Future-ready airports

Airports are back in the spotlight as catalysts for future growth
Highlights

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pg. 11 Finally, we discuss some of the practical steps necessary for US airports to take that helps increase regional growth and competitiveness
The aviation industry in the United States has evolved considerably over the last few decades. Taking a flight is now a frequent occurrence for many, as common for some as taking a city bus, with passenger experiences and expectations having changed along the way. Deregulation of the aviation sector since 1978 has spurred much of the growth of airport assets. With passenger volumes growing, the aviation sector in the US now generates nearly $1.6 trillion per annum for the economy through its entire value chain. As the Federal Aviation Administration (FAA) anticipates a 2.6% year-on-year growth rate in US aviation traffic out to 2036, the sector looks set to grow faster than the US economy as a whole during the same time.

Airports have always had a significant, if under-appreciated, role to play in enabling regional economic growth. They permit connections between cities, which catalyzes economic activities through amenities and needs for non-resident passengers in transit, as well as supporting aviation-related services, co-located commercial development and the provision of infrastructure.

Investment in airport infrastructure and services is therefore critical to sustain this economic dividend. However, with a projected funding shortfall of $75.7 billion by 2019 that is already making it hard to keep pace with passenger and freight carriers’ demand, US airports will likely struggle to improve their legacy infrastructure, let alone consider improvements that maximize their regional economic benefits.

This report addresses the key issues that airports should consider in planning for and implementing future-ready infrastructure that could deliver improved economic growth and competitiveness for the cities and regions they serve.

The catalytic role of airport infrastructure

Originally seen as risky enterprises that required the support of local governments, nearly all airports in the US are still publicly owned and operated. But with fiscal tightening from all sides – constrained local government coffers, the halving in real terms of federal funding through the Passenger Facility Charge (PFC), the restricted uses of grants under the Airport Improvement Program (AIP), and limited access to private investment – US airports are struggling to invest in capital improvement. This is contributing to tangible issues apparent to passengers such as congestion and delays inside terminals and at gates – and a drag on the economy in the order of $22 billion as of 2012, anticipated to rise to $34 billion by 2020 and $63 billion by 2040.

Some airports are starting long-awaited terminal upgrades: Los Angeles International Airport (LAX) is working on a $5 billion program to modernize and improve accessibility, Atlanta has started a $6 billion expansion of its Hartsfield-Jackson Airport, and the Port Authority of New York/New Jersey has started work on a $2 billion program for a new Terminal A at Newark Liberty International Airport and closed on a $4 billion public-private partnership (PPP) to renovate LaGuardia Airport’s Terminal B. While welcome improvements, the fact remains that the average airport terminal (including renovation) in the US is over 20 years old. The scale of the challenge facing airports across the US therefore remains significant.

Our view is that recapitalization of airport infrastructure should be tailored to maximize regional economic growth and contribute to city competitiveness.

Airports can drive competitive advantage

Airports are too often seen as merely supporting assets to the revenue generators of air travel. However, airports have the potential to catalyze massive economic benefits outside of the perimeter fence. The degree to which this can be capitalized depends on comprehensive and strategic planning, and prudent and integrated execution.

When designed, executed and operated poorly, airports can be a drain on a city, over drawing public funds, choking highways with traffic, squeezing in passengers through long security lines and providing a negative experience for users overall. In a recent PwC survey of business travelers through New York City’s three main airports, over half said that they had decided at least once in the past year to avoid flying into the city for a meeting, citing dissatisfaction with airport facilities as their main reason. The loss of future passengers – and missed opportunity for increased economic growth – is therefore apparent.

However, when designed, executed and operated well, airports will generate more jobs, facilitate increased business interactions, encourage co-located commercial development, support increased trade in goods, and will likely open up regions to more cross-sector investment. This is being recognized in airport developments around the world, with European and Asian airports dominating various surveys and rankings of airport quality and projected economic growth.

