

# Multi Operator Airports

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January 2026

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# Executive Summary

## Scope

Mott MacDonald was engaged by Heathrow Airport Limited (Heathrow) to carry out comparative analysis of Heathrow Airport, a single operator airport, and two examples of US multi-operator airports – John F. Kennedy (JFK) International Airport and Los Angeles International Airport (LAX).

The context for this report is the CAA consultation on regulatory models, which is considering whether introducing competition in the development and operation of terminals at Heathrow Airport could improve outcomes for consumers. JFK and LAX have been chosen as comparators as they represent different variants of the multi-operator airport model. LAX, like other US airports, has terminals which have been developed and funded by airlines, however overall operational responsibility lies with the airport authority. At JFK there is a greater degree of terminal independence with multiple privately operated terminals at the airport.

This report investigates a series of hypotheses related to the performance of Heathrow and the comparator multi-operator airports across a number of topics, including the use of capacity, quality of service and ability to coordinate.

## Efficient Use of Capacity

Hypothesis: Multi-operator airports lack the incentives and ability to allocate airlines across terminals in an optimal way to balance demand and capacity utilisation, compared to single-operator airports.

Key Findings: There is quantitative evidence showing that traffic is distributed more efficiently and capacity is utilised more effectively at Heathrow with a single operator, compared with JFK and LAX with multiple operators. The difference is not explained by differences in the traffic mix at the airports but appears to be a function of better traffic distribution and allocation of facilities at Heathrow.

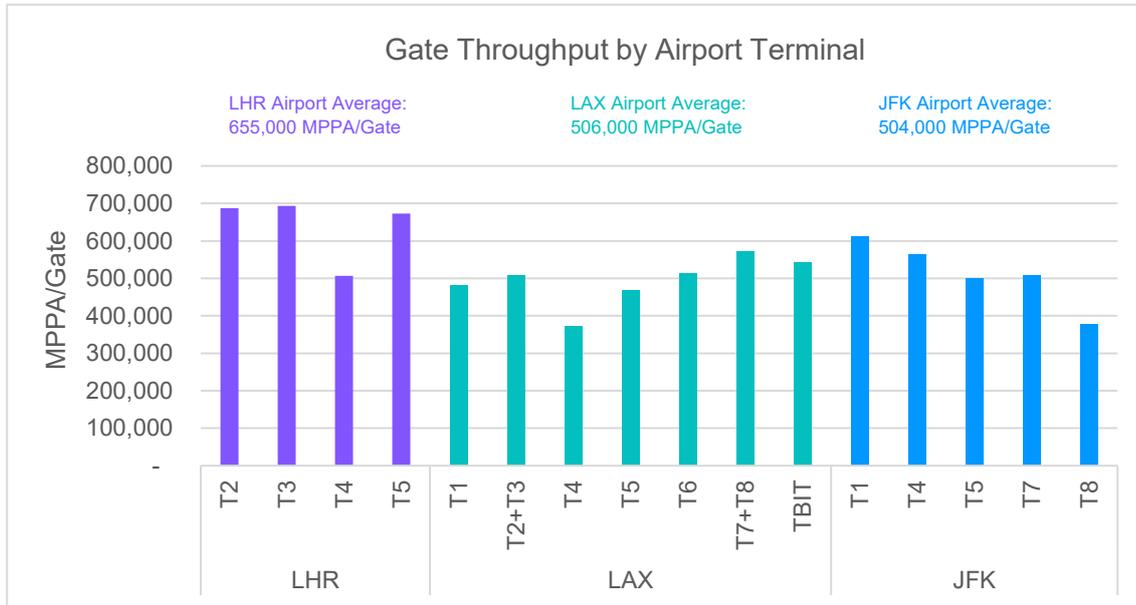
Analysis was carried out on the level of inefficiency resulting from the distribution of traffic across terminals in the single and multiple operator models, looking at the ratio between the sum of individual terminal peak passenger flows and the airport wide peak flow. The results indicate that JFK and LAX require greater total peak hour terminal capacity to serve the same level of demand compared to Heathrow, due to less efficient distribution of traffic across terminals. JFK’s inefficiency is approximately 11% higher than LHR, and LAX’s inefficiency is 29% higher.

## Terminal Occupancy Efficiency

	Sum of Terminal Peaks		Airport Wide Peak		Inefficiency Factor			Relative to LHR		
	ARR	DEP	ARR	DEP	ARR	DEP	AVE	ARR	DEP	AVE
<b>JFK</b>	12,420	12,150	9,120	8,640	1.36	1.41	1.38	1.15	1.07	1.11
<b>LAX</b>	15,000	16,250	10,390	9,080	1.44	1.79	1.62	1.22	1.36	1.29
<b>LHR</b>	13,860	13,580	11,730	10,290	1.18	1.32	1.25	1.00	1.00	1.00

Heathrow’s average passengers-per-gate is almost 30% higher than JFK and LAX, which reflects the efficiency of managing gate capacity as airport-wide common-use facilities, under the control of a single airport managing body. Heathrow delivers approximately 655,000 annual passengers per gate, compared to 504,000 at JFK and 506,000 at LAX.

**Gate Throughput for Passenger by Airport Terminal<sup>1</sup>**



**Cost and Revenues**

Hypothesis: Multi-operator airports have higher operating and capital expenditure, and greater commercial risks compared to single-operator airports.

Key Findings: Limited evidence to support or challenge the hypothesis. Qualitatively it can be stated that the more efficient use of capacity at Heathrow will translate into lower capital costs (or a higher throughput for a footprint-constrained airport). Greater traffic and revenue risk from competing terminals has been recognised by rating agencies but is difficult to quantify. Like-for-like comparison of commercial metrics is challenging given JFK and LAX do not have consolidated accounts for the entire airport, given a proportion of terminal revenues do not flow through the airport operator accounts. Operational costs for multi-operator airports will be higher due to multiple operations centres and a significant number of additional interfaces.

**Quality of Service**

Hypothesis: Heathrow, as a single, integrated operator, is able to achieve and sustain greater consistency and higher levels of perceived customer service than the comparator multi-operator hubs, JFK and LAX.

A range of ASQ attributes were analysed to test the hypothesis, as part of this study, a snapshot of which is shown below.

<sup>1</sup> Passenger volumes for this assessment are based on rolling 12-month totals from November 2024 to October 2025, using the latest published traffic statistics for LHR, JFK, and LAX. The stand numbers used in this analysis refer only to pier served stands/gates, defined as positions connected directly to the terminal concourse via a jet bridge, ensuring a consistent standard of customer service. Remote stands are excluded. For LHR, passenger numbers are based on number of passengers using these pier served stands. For JFK and LAX, 100% pier service levels are assumed (so gate throughput may be slightly overestimated).

ACI ASQ 2025 Q3 scores LHR / JFK / LAX



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**Governance and Coordination Challenges**

Hypothesis: The governance and coordination of multi-operator airports is more challenging given the interfaces between the airport and terminal operators, which negatively impacts resilience.

Key Findings: Multi-operator airports require an overall airport operator responsible for core safety, security, landside and airside operations. Each independent terminal operator will have their own management team and control centre, to manage their own operation. Multi-operator airports require significant contractual governance and procedures to deliver a reasonable level of resilience. This additional governance requires resources to monitor, manage and respond to the contractual requirements. Due to operational fragmentation and a lack of common systems, there is less interoperability between terminals when a single terminal is unexpectedly closed or where an overall downturn shock occurs.

For hub airports operating at near-capacity, performance during irregular operations is a central performance metric. The ability of the airport operator to have overall control with access to integrated and interoperable systems across the whole operational asset materially reduces the impact on the consumer and all stakeholders. It should also be noted that when there are outages at major hub airports such as Heathrow, JFK and LAX, this can impact consumers and stakeholders around the world.

## Competition and Market Access

Hypothesis: At a multi-operator airport, large incumbent airlines own, control or significantly influence the use of terminals and apron capacity. Such undue influence can lead to anti-competitor behaviours such as seeking to block new entrant competitor access, inconsistent terminal charges that lack transparency or a level-playing-field, and incentives for incumbent airlines to oppose timely investment in capacity to meet overall airport demand.

Key Findings: In the context of the Heathrow expansion, terminal and apron capacity limitations (rather than runway capacity) are likely to be the primary constraint on airport and market access following the opening of a third runway. Incumbent airlines have incentives to limit new entry and growth of other airlines in favour of using new runway capacity for slot retimes and punctuality/resilience improvements.

For the comparator airports, JFK and LAX, the slot allocation process is fragmented (separate runway and terminal slots), lacks transparency, and does not allow the efficient allocation and optimisation of schedules within overall airport capacity to achieve efficient use of scarce capacity. Large incumbent airlines have incentives to “hoard” airport capacity, such as retaining leased gates by ensuring some use of the gates at peak times but overall under-using the gates they hold. This is evidenced by the lower gate utilisation achieved at JFK and LAX than Heathrow.

Additionally, most large and medium sized US hub airports have *majority-in-interest* (MII) clauses in their use and lease agreements. The MII clauses give signatory carriers (i.e. airlines that have entered into a long-term lease agreement) the ability to delay or prevent airport capital-development projects that would benefit new entrant and smaller air carriers. This behaviour has been identified as a barrier to entry by the U.S. General Accounting Office.

Therefore, multi-operator airports may require more regulation by the CAA rather than less. The evidence from US airports is that any inter-terminal competition due to separate ownership and operation either fails to occur in practice or is insufficient to protect against potential anti-competitive behaviours by incumbent airlines.

# 1 Introduction

This section provides a brief introduction to the report and includes an overview of JFK and LAX airports. The JFK and LAX airport operator models are described, alongside a concise overview of the terminals at each airport. Finally, the key hypotheses being tested in this report are set out.

## 1.1 The Context

The Civil Aviation Authority (CAA) is reviewing the regulatory framework for Heathrow Airport, in the context of the proposed expansion at the airport. A working paper has been prepared by CAA (CAP 3195), which sets out a list of potential regulatory models, for consultation.

A central question of this consultation is whether introducing competition at Heathrow Airport could improve outcomes for consumers, i.e. passengers and cargo owners. CAA are exploring how competition could be applied at the airport, including looking at arrangements in other UK sectors and internationally.

A set of possible models has been listed in the working paper, reflecting a spectrum of third-party participation. Given the complexity of airport development and operations, there are numerous permutations of how competition could be introduced. The models range from the contracting out of operations of an asset (e.g. management contracts for terminal operations) through to comprehensive Design, Build, Finance, Operate and Maintain (DBFOM) arrangements for new terminals. The latter potentially involves competing with services provided by Heathrow Airport Limited (HAL), the current owner and operator, i.e. introducing inter-asset competition at the airport. The long list of regulatory model options is shown in Table 1-1.

**Table 1-1 Long-list of Regulatory Models in CAA Working Paper (CAP 3195)**

Ref	Regulatory Model	Category
1	Changes to the current capex governance framework	Variations of the current regulatory framework
2	Targeted adjustments to the existing incentive regime	
3	Longer-term regulatory framework for expansion	
4	CAA oversight/mandate of procurement, subdivided into: a) enhanced scrutiny of HAL's approach to procurement b) mandated design and build contracts	Interventions to facilitate competition in the delivery of infrastructure
5	Contract for delivery and operation, subdivided into: a) Operation (management contract) b) Design, build and operate	
6	Third party builds assets, then transfers ownership to HAL	
7	Third party continues to own and operate assets, subdivided into: a) Upstream supplier model b) Direct competition for airport operation services	
8	Transfer of ownership and operation of an existing asset	
9	New frameworks for setting airport charges	Alternative approaches to setting maximum allowed airport charges

This report has been prepared to support HAL's response to this consultation, particularly in relation to Options 5-8 in the regulatory models shown in Table 1-1. These options introduce competition in the delivery and operation of infrastructure at the airport.

This report focuses on a comparative analysis between Heathrow and two US airports: John F. Kennedy ("JFK") International Airport and Los Angeles International Airport ("LAX"). These US comparator airports are two of the larger multi-operator airports globally, and represent different variants of the multi-operator model, as explained in Section 1.2. JFK Airport is specifically referenced in the CAA working paper under Regulatory model 7b: Direct competition for airport operation services.

Comparative analysis has been undertaken across a number of dimensions of airport development, management and operations:

- Capacity
- Costs and Revenues
- Quality of Service
- Governance and Coordination
- Competition and Market Access

For each of the above, a hypothesis is stated, and a view is provided on the extent to which the hypothesis has been supported with evidence (or otherwise). Wherever possible, quantitative analysis has been undertaken.

## 1.2 The Multi-Operator Model and Comparator Airports

Multi-operator airports comprise terminals that are funded and operated by different organisations either exclusively or in some form of hybrid. Multi-operator airports are commonplace in the US where the funding mechanisms as well as competition between airlines have encouraged such development since the early years of commercial aviation. The scale of the domestic US market is unique in aviation which results in the major carriers having a comprehensive hub and spoke model service through hub airports, where they are often the dominant carrier. The domestic market represents 87% of passengers handled by US carriers. US carriers invest in their facilities generally for their own use to meet their own business requirements, which for domestic hubs is centred around connectivity, and the business case for the investment is part of the overall airline model.

A small number of larger airports, particularly those with more international operations, may have a number of major carriers with hub or semi-hub operations. Chicago (United and American), Los Angeles LAX (Delta, United and American), Seattle (Alaskan and American), Boston Logan (American and Delta), and New York's JFK (Delta, JetBlue and American) are examples.

### Airline Developed Terminals

Airline-led terminal investments use their own financial facilities, with close coordination with the main airport operator for airport charges. The airline will normally have exclusive or preferential access to maintain their market share. The priority of airline developed terminals will be to maximise the operational efficiency of the aircraft operations with revenue streams coming from ticket sales in competition with other airlines. This model will often result in aircraft being parked on gates for longer to deliver those efficiencies with little benefit in allowing 3<sup>rd</sup> party airlines to take a slot. Airline developed terminals will usually have bespoke operating systems that reduce resilience in the case of irregular operations.

Airlines who have developed their own terminals do not pay a passenger service charge, reducing the marginal cost of increasing throughput. However, this creates a price disadvantage for visiting airlines and can encourage anti-competitive behaviours that limit consumer choice and value.

### Private-sector Developed Terminals

These terminals, such as the New Terminal One (NTO) and Terminal Six at JFK rely exclusively on the revenues derived from airlines using the terminal and commercial sales to passengers. To maximise revenue the terminal is incentivised to maximise the number of passengers and yield from each extra flight. Additional governance is required to ensure that the terminal does not become overloaded (and potentially need to offload airlines to another terminal). Where there are no fixed charges and there is more than one terminal accepting a range of airlines, such as JFK, there is the opportunity for one terminal to undercut the pricing of another to pull airlines across and maximise profitability. Governance of this internal free market environment is challenging.

Some major airports will develop common-use facilities to prevent any one airline gaining excessive control. Tom Bradley International Terminal (TBIT), the primary international terminal at LAX, was developed by the airport operator LAWA, as an example to prevent market dominance by one carrier group.

JFK has a mix of US airline developed terminals, foreign airline developed terminals and third-party privately financed terminals. Each of these have different business plans and operational objectives. Each terminal is a mini-PPP and exists in their own business case with revenues derived from the airlines that they serve as well as commercial revenues. There are defined limits of operational responsibility and payments to the airport operator under the lease, as well as mechanisms for revenue sharing.

To facilitate financing for multi-operator airports, terminals must secure long-term operational commitments through contracts with anchor airlines and provide evidence of these agreements to potential funders. These anchor airlines may also serve as the developers. They are likely to receive preferential rates and priority in positioning compared to airlines contracted at a later stage. While the airport operator may retain certain reserved rights, the contractual relationship exists between the terminal operator and the airline, meaning any unilateral action by the airport operator could result in liability for compensation.

### **The JFK Multi-Operator Model**

JFK Airport is operated by the Port Authority of New York and New Jersey (“PANYNJ”), a bi-state agency, as a long-term master lease from New York City that runs until 2060. The Port Authority enters into sub-leases for individual terminal sites and other facilities across the campus while retaining the role as the overall airport operator. This is the basis for the multi-operator model at JFK – long-term leases granted by the Port Authority for terminal operators to independently develop and operate their terminals.

This model has been in place since the mid-twentieth century, when the ‘Terminal City’ approach was adopted with up to ten terminals operating at any one time. Nine of the ten were developed and operated by airlines with the International Arrivals Terminal (now Terminal 4) developed by the Port Authority. Historically JFK was the showcase for US airlines who developed their own terminals. Since the 1990s there have been terminal developments by US carriers, foreign carriers and private developers, each fully responsible for investment and operation of terminals. The terminal developers pay the Port Authority substantial sums through lease and revenue shares that contribute materially to the Port Authority’s operating margin on their airports business. There are no traffic guarantees and, provided that the airline has a slot and the terminal has capacity, airlines can move between terminals. The new terminals (One and Six) due to be opened in 2026 both comprise of consortia of investors that do not include airlines.

It should be noted that the model, built up over decades, is mature and bespoke to the New York airports where the Port Authority runs 4 commercial airports that have 12 terminals of which they only operate one. The model is also continually refined to enhance performance and include new practices to apply across their many leases and developments. This is known

to require significant and continuous governance and interface effort both for the Port Authority as well as for each of the tenants.

Currently, five terminals are operating at JFK, and a summary of the terminals is found below.

### **JFK Terminal Overview**

JFK International Airport is comprised of five passenger terminals (Terminals 1, 4, 5, 7, and 8), all operated by separate entities, in a Central Terminal Area. The terminals are linked by a roadway network and an automated people mover (“JFK AirTrain”). All terminals can accommodate international arrivals and departures.

**Terminal 1** opened in 1998 and was developed and is operated by TOGA (“Terminal One Group Association”) an airline consortium made up of Air France, Lufthansa, and Korean Air. (TOGA also previously included Japan Airlines). The terminal area is approximately 58,000 square meters, including 10 gates. Terminal 1 currently handles a significant number of international airlines. It is scheduled for closure and demolition once the first phase of the new, under construction Terminal 1 opens in 2026.

**Terminal 4** opened in 2001, with subsequent additions opening in 2013 and 2023. It was developed and is operated by JFK IAT (a subsidiary of Schiphol Group) and Delta Air Lines. Its current occupants include Delta, Virgin Atlantic, Aeromexico, LATAM, Singapore Airlines, Emirates, Etihad, El Al, Avianca, Air India, and others. The terminal area is approximately 227,000 square meters, including 47 gates. Terminal 4 is an important hub for Delta, and they have exclusive use of most of the gates.

**Terminal 5** opened in 2008, with a subsequent addition opening in 2014. It was developed and is operated by JetBlue, who is its main occupant as its main base. The terminal area is approximately 76,000 square meters, including 29 gates.

**Terminal 7** opened in 1970, with several additions and renovations occurring since then. It was developed by British Airways until their transfer to Terminal 8 in 2022 and is now operated by JFK Millenium Partners (JMP, a consortium of Vantage Airport Group, RXR, and Vantage Airport Group). Its current occupants include Aer Lingus, All Nippon Airways, LOT Polish, Frontier Airlines, Air Canada, and others. It is scheduled for closure and demolition once the first phase of the new, under construction Terminal 6 opens in 2026. The terminal area is approximately 50,000 square meters, including 9 gates.

**Terminal 8** opened in 2007, with a subsequent addition opening in 2022. It was developed and is operated by American Airlines. Its current occupants include American Airlines, British Airways, Cathay Pacific, Japan Airlines, Qantas, Qatar Airways, Iberia, Alaska, and others. The terminal area is approximately 151,300 square meters and includes 31 gates.

### **The LAX Multi-Operator Model**

Los Angeles International Airport (LAX) operates using a different variant of the multi-operator model from JFK. LAX is owned and operated by Los Angeles World Airports (“LAWA”), a branch of the City of Los Angeles. LAWA enters into leases with airlines for the exclusive or joint use of terminal facilities. With the exception of TBIT that is operated by LAWA, the leases can be for specific gates, though for major tenants, for entire terminals. An overview of the terminals at LAX is shown below.

## **LAX Terminal Overview**

Los Angeles International Airport (LAX) is comprised of nine passenger terminals (Terminals 1, 2, 3, 4, 5, 6, 7, 8, and the Tom Bradley International Terminal, or TBIT), located in a Central Terminal Area. The terminals are linked by a roadway network and pedestrian passageways (both pre- and post-security). While international departures may occur from any terminal, only TBIT and Terminal 7 are currently able to accommodate international arrivals. Across the airport, there are 144 pier-served stands at LAX distributed among the terminals.

**Terminal 1** opened in 1984, with a subsequent addition opening in 2021. During Summer 2025 (the date of the schedule analysis), its main occupant was Southwest Airlines. Note that other smaller carriers process passengers in Terminal 1 and then bus them to gates at the TBIT. The terminal area is approximately 59,000 square meters, including 13 gates.

**Terminal 2** opened in 1962 and was subsequently torn down and rebuilt between 1984 and 1988. It has undergone various renovations since. Its neighbour, **Terminal 3**, opened in 1961 and was later torn down and rebuilt between 2020-2022. The two terminals are effectively linked and are considered as one terminal for the purposes of this study. Their main occupant is Delta Air Lines, though Aeroméxico and Virgin Atlantic process departing passengers here, and then direct passengers to proceed to gates at TBIT. The combined terminal area is 111,500 square meters, including 27 gates.

**Terminal 4** opened in 1961, expanded in 1983, and has undergone several improvements since. It is currently under a phased renovation. It is occupied by American Airlines. Note that as of Summer 2025, a shuttle linked Terminals 4, 5, and a Regional Terminal (“Eagles Nest”) comprised of gates for American Eagle (regional flights). Terminal 4’s area is approximately 32,600 square meters, including 15 gates.

**Terminal 5** opened in 1962 and was renovated most notably between 1986-1988, with other subsequent improvements since. While it remained operational at the time of the schedule analysis for this study, it has since closed to allow for a full reconstruction on its footprint. As of summer 2025, its occupants included American, JetBlue, and Spirit. Terminal 5’s area was approximately 32,600 square meters, including 16 gates.

**Terminal 6** opened in 1963, was expanded in 1970, 1982 and 2011, with other various improvements since. It is currently under a phased renovation. It is occupied primarily by Alaska, Hawaiian, and Air Canada. Terminal 6’s area is approximately 32,600 square meters, including 9 gates.

