

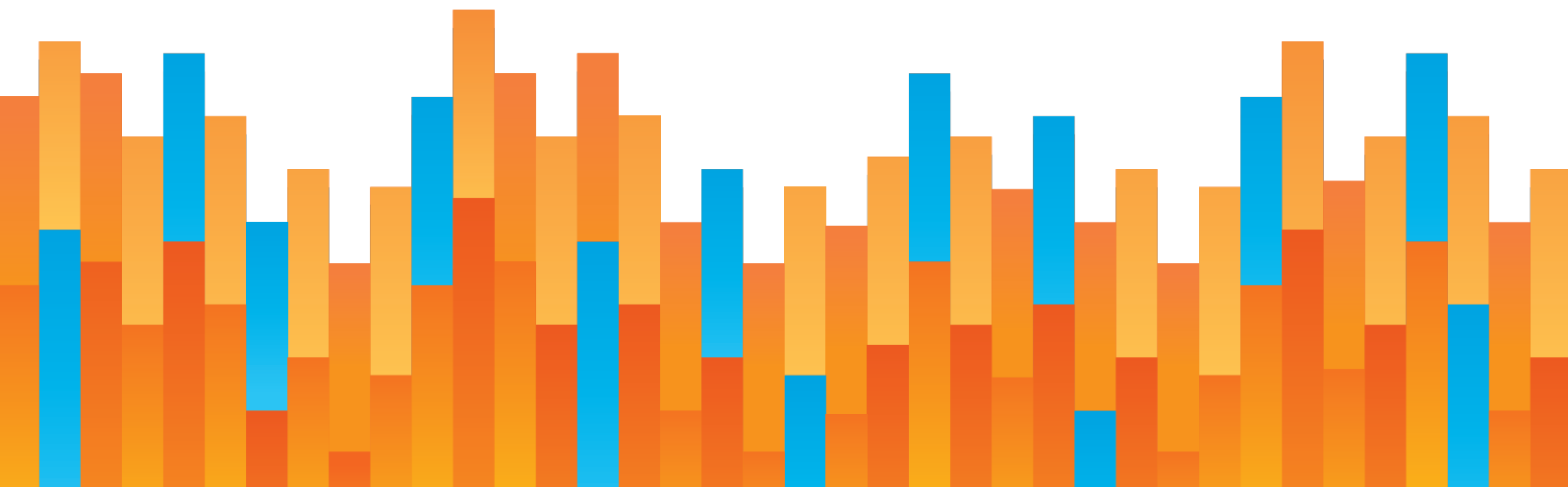


**reason**  
FOUNDATION

# ANNUAL PRIVATIZATION REPORT: AVIATION

---

by Robert W. Poole, Jr.  
Project Director: Austill Stuart  
May 2020





**reason**  
FOUNDATION

Reason Foundation's mission is to advance a free society by developing, applying and promoting libertarian principles, including individual liberty, free markets and the rule of law. We use journalism and public policy research to influence the frameworks and actions of policymakers, journalists and opinion leaders.

Reason Foundation's nonpartisan public policy research promotes choice, competition and a dynamic market economy as the foundation for human dignity and progress. Reason produces rigorous, peer-reviewed research and directly engages the policy process, seeking strategies that emphasize cooperation, flexibility, local knowledge and results. Through practical and innovative approaches to complex problems, Reason seeks to change the way people think about issues, and promote policies that allow and encourage individuals and voluntary institutions to flourish.

Reason Foundation is a tax-exempt research and education organization as defined under IRS code 501(c)(3). Reason Foundation is supported by voluntary contributions from individuals, foundations and corporations. The views are those of the author, not necessarily those of Reason Foundation or its trustees.

---

# TABLE OF CONTENTS

<b>PART 1</b>	<b>OVERVIEW .....</b>	<b>1</b>
<b>PART 2</b>	<b>AIRPORTS .....</b>	<b>3</b>
	2.1 AIRPORT PRIVATIZATION OVERVIEW .....	3
	2.2 AIRPORT INDUSTRY CHANGES IN 2019.....	6
	2.3 GLOBAL AIRPORT PRIVATIZATIONS AND P3 CONCESSIONS.....	8
	2.4 U.S. AIRPORT PRIVATIZATION AND PUBLIC-PRIVATE PARTNERSHIPS....	18
<b>PART 3</b>	<b>AIR TRAFFIC CONTROL .....</b>	<b>26</b>
	3.1 AIR NAVIGATION SERVICE PROVIDERS (ANSPS).....	26
	3.2 GLOBAL SPACE-BASED ATC SURVEILLANCE .....	30
	3.3 DIGITAL REMOTE AIR TRAFFIC CONTROL TOWERS.....	32
	3.4 U.S. AIR TRAFFIC CONTROL REFORM .....	34
<b>PART 4</b>	<b>AIRPORT SECURITY .....</b>	<b>36</b>
	4.1 CONTRACT SCREENING.....	36
	4.2 TRUSTED TRAVELER.....	39
	<b>ABOUT THE AUTHOR .....</b>	<b>41</b>

# PART 1

## OVERVIEW

Prior to 1987, the world's airports and air traffic control systems were essentially all departments of governments. Two events that year launched an ongoing wave of organizational and government reforms. Those 1987 events were the privatization of the British Airports Authority (BAA) and the corporatization of the ATC functions of the New Zealand government as Airways New Zealand.

BAA was privatized as a single entity, encompassing the three major London airports plus several other U.K. airports. Later government policy decisions led to selling Gatwick and Stansted airports, and two Scottish airports, to new owners. And the improved performance of the privatized airports inspired a global wave of airport privatization that has led over 100 large and medium-sized airports to be either sold to investors or long-term leased as revenue-based public-private partnerships—in Europe, Asia, Latin America, and elsewhere. The outlier has been the United States, which has only one P3-leased airport (San Juan International) and a small number of P3 arrangements for airport terminals.

---

“  
*The outlier has been the United States, which has only one P3-leased airport (San Juan International) and a small number of P3 arrangements for airport terminals.*

---

”

The corporatization of Airways New Zealand in 1987 also led to a global trend under which more than 60 countries subsequently separated their ATC systems from the government's transport ministry and set them up as self-supporting corporations, regulated for safety at arm's length from the government. Within the first decade of this trend, the leading ATC providers organized a trade association, the Civil Air Navigation Services Organization (CANSO). Today CANSO has 93 full members (providers of ATC services) and 89 associate members (mostly supplier companies). It is the ATC counterpart of the global organizations for airlines (IATA) and airports (ACI).

This report reviews developments worldwide and in the United States regarding private-sector participation in airports, air traffic control, and airport security. While the United States remains an outlier when it comes to airport and ATC organization and governance, interest in airport privatization via long-term P3 leases continues, as does interest in reform of the country's ATC system.

## PART 2

# AIRPORTS

### 2.1

## AIRPORT PRIVATIZATION OVERVIEW

The term “airport privatization” refers to several different kinds of change from traditional 100% government ownership and operation. The most sweeping form is the outright sale of all or a portion of the airport’s ownership (as in the original BAA privatization via a public offering of shares). A more common model in most of Europe is the sale of either a majority or minority stake in the airport. In Australia, much of Asia, and Latin America, the more common model is the long-term lease as a public-private partnership (P3). Lease terms can vary from as short as 25 years to as long as 99 years (Australia). The P3 model is also used for components of an airport, such as a new terminal (or even a new runway, as occurred in Bogota, Colombia). The P3 model is permitted under federal law in the United States for entire airports as well as airport components.

---

“  
*In Australia, much of Asia, and Latin America, the more common model is the long-term lease as a public-private partnership (P3).*

---

”

In 2018, trade association Airports Council International released a policy paper on worldwide airport privatization trends.<sup>1</sup> A table in that report showed that Europe led the way in the fraction of passenger traffic (75%) at airports with majority or near-majority private-sector investment, with Latin America and the Caribbean next at 66%. North America was lowest, at 1% of airports. For the world overall, we see that 43% of all air travelers use airports with significant private ownership.

**TABLE 1: AIR PASSENGER TRAFFIC BY REGION AND AIRPORT OWNERSHIP**

Region	Percent Private	Percent Government
Africa	11%	89%
Asia-Pacific	47%	53%
Europe	75%	25%
Latin America & Caribbean	66%	34%
Middle East	18%	82%
North America	1%	99%
World	43%	57%

Source: Airports Council International, 2018.

More than three decades of growth in airport privatization has led to the emergence of global airport companies, some of which began with airports that were privatized early on, such as London Heathrow and Germany's Frankfurt. When new opportunities arise to bid on shares in airport equity or to develop a new airport or terminal via a long-term P3 agreement, these companies are generally among the bidders, sometimes in partnership with infrastructure investment funds and/or public pension funds.

Table 2 lists the largest investor-owned airport companies, ranked according to their 2018 revenue, as compiled by *Flight Airline Business*.<sup>2</sup> The table lists 38 companies, two less than the previous year, due to several airports formerly listed separately now being owned by fifth-ranked Vinci Airports. As can be seen, the five largest (by revenue) airport companies are all investor-owned. The total revenue of all 100 airports in the original table is \$98,512 million. The total for the investor-owned airport companies from that table is \$48,042 million, representing 48.8% of the total.

<sup>1</sup> Airports Council International. "Policy Brief: Creating Fertile Grounds for Private Investment in Airports." January 2018.

<sup>2</sup> "Airport Group Financials." *Flight Airline Business*. November 2019.

