Fundamental Principles of Airport Charges Calculation

Airports Council International (ACI) World

ICAO NAM/CAR/SAM WORKSHOP ON

AIRPORT AND AIR NAVIGATION SERVICES USER CHARGES

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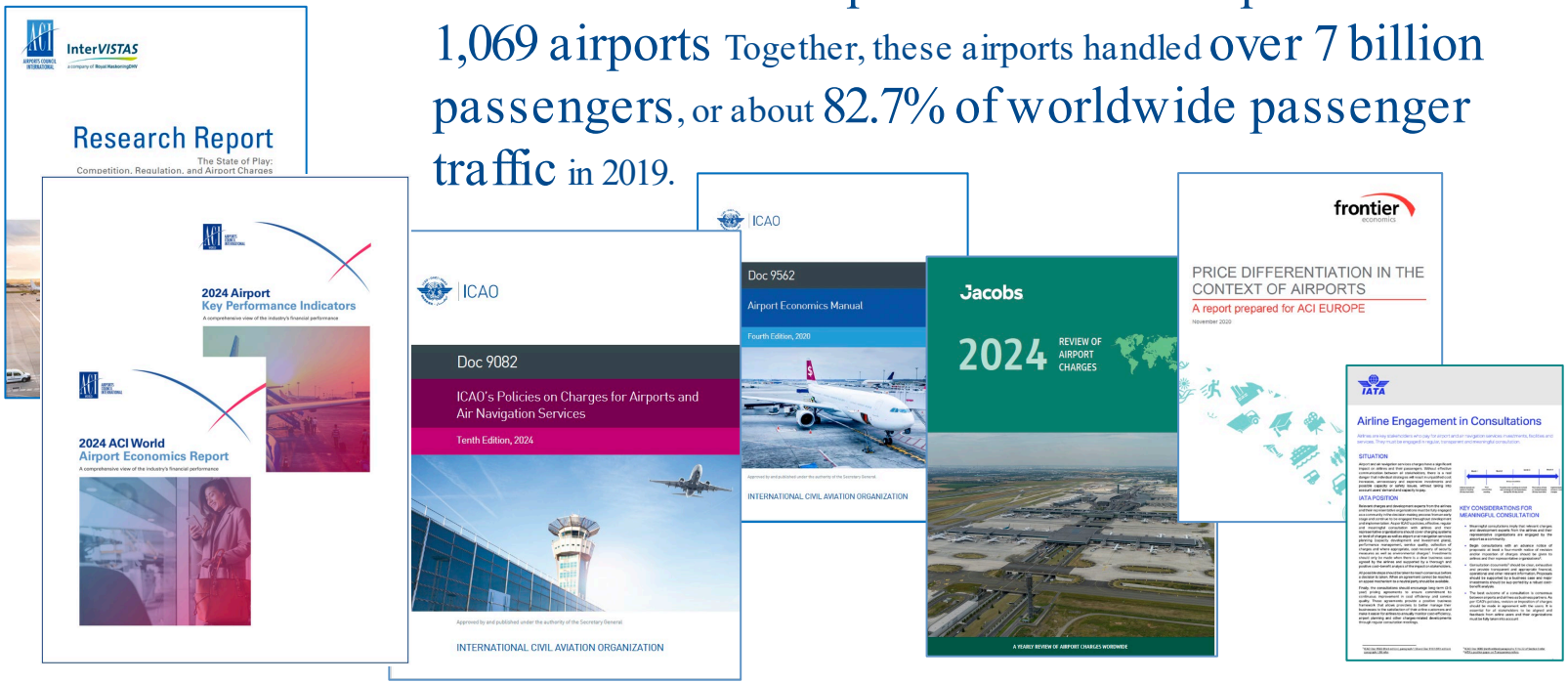
• Reference materials

ACI World is the Source of Credible Data

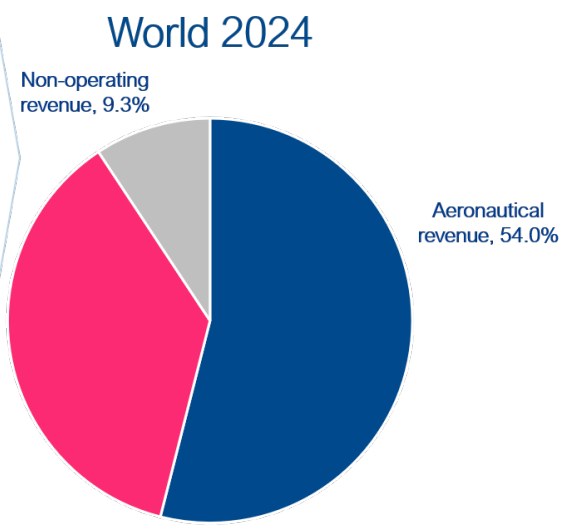
The ACI WORLD Airport Economics Report 1,069 airports Together, these airports handled over 7 billion passengers, or about 82.7% of worldwide passenger traffic in 2019.

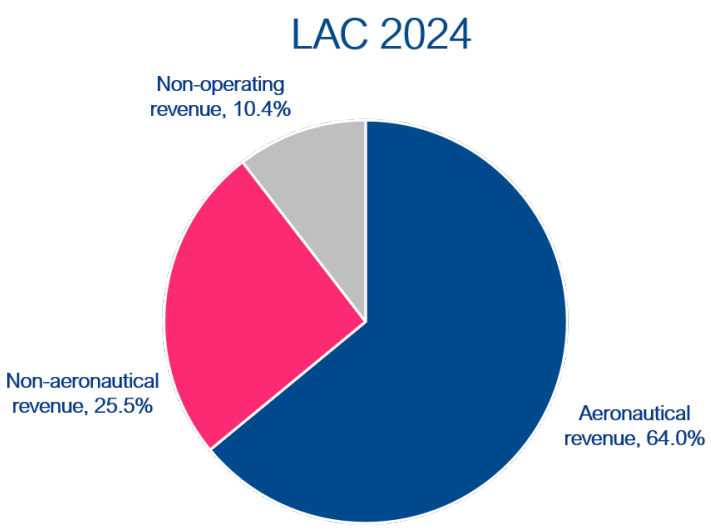


Distribution of aero revenues by key source

Aeronautical revenues are largely reliant on passenger traffic

Non-operating income – Gains (or losses) from sources not related to the typical activities of the airport business (aeronautical and non-aeronautical). Non-operating revenues include such items as interest income, grants and subsidies, property or asset sales, currency exchange, and other atypical gains or losses.