**Terminal 7** opened in 1962, was expanded in 1970 and 1982, and renovated in 1998 and 2017. Its neighbour, Terminal 8, does not contain passenger processing functions. **Terminals 7 and 8** are effectively linked and considered as one terminal for the purposes of this study. The terminals are occupied by United. Their combined area is approximately 67,000 square meters, including 20 gates. Terminal 7 includes a Federal Inspection Services (“FIS”) facility, allowing it to accommodate international arrivals. (Note that a sterile corridor connects a number of Terminal 6 gates to this facility as well.)

The **Tom Bradley International Terminal (TBIT)**, opened in 1984, and has been modernised and expanded in phases from 2008-2025. The first and second of these phases included the construction of the “Great Hall” and new concourses; the third phase included a new midfield concourse “West Gates”. A southern extension to this midfield concourse (“Midfield Satellite Concourse South”, or “MSC”) opened in 2025. The terminal is occupied by most international carriers, though some domestic carriers including Delta, American, and ULCCs, use gates at TBIT while processing passengers in other terminals (similarly, some international carriers, including Virgin Atlantic and Aeromexico, use gates and arrival facilities at TBIT while processing departing passengers in other terminals). TBIT’s area is 195,000 square meters, including 40 gates.

### 1.3 Airport Traffic Overview

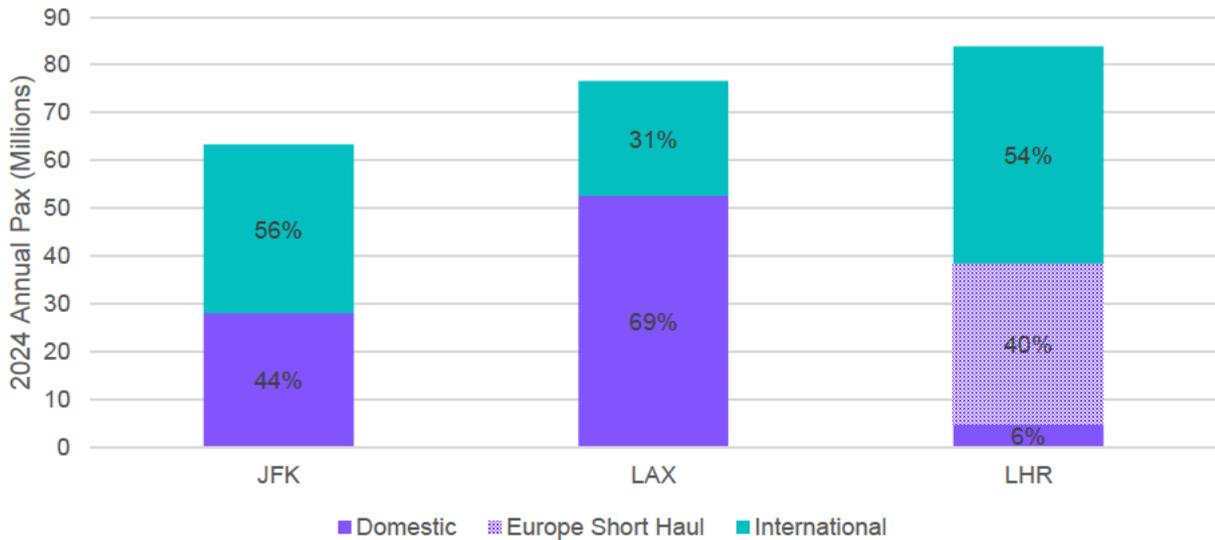
Heathrow operates in a different context compared to major US hub airports such as JFK and LAX. All three airports are major hub airports – in 2024 Heathrow handled 83.9m passengers, JFK handled 63.3m passengers and LAX handled 76.6m passengers. Note that LAX handled 88m passengers in 2019 (pre-COVID), whereas Heathrow and JFK both exceeded pre-COVID levels of traffic in 2024.

A key distinction is the mix of domestic and international traffic at the airports. In 2024, 94.4% of Heathrow’s passengers were on international services. Heathrow handled 4.7m (5.6%) domestic passengers whereas at JFK domestic passengers were 28.0m (44.2%) and at LAX they were 52.6m (69%). However, Heathrow’s short-haul traffic (UK and European markets) was 38.5m passengers (46%) in 2024, which is similar to JFK’s domestic traffic share.

This international orientation at LHR introduces complexities around airline traffic rights, slot allocation, and airline ownership/control requirements, which differ from the US model where carriers operate freely within a unified domestic market. US hubs like JFK and LAX benefit from a single regulatory environment under the Federal Aviation Administration (FAA), enabling carriers to optimize domestic networks without bilateral constraints.

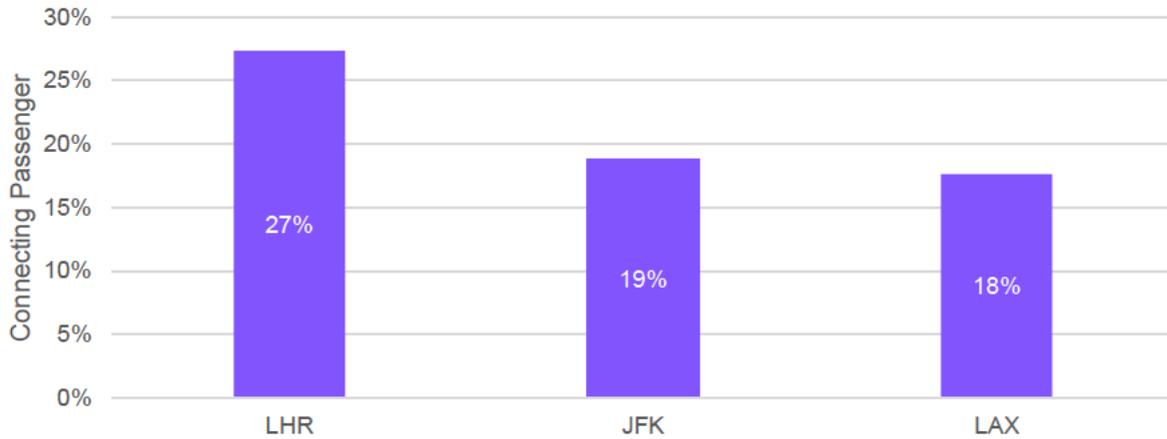
The three airports serve the large conurbations of London, New York and Los Angeles, with large volumes of local Origin/Destination passenger demand, while also serving as a gateway hub for their region – Heathrow connecting long-haul routes with points in the UK and Europe (as well as some long-haul to long-haul connections), while JFK and LAX provide connectivity to the East and West Coast regions respectively. Heathrow has a higher connecting passenger share at 27% of traffic in 2024, compared with 19% at JFK and 18% at LAX (based on MIDT data analysis).

**Figure 1-1 Traffic Composition by Market for JFK, LAX, and LHR**



Source: Airport Council International Intelligence Hub, 2024 HAL Annual Report, accessed Jan 2026

**Figure 1-2 2024 Connecting Traffic Share JFK, LAX, and LHR**



Source: Sabre Market Intelligence MIDT data, accessed Jan 2026

## 1.4 Hypotheses to be Tested

Multi-operator airports lack the incentives or ability to allocate airlines across terminals in an optimal way to balance demand and capacity utilisation, compared to single operator airports. This inefficiency results in larger infrastructure requirements, fewer passengers served, or poorer levels of service.

Multi-operator airports have higher operating and capital expenditure, and greater commercial risks compared to single-operator airports.

Single operator airports are able to achieve and sustain greater consistency in perceived passenger service quality than multi-operator airports.

The governance and coordination of multi-operator airports is more challenging given the interfaces between the airport and terminal operators, which negatively impacts resilience.

Multi-operator airport risk abuse of market power and anti-competitive behaviours by airlines that control, or heavily influence, the terminal operator, requiring more (not less) regulation.

## 2 Efficient Use of Capacity

A core argument for retaining a single, integrated operator at an airport relates to how airport capacity is managed across terminals. In this section, a number of different metrics have been calculated in relation to capacity to test this hypothesis.

### Key Hypothesis

Multi-operator Airports lack the incentives/ability to allocate airlines across terminals in an optimal way to balance demand and capacity utilisation, compared to single-operator airports.

### 2.1 Efficient Distribution of Traffic Between Terminals

A single operator managing all terminals at an airport has a strong incentive, and the ability to optimise the distribution of traffic across those terminals. In contrast, airports with multiple operators and multiple terminals dominated by incumbent airlines may find it more challenging to fully benefit from economies of scale. The lack of coordination limits the ability to balance demand and improve efficiency across the airport system as a whole.

A key metric for assessing airport operational efficiency is how traffic is distributed across terminals on a typical busy day or week. This is because terminal facility requirements, especially for bottleneck processes such as check-in, security screening, and immigration, are driven by peak-hour demand rather than total daily volumes. When traffic flows are fragmented across several terminals, each terminal tends to experience its own distinct peak periods. These individual peaks collectively drive higher infrastructure requirements compared with a scenario where the same traffic is consolidated into a single terminal. The difference between these scenarios represents the systematic inefficiency created by the airport's operating model.

The analysis below illustrates the traffic profiles across all terminals at JFK, LAX, and LHR during a busy week in 2025 and quantifies this inefficiency by looking at the difference between the sum of individual terminal peaks and the airport wide.

The analysis is based on published flight schedules for the peak week of 28 July to 3 August 2025 for JFK, LAX, and LHR using Cirium SRS schedule data. Busy hour passenger volumes were estimated by applying the average July 2025 load factors – 88% at JFK, 89% at LAX, and 88% at LHR – to scheduled seat counts. For each airport, the “Sum of Peaks” was calculated by adding together the busiest hour observed in each terminal, and this was compared with the “Airport Wide Peak,” defined as the busiest hour that would occur if all traffic were processed through a single consolidated terminal. The ratio between these two values forms the “Inefficiency Factor,” which quantifies the additional hourly terminal infrastructure required due to fragmented terminal operations. A further metric, “Relative to LHR,” expresses each airport's inefficiency factor in relation to LHR's, highlighting the extent to which JFK and LAX require greater peak hour capacity to serve the same level of demand.

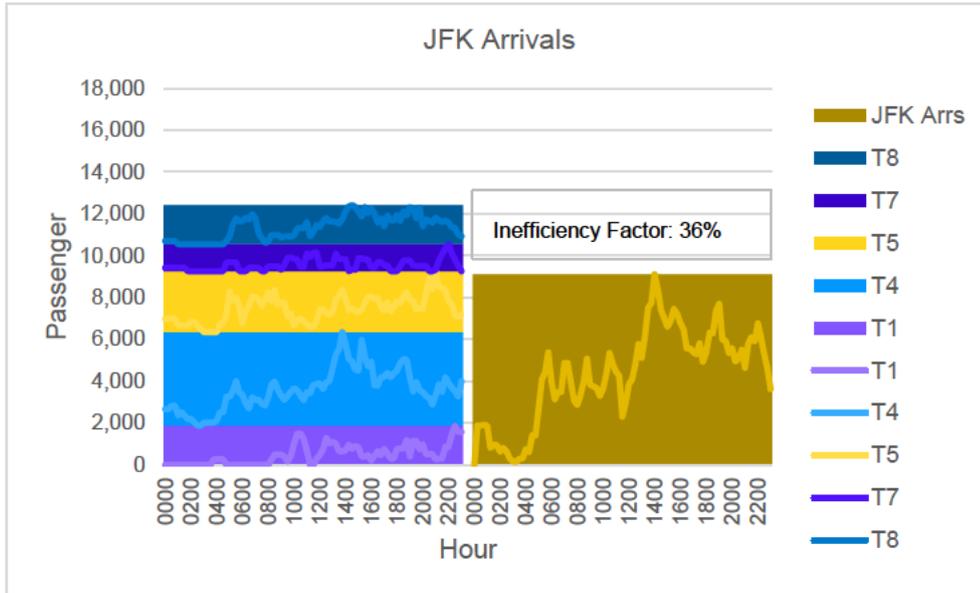
As shown in the results, LHR has the lowest inefficiency factor, 1.25, reflecting its more coordinated operating model. JFK's factor is 1.38 and LAX's is 1.62. This means that, relative to LHR, JFK is approximately 11% less efficient and LAX is 29% less efficient in terms of traffic distribution. These higher inefficiency levels translate directly into greater pressure on terminal processors and higher infrastructure requirements.

**Table 2-1 -Terminal Occupancy Efficiency**

	Sum of Peaks		Airport Wide		Inefficiency Factor			Relative to LHR		
	ARR	DEP	ARR	DEP	ARR	DEP	AVE	ARR	DEP	AVE
<b>JFK</b>	12,420	12,150	9,120	8,640	1.36	1.41	1.38	1.15	1.07	1.11
<b>LAX</b>	15,000	16,250	10,390	9,080	1.44	1.79	1.62	1.22	1.36	1.29
<b>LHR</b>	13,860	13,580	11,730	10,290	1.18	1.32	1.25	1.00	1.00	1.00

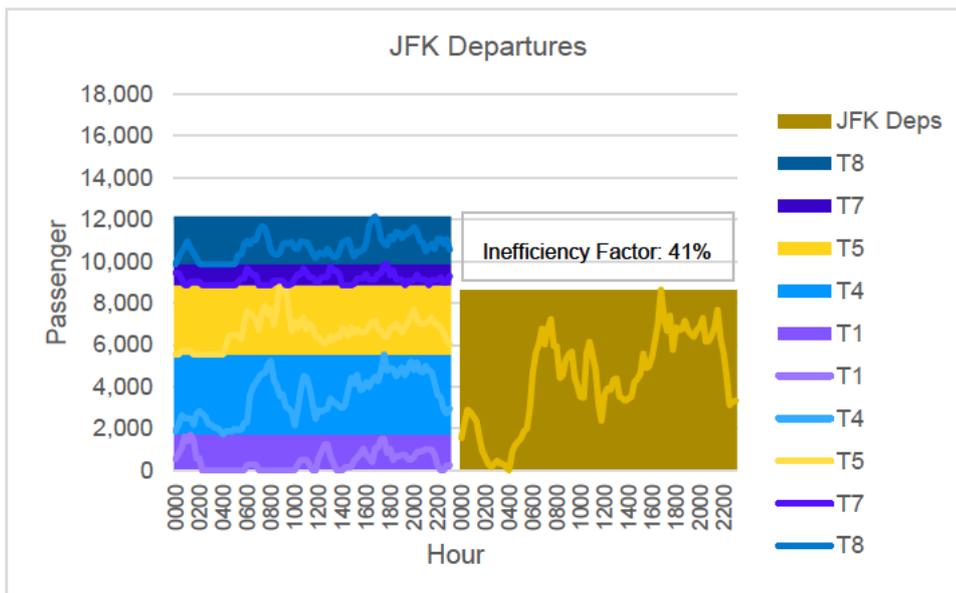
Source: MM Analyses of Cirium SRS Analyser, accessed Jan 2026

**Figure 2-1 Busy Week Profile by Airport - Individual Terminal Peaks vs Airport Wide**



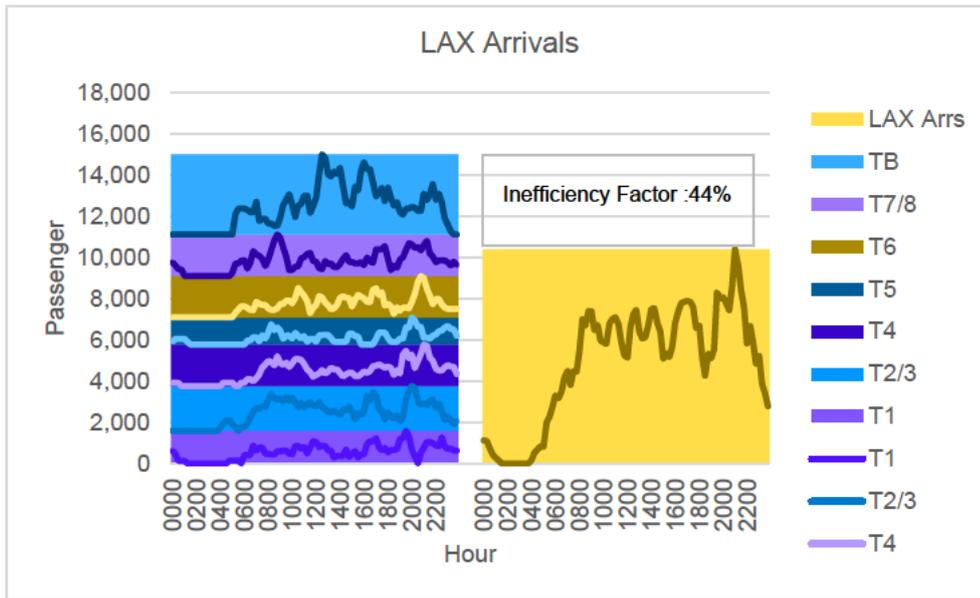
Source: MM Analyses of Cirium SRS Analyser, accessed Jan 2026

For the arrivals flow at JFK, the sum of the individual terminal peaks is 36% higher than the combined airport wide peak.



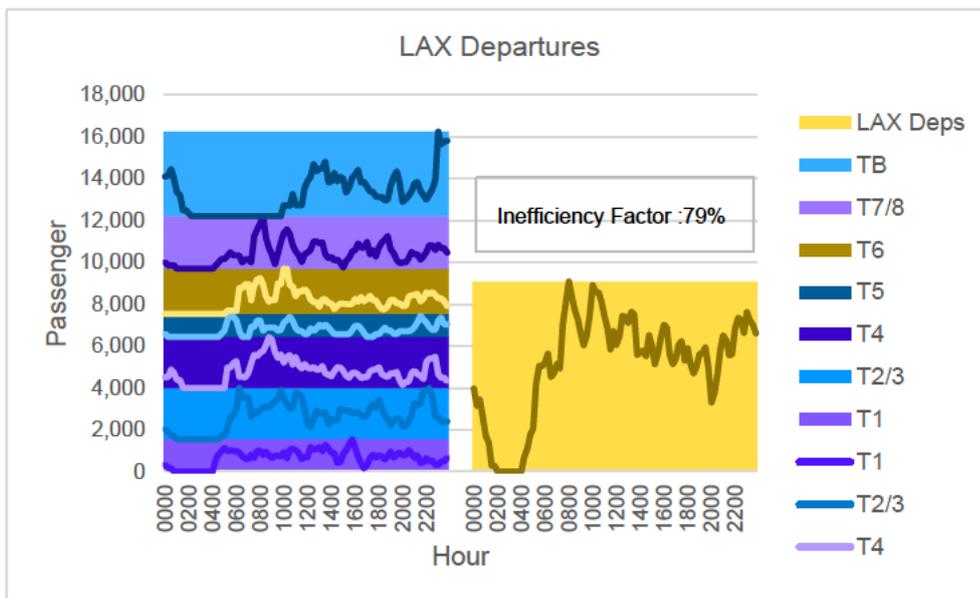
Source: MM Analyses of Cirium SRS Analyser, accessed Jan 2026

For the departures flow at JFK, the sum of the individual terminal peaks is 41% higher than the combined airport wide peak.



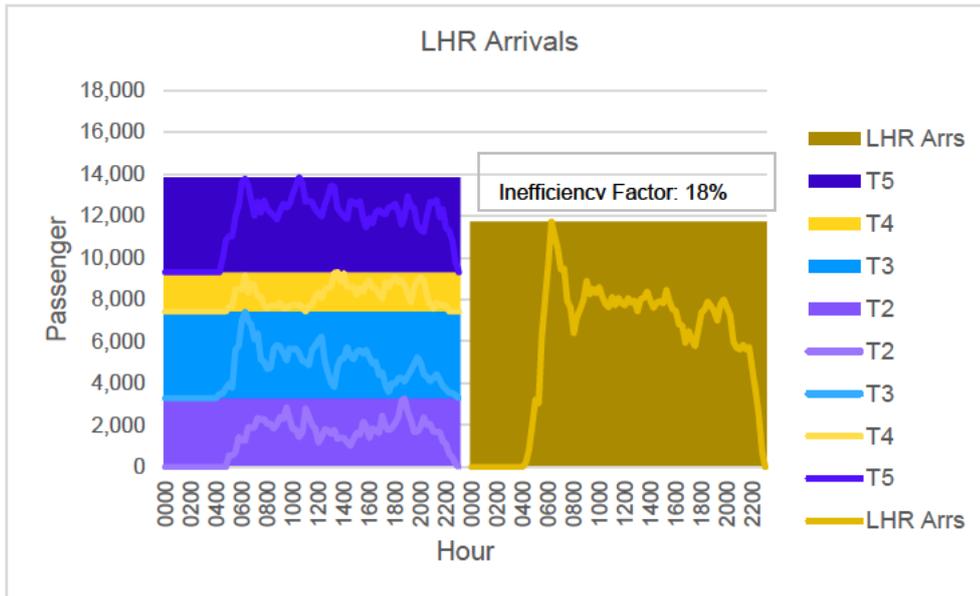
Source: MM Analyses of Cirium SRS Analyser, accessed Jan 2026

For the arrivals flow at LAX, the sum of the individual terminal peaks is 44% higher than the combined airport wide peak.



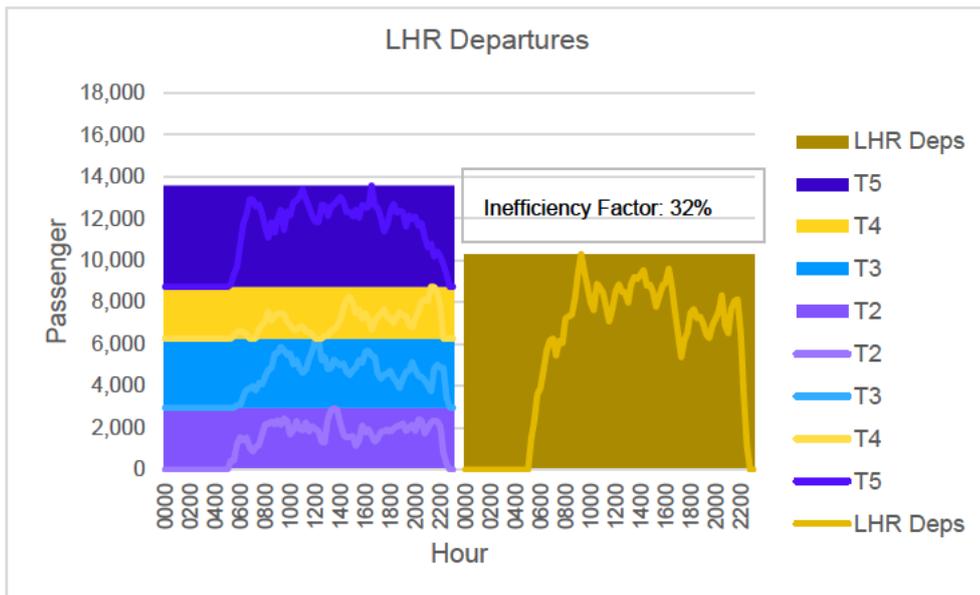
Source: MM Analyses of Cirium SRS Analyser, accessed Jan 2026

For the departures flow at LAX, the sum of the individual terminal peaks is 79% higher than the combined airport wide peak.



