures developed within IATA. At its founding,
IATA had 57 members from 31 nations, mostly in Europe and North America. Today it has some 290
members from 120 nations in every part of the globe.

❖ *4.7 Vision and mission*

Vision-Working together to shape the future growth of a safe, secure and sustainable air transport
industry that connects and enriches our world

Mission- IATA‘s mission is to represent, lead, and serve the airline industry.

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Representing the airline industry- Improve understanding of the air transport industry among decision
makers and increase awareness of the benefits that aviation brings to national and global economies.
Advocating for the interests of airlines across the globe, we challenge unreasonable rules and charges,
hold regulators and governments to account, and strive for sensible regulation.
Leading the airline industry- For over 70 years, IATA has developed global commercial standards upon
which the air transport industry is built. Our aim is to assist airlines by simplifying processes and
increasing passenger convenience while reducing costs and improving efficiency.
Serving the airline industry- IATA helps airlines to operate safely, securely, efficiently, and economically under clearly defined rules. Professional support is provided to all industry stakeholders
with a wide range of products and expert services
IATA‘s aims for 2022 Were defined by the IATA Board of Governors during their

December session.

4.8 Environment and sustainability

• Increase the readiness of member airlines for the transition to Sustainable Aviation Fuel (SAF) as the
main option to achieve net zero-carbon emissions by 2050
• Secure the support of governments at the ICAO Assembly for the industry‘s climate strategy

Safety

• Increase the industry ground operations safety footprint through implementation of harmonized
ground operations standards (ISAGO and IGOM)
• Address risks related to lithium batteries
• Launch Risk-Based IOSA pilots

Diversity

• Increase participation in the 25by2025 initiative

Commercial

• Ensure the success of the IATA Travel Pass and Trimitic in helping airlines comply with COVID-19 travel requirements

Effective IATA operations

• Ensure efficient settlements systems (BSP and CASS)

4.9 Functions of IATA

Assigns 3 letter & 2 letter codes to airport and
airline. Global indicators
IATA has divided world into three areas: TC1, TC2, and TC3
Note:
• Ural Mountain of Russia and Tehran in Middle East divides TC2 with TC3.
• TC1 is known as Western Hemisphere.

• TC2 and TC3 are together known as Eastern Hemisphere.

IATA Area1 or TC1

TC1 comprises of North America, South America, Central America and the adjacent islands like
Greenland, Bermuda, West Indies, Islands of the Caribbean Sea, Hawaiian Islands which includes
Midway and Palmyra.
Traffic Conference-1: Sub-Areas. TC1 – North Atlantic
North Atlantic comprises of Canada, Greenland, USA and Mexico excluding Alaska, Hawaii, Puerto
Rico and US Virgin Island.
TC1 – Mid Atlantic
Including The Caribbean Islands, Central America , South America plus Panama Canal Zone except
Argentina, Brazil, Chile, Paraguay and Uruguay.
TC1 – South Atlantic
Argentina, Brazil, Chile, Paraguay & Uruguay are considered South Atlantic. IATA Area2 or TC2
TC2 comprises of Europe, Africa and Ascension Island and parts of Asia west of Ural Mountains
including Iran and countries of Middle East.
1. Europe

2. Africa
3. Middle East IATA Area3 or TC3
Asia (East of the Urals), Oceania, (Australia, New Zealand and South Pacific Islands)
1. South East Asia
2. South Asian Sub continent
3. Japan, Korea (Jakpro)
4. South West pacific Global Indicators
Global Indicators are two-letter codes used in fare construction to determine the routing to which the fare applies. This is one of the first steps in the construction of fares if you are unable to
identify the correct global indicator for a routing then most probably you would end up choosing the
wrong fare for the itinerary hence learning Global indicators is Vital. In an earlier post, we learned
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about IATA areas/ Traffic conferences this learning will be applied now. Below we will explain all
Global Indicators.
WH– Western Hemisphere – Any Travel itinerary which originates and ends in Western Hemisphere or
TC1 will have WH as Global indicator.
Travel agent accreditation is available.
Runs billing and settlement plan($300 billion+ financial system that looks after airline money)
Simplifying Business- Electronic tickets,

- *Baggage tag number*
- **Bar coded Boarding pass**

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- *Kiosk Machines & Self Service Baggage option*
- **Regulates the shipping of Dangerous Goods**
- **Conducts Safety audit**

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4.10 Role of IATA in International Air Transportation

Role of IATA:

- To promote safe, regular and economic air transport
- To foster air commerce
- To study problems connected with airline industry
- To provide a means of collaborating between air transport companies and agencies
- To co-operate with other international air transportation organizations Essentially, IATA is airlines

working together to standardize and improve service internationally Due to the vital role played by IATA in
air transportation issues, it is recommended that you ensure that your carrier/forwarder is an IATA agent.