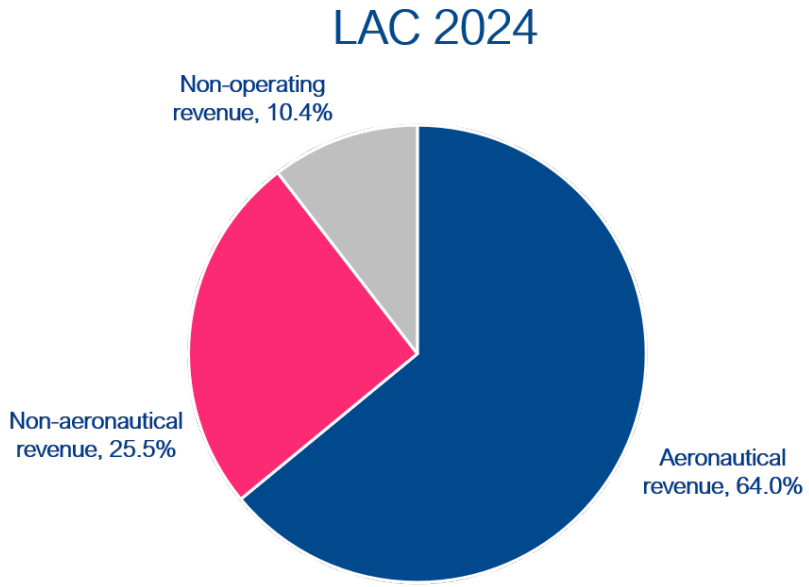


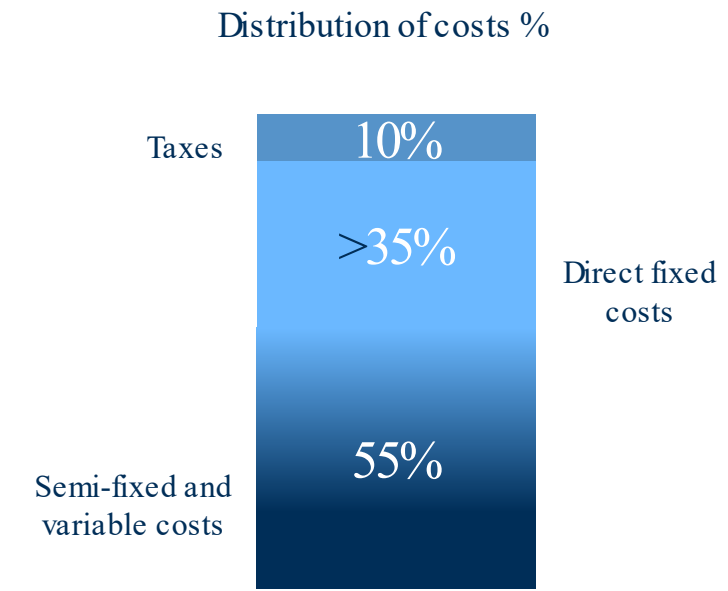


Source: ACI World KPI Economics Report 2025

Distribution of airport revenues by key source

Aero revenue is the largest source of total airport revenue

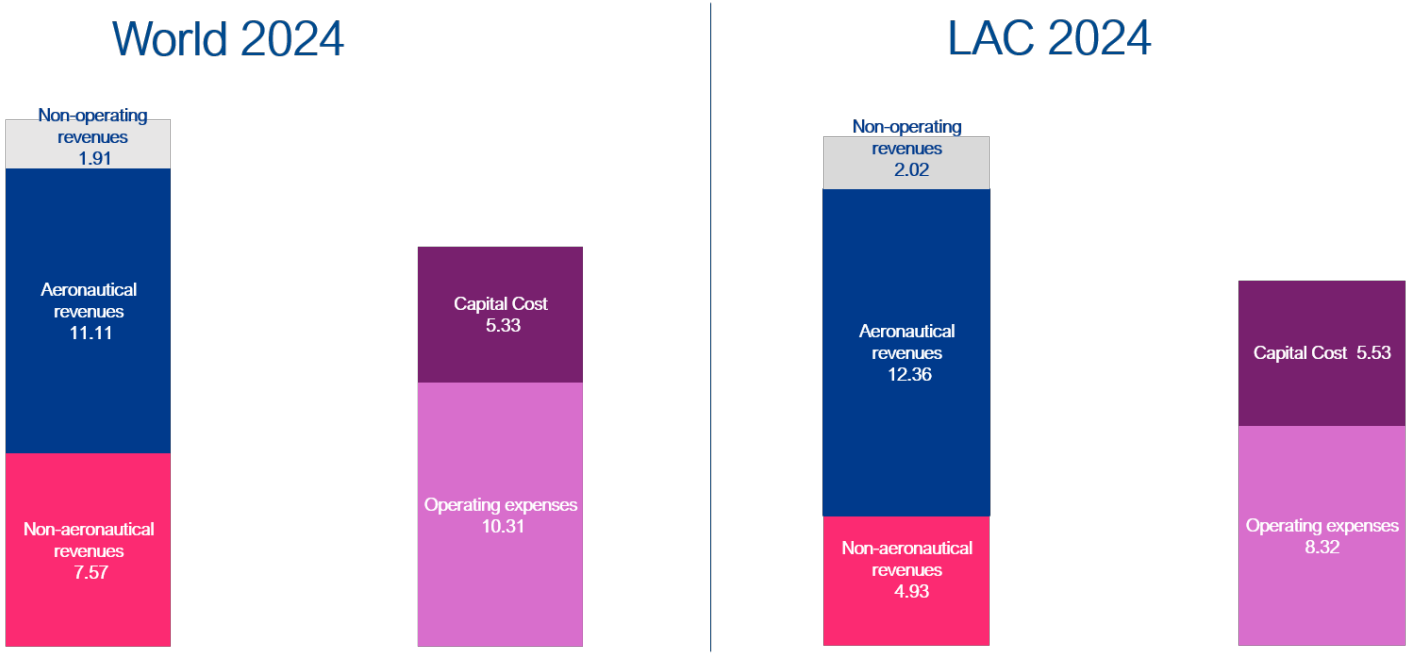




Source: ACI World KPI Economics Report 2025

Aero Revenue and Cost per Passenger

Revenue generated from airport charges is not enough to cover airport costs

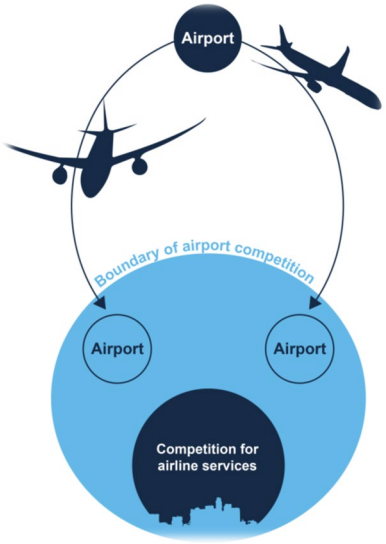


Source: ACI World KPI Economics Dataset

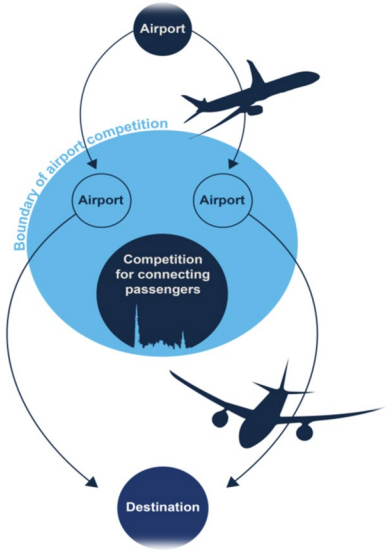
Airport Competition Has Intensified Over Time

The reality: Competition on the aeronautical side of the airport business

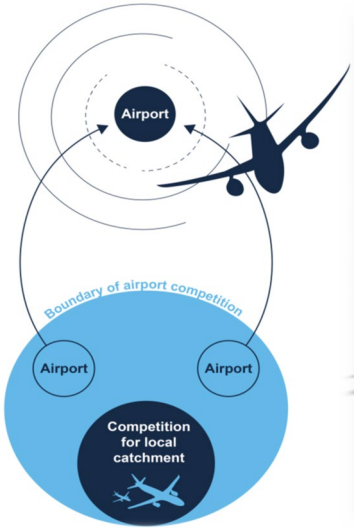
Competition between airports for airline services on new and existing routes



Competition between airports for connecting passengers



Competition between airports for passengers in local catchment



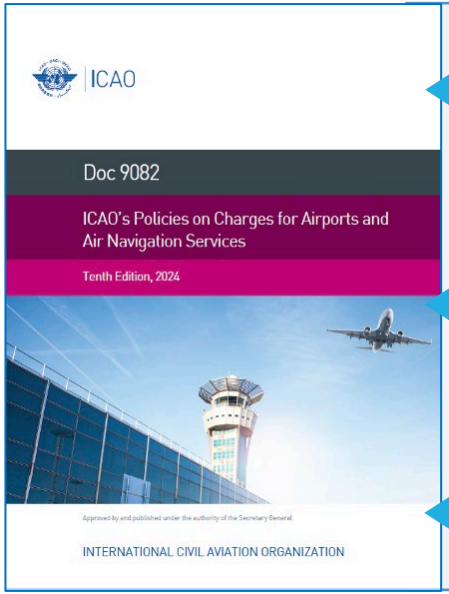
Modal competition

Air cargo competition and Short-and medium-haul for pax

Source: ACI EUROPE

ICAO's POLICIES ON AIRPORT CHARGES

ICAO's Policies on Charges for Airports and Air Navigation Services (Doc 9082)



SECTION I. GENERAL
- Scope and proliferation of charges
- Consultation with users

SECTION II. ICAO'S POLICIES ON AIRPORT CHARGES
- The cost basis for airport charges
- Airport charging systems
- Landing charges
- Security charges

Appendix 1
GUIDE TO THE FACILITIES AND SERVICES TO BE TAKEN INTO ACCOUNT IN DETERMINING AIRPORT COSTS

ICAO's Airport Economics Manual (Doc 9562)

ICAO's Policies on Charges – Doc 9082

Definition of Economic oversight/regulation

- Economic oversight/regulation: The function by which a State supervises commercial and operational practices of an airport.
- Economic regulation focuses largely on the prices charged by the airport operator, but can also include quality of service and market access. Economic regulation excludes other types of regulation, incl. safety, environment, labor, etc.
- Economic oversight may take several different forms, from a light-handed approach (such as the application of competition law) to a more robust approach (such as direct regulatory interventions in the economic decisions of airports)

Source: 1) Doc 9082, ICAO's Policies on Charges for Airports and Air Navigation Services; 2) Doc 9562, Airport Economics Manual, 4th Edition, 2020

Models of economic oversight for airports

Heavy-handed models (ex -ante) are prescriptive and can be based on government decree (pre -determined)

