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The digital airport

From data to decision-making

Conference report:
Technology & innovation

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Executive summary:
AI capability has outpaced the institutions meant to govern it

71% of airports now have AI projects in production. The technology vendors have delivered. The pilots have succeeded. The dashboards are live. And yet the most revealing moments at PTE World Conference 2026 were not demonstrations of capability. They were confessions of constraint.

"We feel sometimes more like therapists than IT people."
Sina Hauff, head of data, AI and collaboration applications, Flughafen Berlin Brandenburg

Copenhagen rebuilt its entire data platform over three years and reported that the rebuilt foundation returned it close to its original baseline, underscoring how much of the value lies in the underlying data discipline rather than the platform itself. Schiphol runs 70 million passengers through a terminal built for 40 million, and roughly 60% of its gate plan typically carries over from one day to the next. AENA's AI initiatives went from a minority of validated technologies in 2024 to a majority in 2025, and is now working to define the governance model needed to oversee agentic systems that act, rather than simply advise.

This topic was ultimately less about what AI can do than about what airports are ready to support. Three gaps separate the digital airport from the intelligent one: the governance gap, where AI capability has outrun the frameworks meant to control it; the data gap, where investment in models has outpaced investment in the information that feeds them; and the identity gap, where competing digital credential architectures are fragmenting the seamless journeys they were meant to enable.

Key Findings

- Agentic AI has arrived in live operations at Tampa (checkpoint management), Miami (HVAC optimization), and Schiphol (gate planning), but no airport can yet define where "advise" ends and "act" begins in safety-critical environments.
- Data quality, not AI capability, is the binding constraint. Copenhagen Airport discovered records for windsocks in its database that field checks could not confirm, while 50% of airports surveyed identified data integration as their primary transformation opportunity.
- Digital identity is fragmenting across three incompatible architectures: ICAO DTC, the EU Digital Identity Wallet, and the US government gallery model.
- The biometrics business model remains unsolved. Lufthansa's Star Lines enrolled 150,000 passengers before the program was paused following an EU data protection authority opinion.
- Innovation networks are forming at scale but procurement rules designed for construction projects are constraining technology momentum
- The cargo and airside digital gap is real. Fraport confirmed: "Things which are normal in the passenger area are not normal in the cargo world"

1. AI has moved from pilot to production, and the governance frameworks are still forming

At PTE World Conference 2026, the question was no longer whether airports are deploying AI. The ACIC 2025 IT Trends Survey confirmed that 71% of responding airports have active AI projects, split almost evenly between operations and passenger service. AENA reported that AI initiatives grew from a small share of validated technologies in 2024 to more than 50% in 2025. The media landscape has shifted accordingly: AI-related coverage of airports has grown by approximately four times since 2022 and now exceeds airline coverage in volume.

The more important conversation was about what happens when AI moves from dashboards to decisions. At Schiphol, the Wilbur platform now generates prescriptive suggestions with explicit trade-off statements: "This suggestion requires 3 additional tows but saves 300 arriving passengers on the bus and 123 PRMs handled remotely." At Frankfurt, Fraport structures AI as a "virtual organization" spanning IT and Strategy. Aeropuertos Argentina's Copilot analysed more than 1,000 active sales contracts in one minute, flagging 10 that were about to expire and 30 clients that had not reported sales.

But the governance frameworks have not kept pace. The ACIC survey exposed a structural contradiction: airports rate data quality as paramount, yet investment in data governance and hygiene tools ranks near the bottom of AI spending priorities.

"People just think AI is like the shiny toy, the out-of-the-box solution they can just pull from the shelf and put into their processes. In reality, we need data, we need communication, we need expectation management."

Sina Hauff, head of data, AI and collaboration applications, Flughafen Berlin Brandenburg

Fraport's Verena Dollberg disclosed that she updated Frankfurt's AI strategy half a year ago and "it already feels outdated every week." The velocity of capability advancement is moving faster than the institutional capacity to govern it. This is not an abstract regulatory concern; it is an operational consideration.

