



PTEWORLD

CONFERENCE

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Excel London

Building the next generation airport

Scale, speed and
sustainability

Conference report:
**Airport planning
& development**

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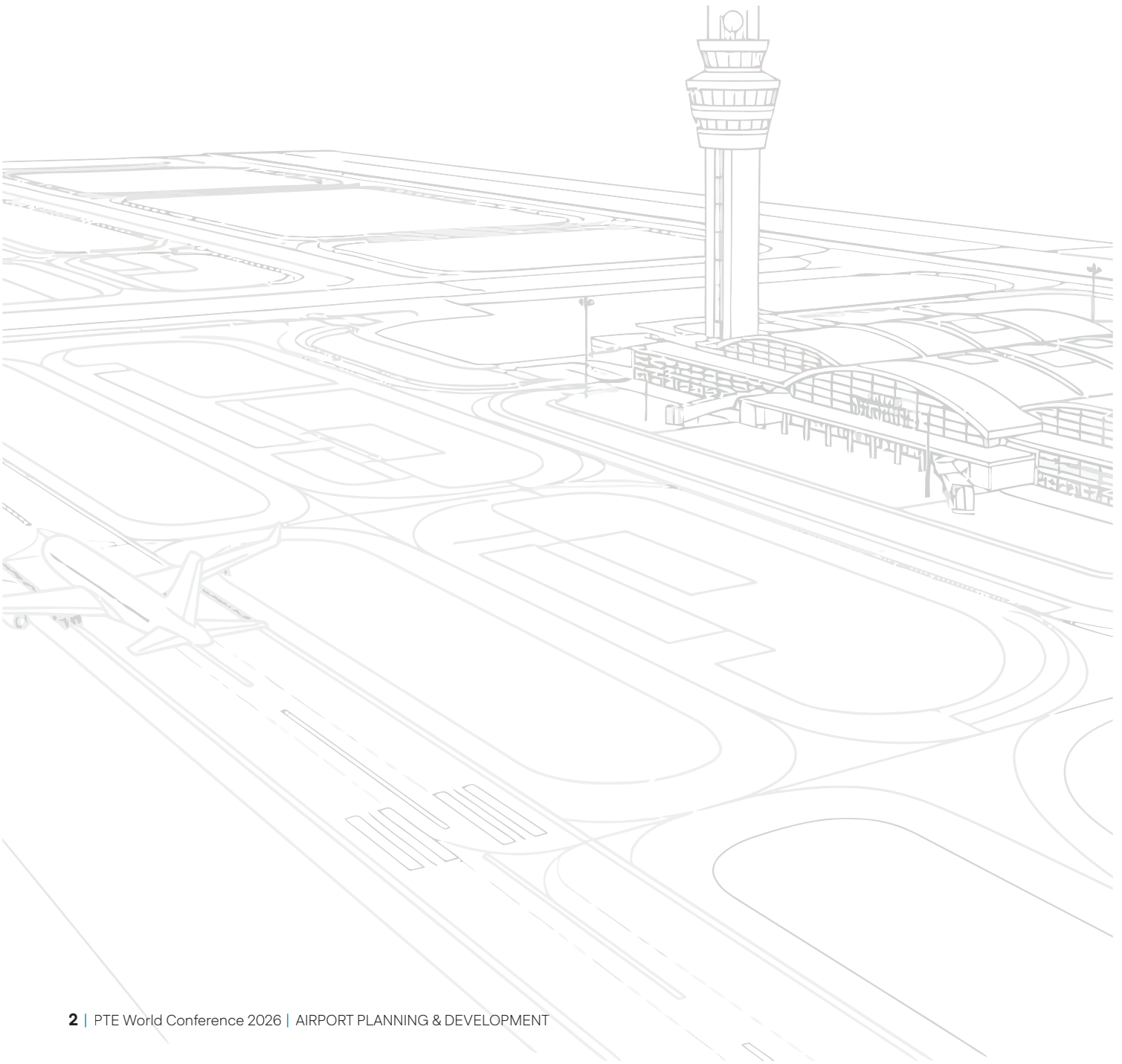
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Executive summary

The aviation industry faces a \$2 trillion infrastructure challenge over the next 15 years. The number of commercial aircraft is expected to double. And yet PTE World Conference 2026 opened with a candid observation: the industry has mastered how to design airports, and is still developing the means to deliver them at the speed, scale, and cost the next decade demands.



Key findings

Brownfield capacity is dramatically underexploited.