Source: MM Analyses of Cirium SRS Analyser, accessed Jan 2026

For the arrivals flow at LHR, the sum of the individual terminal peaks is 18% higher than the combined airport wide peak – lowest inefficiency factor across all three airports.



Source: MM Analyses of Cirium SRS Analyser, accessed Jan 2026

For the departures flow at LHR, the sum of the individual terminal peaks is 32% higher than the combined airport wide peak – lowest inefficiency factor across all three airports.

We also conducted separate analysis for domestic and international traffic to assess their impact on the peakiness effect. Domestic and international passengers typically require different terminal facilities, and their processes often involve different agencies (US CBP, UK Border Control, etc.). The findings were consistent: both US airports have a significantly higher inefficiency factor than LHR for both the international and domestic traffic groups. It should be cautioned that the small volumes of domestic traffic at LHR (mainly handled by British Airways in T5) make comparisons with the US airports difficult.

**Table 2-2 Terminal Occupancy Efficiency - International Traffic**

	Sum of Peaks		Airport Wide		Inefficiency Factor			Relative to LHR		
	ARR	DEP	ARR	DEP	ARR	DEP	AVE	ARR	DEP	AVE
<b>JFK</b>	8,360	9,566	5,556	5,597	1.50	1.71	1.61	1.24	1.33	1.29
<b>LAX</b>	5,906	8,323	4,432	4,830	1.33	1.72	1.53	1.10	1.34	1.22
<b>LHR</b>	13,933	12,939	11,493	10,070	1.21	1.28	1.25	1.00	1.00	1.00

Source: MM Analyses of Cirium SRS Analyser, accessed Jan 2026

**Table 2-3 Terminal Occupancy Efficiency - Domestic Traffic**

	Sum of Peaks		Airport Wide		Inefficiency Factor			Relative to LHR		
	ARR	DEP	ARR	DEP	ARR	DEP	AVE	ARR	DEP	AVE
<b>JFK</b>	5,323	5,936	3,774	4,581	1.41	1.30	1.35	1.34	1.27	1.31
<b>LAX</b>	9,677	10,244	7,584	8,041	1.28	1.27	1.27	1.21	1.25	1.23
<b>LHR</b>	1,252	1,119	1,189	1,099	1.05	1.02	1.04	1.00	1.00	1.00

Source: MM Analyses of Cirium SRS Analyser, accessed Jan 2026

To validate the findings further, an additional analysis was conducted on the overall traffic patterns to confirm that Heathrow's higher efficiency is not simply the result of smoother demand across the day. The table 2-4 below summarises the airport-wide busy-hour 'peakiness' for arrivals and departures at the three airports. All three exhibit an arrivals peakiness of 2.1, indicating similarly concentrated demand profiles. For departures, the patterns are also comparable, with Heathrow's peakiness falling between that of LAX (the least peaky) and JFK (the most peaky). This confirms that Heathrow's greater efficiency cannot be attributed to a fundamentally smoother daily demand pattern; instead, the analysis supports the conclusion that the efficiency advantage stems from its more coordinated allocation model.

**Table 2-4 Busy Hour Peakiness<sup>2</sup>**

	Arrivals	Departures
<b>JFK</b>	2.1	2.0
<b>LAX</b>	2.1	1.8
<b>LHR</b>	2.1	1.9

Source: MM Analyses of Cirium SRS Analyser, accessed Jan 2026

## 2.2 Efficient Use of Gates

Multi-operator airports often lack both the incentives and the mechanisms to allocate airlines across terminals in a way that optimally balances demand, capacity, and operational efficiency. In contrast, single operator airports may benefit from unified control over terminal planning, stand allocation, and passenger flow management. This integration enables system-wide optimisation, whereas multi-operator environments tend to produce fragmented decision-making. The result is typically a less efficient use of terminal and apron capacity at the multi-operator airports, requiring larger infrastructure footprints to deliver the same throughput than at a single operator airports.

<sup>2</sup> Busy hour peakiness is the ratio between the busy hour and the average hour across the day (i.e., total daily passengers divided by 24).

The analysis below compares gate throughput at LHR, JFK, and LAX as an indicator of overall airport capacity performance. Pier-served stands/gates are critical airport assets that can determine the operational success and marketing positioning of an airline.

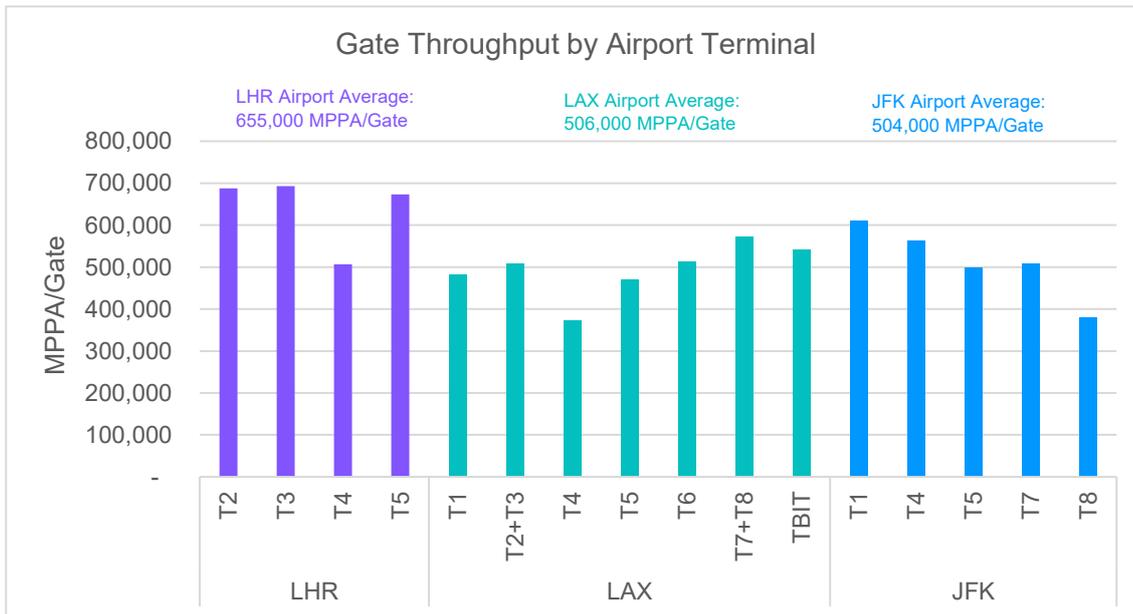
To compare the airports on a like-for-like basis, only the throughput of pier served stand/gates was considered. U.S. airports tend to avoid bussing to remote stands and use such stands for aircraft parking only. For LHR, MPPA/Gate was calculated based on the number of passengers that received pier service in each terminal<sup>3</sup>. For the U.S. airports, it was assumed that 100% of passengers operated through a pier-served gate (which may be an overestimate – the actual passengers-per-gate at JFK and LAX may be slightly lower).

Among the three airports, LHR delivers the highest throughput, with its 120 pier served stands supporting approximately 655,000 annual passengers per gate. Its most efficient facility, Terminal 5, reaches around 673,000 annual passengers per gate.

By contrast, JFK and LAX, both operating under multi-operator terminal models, achieve lower throughput levels of 504,000 and 506,000 annual passengers per gate, respectively.

Heathrow’s average passenger-per-gate is almost 30% higher than JFK and LAX, which reflects the efficiency of managing gate capacity as an airport-wide common-use facilities under the control of a single airport managing body. This contrasts with the model in JFK and LAX where many gates are under long-term leases to airlines and the multi-operator terminal structure, reducing the flexibility of gate use. Incumbent airlines with long-term gate leases are incentivised to spread their operation to make somewhat full use of the gates to prevent use by competitor airlines and to retain the gates for their own potential future growth. They are not strongly incentivised to make efficient use of the gates they control.

**Figure 2-2 Passengers per Gate Throughput Efficiency – by Airport and Terminal<sup>4</sup>**



Source: MM analyses of airport traffic statistics for LHR, LAX, and JFK, accessed Jan 2026

<sup>3</sup> LHR pier service levels (2024) were T2 99.27%, T3 95.52%, T4 99.93% and T5 86.70%. Comparable data for LAX and JFK is not publicly available; however, based on operational benchmarks, coaching operations are minimal, so a pier service level of 100% was assumed.

<sup>4</sup> Passenger volumes for this assessment are based on rolling 12 month totals from November 2024 to October 2025, using the latest published traffic statistics for LHR, JFK, and LAX.

The stand numbers used in this analysis refer only to pier served stands/gates, defined as positions connected directly to the terminal concourse via a jet bridge, ensuring a consistent standard of customer service. Remote stands are excluded,

Gate efficiency was also benchmarked based on the number of passenger air transport movements (PATM) per gate, as shown in the table below. It is only possible to provide an airport-wide comparison because PATM information by terminal was not published for JFK and LAX. On this metric, LHR’s gate efficiency is still the highest of the three airports – JFK handles 13% fewer flights per gate, and LAX handles 10% fewer. The U.S. airports’ lower movements-per-gate efficiency occurs despite these airports handling a higher share of narrowbody short-haul aircraft, as seen in the lower average number of passengers per PATM – 178 at LHR, compared with 146 at JFK and 142 at LAX.

**Table 2-5 Gate Throughput for Pax Operations by Airport<sup>5</sup>**

Gate Throughput for Operations (Annual PATM/Gate)	Pax/PATM
<b>LHR</b>	3,950
<b>JFK</b>	3,440
<b>LAX</b>	3,560

Source: MM analyses of airport traffic statistics for LHR, LAX, and JFK, accessed Jan 2026

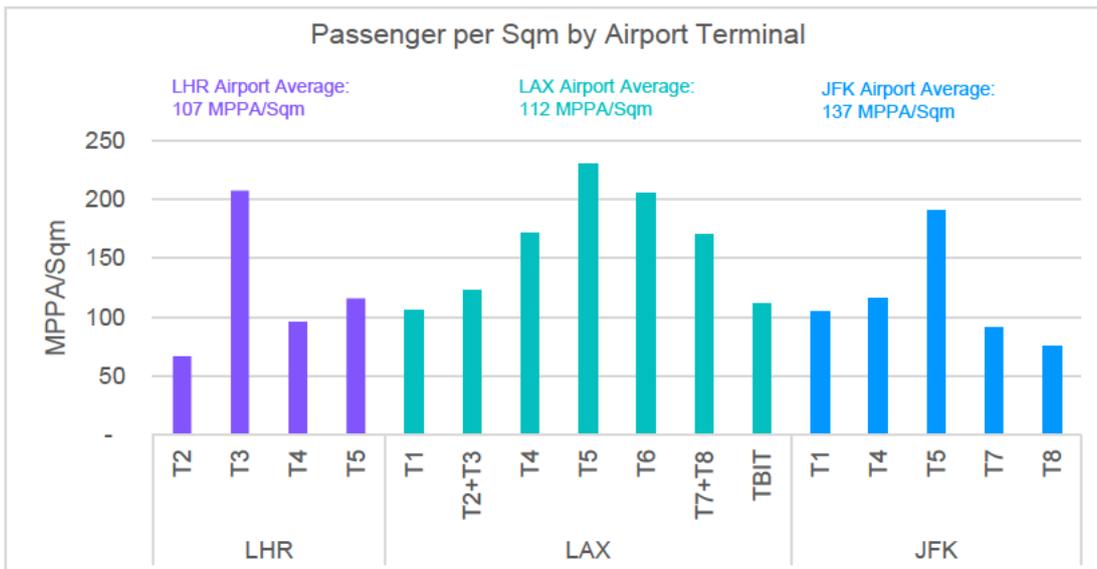
### 2.3 Efficient Use of Space

Figure 2-3 presents terminal capacity expressed as annual passengers per square metre of gross floor area. As shown, passenger density varies widely across terminals. However, this metric is not a reliable indicator of terminal capacity or operational efficiency. Terminal floor areas are heavily influenced by factors such as concession footprints, commercial strategy, and airline customer profiles, all of which can significantly skew the passenger per sqm ratio.

For example, JFK Terminal 5 is predominantly operated by JetBlue, a low-cost carrier whose terminal design and space allocation differ substantially from those of full-service carriers. As a result, even though LHR appears to have a lower passenger per sqm figure at an airport-wide level, this does not meaningfully reflect operational performance.

Instead, gate throughput provides a far more accurate measure, as it directly relates to the core passenger processing functions and the utilisation of key capacity constraining assets.

**Figure 2-3 Passenger per Sqm by Airport Terminal**



Source: MM analyses of airport traffic statistics for LHR, LAX, and JFK, accessed Jan 2026

<sup>5</sup> PATMs statistics is only available at the airport-wide level rather than for individual terminals. Therefore, the analysis presented here is conducted at the airport-wide level and includes all PATMs.

### 3 Costs and Revenues

This section looks at the cost, revenue and commercial risk implications of multi-operator airports.

#### Key Hypothesis

Multi-operator airports have higher operating and capital expenditure, and greater commercial risks compared to single-operator airports.

#### 3.1 Operational Efficiency and Capex

The analysis in Section 2 indicates that single operator airports are better able to utilise capacity than multi-operator airports. This is shown using two metrics in Table 3-1.

**Table 3-1 Summary of Capacity Analysis in Section 2**

Airport	Heathrow	JFK	LAX
<b>Terminal Occupancy Inefficiency (relative to Heathrow)</b>	-	11%	29%
<b>MPPA / Gate</b>	655,000	504,000	506,000

These metrics indicate that, to deliver the same throughput, there would need to be greater terminal capacity in a multi-operator airport. This translates into higher capital costs, or for airports with constrained footprints, this means a lower throughput.

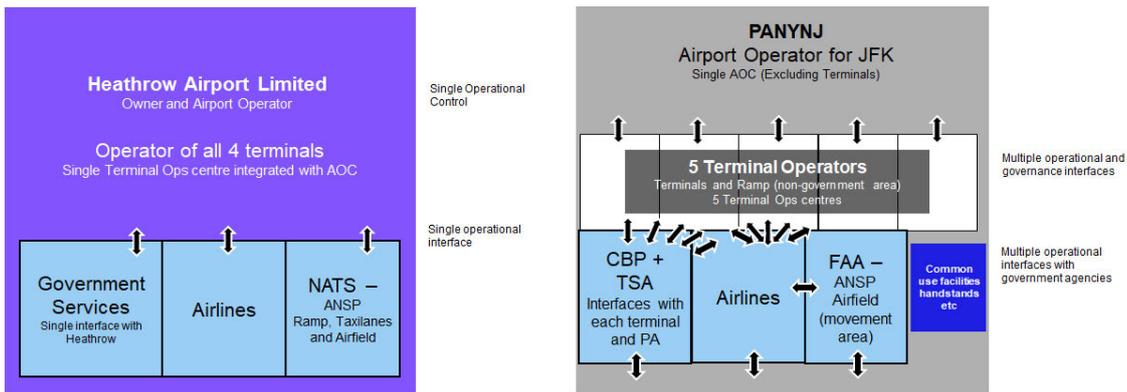
There are many factors which influence capital costs for terminal development. For example, domestic passengers require less building space than international passengers. Whilst there may not be a linear relationship between the inefficiencies summarised in Table 3-1 above and capital costs, it is reasonable to state that the less efficient use of capacity at multi-operator airports will translate into higher capex for delivering the same level of throughput. Alternatively, for airports which are footprint-constrained, a multi-operator model will result in a lower level of throughput.

#### 3.2 Operational Complexity and Costs

At JFK, each terminal operator will have their own interfaces with airlines, government services as well as a range of service suppliers. Not only are there multiple operation centres, one for each terminal, but many more interfaces, all of which will require resourcing and generate costs that will need to be passed onto the consumer (see Figure 3.1).

Heathrow has one operational control centre for running the entire airport which is inherently more efficient and lower cost. As noted in subsequent sections these interfaces require resources for both regular and irregular operations, as the airport operator needs to be able to establish operational control in cases of irregular operation, as well as applying governance.

Figure 3-1 Operational Interfaces<sup>6</sup>



### 3.3 Delivery Models and Commercial Risks

A large-scale programme of investment is currently underway at JFK airport. This includes developing four terminals and airport-wide infrastructure works. The total cost is estimated to be USD 19 billion, of which USD 15 billion is private finance and the remainder is public financing from PANYNJ. One of the key components in this programme of investment – the New Terminal One (NTO) project – provides a contemporary illustration of how the JFK multi-operator model works in practice.

NTO is being delivered under a Public-Private Partnership (PPP), specifically a Design, Build, Finance, Operate and Maintain (DBFOM) arrangement. The lease agreement is between PANYNJ, the airport operator, and the Project Company JFK NTO LLC, owned by a consortium including Ferrovial (the lead investor), Carlyle, JLC Infrastructure and Ullico. To date, over USD 5 billion has been raised for the project, primarily bonds. The Project Company has the responsibility of repaying the debt and making payments to PANYNJ in line with the obligations defined in the lease agreement.

The key point to note here is in relation to risk. Under a multi-operator model, there is a transfer of risk from the airport to the individual terminal. For the NTO project, the risk is transferred to the Project Company, JFK NTO LLC.

From the perspective of providers of debt, the risk of repayment is then concentrated in a single terminal rather than being distributed across multiple terminals at the airport. Importantly, there is competition *between* terminals in a multi-operator model, which increases traffic and revenue risk. This risk has been explicitly identified in rating agency commentary on the bonds issued for New Terminal One (NTO) at JFK:

*‘Under a constrained capacity environment, NTO will have a strong market position targeting JFK’s international operations but will face competition from other JFK terminals.’<sup>7</sup>*

Where there are airline-led terminal developments at a multi-operator airport, this creates a risk around the continued ability of the airline to operate. As discussed in Section 1.2, airlines use their own financial resources to develop terminals (‘Airline Developed Terminals’).

<sup>6</sup> AOC – Airport Operations Centre, NATS – National Air Traffic Services, ANSP – Air Navigation Service Provider, CBP – Customs and Border Protection (USA), TSA – Transportation Security Administration (USA), FAA – Federal Aviation Administration (USA)

<sup>7</sup> Rating Action Commentary, Fitch Assigns 'BBB-' Rating to New Terminal One at JFK Sr Rev Series 2025 Bonds; Outlook Stable. Online [here](#)

These terminals have been developed to serve the needs of the airline, i.e. to maximise the operational efficiency of their aircraft operations. Airlines will customise terminals to align with their business requirements, including their operating systems, and will tailor branding and passenger experience. This raises the question of what happens to the terminal if the airline no longer exists, e.g. due to bankruptcy or acquisition.

An example of where this has happened is the British Airways acquisition of BMI from Lufthansa. In 2009, the old Terminal 2 at Heathrow was closed and then demolished, and construction of the new Terminal 2 commenced, with construction taking place between 2009 and 2014. British Midland International (BMI) was the largest airline due to move into the new Terminal 2. BMI ran into financial difficulties and was acquired by British Airways in 2012.

In this example, midway through its construction, the terminal lost its largest airline. If Heathrow was a multi-operator airport, and Terminal 2 had been independently developed by the airline or a third party, then this would have significantly impacted on project revenues and financing. With HAL as a single operator, the change was able to be absorbed.

### Challenges of Commercial Analysis at Multi-Operator Airports

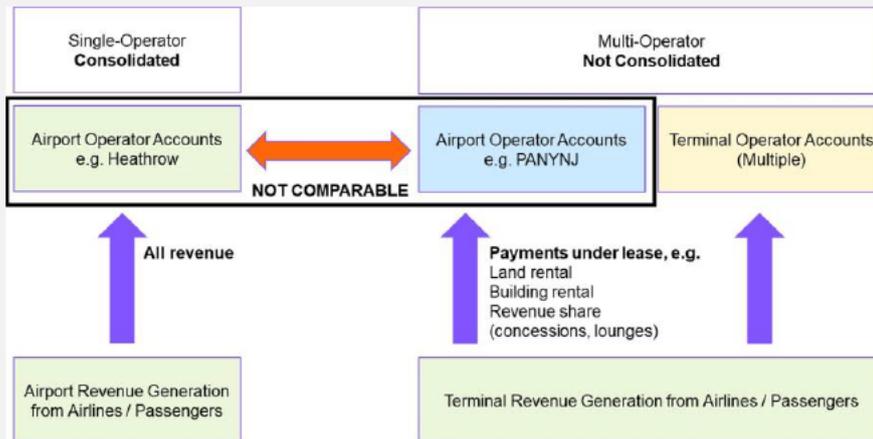
It is worth noting the complexity of comparative analysis between single and multi-operator airports in relation to commercial figures, such as fees/charges, aeronautical and non-aeronautical yields, operating costs and other metrics.

For Heathrow, when figures are cited in the Annual Report, these represent the revenues or costs for the whole airport, including terminals. Operating costs and revenues at Heathrow are consolidated into a single set of accounts.

At JFK, this is not the case – revenue and costs are divided between the airport operator and the terminal operators. Some of terminal operator revenue flows to the airport operator, in line with the payment requirements under the terminal lease agreements, but not all.

Put another way, the terminal operators at JFK have revenue that does not run through PANYNJ’s accounts and is therefore not consolidated into the airport operator’s accounts. Therefore, comparing revenue at Heathrow and PANYNJ is not a like-for-like comparison. This is illustrated in Figure 3-1.