**TABLE 2: LARGEST INVESTOR-OWNED AIRPORT COMPANIES, BY REVENUE, 2018**

Airport Company	Global Rank	HQ Country	Main Airport(s)	2018 Revenue (\$M)	Privatiz. Status	2019 Skytrax Rank
Aéroports de Paris	1	France	Paris–DeGaulle	5,270	Partial	30
Aena Aeropuertos	2	Spain	Madrid	5,088	Partial	35
Fraport	3	Germany	Frankfurt, Lima	4,093	Partial	12 & 47
Heathrow Airport Holdings	4	UK	Heathrow	3,945	Full	8
Vinci Airports*	5	France	Gatwick, Lisbon	2,860	Full	55 & 60
New Kansai Intl. Airport	12	Japan	Kansai	1,985	Full	11
Airports of Thailand	13	Thailand	Bangkok	1,924	Partial	46
Beijing Capital Airport	17	China	Beijing	1,698	Partial	72
TAV Airports	20	Turkey	Istanbul	1,430	Full	
Aeroporti di Roma	24	Italy	Rome	1,208	Full	82
Malaysia Airport Holdings	25	Malaysia	Kuala Lumpur	1,202	Partial	54
Flughafen Zürich	26	Switzerland	Zürich	1,180	Partial	
Sydney Airport	27	Australia	Sydney	1,178	Full	21
Guangzhou Baiyun	28	China	Guangzhou	1,167	Partial	39
Manchester Airports	29	UK	Manchester	1,163	Partial	
Flughafen Wien	36	Austria	Vienna	941	Full	19
SEA Group	39	Italy	Milan	839	Partial	
Aeropuertos Argentina	41	Argentina	Buenos Aires	822	Full	
ASUR	43	Mexico	Cancún	800	Full	
Australia Pacific Airports	44	Australia	Melbourne	782	Full	23
GMR Airports	47	India	Delhi	755	Partial	59
GAP	48	Mexico	Guadalajara	733	Full	
Brussels Airport Co.	51	Belgium	Brussels	701	Full	
Copenhagen Airports	53	Denmark	Copenhagen	689	Partial	15
Brisbane Airport Corp.	55	Australia	Brisbane	600	Partial	18
Athens Intl. Airport	58	Greece	Athens	563	Partial	42
Düsseldorf Airport	60	Germany	Düsseldorf	558	Partial	31
Airports. Co. S. Africa	65	South Africa	Cape Town	517	Partial	22
Auckland Intl. Airport	70	New Zealand	Auckland	486	Partial	27
Budapest Liszt Airport	71	Hungary	Budapest	450	Full	89
Perth Airport	77	Australia	Perth	404	Full	52
OMA	82	Mexico	Acapulco	351	Full	
Aéroports de la Cote d'Azur	84	France	Nice	329	Partial	93
Hamburg Airport	88	Germany	Hamburg	317	Partial	28
AGS Airports	90	UK	Glasgow	283	Full	
Edinburgh Airport	92	UK	Edinburgh	271	Full	
SAVE Group	95	Italy	Venice	250	Partial	
Birmingham Airport Holdings	100	UK	Birmingham	210	Partial	98
				\$48,042		

\*Vinci Airports was not included in the original table; added by the author of this report

Source: Flight Airline Business.



It is also interesting to note how the privatized airports on this list score on the annual Skytrax airline passengers' survey of their airport preferences. The majority of the 38 companies in Table 2 have one or more major airports selected by Skytrax passengers as among the world's best airports. As a point of comparison, only 12 U.S. airports made the Skytrax top-100 list, with the highest-ranked being Denver (#32), Atlanta (#36), Cincinnati (#37), Houston IAH (#38), and San Francisco (#48).

Skytrax respondents also gave high scores to airports in Europe and Asia that have been "corporatized," which means reorganized as a government-owned commercial entity, operating under normal accounting rules and sometimes paying taxes like any other business. Among high-scoring airports of this type were Singapore Changi (#1), Hong Kong (#5), Munich (#7), and Amsterdam Schiphol (#15).

## 2.2

## AIRPORT INDUSTRY CHANGES IN 2019

By acquiring 50.01% of the equity of London Gatwick Airport, Vinci Airports became the second-largest airport company by passenger traffic (240 million) and fifth largest by revenue (\$2.86 billion, per Table 2). Global Infrastructure Partners (GIP), one of the world's largest infrastructure investment funds, will retain 49.99% of Gatwick's equity, and among its limited partners is the California Public Employees' Retirement System (CalPERS) with a 9.9% stake, managed by GIP.<sup>3</sup>

“

*Global Infrastructure Partners (GIP), one of the world's largest infrastructure investment funds, will retain 49.99% of Gatwick's equity, and among its limited partners is the California Public Employees' Retirement System (CalPERS) with a 9.9% stake, managed by GIP.*

”

Another airport investor—Macquarie Infrastructure and Real Assets (MIRA)—sold its 36% stake in Brussels Airport. The buyers were Dutch pension fund APG, Queensland Investment

<sup>3</sup> Droon, Alan. "Vinci Airports Takes Controlling Ownership of London Gatwick." *Aviation Daily*. May 16, 2019.

Corp. (QIC), and Swiss Life. Canadian pension fund OTPP continues to own 39% and Belgium's Federal Holding & Investment Company has 25%.<sup>4</sup>

Fraport leaders in May 2019 reported a very successful 2018 fiscal year, with revenue up by 18.5%. Five of the 14 Greek airports it manages have new terminals now under construction, as do its two Brazilian airports. In Lima, Peru, Fraport has a second runway under way, with a major terminal project to begin in 2020. It also reported significant growth in its services business, which operates in the United States as Fraport USA.<sup>5</sup> It operates and manages retail concessions at five large U.S. airports: Baltimore/Washington, Cleveland, Nashville, Pittsburgh, and JetBlue's Terminal Five at New York JFK.

Although it is not privatized, Munich Airport has created a division called Munich Airport International (MAI) to engage broadly in the airport business. In July 2019 it announced an agreement with the Port Authority of New York & New Jersey to operate and maintain the new \$2.7 billion Terminal One at Newark Airport. MAI has created a business entity called EWR Terminal One LLC for this 15-year contract.<sup>6</sup> MAI has also joined with Carlyle Airport Group (CAG) in New York to create Reach Airports, aimed at providing various services to North American airports.<sup>7</sup>



---

*MAI has also joined with Carlyle Airport Group (CAG) in New York to create Reach Airports, aimed at providing various services to North American airports.*

---



France's Groupe ADP, still anticipating privatization, also has services divisions, Merchant Aviation and ADP Ingenierie. In September ADP announced several U.S. contracts. One will provide planning and design services for the expansion and modernization of JFK Terminal Eight. Also secured was a contract for on-call airport planning at Denver International Airport.<sup>8</sup>

---

<sup>4</sup> Carr, Rose. "FC for Brussels Airport." *Inspiratia*. December 12, 2019.

<sup>5</sup> "Fraport: AGM Report." *Airports International*. June 2019.

<sup>6</sup> Hofmann, Kurt. "Munich Airport International to Manage Newark Terminal One." *Aviation Daily*. July 17, 2019.

<sup>7</sup> Berke, John. "Investor Watch: Carlyle's Airport Platform Hopes for Take-Off." *Inframation News*. Feb. 6, 2019.

<sup>8</sup> "Groupe ADP Wins Several Contracts in the United States for Consulting and Airport Planning Services." *Aviation pros.com*. September 17, 2019.

## 2.3

## GLOBAL AIRPORT PRIVATIZATIONS AND P3 CONCESSIONS

### 2.3.1 EUROPE



*The largest airport privatization prospect in Europe is the sale by the French government of its 50.6% stake in Aeroports de Paris, the world's second-largest airport company by revenue.*



**France:** The largest airport privatization prospect in Europe is the sale by the French government of its 50.6% stake in Aeroports de Paris, the world's second-largest airport company by revenue. In April 2019, the French parliament approved the plan to offer a 70-year P3 concession for the majority interest in ADP. But in early May a constitutional challenge emerged when the constitutional court cleared the way for a referendum on the proposal, which led the finance minister to announce that the privatization would remain on hold while a referendum was in prospect. ADP shares dropped nearly 10% on that news.<sup>9</sup> But several weeks later the same court ruled that the overall law (called PACTE), which included the ADP privatization, was valid, so the privatization could be legally carried out.<sup>10</sup> Opponents went ahead gathering signatures calling for a referendum, and had submitted just over one million by early December. However, the law requires 4.7 million by May 2020, which seems unlikely.<sup>11</sup> Due to the Covid-19 pandemic's effect on air travel, the government has pulled ADP privatization from this year's agenda, hoping for better market conditions in 2021.

Several less-controversial airport privatizations proceeded in France. In July, a consortium of infrastructure firm Eiffage and Marseille Provence Airport won a 20-year concession to

<sup>9</sup> Patel, Tara and Francois De Beaupuy. "ADP Shares Plunge After French Privatization Plan Is Put on Hold." *Bloomberg News*. May 10, 2019.

<sup>10</sup> Cuhe, Pascal and Tanguy Bardet. "Privatization Program of the French Government Approved by French Supreme Constitutional Court." *Lexology.com*. May 29, 2019.

<sup>11</sup> Gill, Nadeem. "Petition Against Paris Airports' Privatization Gains Momentum." *News.cgtm.com*. Dec. 5, 2019.

improve and operate the Lille-Lesquin Airport in northwestern France.<sup>12</sup> In October, the country's highest administrative court approved the legality of the government's plan to sell 49.9% of the Toulouse-Blagnac Airport. The privatization had aroused controversy because the original buyer, in 2015, was a Chinese company (CASIL). In January 2020, CASIL sold its stake to Eiffage for "close to €500 million."<sup>13</sup> In November, the government released a concession notice for two regional airports: Nantes-Atlantique and Saint-Naxaire Montoire.<sup>14</sup> And in December, an Egis-led consortium won a 12-year concession to upgrade and operate the Bergerac Dordogne Périgord Airport.<sup>15</sup>

**Bulgaria's** first airport privatization took place in July 2019. A consortium consisting of Meridiam, Strabag, and Munich Airport won the 35-year concession for the Sofia Airport. The team offered annual payments of \$27 million or 32% of revenues (whichever is larger) plus a capital investment of \$682 million to upgrade the airport's facilities. Four other teams had submitted proposals.<sup>16</sup>

In **Germany**, Fraport began construction of the first phase of the \$4 billion Frankfurt Terminal Three, one of the largest privately financed infrastructure projects in Europe. This first phase will be Pier G, a low-cost facility aimed to accommodate the rapid growth of low-cost carriers in Europe. Sized to handle five million annual passengers, it is scheduled to open in 2021. After that will come Piers H and J, by 2023. Altogether, Terminal Three will add capacity to handle 23 million passengers per year.<sup>17</sup>

The government of **Greece** signed a 35-year concession to design, build, finance, operate, and maintain a new international airport at Kastelli, at an estimated cost of \$505 million. The team is a joint venture of GMR Airports and GEL Terna.<sup>18</sup> The government announced in 2018 that it would sell its remaining 30% stake in Athens International Airport, after renegotiating and extending the concession with the original developer of the airport. Early in 2020, the Hellenic Republic Asset Development Fund announced nine shortlisted candidates: AviaAlliance, First State Investments, a KKR-Egis consortium, Global

---

<sup>12</sup> Rivera, Fernando Moncada. "Eiffage Wins French Regional Airport Concession." *Inspiratia*. July 17, 2019.