❖ 4.11 Differences between IATA and ICAO

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Airport Management

❖ *5.1 Airport Planning*

Airport planning may be defined as the employment of an organized strategy for the future

management of airport
operations, facilities designs, airfield configurations, financial allocations and revenues, environmental
impacts, and
organizational structures.

❖ *5.2 Types of airport planning studies*

• Facilities planning, which focuses on future needs for airfield infrastructure such as runways,
taxiways, aircraft parking facilities, associated lighting, communication and navigational systems, terminal
buildings and facilities, parking lots, ground access infrastructure, and support facilities such as fuel farms,
power plants, and nonaeronautical land uses such as office parks, hotels, restaurants, or rental car locations.
• Financial planning, which is concerned with predicting future revenues and expenses, budgeting
resources, and planning for financial assistance through grant programs, bond issues, or private
investment.
• Economic planning, which considers the future of economic activity, such as trade and commerce,
and the activity of industries that exist on airport and off-airport property and are either a direct or indirect
result of airport operations.
• Environmental planning, which concentrates on maintaining or improving existing environmental
conditions in the face of changes in future airport activity. Environmental planning includes land use
planning, noise mitigation, wetland reclamation, and wildlife preservation.
• Organizational planning, which entails the management of future labour requirements and organizational structures for the airport administration, staff, and associated labour force.
• Strategic planning, which encompasses all other planning activities into a coordinated effort to
maximize the future potential of the airport to the community.

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❖ *5.3 Defining the planning horizon*

The planning of airport operations, or any activities for that matter, is defined in part by the length of time
into the future management considers in its planning. The length of time into the future that is considered is
termed the planning horizon. Different planning efforts require different planning horizons. For example, the
organizational planning of staffing levels per shift for airport operations may require a 3-month planning
horizon, but certainly not a 20-year planning horizon. On the other hand, facilities planning of an airfield
that may include anyway construction requires at least a 5-year planning horizon, and certainly not a

planning horizon of less than 1 year. The various types of airport planning studies may be performed on a
variety of different levels. Three such levels of planning include system planning, master planning, and
project planning.

❖ *5.4 Operational Area*

Airports are classified into four classes, depending on the types of air carrier operations served at
airports. This classification is based on the size and scheduling of the aircraft serving air carrier
operations at the airport.

1. Class I airports may serve scheduled air carrier operations on aircraft with seating capacity of more
than 9 passengers, including scheduled and unscheduled service on aircraft with seating capacity of more
than 30 passengers.
2. Class II airports may serve scheduled air carrier operations on aircraft with seating capacity of more
than 9 passengers but only unscheduled service on aircraft with seating capacity of more than 30 passengers.
3. Class III airports may only serve scheduled service on aircraft with seating capacity of more than 9
but less than 31 seats, and do not serve any aircraft with seating capacity of more than 30 seats.
4. Class IV airports may only serve unscheduled air carrier service.

A scheduled operation as "any common carriage passenger carrying operation for compensation or hire
conducted by an air carrier for which the air carrier or its representatives offers in advance the departure
location, departure time, and arrival location."

An unscheduled operation as "any common carriage passenger-carrying operation for compensation or hire,
using aircraft designed for at least 31 passenger seats, conducted by an air carrier for which the departure
time, departure location, and arrival location are specifically negotiated , with the customer or the customer's
representative."

The following inceptions to be conducted in the operational area:

- **Movement area inspection:** Check the approach slopes of each runway end; inspect movement areas
to find out the condition of the pavement, markings, lighting, signs, abutting shoulders, and safety areas;
watch Ground vehicle operations; ensure that the public is protected against inadvertent entry and jet or
propeller blast; check for the presence of any wildlife; check the traffic and wind direction indicators.
- **Aircraft rescue and firefighting inspection:** Conduct a timed-response drill; review aircraft rescue

and fire fighting personnel training records, including annual live-fire drill and documentation of basic
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emergency medical care training; check equipment and protective clothing for operation, condition, and
availability.