The airports making the most progress share one trait: they invested in data governance before they invested in AI capability. Aeropuertos Argentina's dual-layer strategy (metadata chatbot for discovery, Power BI Copilot for analysis) works precisely because tight governance was the prerequisite, not an afterthought.

What comes next: The governance gap will close only when airports treat AI governance as a C-suite accountability function, not a compliance checklist delegated to IT. The airports that define clear decision rights for AI-generated recommendations in 2026 will be the ones trusted to deploy agentic systems in 2028.

2. Agentic AI is the defining question of this cycle

"For the past few decades, airports have invested heavily in systems designed to help humans make decisions. They simply advise. They don't act. What's emerging now with agentic AI is something fundamentally different."

Chuck Miwa, chief information officer, Ontario International Airport Authority

This is not theoretical. Tampa International has deployed agentic checkpoint management in live operations: the system closes and opens e-gates and throttles shuttle frequency based on real-time queue depth, removing the need for three physical staff positions. Miami's Maurice Jenkins confirmed agentic HVAC optimization targeting a $39 million annual electricity bill, where even a 1-5% improvement is financially and environmentally significant. AENA's 2026-2030 roadmap explicitly names agentic AI as its Wave 3 priority.

The panel discussion on agentic AI revealed that every airport leader could identify domains where autonomous action is appropriate and domains where it is not. What no one could do was draw a definitive boundary between the two.

"I don't think you can draw a hard line. The more situations and instances that occur, that trained model is growing, and that if-then-else statement may grow a little further."

Maurice Jenkins, IAP A.A.E, chief innovation officer, Miami International Airport

"Responsibility flows uphill. If it goes badly wrong, someone's culpable at the top."

Nicholas Woods, chief information officer, MAG (Airports Group)

The organizational barrier may be larger than the technical one. Fraport's Dollberg diagnosed a structural problem: aviation is "not used to change" compared to industries with higher staff turnover. The same loyalty that makes aviation operationally stable can also slow its pace of digital change. Frontline acceptance, not C-suite ambition, will determine whether agentic systems succeed or stall.

The panelists converged on a two-axis evaluation model for agentic deployment: impact of failure and criticality to safety. Low criticality combined with high iteration count builds the trust threshold. But the transition from "advise" to "act" requires something airports have never had to build: an accountability architecture for machine decisions in safety-regulated environments.

What comes next: The airports that will lead the agentic era are not the ones with the best models. They are the ones that build the clearest decision rights, the most transparent escalation protocols, and the most honest assessments of where human judgment remains irreplaceable.

3. Data quality is the real bottleneck, not AI capability

“This discipline is actually 30% technology. It’s 70% people. We can have a rocket-level data intelligence platform, but if you don’t have people with the maturity to understand how to leverage the value data brings, it doesn’t really matter.”

Tenna Ørum Kristensen, director - data and AI, Copenhagen Airports

Copenhagen’s experience is instructive because it is humbling. The airport reached an all-time high of 32.4 million passengers. It scaled its data team from a handful of people to 30, including seven internal data engineers. It migrated to a new open-source data intelligence platform. And then it discovered that approximately 200 windsocks were registered in its database, but field checks revealed many of them did not exist. Had AI models been trained on that data, the predictions would have been, in Kristensen’s words, “wrong and very bad.”

This is not an isolated failure. At Aeropuertos Argentina, synonym conflicts between business units surfaced as a genuine AI failure mode. At Munich Airport, bags are scanned 50-80 times within the baggage handling system, but tracking goes dark once bags are loaded into containers. The data exists in abundance. Trustworthy data products are scarce.

“If you think about how other resources are organized, infrastructure has a management team, workforce has HR, but for data we used to have a simple small team of people, because it seemed like data is something IT takes care of.”

Christian Wrobel, chief data and analytics architect, Fraport

Berlin Brandenburg rebranded data owners as “data pilots” because a pilot is responsible for the flight of the data, held accountable for what happens during the journey. When SITA estimates “millions wasted per year” from siloed optimization across security, retail, baggage, and stand planning, the waste is not a technology failure. It is a data integration failure.