<sup>13</sup> Bentley, Zac. "Chinese Investors End Controversial Toulouse Airport Reign with €500m Departure." *Infrastructure Investor*. Jan. 3, 2020.

<sup>14</sup> Rivera, Fernando Moncada. "France Tenders Two Regional Airports." *Inspiratia*. Nov. 1, 2019.

<sup>15</sup> Rivera, Fernando Moncada. "Egis Wins French Regional Airport Concession." Dec. 2, 2019.

<sup>16</sup> Rivera, Fernando Mondada. "Meridiam Tapped for Sofia Airport." *Inspiratia*. July 19, 2019.

<sup>17</sup> Allett, Tom. "Frankfurt: A Timely T3." *Airports International*. June 2019.

<sup>18</sup> Kanellakopoulou, Maritina. "Greek Airport PPP Approved." *Inspiratia*. May 13, 2019.

Infrastructure Partners, Ferrovial, ADP Groupe, Vinci Airports, the Macquarie European Infrastructure Fund and the Ardian Infrastructure Fund.<sup>19</sup>



*The government of **Greece** signed a 35-year concession to design, build, finance, operate, and maintain a new international airport at Kastelli, at an estimated cost of \$505 million.*



In **Italy**, a consortium led by investment funds F2I and Ardian bought a 55% equity interest in the Trieste Airport. The team paid \$36 million and will work with the local government (which owns the remaining 45%) to expand the airport over the next four years.<sup>20</sup>

In November, **Montenegro** received qualifications from seven potential bidders to upgrade and operate two airports, one in the capital and the other on the Adriatic coast. The government shortlisted four of them: Incheon International Airport Corp., GMR, ADP with TAV, and Corporación America Airports. The schedule calls for a preferred bidder to be selected by April 2020.<sup>21</sup>

Vinci Airports agreed to invest \$1.3 billion to expand airport capacity in Lisbon, **Portugal**. Of the total, \$743 million will go toward expanding the capacity of the existing Humberto Delgado Airport, while the remainder will go toward creating a second airport in Montijo, south of the Tagus River. For the latter project it will also pay \$178 million to compensate the Portuguese air force, which currently uses the Montijo facility as an air base.<sup>22</sup>

**Serbia's** concession to expand and modernize Belgrade's Nikola Tesla Airport reached financial close in January 2019. Vinci Airports won a 24-year concession for this purpose. The company will upgrade the terminals and runways as part of the concession.<sup>23</sup>

In the **U.K.**, Scotland's government announced that it is seeking a new owner for the Glasgow Airport. Its original purchaser could not make a profit and sold the airport back to

<sup>19</sup> Rivera, Fernando Moncada. "Shortlist for Athens Airport Sale." *Inspiratia*, Feb. 3, 2020.

<sup>20</sup> Rivera, Fernando Moncada. "F2I, Ardian JV Buy Majority in Italian Airport," *Inspiratia*. July 15, 2019.

<sup>21</sup> Rivera, Fernando Moncada. "Shortlist for Montenegro Airports." *Inspiratia*. Jan. 21, 2020.

<sup>22</sup> Rivera, Fernando Moncada. "Vinci to Invest €1.15bn in Lisbon Airport Expansion." *Inspiratia*. Jan. 10, 2019.

<sup>23</sup> Rivera, Fernando Moncada. "Vinci Closes Belgrade Airport Financing." *Inspiratia*. Jan. 3, 2019.

the government for £1 in 2013. Since then, the government has spent \$40 million in subsidizing the airport.<sup>24</sup> The John Lennon Airport in Liverpool has a new part-owner. Infrastructure investor Ancala Partners purchased a 45% interest in the airport—35% from majority partner Peel Group and an additional 10% from the Liverpool City Council—for an undisclosed sum.<sup>25</sup> In other U.K. news, Macquarie Infrastructure & Real Assets acquired Farnborough Airport from a consortium of private investors for an undisclosed sum.<sup>26</sup>

### 2.3.2 LATIN AMERICA AND THE CARIBBEAN



***Bolivia***, recovering from a government that nationalized the country's previously privatized airports, is getting back into privatization.



**Bolivia**, recovering from a government that nationalized the country's previously privatized airports, is getting back into privatization. In March 2019 it issued a request for expressions of interest, and followed up with a request for proposals in August. The project is to upgrade Viru Viru International Airport in Santa Cruz. The concession is to be for 30 years and the project is in the vicinity of \$280 million. From a shortlist of three bidders, in October the government selected ADP to negotiate the concession.<sup>27</sup>

**Brazil** continued an aggressive program of P3 concessions in airports, toll roads, and other infrastructure. In what was described as an auction, three groups of airports were put up for bid, with the winners announced in March. Flughafen Zürich won the southeastern set of airports, while Spain's Aena won the northeastern set. A local consortium won the center-west group. These were all 30-year concessions for medium-sized regional airports such as

<sup>24</sup> Poole, Robert. "Glasgow Prestwick Airport for Sale." *Aviation Policy News*. June 2019.

<sup>25</sup> "Ancala Buys Into Liverpool John Lennon Airport." *Airports International*. November 2019.

<sup>26</sup> "New Owner for Farnborough Airport." *Airports International*. November 2019.

<sup>27</sup> Baini, Tony. "Bolivia Picks Groupe ADP for Airport Concession." *Latin Finance*. Oct. 2, 2019.

Recife, Sinop, and Vitoria. The government collected \$630 million in up-front fees from the auctions. Further concession rounds are planned for 2020 and 2021.<sup>28</sup>



**[Chile's]** largest airport, Arturo Benitez International Airport in Santiago, is under way on a major expansion under a 20-year concession awarded in 2015 to a consortium of ADP, Vinci Airports, and Astaldo Concession.



**Chile** also continued its long record of P3 infrastructure. Its largest airport, Arturo Benitez International Airport in Santiago, is under way on a major expansion under a 20-year concession awarded in 2015 to a consortium of ADP, Vinci Airports, and Astaldi Concessioni.<sup>29</sup> The first phase, adding five gates, opened in December 2018. In March 2019, a team of Sacyr and Agunsa won the competition for a 15-year concession to upgrade and operate the regional airport at Chacalluta de Arica, near the Peruvian border.<sup>30</sup> A month later, Sacyr sold a 49% interest in a portfolio of seven Chilean concession projects (including the El Tepual Airport); the proceeds will be used for projects in the development stage. In June, the government launched a \$1.4 billion airport expansion program to upgrade terminals at 17 airports, including six that are planned for P3 concessions.<sup>31</sup> In August, the public works ministry announced that it will offer a long-term P3 concession to upgrade two regional airports: Carlos Ibanez del Campo and Balcameda Aerodrome.<sup>32</sup> And in November, it announced plans for a P3 concession to expand and operate the La Florida de la Serena airport on Chile's coast.<sup>33</sup>

The government of **Mexico** will end up spending \$9 billion after abruptly canceling the partially completed new airport for Mexico City in 2018. In addition to the \$4 billion cost of

<sup>28</sup> Andrade, Vinicius and Fabiola Moura. "Zurich, Aena Bid High to Win Brazil Airport Auction." *Bloomberg News*. March 15, 2019.

<sup>29</sup> Wight, Andrew. "Santiago Study." *Airports International*. March 2019.

<sup>30</sup> Rivera, Fernando Moncada. "Chile Awards Regional Airport Concession," *Inspiratia*. March 22, 2019.

<sup>31</sup> Rivera, Fernando Moncada. "Chile Launches US\$1.4bn Airport Expansion Program." *Inspiratia*. June 25, 2019.

<sup>32</sup> Poole, Robert. "Chile Seeks to Upgrade Regional Airports." *Aviation Policy News*. September 2019.

<sup>33</sup> Rivera, Fernando Moncada. "Chile Launches Regional Airport Tender." *Inspiratia*. Nov. 29, 2019.

adding two runways to the air force base in Santa Lucia, up to \$6 billion is owed to bondholders, with a settlement still not worked out. As well, more than 100 lawsuits are pending against the Santa Lucia project.<sup>34</sup>



---

*The government of **Mexico** will end up spending \$9 billion after abruptly canceling the partially completed new airport for Mexico City in 2018.*

---



In **Jamaica**, Mexican airport company GAP reached financial close on its 25-year P3 concession for Norman Manley International Airport in Kingston, the country's capital. It took over operations in October 2019. Under the terms of the concession, during its first three years GAP will invest at least \$60 million in airport upgrades. The deal requires it to pay an annual concession fee of 62% of aeronautical and commercial revenues. GAP also holds a 30-year concession for Jamaica's largest airport, the tourism-oriented Sangster International Airport in Montego Bay.<sup>35</sup>

**Peru** was an early airport privatization pioneer. Lima Airport Partners (LAP), a Fraport-led consortium that in 2001 was awarded a 30-year concession to modernize the Jorge Chavez International Airport in Lima, negotiated a 10-year extension in 2017. Based on that, in 2018 it committed to a \$1.5 billion plan to expand the airport to cope with continued growth to an expected 35 million annual passengers. The project includes a terminal expansion and the addition of a second runway. In February 2019, LAP hired Morgan Stanley to sell the stakes held by minority partners in the consortium, and in May Fraport increased its share from 70% to 80.01%.<sup>36</sup> Also, in April the government launched a second attempt to attract private investors to develop an international airport to serve the tourism market for Cusco and Machu Picchu. The planned location is Chinchero, but there is considerable local opposition due to archeological assets in the area. Potential bidders in Canada, France, South Korea, Spain, and Turkey have expressed interest.<sup>37</sup>

---

<sup>34</sup> Taylor, Mia. "Mexican Government Will Spend \$9 Billion to Cancel Texcoco Airport Project." *TravelPulse*. Nov. 18, 2019.