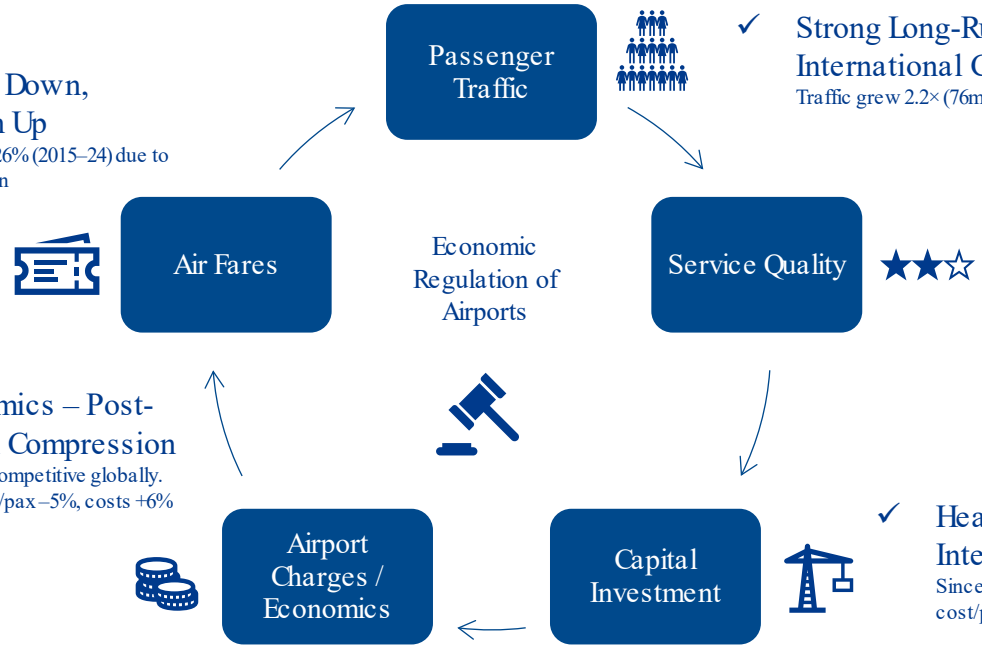
- Cost of service regulation (Cost -Plus)
- Rate-base rate of return regulation
- Price cap regulation with Q, X -factor
- Mandatory consultation

Light -handed models (ex -post) usually consider decentralized and flexible approaches to setting charges (threat of regulation)

- Trigger regulation or price monitoring
- Long term commercial agreements

Impact of Light-Handed Regulation in Australia

Over two decades of light-handed regulation - what the data reveals



✓ **Strong Long-Run Growth Led by International Capacity**
Traffic grew 2.2× (76m → 166m) (+3.9% CAGR) (2002-24)

✓ **Real Prices Down, Competition Up**
Real airfares fell 26% (2015–24) due to strong competition

✓ **Higher Volumes, Higher Satisfaction**
ASQ scores rose from 3.92 to 4.17 (2015-24)

✓ **Airport Economics – Post-COVID Margin Compression**
Airport charges are competitive globally. 2024 vs 2019: revenue/pax –5%, costs +6%

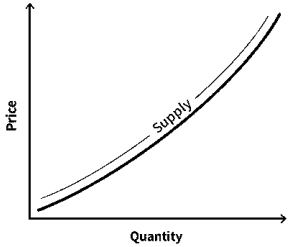
✓ **Heavy Investment and Capital-Intensive Model**
Since 2002, A$15bn invested, A$30 by 2025; 2024 capital cost/pax ~US$11.4 (120% above world; 53% above G7)

Source: ACI World, CAPA, Cirium

Airport charges defined
What is and what should be?

What is – An exclusive focus on cost recovery (Supply side only)

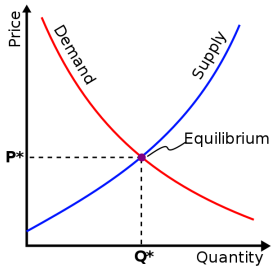
- The International Civil Aviation Organization (ICAO) defines an airport charge as "***a levy that is designed and applied specifically to recover the costs of providing facilities and civil aviation services***," including the operating expenses and costs related to capital investments to build and maintain airport infrastructure.



What should be – prices that consider the interaction of Demand and Supply

- Airport charges should reflect not only market supply (cost) but also demand elements, especially price signals for efficient use of airport resources (capacity).

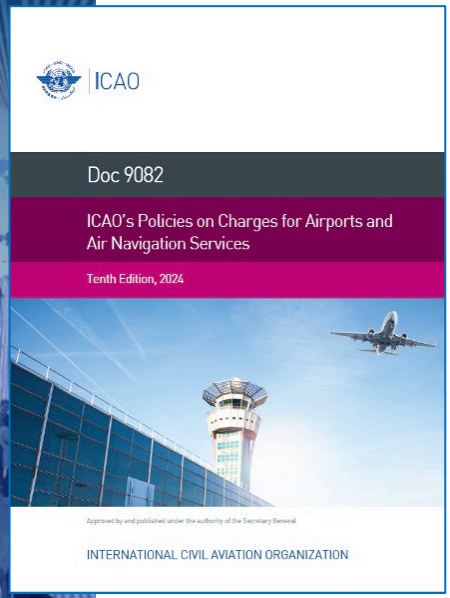
- <u>Charges should provide incentives for:</u>
  - ✓ prioritizing uses of existing capacity,
  - ✓ for signaling when the market needs and is able to pay for additional capacity,
  - ✓ to mitigate external impacts such as noise and environmental considerations, and
  - ✓ for increasing connectivity and socio-economic gains via incentives.



Source: ICAO's Policies on Charges for Airports and Air Navigation Services (Doc 9082)

Modulated or Differentiated Charges

ICAO's Definition



Modulated Charges

"Charges that are adjusted according to the time and/or situation of use of the facility or service concerned (for example, peak/off-peak hours, air traffic congestion, noise and local air quality aspects)."

— Doc 9082, Appendix 3

Differential Charges

"Any preferential charges, rebates, discounts or other reductions in the charges normally payable for the use of airport and air navigation facilities and services."

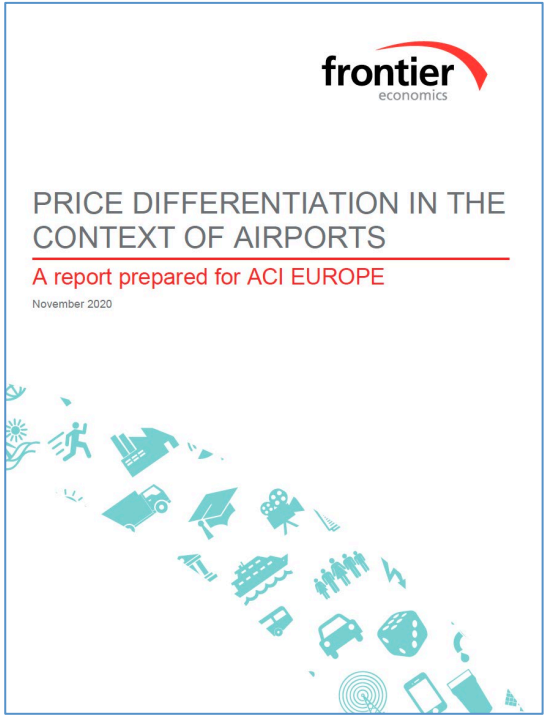
— Doc 9082, Appendix 3

"Consistent with the form of economic oversight adopted, States should assess, on a case-by-case basis and according to local or national circumstances, the positive and negative effects of modifying airport charges to address specific situations. For example, an airport may want to modify its current charging approach to improve the economic efficiency associated with service provision through the use of pricing based on peak periods or congestion. In other cases, an airport may want to encourage the use of certain technologies or attract new air services by offering rebates or discounts to a particular aircraft operator. Regardless of intent, States should ensure that the purpose and creation of, and criteria for, modifications to airport charges are consistent with ICAO's four key charging principles expressed in this document."

— ICAO Doc 9082, ICAO's Policies on Charges for Airports and Air Navigation Services, Tenth Edition, 2024, Chapter 2, Section 2.2(e)

Types of Modulated or "Differentiated" charges

- Bundled or "packaged" charges vs.
- Unbundled
  - Aircraft landing fees,
  - Aircraft parking charges, and
  - Departing passenger charges
    - Stands
    - Air bridges
    - Baggage handling
    - Check-in desks & bag drops vs. self-service kiosks
- Peak and off-peak pricing (e.g. seasonal, time of day/week, etc.)
- Volume discounts
- New route incentives



Source: Frontier Economics

This list is Non -exhaustive…

Types of Airport Charges (ICAO Definitions)

Airport charges should reflect the cost of facilities and services provided

Landing Charges

Charges related to the provision and maintenance of runways and associated airside facilities, typically based on the aircraft weight.

Parking and Hangar Charges

Charges for the use of aircraft parking stands or hangars, often based on the duration of parking and area occupied.

Passenger Service Charges (PSC)

Charges for the use of passenger-related airport infrastructure, such as terminals, boarding bridges, and other handling facilities.

Security Charges

Charges levied to recover the cost of civil aviation security services provided in accordance with ICAO Annex 17.

Noise-Related Charges

Charges applied to discourage the use of noisy aircraft or promote operations that reduce noise impact.

Emission Charges

Charges based on the emissions produced by aircraft, usually related to local air quality concerns.

Fuel Throughput Charges

Charges imposed on fuel providers for the right to supply fuel at the airport, often called throughput or concession fees.

Rental of Premises and Concessions

Revenues earned from leasing terminal areas or retail space, or through agreements with commercial service providers.