Almost 50% of airports surveyed in the ACIC study said their main transformation opportunity was around data: breaking silos, integrating systems. The irony is sharp. The industry is spending heavily on AI models while underinvesting in the data those models consume.

What comes next: The airports that will extract real value from AI in the next three years are the ones investing now in data product ownership, cross-functional governance, and the unglamorous work of field-level data quality. The AI is ready. The data is not.

4. Digital identity is fragmenting, not converging

The promise of digital identity in aviation is a single credential that moves a passenger from curb to gate to destination without presenting a physical document. The reality at PTE World Conference 2026 was three competing architectures, two incompatible regulatory philosophies, and one industry caught in the middle.

The US model is government-run, opt-out, and gallery-based. CBP's biometric exit mandate requires 97% capture of all international departing passengers. TSA PreCheck Touchless ID has expanded to 65 checkpoints. United Airlines has deployed 400+ biometric boarding gates across its entire international network, with over 160,000 customers completing biometric bag drop in under 15 seconds.

The European model is consent-based, decentralized, and legally constrained. The EUDI wallet, tested by Lufthansa with 200 co-creator passengers (170 completed successfully, 73% trusted the wallet), represents a fundamentally different philosophy. But when the European Data Protection Board issued its 2024 opinion, it forced Lufthansa to shut down Star Lines biometrics after 150,000 passengers had voluntarily enrolled.

"A lot of our airport partners lost investments in eGate infrastructure due to that [EDPB opinion]."

Patrick Sgueglia, senior product manager airport experience, partnerships and biometrics, Lufthansa

Then there is the ICAO Digital Travel Credential, intended as the global standard. At a January ICAO meeting, Squaglia revealed that the DTC working group had "not communicated at all" with European colleagues developing the EUDI standard. Two parallel architectures, different issuing frameworks, and no coordination..

"The legislation that dictates the checks airlines have to do that is not modernizing fast enough and not taking the technological developments into consideration, in combination with the GDPR that is very strict, and we lack sandboxes in Europe to overcome these challenges. If we don't crack this down to a more simple system as available in the USA or India, I think it will not fly."

Nick van Straten, program director biometrics, clearance and digital identity, KLM Royal Dutch Airlines

The Dutch DTC pilot reduced passport control time from above 30 seconds to below 10 seconds per traveler. The Einstein project's smart corridor processed 15 persons per minute at 4 seconds per traveler. The technology works. The fragmentation is political, not technical.

"I had the most two-sided role a European Cie... you have to have two brains.".

Nicolas Dorfsman, head of passengers department, Aéroport Marseille Provence

What comes next: The LA Olympics in 2028 and the World Cup in 2026 will force coordination that committees have failed to deliver. If those moments pass without convergence, the industry may be locked into a permanently fragmented identity landscape. The window is narrow.

5. **Biometrics work,** but the business model is unsolved

The technology question is settled. United Airlines boards passengers biometrically across its entire international network. Over 5 million customers have used iBoard. In 2017, Lufthansa boarded an A380 in 20 minutes during its first LA biometric exit pilot. The Einstein project's smart corridor achieves 4-second processing per traveler. IATA reports that 90% of passengers globally support trusted traveler programs for quicker screening.

The operational case is equally clear. Biometrics is being deployed not as a convenience feature but as an infrastructure substitute.

"What we aren't able to do is build to meet the levels of today and in the future. So for the last decade, we've engaged with the technology community and the federal agencies to find ways to increase capacity and throughput without capital investment."

Matt Cornelius, executive vice president, Airports Council International - North America

The business model, however, remains unresolved.

"Without wide adoption of the DTC, we will still have the costs we have now, and we will just have two processes running at the same time."

Lucas Drouet, transformation project manager, Groupe ADP

"What is the cost of a proof of age? From my point of view, it's zero... At the end, there is no economic model."