Stansted has grown 7x its original design capacity in the same building. Manchester is on track for 32 million passengers per terminal with existing runways. The greenfield business case needs to prove it can do something a smart retrofit cannot.

Modular construction has crossed the viability threshold.

DFW moved 700-ton terminal modules across a live airfield. Terminal F was delivered 35% faster than conventional construction, absorbed a mid-build pivot in use, and produced zero cracked glass.

Governance, more than engineering, shapes delivery timelines.

Many major expansions discussed at PTE Conference 2026 were paced not by design or construction, but by regulatory alignment, political sequencing, and public transport funding. The airports that open on time tend to be those where clear decision-making authority is in place.

Greenfield delivery depends on decision-making autonomy.

The fast-track greenfield panel was unambiguous: speed comes from governance quality, not construction pace. Noida's team credited decision-making autonomy as the single most decisive schedule factor.

The 20-year demand forecast is structurally broken.

Nashville exceeded its long-term plan twice in seven years. Tianfu Airport hit its design capacity 38% over target in four years. The sophisticated response is not better forecasting but designed flexibility.

Airport cities represent the next business model, and most operators are still building the capability for it.

Helsinki, Changi, and Hong Kong demonstrate the upside. But as John Arbuckle observed, real estate is a fundamentally different skill set from operating terminals.

Design has become a competitive weapon.

Portland's timber roof, O'Hare's daylight strategy, and JFK T1's cultural programming are not aesthetic choices. They are strategic differentiators that affect airline partnerships, dwell time, and city identity.

The \$2 trillion will be spent.

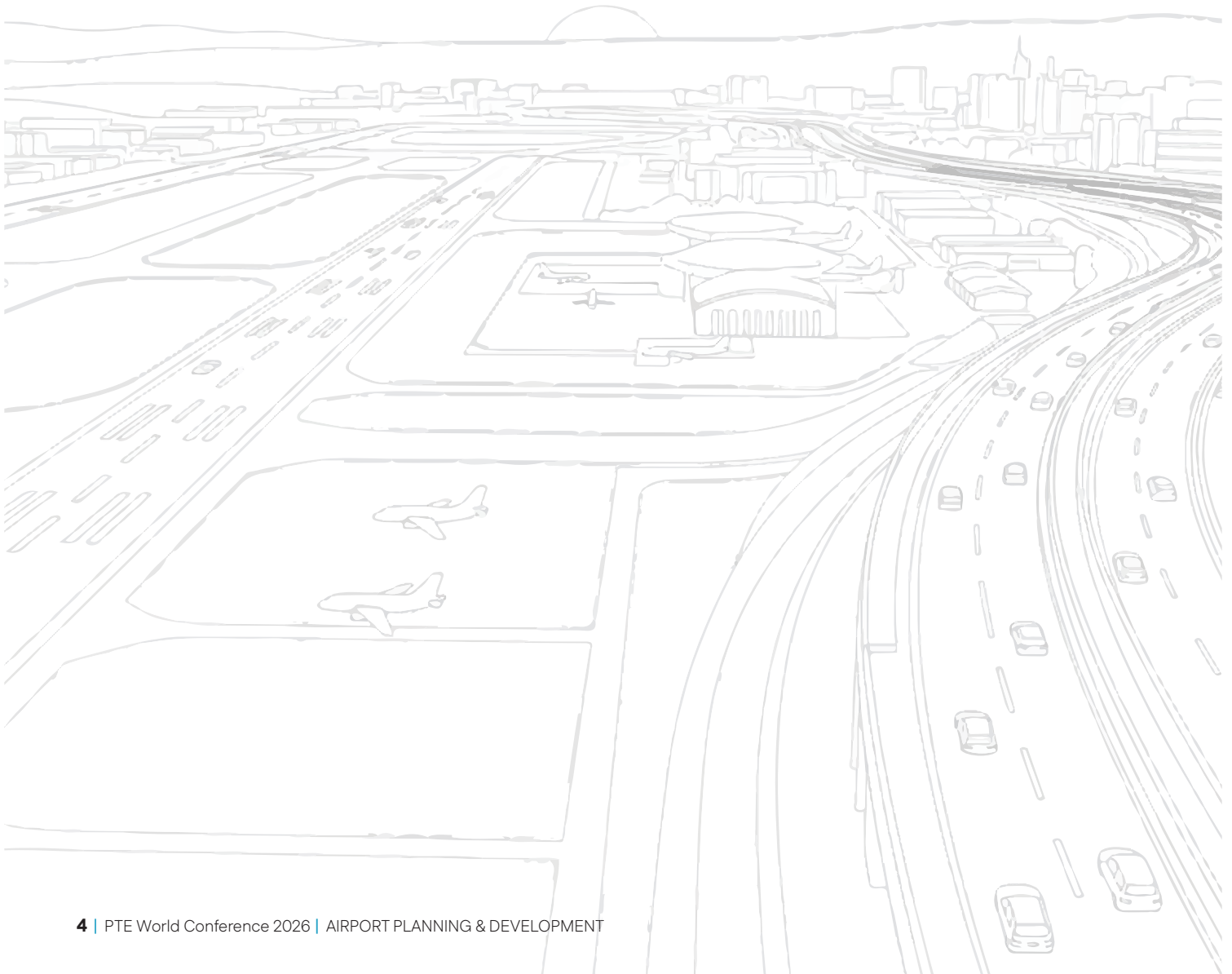
This report argues it should be spent on flexibility, governance reform, brownfield extraction, and airports that know the difference between designing for 2015 and designing for 2035.