- **Fuelling facilities inspection:** Inspection of fuel farm and mobile fuellers; check airport files for
documentation of their quarterly inspections of the fuelling facility; review certification from each tenant
fuelling agent about completion of fire safety training.
- **Night inspection:** Evaluate runway/taxiway and apron lighting and signage, pavement marking,
airport beacon, wind cone, lighting, and obstruction lighting for compliance with airport manual. A night
inspection is conducted if air carrier operations are conducted or expected to be conducted at an airport at
night or the airport has an instrument approach.
- **Post inspection briefing with airport management:** Discuss findings; issue Letter of Correction
noting violations and/or discrepancies if any are found; agree on a reasonable date for correcting any
violations, and give safety recommendations.

❖ *5.5 Terminal Planning and Design*

Modern day airport terminals incorporate necessary passenger and baggage processing services, as well as a
full spectrum of customer service, retail shopping, food and beverage, and other facilities, to make the
passengers' transition between the airside and landside components of the airport system as pleasant as
possible.

The airport terminal area is in the unique position of accommodating the needs of both aircraft and the
passengers that board them. As such, the component systems of the airport terminal area may be thought of
as falling into two primary categories: the apron and gate system, which is planned and managed according
to the characteristics of
aircraft, and the passenger and baggage handling system which are planned and managed to accommodate
the needs of passengers and their baggage in their transition to or from the aircraft. The apron and gate
system The apron and gates are the locations at which aircraft park to allow the loading and unloading of
passengers and cargo, as well as for aircraft servicing and preflight preparation prior to entering the airfield
and airspace.

The five major aircraft parking types are nose-in parking, angled nose-in, angled nose-out,parallel

parking, and remote parking:

• Angled nose-in parking brings aircraft as close to the terminal building as possible while maintaining enough manoeuvring room so that aircraft may exit the parking space under its own power. Angled nose-in parking is typically used by smaller aircraft, such as turboprops or small regional jets. Air stairs are typically used to board and deplane passengers, removing the necessity for loading bridges. Angled nose-in parking requires slightly more parking area over nose-in parking for aircraft of similar size. However, because smaller aircraft tend to use angled nose-in parking, the difference in sizes of the two parking areas is not significantly different.

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• Angled nose-out parking brings aircraft slightly farther from the terminal building than nose-in and angled nose-in parking, because the blast from jets or large propellers has the potential of causing damage to terminal buildings if too close to the facility. Angled nose-out parking is typically used by larger general aviation aircraft and at facilities with relatively low levels of activity.

• Parallel parking is said to be the easiest to achieve from an aircraft manoeuvring standpoint, although each space tends to require the largest amount of physical space for a given size of aircraft. In this configuration, both front and aft doors of the aircraft on a given side may be used for passenger boarding by loading bridges. Typically, however, parallel parking is employed only by smaller general aviation aircraft with relatively large amounts of parking space near the terminal building. In addition, cargo aircraft may parallel park at their respective cargo terminals to facilitate the loading and unloading of their respective loads.

• Remote parking may be employed when there is limited parking area available at the terminal building itself or when aircraft parked may be stationed there overnight or for longer durations. Remote parking areas are typically comprised of a series of rows of parking spaces, sized to accommodate varying sizes of aircraft. Smaller commercial and general aviation aircraft may be boarded and deplaned from the remote parking areas with the use of shuttle buses or vans. Larger commercial aircraft are typically taxied to a close-in parking space prior to passenger loading.

• Most airports have more than one aircraft parking type to accommodate the various types of aircraft

that serve the different terminal geometries and air carrier or general aviation activities. Furthermore,
airports with a high number of based aircraft or air carrier aircraft that remain overnight (RON) at the airport,
must take into consideration higher volumes of remote parking that is flexible to accommodate aircraft of
various shapes and sizes. Taxi lanes are found on airport aprons to direct aircraft taxiing between airfield
taxiways and aircraft parking areas on the apron. Taxi lanes exist as single-lane taxiways, where there exists
sufficient room for one aircraft, and dual-lane taxiways, with sufficient room for two aircraft taxiing in
opposite directions to move simultaneously. Dual-lane taxi lanes are typically found at the busiest of airports
serving larger aircraft.