Source: ICAO Doc 9082 – Policies on Charges for Airports and Air Navigation Services | ICAO Doc 9562 – Airport Economics Manual

ICAO Key Charging Principles (Doc 9082)

States are encouraged to incorporate the four key charging principles of non-discrimination, cost-relatedness, transparency and consultation with users into their national legislation, regulation or policies, as well as into their future air services agreements, in order to ensure compliance by airport operators and air navigation services providers (ANSPs).

Non-Discrimination

Non-discrimination requires the application of uniform conditions, to all users from any Contracting State, for the use of equivalent airport or air navigation services. In particular, charges must not discriminate between foreign and domestic users, or between two or more foreign users, engaged in similar operations.

Cost-Relatedness

Charges should reflect the cost of facilities and services provided to the users. The allocation of costs should be determined on an equitable basis, so that no users shall be burdened with costs not properly allocable to them according to sound accounting principles.

Transparency

Sufficient, accurate and appropriate information should be exchanged between the service providers and users in a timely and efficient manner with the objective of identifying the connection between the provision of facilities and services and charges, to enable users to understand, among others, charging methodologies and their administration.

Consultation with Users

Service providers and users should participate in constructive engagement before the introduction of new charges or changes thereto. Such engagement should include, but is not limited to, discussions on performance, capacity development and investment plans. Transparent and relevant information relating to the proposed changes should be provided, and the views of users should be given proper consideration during the process.

Source: Doc 9082 – ICAO's Policies on Charges for Airports and Air Navigation Services

Consultation with users – ICAO perspective

17. Consultation with airport and air navigation services users before changes in charging systems or levels of charges are introduced is important.

18. The purpose of consultation is to ensure that the provider gives adequate information to users relating to the proposed changes and gives proper consideration to the views of users and the effect the charges will have on them. Agreement between providers and users is desirable. However, where agreement is not reached, the provider is free to impose the charges proposed, subject to a right of appeal to, or other determination by, a body independent of the provider, where available. If no appeal mechanism is in place, it is even more important that providers and users make every effort to reach an agreement on any changes in charging systems or levels of charges before they are introduced.

Source: Doc 9082, ICAO's Policies on Charges for Airports and Air Navigation Services

Consultation with users – ACI perspective

▲ Whenever a multi-year agreement is signed in consultation with users, annual consultation may not be necessary or should be structured in a way to be economically viable for the airport operator.

▲ Consultation is not synonymous of negotiation. The aim of a consultation is to reach a consensus with users on airport charges whenever possible. However, there is no legal obligation to enter into agreement with airlines and airport operators are always entitled to introduce charges even without agreement. Rather, the airport should always retain its autonomy to set charges, taking into account, to the maximum extent possible, feedback provided by airlines.

▲ A clear timeline should be provided with sufficient notice to airlines, outlining the number and date of the meetings, as well as planned dates for the distribution of the supporting documentation.

▲ The exact length and number of meetings should be defined at the local level. In general, one round of consultation should be sufficient.


TECHNICAL GUIDANCE DOCUMENT

RECOMMENDED PRACTICES ON TRANSPARENCY AND CONSULTATIONS WITH AIRLINES ON SETTING AIRPORT CHARGES

AIRPORTS COUNCIL INTERNATIONAL

Airports have become businesses in their own right. In an increasingly competitive environment which drives airports to sophisticate their services to the airlines and their end-users, the passengers, it is essential to build the right trust between airports and airlines, by ensuring the right level of transparency and that consultations are carried out in setting charges and capital planning in a structured and meaningful way.

Adequate airport infrastructure is a core enabler of air connectivity, passenger service quality and social and economic growth. As per the "user pays principle" this needs to be paid for via airport charges. It is therefore essential that airport charges properly reflect market realities and deliver on the longer-term needs of the ultimate end-users. Any regulatory framework must facilitate and incentivise airport investors to continue to finance airport investments.

This document is meant to provide recommendations on the process for consultation between airports and airlines. Transparency, as it relates to consultation, is also addressed. However, this guide should not be used as limitation or constraint for airport operators and/or States to apply their own methodologies when circumstances, regulation, or other factors recommend it.

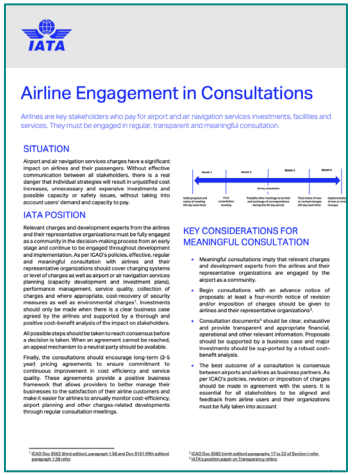
Airports Council International (ACI) World 1 ACI_RP2004/17

Source: https://store.aci.aero/product/recommended-practices-on-transparency-and-consultations-with-airlines-on-setting-airport-charges/

Consultation with users – IATA perspective

KEY CONSIDERATIONS FOR MEANINGFUL CONSULTATION

- Meaningful consultations imply that relevant charges and development experts from the airlines and their representative organizations are engaged by the airport as a community.
- Begin consultations with an advance notice of proposals: at least a four-month notice of revision and/or imposition of charges should be given to airlines and their representative organizations.
- Consultation documents should be clear, exhaustive and provide transparent and appropriate financial, operational and other relevant information. Proposals should be supported by a business case and major investments should be supported by a robust cost benefit analysis.
- The best outcome of a consultation is consensus between airports and airlines as business partners. As per ICAO's policies, revision or imposition of charges should be made in agreement with the users. It is essential for all stakeholders to be aligned and feedback from airline users and their organizations must be fully taken into account
- Decision documents should therefore provide the rationale for the decision taken and provide justification. Advance notice of the final decision of at least one month should be given to the users, while a right of appeal to a body fully independent of the airport or the ANSP must be available.
- Longer-term (3-5 year) pricing arrangements should be agreed that ensure clarity for airline customers on the services provided, at what price and to what level of service.
These arrangements encompass agreed levels of operational performance and service quality, capacity provided, as well as cost reduction and cost efficiency targets.
- Consultations should be held at least annually, whether or not there is a proposed change in the level or structure charges and regardless of any longer-term pricing arrangement.


IATA

Airline Engagement in Consultations

Airlines are key stakeholders who pay for airport and air navigation services investments, facilities and services. They must be engaged in regular, transparent and meaningful consultation.

SITUATION

Airport and air navigation services charges have a significant impact on airlines and their passengers. Without effective communication between all stakeholders, there is a real danger that individual strategies will result in unjustified cost increases, unnecessary and expensive investments and possible capacity or safety issues, without taking into account users' demand and capacity to pay.

IATA POSITION

Relevant charges and development experts from the airlines and their representative organizations must be fully engaged as a community in the decision-making process from an early stage and continue to be engaged throughout development and implementation. As per ICAO's policies, effective, regular and meaningful consultation with airlines and their representative organizations should cover charging systems or level of charges as well as airport or air navigation services planning (capacity development and investment plans), performance management, service quality, collection of charges and where appropriate, cost-recovery of security measures as well as environmental charges[1]. Investments should only be made when there is a clear business case agreed by the airlines and supported by a thorough and positive cost-benefit analysis of the impact on stakeholders.

All possible steps should be taken to reach consensus before a decision is taken. When an agreement cannot be reached, an appeal mechanism to a neutral party should be available.

Finally, the consultations should encourage long-term (3-5 year) pricing agreements to ensure commitment to continuous improvement in cost efficiency and service quality. These agreements provide a positive business framework that allows providers to better manage their businesses to the satisfaction of their airline customers and make it easier for airlines to annually monitor cost-efficiency, airport planning and other charges-related developments through regular consultation meetings.

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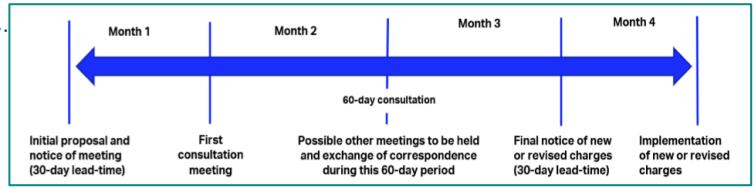
- Begin consultations with an advance notice of proposals: at least a four-month notice of revision and/or imposition of charges should be given to airlines and their representative organizations[2].
- Consultation documents[3] should be clear, exhaustive and provide transparent and appropriate financial, operational and other relevant information. Proposals should be supported by a business case and major investments should be sup-ported by a robust cost-benefit analysis.
- The best outcome of a consultation is consensus between airports and airlines as business partners. As per ICAO's policies, revision or imposition of charges should be made in agreement with the users. It is essential for all stakeholders to be aligned and feedback from airline users and their organizations must be fully taken into account

[1] ICAO Doc 9082 (third edition), paragraph 1.5B and Doc 9161 (fifth edition) paragraph 1.3B refer.

