THE JOY OF FLYING - CAN P3s DELIVER EFFICIENT U.S. AIRPORTS?

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DHARAM CONSULTING

U.S. airports are strategic infrastructure assets, providing access for people, goods and services to regional, national and international markets, allowing the economy to operate more efficiently, and creating new commercial opportunities and jobs for the local economy. The debate on the condition of our nation's airports, and future requirements, has intensified and U.S. airports are now focusing on how they can use their assets more effectively and deliver required infrastructure with value for money.

In this article, we explore whether P3s are a viable solution to deliver major airport capital investments. We take a look at airport P3 trends internationally, the market in the US, the challenges and often overlooked risks associated with airport P3 projects, the types of projects best served by P3s, as well as lessons learnt and key success factors of P3 arrangements.

Whilst we recognize the importance of the legal and institutional framework, as well as the political, regulatory and social challenges, the focus here is on project-related risks and opportunities, including construction and delivery.

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WHAT IS THE INVESTMENT NEED?

Passenger numbers at U.S. airports are increasing and so are capacity requirements. The FAA forecasts that the number of passenger enplanements will rise by nearly 50% in the next two decades (figure 1). At the same time, the poor state of many U.S. airports has grabbed headlines.

The Airports Council International (ACI-NA) estimates that nearly $100 billion in capital is needed in the years to 2021 to maintain existing facilities, concentrate on hub operations, continue to meet service standards, accommodate traffic growth and support aircraft innovation (figure 2).

The FAA's National Plan of an Integrated Airport System (NPIAS), which includes 3,345 U.S airports, estimates a need for some $32.5 billion in airport project investment between 2017 and 2021. In contrast to the ACI-NA, this figure only includes those airport projects that are eligible for AIP funding, which typically excludes terminal projects.

Apart from terminals, the ACI-NA capital requirement estimate includes projects such as parking facilities, hangars, cargo buildings, the revenue producing portions of passenger terminals, and certain improvements to transportation and transit airport access systems.

Large hubs account for 61% of the $100 billion investment needs, with the majority of requirements identified at Detroit, San Diego, Portland, Los Angeles, Atlanta, Chicago O'Hare, Chicago Midway, San Francisco, Orlando, Houston InterContinental, Minneapolis, Salt Lake City, and Phoenix. Los Angeles International Airport alone identified $10 billion in infrastructure needs between 2017 and 2021, primarily for terminal redevelopment, landside access modernization, and runway safety area rehabilitation and reconstruction.

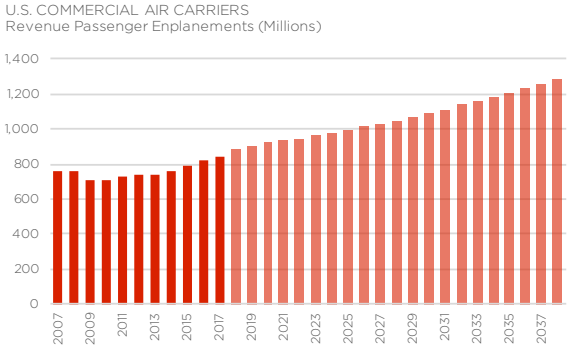
Traditional vs. P3 contracts

In traditionally procured infrastructure projects in the U.S., the public agency typically manages separate, sequenced contracts awarded to private sector firms for the design, construction and maintenance of assets. This leaves the public agency - and ultimately taxpayers and service recipients - with a wide range of project risks, including construction delays, cost overruns and underinvestment in life-cycle activities.

Public-Private Partnerships (P3s) expand and integrate the roles that the private sector plays in public infrastructure asset delivery and operation. P3s take many forms. They are defined as collaborative arrangements between the private and public sector for two or more services required to: 1) finance, 2) design, 3) build, 4) operate, and 5) maintain a public infrastructure asset. Contracts, which are structured long-term and integrated, transfer risks from the public to the private sector who are willing to manage these risks at a cost. P3s typically require a minimum injection of equity and ongoing overall private finance, incentivizing risk management via a share in project ownership.

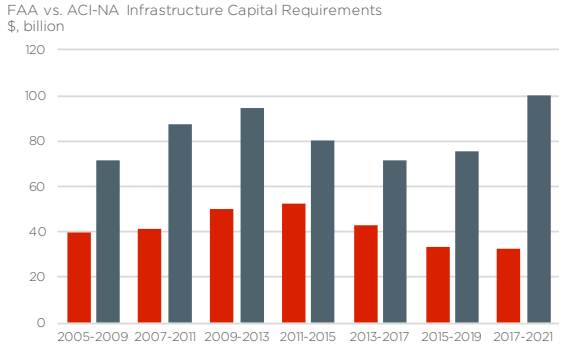
P3s are not a one-size-fits-all solution. Done right, end-to-end responsibility incentivizes an integrated project approach, delivering projects faster and with better control of construction costs, providing value for money to the public.

FIG. 1: TRAFFIC DEMAND FORECAST



Source: FAA

FIG. 2: INFRASTRUCTURE CAPITAL REQUIREMENTS



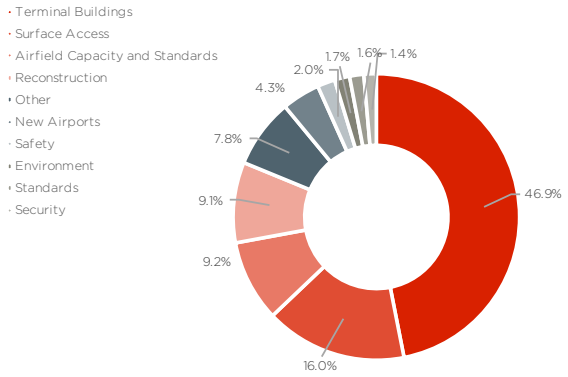
Source: FAA, ACI-NA

Terminal projects account for the largest share of identified investment priorities, with $54.03 billion of the total earmarked by airports (figure 3).

Given the investment need and restrictions on sources of funding, airports are looking for new sources of finance, which often includes the private sector. At the same time, airports are also looking more to alternative project-delivery mechanisms like design-build or P3's to divest some of the risk of these often large and complicated projects from the public to the private sector.

The most significant P3 airport project currently underway in the U.S. is the LaGuardia New Central Terminal, which is being delivered by the private consortium LaGuardia Gateway Partners as a Design-Build-Operate P3, with a concession tenure to 2050.

FIG. 3: CAPITAL REQUIREMENTS BY ASSET



U.S. airports have identified significant investment needs and many have embarked on large-scale capital programs to modernize existing assets and invest in capacity expansions. Given the capital requirements, airports are looking for new sources of funding and alternative project-delivery methods such as P3s to divest some of the risk associated with large-scale, multi-faceted projects.

WHAT IS THE INTERNATIONAL AIRPORT P3 EXPERIENCE?