The \$2 trillion question facing the industry

The aviation industry needs more than \$2 trillion in airport infrastructure over the next 15 years to meet the demand of aircraft already on order. The number of commercial aircraft is expected to double in that timeframe. And yet, conferences still open with the same slide: a rendering, a timeline, and a promise.

What emerged from PTE World Conference 2026 was a more candid framing. The industry knows how to design airports, and is still developing how to deliver them at the speed, scale, and cost the next decade demands.

The gap is not architectural imagination. It is institutional.



1. The capacity paradox: Doing more with what you have

The most revealing statistic at PTE World Conference did not come from a mega-project. It came from Stansted.

The terminal opened in 1991, designed for 7 million passengers. It now handles 30 million. It has planning permission for 51 million. Same building. Same runway.



“We are still in the same building.”

Manuel Cruz, project director, Pascall+Watson Architects

This is not an anomaly. It is the dominant pattern. Manchester has grown from 8 million to 32 million passengers per terminal, with a clear path to 60 million using existing runways. Heathrow processes three times more passengers per square metre than its European peers. Brussels is redesigning its terminal assets to swing between configurations without construction.

The implication is notable: the industry's focus on building new may be understating how much more it could extract from what already exists.



“I probably could have done it a few million pounds cheaper if we'd taken an extra year. But the lost opportunity in being a year behind would have been really significant.”

Chris Woodroffe, managing director, Manchester Airport

Speed of capacity release, not perfection of design, is the competitive variable.

The forward-looking question: If brownfield optimisation can deliver 5-7x the original capacity of a terminal, at what point does the greenfield business case need to prove it can do something a smart retrofit cannot?

2. Modular construction is no longer experimental

Dallas Fort Worth moved a 278-foot, 700-ton building module across a live airfield in 45 minutes. At night. With passengers flying the next morning.

Terminal F was delivered in six modules over 14 nights, 35% faster than conventional construction. The ground pressure of each module on its self-propelled transporter was one-fifteenth that of an A380. Zero cracked glass panels. Zero cracked terrazzo.



“When I started my career, I could look my clients in the eye and say what I’m building is good for the next 20 years. I don’t think any of you today can say what you’re building is good for the next 5 years.”

*Mohamed Charkas, executive vice president chief infrastructure & development officer,
Dallas Fort Worth International Airport*

This is not a construction technique. It is a response to fundamental uncertainty. If terminal requirements shift faster than terminals can be built, the only viable strategy is to build things that can be moved, reconfigured, or replaced without shutting down operations.

DFW’s modular programme absorbed a mid-construction pivot from domestic to international, and from multi-airline to single-carrier, without pausing work. The implication for the rest of the industry: if your terminal expansion requires five years of design certainty before breaking ground, you are already designing for the wrong future.

What to watch: Modules currently arrive with 60-70% of MEP installed. Full fit-out before transport is the next milestone. When that happens, the distinction between ‘temporary’ and ‘permanent’ airport infrastructure becomes meaningless.

3. The great infrastructure contradiction

Every major UK airport expansion discussed at PTE World Conference hit the same wall: the terminal is privately funded and ready. The transport connections are publicly funded and not.



“I’m the managing director of an airport and the amount of time I spend talking about trains is considerably more than I ever imagined I would.”

Chris Woodroffe, managing director, Manchester Airport

Only 20% of Manchester’s passengers arrive by public transport, versus 50% in London. Northern PowerRail is the unlock that could take the airport from 50 million to 60 million passengers, but it is a government decision, not an airport one.