**Figure 3-2 Operating Revenue Flows between Single and Multi-Operator Airports**



The same principle applies to charges. At JFK, the airport authority PANYNJ charges landing fees and collects building rents from its ‘tenants’, i.e. the terminal operators. PANYNJ uses this revenue to develop and operate the core airport infrastructure, inter-terminal connectivity, safety and security etc. Terminal operators charge their own fees to airlines to develop and operate their facilities. It is understood that different terminal operators at JFK use different forms of airline charges. Typically, the terms of agreements between terminal operators and airlines are not publicly available.

The key point is the difficulty in making like-for-like comparisons between single and multi-operator airports in relation to charges, revenues and costs. Simply using airport operator accounts (Heathrow, PANYNJ, LAWA) will not produce comparable figures. Where figures have been produced, caution should be exercised until the methodology is understood.

## 4 Quality of Service

This section assesses whether having multiple terminal operators at airports impacts on the quality of service for their customers (passengers). Passenger service quality scores of attributes across the airport journey were analysed, using the quarterly worldwide ACI Airport Service Quality (“ASQ”) Departure airport passenger survey. Skytrax rankings were also reviewed.

### Key Hypotheses

Heathrow, as a single, integrated operator, is able to achieve and sustain greater consistency in perceived passenger service quality than its comparator multi-operator hubs, JFK and LAX.

### Approach

To evaluate the above, a selection of ACI ASQ scores were analysed, which reflect passengers’ perceived quality of service across multiple attributes throughout the passenger airport journey, for the three airports under review: LHR, LAX, JFK. The attributes assessed are:

Overall Satisfaction	Overall Experience	Cleanliness	Cleanliness of washrooms / toilets	Terminal Ambience
Courtesy and helpfulness of airport staff	Waiting time in check-in queue / line	Waiting time at border/passport control	Ease of finding your way through airport	Signage to access the Terminal
Ease of making connections with other flights	Comfort of waiting at the gate areas	Restaurants/bars /cafes	Shops	

The analysis covered the period from Q3 2017 to Q3 2025, representing the earliest quarter in which all three airports participated in the ASQ survey through to the most recent available 2025 data. Performance was evaluated at both airport and terminal level for the set of attributes summarised above. A series of hypotheses were tested, outlined below:

- Service quality is better at single operator airports, with less variance in performance at terminal level
- Operational fragmentation adversely impacts the efficiency in passenger processing
- Multi-operator airports experience inconsistencies in airport website branding and wayfinding
- One unified operator delivers a better gate area and shopping / dining experience
- Single operator airports achieve higher Skytrax rankings compared to multi-operator airports

### Note on data

For the Service Quality hypothesis testing, the analysis considered the complete set of quarterly ACI ASQ scores available for all three airports (LHR, JFK, LAX) over the period Q3 2007 to Q3 2025. Examining the full historical dataset provided a view of long-term trends and performance patterns, mitigating against quarter-by-quarter fluctuations that may be impacted by seasonality and other factors.

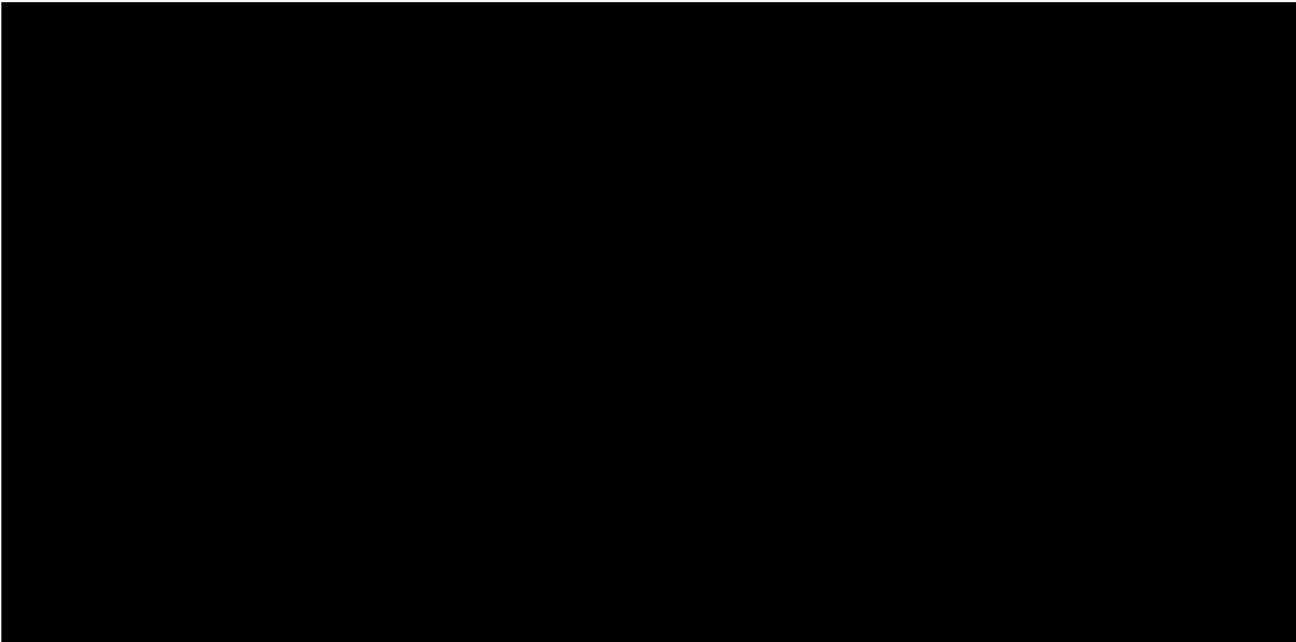
The most recent ASQ scores (Q3 2025) were used for a high-level view comparing Heathrow's performance against LAX and JFK across all service quality areas, to summarise and illustrate the top-line variances.

This approach leverages historical data for robust trend analysis, whilst using the latest scores for an up-to-date snapshot for the findings.

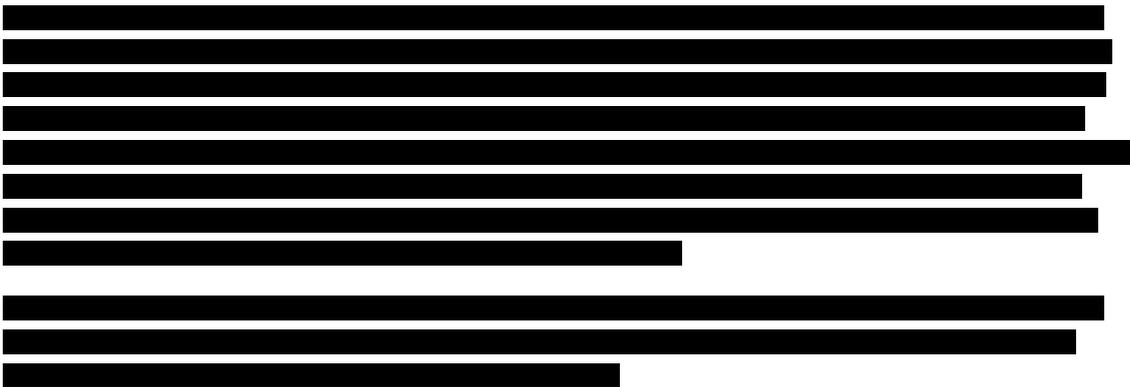
## 4.1 Headline Results

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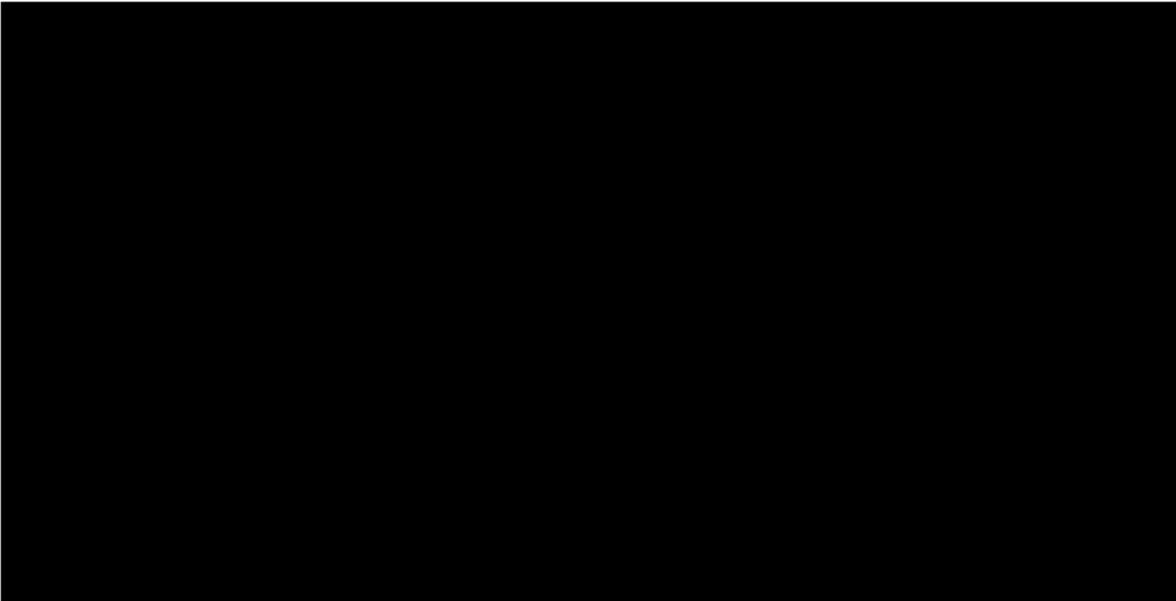
**Table 4-1 ACI ASQ 2025 Q3 scores for LHR, JFK and LAX**



*Source: ACI ASQ data 2025*



**Figure 4-1 Development of ASQ scores including capital investment milestones**



*Source: ACI ASQ data 2007-2025*



**Figure 4-2 Q3 2025 ASQ comparison of terminal performance ranges (LHR, JFK, LAX)**



*Source: ACI ASQ data 2025*

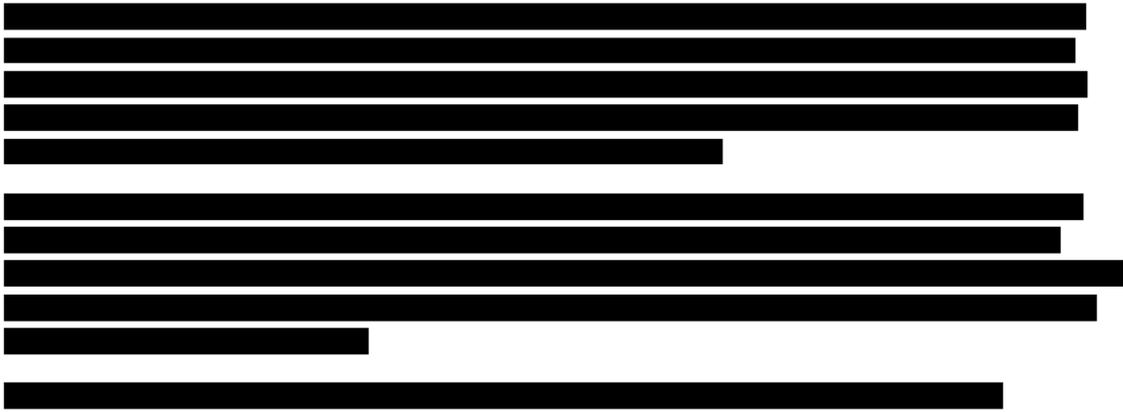
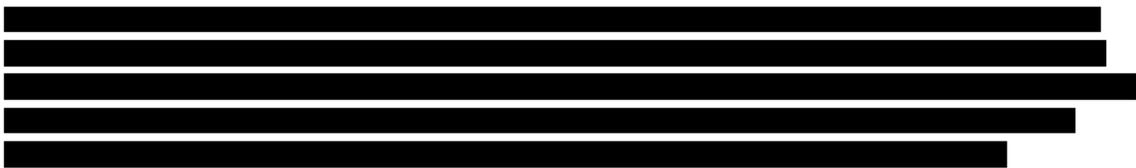
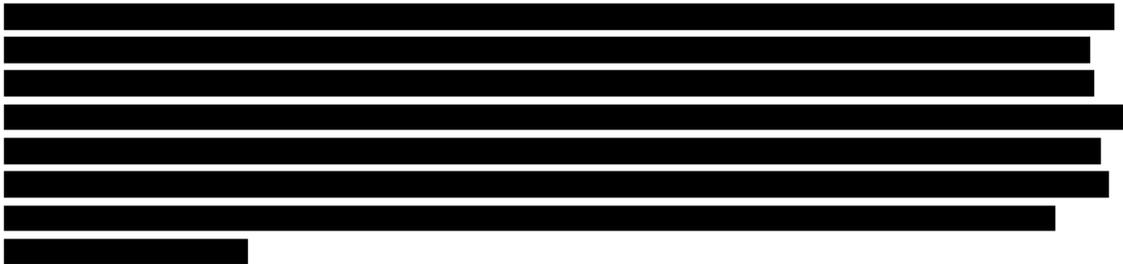


Table 4-2 Q3 2025 ASQ variance by Terminal (LHR, JFK, LAX)

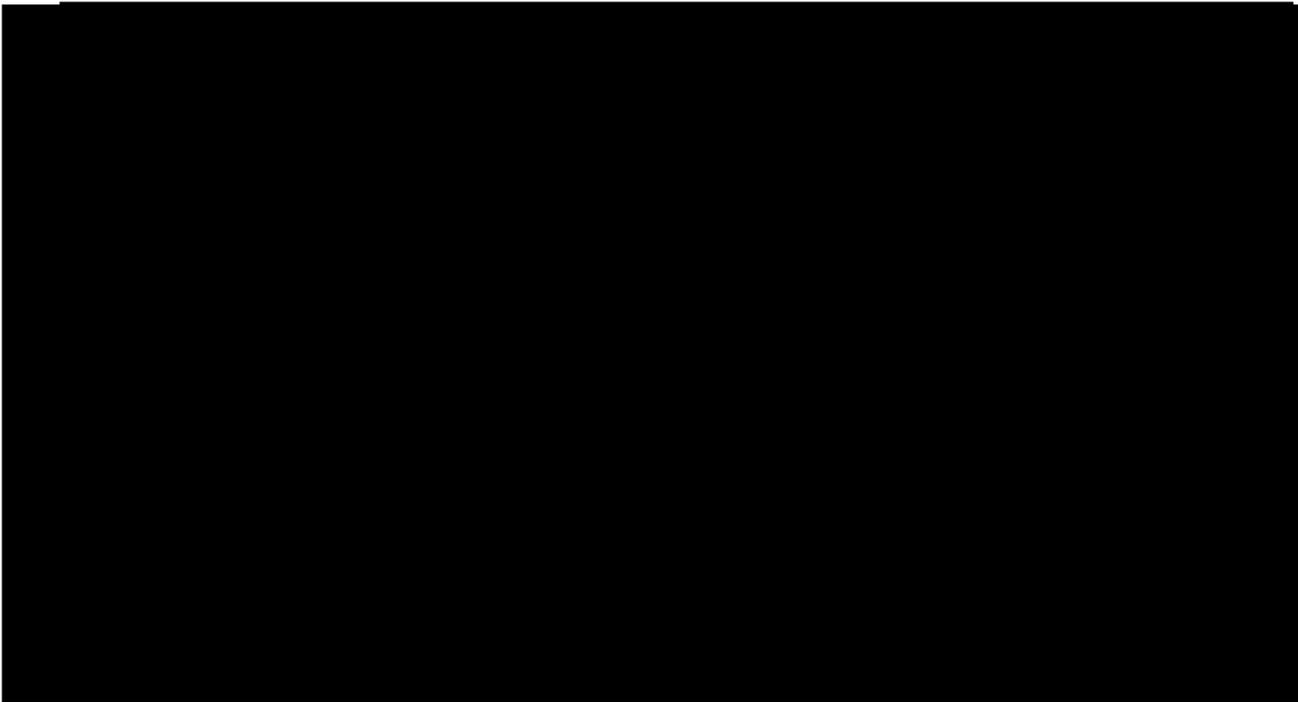
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Source: ACI ASQ data 2025



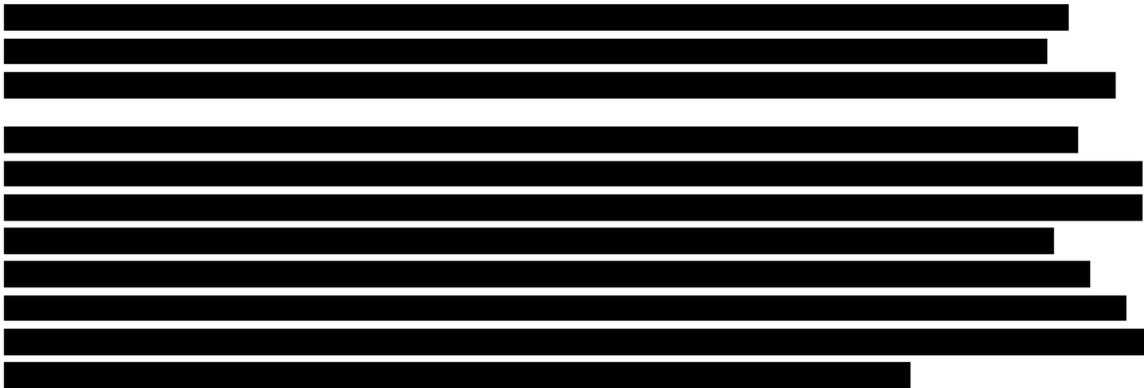
Analysis of Skytrax World Airport rankings reinforces this pattern: single operator airports like Heathrow consistently achieve higher rankings compared to multi-operator structures such as JFK and LAX. The data highlights that while capital investment might deliver an improvement in Skytrax rankings and quality of service, this alone does not guarantee sustained improvements world-class customer experience.

**Figure 4-3 Historic ASQ scores and major capital investments**

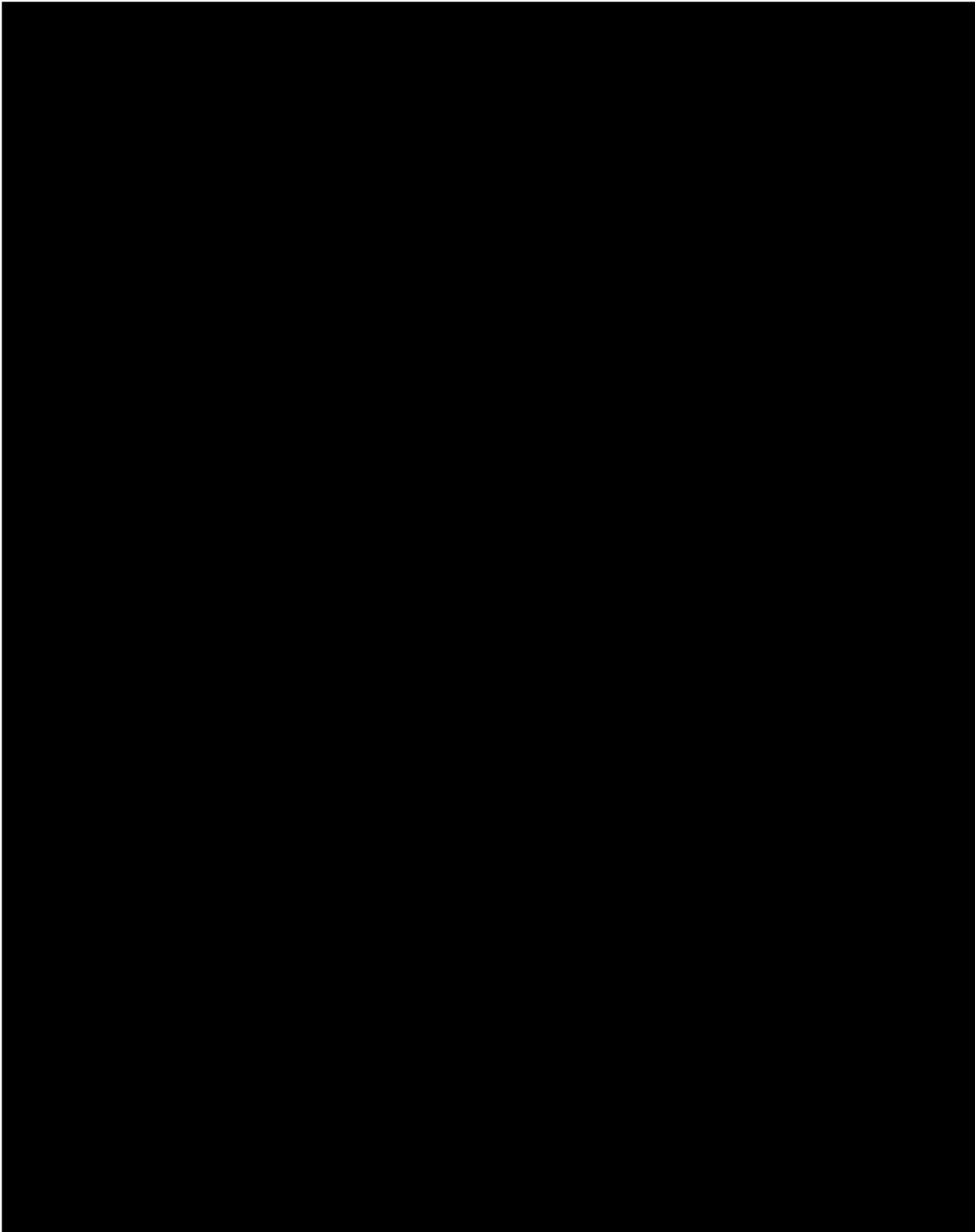


*Source: ACI ASQ data 2017-2025*

## 4.2 Overall Service Quality



**Figure 4-4 ACI ASQ Overall Satisfaction**



### 4.3 Service Quality Across the End-to-end Passenger Journey

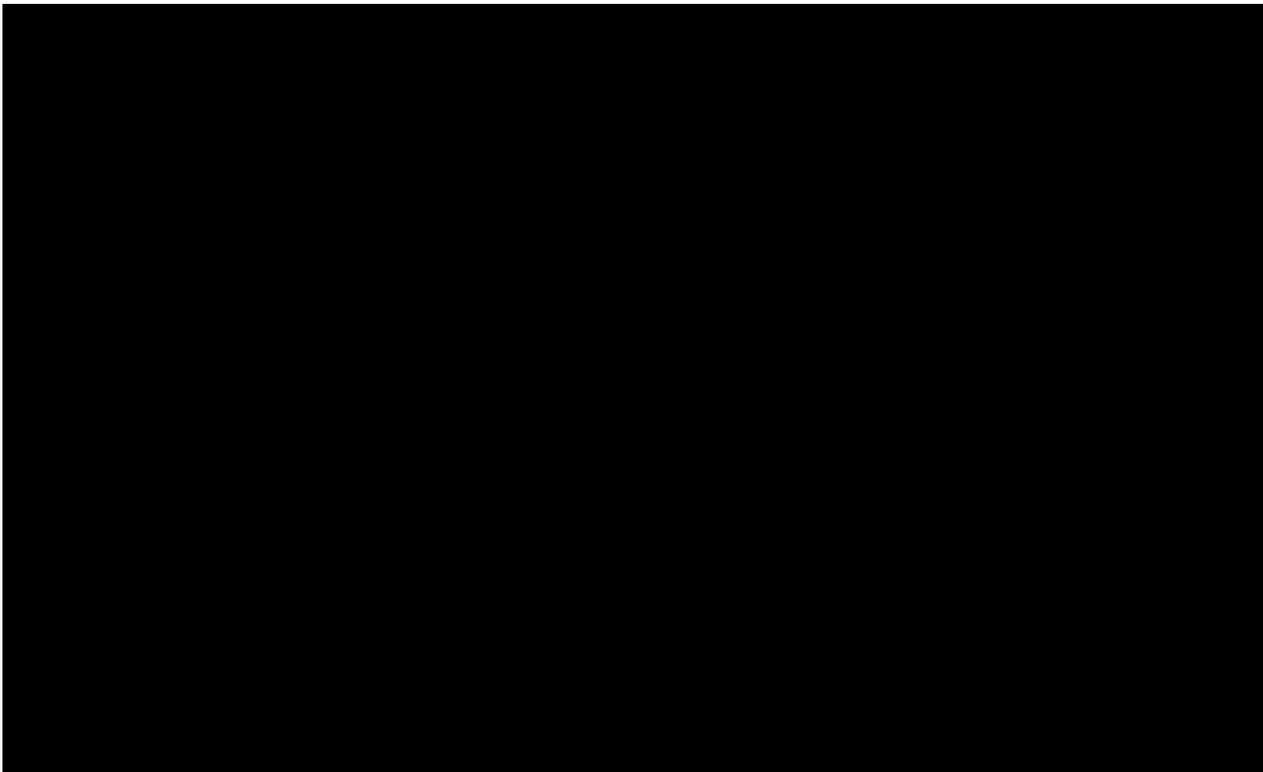
Delivering great quality of service is not about focusing on a single area or journey step—it requires consistently understanding and addressing passenger needs across the core service elements that underpin the entire passenger experience. These include elements that influence most journey steps including cleanliness, human interaction, digital / technology, walking distances and terminal ambience.