Airline liberalization, traffic growth, airport competition and pressure on infrastructure to adapt to changing consumer preferences and technology have together driven the need for airport commercialization.

As governments faced the dilemma of how to finance airport facilities to meet capacity requirements, how to improve service levels, and how to operate airports to maximize commercial potential, they have turned to the private sector.

Consequently, private participation for the development of airport infrastructure has increased and can now be found in many countries (figure 4). It has been encouraged through outright ownership, long-term concessions or management contracts. Over time, several airport ownership and governance models emerged. By some estimates, nearly a fifth of the world's commercial airports are under some form of P3 arrangement. The largest P3 projects to date are the Istanbul Airport and the Rio de Janeiro–Galeao International Airport PPP privatization (table 1).

Private participation in airports is common in Europe. According to ACI, there are more than 450 airports with some form of private sector involvement. The UK is leading. There is a strong preference in the region for P3s where the public authority retains a majority of shares. This reflects the primary strategic goal accessing investment and funding financing from private operators, rather than gaining specific operational expertise (figure 5 overleaf).

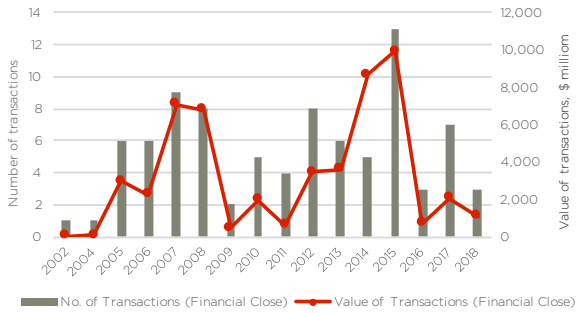
There are also a variety of different legal statuses that the airport operating company can have with respect to land ownership, which reflects the strategic importance of airports to countries and consequentially the unwillingness of most governments to give up land ownership rights.

The type and duration of concession agreements in the region depends upon the investment requirements for the airport, which is linked to its growth potential and size. Smaller airports often use management contracts to increase operational efficiency. Longer-term P3 concessions are typically found at larger airports, which have a large capital program pipeline. These longer-term P3 concessions are structured to allow the private operator the time to earn a reasonable return on the investment made into the infrastructure, before turning the airport back to the public sector.

The general consensus in Europe is that under the right economic conditions, P3s can successfully deliver the financing, capital investment and efficient operation of airport assets.

FIG. 4: INTERNATIONAL AIRPORT P3 PROJECTS

168 analyzed projects, 155 projects reached financial close

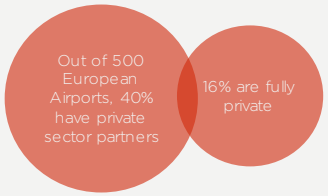


Source: IJGlobal, Dharam Consulting

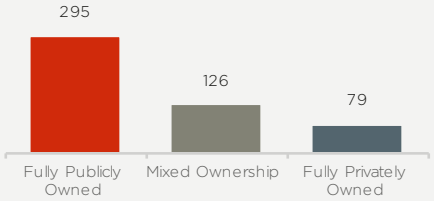
TABLE 1: 10 LARGEST INTERNATIONAL AIRPORT P3'S

Project	Transaction Value, $m	Transaction Year
Istanbul Third Airport PPP	6,486	2015
Rio de Janeiro–Galeao International Airport PPP Privatization	6,108	2014
Budapest Airport Share Acquisition	2,426	2007
Indira Gandhi (Delhi) International Airport Expansion	2,237	2008
Budapest Ferenc Liszt Int'l Airport Acquisition Refinancing 2014	1,753	2014
Pulkovo Airport PPP	1,536	2010
Guarulhos Airport financing 2013	1,488	2013
Mumbai Chhatrapati Shivaji International Airport Modernisation	1,258	2007
Medina Airport Expansion PPP Phase I	1,204	2012
Tokyo Int'l (Haneda) Airport Expansion - Passenger Terminal	1,165	2008
Source: Dhram Consulting, IJ Global		

FIG. 5: AIRPORT PUBLIC-PRIVATE SECTOR OWNERSHIP IN EUROPE



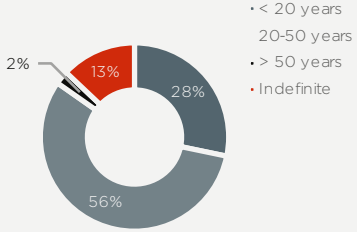
AIRPORT OWNERSHIP
Number of Airports analyzed: 500



OWNERSHIP ARRANGEMENTS
Land Ownership

- **Airport operator owns the land:** Not common practice, exception UK
- **Airport operator has indefinite concession, but does not own the land:** Publically-owned airports only
- **Airport operator has specific-time period within which to operate the airport and does not own the land:** Typical P3 arrangement with private partners

Typical airport concession
Number of Airports analyzed: 131



TOP 10 EUROPEAN AIRPORTS

LHR – Fully Private

London-Heathrow Airport
- 25% Ferrovial S.A.
- 20% Qatar Holdings
- 13% Caisse de dépôt et placement du Québec
- 11% Government of Singapore
- 11% Alinda Capital Partners
- 10% China investment Corp.
- 10% USS

AMS – Mostly Public

Amsterdam Airport Schiphol
- 70% Government of The Netherlands
- 20% City of Amsterdam
- 8% Aéroports de Paris Group
- 2% City of Rotterdam

IST – Equal public & private

Istanbul Atatürk Airport
- 38% Aéroports de Paris Group
- 8% Tepe Inşaat Sanayi A.Ş.
- 8% Akfen Holding A.Ş.
- 2% Sera Yapı Endüstrisi ve Ticaret A.Ş.
- 40% Free float
- 4% Non floating (Other)

BCN – Mostly Public

Barcelona – El Prat
- 51% Enaire
- 49% Free Float

MUC – Fully public Corporatized

Munich Airport
- 51% Free State of Bavaria
- 26% Federal Republic of Germany
- 23% City of Munich

CDG – Mostly Private

Paris Charles de Gaulle Airport
- 51% State of France
- 21% Institutional investors
- 8% Schiphol
- 8% VINCI Airports
- 5% PREDICA
- 2% Retail Investors
- 2% Employees
- 3% Others

AMS – Mostly Public

Frankfurt Airport
- 31% Land Hessen
- 20% City of Frankfurt
- 8% Deutsche Lufthansa AG
- 3% RARE infrastructure Ltd.
- 37% Free float

MAD – Mostly Public

Madrid-Barajas
- 51% Enaire
- 49% Free Float

LGW – Fully Private

London-Gatwick Airport
- 42% Global infrastructure Partners, LP
- 17% Future Fund Board of Guardians
- 16% Abu Dhabi investment Authority
- 13% California Public Employees retirement System
- 12% National Pensions Service of Korea

FCO – Mostly Private

Rome - Leonardo da Vinci
- 96% Atlantia S.p.A.
- 1.3% Region of Lazio
- 1.3% City of Rome
- 0.8% Chamber of Commerce, industry, Agriculture & Artisans
- 0.3% Metropolitan City of Roma Capitale
- 0.1% Commune of Fiumicino
- 0.3% Other entities

Source; ACI Europe, Dharam Consulting

Private participation in the development of airports is fairly common in many countries, encouraged through outright ownership, long-term concessions or management contracts. Many of these airports have improved their assets, build flagship terminals and introduced a more business-like approach to operations, enhancing customer experience and financial performance.