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❖ *5.6 Terminal Operation*

• **Aircraft gate management**

One of the most important and sometimes most challenging aspects of planning and managing the apron
concerns the number of aircraft parking areas, or gates, that are required for efficient operations. The number
of commercial aircraft gates required at an airport, for example, over any given operating day is dependent
on a series of factors, including: the number and type of aircraft scheduled to use a gate, each aircraft's
scheduled turnaround time (also known as gate occupancy time), and the type of gate-usage agreement that
each air carrier has with the airport.The gate-usage agreement that each air carrier has with airport
management also plays a significant role in the total number of required gates at the airport terminal.

The three most common types of gate-usage agreements are:

1. Exclusive-use- As the name implies, under an exclusive-use agreement, an air carrier retains sole
authority to use a particular gate or set of gates at an airport terminal. This agreement gives the air carrier
flexibility when adjusting flight schedules, assuring the carrier that gates will always be available when
needed. Operationally, however, this type of agreement leads to inefficiencies in overall gate use, because
when the air carrier is not currently using its gates, the gate sits idle, despite the fact that another air carrier
may desire a gate parking space at that time.
2. Shared-use- Under shared-use agreen1ents, air carriers and other aircraft schedule use of gates in
coordination with airport management and other air carriers se1ving the airport. Thus individual gates may

be shared by multiple air carriers. Shared-use agreements are usually arranged by air carriers that have
relatively few operations scheduled at the airport.
3. Preferential-use agreements- These are hybrids of the exclusive-use and shared-use agreements.
Preferential-use agreements are typically signed by one carrier that has moderate levels of service at the
airpo1t, and one or more carriers or charter aircraft that have relatively few operations. From an
operational perspective, the overall number of aircraft utilizing gates under shared-use agreements
depends primarily on the number of operations se1vecl by, as well as the typical turnaround time of, the
preferential carrier. The greater number of operations and greater turnaround time of, the preferential
carrier tends to lead to fewer numbers of aircraft using the gates over the course of an operating day.

- *Gantt charts*

The management and planning of gate utilization at airport terminals can be a challenging venture,
particularly when high volumes of operations occur during busy or peak periods.
A Gantt chart example for a given set of flight schedules, with gates 1 and 2 operating under shared- use
agreements and gate 3 operating under an exclusive-use agreement.
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❖ *5.7 The passenger handling system*

The commercial airport terminal's passenger handling system is a series of links and processes that
facilitate the transfer of passengers between an aircraft and one of the modes of the local ground
transportation system. These processes include:

- **The flight interface-** The flight interface provides the link between the aircraft gates and passenger processing facilities. The flight interface includes gate lounges and service counters,
moving sidewalks, buses, and mobile lounges; loading facilities such as loading bridges and air
stairs; and facilities for transferring between flights, including corridors, waiting areas, and mobile conveyance facilities
- **Passenger processing-** Passenger processing facilities accomplish the major processing activities required to prepare departing passengers for use of air transportation and arriving passengers to leave the airport for ground transportation to their ultimate destinations. Primary
activities include ticketing, baggage check, security, passport check, baggage claim, customs, and
immigration. Facilities include ticketing and baggage check-in counters, baggage and passenger
security stations, information kiosks, baggage claim carousels, customs facilities, and rental car
and other ground transportation desks.

• **Access/processing interface-** The access/processing interface makes up the facilities that coordinate the transfer of passengers between ground transportation and the terminal building,
where passenger processing facilities are typically located. Activities at the access/ processing
interface include loading and unloading of passengers and baggage from vehicles at the curb and
transit stations, and pedestrian circulation from vehicle parking facilities. The access/processing
interface includes the vehicular drive and terminal curb, sidewalks, shuttle buses, automated conveyance systems to and from parking facilities, and bus stops, taxi stands, and rail stations.