Florent Tournois, director of identity, trust services and production (DISCOP), French National Agency for Secure Documents (ANTS)

Lufthansa projects that at least 50% of its passengers will use digital IDs by 2030. Patrick Squaglia believes the actual number will be higher, comparing wallet adoption to Apple Pay's trajectory. But Apple Pay had a clear revenue model from day one. Aviation's digital identity ecosystem does not.

What comes next: The business model will not emerge from consortium research or regulatory mandate. It will emerge from the first airport or airline that proves a quantified return on investment from end-to-end digital identity at scale. Until that proof point exists, the industry will continue funding pilots with innovation budgets and deferring the infrastructure question.

6. **Innovation networks are forming,** but procurement constrains momentum

Something structurally new emerged at PTE World Conference 2026: airports are collaborating on innovation at a scale and formality that did not exist five years ago. The Airports for Innovation alliance now includes 10 leading international airports and launched its first-ever joint call for startups in September 2024. APTITUDE's consortium spans 120+ partners. ADR Ventures has made three investments since February 2023 and runs an acceleration program offering up to two million euros in post-pilot contracts.

The Lufthansa Innovation Hub quantified the shift: 90% of airport innovation units were set up post-pandemic. Airports are now spending 1.5x more on technology as a percentage of revenue than airlines. The intent is structural, not performational.

But the path from pilot to production remains one of the industry's most persistent challenges.

The Airports for Innovation network needed seven months just to agree on a procurement process. Innovation in aviation operates inside procurement frameworks designed for construction contracts, where predictability and lowest cost are the selection criteria. Technology procurement requires a different framework that most airports do not have.

"The company that said "innovation" the most in their annual report went bankrupt – twice"

David Dabscheck, CEO, Giant Innovation

What comes next: The networks are real and the collaboration is genuine. But until airports build procurement pathways that can move from successful pilot to scaled deployment without resetting to an open tender, innovation will continue to accumulate in sandboxes while operations run on legacy systems.

7. The cargo and airside digital gap deserves more attention

"Things which are normal in the passenger area are not normal in the cargo world. Digitalization in the passenger world is a different kind and level than in the cargo world."

Marco Franz, chief application architect, technology, Fraport AG

Fraport's cargo community platform connects airlines, ground handling agents, cargo handlers, forwarders, and customs across the Frankfurt ecosystem. The architecture is modern (Azure Databricks, Kafka for real-time event ingestion, data mesh approach). But the starting point is telling: e-commerce is restructuring cargo volumes in ways legacy systems were never designed to handle.

AENA announced a deliberate strategy shift:

"We are moving beyond the landside–airside paradigm towards a fully connected digital space: an intelligent ecosystem where stakeholders and third parties integrate dynamically, and operational information flows in real time."

Vanesa Calvo Alonso, head of funding and innovation trends, Aena SME

But this ambition sits against a reality where, at Munich Airport, baggage tracking goes dark between container loading and the aircraft. The data chain breaks at the physical boundary of the terminal.

Avinor's experience reveals another dimension of the gap. Airspace AI is held to a fundamentally different standard than airport operations AI: regulatory precision and safety requirements create a two-speed digital organization. The same institution that can deploy conversational AI for parking pricing must navigate "very strict" redundancy requirements for anything touching aircraft movement.

The investment asymmetry is real. Passenger-facing digital transformation has a visible customer, a measurable satisfaction score, and a direct commercial return. Cargo and airside digitalization has a diffuse set of stakeholders, a complex governance challenge, and returns that accrue across the ecosystem rather than to any single investor.

What comes next: The airports that treat cargo and airside digitalization with the same strategic priority as passenger experience will unlock the next tier of operational efficiency. The Digital Ramp is the right vision. The question is whether investment will follow ambition across the terminal boundary.

8. The intelligent airport is a distribution problem, not a technology problem

Birmingham Airport's BABS (Birmingham Airport Bot Service), on a single snow day, thousands of passengers used it, saving hundreds of hours of colleague time. The speaker reframed what BABS is: "BABS wasn't created because we needed a digital product. BABS was created because we already had an airport brain. We just needed a way to share it." This is not simply a chatbot. It is a mechanism for distributing intelligence.