WHAT IS THE U.S. OPPORTUNITY?

Airport P3s are now fairly common in European countries, Australia, Canada and many Asian countries, but not as much in the U.S, where airports are predominately owned and operated by local governments and regional authorities.

Whilst the consideration of P3s to improve the delivery of airport projects is still nascent, the private sector is already involved in many aspects of U.S. airport operations—including airlines, terminal concessions, and service and management contracts where some operational responsibilities are transferred to private companies. In the U.S. model the infrastructure is typically unbundled into air and landside. Airside assets (runways, taxiways, parking stands) are typically kept in public ownership, while private investment is allowed in terminals and other facilities, such as car parking or retail facilities. The argument is that airside assets are natural monopolies with a public service obligation, while landside assets are more easily delivered under a market competition model.

The U.S. is the world's largest aviation market, but has one of the oldest infrastructures. More needs to be done to unlock funding for needed investments in order to increase competitiveness and satisfy consumer demands. The P3 regulatory environment depends on the state, and many states either outlaw or severely limit using P3s. At the same time, P3 arrangements, which give the private sector control over design, construction, operation or financing remains controversial in the U.S. Many P3s have failed over the years leaving the public suspicious over its value for money.

However, given the infrastructure need and the potential benefits of P3s, is it worth reviewing this funding and delivery method? Evidence from around the world shows that partnerships with the private sector can allow needed modernization or expansion projects to move forward, while bringing operational efficiencies and innovations that may not have otherwise been considered.

Table 2 highlights a few examples of P3 projects in the U.S. As these projects advance, they may provide valuable information for other local governments pursuing innovative partnerships with the private sector.

TABLE 2:
MAJOR U.S. AIRPORT P3 TRANSACTIONS

Project	Procurement Stage	Transaction Value, $ m	Contract Type	Financial Close
Atlantic City International Airport Car Rental Facility PPP	Tendering	N/A	DBFMO	
Chicago South Suburban Airport (SSA) PPP	Pre-tendering	N/A	TBC	
Denver Int'l Airport Great Hall Passenger Terminal Redevelopment PPP	Concessionaire	262.1	DBFMO	2017
Gary Chicago International Airport PPP	Concessionaire	100	DBFMO	2014
John F Kennedy Airport Terminal 6 Redevelopment PPP	Short list	N/A	TBC	
La Guardia Airport Central Terminal Building PPP	Concessionaire	3,810	DBFMO 35-years	2016
LaGuardia Airport Delta Terminal Redevelopment PPP	Concessionaire	4,000	Lease	2017
Los Angeles Int'l Airport Automated People Mover System PPP	Concessionaire	1,662	DBFMO	2018
Los Angeles International Airport Cargo Facility PPP	Pre-tendering	N/A	DBFMO	
Los Angeles Int'l Airport Consolidated Rent-a-Car Facility PPP	Short list	1,050	DBFMO	
San Diego International Airport New Cargo Terminal PPP	Preferred bidder	N/A	DBFMO	
St Louis Lambert International Airport Lease PPP	Pre-tendering	N/A	Lease	
Westchester County Airport Lease PPP	Preferred bidder	595	Lease	
John F Kennedy Airport Terminal 1				
John F Kennedy Airport Terminal 4	Concessionaire	1,400	DBOM	
Austin-Bergstrom South Terminal	Concessionaire		DBFOM	
San Juan Airport			Lease	

Source: IJGlobal, InfraPPP, Dharam Consulting
As of June 2018. Excludes Acquisition of Stake in LaGuardia Gateway Partners

The private sector does participate in U.S. airport projects, but overall, private partnerships are an underutilized tool to modernize airport facilities, increase efficiency, and reduce costs. The market continues to be impeded by resistance to using P3 for infrastructure projects, and the slow development of institutional frameworks and standard processes.

WHY CONSIDER AIRPORT P3s?

There are a number of reasons why airports are now fully or partially privately owned and/ or operated, including:

- Mobilization of capital
- Integration of a project's design, build, finance, operation and maintenance elements
- Improved managerial and operational performance
- Optimization of commercial results
- Facilitation of risk transfer

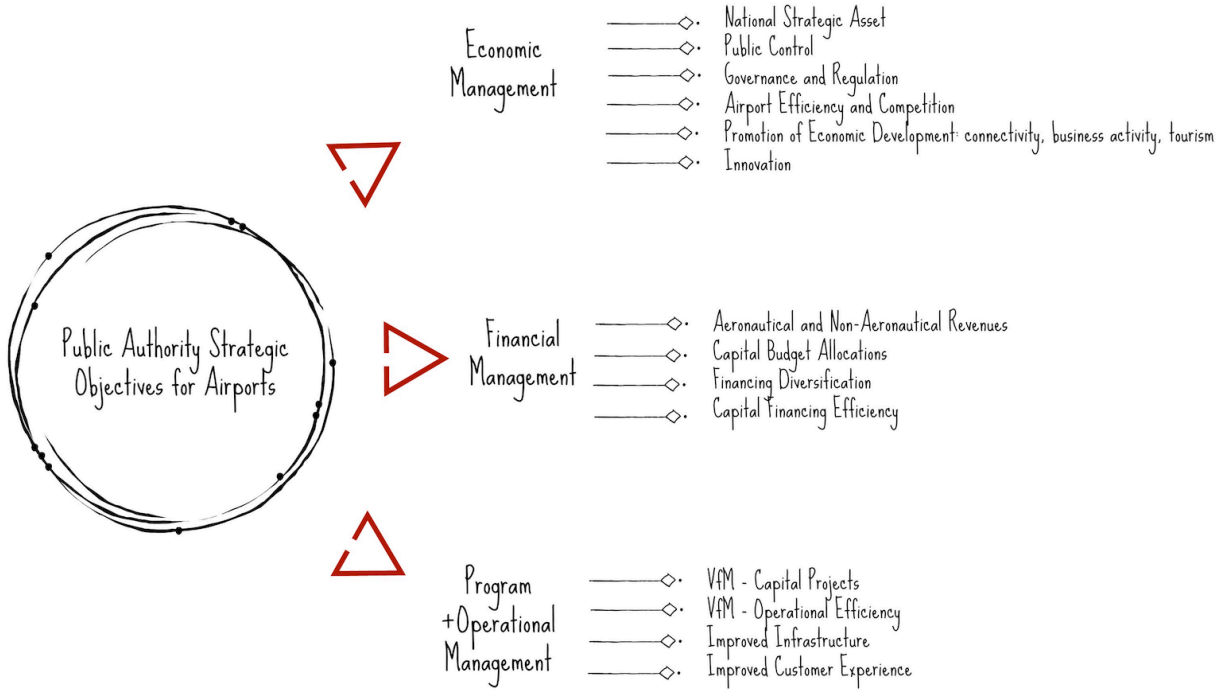
This is translated in to three strategic objectives for airports: economic, financial and managerial (figure 6).

