Keeping airport projects on course in a turbulent world

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The developers of airport construction projects on the ground are much like the air traffic controllers managing flights in the sky. They both use modern systems to make sense of the large volumes of data required to keep track of so many moving parts. They still require experience and judgement to make the right decisions in response to minute-by-minute fluctuations and the large-scale disruptions brought by external factors. They need to be ever vigilant and highly flexible to respond to fast-changing conditions. Those traits can save airport developments from flying too far off course, resulting in major delays, cost overruns, and project disputes.

Developers are wise to plan for all these, setting a course secure in the knowledge that they will be able to respond to events and navigate the inevitable turbulence on the way. By embracing flexibility at all stages of the project, they can shape their asset to deliver the value they are looking for, while adapting to present and future market trends.

Unfortunately, many airport developers fail to establish the proper controls over their projects and are thus blind to troubles building on the horizon. They do not fully understand the risks and do not manage them effectively. They miss their chance to avoid disruption by taking early evasive action, and they appear unprepared when struck by events. Without contingency plans, they need a long time to respond. Often, they don’t realise the severity of delays and cost overruns until the project is facing serious difficulties.

External factors to consider in airport investment

This is a volatile time for air travel. It is difficult to predict accurately the volume of air travel and passengers’ needs 10 years or 20 years into the future. During the construction phase, airports may have to adapt to changes in their mix of airlines, the size and shape of jet planes, and the rapid advance of technology that can affect airport operations as well as passenger behaviours.

Moreover, a particular airport could suddenly face political instability and see a sharp drop in passengers in the midst of a major expansion. Airport developments tend to be highly politically sensitive and attract media attention.
The risks of veering off course are greater for airports than most big-budget infrastructure projects. Investors willing to put their money into major airport infrastructure need to recognise that such complex efforts are much more than a construction project, where most of the risks can be managed through appropriate procurement, contractual arrangements, and careful planning of the delivery.

As much as possible, investors and project owners should consider external factors that will affect the completed airport. For example, sensitivity of the project to issues such as the home country’s GDP and fuel price fluctuations should be factored in during project planning because they could have a major impact on the viability of the project’s business case.

It’s impossible to plan for unexpected geopolitical risks that could affect trends in the aviation market and industry, but project developers should be ready to make as many adaptations as possible during the construction process. A major devastating event such as the terrorist bombings of the World Trade Center and Pentagon in 2001 and the global financial crisis in 2008 can sharply change air travel patterns and affect airport projects. More recently, the Ukraine-Russian conflict has caused some airlines to alter their flight paths to avoid the fate that befell a Malaysian Airlines jet that was shot down.

Indeed, highly rated Malaysia Airlines, as well as the country’s airports, could suffer from public perception, which has suddenly turned quite negative through no ‘apparent or proven’ fault of the airline or airports.

Malaysia Airlines could face serious financial problems, which may affect the success of Kuala Lumpur International Airport and other Malaysian airports. But there’s little investors can do to plan for such dramatic developments.

**Setting direction with confidence: The business case**

Rigorous scrutiny of the business case provides confidence that an airport is investing in the right project. In developing the business case, investors and airport owners should identify the value they expect, how it is going to be realised, and what the risks are to that value. They should be inquisitive and test the fundamental assumptions and forecasts on which the business case is constructed. They will also need to recognise that the case could be sensitive to factors beyond their control. Once the project is initiated, they should focus on the areas where they can influence the outcome.

With any type of project, the greater the uncertainty about demand and other factors, the greater the risks will be. Given the volatility of air transportation these days, the outlook can be particularly cloudy and add even more uncertainty to an already complex project. So, it’s essential that investors and airport owners devote the necessary time and engage with the airport’s stakeholders, including regulators, airlines, suppliers, and operators, to help build a business case that’s robust and flexible enough to adapt to a future shift in trends, including external factors where they have little control.

Of course, a key factor affecting the business case of any airport is passenger demand. Assumptions and projections need to be tested with various scenarios to validate model projections. Unfortunately, some project owners and investors fail to spend the necessary time to do thorough enough research and consider all of the potential scenarios.

For example, Ciudad Real Central Airport in Spain missed the mark in its projected passenger traffic numbers. The airport opened in 2009 and was intended to accommodate 600,000 passengers annually, providing international service to Madrid via a high-speed rail connection. But the airport attracted only 53,000 passengers during its first year and never reached anywhere near the anticipated capacity, losing several airlines’ business and ceasing operations in April 2012.

What went wrong? The airport owners miscalculated a variety of things. The new airport was intended to offer competing service to capacity-constrained Madrid Barajas, but Madrid Barajas’ fourth terminal construction project reduced the constraint and hence the reason for Ciudad Real Central Airport’s existence.

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Preparing to do the project right – and planning for inevitable changes

Airport projects are especially complex because they involve such a wide variety of stakeholders and revenue sources. Airport developments also are typically very large in scope and have a long timeline from planning to completion, increasing the likelihood of design and other changes along the way.