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6 3,763 executives from 74 companies representing every US state and 32 foreign countries responded to the survey, conducted this July and August in association with the Partnership for New York City (PfNYC).
For example, Singapore Changi (SIN) – the World’s Best Airport in Skytrax’s 2016 awards⁸ – gets a number of things right. Designed with passenger experience in mind, the airport terminal boasts a number of both leisure and business amenities, making it an ideal transit hub. With high-frequency rail links to the city, SIN is integrated with the urban fabric of Singapore.

In the US, airports such as Dallas-Fort Worth (DFW) – the World’s 58th Best Airport in Skytrax’s 2016 awards – have addressed other areas. While passenger experience and terminal quality may not have been comparable to European and Asian peers, DFW has focused on the economic linkages that connect it to the Dallas-Fort Worth metropolitan area through the co-located retail and commercial Las Colinas development. DFW has focused on creating opportunities for various economic sectors to benefit from access to the airport, serving as the primary hub of economic development in northern Texas with multiple corporate headquarters located nearby and strengthening the economic corridor through capital projects such as the high speed rail (HSR) proposals under consideration.

An airport that embraces and plans for these activities will likely influence where companies choose to do business. In our survey, over a third of companies said airport quality had a medium or high impact on where corporate headquarters and other offices are located, clearly indicating that is one of several major criterion to evaluate in the growth plans for their respective businesses. US airports are increasingly recognizing this, with concepts such as "airport cities" in various stages of planning, such as in the cases of Memphis and Denver international airports.

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⁹ New York State Governor Andrew M. Cuomo press release, “Governor Cuomo Announces Financial Closing on Transformational Redevelopment of LaGuardia Airport,” June 1, 2016.
Ingredients for success

Five focus areas for future-ready airports to help maximize regional growth and competitiveness

To be ready for the future, airports should plan for infrastructure that is holistic and maximizes its region’s competitiveness. We know this from our experience working with a number of airport clients. And we see five key focus areas that airports should get right to be future-ready.

1. On-time performance

An issue that is always top of mind for airport executives is on-time performance, even though, to a large extent, it is widely acknowledged that airports are often at the mercy of airlines and the weather in this regard. Although on-time performance across US airports in the last five years is a respectable 80%10 – a system average that is among the top 20 airports globally11 – airports can still enable better performance through efficient terminal design, signage and ground handling practices. Efficient flight operations ensures that passengers get to their destinations on time, and that air freight arrives on a scheduled basis, with time-sensitive and just-in-time cargo deliveries being important to ensure the smooth running of a local economy.

US airports are also maximizing their regional competitiveness by working together with airlines and other stakeholders within the Next Generation Air Transportation System (NextGen) to ensure safe and timely flight operations.

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2. Terminal efficiency

Airports that allow the efficient movement of passengers from curbside drop-off to gates reap tangible benefits in terms of increased passenger satisfaction, which translates into greater passenger volumes and increased terminal revenue. At a foundational level, this can be facilitated through terminal signage, information provision, and efficient design that factors in how passengers move through the terminal and where bottlenecks occur – such as at security, which has an average wait time of 18 minutes across the 30 largest airports in the US.12

Airports are increasingly becoming future-ready by using technology to provide real-time information to passengers regarding wait times, and by providing remote check-in, pre-clearance options and self-service baggage drops that speed up navigating the airport maze. Mobile technology has been a boon to airports, allowing them to offset the cost of dedicated infrastructure by making such information platform-agnostic, with passengers being able to access relevant airport information through a mobile app. However, to be future-ready, airports should weigh these benefits against the risks to information security from cyber threats, for example, and put into place managed safeguards that protect against those threats.

3. Terminal amenities

Terminal amenities are a key issue for a significant number of airport ranking indices. While many of these focus on the needs of (typically) leisure travelers – incorporating into their scoring the availability of retail, leisure and cultural facilities – airports also need to cater to the needs of business travelers if they are to drive regional competitiveness. Of particular importance are amenities tailored to business travelers that allow continuity of work while passing through terminals. In our survey of business travelers through New York City airports, more than a third cited passenger comfort and terminal cleanliness as priorities.13 While the majority of US airports offer free Wi-Fi,14 for example, airports can do more to make it easy for business travelers to work on the go. These include collaboration spaces such as #Converge@flySFO at San Francisco’s International Terminal, as well as low-cost, sensible measures such as clean restrooms, workstations and power charging. The short of it is that business travelers, in particular, are savvy and can identify best practices from around the world. US airports should do more to meet the expectations of a more global and discerning customer base.