P3's can provide a way to access private financing and mobilize capital markets at a time when public spending is overstretched. Certain risks can be transferred from the public to the private sector, reducing the overall risk of the government. Private construction consortia have delivered many large-scale, complex projects, and often have international experience, which is likely to make them better equipped to deal with construction risks than many public clients.

Private sector involvement creates access to new revenue streams, and the focus of many airports has shifted to non-aeronautical revenues, which are generated from activities outside the core business, such as duty free, retail, car parking, real estate, etc. The increase of non-aeronautical revenues can often determine the financial viability of an airport.

P3 arrangements can introduce best practices, access skills and technologies, and provide greater incentives for improved operational efficiency and financial performance.

FIG. 6: AIRPORT OWNERSHIP OBJECTIVES

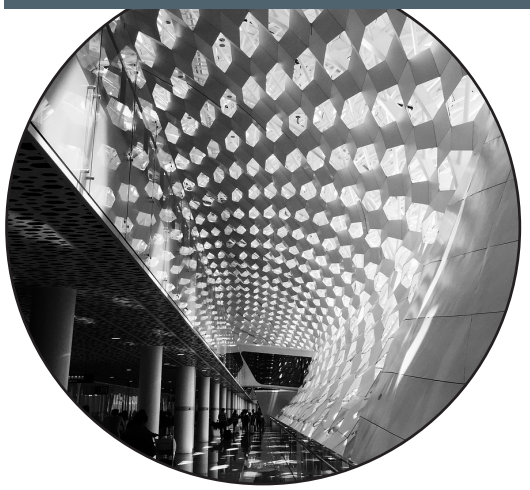


The attraction of P3s as a possible solution to deliver airport infrastructures is summarized in figure 7.

Done right, P3's can help improve profitability, management and operations, introduce innovation and operational efficiencies, and enhance overall service levels.

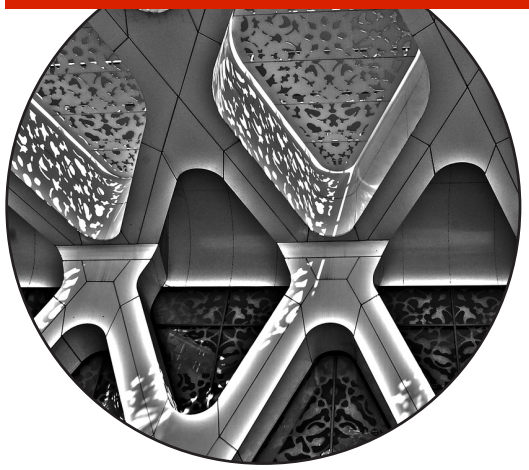
FIG. 7: POTENTIAL BENEFITS OF AIRPORT P3S TO PUBLIC OWNERS AND THE PRIVATE SUPPLY CHAIN

ATTRACTIONS OF P3 ARRANGEMENTS FOR PUBLIC SECTOR



Project acceleration	Private contractors have the expertise and incentive to deliver projects faster than a typical public owner. Perceived reduction in development risk with transfer of construction risk to the private sector
Revenue generation	Potential for new revenues, in particular for non-aeronautical revenues and stimulation of airport driven economies
O+M	Transfer of operational and lifecycle risk to the private sector based on KPI's and performance incentives
Asset Transfer	Return of asset to public ownership at the end of the concession period
Better performing assets	Potential for efficiency gains associated with greater specialization by private industry. P3 contractor is incentivized to ensure the asset is constructed and operates successfully so it will generate sufficient revenues.
Capital	Access to new sources of private sector funds, freeing public budgets for other investments
Value for Money	Maximize business potential and optimize cost structures. Bundling design, construction, operation and/or maintenance into a single contract reduces costs associated with procuring and managing a series of separate contractors for all of these project phases.
Risk Management	P3s allow public owners to transfer some or all of the project risk to the private party while still retaining a degree of control over the project.
Innovation	Technology and improvements. Involvement of the private sector in the design and construction process can result in a higher quality project.

REASONS WHY AIRPORTS ARE ATTRACTIVE ASSETS FOR THE PRIVATE SECTOR



Growth Forecast	Forecasts point to sustained growth in air traffic providing potential for strong cash flows
Revenues and Return on Investment	Improved infrastructure and better services provide potential for increasing non-regulated revenue sources
Forex risk	Most revenues are in local currency
Efficiencies	Potential to improve operational efficiencies and improve financial performance
Opportunities	Opportunities to develop non-aeronautical revenues by investing in real estate, commercial and auxiliary activities.
Capital	Access to new sources of private sector funds, freeing public budgets for other investments

WHAT ARE THE TYPICAL AIPORT P3 MODELS?