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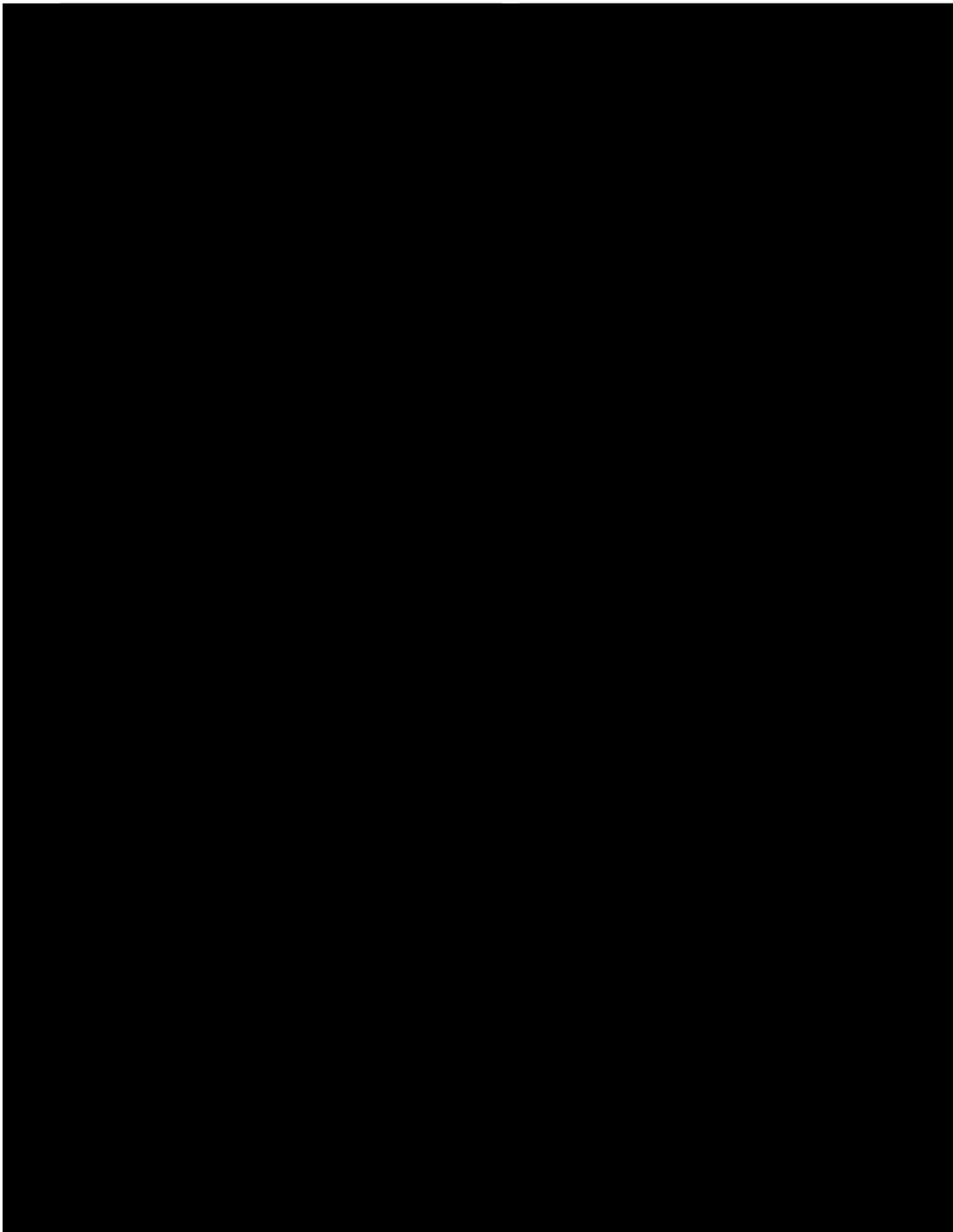
Cleanliness	Cleanliness of washrooms / toilets	Terminal Ambience	Courtesy and helpfulness of airport staff
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Figure 4-6 ACI ASQ Cleanliness

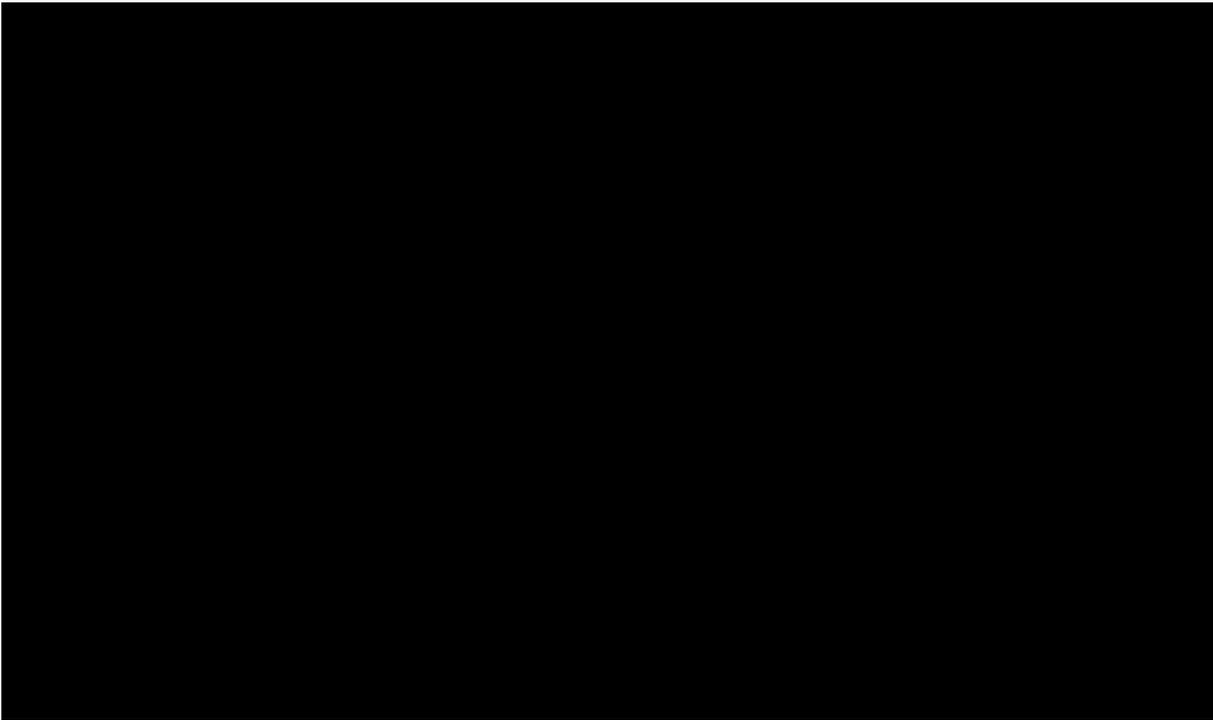


**Figure 4-7 ACI ASQ Terminal Ambience**



[Redacted text block]

**Figure 4-9 ACI ASQ Courtesy and helpfulness of airport staff**



[Redacted text block]

### 4.4 Operational Fragmentation

Wait time performance is a function of many factors including active resourcing, queue monitoring and management, operational and digital / technology enhancements, as well as clear and accessible information on process and regulatory requirements.

To evaluate the above, the following ACI ASQ scores were assessed:

Waiting time in check-in queue / line	Waiting times at border/ passport control
---------------------------------------	---

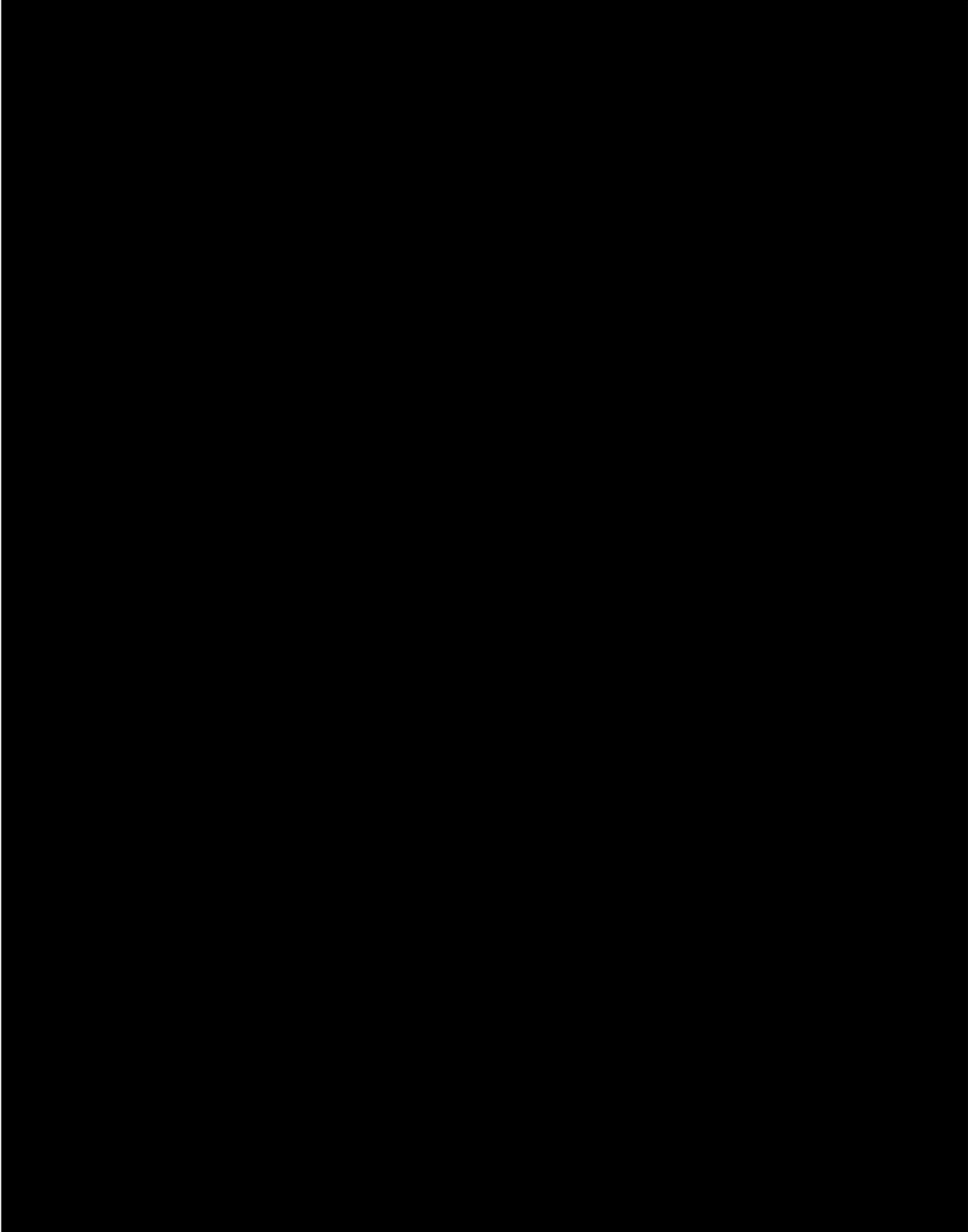
[Redacted data table]

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<sup>8</sup> [mti-report-H7-Nov25.pdf](#)



**Figure 4-10 ACI ASQ Waiting time in check-in queue / line**



## 4.5 Airport Wayfinding and Public Website Branding

Wayfinding is a key satisfaction driver of a passenger’s experience. Great wayfinding supports all passengers in experiencing an efficient and stress-free journey and prioritises the airport operation (IATA ADRM). A negative wayfinding experience—clutter, confusion, inconsistency of information, etc.—can create a lasting negative impression, adversely impacting the overall airport experience.

[Redacted text block]

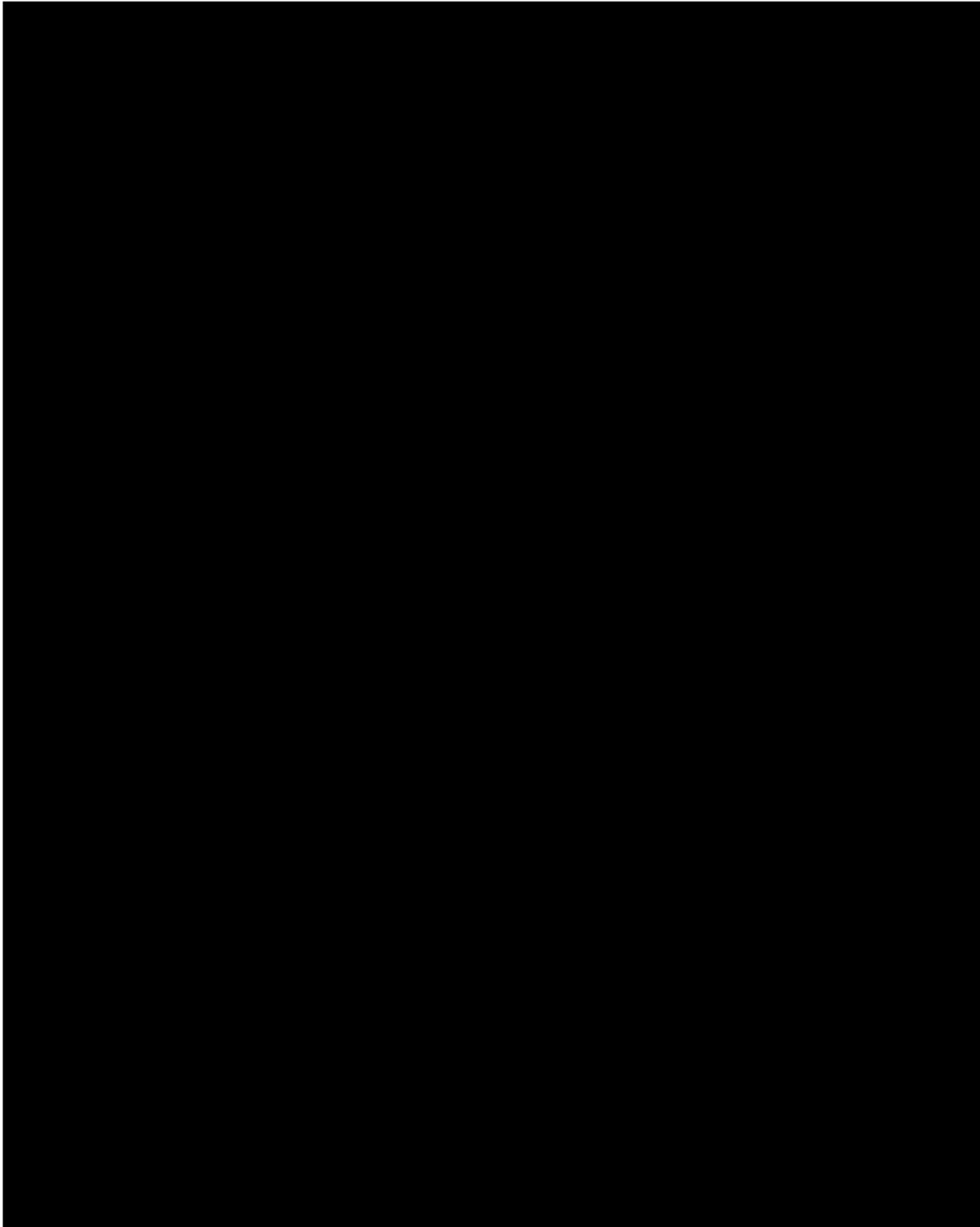
Ease of finding your way through airport	Signage to access the Terminal	Ease of making connections with other flights
--	--------------------------------	---

[Redacted text block]

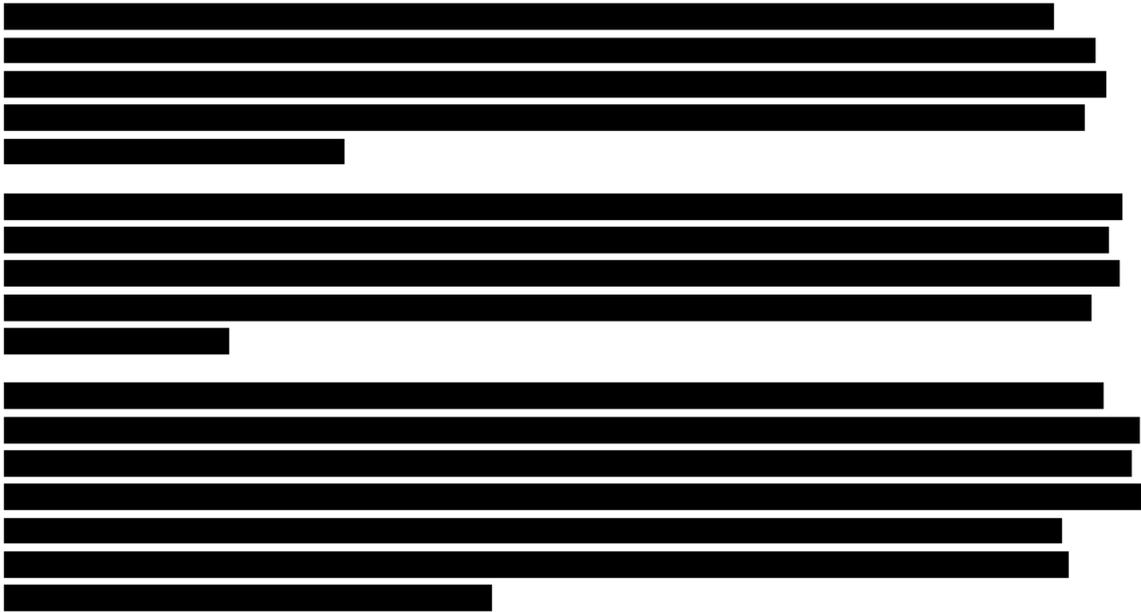
<sup>9</sup> [LAX Terminal Wayfinding Standards October 2017.pdf](#)

<sup>10</sup> [Airport Standards Manual for Pedestrian Signing & Wayfinding](#)

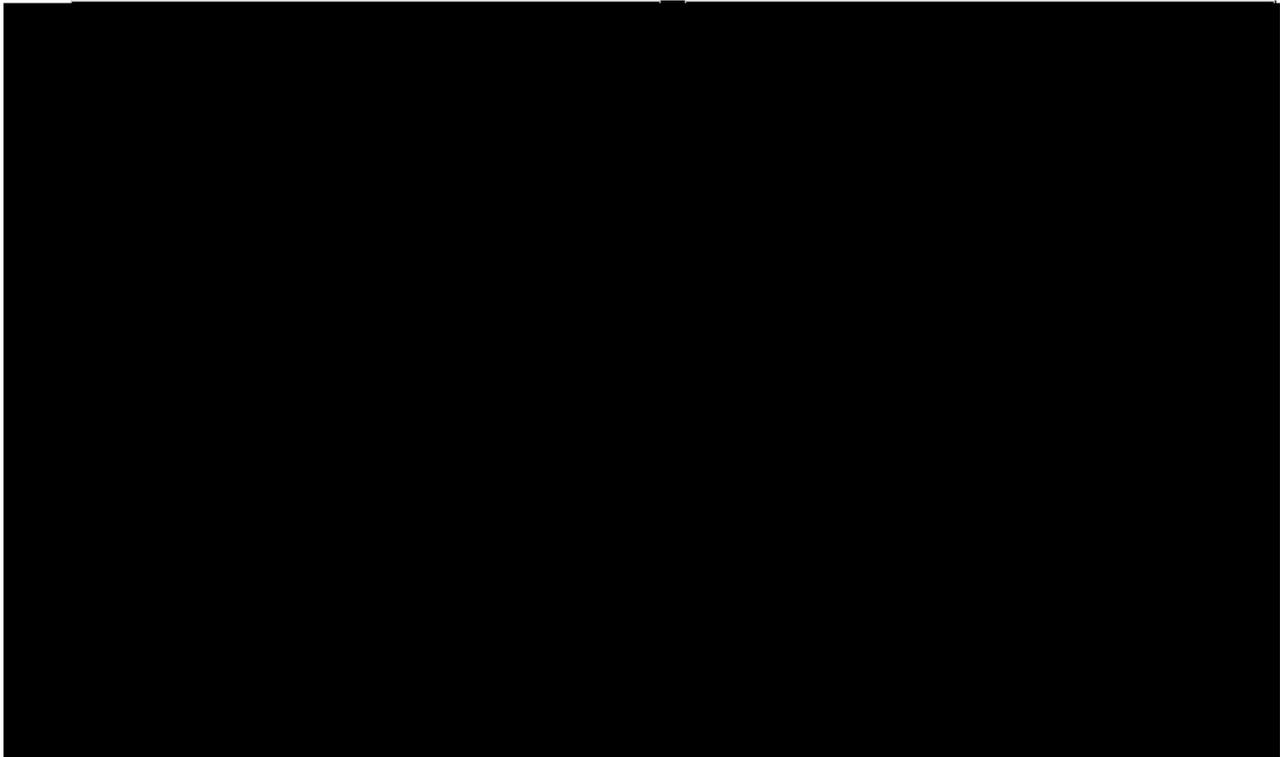
**Figure 4-12 ACI ASQ Ease of finding your way through airport**