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4. Urban connectivity

Airports are ultimately a means to getting to an end, rather than a destination in and of themselves. Airports need to prioritize high-quality mass transit connections to and from downtown areas. Passengers incorporate travel times between airports and final destinations into their trip planning, and airports need to do the same. Private vehicle use is currently the main mode of transport to and from US airports, and while there are benefits to this in reduced infrastructure costs, this needs to be weighed against the costs of congestion. For example, in New York City, which is known for gridlocked traffic patterns in getting to and from its airports, particularly during rush hour, this aggregated cost associated with congestion is estimated to reach $16.1 billion by 2025.15

While many airports are still grappling with the emergence of rideshare apps disrupting the relationships that regulated taxicabs have had with cities, there is recognition that there is no one-size-fits-all transit solution for airports. Each option depends on ridership, density, flight schedules and more, and airports need to work with cities as well as transport agencies and providers to identify better ways of facilitating passengers in reaching their final destination.

5. Regional economic links

Airports drive regional competitiveness when physical, economic and material connections are optimized between airports and their respective cities. Most large US airports consider, or at least quantify, their economic impacts in some way but rarely focus on using this understanding to strengthen their contribution to regional competitiveness.

There are a few exceptions, such as the previously mentioned DFW, which are optimizing airport strategy to adopt a focus on driving regional economic growth. For many airports this begins with in-terminal amenities for business travelers; for others it is about working with cities to establish reliable and frequent transport connections to cities – such as Denver’s new University of Colorado A-line, and the planned Phase II Dulles extension of the Washington Metro Silver Line. Where it is available, more sophisticated airports also consider utilizing on-airport or adjacent real estate for high value-added commercial developments. These can include commercial infrastructure such as datacenters, research facilities and incubators as well as both established and start-up firms that cannot afford downtown commercial leases. Leading airports are integrating these regional assets with airline route strategy and partnering with regional economic development organizations to attract and expand business across a global portfolio.

Variously called “airport cities” or “aerotropolises”, airports are beginning to leverage their strong political backing, global reach, high-quality infrastructure, and undervalued real estate to serve as growth poles in driving regional competitiveness. This will be a key feature of future-ready airports.

“Business travelers are savvy and can identify best practices from around the world.”
How future-ready are US airports?

Airports should address five focus areas to optimize their contribution to regional growth. We evaluated 30 of the largest airports in the US, accounting for 72% of all passenger boardings,16 to understand which airports have the ingredients to help increase competitive advantage for their regions.

While numerous airport indices and league tables exist, these are typically catered to airport users and emphasize overall passenger experience. PwC's Index of Future-Ready Airports in the United States identifies those that have the key ingredients necessary to catalyze regional competitiveness and growth.

PwC’s 2017 Index of Future-Ready Airports in the United States

<table>
<thead>
<tr>
<th>Rank</th>
<th>CLT</th>
<th>Charlotte-Douglas International Airport</th>
<th>Urban connectivity</th>
<th>On-time performance</th>
<th>Terminal efficiency</th>
<th>Terminal amenities</th>
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Sources: PwC analysis using data from 30 US airports, Federal Aviation Administration (FAA), US Department of Transport (DoT) Bureau of Transportation Statistics (BTS), US Customs and Border Protection (CBP), International Air Transport Association (IATA), Skytrax, Google Maps. Weightings applied to emphasize regional and urban connectivity dimensions.

A few trends become immediately apparent. US airports that typically dominate other rankings in terms of passenger experience, such as SeaTac (SEA), Denver (DEN) and Atlanta (ATL), also feature in the top 15 in this index – strongly indicating the importance of overall passenger experience in setting regional profile and economic contribution. In contrast, New York City airports are hampered by dated infrastructure, long security lines, inadequate amenities and difficulty in transport access. In line with PwC’s own survey results, there is a consensus – at least among business travelers – that airport infrastructure in New York City may not be optimizing some of the economic benefits that could be realized on the region’s economy.