At Heathrow, the third runway requires public transport trips to increase from 27 million to 67 million per year. The runway itself is the easy part. The M25 tunnel, four river relocations, an energy waste plant relocation, two lakes to be filled in (one is 20 hectares), and an electric substation move are the hard parts. None of them are runway or terminal problems.



“We believe the regulatory model is broken. Heathrow is the most expensive airport in the world, and passengers are being charged a billion pounds a year more than their European counterparts.”

Carlton Brown, CEO, Heathrow West Limited

This is not a UK-specific problem. Navi Mumbai’s terminal is open but its high-speed rail link is not. Houston’s Terminal B was designed for 30 million passengers on roads that have not been upgraded since 1969. Poland’s Port Polska has a terminal architect (Foster + Partners) but a rail timeline that has shifted from 2027 to 2032.

The pattern is global: Airports are outrunning the transport systems that feed them. The industry has solved the challenge of building terminals. It has not solved the challenge of connecting them.

4. Greenfield airports: Why governance outweighs design

The most instructive sessions at PTE World Conference were not about design. They were about what happens before design starts.

Goa's Manohar International Airport cut 55,000 trees, replaced them with 550,000, moved 1.1 million cubic metres of laterite soil entirely within the site boundary, and navigated archaeological finds, Western Ghats eco-sensitivity regulations, and India's first dual-airport regulatory framework.



“Proceed with the project construction / development after securing full land, environmental clearance & financial closure.”

Sheshan Ranganathan Venkata, chief executive officer, GMR Goa International Airport Ltd

In Tashkent, the World Bank told the government a new airport was unnecessary. Vision Invest conducted its own market sounding to prove demand, committed \$3 billion of the \$4 billion total, and is now building what will be a 17-20 million passenger hub opening in 2030, targeting 45 million by 2050 and 100% renewable energy from day one.

The fast-track greenfield panel delivered the sharpest reframe: speed is not about construction pace. It is about governance quality. Jasmine Reis and Noida International Airport's team credited decision-making autonomy, granted by their Zurich Airport shareholder, as the single most decisive factor in maintaining schedule.



“To comply with timelines you have to put all activities in parallel. We start construction without having the entire design complete. This is a given.”

Jasmine Reis, head of finishes and ORAT infrastructure, Noida International Airport



“Too many governments leave investor interests and market sounding until the project is cooked. Unless you engage with the private sector early on, that project is doomed for failure, because capital can walk.”

Lee Lawrence, vice president, Vision Invest

The key insight: The principal constraint in global airport delivery is not engineering. It is governance, regulation, and political sequencing. The airports that open on time are the ones where someone had the authority to make decisions without a committee.

5. Rethinking the 20-year demand forecast

Nashville blew through its long-term capacity plan twice in seven years. Tianfu Airport in Chengdu exceeded its design capacity by 38% in four years. Dublin's newest runway took 17 years from application to operation.

The assumption that underpins many airport master plans, that demand can be forecast with enough precision to justify fixed infrastructure, is increasingly being questioned.

The response emerging from the most sophisticated programmes is not better forecasting. It is designed flexibility.

Port Polska maintained optionality between 34 and 44 million passengers at opening with no change to the main building volume. The difference is fit-out. Heathrow's master planners are assigning expected end-of-life dates to every piece of infrastructure, what they call 'temporal master planning,' where buildings designed today are explicitly planned for removal later. Brussels is building 'flexible terminal assets' that can swing between Schengen and non-Schengen, domestic and international, without construction.



“One thing designers like is to have some certainty around the brief. Of course, we’ve got a plan a long way ahead in the future. So things like the flight schedule, designers are asking for that all of the time. And of course we can’t give it to them.”

Jolyon Brewis, partner, Grimshaw

The shift: Master planning is moving from 'predict and provide' to 'design and adapt.' The airports that will succeed in 2035 are the ones being designed to be wrong about 2035 gracefully.

6. Airport cities: The revenue model that demands a different skill set

Helsinki Airport's surrounding district produces 3% of Finland's GDP. When Nokia was at its peak, it contributed 4%. Changi Jewel attracts 80 million visitors a year, more than half of them local Singaporeans who have no intention of flying. Hong Kong Airport derives 59% of its revenue from non-aeronautical sources.

These are no longer outliers. They are the business model the rest of the industry is chasing.

But the honest conversations at PTE World Conference revealed how far most airports are from replicating them.