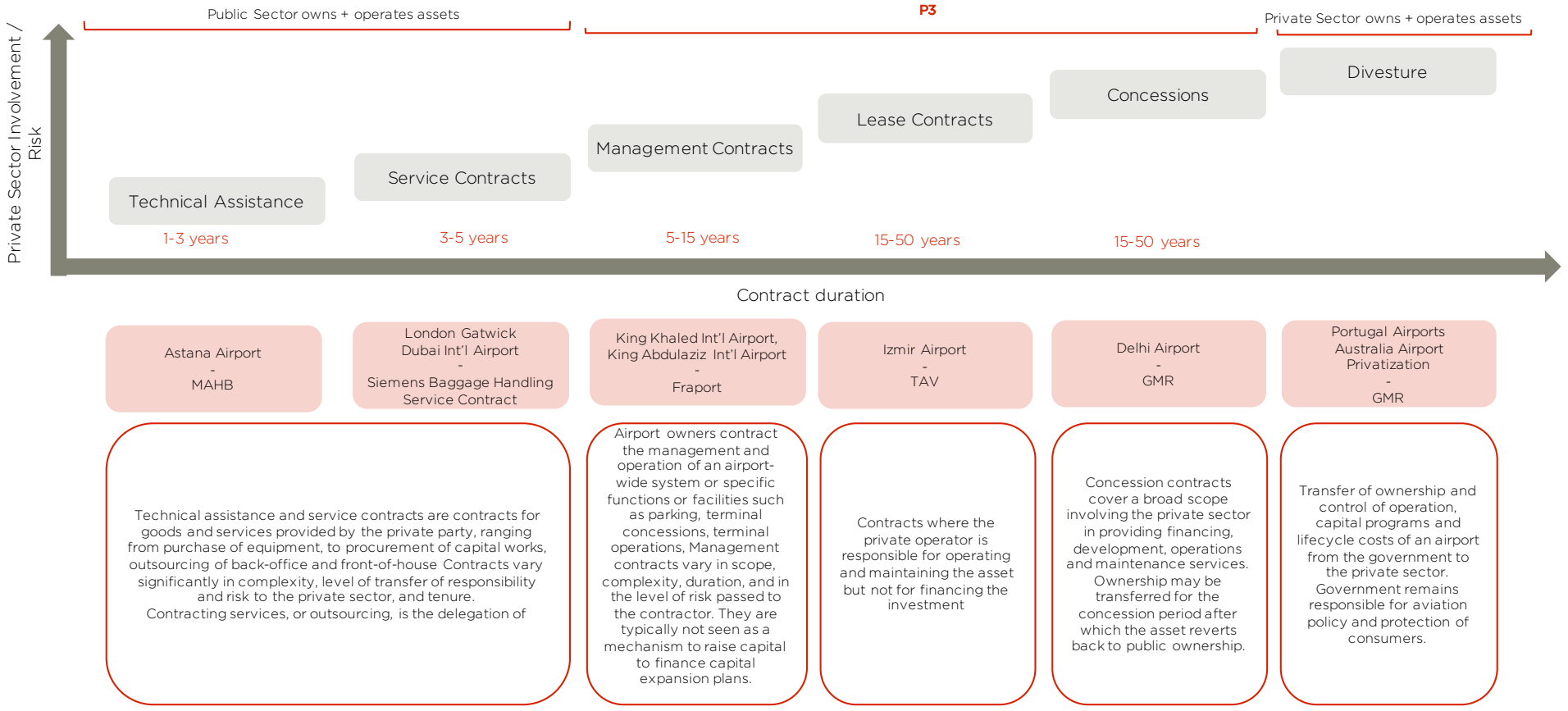
There are a range of P3 ownership, operating and procurement models that can meet government objectives and there is no "one size fits all" P3 solution that can be applied for any airport project. The main differences concern contractual length, the private sector's role and ownership structure. The choice depends on the public sector's aims – increased efficiency or reduced expenditures, or both?

Hence it is difficult to recommend one ownership or operating model that can best meet the strategic objectives of all airport stakeholders, and it needs to be recognized that these objectives might change over time.

Choosing the appropriate P3 structure will always depend on a number of factors, including the political, regulatory and operational limitations, financing requirements and market realities, project objectives, investor preferences and the ability of the public sector to manage and supervise.

The most frequent public-private ownership and governance structures in the airports sectors range from management contracts, concessions and full divestures (figure 8). It is important to note that in any P3 arrangement, despite private sector involvement, the public sector remains responsible for safety, security and economic oversight.

FIG. 8: SPECTRUM OF AIRPORT OWNERSHIP ARRANGEMENTS AND PRIVATE SECTOR INVOLVEMENT



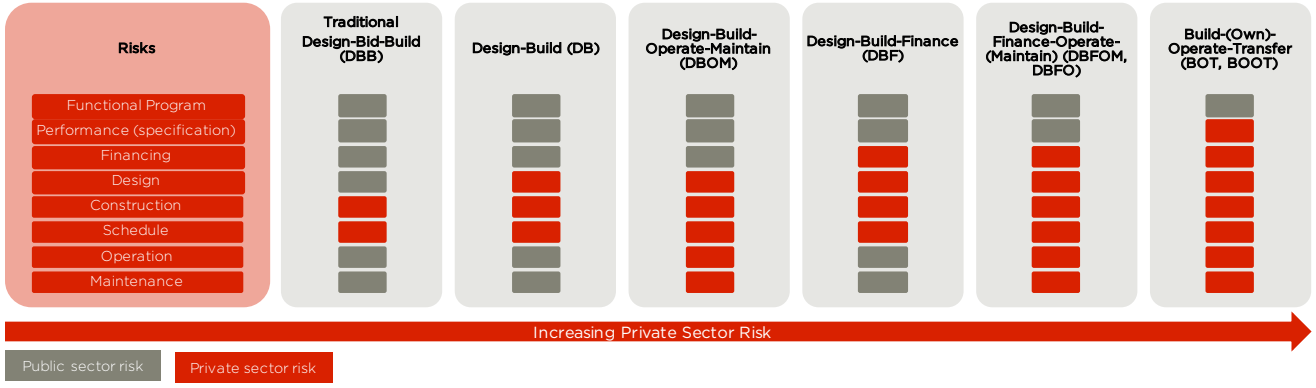
P3s are typically associated with various forms of concession arrangements, which vary in terms of scope and risk allocation to the private sector (figure 9).

A concession contract typically implies "user payment" whereby the (private) concessionaire generates revenue directly from consumers. Concession contracts tend to be output-focused, i.e. the concessionaire determines how best to achieve the service with agreed performance standards. Often concessions are based on significant upfront investment in the form of construction.

There are differences in concessions in Anglo-Saxon countries, i.e. US, Canada, UK and Australia and others, such as mainland Europe. A typical concession, as described above, are civil law arrangements, where the asset is under the responsibility and economic exploitation of the concessionaire who takes risks and invests.

In many English-speaking countries, where common law is applied, a concession often has a more limited scope, where the private sector may design, build, and operate the assets to meet certain agreed outputs, but takes less risk in terms of ownership. Such concessions typically are Build-Operate-Transfer (BOT) projects. The operator here receives its revenues through a fee charged to the public authority rather than to consumers.

FIG. 9: TYPICAL AIRPORT P3 PROCUREMENT MODELS AND RISK ALLOCATION



WHAT ARE THE TYPICAL ISSUES AND CAUSES FOR FAILURE IN AIRPORT P3s?

There are many successfully completed P3 airport projects, but also a number of project failures.

Other than force majeure, default and termination provisions found in all concession agreements, figure 10 depicts issues that are typical of airport P3s.

Among the main risks is the failure of either party to comply with contractual agreements, impacting financial profitability and project delivery. The World Bank cites examples where the owner's failure to fulfil their pre-construction obligations (i.e., permitting and right of way acquisition, utility relocations, etc.) has led to project failure.

The private sector has higher return expectations and needs sufficient commercialization potential to be incentivized. Unrealistic revenue forecasts and lack of thorough project cost estimates can bankrupt a concession. This factor has already caused a number of P3 failures in the U.S.

FIG. 10: AIRPORT PROJECT ISSUES

Many countries see airports as flagship assets with showcase designs. Determining the right size, phasing program and required capital is a main factor in the success or failure of an airport P3. There is a perception that P3 projects have high development and bidding costs, outweighing the benefits. It is true that negotiating a P3 contract typically takes longer and costs more than a traditionally procured D-B project. However, the type of project attractive for P3 structures are typically large-scale multi-faceted projects, which generally incur higher procurement costs.