Brussels Airport's Bruce chatbot validates the same thesis. During disruption events, usage spikes 4x. The hybrid architecture (intent-recognition plus generative AI) reflects the shift in how passengers interact with digital systems: from keyword search to conversational query. Zurich Airport took the most frugal approach: 17 QR code locations, 45,000+ scans, 85% self-service resolution.

Paris Airports articulated the commercial dimension:

"Usually the customer does not belong to the airport. They belong to the airline mostly. We are building that knowledge, building that relationship."

Sébastien Grinsard, chief digital officer, Groupe ADP

ADP's 3.3 million loyalty members and 50 million personalized digital interactions represent an airport that has solved the distribution problem through direct passenger relationships. AI-augmented content creation (143 assets, 350 visuals, 30 videos in two weeks) makes that relationship scalable.

Frankfurt's AuraCast pilot adds an accessibility dimension. With 1 in 3 people over 65 projected to experience hearing loss and the global population aged 60 reaching 1.4 billion by 2030, the ability to deliver multilingual, personalized audio directly to passengers' own devices is not a convenience feature. It is an infrastructure requirement.

What comes next: The intelligent airport of 2030 will not be defined by the sophistication of its AI models. It will be defined by the reach of its intelligence distribution. The airports that treat every passenger touchpoint as a data delivery channel will outperform those that keep intelligence locked in operations centers.

What this means for 2027 and beyond

Six structural shifts are reshaping the digital airport:

1. Governance is the new competitive advantage.

The airports making the most AI progress invested in data governance before AI capability. The next frontier is decision-rights governance for agentic systems. The cost of getting this wrong is not inefficiency. It is liability.

2. The agentic threshold is real but undefined.

Every airport can identify where autonomous AI action is appropriate and where it is not. No airport can draw the boundary. The industry needs a shared framework for agentic decision classification before individual airports can safely deploy at scale.

3. Data quality is a multi-year, unglamorous prerequisite.

Copenhagen's windsock story, Munich's baggage black box, and Buenos Aires' synonym problem all illustrate the same truth: AI trained on bad data produces confident wrong answers.

4. Digital identity needs a forcing function.

Three architectures are developing in parallel with minimal coordination. The LA Olympics in 2028 and the 2026 World Cup are the best available forcing functions. If they pass without convergence, fragmentation becomes permanent.

5. Procurement must be redesigned for technology.

Innovation networks are forming, pilots are succeeding, and procurement rules are slowing the transition to production. Airports need technology-specific procurement pathways.

6. Intelligence distribution, not generation, is the differentiator.

The airports extracting the most value from digital investment are the ones that solved the last-mile problem: getting the right insight to the right person at the right moment.

The digital airport is no longer aspirational. It is being built now, though unevenly governed and inconsistently connected. The next three years will determine which airports turn digital capability into genuinely intelligent systems, and which are left managing collections of disconnected pilots.