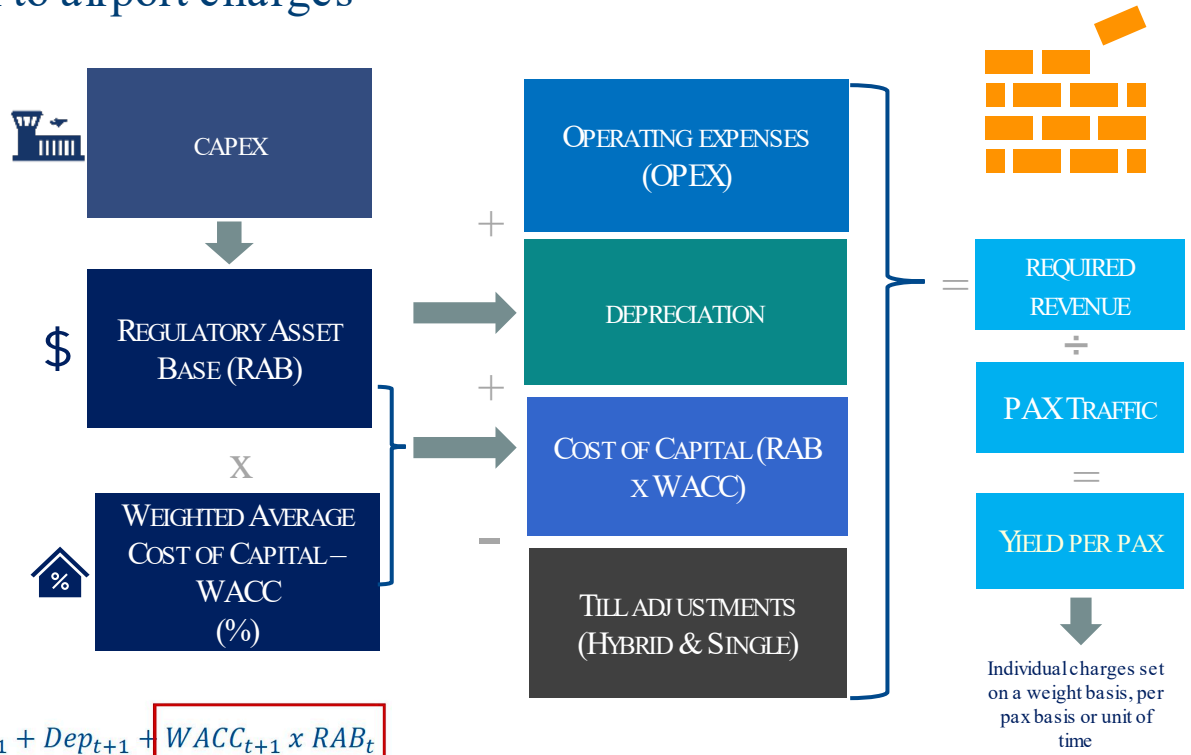
[2] ICAO Doc 9082 (ninth edition) paragraphs 17 to 22 of Section I refer.
[3] IATA position paper on Transparency refers



Source: https://www.iata.org/contentassets/fa95ede4dee24322939d396382f2f82d/airline-engagement-in-consultations.pdf

The Building Blocks concept
Conventional approach to airport charges

- The building blocks are the determining elements of the total charge level.
- They add up all the different costs to a total cost, including as well the "reasonable profit or return" of the company.
    - The return is treated as a cost
    - Once the building is completed, the total cost is set in perspective to the forecasted traffic.



$$Allowable\ revenues_t = OPEX_{t+1} + Dep_{t+1} + WACC_{t+1}\ x\ RAB_t$$

CAPEX & OPEX (1 & 2) – Definitions

1) Capital expenditure (CAPEX) – Funds used by an airport operator for the:

- Acquisition, construction or improvement of fixed assets such as land and buildings.
  - ✓ This type of outlay is made by airports to maintain or increase the scope of their operations and is allocated for a specific time period.
  - ✓ These expenditures can include everything from repairing a roof to building a new terminal building or runway.

2) Operating expenses (OPEX) – Ordinary airport operating costs, including the following:

- personnel compensation and benefits,
- contractual services
- communications and utilities,
- repairs and maintenance,
- marketing, advertising and promotion,
- supplies and materials,
- insurance, etc.

3) Depreciation

Definition

- The decrease in the value of an asset due to wear and tear through use, action of the elements, inadequacy or obsolescence, normally over a predetermined period of time (depreciation period/book life of the asset). Airport Economics Manual (Doc 9562)

Depreciation in a charges calculation compensates for ageing infrastructure

- For airports, the users are not charged for the investment at once but will pay with depreciation over the determined period. Operators have to finance investments first;
- The amount of depreciation each year is booked as a loss in the P&L
- The airport recovers its investment through depreciation included in its cost base.

4) Cost of capital

$$Allowable\ revenues_t = OPEX_{t+1} + Dep_{t+1} + WACC_{t+1}\ x\ RAB_t$$

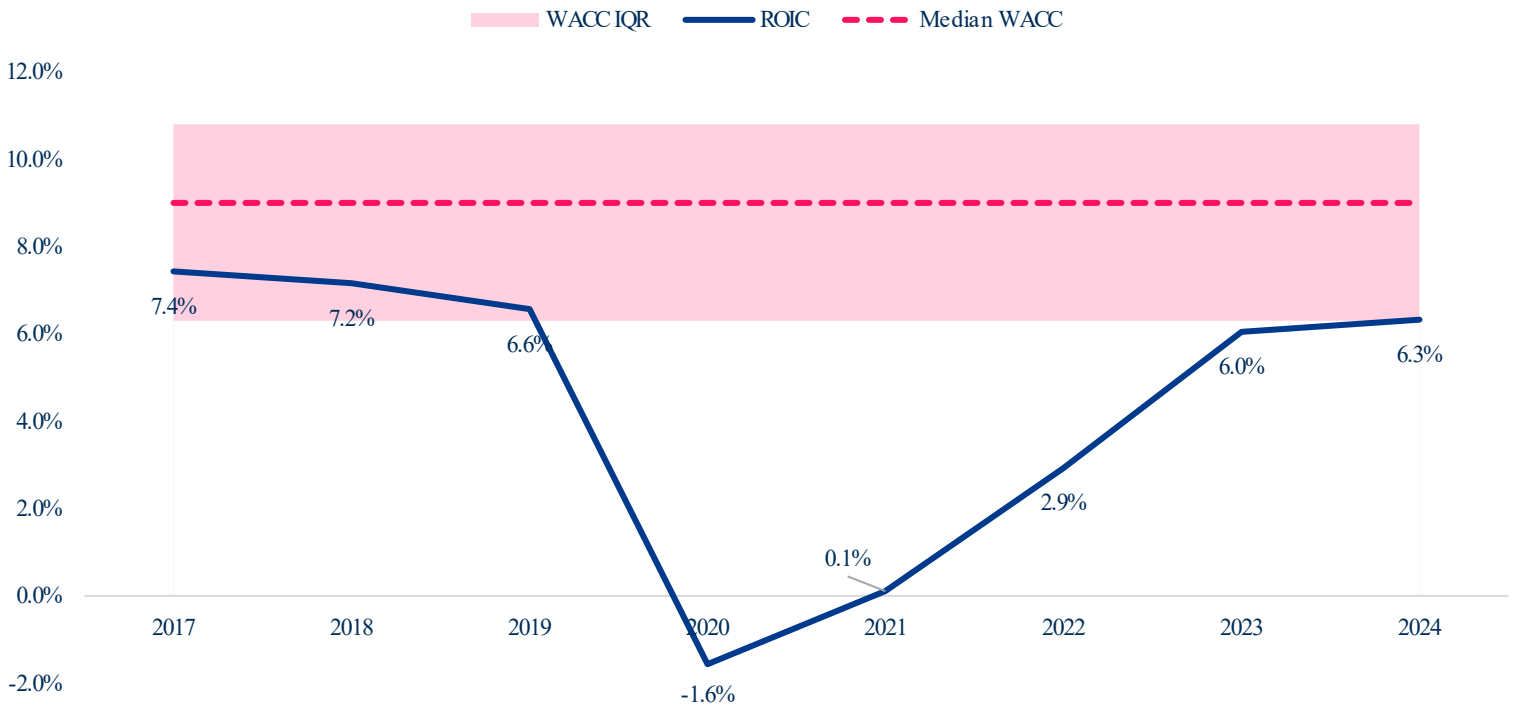
1) CAPEX

4) COST OF CAPITAL = WACC x RAB

Weighted average cost of capital (WACC) is the average of the minimum after-tax required rate of return which a company must earn for all of its security holders .

Regulatory Asset Base (RAB) is the current valuation of the capital stock of the airport that support regulated activities .

Airport Business Economic Value Creation: ROIC vs. WACC



Source: ACI World Airport Economics Database

• Definition of regulatory tills
• Accounting for non-aeronautical revenues

Single Till (Residual)

the full cost associated with an airport and its essential ancillary services, including appropriate amounts for cost of capital and depreciation of assets, as well as the cost of maintenance and operation, and management and administration expenses, are included in the cost basis attributed to air traffic. These costs are then **adjusted to reflect non-aeronautical revenues that accrue to the airport**. In general, in exchange for sharing the risk associated with the airport's operations, **aircraft operators and/or end-users benefit from a cost basis that is adjusted to reflect non-aeronautical revenues**.