“Real estate is a different skill set. Airports can develop runways, terminals, do all these operational projects to a very high standard. But real estate is different, and you have to be honest with yourself about whether you have the skills.”

John Arbuckle, partner and head of aviation, Newmark

In Latin America, concession structures are the structural barrier. Santiago Airport operates under a 77.56% revenue concession fee on a 20-year term. Hotel and real estate investments need 20-30 year payback periods. The economics are challenging under current terms.

The most interesting new development: US tariff disruption and global supply chain rerouting are making airports with free trade zone capability newly strategic. Life sciences clusters, robotic fulfilment centres, and circular economy facilities are emerging as the next wave of airport city tenants, driven by proximity to air cargo, not passengers.

The opportunity: Most airports still approach non-aeronautical revenue primarily as shops and car parks. The airports that will dominate commercially by 2035 are the ones treating their land banks as economic development platforms.

7. Design is becoming a strategic differentiator

The Prix Versailles awards went to Portland and Marseille. Portland's terminal used 3.7 million board feet of locally sourced timber, replaced 670 columns with 34 mega-columns, and runs all 23 restaurants at street pricing with local vendors. During COVID supply chain disruption, the wood was available within 300 miles. Steel would not have been.

O'Hare's new concourse achieves 90% daylight autonomy in gate lounges through a barrel-vault profile that reduces cooling load by 30% and volume by 21%. JFK Terminal 1 commissioned 10 short films from Queens and Brooklyn filmmakers and installed the world's two largest split-flap displays. San Antonio's Terminal C involved a 35-member accessibility working group drawn from lived-experience users, designing zero-transition curves that serve 67 different user groups.

The pattern: the most ambitious airports are no longer competing on efficiency alone. They are competing on identity, sense of place, and the emotional quality of the passenger experience.



“We don’t have passengers, we have guests.”

Quentin Brathwaite, design lead, JFK New Terminal One



“Everyone in Marseille kept saying, ‘We finally have an international airport.’ That tells you how big a symbolic reference it is.”

Thomas Busser, head of communications and marketing, Aéroport Marseille Provence

Tampa's Airside D programme demonstrated what happens when design ambition meets operational discipline. A \$1.5 billion project with 75 employees on 24 focus teams, 450 meetings over 2.5 years, and a difference between early estimate and final GMP of just 1.5%.

The lesson for 2035: Airports that treat design as a cost to be engineered down will lose to airports that treat it as a competitive advantage to be invested in.

What this means for the next decade

Five structural shifts are reshaping airport planning and development:

1. Flexibility over precision.

The era of the 20-year fixed master plan is over. The winners will design infrastructure that absorbs uncertainty rather than betting against it. Modular construction, temporal planning, and swing-capacity terminals are the new baseline.

2. Governance is the bottleneck.

The industry can design and build almost anything. The constraint is decision-making speed, regulatory alignment, and the willingness of governments to match private investment in airports with public investment in access.

3. Brownfield is undervalued.

The potential to extract 5-7x original capacity from existing terminals through smart retrofitting is one of the most capital-efficient strategies available. Not every capacity problem requires a new building.

4. Airport cities are the next business model, but demand honesty.

The revenue upside is proven. The skill set, concession structures, and governance models required are not yet in place at most airports.

5. Design is strategy, not decoration.

The airports winning awards, passengers, and airline partnerships are the ones investing in identity, accessibility, and experience quality. Portland's timber roof was not more expensive than steel. It was more strategic.

The \$2 trillion will be spent. The question is whether it will be spent building the airports the industry needed in 2015 or the ones it will need in 2035. Based on what was said at PTE World Conference 2026, most of the industry knows the difference. The challenge is acting on it.

Based on sessions and discussions at PTE World Conference 2026, London.