[Redacted text block consisting of eight horizontal black bars of varying lengths]



**Figure 4-14 ACI ASQ Ease of making connections with other flights**



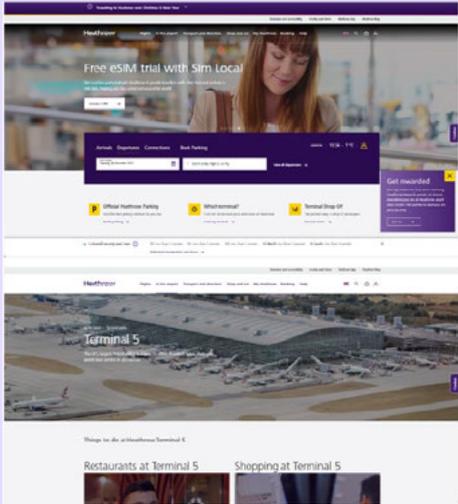
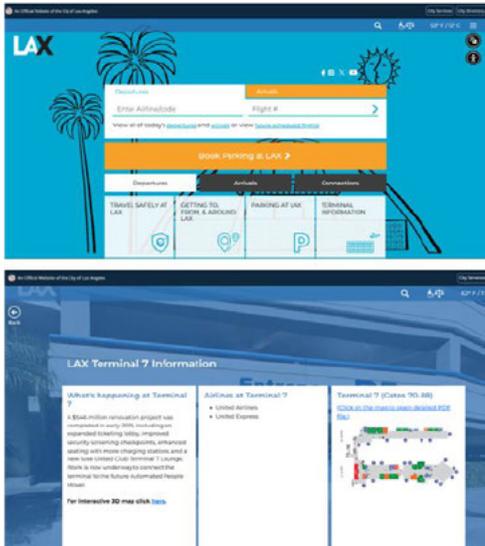
[Redacted text block]

The user experience of the three airports' public airport websites was also examined to test the hypothesis whether single operator airports deliver a more cohesive and reliable public facing digital user experience ("UX") than fragmented multi-operator models. Heathrow demonstrates the strongest cohesion across branding, URL architecture, and technical performance.

The LAX public website also achieves consistency through a centrally managed front-end. PANYNJ initiatives such as the unified "Reimagining JFK" programme are positioning the Port Authority as a strategic orchestrator of common design and customer experience performance standards, and wayfinding principles across JFK terminals, in order to achieve a more coherent

world class experience across JFK. This integration is yet to translate to the user experience with the airport's public airport website, which is hindered by the inconsistency of the independent terminal operators' public websites which collectively result in a variable digital experience and uneven information depth.

**Table 4-3 Public website branding overview**

Airport	Overview	Examples
<p><b>LHR</b></p>	<p>Unified colour system, typography, layouts across all terminals, consistently applied brand.</p>	<p><b>Heathrow Airport and Terminal 5 landing pages-</b></p> 
<p><b>LAX</b></p>	<p>Tile-based FlyLAX design applied across multiple terminals.</p>	<p><b>LAX Airport and Terminal 7 landing pages-</b></p> 

<p><b>JFK</b></p>	<p>Multiple terminal sites with distinct branding and layouts, only T1 and T4 have terminal-level public websites</p>	<p><b>JFK Airport, Terminal 1 and 4 landing page examples-</b></p> 
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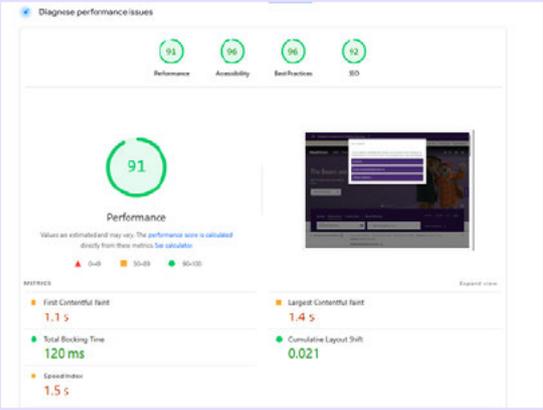
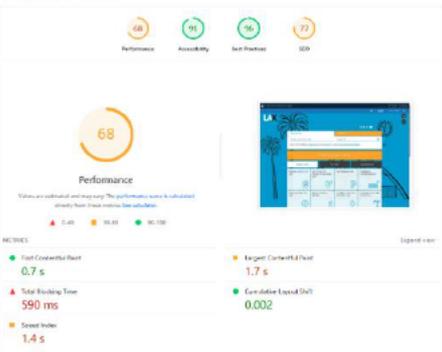
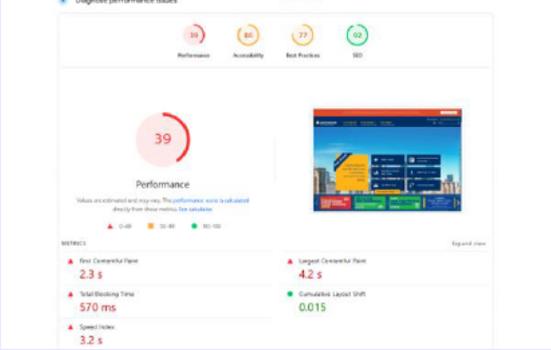
Variations in **URL architecture** demonstrate that unified operators typically achieve cleaner, more predictable structures, while in multi-operator environments achieving a coherent and joined digital pathway is more challenging.

**Table 4-4: URL Overview**

Airport	Examples	Summary
<p><b>LHR</b></p>	<p><b>Predictable hierarchical URLs</b> → /flight-information/arrivals, /at-the-airport/shops, /help/parking</p> <p><b>Consistent terminal URL patterns</b> → /at-the-airport/terminal-3/shops</p>	<p>Structured, logical hierarchy that mirrors site architecture. Helps passengers verify official information and navigate with confidence.</p>
<p><b>LAX</b></p>	<p><b>Very stable top level structure</b> → /travel-info/flight-status, /terminals/terminal-7</p> <p><b>Task-led deep links</b> → /parking/, /flylax-amenities/, /maps-and-directions/</p> <p>Terminal URLs that follow a uniform naming pattern (/terminals/terminal-X)</p>	<p>Task-oriented naming aligned with FlyLAX’s high-visibility tiles. Stable across terminals and easy for users to interpret and share.</p>
<p><b>JFK</b></p>	<p><b>Primary site:</b> www.jfkairport.com/  <b>Terminal One:</b> jfkterminalone.com  <b>Terminal 4:</b> www.jfkt4.nyc</p> <p><b>URL example:</b> https://www.jfkairport.com/flight-tracker?view=VIEW_DEPARTURE&amp;apt=JFK'</p>	<p>Multiple independent domains create a fragmented experience, making it unclear which pages are official and reducing overall digital trust.</p>

Lighthouse assessments on website performance and responsiveness show clear variation between the three airports, with Heathrow performing consistently above LAX and JFK.

**Table 4-5: Technical Performance Overview**

Airport	Overview	Examples
LHR	High performance scores across all categories.	<p style="text-align: center;"><b>LHR Lighthouse score-</b></p> 
LAX	Fast initial load but slower interactive performance.	<p style="text-align: center;"><b>LAX Lighthouse Score-</b></p> 
JFK	Weakest performance due to slower loading and delayed rendering.	<p style="text-align: center;"><b>JFK Lighthouse score-</b></p> 

## 4.6 Gate / Lounge Experience

Aside from the core passenger processing functions and the core service elements that contribute to a stress-free passenger journey, maintaining consistency in service quality is critical to delivering exceptional experiences. This also relates to the availability, access, comfort and choice of amenities such as wait / gate areas, seating and shops / restaurants / cafés.

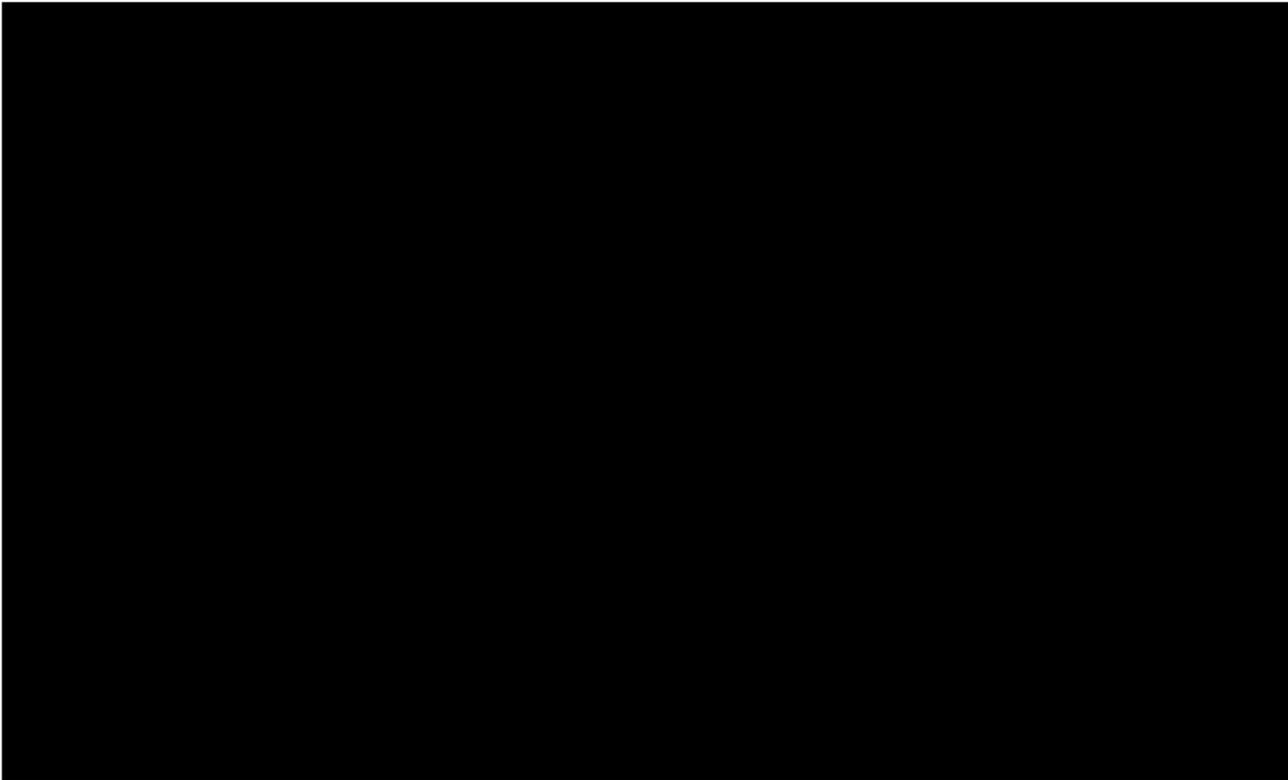


The following ACI ASQ attributes were assessed:

Comfort of waiting at the gate areas	Restaurants/bars/cafes	Shops
--------------------------------------	------------------------	-------

LAX and JFK have greater variability in passenger comfort and enjoyment when considering the comfort of seating, gate and concessions offerings at terminal level. In contrast, Heathrow provides a more standardised and reliable experience. This consistency and service excellence is reflecting in Heathrow’s recognition as “Best Airport for Shopping” across multiple years since 2015<sup>11</sup>, including 2<sup>nd</sup> place in 2024<sup>12</sup> and 3<sup>rd</sup> in 2025<sup>13</sup>, alongside “World’s Best Airport Dining” multiple Skytrax awards. Neither LAX nor JFK are listed in the top 10 rankings for Skytrax “World’s Best Airport Shopping” or “World’s Best Airport Dining” awards in recent years.

**Figure 4-15 ACI ASQ Comfort of waiting at the gate areas**

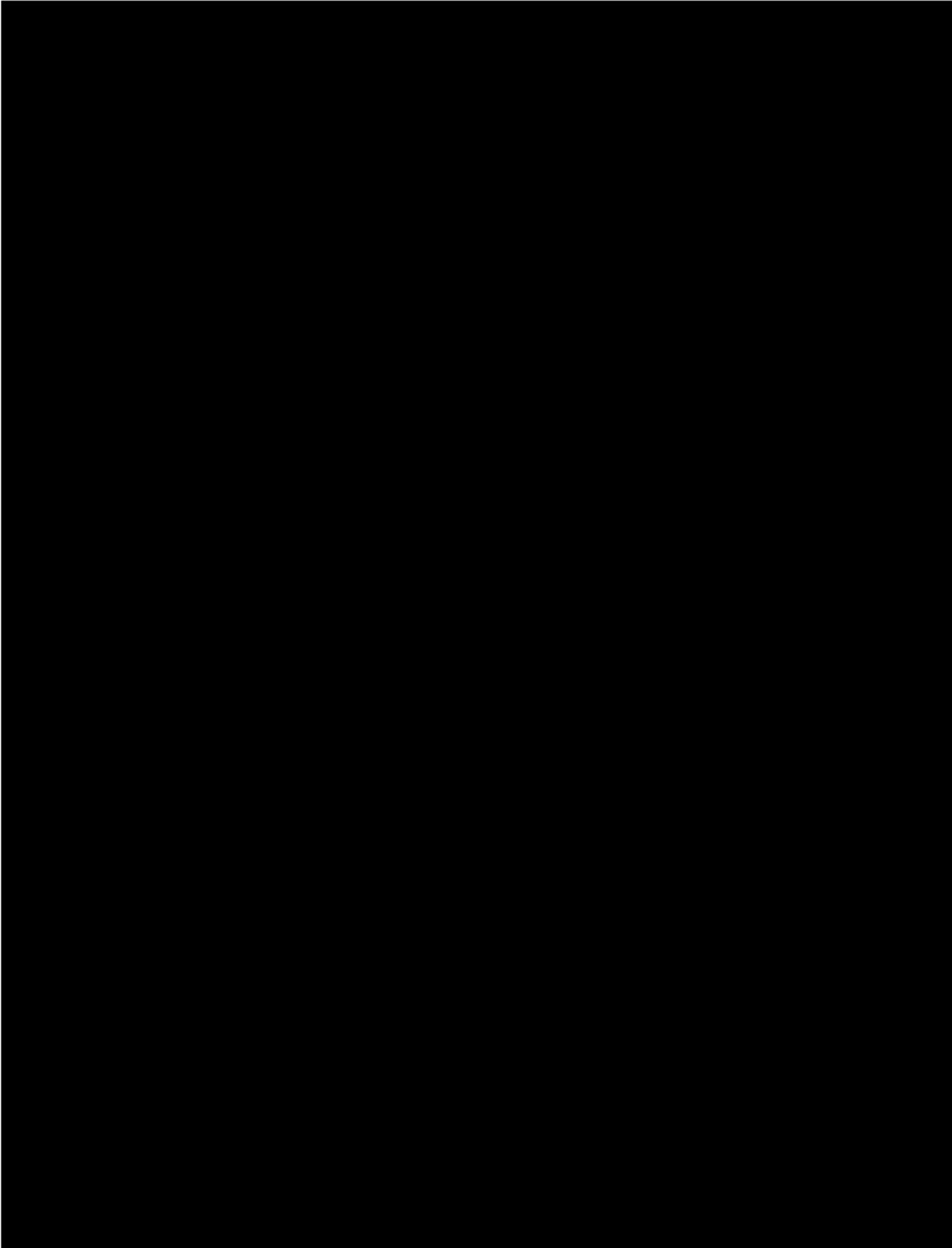


<sup>11</sup> [Heathrow voted ‘Best Airport for Shopping’ again](#)

<sup>12</sup> [Top 10 Airports for Shopping 2024 - Skytrax](#)

<sup>13</sup> [World’s Best Airport Shopping Awards 2025 | SKYTRAX](#)

**Figure 4-16 ACI ASQ Restaurants/ bars/ cafes**



## 4.7 Skytrax Rankings

In addition to ACI ASQ analysis, Skytrax World Airport rankings in recent years were analysed to identify whether single operator model airports achieve higher rankings compared with multi-operator structures.

80% of the top 10 Airports in Skytrax rankings are under a true single operator model, with only 1 airport (Tokyo Haneda) in the top 20 being a full multi-operator model.

Heathrow has demonstrated similar strengths: as a unified operator, it has maintained service quality across cycles of demand growth, disruption, and incremental capital improvement. Heathrow also performs strongly in high-traffic categories ranking 6th among airports handling more than 70 million passengers per year and in premium commercial categories such as airport shopping, where it places 3rd globally.

**Table 4-6 Skytrax 2025 ranking and award categories**

Skytrax 2025 ranking <sup>14</sup> and award categories <sup>15</sup>	LHR	JFK	LAX
World's Top 100 Airports	22	89	52
Best Airports By Global Region	10 (Europe)	Not in top 10	10 (N America)
World's Best Airports by Passenger Numbers	6 (70+ mppa)	10 (60-70 mppa)	10 (70+ mppa)
World's Best Airport Shopping	3	Not in top 10	Not in top 10
World's Best Art in the Airport	Not in top 10	Not in top 10	10

By contrast, JFK has a significantly lower position at 89th. Despite recent and ongoing terminal redevelopments, JFK continues to underperform in experience areas requiring airport-wide consistency, such as transfers, signage, and commercial integration. LAX performs moderately better at 52nd.

**Table 4-7 Top 20 Skytrax and LHR, JFK, LAX Comparators – Ranking and Governance Structure**

Airport	Ranking	Final classification	Airport / terminal operator(s)	Airline operated or leased terminals
Singapore Changi (SIN)	1	Single operator	Changi Airport Group (CAG)	None; all terminals operated by CAG
Doha Hamad (DOH)	2	Single operator	MATAR / Qatar Company for Airports	None; full airport authority operation
Tokyo Haneda (HND)	3	Multi-operator	MLIT (airport); Japan Airport Terminal Co. (T1/T2); Tokyo International Air Terminal (TIAT) (T3)	Airline equity/influence via JAL/ANA holdings in JAT/TIAT; distinct companies operate entire terminals
Seoul Incheon (ICN)	4	Single operator	Incheon International Airport Corporation (IIAC)	None; terminals unified under IIAC

<sup>14</sup> [World's Top 100 Airports 2025 | SKYTRAX](#)

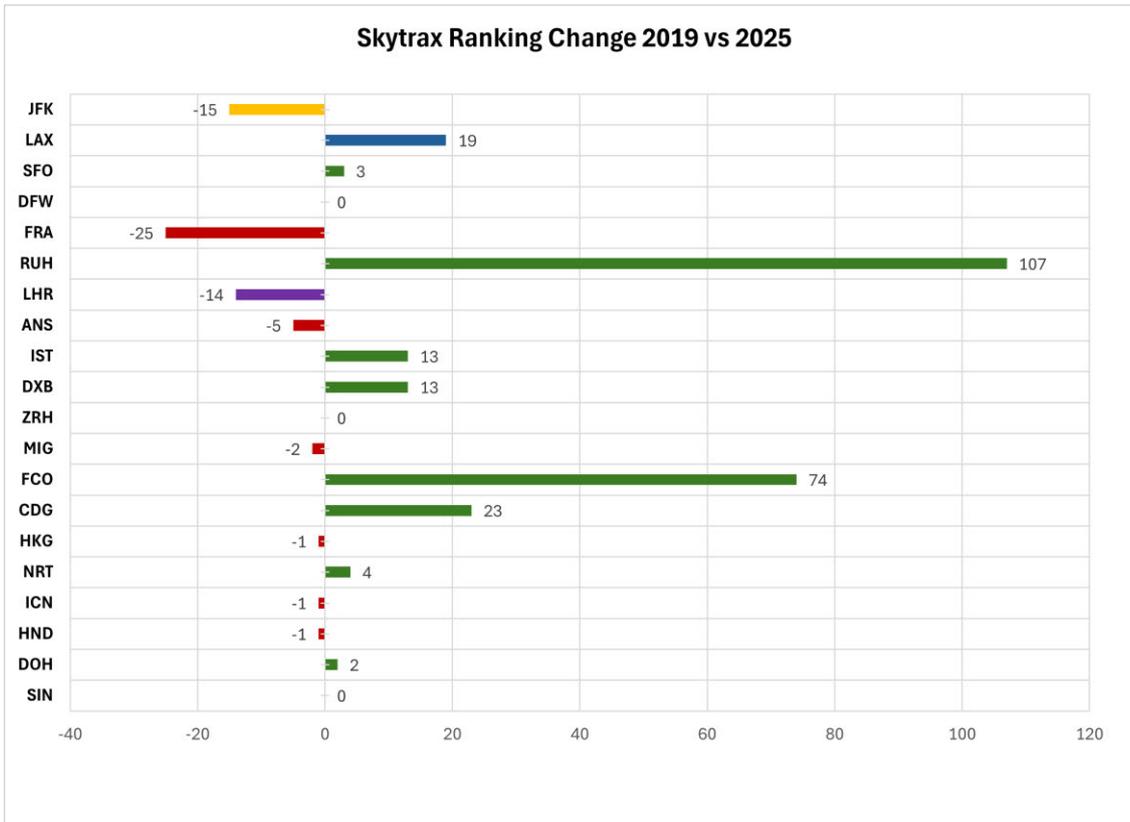
<sup>15</sup> [Award Winners 2025 | SKYTRAX](#)