❖ *5.8 Airport Operations*

Department consists of:

Management of Air-side, Terminal/City side, Slot Allocation & Airport
Operations Control Centre (AOCC), Public Grievances, RTl and Quality
Management Issues
Functions of Operations Department include:
To ensure serviceability of all operational/Passenger Facility at all the time at all Airports Airside
Management at all AAl Airports
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Terminal Management of all AAl Airports
Commissioning and operationalization of AOCC at AAl Airports Safety
Management and coordination with all AAl Airports
Plan and project the requirements regarding construction/upgradation of the aerodrome and related facilities
for safe aircraft operations
To advise and assist top management in framing corporate policies on Terminal Management of all AAl
airports.
Monitoring implementation of ICAO standards and recommended practice s (SARP's), and Civil Aviation
Regulations (CAR's) formulated by Director General Civil Aviation (DGCA) for Aerodrome Operations and
Airport Management.
Coordinate with DGCA for safety assessment on the planning, construction& commissioning of changes
to airport infrastructure, and maintenance programs.
Liaise at apex level with the various ministries, regulatory bodies like DGCA and Bureau of Civil Aviation
Security (BCAS), Immigration and Customs on issues related to Airport Management (Operations) and
Aviation Security.
Allocating night parking stands to domestic flight operators at AAl Airports. Drafting and issuance of Operational Circulars and Operational Instructions.
Monitoring the implementation of Recommendations made by various Court of inquiries in respect of
aircraft incidents / accidents.
Slot Management-Slot allocation for all the airlines operating domestic/ international flights.

Coordinate with Dept. of Engr. / Planning/ lT/ Security w.r.t. all planned/ modification / repair works in
the terminals.
Preparation of guidelines for MESS / ESS contracts.
Comprehensive / third party liability insurance coverage for all assets at the airports.
Finalizing training programmes for staff and officers of Operations Department in coordination with Indian
Aviation Academy (IAA).
Handling of WIP / VIPs Movements and aircraft emergences.

❖ *5.9 Airport Functions*

An airport essentially works as a facilitator and its functions vary as per its size. However, looking at the
various functions of an airport we can broadly group them in three categories:

- Essential operational services,
- Traffic handling services, and
- Commercial activities

Essential services include maintenance of runways, terminals, hangers, building, air traffic control,
telecommunications, security, fire and ambulance services. Different countries have different rules in
providing services depending on the nature of government control over the airport authority. In India, till
now all these facilities are provided and controlled by government through various agencies.

Traffic handing services include provision of loading and unloading of baggage, delivery of baggage through
conveyer belts at the lounge, processing of passengers services and providing required services to the
passengers. Here also difference exists among airports in different countries. For example in many European
countries these services are provided by airlines or special handling agents. In India, these services are
provided by the airport authorities.
Commercial activities include shops, duty free shops, restaurants, bars, car-hire booths, offices of travel
agencies and airlines, tourist information centre, foreign currency exchange facility and other services for
customers. Generally, either in the terminal building or in its vicinity these facilities are available. These
facilities and services may be provided by airport authorities or by any public or private body.
At the same time, there are certain other agencies like the customs, security (CISF/Police) emigration
department, etc. which are very much present at the airport but are not a part of the airport management.
Each one of these agencies has its own regulations, laws, roles and duties defined by the government. Yet, in
public eye they are part of airport regulations and in most of the cases have a bearing on an airport's image.

The forms of ownership and management of airport largely determine the nature of facilities and services
available at any airport. Though in most of the countries airports are owned by government, there are also
countries where airports are owned by public or private companies. In India, National Airports Authority, an
autonomous body, under the Ministry of Civil Aviation manages the airports and controls the various
facilities and services provided by Indian airports. Major airports in India are located in Delhi, Bombay,
Calcutta and Madras. Besides these all state capitals and important cities have airports. Functions of different
airports depend on the number of aircraft movements, number of passengers and volume of freight. This
outline of functions provides a general idea of the different areas which should be the concern of airport
managers

❖ *5.10 Organizational Structure of Airport Sectors*

❖ 5.11 Airport Authorities

Airports Council International (ACI)

ACI stands for Airports Council International. Founded in Geneva in 1991, it is an international association
representing airport operators. There are world ACI offices and regional ACI offices. ACI has over 595
members operating in over 1679 airports in over 177 countries to ensure safe and secure airports to the
travelling public. Its goal is to obtain a maximum cooperation between all segments of the aviation industry
and governments. Global and Indian scenario of Airport management Past his study of the airport business,
Rigas Doganis has identified four key questions which he believes should be resolved before making any
policy decision for airport management. These are:

- Should airports be run as commercially oriented profitable concerns?
- How should done improve airport economic efficiency?
- Whether from larger airports should be used to cross-subsidise loss making smaller airports?
- Should airports be Privatised ?