<sup>35</sup> "GAP Takes Over in Kingston While Also Operating Montego Bay's Airport." *Blue Swan Daily*. Oct. 22, 2019.

<sup>36</sup> Rivera, Fernando Moncada. "Fraport Ups Stake in Lima Airport." *Inspiratia*. May 29, 2019.

<sup>37</sup> Wight, Andrew. "An Airport for the Andes." *Airports International*. June 2019.



### 2.3.3 ASIA AND PACIFIC

---

“  
*International flight activity at Sydney International Airport has been so great that in 2018 the government launched the development of a second Sydney airport, with an estimated cost of \$1.3 billion for its first phase, due to open in 2026.*

---

All major airports in **Australia** were privatized two decades ago via 99-year P3 concessions, and have prospered since then.<sup>38</sup> International flight activity at Sydney International Airport has been so great that in 2018 the government launched the development of a second Sydney airport, with an estimated cost of \$1.3 billion for its first phase, due to open in 2026. The second-largest airport, Melbourne, is developing a plan for its third runway. The only privatization development in 2019 was a change in ownership of the concession for Hobart Airport, currently Australia’s fastest-growing airport. Macquarie Infrastructure & Real Assets and Tasplan Super sold 70% of the equity to Queensland Investment Corporation (QIC) and Royal Schiphol Airport.<sup>39</sup>

**India** continued its ongoing airport privatization program in 2019. In February, the Adani Group won the bidding for 50-year concessions for five regional airports: Ahmedabad, Jaipur, Lucknow, Thiruvananthapuram, and Mangaluru.<sup>40</sup> At the Smart Safe Secure Skies conference in October, the government announced plans to privatize additional airports to enable the financing of expansion to cope with rapid increases in air travel in India.<sup>41</sup>

**Japan’s** latest airport privatization took place in July, with the announcement of the winner of the Hokkaido airports’ 30-year concession. A 17-member consortium headed by Mitsubishi and including Japan’s two largest airlines, plus Sampo Japan Nipponkoa

---

<sup>38</sup> Kaszas, Gergely. “Passenger Growth Fuels Investment in Australian and NZ Airports.” *Inspiratia*. Aug. 6, 2019.

<sup>39</sup> Kemp, Daniel. “QIC and Royal Schiphol Take 70% Stake in Hobart Airport.” *Infrastructure Investor*. Oct. 2, 2019.

<sup>40</sup> Sharma, Milan. “Adani Group Wins Bid to Operate Five Airports in Latest Privatization Drive.” *India Today*. Feb. 25, 2019.

<sup>41</sup> “More Airports to Be Privatized Soon in India.” *Asia News Network (TNS)*. Oct. 25, 2019.

Insurance, and the Development Bank of Japan was announced as the winner. The seven airports in Hokkaido include New Chitose Airport, Japan's fifth-busiest, plus six smaller airports. Two other consortia—one of ADP and several Japanese companies and another headed by Orix and Vinci Airports—competed for the project, but Vinci dropped out halfway through the process to focus on repairing typhoon-damaged Kansai International Airport.<sup>42</sup>

“

*Two major airport privatization developments were announced in the **Philippines** in 2019.*

”

Two major airport privatization developments were announced in the **Philippines** in 2019. San Miguel Corporation submitted an unsolicited proposal in 2018 for a new airport to serve Manila, the capital city. The Department of Transport invited competitive proposals for a 50-year concession, but none were submitted. In August, it agreed to a 50-year concession for the Bulacan Airport—eventually to include four runways and capacity for 100 million annual passengers—at an estimated cost of \$14 billion.<sup>43</sup> While Bulacan is 35 km north of Manila itself, the Department is also considering a replacement for antiquated Ninoy Aquino airport. The new airport would be located on government land at Sangley Point on the southern shore of Manila Bay. The first of three phases would be a one-runway facility at an estimated cost of \$3 billion; the final configuration is estimated at \$10 billion.<sup>44</sup> Seven companies purchased bid documents in November, according to *Inframation*.

### 2.3.4 MIDDLE EAST AND AFRICA

**Turkey's** \$11 billion New Istanbul Airport, procured as a 25-year P3 concession, opened to traffic in April 2019. Its initial phase includes two runways and a terminal with capacity for 90 million annual passengers. The master plan calls for it to have six runways and capacity for 150 million–200 million passengers. In June, two members of the consortium, Kaylon and Limak, said they were planning to sell some of their shares. *Inframation* reported that

<sup>42</sup> Fernandez, Eduard. “DBJ, Mitsubishi Land Concession of Seven Airports in Hokkaido.” *Infrastructure Investor*. July 12, 2019.

<sup>43</sup> Carr, Rose. “San Miguel to Build US\$14bn Airport.” *Inspiratia*. Aug. 2, 2019.

<sup>44</sup> “New Manila Bay Airport.” *Inframation Deals*. Nov. 21, 2019.

TAV Airports, Vinci Airports, Ferrovial, and IFM Investors had made expressions of interest.<sup>45</sup> But in September all four firms that hold the equity in the concession company terminated a mandate they had given to Lazard Ltd. to manage discussions with potential buyers.<sup>46</sup>

The only airport privatization in Africa took place in **Guinea** in February 2019. ADP and Africa50 signed a 25-year concession agreement to expand Gbessia Conakry International Airport. The government will own one-third of the concession company, with ADP and Africa50 each owning another third. The project includes construction of a new terminal with the capacity to handle a million annual passengers, double the airport's current capacity.<sup>47</sup>

### 2.3.5 NEW IATA REPORTS

The International Air Transport Association issued a resolution at its June 2018 annual meeting, expressing concern that “introducing privatization in the monopoly airport sector has not, overall, resulted in consumer benefits [such as] improved efficiencies and reduced costs that have been realized from privatization in the competitive airline sector.” It urged governments to “prioritize longer-term economic and social benefits” of airports “over short-time cash income that may be generated by any sale or concession.”

But those words are harsher than the details provided in two reports developed for IATA by Deloitte. The first report is “Airport Ownership and Regulation.”<sup>48</sup> It explains the various forms of reform, such as corporatization, sale, and long-term public-private partnerships (P3s). It urges governments to assess these options and weigh the trade-offs involved. It also calls for using a competitive and transparent process for these kinds of organizational changes, while also calling for centralized economic regulation of an airport's market power.

---

<sup>45</sup> Inframation Deals. “Istanbul Third Airport (40% Stake).” June 27, 2019.

<sup>46</sup> Karakaya, Kerim and Ercan Ersoy. “Operators of Turkey's Giant Airport Pull Plans to Sell Stake.” *Bloomberg News*. Sept. 30, 2019.

<sup>47</sup> Tammik, Ott. “Concession Signed for Guinea Airport.” *Inspiratia*. Feb. 20, 2019.

<sup>48</sup> Reece, Dorian and Tony Robinson. “Airport Ownership and Regulation.” Deloitte and IATA. June 3, 2018.

---

“  
*Competition, where it exists, is the best regulator, and many hub airports compete with one another as places for people to change planes.*  
”

---

The case for centralized economic regulation (as exists for major U.K. airports) is not clear-cut. Competition, where it exists, is the best regulator, and many hub airports compete with one another as places for people to change planes. Competition laws (known in the United States as antitrust laws) are another viable alternative, and that is the basis for the “light-handed” economic regulation of airports in Australia, which monitors charges to airlines and reviews any complaints that allege abusive pricing.<sup>49</sup>

IATA’s second Deloitte report is “Balanced Concessions for the Airport Industry.”<sup>50</sup> By “balanced” the authors mean that the interests of six sets of stakeholders should be taken into account in designing the structure of a long-term concession: the government owner of the airport, the concession company, the regulator, airline customers, passengers, and communities. While certainly worthy of consideration, six parties are too many parties to be involved in the complex process of working out a long-term concession’s details. Negotiations are and should be carried out between the owner and the selected concession company in a transparent competitive process. The nature of a long-term concession agreement builds in contractual provisions aimed at holding the concession company accountable to the owner for performance and pricing, which generally constitutes sufficient economic regulatory oversight.

This report also reflects IATA’s concern with airport “super-profits,” calling to build profit-sharing into concession agreements. It is well-known from a century of traditional public utility regulation that the regulated entity has far more information than the regulator, and that “profit” can be defined in a number of ways. Successful and transparent agreements in long-term concessions call for sharing gross revenue in some manner; revenue is much

---

<sup>49</sup> Poole, Robert. “How Australia’s Light-Handed Airport Regulation Works.” *Aviation Policy News*. December 2019.

<sup>50</sup> Reece, Dorian, Tony Robinson, and Kartik Sood. “Balanced Concessions for the Airport Industry.” Deloitte and IATA, December 2018.

harder to manipulate, and is a far more transparent number to use for such purposes. The report also calls for “cost-based” pricing, supposedly to comply with ICAO Docs. 9082 and 9562. Yet those documents (1) are advisory, and (2) have been revised in recent years to sanction forms of congestion pricing, as is in effect at privatized London Heathrow and Gatwick airports.

IATA’s reports improve on prior anti-privatization rhetoric from the organization’s leadership. But they do not fully reflect the state of practice in airport privatization and P3 concessions.