One often overlooked issue is the limited transparency and public scrutiny regarding P3 contract arrangements, which hinders (international) benchmarking and the dissemination of best practices.

All of these factors are causing resistance against private ownership of airports. Indeed, it is easy to get P3 arrangements wrong and the seeds of many failures are sown in the early project phases, when the lack of a solid legal framework that clearly specifies the rules of the game, a poorly considered procurement choice and project delivery approach can lead to delays, higher costs, and ultimately diminished returns.

At the same time, recognizing the challenges is the first step in avoiding many of the pitfalls and the lessons learned from successful P3 arrangements need to be considered.

Improved transparency of best practice knowledge around contract arrangements and in particular risk-sharing could go a long way to address challenges of P3 structures and drive the success of projects.

HOW TO GET AIRPORT P3s RIGHT?

The case for airport P3s is compelling, demonstrated by the ongoing support for it in established markets, as well as the emergence of new markets where public authorities are recognizing the potential. The opportunity to source private funding and the optimal risk transfer of financing, design, construction, and operations are clear and well understood benefits. The reason for P3 project failures rarely lies in the rationale and principles of P3s, but is more often due to mistakes in the way projects are put in place.

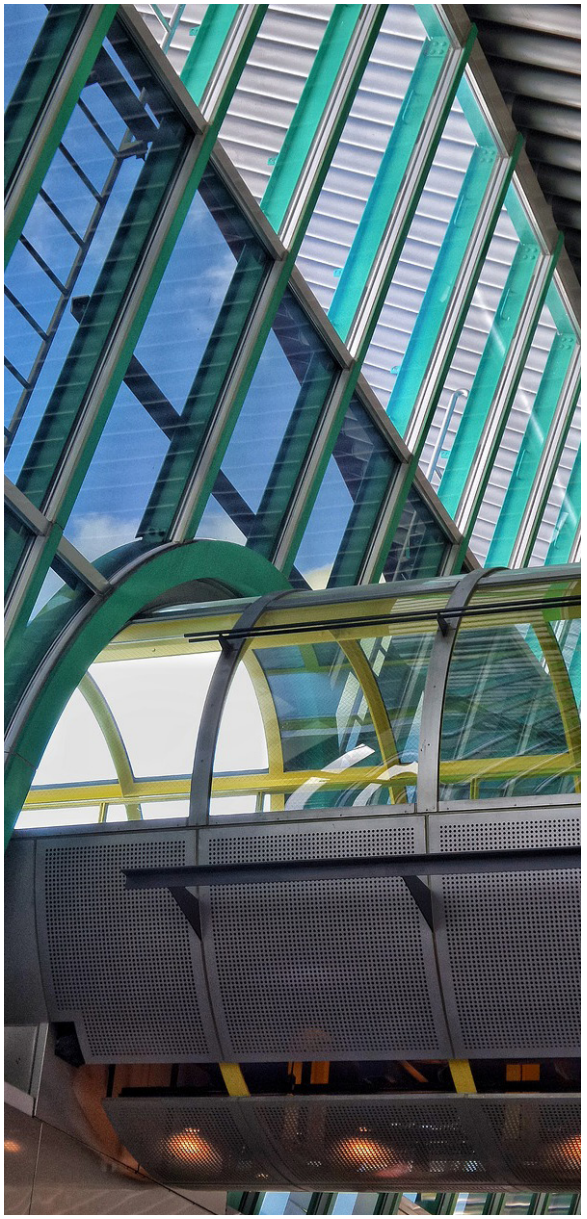
There are many success factors and lessons learnt in airport P3s. In our experience the following factors should be in place to make a P3 project work successfully.

1. Public support for P3s and an appropriate legal and institutional framework

- A strong political commitment is imperative. There needs to be a clear legal structure in place including the legislative and regulatory framework, transparency and a procurement process to create an effective enabling environment. Clearly stated and enforced "rules of the game" provide clarity and predictability for investors around
    - o laws and processes.
    - o protection of rights of various parties
    - o rights, roles, and responsibilities of the contracting authorities, the PPP unit, private parties, and advisors
    - o project identification, approval, and implementation arrangements
    - o transparency and facilitation of information sharing
- We have seen that public sector buy-in are critical at all stages and lack of government support can make the P3 process longer, more challenging to navigate, and less attractive for the investor community.
- Countries with well-established P3 legislation and programs, such as the UK, Canada and Australia, have public authorities that develop and stimulate the P3 program, responding to changing market conditions through reflection, reform and innovation.

2. Professional, well-resourced and P3 experienced teams

- There is no "one size fits all" approach to establishing a framework for P3 delivery, but the role of a dedicated public authority P3 team or unit is important. Involving specialist expertise from the initial project planning phase will make the procurement process more efficient. Involving the P3 procuring authority, together with an experienced project management team on the part of the concessionaire, as well as the most qualified technical advisors right from the initial project planning phase, will enhance and ensure coordination, technical support and adequate checks and balances.



3. Structuring and Standardization of processes and documents

- The process to be used to structure a deal along public and private dimensions needs to be clearly articulated in the "rules of the game". Structuring allows the public authority to design a project based on their objectives, capabilities, risk appetite and market interest.
- Structuring the process reduces uncertainty for bidders and ensures proposals are made based on needs and at the highest values. In our experience, on projects where the procurement process has been clearly structured, this has attracted a greater volume of quality proposals from bidders.
- As public authorities become more confident in their preferred risk exposure and procurement practices, standardization helps to adopt consistent position, generate more efficient procurement and lowers bid cost. Standardization works in particular for risk allocations, and standard form contracts, including supporting documentation.

5. Preparation and clearly defined value addition for public authority

- P3 projects must add value to public delivery authorities. The ex-ante appraisal of the P3 project's value-for-money (VFM) relative to "traditional" procurement approaches is a matter of much debate, in particular the issue of a true like-for-like comparison. For example, in the UK the PFI reforms (and the introduction of PF2) included the development of an updated VfM methodology. Similar exercises have been undertaken in Australia.
- Extensive analysis is essential and we have helped our clients to test the strategic, technical, financial, and commercial feasibility of the proposed structure with respect to government objectives and market realities.
- A well-structured and economically viable project is likely to attract more reliable partners with the capability to successfully deliver a P3 project and meet the performance requirements of the contract