If we look at the trend in airport management system all over the world since 1980s, we find direct relevance
of the issues raised by Rigas Dogan's. On the one hand lack of government resources to cope with fast
changing technologies and management skill and on the other economic potentiality of airport services have
made it clear that airports should operate as commercial undertakings. In the context of ongoing
governmental experiments with economic liberalisation in India very soon airports are going to face a

competitive environment. They have to mobilize their own resources. Moreover, proper policy decisions
have to be taken in time to improve efficiency, cost effectiveness and better resource management.

❖ *5.12 Director General of Civil Aviation (DGCA)*

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Directorate General of Civil Aviation is an attached office of the Ministry of Civil Aviation. The Directorate General of Civil Aviation is the regulatory body in the field of Civil Aviation primarily
dealing with safety issues. It is responsible for regulation of air transport services to/from/within India and
for enforcement of civil air regulations, air safety and airworthiness standards. It also co-ordinates all
regulatory functions with International Civil Aviation Organisation.
The headquarters are located in New Delhi with regional offices in the various parts of India.

5.13 Directorate General of Civil Aviation – Functions

1. Registration of civil aircraft;
2. Formulation of standards of airworthiness for civil aircraft registered in India and grant of certificates
of airworthiness to such aircraft;
3. Licensing of pilots, aircraft maintenance engineers, air traffic controllers and flight engineers, and
conducting examinations and checks for that purpose;
4. Certification of aerodromes;
5. Maintaining a check on the proficiency of flight crew, and also of other operational personnel such as
flight dispatchers and cabin crew;
6. Granting of Air Operator‘s Certificates to Indian carriers and regulation of air transport services
operating to/from/within/over India by Indian and foreign operators, including clearance of scheduled and
non-scheduled flights of such operators;
7. Conducting investigation into incidents and serious incidents involving aircraft upto 2250 kg AUW and
taking accident prevention measures including formulation of implementation of Safety Aviation
Management Programmes;
8. Carrying out amendments to the Aircraft Act, the Aircraft Rules and the Civil Aviation Requirements
for complying with the amendments to ICAO Annexes, and initiating proposals for amendment to any other
Act or for passing a new Act in order to give effect to an international Convention or amendment to an
existing Convention;
9. Coordination of ICAO matters with all agencies and sending replies to State Letters, and taking all
necessary action arising out of the Universal Safety Oversight Audit Programme (USOAP) of ICAO;
10. Approval of institutes engaged in flying training including simulator training, AME training, air traffic

services training or any other training related with aviation, with a view to ensuring a high quality of
training.
11. Granting approval to aircraft maintenance, repair, design and manufacturing organizations and their
continued oversight;
12. To act as a nodal agency for implementing Annex 9 provisions in India and for coordinating matters
relating to facilitation at Indian airports including holding meetings of the National Facilitation
Committee;
13. Approving training programmes of operators for carriage of dangerous goods, issuing authorizations
for carriage of dangerous goods, etc.
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❖ *5.14 DGCA Organizational Structure*

❖ **Regional Offices (Delhi/ Mumbai/ Kolkata/ Chennai/ Bengaluru)**

5.15 AAI (The Airports Authority of India)

• The Airports Authority of India or AAI is a statutory body, under the ownership of, Ministry of Civil
Aviation, Government of India. It is responsible for creating, upgrading, maintaining and managing
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6. Airline Operations

❖ *6.1 Organization Structure of Airline Sectors*

Board of Directors- In a public sector, minimum Board of Directors required are 7. In a private sector, 2
Board of Directors are required minimum.
Chief Executive Officer acts like the brain of the company.
Director of Corporate Affairs and Communications is the only one allowed to talk to media. A
Director is again segregated into different zones.
Below directors, we have Senior Managers of specific departments. Below Senior Managers, there are
Managers who come in
shifts for operations. Then there are Assistant Managers. Then there are Senior Executives, then
Executives, the officers.