## 2.4

## U.S. AIRPORT PRIVATIZATION AND PUBLIC-PRIVATE PARTNERSHIPS

“

*European-type sale of government-owned airports is not legal in the United States (except for general aviation airports that serve private planes).*

”

European-type sale of government-owned airports is not legal in the United States (except for general aviation airports that serve private planes). The original 1996 federal Airport Privatization Pilot Program permitted a limited number of long-term P3 leases of commercial airports. Under that law, only two airports were leased. Stewart Airport, located 60 miles north of New York City, was leased in 2000 to a U.K. company that failed to make that airport financially viable; Stewart was subsequently acquired by the Port Authority of New York and New Jersey. The P3 lease of San Juan International Airport in 2013, however, was a success, leading to large-scale refurbishment and increased airline satisfaction.<sup>51</sup>

As recommended in the White House’s 2018 infrastructure proposals, Congress replaced the Pilot Program with a new Airport Investment Partnership Program (AIPP) as part of the FAA reauthorization bill enacted in October 2018. Rather than the limit of 10 airports in the Pilot Program, long-term P3 leases are now available to all commercial airports. In

<sup>51</sup> Tierney, John. “Making New York’s Airports Great Again.” *City Journal*. Winter 2017.

addition, the AIPP provides for planning grants of up to \$750,000 for any jurisdiction that wants to use the program to lease its airport. But the original Pilot Program's provision giving a super-majority veto to the airlines at an airport that applies remains in the revised legislation.

## 2.4.1 WHOLE-AIRPORT PRIVATIZATION AND P3 LEASES

**St. Louis Lambert Field P3 Lease:** As of early 2020, no applicants for AIPP have come forward. Instead, all attention has focused on the city of St. Louis, which had acquired a slot in the former program, hired consultants, and in autumn 2019 issued a formal Request for Qualifications (RFQ) as the first step in the process. To the surprise of most observers, the RFQ led to responses from 18 teams. They included four of the world's five largest airport companies (from Table 1): Aena, ADP, Fraport, and Vinci Airports. Many of the teams included leading infrastructure investment funds, such as Blackstone Infrastructure Partners, Global Infrastructure Partners, and Oaktree Transportation Investment Fund, as well as public pension funds that invest in infrastructure, such as Australia's IFM Investors and Canada's OTTP and OMERS.<sup>52</sup> In December the teams made presentations in St. Louis.

With that level of interest from airport companies and infrastructure funds, the abrupt termination of the process by Mayor Lyda Krewson shortly before Christmas came as a shock, especially since the working group that issued the RFQ had been very impressed by the teams' presentations. The mayor's office provided no clear explanation of the decision, but local media soon filled in the back story. For several years, portions of the business community had sought to create a regional authority to wrest control of the airport from the city government. Business group Civic Progress had been lobbying the mayor against the P3 lease, and a regional port authority (which operates no ports) was poised to fund a consultant study of "options" for the airport instead of the city's P3 lease.<sup>53</sup>

There are two takeaways from this episode. First, there is enormous private-sector interest in U.S. commercial airports, which will not go away due to the local politics in the St. Louis metro area. Second, it appears that a single political champion (which Mayor Krewson had been up until the cancellation) will not suffice to provide a friendly climate for such transitions. Strong support from the business community will increasingly be seen as an important factor.

---

<sup>52</sup> Poole, Robert. "St. Louis Gets 18 Responses on Airport P3 Lease." *Aviation Policy News*. November 2019.

<sup>53</sup> Poole, Robert. "St. Louis Mayor Cancels Lambert Airport P3 Lease." *Aviation Policy News*. January 2020.



---

*AIA built a coalition of agricultural interests, air cargo interests, aviation suppliers, and local organizations in support of its plan to buy and operate the airport in its greatly expanded form.*

---



**Airglades, Florida Airport Privatization:** The general aviation airport in Hendry County, Florida also holds a slot in the original FAA Pilot Program. With the full support of the County Commission, Airglades International Airport (AIA) LLC has spent years developing a plan to expand the airport into a cargo reliever airport for land-constrained Miami International Airport, 100 miles to the south. AIA built a coalition of agricultural interests, air cargo interests, aviation suppliers, and local organizations in support of its plan to buy and operate the airport in its greatly expanded form. In August 2019, the FAA gave its final approval of the privatization plan, and AIA announced commitments from importers of perishable commodities from Latin America. Following the FAA approval, it also announced the selection of AvPORTS as the new airport manager, and that Star America Infrastructure Partners would be investing equity in the project.

The Airglades' success underscores the importance of building broad support in the business community in addition to having political support.

## 2.4.2 P3S FOR INDIVIDUAL AIRPORT PROJECTS

While whole-airport P3 leases have still not become a U.S. phenomenon, recent years have seen a proliferation of projects that use long-term design-build-finance-operate-maintain (DBFOM) agreements to add large, costly facilities to airports. Among these are new or expanded terminals, parking facilities, consolidated rental car centers, and in one case, an automated people mover. These projects are financed in one of two ways. If there is an ongoing revenue stream generated by the project itself, the airport owner can base the P3 financing, in whole or in part, on that revenue stream, generally with the P3 company at risk if the revenue comes in below forecast. If there is not such a revenue stream (as in the case of an automated people mover), then the project can be financed by a guaranteed stream of payments from the owner to the P3 entity over the life of the agreement. This

kind of DBFOM is typically called an “availability-payment” structure, since the payments are generally somewhat variable based on the facility’s up-time.



---

*While whole-airport P3 leases have still not become a U.S. phenomenon, recent years have seen a proliferation of projects that use long-term design-build-finance-operate-maintain (DBFOM) agreements to add large, costly facilities to airports.*

---



### ***New Terminals***

The earliest implementation of this concept was for airport terminals. Both terminals at **Orlando Sanford Airport** were developed and are managed under long-term P3 agreements. In 2018, Vinci Airports acquired the company that developed and operates them. A second important example is Terminal Four at New York’s **Kennedy International Airport**, which a consortium developed and opened in 2001. Several original investors left the concession company in later years, but a unit of Amsterdam’s Schiphol Airport still manages it.

The Port Authority of New York & New Jersey, which operates JFK, LaGuardia, and Newark Airports, entered the P3 for JFK’s terminal. Hence, it was not surprising that the Port Authority drew on that previous success for its current project to replace the aging central terminal at **LaGuardia**. That project launched in 2015 with the selection of the winning bidder, led by Meridiam, Skanska, and Vantage Airport Group. Portions of the new terminal are already open, and full completion (including new parking structures and roadways) is expected by 2022. The consortium is responsible for \$2.5 billion in debt and has also invested \$200 million in equity in the terminal. The Port Authority is spending \$1 billion for parking and roadways and another \$1.2 billion for the terminal’s new entry hall.

In 2018, the Port Authority authorized a revamp of the terminals at **Kennedy**, with an estimated price tag of \$13 billion. Since major airlines themselves have long-term lease agreements for their JFK terminals, they are playing a leading role in these terminal projects, drawing on consultants, designers, and construction companies. However, one major component is being developed as a DBFOM P3: JFK Terminal One. The \$7.4 billion P3



project is being led by equity investors Carlyle, Ullico, and JLC Infrastructure, along with airline partners Terminal One Group Association (Air France, Japan Airlines, Korean Air, and Lufthansa). The 23-gate terminal will replace the current Terminals One, Two, and Three, and the new Terminal One will be managed by REACH Airports LLC, the joint venture between Carlyle Airport Group Holdings and Munich Airport International.<sup>54</sup>



---

*The Port Authority of New York & New Jersey, which operates JFK, LaGuardia, and Newark Airports, entered the P3 for JFK's terminal.*

---



**Newark Airport** is also undergoing a major upgrade of its terminals. Its \$2.7 billion replacement Terminal One is being procured conventionally by the Port Authority, but it will be operated and maintained by Munich Airport International, which is advising the Port Authority on the terminal's design.

On a smaller scale, **Austin-Bergstrom Airport** used a P3 lease agreement to redevelop its unused South Terminal to make it an affordable home for ultra-low-cost carrier (ULCC) airlines. Oaktree Capital Management won the bidding and created LoneStar Airport Holdings as the concession company. LoneStar designed and completed the \$12.5 million renovation and has the right to operate it for 40 years. It opened in 2017 with Allegiant and Texas Sky as its first two airlines, and later landed Frontier as another tenant. In 2019, Oaktree announced that it was exploring selling part of its equity in the project to other investors.<sup>55</sup>

---

<sup>54</sup> Berke, Jon. "Lease Agreement Approved for JFK Terminal One Project." *Inframation News*. Nov. 22, 2019.

<sup>55</sup> Tan, Gillian. "Oaktree Is Exploring Options for Texas Terminal." *Bloomberg News*. July 23, 2019.

---

*In 2017, **Denver International Airport** announced a major P3 terminal revamp.*

---

In 2017, **Denver International Airport** announced a major P3 terminal revamp. Ferrovial Airport was to redesign and expand the Great Hall airside terminal at the airport under a 30-year, \$1.8 billion DBFOM agreement. Construction began in 2018 but halted in 2019 when Ferrovial discovered that the concrete floor did not have the structural integrity that city design documents provided to the company had stated. Negotiations between Ferrovial and the airport management were unable to agree on a way forward, and in August 2019 the city canceled the contract “for convenience,” and will have to pay various reimbursements in accordance with the provisions of the long-term agreement.<sup>56</sup>

**Paine Field** in the northern part of the Seattle metro area has achieved a more successful terminal P3. Propeller Airports entered into a long-term P3 agreement with the Snohomish county government to build and operate the first-ever passenger terminal at this huge airport (which, among other things, serves a major Boeing aircraft assembly plant). The deal won both FAA and local approval in 2017, and construction began in 2018. Airline service from Alaska and United Airlines began in February/March 2019, and quickly filled the approved capacity of 24 arrivals and departures per day. The project received an award from the National Council for Public-Private Partnerships in May 2019. And on October 1<sup>st</sup>, the company announced that Global Infrastructure Partners and the Washington State Investment Board had purchased portions of the project’s equity.

Another airport looking into a terminal P3 is **Anchorage International**. It issued a request for expressions of interest in a P3 to operate and manage its international terminal, while also bringing it up to international standards.<sup>57</sup>

---

<sup>56</sup> Shaw, Mark. “End of Denver Airport P3 Could Bump Project Cost Above \$1B.” *Engineering News-Record*. Aug. 18-26, 2019.