Dual Till (Compensatory)

the full costs associated with the airport and its essential ancillary services are allocated between the airport owner/operator and the airport users. **The costs allocated to air traffic include only those costs associated with the facilities that are actually used by the aircraft operators and the end-users. No adjustment is made to this cost basis to reflect non-aeronautical revenues accruing to the airport.** The airport owner/operator is free to direct the use of any revenues generated from its concessions, parking facilities, and any other non-aeronautical activities for use at the airport, as it deems necessary and appropriate.

Hybrid Till

the cost basis is established based on **a combination of the single-till and the dual-till approaches**. For example, the airport owner/operator may choose to recover landing costs on the basis of the single-till approach while establishing terminal costs on the basis of the dual till approach.
Hybrid till is a form of dual till where a specified fraction of non aeronautical revenues, or only certain non aeronautical revenue streams, are used to subsidise aeronautical revenues.

Airlines
lobby for this approach

Airports
lobby for this approach

Source: Doc 9562, Airport Economics Manual, 4th Edition, 2020

Accounting for Non-Aeronautical Revenues

Summary of regulatory tills

Single Till

Cost of providing **aero + non - aero activities** – *subtract* Non - aeronautical revenues

=

Cost basis for aeronautical charges

Airlines lobby for this approach

Hybrid Till

Cost of providing **aero activities only** – *subtract* % Non - aeronautical revenues

=

Cost basis for aeronautical charges

Dual Till

Cost of providing **aero activities only** → Cost basis for aeronautical charges

Costs and income from commercial (non -aero) activities → **Net revenue for the airport operator**