❖ *6.2 Airline Terminal Management*

An Airline before it starts business from any destination, it does an ELID study. ELID study means an airline
will study for 5 years
about an airport. The following will be studied in ELID: The
place it is located in
The type of passengers who can be expected
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➢ *6.7 Reservation*

Premium Check In

- In- town check in- In some cities (including Bangkok, Dubai, Sharjah, Hong Kong, Kuala Lumpur, New Delhi, Chennai, Seoul, Vienna and Taipei), certain airlines provide in-town check-in services, allowing passengers to check their luggage at check-in counters located in railway or subway terminals as much as a day ahead of time. This service allows passengers to take a train to the airport without the burden of carrying their luggage to the airport terminal. In Seoul, for example, Korean Air, Asiana Airlines and Jeju Air offer check-in services at Seoul Station

City Check in- Beijing Subway

➢ *6.9 Customs and Immigration formalities*

- **Customs**

One of the first orders of business at the airport is Indian customs. Customs helps monitor items being brought into the country.

Declaration at customs in India:

All passengers coming into India have to pass a customs check.

The first step is to complete the customs declaration form given out by the airline before disembarking.

Make sure to complete and sign the declaration, and hand it to the immigration officer at the Indian airport.

There are 2 channels for customs clearance- the Red channel and the Green channel. Here is how they differ:

• *Red channel*

The red channel is for passengers that are carrying prohibited items, or amounts that are above the free allowance, in their baggage.

+ *The list of prohibited or dutiable items are:*

Weapons like firearms

Over 50 cartridges for firearms Carrying more than 100 cigarettes

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• 6.12 Security Clearance

Definition

―Security clearance‖ means compliance with the security controls specified in the national civil aviation security programme with regard to any aircraft, person or object;

Ground handling service

If an airline doesn‘t have its own staffs in airport, no ground handling service provider shall be allowed to provide ground handling services at any aerodrome without obtaining the security clearance and the approval of its security programme form the Commissioner.

Security clearance for Aircraft operators (airlines)

(1) No aircraft operator shall commence operation at aerodrome without obtaining the clearance of

security arrangements and the approval of the aircraft operator security programme under rule 24* from
the Commissioner.
(2) Where the Commissioner is satisfied that any aircraft operator has contravened or failed to comply with
the provisions of these rules, he may, after giving him an opportunity of being heard, and for reasons to be
recorded in writing, suspend or cancel the security clearance and security programme granted or approved by
him.
*Rule 24- Security Programme. – Every aircraft operator shall, with the approval of Commissioner, make
and comply with aircraft operator security programme in accordance with the national civil aviation security
programme and any amendment to such programme shall be made after the approval of the Commissioner.

6.13 Baggage handling

Baggage handling is one of prime function of ground handling at an airport. It can be done manually or by
automated systems. At big airports – automated baggage handling is the only way to go. But many smaller to-
medium size airports still haven‘t automated, or have done so to only a limited extent.

Types of Baggage

Customers may carry baggage when they travel. Basically, there are three categories of baggage. They are:
Checked baggage.
Unchecked Baggage. Additional
free articles.

Checked Baggage:

These are bags that customers check in at the check-in counters and they are loaded in the aircraft cargo
holds which means it is inaccessible to the passenger during the flight.

This baggage is limited by airlines with regard to size, weight, and number, usually dependent upon the fare
paid, or class of ticket. Baggage exceeding the limits is regarded as excess baggage. All baggage being
offered for check-in shall be labelled with a tag showing the following information as a minimum:

- Passenger name.
- Destination.
- Date.
- Flight Number.
- Unique identifier.

Baggage shall be tracked to ensure accounting and authorizing of baggage from check-in to aircraft.
Verification is required that all bags checked in are loaded onto the aircraft and guarantee that no

incorrect bags have been loaded. This can be achieved by automatic or manual (_bingo card‘) systems.
Checked luggage is usually measured by weight. All checked items are generally weighed by the airline, and
if they exceed the limit, the passenger is informed by the airline. To avoid any fees, the passenger often must
switch some of the items found in the suitcase to another suitcase, or else carry it on. Carry-on luggage tends
to be measured more in dimensions. Passengers can thereby skip weight restrictions by carrying on the item.
A baggage claim tag must be issued for every checked bag.

BMA Baggage Makeup Area:-

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• BMA is the adjacent place of terminal building where the Check-in/Registered bag are segregated as
per flight details, reconciled by Security Staff with the final manifest.
• Conduct surveillance at baggage make up area to ensure no baggage is stolen or pilfered. Ensure
airline is in compliance with all local and Security regulations.
• Keep strict vigilance on baggage & staff.
• Ensuring all bag are screened & sealed properly, if found bag without security seal or Bag tag
missing inform Supervisor for further action. Baggage handling services are done during departures and
arrivals.