<sup>57</sup> “Anchorage International Airport Explores P3 to Operate International Terminal.” *Inframation News*. Sept. 16, 2019.

### ***Consolidated Rental Car Facilities***

Two major airports—Los Angeles International (LAX) and Newark International (EWR)—have entered into P3 DBFOM agreements to develop and operate consolidated rental car facilities, abbreviated as ConRACs. A team led by Fengate Asset Management and PCL Investments won the \$2 billion LAX project. Its 28-year term will use availability payments based on various airport revenues as the funding source for debt service payments and return on investors' equity. That project, which reached financial close in December 2018, is now under construction.

In contrast to the LAX project, Newark's ConRAC is being financed based on revenues derived from the rental car facility itself (and is therefore a revenue-risk P3). This project team also includes Fengate, teamed with Conrac Solutions Capital and Related Fund Management. The revenue stream for the project is a \$7/day per rental car customer facility charge (with 2% annual inflation adjustment). The \$500 million facility will encompass 2,700 sq. ft. with 2,925 public parking spaces and 3,380 rental car spaces, supporting 10 rental car brands.

### ***Other Airport P3 Facilities***

**LAX's** \$1.95 billion (construction cost) Automated People Mover (APM) project is one of the largest in this category of airport P3 facilities. It will link the central terminal area to an intermodal center and the ConRAC. ACS and Dragados lead the project's winning team. Construction got under way in 2019, following a 2018 financial close. Like the LAX ConRAC project, this P3 is also based on annual availability payments. In October 2019, Fitch Ratings downgraded the ratings on the \$1.2 billion senior lien revenue bonds "due to credit deterioration of key project counterparties, leading to weaker risk mitigation within the project."<sup>58</sup>

The **city of Phoenix** was expected to issue RFPs in autumn 2019 for two P3 projects at Sky Harbor Airport using the DBFOM model. One would replace 3,000 surface parking spaces with a new parking structure. The other would build and operate an upscale airport hotel. Both were to be financed by project revenues, with the airport receiving a share of the revenue. Four pre-qualified teams were shortlisted for the parking project and three for the hotel. But after a several-month delay, the city canceled both P3 procurements in February

---

<sup>58</sup> "Fitch Downgrades USD 1.2bn of Bonds Issued for LACX People Mover." *Inframation News*. Oct. 14, 2019.

2020. The parking project was canceled due to a controversy over a planned increase in the fees charged to ride-hailing firms, which divided the city council. But the hotel P3 cancellation was not necessarily a termination. Sources suggest it was more of a timing issue, due to delays in extending the Sky Train people mover to the area where the hotel was to be located.<sup>59</sup>

Finally, the Phoenix-Mesa Gateway Airport broke ground in September 2019 on its SkyBridge project. It will house Mexican customs inspectors to pre-clear packages for immediate shipment from the airport to Mexican customers. The project is a joint venture of Mexican and U.S. partners and will be located in the airport's 350-acre business park.<sup>60</sup>

---

“  
*Finally, the **Phoenix**, Mesa Gateway Airport broke ground in  
September 2019 on its SkyBridge project.*

---

---

<sup>59</sup> Gilligan, Eugene. “Phoenix Cancels Airport Parking and Hotel P3 Projects.” *Inframation News*. Feb. 18, 2029

<sup>60</sup> “Arizona Airport to Become 1<sup>st</sup> to Pre-Clear Items Shipped from U.S. to Mexico.” *KTLA5*. Sept. 25, 2019.

## PART 3

# AIR TRAFFIC CONTROL

### 3.1

## AIR NAVIGATION SERVICE PROVIDERS (ANSPS)

Historically, most of the world's governments provided air traffic control (ATC) services as part of the transport ministry, whose aviation division served as both the aviation safety regulator and the operator of the ATC system. That remains the organizational form in the United States, with the FAA providing both of those functions as part of the U.S. Department of Transportation (DOT).

“

*The traditional ATC model has undergone major change since 1987, when the reformist government of New Zealand removed its ATC system from the transport ministry by “corporatizing” it as Airways New Zealand, a self-supporting government corporation.*

”

The traditional ATC model has undergone major change since 1987, when the reformist government of New Zealand removed its ATC system from the transport ministry by “corporatizing” it as Airways New Zealand, a self-supporting government corporation. Within 10 years, more than a dozen other countries had done likewise, and the fledgling

industry created a trade association, the Civil Air Navigation Services Organization (CANSO) as its counterpart to the global organizations representing airlines (IATA) and airports (ACI). CANSO introduced a new term to describe these providers: air navigation service providers (ANSPs), which has become standard terminology worldwide.

The revenue source for ANSPs is globally accepted ATC user fees, based on the airport and ATC charging principles promulgated by the International Civil Aviation Organization (ICAO), a UN agency. Prior to ATC corporatization, airlines and other airspace users paid those revenues to the respective national governments. In most cases, once an ANSP has been corporatized, the user-fee revenue flows directly to the ANSP as its primary source of revenue. This makes it possible for the corporatized ANSPs to issue revenue bonds based on their projected revenue streams, just as airports and toll roads do.<sup>61</sup>

Table 3 lists all full members of CANSO, separated into organizational categories. The first four ANSPs are the ones outside of government. Nav Canada is a nonprofit private corporation to which the Canadian government has delegated all ATC responsibilities for both domestic and oceanic airspace. ENAV is the part-privatized ANSP of Italy, with 49% of its shares traded on stock markets. Serco is an investor-owned U.K. company that provides ATC services to governments on a contractual basis. And NATS is the U.K.'s part-privatized ANSP, with 42% of its shares owned by airlines and pension funds, 4% by Heathrow Airport, and 5% owned by employees—with the balance of 49% owned by the government.

**TABLE 3: AIR NAVIGATION SERVICE PROVIDERS, BY TYPE OF ORGANIZATION**

Country	ANSP	Organization Type	Notes
Canada	Nav Canada	Nonprofit corporation	
Italy	ENAV	Part investor-owned	
UK	NATS	Part investor-owned	
UK	Serco	Shareholder-owned	
Albania	ALBCONTROL	State-owned company	
Argentina	DGCTA	State-owned company	
Armenia	ARMATS	State-owned company	
Australia	Airservices Australia	State-owned company	
Austria	Austro Control	State-owned company	Also regulates
Belgium	Belgocontrol	State-owned company	
Botswana	CAAB	State-owned company	
Bulgaria	BULATSA	State-owned company	

<sup>61</sup> Poole, Robert. "Air Traffic Control as a Quasi-Private Corporation" in *Public-Private Partnerships*, Eds. Robert Clark and Simon Hakim. Springer. 2019.

Country	ANSP	Organization Type	Notes
Cambodia	CATS	State-owned company	
Croatia	Croatia Control	State-owned company	
Curacao	DCANSP	State-owned company	
Czech Republic	ANS CR	State-owned company	
Denmark	Naviair	State-owned company	
Egypt	NANSC	State-owned company	
Estonia	EANS	State-owned company	
Fiji	Airports Fiji Ltd.	State-owned company	
Finland	Finavia Corp.	State-owned company	
Georgia	Sakaeronavigatsia	State-owned company	
Germany	DFS	State-owned company	
Hungary	HungaroControl	State-owned company	Also regulates
Iceland	ISAVIA	State-owned company	
India	Airports Authority of India	State-owned company	
Indonesia	AirNav Indonesia	State-owned company	
Iran	Iran Airports Company	State-owned company	
Ireland	IAA	State-owned company	Also regulates
Israel	Israel Airports Authority	State-owned company	
Kazakhstan	Kazaeronavigtsia	State-owned company	
Latvia	LGS	State-owned company	
Lithuania	Oro Navigacija	State-owned company	
Macedonia	M-NAV	State-owned company	
Maldives	Maldives Airports Co.	State-owned company	
Malta	MATS	State-owned company	
Moldova	MoldATSA	State-owned company	
Mozambique	Aeroportos de Mocambique	State-owned company	
New Zealand	Airways New Zealand	State-owned company	
Nigeria	NAMA	State-owned company	
Norway	Avinor	State-owned company	
Papua New Guinea	PNG Air Service	State-owned company	
Portugal	Nav Portugal	State-owned company	
Romania	ROMATSA	State-owned company	
Russia	State ATM Corporation	State-owned company	Also regulates
Serbia & Montenegro	SMATSA	State-owned company	
Slovak Republic	LPS SR	State-owned company	
Slovenia	Slovenia Control	State-owned company	
South Africa	ATNS	State-owned company	
Spain	ENAIRE	State-owned company	
Sri Lanka	AASL	State-owned company	
Sweden	LFV	State-owned company	
Switzerland	Skyguide	State-owned company	
Thailand	AEROTHAI	State-owned company	
Turkey	DHMI	State-owned company	
Uganda	CAA Uganda	State-owned company	
Ukraine	UKSATS	State-owned company	

Country	ANSP	Organization Type	Notes
Vietnam	VATMC	State-owned company	
Zambia	NACL	State-owned company	
Bangladesh	CAAB	Civil aviation authority	Financially autonomous
Cyprus	DCA Cyprus	Civil aviation authority	
Dominican Republic	IDAC	Civil aviation authority	
Ghana	Ghana CAA	Civil aviation authority	
Greece	HCAA	Civil aviation authority	
Japan	JCAB	Civil aviation authority	
Jordan	CARC	Civil aviation authority	Financially autonomous
Kenya	Kenya CAA	Civil aviation authority	
Kingdom Saudi Arabia	GACA	Civil aviation authority	
Mongolia	CAA of Mongolia	Civil aviation authority	
Myanmar	DCA Myanmar	Civil aviation authority	
Nepal	CAA Nepal	Civil aviation authority	
Swaziland	SWACAA	Civil aviation authority	
Singapore	CAAS	Civil aviation authority	
Taipei FIR	ANWS	Civil aviation authority	
Tanzania	TCAA	Civil aviation authority	
Trinidad & Tobago	Trinidad & Tobago CAA	Civil aviation authority	
Tunisia	OACA	Civil aviation authority	
United States	FAA	Civil aviation authority	
Azerbaijan	AZANS	Government department	
Brazil	DECEA	Government department	
France	DSNA	Government department	Financially autonomous
Mexico	SENEAM	Government department	
Netherlands	LCNL	Government department	
Poland	PANSA	Government department	
United States	DOD Policy Board, Aviation		
Belgium	MUAC	Intergovernmental	
Honduras	COCESNA	Intergovernmental	6 countries
Senegal	ASECNA	Intergovernmental	17 countries
Angola	ENANA-EP	uncategorized	
Haiti	OFNAC	uncategorized	
Luxembourg	LANA	uncategorized	
Sudan	Sudan ANS	uncategorized	
Dubai	DANS	uncategorized	