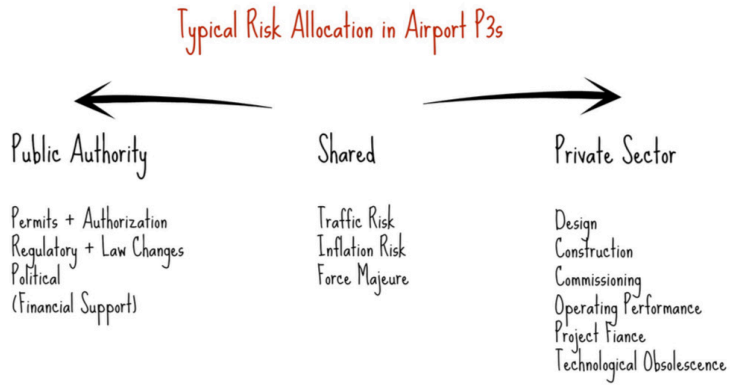
4. The right business case and the right project

- There are many reasons to develop new airports, or redevelop existing facilities. Each project will have its own requirements as well as challenges. A well-developed business case will guide the choice of P3 structure and procurement method and which professional team will be required to deliver the solution needed. We have helped to guide our clients through in-depth needs analyses before selecting a P3 structure, which helped identify the problems to be solved and the best procurement method for solving them.
- P3 structures are generally more suited for projects with an adequate scope (volume) and complexity. This typically involves larger airports where there is sufficient demand and commercialization potential. Carving out or reducing commercial activities of the private sector drastically reduced their returns, lessens the attractiveness of the project and makes the public sector take on more risks. Investors and operators bring more than just funding, expertise is key.

6. Negotiating a fair deal through appropriate risk allocation

- Complete contractual provisions can create a sense of fairness on both sides – the public and private sector. Contracts should contain clarity on contributions, performance obligations and related penalties, as well as clarity on risk allocation.
- Clarity on risks and rewards is key in the P3 structure. We know from our experience that P3s have often succeeded and failed with risk allocation. Contracts must include balanced risks and rewards in order to provide for project success for both the P3 contractor and the public owner.
- The well-used phrase is that risk should be allocated to the party best able to manage them. Whilst the allocation depends on the P3 arrangement, figure 11 shows the typical profile.
- A sensible risk transfer provides the basis for achieving a "fair deal structure", which is essential for project success. Failing to negotiate fair risk allocation often means that potential P3 contractors may simply walk away from the opportunity while others will propose higher costs in order to monetize and cover the additional risk.

FIG. 11: RISK ALLOCATION



7. Pick partners carefully

- The right partnership is critical in maintaining the long-term relationship that is central to a successful P3 project.
- Inappropriate selection criteria and processes is likely to lead to the wrong candidate being chosen for the project. In contrast, a robust process of selecting consultants will improve the final project outcome and minimize cost overruns.
- Transparency from competitive tendering improves the credibility of the process and public support.
- Obviously, the "best value" is not always the lowest price and the P3 contractor's experience in delivering projects and their financial capacity are critical factors in picking the right partner.

8. Strive to build and maintain a collaborative approach

- As in any construction project, continued project collaboration is key to project success. It is important to understand your partners and key players, and engage all necessary stakeholders along the P3 journey, manage their expectations and spend time in planning and managing both the development and the implementation of the project.
- A collaborative approach typically leads to more successful outcomes along the way. For example, it has been noted that the collaborative approach at New York's LaGuardia airport P3 project has led to a more innovative design for the terminal.

9. Minimize post-contract award failure risks with adequate monitoring and contract management

- Contract management crucial for success from pre-operative state until asset transfer.
- In an airport P3, it is crucial that a monitoring system is put in place to ensure the concessionaire carries out the agreed-upon services.
- Ideally, this monitoring system – which should be financially independent and technically empowered - must be in place on day one of the P3 contract.

10. Benchmarking and retrospective evaluation of P3 procurement and projects

- Project scrutiny at milestones is an important means of ensuring transparency, monitoring continued performance and VfM. Project-specific evaluations can include metrics related to financial and operational performance, contractual requirements and timely reporting.
- There is no robust and accepted methodology for measuring the success of P3 programs against their stated objectives. Evidence from the global P3 market is scarce at best.
- Yet capturing best practices and the availability of benchmarking data would greatly aid future airport P3s in terms of institutional capacity building and the transfer of knowledge.
- With the increase in P3 contracts, public authorities now have an important opportunity to take the lead in developing comprehensive evaluation frameworks.

WHERE DO WE GO FROM HERE FOR AIRPORT P3s IN THE U.S.?

As the U.S. ponders its response to infrastructure investment needs and the current administration works to put forward an infrastructure plan that aims to attract private capital, the following summarizes that, when done right, P3s could go a long way in helping to modernize U.S. airport infrastructure:

- Private partnerships are an underutilized tool in the U.S. to modernize airport facilities, increase efficiency, and reduce costs.
- As the biggest aviation market with large infrastructure needs, the U.S. has much potential, but its market is impeded by continued resistance to using P3 for infrastructure projects, and the slow development of institutional frameworks and standard processes.
- Several key barriers – including legislative hurdles - prevent greater consideration of these partnerships and must be addressed to realize benefits.
- International evidence shows that airport P3s can offer airports an alternative option to raise private capital, improve profitability, enhance service levels, and introduce innovation
- P3s allow public authorities to transfer risk and free financial obligations, which is appealing at times when fiscal spending is constrained.

The LaGuardia Airport redevelopment will play out over a period of years, and if it is concluded successfully, it may increase the interest in a broader application of airport P3s in the U.S.

Given the issues that can arise, experienced advisors can play an important role in supporting clients to address these complexities.

Dharam Consulting LLC understands the capital costs and risks associated with these complex projects. For further information please contact shough@dharamconsulting.com.

OUR ROLE ON AIRPORT PROJECTS

Dharam Consulting LLC has full understanding of airport project delivery methods and their technical and regulatory challenges. We use our skills to carefully manage risks and exploit opportunities, and work with our airport clients to deliver successful projects under various procurement methods.

Our cost and risk management services provide specialized expertise across the airport project life cycle to reduce client risk, improve value and deliver positive outcomes for airport operators.

Throughout planning and procurement, we

- establish cost effective budgets to inform client funding requirements and the project business case;
- analyze risks presented by the project and provide risk transfer and mitigation reviews;
- assess regulatory requirements, provide design review oversight, and assess capital expenditure programs, including schedule and project costs
- provide procurement and bid management advice, including due diligence on design-builder and operator capabilities

We recognize that contract management is essential for project success from pre-operative state until asset transfer. Post contract, we provide commercial management services, monitoring contracts throughout the project phases.

Project scrutiny is an important means of monitoring continued performance and the delivery of project value for money. We are skilled at providing meaningful project benchmarking, collecting, analyzing and interpreting data in a way that will be key to determining and ensuring project performance.

AIRPORT COST BREAKDOWN

This generic cost model features an airport project. It examines construction type by new build and reno-vation. It also examines cost of specialist fit-out areas such as TSA, airport lounges, gates, ticketing, baggage handling and general concourse areas. The cost model also provides a cashflow analysis.