Airport	Ranking	Final classification	Airport / terminal operator(s)	Airline operated or leased terminals
Tokyo Narita (NRT)	5	Single operator (alliance zoned wings)	Narita International Airport Corporation (NAA)	Alliance zoning (Star/SkyTeam); JAL (T2), ANA (T1 wings) by assignment, not terminal operation
Hong Kong (HKG)	6	Single operator	Airport Authority Hong Kong (AAHK)	None; all terminals controlled by AAHK
Paris CDG (CDG)	7	Single operator (centralised)	Groupe ADP	No evidence of airline leased terminal ops; Air France dominant user of 2E/2F (assignment, not operation)
Rome Fiumicino (FCO)	8	Single operator	Aeroporti di Roma (ADR)	None; all terminals operated by ADR
Zurich (ZRH)	10	Single operator	Flughafen Zürich AG	None; unified airport authority
Dubai (DXB)	11	Hybrid (airline dedicated terminals)	Dubai Airports overall; DAEP project owner	Emirates dedicated Terminal 3 (Concourses A/B/C); flydubai base at Terminal 2
Helsinki Vantaa (HEL)	12	Single operator	Finavia	None; no airline run terminal areas
Vancouver (YVR)	13	Single operator	Vancouver Airport Authority	None; community airport authority model
Istanbul (IST)	14	Single operator	İGA Airport Operation	None; single concessionaire operating entire terminal
Vienna (VIE)	15	Single operator	Flughafen Wien AG	None; airline assignment only
Melbourne (MEL)	16	Single operator	Australia Pacific Airports Corporation (APAC)	None; airlines assigned to terminals but not operators
Chubu Centrair (NGO)	17	Single operator	Central Japan International Airport Co. (Centrair)	None; single operator
Copenhagen (CPH)	18	Single operator	Københavns Lufthavne A/S	None; outsourced services under central governance
Amsterdam Schiphol (AMS)	19	Single operator (one terminal concept)	Royal Schiphol Group	No evidence of airline run terminals; KLM is hub carrier under Schiphol ops
Bahrain (BAH)	20	Single operator	Bahrain Airport Company (BAC)	None; single operator for new terminal
London Heathrow (LHR)	22	Single operator	Heathrow Airport Holdings (HAL)	None; airlines have allocated terminals (e.g., BA dominates T5) but do not operate terminals
King Khalid, Riyadh (RUH)	24	Single operator	Riyadh Airports Company	None; all terminals centrally operated by the airport authority

Airport	Ranking	Final classification	Airport / terminal operator(s)	Airline operated or leased terminals
<b>Dallas Fort Worth (DFW)</b>	41	Hybrid (airport ran terminals except Terminal F)	DFW Airport Board	Terminal F: Fully leased and operated by American Airlines under use-and-lease agreement  All other terminals operated by DFW Airport
<b>Los Angeles (LAX)</b>	52	Hybrid (airline dedicated terminals except TBIT)	Los Angeles World Airports (LAWA)  Plus, multiple private terminal management companies (e.g., TBIT operator consortium, Westfield)	Except for TBIT, which is operated by LAWA, all terminals are operated by airlines or airline groups
<b>Atlanta (ATL)</b>	70	Single operator	City of Atlanta – Department of Aviation	None; Delta dominates but does not operate or lease the terminals
<b>John. F. Kennedy (JFK)</b>	89	Full multi-operator	Port Authority of NY & NJ	Terminal 1: 4 airline consortia  Terminal 4: 50:50 Delta and private operator JIAT  Terminal 5: JetBlue  Terminal 8: American Airlines  New Terminals 1 and 6 due to open 2026 are developed and operated on a PPP basis

The variance in performance between 2019 and 2025 for the selection of comparable airports to Heathrow, LAX and JFK, illustrated below, suggests that: capital investment matters but only if it improves measured KPIs; new terminals, refurbishments, and retail upgrades influence Skytrax results only when they address the passenger-facing categories the survey measures.

**Figure 4-18 Skytrax ranking variance 2019-2025**



Source: Skytrax data 2019-2025

Improvements in Skytrax rankings are often driven by major new infrastructure, such as in the case of RUH, IST, FCO, CDG airports, which can instantaneously elevate an airport to top rankings. The real challenge, however, is maintaining that level of quality year after year. This is an area where Asian airports consistently excel, and where Heathrow, as a single-operator airport, has similarly demonstrated long-term strength: delivering a more reliable and higher-quality passenger experience than LAX and JFK, both overall and at the terminal level, consistently over time.

While major new terminal projects may temporarily boost rankings at multi-operator airports such as LAX and JFK, the long-term improvements at Heathrow suggest that a unified operator model delivers sustained service enhancements across all terminals, rather than pockets of excellence confined to individually managed facilities.

Heathrow’s single-operator model enables a consistently higher quality of service compared with its multi-operator counterparts. This is reflected in the Skytrax global rankings, where Heathrow places 22<sup>nd</sup> significantly ahead of both LAX and JFK. The underlying reasons for these variances are further illustrated in Table 4-10, where airports with substantial new infrastructure programmes (e.g., Istanbul, Riyadh) show rapid upward movement in the rankings due to step-changes in terminal quality and customer experience.

**Table 4-8 Capital investments likely linked to change in Skytrax rankings (examples)**

Airport Code	Airport Name	Skytrax 2019	Skytrax 2025	Variance	Potential factors for variance
SIN	Singapore Changi	1	1	0	Innovative infrastructure (Like Jewel), diverse amenities for leisure, retail, and dining, consistent focus on operational excellence and service quality, consistent global recognition confirming its status
DOH	Doha Hamad	4	2	2	Orchard indoor garden & retail expansion; New airport
NRT	Tokyo Narita	9	5	4	Terminal upgrades (T3 seating/dining); new runway opened in 2025; terminal 1 renovation; dining and retail enhancements;
CDG	Paris CDG	30	7	23	Modernisation initiatives across terminals
FCO	Rome Fiumicino	82	8	74	Major infrastructure upgrades
DXB	Dubai	24	11	13	Enhancement initiatives such as revamped food and beverage, baggage/ops efficiency; retail & lounge improvements
IST	Istanbul Airport	#N/A	13	13	New Airport opened in 2018
RUH	Riyadh	131	24	107	New terminals; upgrade and expansion of existing terminal
LGA	LaGuardia Airport	#N/A	29	29	New terminals
DFW	Dallas/ Fort Worth	41	41	0	\$9-12B capital program (Terminal C rebuild; new Terminal F); roadway & access improvements
SFO	San Francisco	48	45	3	Harvey Milk Terminal 1

## 5 Governance and Operations

This section looks at different governance arrangements between single and multi-operator airports, and the implications of these arrangements on operations. The ability to respond to external shocks is illustrated using case studies.

### Key Hypothesis

The governance and coordination of multi-operator airports is more challenging given the interfaces between the airport and terminal operators, which negatively impacts resilience.

### 5.1 Governance Arrangements

Multi-operator airports require contractual interfaces between the airport authority and terminal operators. Each interface carries costs and risks, and requires strengthened governance compared to a single-operator model.

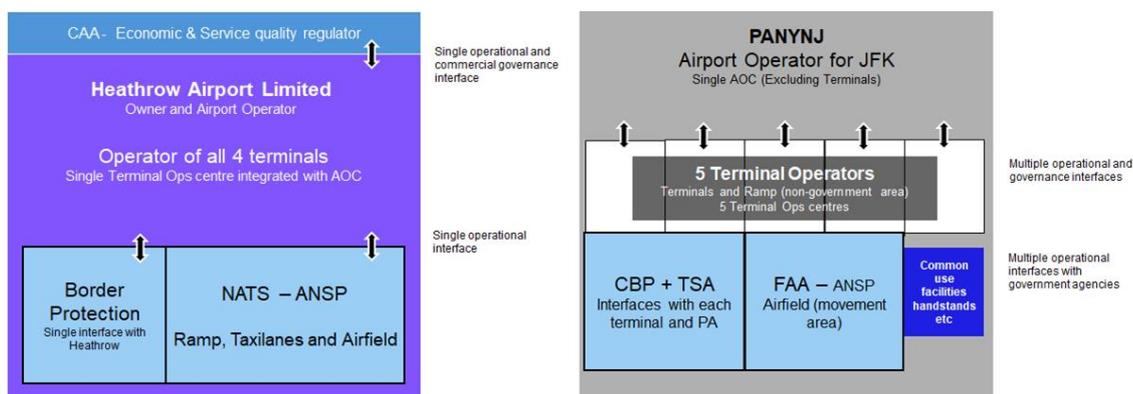
Governance needs to be set down in the original agreement which will require 30+ years foresight so a potential inhibitor to flexibility and change.

These challenges become even more profound during an irregular operation / adverse event, where rapid, coordinated decision-making and a unified response to the incident are critical. This can also impact the ability to deliver cross-airport policy such as on sustainability and resilience.

Multi-operator airports still rely on the airport operator for access to the airside (taxiways and runways), hard stands, landside roads, etc and will be exposed to the demand, operations and potential inefficiency of other terminal operators as well as needed common development work.

The following diagram shows the difference in levels of complexity between Heathrow and JFK.

**Figure 5-1 Complexity in levels of governance LHR model vs JFK model<sup>16</sup>**



<sup>16</sup> AOC – Airport Operations Centre, NATS – National Air Traffic Services, ANSP – Air Navigation Service Provider, CBP – Customs and Border Protection (USA), TSA – Transportation Security Administration (USA), FAA – Federal Aviation Administration (USA)

**Table 5-1 Governance & Regulation Comparison**

Aspect	Heathrow	JFK	LAX
Ownership	<b>Owned and operated</b> by Heathrow Airport Holdings Ltd, a private company regulated by the UK CAA.	<b>Owned</b> by the City of New York and <b>managed and operated</b> by the Port Authority of New York and New Jersey (PANYNJ).	<b>Owned</b> by the City of Los Angeles and <b>operated</b> by Los Angeles World Airports (LAWA), a proprietary department of the city.
Asset Leasing Model	Heathrow operates all terminals directly under a <b>single-operator model</b> ; no leasing to consortia.	Terminals are operated by <b>private consortia under long-term leases</b> (e.g., New Terminal One, Terminal 6) with PANYNJ as landlord.	LAWA owns land and core infrastructure; terminals and facilities are <b>leased to airlines under long-term agreements</b> , creating decentralised control.
Governance Structure	Corporate governance under Heathrow Holdings. <b>External regulation</b> by the UK CAA through license conditions and price control frameworks.	<b>Self-governed</b> under the PANYNJ Board of Commissioners.  The terminal operators act under lease agreements with oversight from the PANYNJ (Aviation Department).	<b>Self-governed</b> by the Board of Airport Commissioners (BOAC), appointed by the mayor and confirmed by the City Council. The LAWA executive team manages daily operations.
Tariff Regulation	Regulated by the UK Civil Aviation Authority (UK CAA) under a price cap / single-till system. Charges are set using the Regulatory Asset Base (RAB) model. Tariffs are reviewed every 5 years (known as price control periods). Focus on cost recovery and reasonable return on investment.	Aeronautical charges set by PANYNJ policies and follow a cost-recovery principle; no UK-style economic regulation; adhere to the FAA’s Airport Rates and Charges Policy that defines what costs can be included in aeronautical charges—such as airfield operations, terminal facilities, and common-use infrastructure. Major capital projects delivered through public-private partnerships under PANYNJ’s redevelopment program.	Aeronautical charges follow a cost-recovery principle and are set under LAWA’s Passenger Terminal Tariff, governed by the FAA’s Airport Rates and Charges Policy. Similar to JFK, LAX does not operate under a dual-till system and is not subject to external economic regulation. LAWA works on cost recovery framework.

Aspect	Heathrow	JFK	LAX
Performance Objectives	UK CAA regulates Heathrow’s <b>minimum operational performance and passenger service standards</b> through its Outcome Based Regulation framework, which incorporates service quality rebates to apply financial incentives. Heathrow is required to publish performance data on their website and in terminals, ensuring transparency and accountability to stakeholders and consumers.	Historically fragmented; now improved through <b>Standards Manuals and governance documentation for JFK redevelopment projects</b> . Similar to Heathrow, the new leases include minimum standards and financial incentives for specific KPIs relating to Capacity Management, Systems Availability and Quality of Service <sup>17</sup> . Service quality thresholds revised every 5 years.  Unlike the UK CAA, the FAA does not regulate JFK in terms of service standards.	LAX does not publish airport-wide service quality targets; instead, LAWA enforces <b>compliance on aeronautical users through operational standards and its Design &amp; Construction Handbook</b> (branding and infrastructure consistency). Performance oversight is internal rather than tied to financial or reputational incentives, contrasting with Heathrow’s regulatory model.  Unlike the UK CAA, the FAA does not regulate LAWA in terms of service standards.
Asset Management	Centralised under Heathrow Airport Ltd, ensuring consistent standards and upgrades across all terminals.	Fragmented by terminal; private consortia manage operations, while PANYNJ oversees common-use infrastructure and compliance.	Mixed and decentralised; LAWA manages common-use systems, while tenants manage leased terminal areas.
Slot Coordination	Level 3 slot-coordinated under IATA Worldwide Slot Guidelines.	Level 3 slot-coordinated under FAA rules, one of three U.S. airports with formal slot allocation.	Schedule-facilitated, not Level 3 slot-controlled; FAA monitors schedules rather than imposing slot restrictions.

<sup>17</sup> New York Transportation Development Corporation Bond Issuance, New Terminal One

## 5.2 Coordination Case Studies

Multi-operator airports face inherent challenges in achieving the same level of coordinated response as single-operator airports, as illustrated by the case studies below.

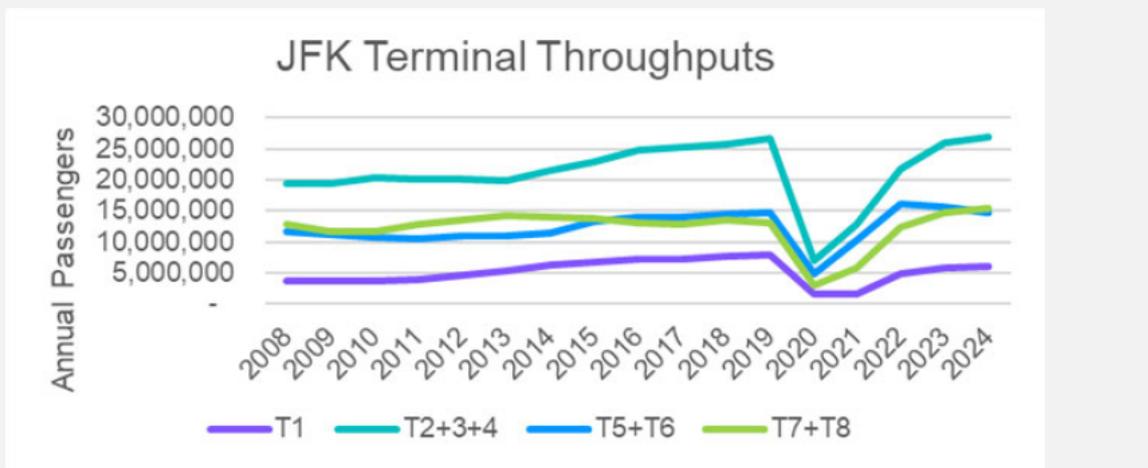
### Case Study 1: Response to COVID-19

Despite the sharp decline in air travel during the pandemic – which prompted many airports to temporarily close terminals and consolidate operations – all JFK and LAX terminals remained open. This was largely due to their multi-operator structure and agreements with agencies such as the TSA and CBP (which maintain a presence in every terminal). In contrast, Heathrow, as a single-operator airport, was able to respond quickly.

On 06 April 2020, shortly after the break-out of COVID-19, Heathrow moved to single-runway operations and soon consolidated (temporarily) airline operations from Terminals 3 and 4 into Terminals 2 and 5, closing Terminal 4 entirely<sup>18</sup>. Terminal 4 reopened in December 2021 as a dedicated arrivals facility for passengers from red list countries, applying a multi-layer approach across the airport campus<sup>19</sup>. The chart below shows terminal throughputs for JFK, highlighting that while traffic plummeted during COVID-19, all terminals remained open. Similarly, LAX maintained open terminals during the pandemic, though access to the central terminal area was restricted to ticketed passengers, their guests, and authorised airport and city personnel<sup>20</sup>.

This comparison illustrates how multi-operator airports can face limitations in operational flexibility when responding to external shocks. This means that Heathrow, **as a single-operator airport, can take advantage of the interoperability of its terminals and be more efficient in terms of traffic distribution even during an irregular event. Multi-operator airports in this case experience higher inefficiency and higher infrastructure requirements.**

Figure 5-2 JFK Terminal Throughputs



<sup>18</sup> [Heathrow remains open for the UK | Heathrow](#)

<sup>19</sup> [Heathrow reopens dedicated red list terminal and offers on airport arrival testing facilities](#)

<sup>20</sup> [Coronavirus Covid-19: LAX restricts access to central terminal](#)

## **Case Study 2: Response to Winter Storm Grayson (and subsequent LaHood inquiry) and Terminal 1 fire**

### **Winter Storm Grayson**

In January 2018, JFK was hit by storm Grayson, a powerful 'bomb-cyclone' that ravaged its way across the US East Coast. The storm, which delivered hurricane-force winds, heavy snowfall and icy temperatures, plunged the busiest airport in the New York City metropolitan area into a three-day crisis, bringing operations to a standstill. During Grayson, operations at JFK were "severely and disproportionately impacted by the storm as compared to other airports in the Northeast Corridor", a four-month long investigation led by former US Department of Transportation Secretary Ray LaHood concluded.

The top recommendation was the need for strong command and control centre that includes all JFK stakeholders. A Command Center – with capable leadership at the top, a clear chain of command, and effective SOPs. This would enable the Port Authority to take over control of any area of the airport in the case of operational failure. This would also permit the airport general manager to make cancellation recommendations and not the terminal operators.

Recommendation 8 identifies that JFK generally runs at or near capacity, leaving little margin for disruption. Certain JFK terminals regularly lack gate availability sufficient to meet demand. This issue is compounded by JFK's existing taxiway configurations and privatised autonomous terminals. An effective gate management program will alleviate gate congestion issues arising during normal operations. This will also help prevent capacity constraints from reaching a breaking point during a weather event or other IROP. JFK management should implement a gate management system that tracks flight activity and potential gate conflicts across terminals on a single platform. This would enable airport management to have control of all gating, regardless of terminal operator constraints. While this is being included in the new terminal, the existing terminals with their bespoke systems are unable to provide a common use environment.

"One thing was made clear," LaHood wrote in the report's introduction. "All had a desire to change JFK for the better. It is my strong belief that JFK can and will do better. What it needs are the critical tools to help each of the stakeholders perform seamlessly under even treacherous conditions."

The Airport has been criticised for its terminal structure, on the basis that this can lead to "silos" and a lack of coordination and communication.

### **Terminal 1 fire**

A minor fire in an electrical switch room in Terminal 1 resulted in the closure of the Terminal with only 13 of the 64 departures re-accommodated in other terminals. Terminal 1 handles just 5% of operations at JFK. An example of the disruption was the need for Air New Zealand's flight from Auckland to turn back to Auckland 8 hours into the flight resulting in nearly 15,000km of flight, a very negative passenger experience and negative headline news around the world.

This is an example of lack of interoperability as different terminals have different operating systems, and the five individual terminals do not have the same collective resilience as a single airport operational model. Terminal 1 did not have operational resilience in power and data resulting in whiteboards being used in place of FIDS.

### Case Study 3

#### Heathrow: From 2010 Challenges to Integrated Resilience

The 2010 snow crisis at Heathrow revealed structural weaknesses, slow stand clearance, poor coordination, and contradictory communications, that left thousands stranded and impacted the airport's reputation. The Begg Report concluded that Heathrow lacked a unified command structure and failed to anticipate the operational consequences of severe weather, despite clear forecasts. The crisis management framework was overly complex, and critical escalation triggers were missed. These shortcomings informed Heathrow's approach to developing a new model of integrated resilience.

The Airport Operations Centre (APOC) consolidates airlines, NATS, Met Office meteorologists, and airport operations into a single decision-making hub, replacing the fragmented crisis cells of 2010. The Airport Operations Plan (AOP) and decision-making platform create a single source of truth, aligning de-icing milestones with departure sequencing to sustain runway throughput; a key improvement over the ad hoc prioritization that caused the issues in 2010.

Dynamic forecasting, embedded within APOC, enables Heathrow to plan up to 15 days ahead, a contrast to the reactive posture criticized in the Begg Report. The adoption of a Bronze/Silver/Gold command structure, mirrors UK emergency services best practice which simplifies decision-making and enhances accountability. Heathrow has institutionalized capacity management tools:

- DvC (Demand vs Capacity) for short-term shocks.
- HADACAB for prolonged disruptions, mandating airline compliance to prevent the uncontrolled cancellations and terminal congestion that defined the 2010 failure.

Infrastructure investments, such as remote de-icing pads (JEDI and VADER), address a key vulnerability identified in the Begg Report – on-stand de-icing that blocked gates and gridlocked operations. By enabling aircraft to de-ice while taxiing, Heathrow is able to preserve stand availability and flow continuity.

#### Unified vs Fragmented IROPs: Why Integration and Interoperability Matters

Irregular Operations (IROPs) during severe winter weather or other unplanned events expose the fragility of airport systems. When snowstorms hit, the difference between resilience and chaos often lies in governance and integration. Fragmented systems, by contrast, amplify disruption: siloed decisions, inconsistent messaging, and resource misalignment can create operational gridlock and reputational damage. The Heathrow and JFK case studies illustrate this contrast.

The LaHood Report's recommendations, creation of an Airport Operations Centre, unified gate management, and enforceable mutual aid protocols, mirror the systemic reforms Heathrow implemented years earlier. JFK's reliance on voluntary compliance and informal coordination remains a critical vulnerability.

Heathrow's trajectory from the challenges of 2010 to its current integrated model demonstrates that resilience is engineered through governance, not improvisation. APOC, AOP, HADACAB, and remote de-icing pads are not isolated fixes, they form a coherent system that anticipates disruption, enforces compliance, and sustains capacity. JFK's experience during Grayson and subsequently, by contrast, reveals the cost of fragmentation on the consumer and the airport community as well as reputational damage.