Departure area baggage handling includes the activities of:

Check-in baggage. Baggage
screening.
Loading in bulk unit load devices (ULD).

Arrival area baggage handling includes the activities of (BBA - Baggage Breakup Area):

Off-loading from bulk or ULD.
Transferring to conveyor belt. Baggage
claim area.
Lost/mishandled baggage.

Free Baggage Allowance:

A customer is entitled to carry a certain amount of baggage without charge by the airline. This is called free
baggage allowance and it is shown on the passenger ticket. It varies from class to class. The baggage weight
of checked baggage must be recorded on the ticked and the ticket and in the computer system during check-in.
The free baggage allowance is based on either one of two concepts, namely the weight concept or the
piece concept.

Weight Concept:

On flights passenger baggage is controlled by the so-called weight concept. Under the weight concept, each
passenger is permitted to check a total bag weight.
Children holding child‘s fare are also eligible for the adult allowance. Infants paying 10% fares are

entitled to 1 piece (total dimension < 5cm) for all classes.

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Unchecked Baggage:

These are bags that a customer carries into the aircraft cabin with him/her. PERSONAL EFFECTS that a
passenger keeps under his or her control while on a flight and for the loss of which the airline is not liable.

Unchecked baggage, also known as cabin bags, is to be fitted under the seat in front or in an overhead
compartment.

No baggage claim tag is issued. There are guidelines on the size and amount of cabin bags that each
customer can carry.

The Cabin Baggage Rule

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For the safety & comfort of the customers and crew.

Exists are less likely to be blocked, allowing swift & safe evacuation in an emergency. Items to be carried
in baggage

Pooled baggage:

Two or more members of the same group/ family or friends may pool their baggage provided. They should have advised that they are travelling together. They are
going to same destination.

They are on the same flight.

They present themselves with their baggage at the same time and place.

Customers should be advised that they are responsible for the content of their baggage and highlighted the
dangers of
pooling their baggage with strangers. Excess baggage charges will be collected for the difference
between total free baggage
allowance of the party and the actual weight of the baggage.

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Risk of Carriage:

Airlines shall not be responsible for any injury, sickness or death of the pet directly or indirectly resulting
from the carriage. The customer must assume all risks.

- *Baggage Tags*

Limited Release Baggage Tag (LRT) It is
used for the acceptance of:

Fragile items.

Perishable items\late check-in.

Items not permitted as cabin baggage.

Damaged bag.

Unsuitably packed items.

For damaged baggage, care should be taken that the tag is not used for bags with minor scratches from fair
wear and tear.

As a general guideline, this section of the tag should be used when the baggage is presented with deep

scratches, tears, corners missing, lock missing/broken, handles missing etc. It is important that whenever the
tag is used, the customer is diplomatically advised that we accepting the item to assist them, and although
we will take care of it, any responsibility for the damage may be limited in case of a claim.

- *Checked Baggage Tag:*

To be used on checked baggage such as boxes/cartons. This is to prevent these items from being
delivered to the cargo complex in error.

- *Heavy Tag: For baggage that weigh more than 23 kgs*

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- **Fragile Tag: Breakable items**

Priority Tags:(CIP, VVIP, VIP, FREQUENT FLYER & UNM)
Priority tags to be used on checked baggage.
Quick Transfer Crew
Tag Terminal Tag
Group Tag Hand Bag
Tag
Baggage identification label.

➢ *6.14 Handling of CIP, VIP & VVIP*

- **VIP**

Important personalities from political, scientific, economic or cultural life of domestic and foreign countries
traveling shall be treated with special and courteous care. They are ranked to:
VIP (Very Important Person).
CIP (Commercial Important Person). PIP
(Public Important Person).
VIP status is only granted to high ranking government officials and officials of international organizations as:

Heads of States:-

Heads of Government Ministries Crowned
heads
Ambassadors
Governors
Delegation with at least one member of VIP status
Other very prominent persons traveling on official business when high official bodies request special
treatment.

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1. International Union of Official Travel Organisation (IUOTO)
2. World Tourism Organisation (WTO)
3. Pacific Asia Travel Association (PATA)
4. International Air Transport Association (IATA)
5. International Civil Aviation Organisation (ICAO)

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END OF PROJECT REPORT