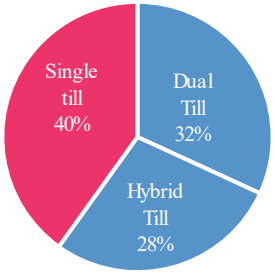
Airports lobby for this approach

Global Trends in Regulatory Tills

The Reality: A worldwide shift toward dual and hybrid till frameworks

2014

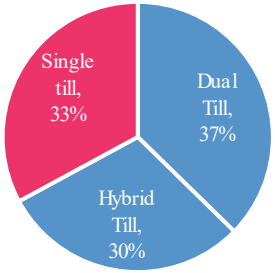
60% Dual or Hybrid till*



Database n = 741 airports

2019

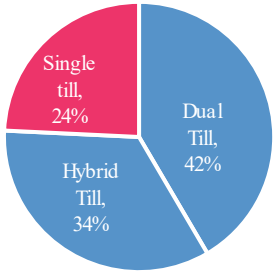
67% Dual or Hybrid till*



Database n = 530 airports

2024

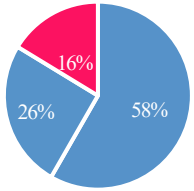
76% Dual or Hybrid till*



Database n = 572 airports

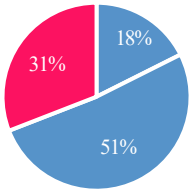
Europe 2024

84% Dual or Hybrid till*



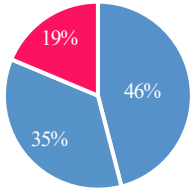
North America 2024

69% Dual or Hybrid till*



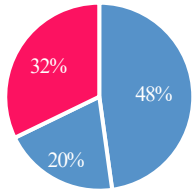
APAC-MEA 2024

81% Dual or Hybrid till*



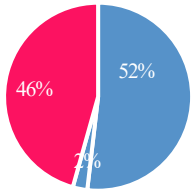
LAC 2024

68% Dual or Hybrid till*



Africa 2024

54% Dual or Hybrid till*

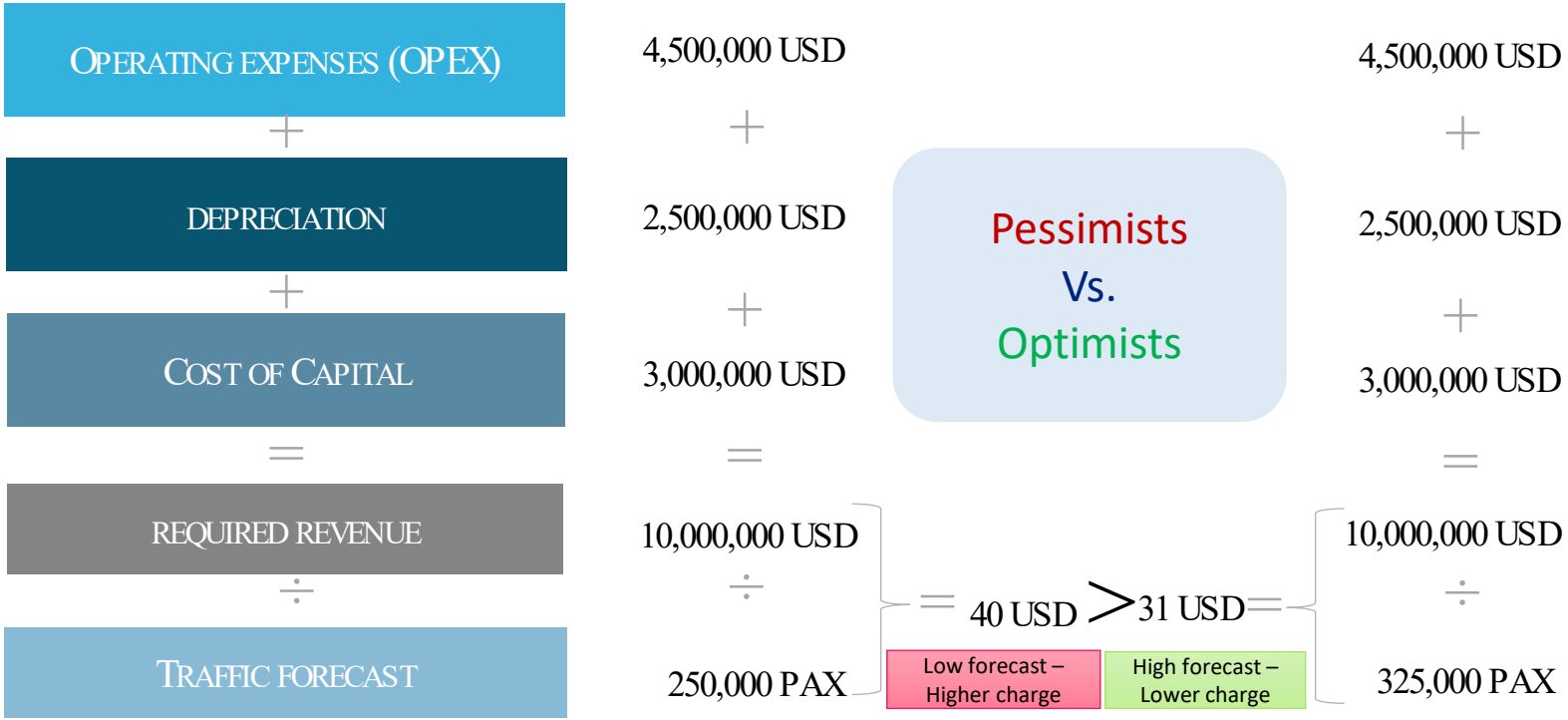


Source: ACI World

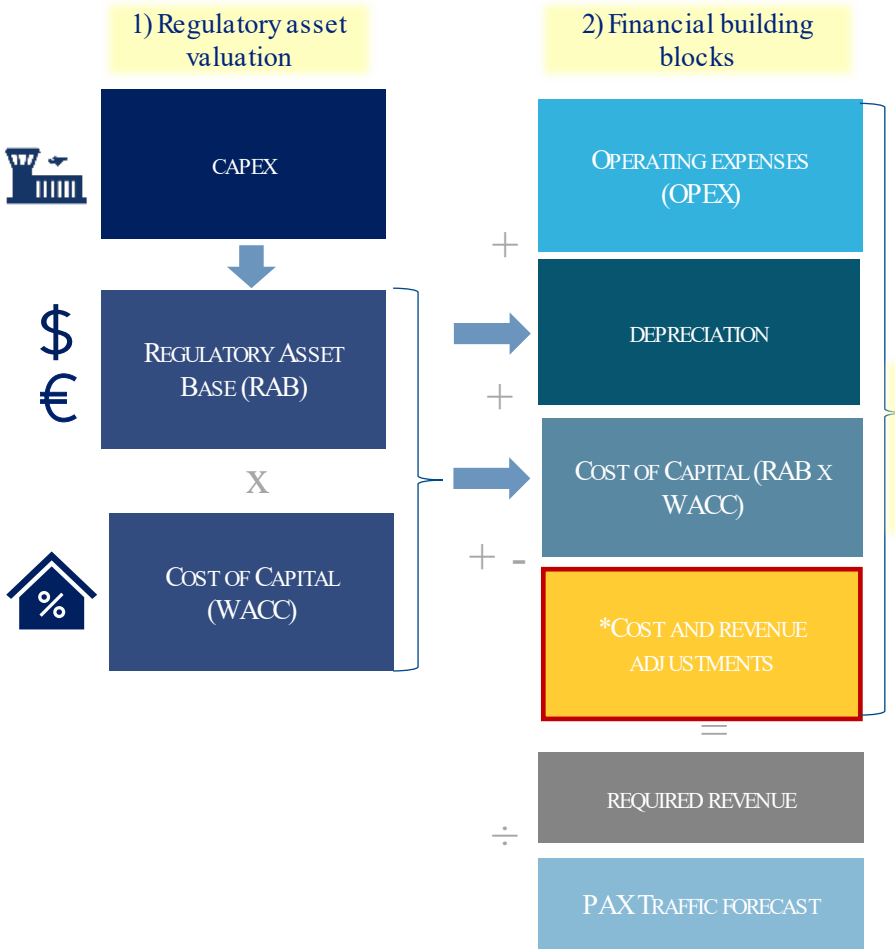
** - % of pax traffic by till*

Dual Till Hybrid Till Single Till

The basic "building blocks" and resultant unit charge – Comparing forecasts



From building blocks to setting individual charges



Cost center statement

Doc 9562 Part A, 4.52-4.57
Doc 9562 Part C, 4.88-4.90

What is a cost center ?

A cost center is a department or a distinct unit which contributes to the airport's activities.
These departments may not be involved directly in production activity, so they may or may not generate revenue.

Typical cost centers in the industry

- Administration and finance
- Marketing department
- Airside maintenance
- Rescue and Fire Fighting
- Terminal management
- Plumbing, mechanical and electrical maintenance
- Security

Airport ABC, 2022 expenses	
Cost center	Amount of expenses (in USD)
Administration and finance	50,000
Airside maintenance	44,000
Security	36,000

Service line statements

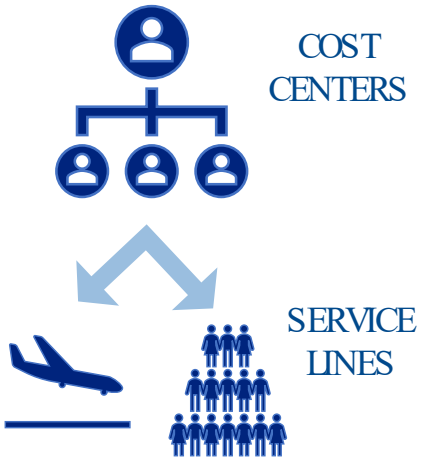
DOC 9562 PART A, 4.58-4.61
DOC 9562 PART C, 4.88-4.90

WHAT IS IT ?

Service line statements are a user-driven concept, expressed as services that users receive. In other words, they represent what the user is paying for.

LINK WITH COST CENTERS

Its essential that airport accounting system be able to allocate various cost center data to various service lines.
A service line may incorporate input from a variety of cost centers.
(see table)

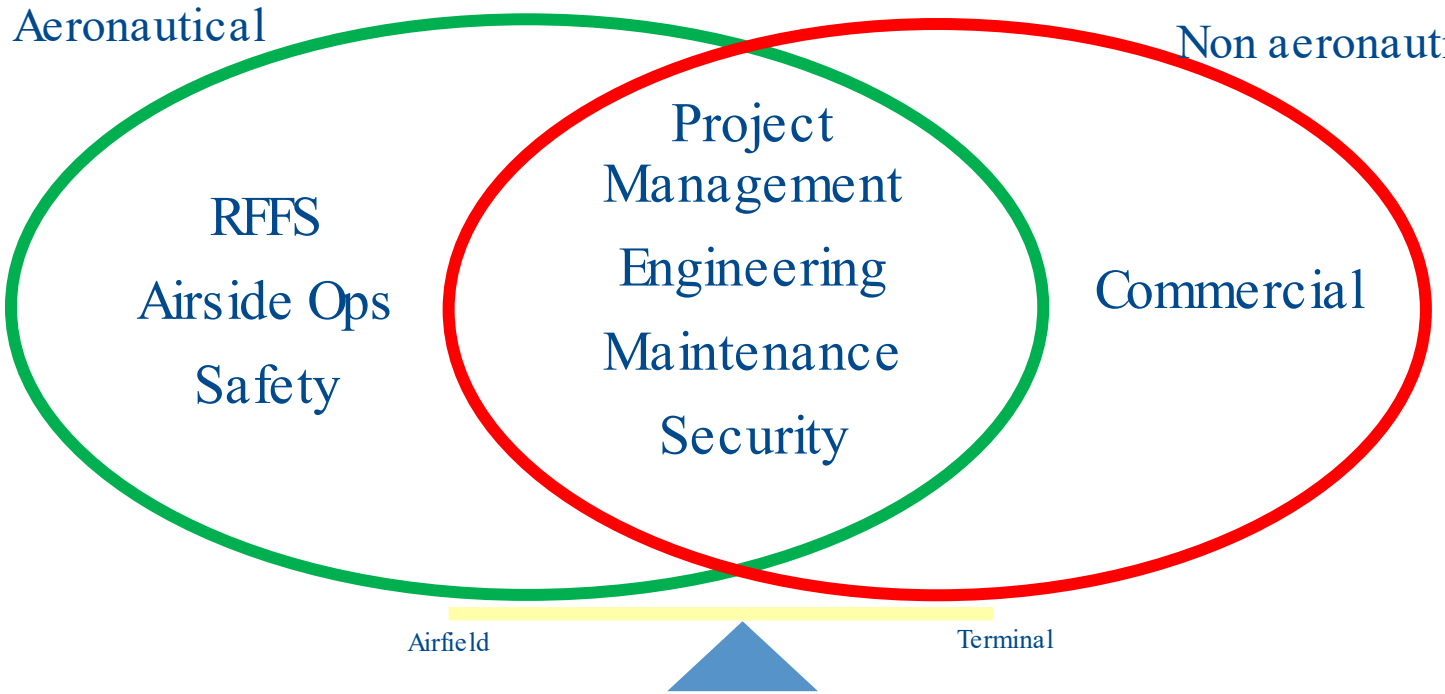


Examples of service lines

DOC 9562 PART A, TABLE 4-4

	Fixed Assets	Cost centres OPEX (in support of)	Service Line	Airport charges (associated with)
Aero	• Airside infrastructure • Navigation and safety systems	• Airside maintenance • RFFS • Security • Garage • ANSP	Airside	• Landing Charges Parking charges
	Passenger terminals	• Terminal maintenance Security • Plumbing, mechanical and electrical maintenance	Passenger processing	• Passenger service charges • Security charges • Aerobridge charges
Non-Aero	Non-aero infrastructure	• Terminal maintenance Security • Plumbing, mechanical and electrical maintenance • Marketing	Concessions	• Space rent • % on turnover
		• Plumbing, mechanical and electrical maintenance • Ground maintenance	Property rental	• Space rent • Recovery of utilities • Maintenance charges

Cost allocation processes – What do we do with common Assets and OPEX?



Head office – Strategic Projects – Public Relations – Internal Audit –
Legal – IT – Finance – Human Resources

The playbook for establishing cost allocation to set charges

Step 1 – Direct managerial accounting: Business units with defined costs (or cost centres) directly related to:

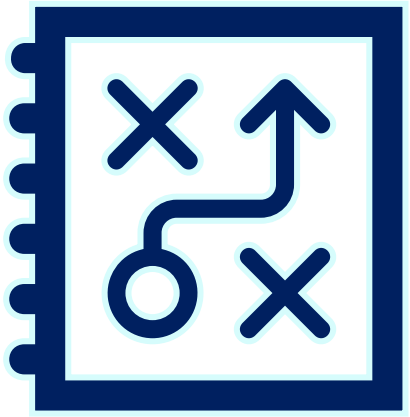
- Aeronautical services on airfield and for passenger processing;
- Business units directly related to non-aeronautical services.

Step 2 – If common areas or departments are unclassified (applying proportionality or cost allocators %):

- Time-based allocators: Share of time spent servicing aeronautical or non-aeronautical activities and deducing the OPEX from that amount – % of budget, % Staffing, etc. (more relevant for OPEX)
- Spatial-based allocators: Terminal building space dedicated to aeronautical activities – % for the RAB/fixed assets and associated depreciation (more relevant for classifying the fixed asset register)

Step 3 – Last resort, if 2 is not feasible in the near term, allocate based on revenue split with adjustment for costs:

- Aero / Non-aero Revenue Split (available data) with some adjustment for cost split: For instance, an airport that has a ratio of 60% aero to 40% non-aero will likely have a greater weighting on the cost side for aero (75% aero cost vs 25% non-aero costs). The reason for this is that the aero costs tend to be more significant, yet the revenue margins on non-aero are higher.
  - ✓ Rule of thumb – Apply the 2/3 rule (or something you deem logical for the airport companies). For instance, if non-aero is 40% then 40% * 2/3 = ~27% non-aero costs; Conversely, if Aero is 60% then 73% is aero costs.
- Use of industry benchmarks of similar peer airports if you feel uncertain about the first point above.