## 6 Competition and Market Access

This section considers the impact of having competing airlines operating terminals at the same airport, including on market access, anti-competitive behaviour and the slot allocation process.

### Key Hypothesis

There is a lack of transparency or consistency in terminal charges between competing airlines, and overtly favourable terms for large tenants. Incumbent airlines can block new entry and growth by competitors, particularly in the context of a new runway where terminal/apron constraints are the primary limits on market access and competition. Incumbent airline incentives to limit traffic growth with expansion, in favour of using new runway capacity for slot retimes and punctuality/resilience improvements. There is a fragmented slot process (separate runway & terminal slots) which prevents efficient allocation and optimisation.

### 6.1 Fair Market Access

In the context of Heathrow Expansion and the development of a third runway, Heathrow will remain a very capacity-constrained airport. During phases on the development, following the opening of the new runway, terminal and apron capacity limitations are likely to be the primary constraint on airport and market access. This is very different from the current situation where scarce runway slots are the primary market access constraint.

The established industry process for managing access to an airport where there is an imbalance between airline demand and airport capacity is the slot allocation process. This is set out in the Worldwide Airport Slot Guidelines (WASG) and in the UK slot regulations (derived from the EU slot regulations).

The key principle of slot coordination is that slots are allocated "...in an open, fair, transparent and non-discriminatory manner by a slot coordinator acting independently"<sup>21</sup>. These principles are embedded in the UK and EU slot regulations and are implemented in the UK by the appointment of an independent slot coordinator (ACL) and through transparent declarations of airport capacity by the airport operators.

In contrast, at busy US airports operating under a multi-terminal operator model, there is a fragmented approach to managing airport access. Runway slots are allocated by the FAA independently from the terminal and apron capacity.

This fragmented approach can lead to less efficient allocation and use of scarce capacity. Currently at Heathrow there is a single transparent process for the assessment and declaration of runway, stand and terminal capacity by Heathrow Airport and a central coordination of these capacities by ACL. This allows schedules to be optimised between the runway and terminal/apron pinch-points.

At slot-controlled JFK airport, airlines must obtain a runway slot allocation from the FAA submit schedules and enter into terminal use agreements with one of the JFK terminals. The table 6-1 below illustrates who airlines must submit their commercially confidential schedules (taken from the PANYNJ *Application Guidebook for New Entrant Carriers, 2021*<sup>22</sup> and the IATA contact list

<sup>21</sup> *Worldwide Airport Slot Guidelines*, para 1.2.1(c)  
<https://www.iata.org/contentassets/4ede2aabfcc14a55919e468054d714fe/wasg-edition-3-english-version.pdf>

<sup>22</sup> *New Entrant Air Carriers at John. F. Kennedy International Airport*

for Level 2 and Level 3 airports<sup>23</sup>). In the case of T2 (Delta), T5 (JetBlue), T7 (British Airways) and T8 (American Airlines), airlines must submit their schedules directing to a competing airline.

**Table 6-1 JFK Airport New Entrant Airline Contact Process**

<b>Runway slots</b>	<b>FAA (<a href="mailto:7-awa-slotadmin@faa.gov">7-awa-slotadmin@faa.gov</a>)</b>
<b>Port Authority</b>	PANYNJ ( <a href="mailto:JFKslots@panynj.gov">JFKslots@panynj.gov</a> )
<b>Terminal 1</b>	Terminal One Group Association, LP
<b>Terminal 2</b>	Delta Airlines
<b>Terminal 4</b>	JFK International Air Terminal LLC
<b>Terminal 5</b>	JetBlue Airlines
<b>Terminal 6 (from opening 2026)</b>	Anderson Airport Group (Terminal 6 Coordination)
<b>Terminal 7</b>	British Airways
<b>Terminal 8</b>	American Airlines

Even in circumstances where a major airline is not the direct owner of the terminal, large anchor tenants may have significant practical influence over the terminal operator and may hold long-term leases over key operational facilities such as gates or preferential use of facilities.

Because the viability of a terminal operator's investment under a multi-operator model is dependent on key anchor airline tenants, different airlines pay different rates for terminal services based on bilaterally negotiated terms. There is no transparency or published rates of fees and charges.

Airlines operating their own terminals do not pay a passenger service charge, reducing the marginal cost of increasing throughput. However, this creates a price disadvantage for visiting airlines and can encourage anti-competitive behaviours that limit consumer choice and value.

## 6.2 Risks of Anti-Competitive Behaviour

Where incumbent airline own, control or significantly influence the use of terminals and apron capacity, there are incentives for those airlines to stifle potential competition.

There is a particular risk in the context of Heathrow Expansion. Heathrow has been one of the world's most runway capacity constrained airports since at least the early 1990s and the prospect of significant new runway capacity is a one-off opportunity. Incumbent airlines have strong incentives for a significant portion of the new runway capacity to be used to optimise existing schedules and hub connectivity – prioritising retiming of existing slots over allocation of peak time slots to new entrants and increased competition.

Under the current system, with a single operator of the airport determining slot capacity in a transparent way, and an independent and transparent slot allocation process, it is possible for new capacity to be allocated in a fair and non-discriminatory way.

However, with a multi-operator model susceptible to undue influence by dominant incumbent airlines, there would be a need for active regulation and oversight by the CAA or other competent body to prevent anti-competitive behaviour.

<sup>23</sup> <https://www.iata.org/contentassets/4ede2aabfcc14a55919e468054d714fe/wasq-annex-12.7.xlsx>

Therefore, rather than a move to a multi-operator model resulting in inter-terminal competition and a reduced need for regulation, there would be a need for increased interventionist regulation in practice.

### Market Access Experiences at US Airports

The case studies and reports below illustrate the issues experienced at US airports where multi-operator terminal models and leased gates and other facilities are common.

#### Limited Access to Airport Facilities and Market Power in the Airline Industry

The Journal of Law & Economics, Ciliberto & Williams (2010)<sup>24</sup>

The study by Ciliberto and Williams (2010) provides some of the strongest empirical evidence that **gate control is a central driver of market power in the U.S. airline industry**. Using FAA-mandated airport competition plans, the authors show that dominant airlines use long-term gate control—through exclusive and preferential leases—to limit access for competitors, resulting in higher fares and reduced competition. They find that “control of gates is a crucial determinant” of the hub fare premium, directly linking infrastructure control to increased ticket prices.

A key conclusion of the study is that **restricted terminal and gate access remains one of the primary barriers to entry**, more significant than runway congestion or slot limits. The authors note that “operating practices limiting access to airport facilities remain major barriers to entry”, highlighting how incumbents prevent rivals from securing gates even when demand exists.

The study also shows that **sublease restrictions and high sublease fees further suppress competition**. When incumbents charge excessive rates—or refuse to sublease gates at all—new entrants face prohibitive costs. The authors demonstrate that capping sublease fees lowers fares, underscoring the link between gate access and consumer prices.

Finally, the study emphasizes that these anticompetitive outcomes are **especially severe when gate scarcity exists**. When few unassigned or common use gates are available, incumbents can entrench their dominance and maintain high fares, even in the absence of runway limitations.

#### FAA – Airport Business Practices & Airline Competition<sup>25</sup>

The FAA’s 1999 report concludes that although deregulation improved fares and service, competition at major U.S. airports remains structurally constrained due to airport business practices that favor incumbent carriers. The agency identifies long term exclusive use gate leases and majority interest (MI) clauses as key barriers preventing new entrant and low fare carriers from establishing a presence at concentrated hub airports. **These arrangements allow dominant airlines to control gate access and block or delay terminal expansion projects, limiting airport operators’ ability to ensure “reasonable access” for all carriers.** This practice was especially common at Atlanta (ATL), Chicago O’Hare (ORD), Dallas/Fort Worth (DFW), Denver (DEN), and others, where dominant carriers controlled most gates and helped determine terminal investment.

<sup>24</sup> Ciliberto, F., & Williams, J. W. (2010). Limited Access to Airport Facilities and Market Power in the Airline Industry. *The Journal of Law & Economics*, 53(3), 467–495. <https://doi.org/10.1086/605725>

<sup>25</sup> <https://www.faa.gov/sites/faa.gov/files/airports/aip/airport-business-practices-and-their-impact-on-airline-competition.pdf>

The report finds that **airport access is critical to airline competition**, and that contractual arrangements between airports and incumbent airlines often reinforce market power rather than promote competitive neutrality. Limited gate availability—stemming from exclusive leases, preferential arrangements, and restrictive subleasing practice remains one of the most persistent obstacles confronting new entrants.

The report concludes that meaningful competition requires more proactive management practices to reduce structural entry barriers and improve facility access for all carriers. The FAA Study also points out that incumbent airlines hold powerful contractual rights through Majority in Interest (MII) clauses. These clauses give them the authority to **veto or delay airport capital projects**, particularly terminal or gate expansions that would increase competitive access. The study documents how incumbents consistently used MII clauses to **block terminal expansion**, while supporting airfield projects such as runway, taxiway, and safety enhancement investments that improve reliability, on time performance, and operational resilience **without enabling additional entrants or traffic growth**.

Because terminal/gate capacity is the true binding constraint on growth at most congested hub airports, incumbent carriers effectively channel expansion funds toward operational enhancements that protect their schedules, rather than projects that expand overall market capacity. This dynamic demonstrates a clear incentive for incumbents to use expansion to improve punctuality and reduce delay propagation, while avoiding infrastructure that would facilitate new competition.

**Case Study: JetBlue at JFK & La Guardia (LGA) – Expansion Blocked by Limited Gates<sup>26, 27</sup>**

JetBlue’s early expansion challenge at New York airports illustrates how infrastructure constraints and exclusive gate control can severely limit airline growth. At JFK, JetBlue operated initially from Terminal 6, a facility with limited gate capacity and outdated infrastructure. As the airline expanded rapidly in the early 2000s, the shortage of available gates forced JetBlue to delay launching new flights and routes despite strong market demand.

With most other terminals and gates under the long-term control of entrenched incumbent carriers, JetBlue had no viable path to expand within the existing airport footprint. These constraints ultimately compelled the airline to invest in the development of Terminal 5, which opened in 2008 and finally provided the additional gate capacity needed to support sustained growth.

At LaGuardia Airport (LGA), JetBlue’s obstacles were even more pronounced. All gates were locked under exclusive, long-term leases held by dominant carriers such as Delta and American, leaving no space for new entrants without direct negotiations or rare lease expirations.

Compounding this, JetBlue also had to obtain FAA slots – requirements that further restricted competitive entry even in scenarios where physical gate availability was less of a limiting factor. Together, the JFK and LGA cases show how exclusive leases and regulatory constraints can force emerging carriers to make costly infrastructure investments or forego growth opportunities.

<sup>26</sup> [Airport Gate Lease Agreements In The US: Everything You Should Know](#)

<sup>27</sup> <https://thepointsguy.com/news/new-york-jfk-airport-terminal-one-rebuild-update/> ; <https://aerospaceglobalnews.com/news/jfk-new-terminal-one-airlines-lounges/>

### Case Study: Dallas Love Filed (DAL) – Legal Intervention to Restore Market Competition

Dallas Love Field (DAL) provides a clear illustration of how structural constraints can entrench incumbent dominance and restrict effective competition. Legally capped at 20 gates, the airport operates under conditions of extreme scarcity, with Southwest Airlines controlling 16 gates, giving it disproportionate influence over terminal capacity and access. When American Airlines merged with US Airways, the U.S. Department of Justice intervened, requiring American to divest its two gates to Virgin America, rather than Southwest or Delta, to prevent further foreclosure of competition and introduce a genuinely new competitor into the market. Virgin America was formally awarded two gates, enabling it to challenge the Southwest-American duopoly at DAL.

Southwest's dominance at DAL meant that genuine competitive entry was largely impossible, prompting DOJ intervention because normal market forces simply could not function within such a tight capacity-constrained environment. Had American's two gates been transferred to Southwest, the airport would have become even more imbalanced, revealing how opaque, unpredictable, and politically sensitive the gate-allocation process had become. Ultimately, while gate access was dictated by long-term leases and legal agreements, runway capacity was not the limiting factor—highlighting a structural mismatch in which **terminal constraints, rather than airspace availability, were the true barrier to competition.**

### Case Study: Airport Gate Competition Act to Increase Competition, Lower Airline Prices

Policymakers and federal regulators have found that at many U.S. airports, dominant airlines negotiate long-term exclusive or preferential gate leases that effectively prevent low-cost competitors from entering the market. One key finding from legislative reviews<sup>28</sup> was that incumbent carriers often retain control of gates even when they are underutilised, preferring to keep them idle rather than allow competitors access.

The National Air Carrier Association (representing ULCCs) pointed out that under the exclusive control, these gates are not being utilized for nearly half the day at 75% of the top 40 U.S. airports<sup>29</sup>. As a result, Ultra-Low-Cost-Carriers (ULCCs) such as Spirit, Frontier, Breeze, and Avelo are structurally shut out of access to gates and other key airport facilities, even when demand exists. These barriers motivated the introduction of the Airport Gate Competition Act, which aims to increase the proportion of common-use gates and limit the extent to which dominant carriers can monopolize terminal facilities.

## 6.3 Disincentives to Invest in Capacity

In a multi-operator terminal model, there are typically no transparent fees and charges for use of terminal facilities. Many facilities are leased to airlines (such as gates) and airlines may sub-lease gates to other airlines. These leases and charges are unregulated and will vary considerably between airlines, with larger incumbent “signatory carriers” paying less than smaller, new entrant “non-signatory carriers”<sup>30</sup>.

<sup>28</sup> U.S. Senator Elizabeth Warren | Warren and Hawley Introdu...

<sup>29</sup> NACA applauds “Airport Gate Competition Act” – National Air Carrier Association

<sup>30</sup> <https://www.faa.gov/sites/faa.gov/files/airports/aip/airport-business-practices-and-their-impact-on-airline-competition.pdf>

Since the terminal operator’s lease rates depend on the scarcity of facilities at the airport, there is an incentive for operators to avoid building new gates or other facilities ahead of demand, as such surpluses would impact on lease rates.

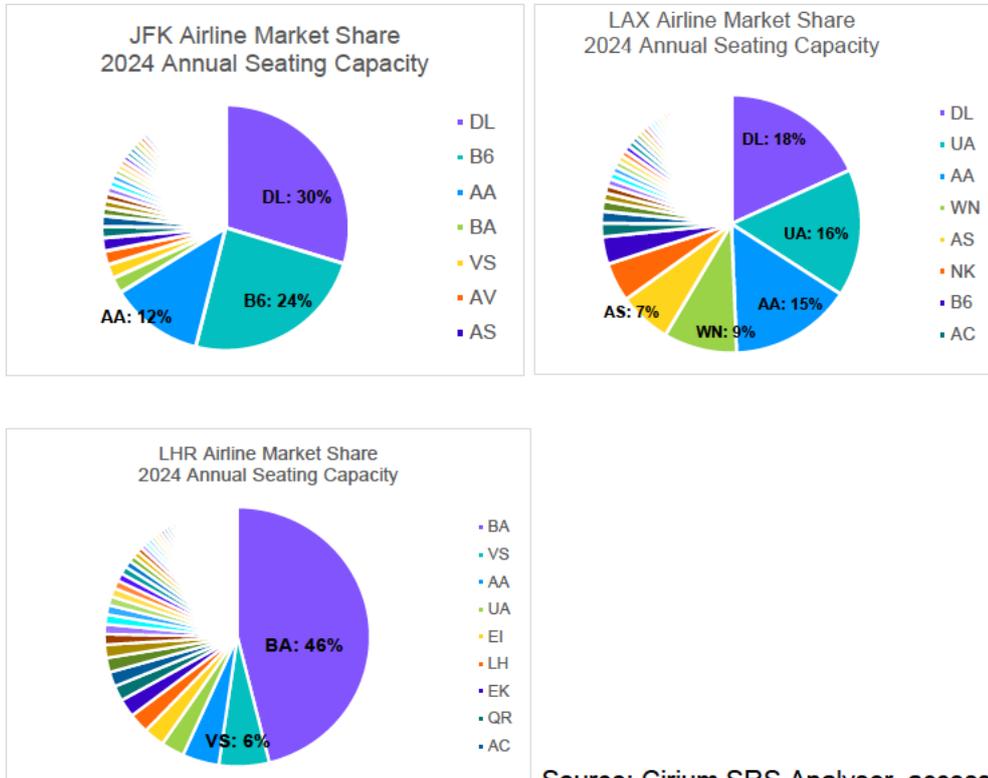
Additionally, most large and medium sized US hub airports have *majority-in-interest* (MII) clauses in their use and lease agreements. The MII clauses give signatory carriers (i.e., airlines that have entered into a long term lease agreement) the ability to delay or prevent airport capital-development projects that would benefit new entrant and smaller air carriers. They have been identified as a barrier to entry by the U.S. General Accounting Office.

### 6.4 Route Network Analysis

Integrated hub airports such as LHR deliver significant economies of scale by consolidating operations and pooling passenger demand across the entire airport. This integration enables a wider range of route options and greater choice for passengers, while also supporting efficient resource utilization. The ability to aggregate demand enhances connectivity and strengthens the airport’s position as a global gateway.

Operating under a single-operator management model, LHR has been able to inject airline competition and expand capacity offerings. Figure 6-1 illustrates the airline market share at each airport based on 2024 annual seat capacity. Compared to LHR, incumbent carriers hold a significantly larger share at JFK and LAX. At LHR, British Airways (BA) and Virgin Atlantic (VS) dominate, accounting for 52% of total capacity. At JFK, Delta (DL), JetBlue (B6), and American Airlines (AA), all of which use JFK as a hub in their network strategies, control over 66% of the market. At LAX, hub carriers including Delta (DL), United (UA), American (AA), Southwest (WN), and Alaska (AS) collectively account for 65%. Although each carrier individually has a smaller share than BA at LHR, their combined presence enables them to leverage the airport for network development and creates significant barriers to entry for new competitors.

**Figure 6-1 Airline Market Share - 2024 Annual Seating Capacity**



Source: Cirium SRS Analyser, accessed Jan 2026

In terms of route coverage, LHR demonstrates a broader distribution of long-haul destinations compared to JFK and LAX. Based on 2024 scheduled airline data, LHR offers a total of 224 routes, with a higher proportion focused on international connectivity. This exceeds the 198 routes available at JFK and the 201 routes at LAX.

**Table 6-2 Total Number of Routes Offered in 2024 by Airport**

	JFK	LAX	LHR
Domestic	74	120	11
International	124	81	213
<b>Total</b>	<b>198</b>	<b>201</b>	<b>224</b>

Source: Cirium SRS Analyser, accessed Jan 2026

LHR's geographical position provides strategic proximity to key international markets in Europe, Africa, and the Middle East, contrasting with the U.S. airports' emphasis on serving a vast domestic market. To better understand the network composition, routes have been categorised using the Civil Aviation Authority (CAA) definitions<sup>31</sup>:

- Short-haul: less than 1,500 km
- Medium-haul: 1,500–3,500 km
- Long-haul: greater than 3,500 km

Applying these classifications, LHR offers 81 long-haul routes, significantly higher than JFK's 63 and LAX's 46. This reinforces Heathrow's role as a global hub with extensive intercontinental connectivity, which is a critical factor in supporting international passenger flows and airline network strategies.

**Table 6-3 Number of Long-Haul Routes offered at JFK, LAX, and LHR by Continent**

Continent	JFK	LAX	LHR
Africa	8	0	5
Asia	13	14	31
Australasia	1	6	1
Caribbean	0	0	6
Central America	0	0	0
Europe	27	19	0
Middle East	8	4	1
North America	1	0	32
South America	5	3	5
<b>Total</b>	<b>63</b>	<b>46</b>	<b>81</b>

Source: Cirium SRS Analyser, accessed Jan 2026

Beyond offering a broader long-haul network, LHR also demonstrates stronger competition across its route portfolio. Analysis indicates that a significantly higher proportion of passengers at LHR can travel on routes served by multiple carriers, which enhances consumer choice and reduces the risk of monopolistic pricing.

As illustrated in Tables 6-4, 6-5, and 6-6, over 81% of LHR's total seat capacity is concentrated on multi-carrier routes. In comparison, JFK and LAX exhibit much lower levels of competitive

<sup>31</sup> [Delays | UK Civil Aviation Authority](#)

routes, only 67% of seat capacity at each airport. This disparity underscores the competitive advantage of LHR’s network structure, where multiple carriers operate on the same routes, fostering a healthier market environment.

The implications for passengers are significant: greater competition typically translates into more options in terms of schedules, pricing, and service quality. For airlines, competitive routes encourage operational efficiency and innovation, while for airports, they support resilience and sustained demand growth. In contrast, higher levels of single-carrier dominance, as observed at JFK and LAX, can create barriers to entry for new carriers and limit consumer choice.

Overall, the analysis reinforces LHR’s position as a highly competitive international hub, offering both extensive connectivity and a market structure that benefits passengers through increased choice and reduced monopolistic control.

**Table 6-4 Number of Long-Haul Route by Route Type**

Number of Long Haul Routes			
	JFK	LAX	LHR
Single Carrier Route	37	32	45
Multi Carrier Route	26	14	36
<b>Total</b>	<b>63</b>	<b>46</b>	<b>81</b>
% of Multi Carrier Route	41%	30%	44%

**Table 6-5 Number of Operations on Long-Haul Routes by Route Type**

Number of Operations on Long-Haul Routes			
	JFK	LAX	LHR
Single Carrier Route	24,018	18,548	25,177
Multi Carrier Route	54,024	39,889	95,651
<b>Total</b>	<b>78,042</b>	<b>58,437</b>	<b>120,828</b>
% of Multi Carrier Route	69%	68%	79%

**Table 6-6 Number of Seats on Long-Haul Routes by Route Type**

Number of Seats on Long-Haul Routes			
	JFK	LAX	LHR
Single Carrier Route	7,235,341	5,966,341	6,749,447
Multi Carrier Route	14,932,713	12,089,902	28,133,865
<b>Total</b>	<b>22,168,054</b>	<b>18,056,243</b>	<b>34,883,312</b>
% of Multi Carrier Route	67%	67%	81%

Source: Cirium SRS Analyser, accessed Jan 2026