**Source: Civil Air Navigation Services Organization (2015) plus author analysis.**

Next in the table are 55 ANSPs that are wholly-owned government corporations, such as Airservices Australia, Germany's DFS, and the pioneering Airways New Zealand. Four of



these corporations also have aviation regulatory responsibilities, which conflicts with ICAO's 2001 recommendation calling for the organizational separation of ATC and aviation safety regulation.<sup>62</sup>

Next in the table are 20 of the old-style civil aviation authorities, usually part of the transport ministry and with aviation safety regulation in the same entity as provision of ATC services. These are nearly all developing countries such as Bangladesh, Kenya, Myanmar, and Swaziland. But also included are several developed countries that have not corporatized ATC, including Japan, Singapore, and the United States. Another seven are self-described as government departments, the largest of which are in Brazil and France. The last five in the table were listed by CANSO as “uncategorized.”

Prior to those are three intergovernmental entities that operate as multi-jurisdictional ANSPs for specific airspace. Maastricht Upper Airspace Control Center (MUAC) provides ATC services above 24,500 ft. for Belgium, Luxembourg, Netherlands, and northwestern Germany. COCESNA provides ATC services for six Central American countries. And ASECNA provides ATC services for 17 countries in Africa. All three charge ICAO-based user fees and operate as corporatized ANSPs.

Table 3 permits one to answer the question: How many ANSPs operate as corporations funded by user fees? The usual answer is 62, consisting of the non-governmental first four, the 55 government corporations, and the three intergovernmental ANSPs. In terms of *countries* served by such ANSPs, however, the total is higher; adding the six countries served by COCESNA and the 17 served by ASECNA brings the net total to 83.

## 3.2

### GLOBAL SPACE-BASED ATC SURVEILLANCE

A basic function of an ATC system is surveillance—keeping track of where planes are in real time. Historically, air traffic control over most populated countries has, since World War 2, relied largely on radar, later supplemented by transponders that report altitude and other basic information in real time. But there is no radar in the oceans, in mountainous terrain (e.g., the Alps, the Himalayas, the Rockies), and in polar regions, all of which are traversed by air travel. Surveillance there has long been carried out by “procedural” methods, which means periodic reports from pilots to ATC of their estimated positions based on the plane's inertial navigation system. Since those updates are both imprecise and only periodic, ATC

<sup>62</sup> ICAO. *Safety Oversight Manual*. Doc. 9734, Part A, Paragraph 2.4.9. 2001.

protocols require very large spacing between oceanic flight tracks and between planes flying the same flight track.



*Historically, air traffic control over most populated countries has, since World War 2, relied largely on radar... But there is no radar in the oceans, in mountainous terrain... and in polar regions, all of which are traversed by air travel.*



This began to change in 2019, when an investor-owned company—Aireon—started offering near-real-time global surveillance via satellite. The company contracted with satellite company Iridium to place its transponders on all 66 satellites in its new Iridium-Next constellation that was launched mostly in 2018. Since most ANSPs implement ground-based surveillance using a system called ADS-B (automatic dependent surveillance—broadcast), business jets and airliners flying oceanic, mountainous, and polar routes are increasingly equipped with ADS-B transponders that broadcast the plane’s identity, GPS position, speed, and other data every three seconds. That signal is detected by the new satellites and retransmitted to domestic ANSP control centers, where it shows up on controllers’ screens, just as do ADS-B transmissions in domestic airspace. Aireon’s service, which went live in March 2019, is now bringing radar-like surveillance to the 70% of the globe where this has been lacking. But of course it is only available to ANSPs that subscribe to the service.

Aireon is a joint venture of Iridium and five ANSPs: ENAV, IAA (Ireland), NATS, Nav Canada, and Naviair (Denmark). The first to implement oceanic ADS-B service were Nav Canada and NATS across the North Atlantic. While that is technically a trial, ICAO agreed that the two ANSPs could reduce the lateral spacing (between tracks) and longitudinal spacing (nose to tail on a given track) for the period of the trial, with further reductions likely once performance has been measured and analyzed. Results during 2019 showed significant savings in time and fuel (and hence CO<sub>2</sub> emissions), as well as safety benefits from controllers able to quickly identify deviations from assigned tracks or assigned altitudes.

By the start of 2020, ANSPs representing 34 nations signed up as Aireon subscribers. These include the ANSPs that are part-owners of Aireon, plus Iceland, India, the Dutch Caribbean ANSP, Singapore, the six COCESNA countries, and the 17 member countries of ASECNA.<sup>63</sup>

“

*By the start of 2020, ANSPs representing 34 nations signed up as Aireon subscribers.*

”

To the extent that Aireon has a competitor, it is Inmarsat, which operates a communications mechanism known as ADS-C. Among other communications services, it has long provided airlines with position reporting at 10- to 14-minute intervals by contract (the C in ADS-C). Inmarsat has proposed an “enhanced” version that would transmit reports every 3.2 minutes (compared with every three *seconds* for space-based ADS-B).<sup>64</sup> Originally an international satellite communications agency, Inmarsat’s commercial businesses were privatized under the Inmarsat name in 1999, and it was listed on the London Stock Exchange in 2005. (Several of its governmental functions were retained.) In 2019, it was acquired by a joint venture of infrastructure investment funds: Apax Partners and Warburg Pincus plus two Canadian pension funds, CPPIB and OTPP.<sup>65</sup>

## 3.3

## DIGITAL REMOTE AIR TRAFFIC CONTROL TOWERS

In 2007, the FAA research center in Atlantic City, New Jersey conducted a demonstration project on a new kind of airport control tower. Instead of a tall building with a staffed control cab on top, it evaluated carrying out tower functions using cameras and other sensing devices at various airport locations, with the control cab and large display screens on the ground. Besides saving the cost of constructing and maintaining the tall building, the demonstration showed that controllers would have increased visibility (especially at night and in rain or fog when infrared cameras provided better views) and decreased

<sup>63</sup> Carey, Bill. “Space-Based ADS-B Makes Global Inroads as Technology Equalizer.” *Aviation Week*. November 25-December 8, 2019.

<sup>64</sup> GAO-19-532. “FAA’s Analysis of Costs and Benefits Drove It Plans to Improve Surveillance in U.S. Oceanic Airspace.” Government Accountability Office. July 2019.

<sup>65</sup> “Inmarsat Acquired by Private Equity Consortium for \$3.4bn.” *Air Traffic Management*. March 25, 2019.

workload.<sup>66</sup> Despite these very positive results, no further FAA work on the subject has been reported, and no FAA program to implement remote towers materialized.

Drawing on these findings, technology companies and corporatized ANSPs overseas began developing and testing remote tower concepts. LFV in Sweden and Avinor in Norway were among the first to implement remote tower programs, and the first remote tower certified for operational use was developed for LFV by Saab-Sensis Corporation and became operational in 2015. In the years since then, remote towers have been planned or implemented in Australia, Brazil, Denmark, Germany, and the U.K., among others. Germany, Sweden, and Norway have subsequently implemented remote tower centers in which controllers can manage air traffic at a number of airports from a single location, providing additional cost savings.



*LFV in Sweden and Avinor in Norway were among the first to implement remote tower programs, and the first remote tower certified for operational use was developed for LFV by Saab-Sensis Corporation and became operational in 2015.*



In the 2018 FAA reauthorization bill, Congress authorized a pilot program under which the agency would develop and test five remote towers at five different locations. As this is being written in early 2020, Congress has not appropriated funding to begin this program. Meanwhile, two U.S. remote tower projects are awaiting FAA certification—one in Leesburg, Virginia and the other at Loveland, Colorado. They are funded by a combination of state funds and private investment, not by FAA.<sup>67</sup>

---

<sup>66</sup> Hannon, Daniel et al. "Feasibility Evaluation of a Staffed Virtual Tower." *Journal of Air Traffic Control*. 55, no. 1. 2013.

<sup>67</sup> Poole, Robert. "U.S. Getting Further Behind on Remote Towers." *Aviation Policy News*. January 2020.

## 3.4

## U.S. AIR TRAFFIC CONTROL REFORM

Efforts to have the United States corporatize its ATC system, joining the global trend, began in earnest during the Clinton administration, when the idea was proposed by Vice President Gore's reinventing government workshop and then studied in depth by a task force in the Office of the Secretary of Transportation. That effort failed, due to only lukewarm support from airlines, strong opposition from the private-plane community, and lack of a champion in Congress. Various partial reforms were attempted during the George W. Bush administration, but they got no further.

In 2012, the Business Roundtable organized an ATC reform group to develop a business plan for a nonprofit, user-funded, stakeholder-governed ATC corporation, similar to Nav Canada (the world's second-largest ANSP after FAA's Air Traffic Services division).<sup>68</sup> That effort found a congressional champion in Rep. Bill Shuster (R, PA), then chairman of the House Transportation & Infrastructure Committee. The committee held hearings on the subject in 2014, with strong support from Airlines for America and the National Air Traffic Controllers Association. The bill drafted by the Republican majority was approved by the committee in 2016, but it was strongly opposed by private-plane groups AOPA and NBAA, as well as all federal employee unions except the controllers. The bill was revised in 2017 to address concerns raised by small airports and private plane groups, and the T&I Committee approved it in 2018. But House GOP leadership did not bring it to the floor, lacking the votes to ensure passage, due in part to an unfulfilled White House commitment to lobby wavering GOP members.<sup>69</sup> There was also no companion ATC provision in the Senate bill due to intense lobbying of rural-state senators by the anti-corporatization coalition led by private-plane groups AOPA and NBAA. The overall FAA reauthorization bill was enacted later in 2018 with no ATC reform section.