Topping the index is, perhaps surprisingly, Charlotte-Douglas International Airport (CLT) in North Carolina. The second largest hub for American Airlines, it has considerable international connections for an airport of its size, with direct connections to the Caribbean and Europe. Although having the lowest number of restaurants per passenger, CLT makes up for this in having an excellent on-time record. It is also well connected with downtown Charlotte through the Charlotte Area Transit System (CATS) Sprinter Enhanced Bus Service – demonstrating that strong urban connections need not be prohibitively expensive. The presence of the Charlotte Air National Guard Base, which employs nearly 1,500 personnel, as well as CLT’s on-airport intermodal logistics and freight rail facility, strengthens the airport’s role in driving economic growth and enhancing the region’s competitiveness. Indeed, two thirds of the total economic impact of the CLT is in indirect and induced economic activity and generates more than half a billion dollars in local and state taxes.\(^\text{18}\)

Notable mentions in the index are the middle-ranking airports such as San Diego International Airport (SAN) and Philadelphia International Airport (PHL). These airports have either invested in strong urban connections, or have raised standards of passenger experience through effective and quality terminal design and amenities. But in these cases, contributions to regional growth and competitiveness do not extend outside the terminal. These airports should do more work to develop and sustain regional economic linkages by working with cities and the private sector to maximize airport infrastructure and assets.


Getting US airports future-ready

The US accounts for 22% of the global aviation market in terms of passenger volumes, yet airports in the US comprise only 12% of Skytrax’s World Top 100. In other words, US passengers are experiencing a lower level of airport infrastructure quality than passengers in other regions. Adding to the need for improvement is expected future growth in passenger volumes, a doubling of international flights to and from the US in the next 20 years,¹⁹ and point-to-point routes becoming increasingly profitable.²⁰ US airports will be busier and face greater competition from peers both domestically and internationally, and airports will likely no longer be seen as just an infrastructure facility but engines of growth whose impacts ripple through local and global economic value chains.

Capital improvement projects on the scale and complexity of airport renovation or expansion are fraught with risks – and the impact on planned funding commitments can be enormous. Recent airport programs in the US (e.g., LAX) and around the globe (such as Dusseldorf and Dubai) have dealt not only with massive cost overruns but also delays to opening and operations which are constant reminders that the massive economic upside resultant from airport strategic growth plans can be clipped by failures during execution and construction.

Similarly, airport capital improvement programs that simply solve yesterday’s airport infrastructure problems, or refresh existing facilities as a lower-risk remedy, miss the opportunity to maximize dividends for the regions they serve.

Instead, airports need to focus on programs that yield regional and systemic benefits that help drive growth and competitiveness. These may include terminal rationalization efforts, new mass transportation links, intermodal logistics complexes, enterprise zones, co-located commercial development or innovations in terminal amenities and the use of cyber-secure technology to improve passenger experience. In order to do this, we recommend the following:

Four steps to make an airport future-ready:

1. Conduct a strategic planning exercise
2. Win stakeholder support and mobilize organizational resources
3. Consider a range of financing options to optimally allocate risk and returns
4. Implement a program of well-managed capital projects

Failure in any one of these steps will likely dramatically limit the potential of regional economic returns.

1. Conduct a strategic planning exercise

Airports should take the time and make a concerted effort to better understand their regional contexts and the role that they play in facilitating city-to-city connections. Conducting a comprehensive strategic planning exercise can anticipate growth trends and their impact on route strategy, and take into account regional assets such as airport real estate, local businesses and institutions. The exercise may identify regional economic clusters that airports can enhance, new international routes that might be considered, and design partnerships with local government, the private sector and academia to drive innovation-led growth. This exercise will evaluate the options and allow priorities to be made with a full understanding of implications and requirements, stakeholders that need to be engaged, and consideration of scenarios related to how airport and city resources may be most effectively deployed.