- Costs are current in Q2 2018
- Rates $/SF represent USA average 1.0 location factor
- Costs are construction and include mark ups for GC/CM
- Costs exclude project costs
- Adjustment should be made to the costs detailed in the model to account for variations in phasing, specification, site conditions, procurement route, programme and market conditions.

GENERIC AIRPORT COST MODEL APPROXIMATE RATE MATRIX

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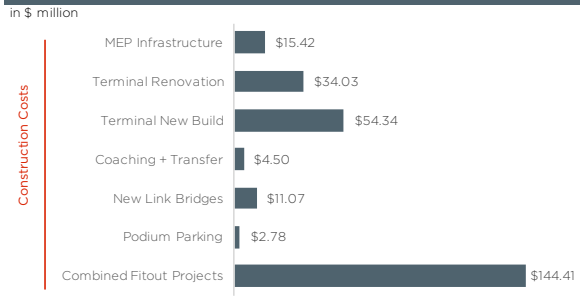
SYSTEM AND ELEMENT	INFRA.	SHELL & CORE	ENERGY /LEED	FIT-OUT	SITE	TOTALS
	$/SF	$/SF	$/SF	$/SF	$/SF	$/SF
ENABLING & SITE						
SITE WORK					$19	**$19**
UTILITIES					$8	**$8**
AIRSIDE CIVIL						
APRON					$38	**$38**
TAXIWAYS/ ROADWAYS					$63	**$63**
JET & FIXED BRIDGES					$55	**$55**
LANDSIDE ROADWAY					$200	**$200**
TERMINAL BUILDING - NEW BUILD						
PARKING	W S&C	$107	$18		$13	**$138**
BAGGAGE HANDLING & CLAIM	W S&C	$491		$633		**$1,124**
TSA - SECURITY	W S&C	$563	$39	$257		**$858**
CONCOURSE & HOLD ROOMS	W S&C	$563	$39	$316		**$918**
RESTAURANT/RETAIL	W S&C	$563	$39	$267		**$869**
OFFICE & ADMIN SPACES	W S&C	$563	$39	$192		**$794**
GATE PIERS	W S&C	$563	$39	$297		**$899**
DARK SHELL - CLUB ROOMS	W S&C	$563	$39	$59		**$661**
TICKETING	W S&C	$563	$39	$395		**$997**
ENTRANCE WAYS	W S&C	$670	$39	$200		**$909**
GENERAL CIRC/BALANCE/BACK OF HOUSE	W S&C	$580		$141		**$721**
TERMINAL BUILDING - RENOVATED						
OPEN SHELL SPACE	$22	$36	$22			**$80**
BAGGAGE HANDLING & CLAIM	$134	$143	$22	$386		**$685**
TSA - SECURITY	$112	$196	$22	$364		**$694**
CONCOURSE & HOLD ROOMS	$98	$161	$22	$270		**$551**
RESTAURANT/RETAIL	$134	$134	$22			**$290**
OFFICE & ADMIN SPACES	$98	$134	$22	$268		**$523**
GATE PIERS	$98	$89	$22			**$210**
DARK SHELL - CLUB ROOMS	$98	$36	$22			**$156**
TICKETING	$112	$161	$22			**$295**
ENTRANCE WAYS	$112	$196	$22			**$330**
GENERAL CIRC/BALANCE/BACK OF HOUSE	$112	$80	$22	$118		**$333**

NOTE: ALL RATES ARE TAKEN FROM DHARAM CONSULTING COST DATA BASE.
ALL COSTS ARE SUBJECT TO CHANGE BASED ON THE SPECIFIC PROJECT, LOCATION AND SITE CONDITIONS.
DATA IS MEANT FOR GUIDANCE ONLY.

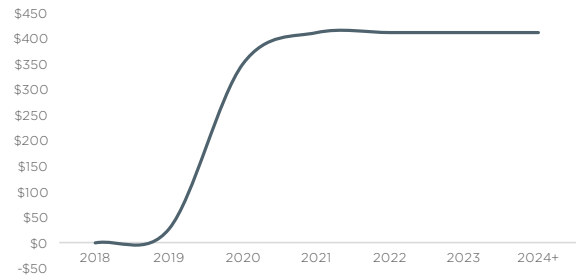
COSTS BY BUILDINGS/ PHASE



CONTINGENCY & ESCALATION SUMMARY

Design contingency	10.00%
Construction contingency	5.00%
Owners contingency	20.00%
Design build fee	0.00%
GL Insurance & Subguard	3.00%
Bond	Excluded
Escalation (annual):first 2 years	Excluded
Escalation following	Excluded
Escalation to start point	Varies
Project labor assumptions	Union

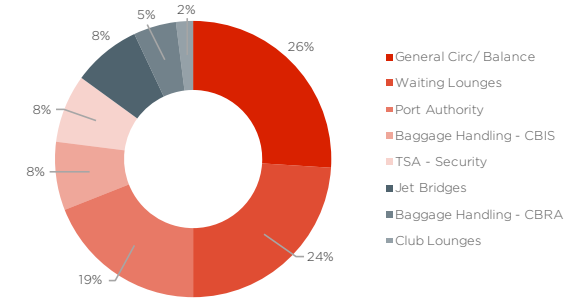
CUMULATIVE CASHFLOW



ALL-IN COSTS $ BY PHASE

Phase	$/SF	Construction $	Project $
Phase 1 (all-in)	$ 659	$ 166,853,616	$ 258,617,426
Phase 2 (all-in)	$ 604	$ 99,699,942	$ 154,531,517

FITOUT USE TYPE BY SQUARE FOOT



FITOUT USE TYPE BY COST

Type	Construction $, million
Port Authority	$ 36,442,010
Waiting Lounges	$ 34,341,652
Baggage Handling - CBIS	$ 28,926,238
General Circ/ Balance	$ 20,656,418
Baggage Handling - CBRA	$ 13,648,931
TSA - Security	$ 8,563,399
Club Lounges	$ 1,832,655

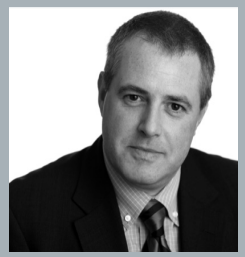
DHARAM
CONSULTING

Dharam Consulting is an Independent Construction Consultancy specializing in providing proactive and value adding Cost and Risk Services that contribute towards successful outcomes for our clients and their projects.
(A registered MBE company)

Harpy Lally
Managing Director
hlally@dharamconsulting.com
+1 +1 718 913 9420

Andrew Smith
Managing Director
asmith@dharamconsulting.com
+1 862 208 8206

Owain Jones
Director
+1 617-913-4345
ojones@dharamconsulting.com



Simon Hough
Director
shough@dharamconsulting.com
+1 610 554 6560

David Pearson
Director
dpearson@dharamconsulting.com
+1 267 455 4244