Despite that defeat, the issue is not dead (despite the five-year term of the 2018 FAA bill). Sen. Ted Cruz (R, TX), chair of the Senate Aviation Subcommittee, held a Sept. 24, 2019 hearing to highlight the need for ATC reform. Rather than seeking to revive the Shuster bill, he aimed to "start a new conversation" aimed at reaching a win-win reform for the U.S. aviation system. Former industry supporters (airlines and controllers) were noncommittal, having spent much time and money on the previous failed attempt. And AOPA and NBAA

---

<sup>68</sup> Poole. "Air Traffic Control as a Quasi-Private Corporation." Note 60.

<sup>69</sup> Gardner, Lauren. "How ATC Got Grounded." *Politico*. April 2018.

were hostile to yet another battle over ATC reform.<sup>70</sup> Cruz has promised two further hearings, but at the time of this writing no dates or witnesses have been announced, due to congressional focus on the Covid-19 pandemic.

---



*Sen. Ted Cruz (R, TX), chair of the Senate Aviation Subcommittee, held a Sept. 24, 2019 hearing to highlight the need for ATC reform.*

---



---

<sup>70</sup> Poole, Robert. "Sen. Cruz Opens New Discussion on ATC Reform." *Aviation Policy News*. October 2019.

## PART 4

# AIRPORT SECURITY

When Congress mandated a federal take-over of airport security in late 2001 in the wake of the 9/11 terrorist attacks, it allowed room for some degree of private-sector provision (besides the role of producing items like walk-through screening devices and baggage scanners). One concerned the provision of passenger and baggage screening; the other concerned assisting the new agency (TSA) with implementing a “trusted traveler” program.

### 4.1

## CONTRACT SCREENING

In response to an emphasis in the 2001 House bill on using federally certified security companies rather than a new cadre of federal employees, the Senate compromised on its preference for 100% federal employees by allowing some airports to opt out, with TSA approval, by hiring TSA-approved security companies to do the screening. The first step was a five-airport pilot program under which only San Francisco, Kansas City, Rochester, Tupelo, and Jackson Hole could use approved security screening companies. After the pilot program was judged successful (by the DHS Office of Inspector General and the Government Accountability Office), the program was opened up to other airports. TSA created the Screening Partnership Program (SPP), under which the 22 airports in Table 4 currently provide passenger and baggage screening using TSA-approved contractors.

**TABLE 4: AIRPORTS WITH PRIVATE SCREENING UNDER SPP, 2019**

<b>Airport</b>	<b>State</b>
Atlantic City International Airport	New Jersey
Bozeman Yellowstone International Airport	Montana
Charles M. Schulz-Sonoma County Airport	California
Dawson Community Airport	Montana
Glacier Park International Airport	Montana
Greater Rochester International Airport	New York
Havre City-County Airport	Montana
Jackson Hole Airport	Wyoming
Kansas City International Airport	Missouri
Key West International Airport	Florida
L.M. Clayton Airport	Montana
Orlando Sanford International Airport	Florida
Portsmouth International Airport	New Hampshire
Punta Gorda Airport	Florida
Roswell International Air Center	New Mexico
San Francisco International Airport	California
Sarasota-Bradenton International Airport	Florida
Sidney-Richland Municipal Airport	Montana
Sioux Falls Regional Airport	South Dakota
Tupelo Regional Airport	Mississippi
Wokel Field/Glasgow International Airport	Montana
Yellowstone Airport	Montana

**Source:** Transportation Security Administration, [www.tsa.gov](http://www.tsa.gov) (accessed March 18, 2020).



While that number has grown a bit year after year, there were no additions in 2019 to the 22 airports with private screeners in 2018. Many observers and a growing number of airports point to a complicated and time-consuming process in which TSA holds all the cards. In normal contract provision of services, the government agency wishing to contract issues a request for proposals (RFP) and reviews bids from competing firms. In the case of airport screening, the normal process would have airports send their RFP only to firms that have been certified by TSA (which maintains this list on its website), and the airport would select the one that best meets its needs. TSA might then have final approval authority.

Instead, the airport goes hat in hand to TSA stating its desire to change, and in response to the airport's detailed request, TSA decides which company it thinks is the best fit and assigns it to the airport—take it or leave it. Also, the contract is between TSA and the company, rather than between the airport and the company.

In 2018, Sen. Mike Lee (R, UT) introduced a bill to reform the Screening Partnership Program. His Screening Partnership Reform Act (S.3441) would have shortened the time allowed for TSA to review an airport's request to switch to contract provision from 120 days to just 30 days. That would be reasonable, since TSA would no longer be tasked with figuring out which company to assign to the airport. The airport would do that itself, subject to subsequent approval by TSA. Also, the bill required TSA to include the full cost to the federal government of its screening operation when comparing the cost-effectiveness of contract screening with TSA screening at that airport. Currently, TSA does not include employee benefits such as insurance and pension fund contributions, which are real costs for the private companies.

Lee's bill did not get very far, and he has not reintroduced it as of this writing. There would be real benefits from an expanded contract screening effort. Tracy Miller of the Mercatus Center at George Mason University pointed some out in an op-ed in the wake of the January 2019 federal government shutdown (during which TSA screeners did not get paid, but contract screeners did).<sup>71</sup> These benefits include:

- Better screening performance, as attested by red-team tests by the DHS Office of Inspector General and the GAO;
- Ease of firing low-performing screeners;

---

<sup>71</sup> Miller, Tracy. "Why Should a Government Shutdown Affect Airport Security?" Tribune News Service, Jan. 24, 2019.

- Staffing properly to meet peaks and valleys in checkpoint passenger volume; and,
- Cost savings, due to better matching staffing to demand, as documented in a comparison of LAX (TSA screening) and SFO (contract screening).<sup>72</sup>

## 4.2

## TRUSTED TRAVELER

The 2001 legislation creating TSA also called for the government to initiate a trusted traveler program under which air travelers who volunteered could be pre-screened (analogous to getting a low-level security clearance). Those who succeeded would be recognized when they arrived at the airport checkpoint and subjected to streamlined screening compared with ordinary travelers.

For nearly a decade, TSA resisted creating such a program. In hopes of jump-starting the process, a group of private investors created a company, CLEAR, intending to recruit would-be participants and obtain biometric identifiers for them (iris scan and/or fingerprints). The business plan called for the company to submit applications to TSA from people it had signed up, which it expected TSA to send to the FBI for review, as it was already doing with airport employees who needed regular access to secure portions of the airport. TSA refused to do this, so the company tried to market itself as simply verifying passenger identity. But without actual clearance to get streamlined screening, the value proposition was poor, and the company filed for bankruptcy.

When TSA finally introduced PreCheck in 2011, investors under the name Alclear bought the assets of the bankrupt company, this time offering to supplement PreCheck by allowing its members to skip the long lines at checkpoints and then receive either PreCheck or regular screening, depending on their membership status. TSA agreed to this, and the new CLEAR began marketing it to individual airports. That was slow going when only a few airports offered the service, but a critical mass appeared to be reached by 2019, when CLEAR announced an agreement with St. Louis as its 35<sup>th</sup> airport with this service.

---

<sup>72</sup> House Transportation & Infrastructure Committee. "TSA Ignores More Cost-Effective Screening Model." June 3, 2011.

In another PreCheck-related development, TSA finally opened up the market for PreCheck recruitment to two additional companies besides long-time monopoly provider Morpho Trust (recently renamed IDEMIA). Joining it as of 2020 will be Alclear and Telos Identity Management Solutions. TSA acted after Congress mandated, in the 2018 FAA bill, that TSA use at least two companies to market PreCheck and vet applicants.

# ABOUT THE AUTHOR

**Robert W. Poole, Jr.** is director of transportation policy and the Searle Freedom Trust Transportation Fellow at Reason Foundation, a public policy think tank based in Los Angeles and Washington, D.C.

He was among the first to propose the commercialization of the U.S. air traffic control system, and his work in this field has helped shape proposals for a U.S. ATC corporation. A version of his nonprofit corporation concept was implemented in Canada in 1996. He has advised the Office of the Secretary of Transportation, the White House Office of Policy Development, the National Performance Review, the National Economic Council, and the National Civil Aviation Review Commission on ATC commercialization. He is a member of the Air Traffic Control Association and of the GAO's National Aviation Studies Advisory Panel. In 2012-13 he was a member of the Business Roundtable task force on ATC reform, and in 2014-15 he was part of the Eno Center for Transportation working group on ATC reform. In 2018 he received the Eno Center's Thought Leader Award for his work on ATC corporatization.

Poole's Reason studies helped launch a national debate on airport privatization in the United States. He advised both the FAA and local officials during the 1989-90 controversy over the proposed privatization of Albany (NY) Airport. His policy research on this issue helped inspire the privatization of Indianapolis airport management under Mayor Steve Goldsmith and Congress' 1996 enactment of the Airport Privatization Pilot Program.

In aviation security, Poole advised the White House and House Republican leaders on what became the Aviation & Transportation Security Act of 2001, enacted in response to the 9/11 attacks. He has authored a number of Reason policy studies on aviation security and is the author of a paper on risk-based aviation security for the OECD's International Transport Forum.

Poole has testified on airports, aviation security, and air traffic control on a number of occasions before House and Senate aviation and homeland security subcommittees, and he has spoken on these subjects before numerous conferences. He has also done consulting work on several airport privatization feasibility studies. Poole also edits a monthly Reason Foundation e-newsletter on aviation policy issues. He received his B.S. and M.S. in mechanical engineering at MIT and did graduate work in operations research at NYU.