Many international airports are intended to be architectural statements in addition to transportation infrastructure. This has been a particular trend in airports constructed in the Middle East. Such unique designs may draw attention, but there can be a tension between form and function, and they are more vulnerable to problems in design and construction because they’ve never been done before.

A significant challenge for an airport investor is to select a delivery model that allows the transfer of some delivery risks to specialist third parties (designers, contractors, operators), while retaining the ability to respond to changes in the constantly evolving aviation industry. A compromise is often required where the owner retains significant levels of risk and must actively participate in project delivery.

Complexity, novelty, and susceptibility to change are all factors seen in airport projects. Successful airport development therefore demands the highest standards in project management and control. The delivery organisation and processes need to be carefully planned from the outset to create proper oversight, communication, and control. Significant issues need to be identified and escalated so that action can be taken quickly when risks of delay and cost overrun surface. This increases the likelihood that an airport development effort will stay on course and be flexible enough to respond to any turbulence.

Getting projects back on track

Scope change is the one sure thing to count on with an airport construction project. Airport operators need to embed flexibility in their plans. They should agree up front with designers, contractors, and stakeholders that there will most likely be changes along the way because of fluctuating market trends. They must be prepared to reassess the business case frequently to take advantage of the opportunities that change brings as well as mitigate the risks.

London’s Heathrow Airport designed its new Terminal 2 to be a home for the Star Alliance airlines and reduce transfer times to improve the passenger experience. But during construction, some of the fundamental assumptions of the terminal operation were tested by the sale of BMI, the carrier with the largest presence in the terminal, and its integration into British Airways. Fortunately, strong project controls allowed changes to be made even late in the construction programme to accommodate a new mix of carriers – within the budget and without affecting the opening date.

Airport developers must identify risks, assign them appropriately, set up controls for their own risks, and monitor the risks they have transferred to contractors or other parties. Where risks or new requirements materialise, integrating teams with representatives of all key stakeholder groups can help project leaders respond in a considered manner, balancing immediate action with the need to maintain the momentum of project delivery.

Changes in the midst of construction, of course, are much more expensive than incorporating the features in the original design. Qatar’s new Hamad International Airport was delayed in part because of changes and expansion. The Associated Press estimated that the price tag had grown to at least US$15 billion by the time the airport opened for business in 2014.

Airport developers need to evaluate any project changes and approve only those they consider truly necessary. If they decide they need a larger airport as they proceed because of changing market conditions, they must closely examine the implications for revenue, maintenance costs, and other expenses.

The contractor and designer should be given adequate time to come up with the most appropriate response. The solution chosen might not be the most economical, but it may be the most efficient to respond to the future, maximising the value to be delivered by the project in the long term. A successful delivery plan will allocate power to the right people to make the right decisions with a long-term objective in mind.
To minimise expenses, airport designers are advised to build in as much flexibility as possible. If they use modular design, they can move or knock down walls to change configurations. Such a simple adjustment could provide more room for baggage claim, for instance, if passenger traffic suddenly rises and there is need to take space away from another area, such as duty-free shops. Flexible design also could allow terminals to more quickly add parking slots for planes or make modifications to accommodate larger or smaller planes.

**Learning from the past**

While successful delivery of modern, complex projects is supported by powerful data analysis and systems, experience is irreplaceable. Some airport owners have learned from mistakes to keep future projects on course. For instance, London’s Heathrow Airport and British Airways experienced multiple problems with their Terminal 5 opening, but Terminal 2 had a much more successful opening a few years later.

Among other things, Heathrow and British Airways failed to do adequate testing before opening Terminal 5, resulting in numerous problems. The airport and airline were also too ambitious in trying to open on Day 1 at near-full capacity. On opening day, 34 flights were cancelled and baggage check-in was suspended. On the second day, 42,000 bags were not shipped with their owners. Within five days of opening, more than 300 flights were cancelled.

Six years later, when planning the opening of the new Terminal 2, Heathrow’s owners made several operational decisions to make the opening as smooth as possible. While Terminal 5 opened at near-full capacity, Terminal 2 opened operating at 10% capacity with only 34 flights on the first day. And unlike Terminal 5’s plans to move British Airways’ operations to the terminal very quickly, Terminal 2 housed only one Star Alliance airline on opening: United Airlines, with Aer Lingus, Air Canada, Lufthansa, and other carriers moving operations over during the remainder of 2014.

The importance of getting airport projects just right

An airport is usually a landmark for a region, a country, or a continent. It is the first point of entry to a new territory, a true gateway to a new culture – and first impressions last.

So, it’s critical to try to get airport projects right despite the uncertainties of today’s air travel environment and the complexities of such projects. How many passengers complain about queues at customs or time to walk to the gate? And this is the first memory of their trip.

Such issues could easily be resolved with adequate planning and project management. Designing and constructing airports require careful long-term thinking and integrated planning with flexibility embedded at all stages of the project.

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