Appendix: Sessions referenced

REPORT SECTION	SESSIONS
Executive summary	ACI 2025 IT Trends Survey; cross-track synthesis
AI: Pilot to production	From metadata to insights: democratizing data through conversational AI (Aeropuertos Argentina); AI-powered airport operations: transforming gate planning and passenger flow at Schiphol (Royal Schiphol Group); Unlocking the full potential of AI at Frankfurt Airport (Fraport); Achieving business value through data and artificial intelligence in aviation (Avinor); The unknown IT behind BER airport – that isn't IT (Flughafen Berlin Brandenburg); Panel discussion: Rewiring airport operations for a digital, performance-driven future (Dallas Fort Worth International Airport, Los Angeles World Airports, Royal Schiphol Group, Boston Consulting Group); Transforming aviation: Aena's innovation roadmap and hub (Aena SME)
Agentic AI	Panel discussion: How agentic AI is transforming airport operations (Ontario International Airport Authority, Miami International Airport, Amazon Web Services, MAG (Airports Group), Tampa International Airport); Transforming aviation: Aena's innovation roadmap and hub (Aena SME); Unlocking the full potential of AI at Frankfurt Airport (Fraport)
Data quality	The journey toward a data-driven airport: from legacy to intelligence (Copenhagen Airports); From metadata to insights: democratizing data through conversational AI (Aeropuertos Argentina); Panel discussion: Data in the organization, how to achieve governance and ownership (Fraport, Avinor, M2P Consulting); The unknown IT behind BER airport – that isn't IT (Flughafen Berlin Brandenburg); Airport operational data insights from JFK NTO (JFK New Terminal One); The importance of a holistic approach to data integration as a strategic enabler of total airport management (SITA); Rewiring the airport mindset: building a brain for MUC operations (Munich Airport)
Digital identity	Panel discussion: The future of identity in aviation – people, process and trust (Airports Council International - North America, HID, Annet Steenbergen); Dutch DTC pilot – expansion plans (KLM Royal Dutch Airlines); APTITUDE – French government digital identity initiative (French National Agency for Secure Documents (ANTS); Looking backwards and forwards - Lufthansa piloting EUDI with EWC (outcome) and APTITUDE (Lufthansa); Panel discussion: EUDI wallet, digital travel credentials and facilitation - what will the wallet bring for travel and passenger facilitation? (Groupe ADP, Lufthansa, Annet Steenbergen, French National Agency for Secure Documents (ANTS); Frontex vision for seamless travel in the EU (Frontex)
Biometrics business model	Touchless travel, real results: innovating for passengers and operations (United Airlines, NEC Corporation of America); Panel discussion: The future of identity in aviation – people, process and trust (Airports Council International - North America, HID, Annet Steenbergen); Dutch DTC pilot – expansion plans (KLM Royal Dutch Airlines); Looking backwards and forwards - Lufthansa piloting EUDI with EWC (outcome) and APTITUDE (Lufthansa); Einstein: high-TRL solutions in secure ID management and transportation (JSCP, CERTH-ITI)
Innovation networks	Our open innovation model and entrepreneurship program (Aeroporti di Roma); Panel discussion: Airports for Innovation: From pilots to a global innovation network (Munich Airport, Aena, Narita International Airport Corporation, Aeroporti di Roma); Scaling everyday innovation and AI readiness: inside DFW Airport's playbook (DFW International Airport, Giant Innovation); Happier travelers, smarter airports: how innovation is leading the change (Lufthansa Innovation Hub); Panel discussion: How leading airlines and airports turn market insights into strategy (TNW Programs/nlmtd, Southwest Airlines, Royal Schiphol Group, Lufthansa Innovation Hub)
Cargo & airside gap	Building scalable data products for air cargo operations (Fraport AG, d-fine GmbH); Transforming aviation: Aena's innovation roadmap and hub (Aena SME); Achieving business value through data and artificial intelligence in aviation (Avinor); Rewiring the airport mindset: building a brain for MUC operations (Munich Airport)
Intelligence distribution	Connected Personal Experiences (Birmingham Airport); Seamless travel experiences: how AI is transforming passenger engagement (Groupe ADP); How BRUce became the best chatbot in Belgium (Brussels Airport Company); Digital touchpoints: digitalization of the passenger information service (Flughafen Zürich AG/Zurich Airport Ltd); Panel discussion: Frankfurt Airport's Auracast pilot – a blueprint for inclusive passenger communication (Fraport, Zurich Airport Ltd, GN Hearing, FraAlliance GmbH, Sittig Technologies); Where robots meet passengers: ICN's AI-powered airport of the future (Incheon International Airport Corporation); Changi Airport advanced simulation: operational efficiencies and strategic airport planning (Changi Airport Group Singapore Pte Ltd)

Additional sessions

- Biometrics Traveler Journey (Marseille);
- Futureproofing Airport RFPs (Bangalore);
- Immersive Innovation VR (AENA);
- Orlando Biometric Blueprint;
- Miami Digital Transformation panel;
- Passenger Flow Intelligence panel (Charlotte, Nashville);
- Happier Travelers (Lufthansa Innovation Hub);
- How Bruce Became Belgium's Best Chatbot (Brussels)

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