Appendix: Sessions referenced

REPORT SECTION	SESSIONS
The Capacity Paradox	Stansted transformation a year later – beyond concept design (Pascall+Watson Architects; Stansted Airport); Manchester Airport: designing for growth (Manchester Airport); Expanding Heathrow: holding the vision through uncertain times (Heathrow; Heathrow Airport); Flexible terminal assets (Brussels Airport Company); Beyond the terminal: reimagining satellite spaces at Heathrow (AtkinsRéalis; Heathrow Airport Ltd)
Modular Construction	Panel discussion: Design-building the largest unitized modular concourse (Dallas Fort Worth International Airport; PGAL; The Walsh Group; Turner Construction Company; McCarthy Building Companies); One month until Europe's next-level terminal opens (Fraport)
The Great Infrastructure Contradiction	Manchester Airport: designing for growth (Manchester Airport); Heathrow West: an alternative vision for an affordable Heathrow expansion (Heathrow West Limited; Bechtel Corporation); Navi Mumbai International Airport: a new gateway to India (Zaha Hadid Architects); Panel discussion: Controlling landside access – intelligent transportation systems (ITS) to relieve congestion (TYLin Group; Mead & Hunt; VRX; United Airlines); Port Polska: Planning and delivering a multimodal hub for future growth (Centralny Port Komunikacyjny)
Greenfield Airports	Building Manohar International Airport at Goa, India: Experience and learning (GMR Goa International Airport Ltd); Panel discussion: Fast-track development of greenfield airports (Noida International Airport; Vision Invest; NACO Netherlands Airport Consultants); Developing Kinshasa International Airport as a gateway to the world (Infrarose; SOM)
Rethinking the 20-Year Demand Forecast	Port Polska: Planning and delivering a multimodal hub for future growth (Centralny Port Komunikacyjny); Expanding Heathrow: holding the vision through uncertain times (Heathrow; Heathrow Airport); Flexible terminal assets (Brussels Airport Company); Panel discussion: Planning for the long term for airports and airlines (Southwest Airlines; Corgan; Metropolitan Nashville Airport Authority); Navigating growth: Phase two of Tianfu and Guangzhou Airports (Artelia Airports)
Airport Cities	Panel discussion: Measuring the success of airport cities (Brussels Airport; Vienna International Airport; LabCampus; Cranfield University); Panel discussion - LAC airport cities (ARC - Airport Regions Conference; Groupe ADP (Aéroports de Paris); ACI-LAC; IR Economy, Logistics and Territory (IRELT)); Airport city real estate: strategy, development models and value creation (Newmark); Panel discussion: Airport cities connecting multimodality, economic development and community integration (Centralny Port Komunikacyjny; Blaise Diagne International Airport; Aerotropolis Atlanta Alliance; SPADA (Hong Kong); City of Vantaa and Helsinki Uusimaa Regional Council); Airports as catalysts for sustainable and resilient urban growth (Dublin City University Business School); Airports as catalysts: unlocking Greenland's economic and social potential (Zeso Architects)
Design as Strategic Weapon	Panel discussion: One award, two airports – Marseille and Portland win Prix Versailles (Aéroport Marseille Provence; Port of Portland; Foster + Partners; ZGF Architects); What's next for O'Hare Airport (SOM; Chicago Department of Aviation); Creating the JFKT1 cultural experience: art, branding, film and digital (JFK New Terminal One; Arup); Capturing the heart of Texas in San Antonio (San Antonio Airport System; Corgan); Beyond the blueprints: rethinking collaboration to design a terminal (Tampa International Airport); Runways to resilience: MRY's pathway to net zero terminal design (Monterey Regional Airport; HOK); Net zero terminals: designing human comfort with minimal carbon footprint (Deerns)
Mega Projects & Delivery	Panel discussion: Measuring what matters on mega projects – lessons from SFO (San Francisco International Airport; Hensel Phelps; Gensler); Panel discussion: Delivering private airport development programs in a capacity-constrained environment (Carlyle Airport Group (CAG); Vantage Group; AECOM; United Airlines); Panel discussion: Future-ready airports – building resilience and profitability globally (Arcadis; Royal Schiphol Group; Brisbane Airport Corporation); DXN ORAT: delivering airport operations before completion (Noida International Airport); Planning for disruption: anticipating redevelopment impacts (JetBlue Airways Corporation; WSP USA); Transforming CLE: CLEvolution supports construction through engagement and experience (City of Cleveland Department of Port Control)

Additional sessions

- Expanding Heathrow: holding the vision through uncertain times
- Breathing new life into JFK's Terminal 4
- Expansion of Terminal 1 at Munich Airport
- Schiphol's Lounge 1 redevelopment
- The new Heraklion International Airport
- The changing face of Indian airports
- Adding capacity while growing at record pace
- Elevating Mactan-Cebu International Airport
- Redesigning Blaise Diagne Airport
- Smart phasing at airside (Montreal)
- DUS Masterplan 2045
- New obstacle limitation surfaces (OLS)
- Enhancing Ireland's connectivity with Europe's newest runway
- Developing sustainable airports across geographies
- Fireside chat: Future global gateways
- Fireside chat: The now, the new and the next



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