2. Win stakeholder support and mobilize organizational resources

Often the biggest hurdles to executing capital projects are not just obtaining political and regulatory approval and mobilizing financial resource; rather, the challenges are from not engaging the right stakeholders and sponsors at the right times and not clearly aligning their more focused objectives. Developing effective and well-planned comprehensive stakeholder engagement plans – ones that can be operationalized by dedicated resources to win support of local government, communities, the private sector and regulators – is therefore critical to ensure that airport development is seen as aligned and additive to wider regional initiatives. Most US airports are municipally governed and therefore political in nature, with the Mayor or County Commissioners of these airport regions expected to be good stewards of public funds and balance a myriad of competing interests, some of which may or may not focus on the future of a significant transportation entity for the region. With US airports subject to the municipal civil service structures, resources are likely to be a challenging parameter when seeking top talent to run strategic infrastructure assets with an increasingly global profile.

3. Consider a range of financing options

Working with a range of stakeholders also opens up channels of financing; indeed, one of the models gaining greater attention in the US, are public-private partnerships (PPPs). While a known quantity in the rest of the world, PPPs in the US have not generated as much interest because of the prevalence of tax-exempt bonds that allow most cities and states to raise money inexpensively. The benefit to airport infrastructure is that PPPs not only allocate project risk to those most able to mitigate or bear it (e.g., project developers in design, build and operation phases), but they also tap in to the deep pockets of the private sector.

LaGuardia Airport is a leader in this respect; Port Authority of New York recently closed on a $4 billion deal with a private consortium to upgrade key infrastructure at the airport as part of a ten-year $28 billion capital investment program. The success of the deal has whet the appetites of other airports seeking alternative financing methods with LAX and others exploring PPP models. Ultimately, taking a holistic approach to airport improvement financing – whether from federal grants in the form of AIP and PFC, municipal bonds or non-aviation revenue streams – ensures that funding streams are optimized and allocated with maximum utility.

21 New York State Governor Andrew M. Cuomo press release, “Governor Cuomo Announces Financial Closing on Transformational Redevelopment of LaGuardia Airport,” June 1, 2016.
4. Implement a program of well-managed capital projects

Finally, and most importantly, airports need appropriate governance, controls and execution strategies in place to effectively manage capital projects and airport infrastructure to ensure delivery of an income generating asset as planned and on time. A modern airport development program leverages a wide variety of funding sources (i.e. federal, state, private), procurement strategies (traditional vs. public-private partnerships) and contracting plans (design-bid-build vs. design-build) to construct a myriad of assets (such as terminals, runways, air-side services, road and bridge networks, public transportation connections) and typically, airport authorities execute such programs at this scale once every few decades.
Placing the execution risks in the hands of the entity best able to manage is important, as is having an organization that has the resources and management approach to understand the nuances between each project in the airport redevelopment program. If any single project in the program is not managed effectively, this can result in requests for significant additional funding, delays to revenue generation from operations, and adverse public relations at even world-class airport facilities. There are a number of very visible and high-profile lessons learned from the world over, ranging from the failure of London Heathrow’s automated baggage handling system at Terminal 5 upon its opening in 2008, and the on-going planning, organizational, and technical problems with the delayed Berlin Brandenburg Airport (BER) - to name just a few. Minimizing these risks requires integrating deep skills associated with project planning and management, financing and funding structures, governance and controls, capacity building and effective technology enablers to ensure that future airport infrastructure is delivered on time and on budget and that the desired economic returns are being realized as planned and justified.

Here in the US, airports are primarily functions of a public sector environment, with both the limitations and opportunities that environment brings. Airport capital improvement projects are inherently costly and fraught with complexity and risk, and layering on the responsibility of being an engine for regional economic growth and competitiveness can be daunting to airport executives. It is easy to de-prioritize these strategic capital improvement programs or put this in the “too difficult to deal with” bucket, which may be part of the reason why airports across the country have to extend significant efforts to become future-ready. But, as some of the world-class examples have shown us, careful planning and effective management of capital project strategy through execution can yield massive benefits, not just for the airport but for cities and regions.

Given the scale of transformation required for airport infrastructure – and the catalytic benefits that they offer – making US airport infrastructure future-ready is a generational opportunity and one that should not be missed.
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