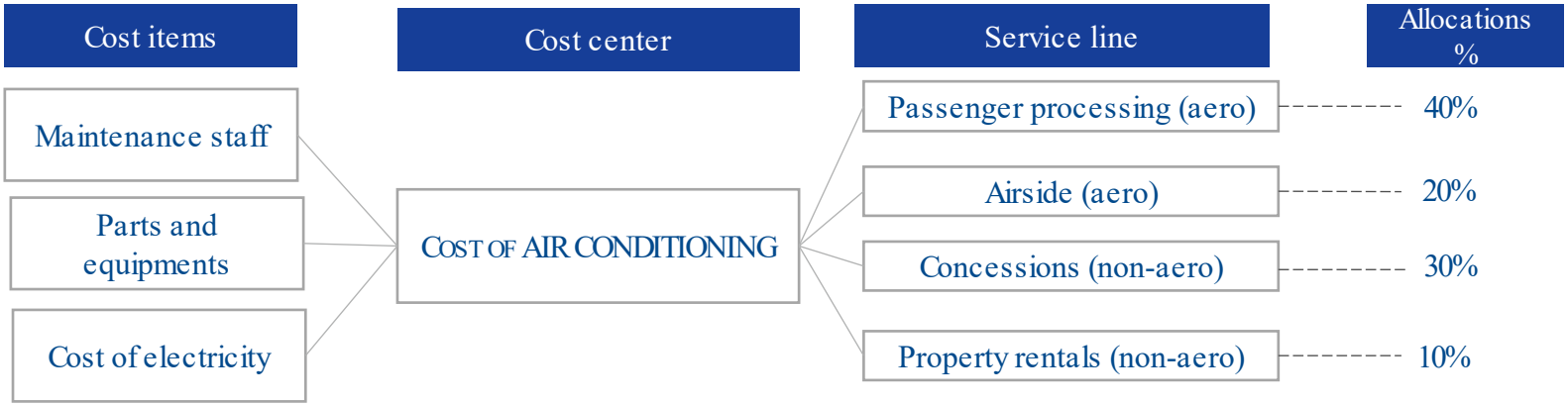


Cost allocation: General principles

- Once the total costs by categories of expenses (OPEX, maintenance & utilities, capital costs and taxes) have been determined, they should be allocated to the various cost centers and service lines.

- Allocation of costs is a parallel process necessary to clarify where the costs come from, to which department it is attributed.
- The cost should be allocated to both cost centers and service lines.
- For costs attributable to two or more cost center/service line, allocation keys need to be developed
- Those allocation keys could be square meters, headcounts, time spent working on various service lines

DOC 9562 PART C
« BUILDING BLOCK APPROACH »

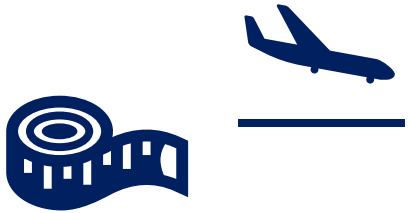


Setting individual charges after cost allocation

Determine what charges should be levied on traffic in the immediate future.

Therefore, it requires :

- To estimate the cost basis for the next financial year;
- To forecast traffic based on:
  - ✓ Number of aircraft movements;
  - ✓ MTOW;
  - ✓ Departing passengers (international and domestic);
  - ✓ Cargo volumes;
  - ✓ Duration of stay by aircraft size



Simulating tonnage and load factor based on fleet

Aircraft weight for selected sample (metric tonnes)

Aircraft	MAW	MTOW	MLW	MZFW
Airbus A319	64.3	64.0	61.0	57.0
Boeing 737-700	60.6	60.3	58.1	54.7
Boeing 737-800	70.8	70.5	65.3	61.7
Airbus A320-200	73.9	73.5	64.5	62.5
Airbus A321-200	93.9	93.5	77.8	73.8
Boeing 767-300	187.3	186.9	145.2	133.8
Airbus A330-300	243.0	242.0	187.0	175.0
Boeing 777-300ER	352.8	351.5	251.3	226.0
Total for sample	**1,146.6**	**1,142.2**	**910.2**	**844.5**

Source: Jacobs, Review of Airport Charges 2022

Aircraft seat capacities and assumed passenger loads

Aircraft	Range of capacities	Average capacity	Assumed passenger occupancy
Airbus A319	108 – 156	141	116
Boeing 737-700	112 – 149	136	112
Boeing 737-800	138 – 189	177	145
Airbus A320-200	110 – 195	169	139
Airbus A321-200	154 – 235	198	162
Boeing 767-300	183 – 328	233	191
Airbus A330-300	245 – 398	281	230
Boeing 777-300ER	278 – 477	352	289
Total for sample		**1,687**	**1,384**

Source: Jacobs, Review of Airport Charges 2022 based on OAG

Setting individual charges - Examples

Doc 9562 PART H 4.152-4.175

LANDING CHARGES

Based on aircraft weight formula indicated in the certificate of airworthiness (generally, MTOW)
If, the charge increases according to aircraft weight, the charge is normally computed as follows:

MTOW
x
Price rate applicable (per tonne) within the weight range in which the aircraft falls.

PARKING CHARGES

The large majority of airports base the parking charge depending on aircraft weight and the period the aircraft remains parked.
Same principle applies for hangarage and long-term storage of aircraft.

PASSENGER SERVICE CHARGES

Usually levied only on departing passengers.
Two types of passenger service charges (on international passengers and on domestic passengers).
Determined by dividing the estimated cost basis for passenger service charges (international or domestic) for the coming year by the total estimated number of departing passengers (international or domestic), excluded passenger in direct transit.

What about other charges?

- AEROBRIDGE CHARGES
- NOISE-RELATED CHARGES
- SECURITY CHARGES

Numerical example – Step 1: Cost allocation by service

1

Financial inputs	USD (t+1)
1. OPEX	50,000,000
2. Depreciation	18,000,000
3. Cost of Capital	12,000,000
4. Non-aero Revenue	28,000,000

2

Cost allocation	USD (t+1)
5. Aero	56,000,000 (70%)
6. Non-aero	24,000,000 (30%)

3

Regulatory till cost base	USD (t+1)
7. Dual till (5. Aero)	56,000,000*
8. Single till (5 + 6) - 4	52,000,000

5. Aero

4

Costs by Service Line	Allocation %	OPEX	Depreciation	Cost of Capital	Total
Landing	20%	10,000,000	3,600,000	2,400,000	16,000,000
Parking	10%	5,000,000	1,800,000	1,200,000	8,000,000
Passenger/Terminal	40%	20,000,000	7,200,000	4,800,000	32,000,000
Non-aero	30%	15,000,000	5,400,000	3,600,000	24,000,000
Total	100%	50,000,000	18,000,000	12,000,000	80,000,000

Numerical example – Step 2: Individual charges – Dual till

5 Operational inputs (Annual t+1)	Forecasted metrics (t+1)
1. Passengers	5,000,000
2. Aircraft Mvts	40,000
3. MTOW (tonnes)	900,000
4. Parking Hours	300,000

6 Costs by Service Line	Allocation %	Total	Formula	Base Charge (USD)	Peak time 60% traffic Peak**	Off-Peak time 40% traffic Off-Peak**	
5. Landing	20%	16,000,000	5. / 3.	17.78	20.08	14.34	Per metric ton
6. Parking	10%	8,000,000	6. / 4.	26.67	30.13	21.52	Per hour
7. Passenger/Terminal	40%	32,000,000	1. / 7.	6.40	7.22	5.16	Per passenger
8. Total (Dual till)*	100%	56,000,000	8. / 1.	11.20	12.64	9.03	Yield per pax

**35% premium on the peak (with 60% of traffic in peak, 40% off-peak), so:

- ✓ Peak charge (x) = 1.35 × Off-peak charge (y)
- ✓ $0.6x+0.4y$=Base charge ($11.20)

From building blocks to setting individual charges

1) Regulatory asset valuation

2) Financial building blocks

3) Aeronautical cost basis

4) Charges

CAPEX

$ €

REGULATORY ASSET BASE (RAB)

X

%

COST OF CAPITAL (WACC)

OPERATING EXPENSES (OPEX)

+

DEPRECIATION

+

COST OF CAPITAL (RAB X WACC)

+ -

*COST AND REVENUE ADJUSTMENTS

=

REQUIRED REVENUE

÷

PAX TRAFFIC FORECAST

Cost centers linked to service lines

3) Aeronautical cost basis	4) Charges
Airfield Cost Basis	Landing
	Parking
	Lighting
PAX Terminal Cost Basis	Domestic PFC
	International PFC
AVSEC	Security charge
Cargo Terminal Cost Basis	Cargo handling
Noise Abatement Cost Basis	Noise charge

Individual charges set on a weight basis, per pax basis or unit of time

Thank you!