DE-RISKING AIRPORT DEVELOPMENT PROGRAMMES IN ASIA
The biggest challenge facing the sector is that, if track record is anything to go by, most of these projects will exceed initial budget estimates or complete later than originally planned. Furthermore, the political, public and economic pressures to try to meet aggressive timelines often results in sub-optimal assets being delivered. These are typically assets that do not maximise the huge revenue generating potential of the airport nor are they as operationally efficient as they should be.

As environmental regulation and targets around noise, air quality, energy and water usage become more stringent, airport projects will become more difficult to deliver, particularly expansion programmes which by nature take place adjacent to existing live operations.

Over the next 20 years, the Asia Pacific region will become the world’s largest aviation market, accounting for over 40% of all global air travel. In response to this projected growth a large number of new airports and significant expansion programmes are planned or underway however many of these will not be completed quickly enough to meet current and projected market needs.

**THE OPPORTUNITY**

To achieve the desired outcomes and secure maximum return on investment, airport owners and developers need to embrace a more robust, integrated and end-to-end approach to managing their programmes.

Our experience in delivering major capital programmes at airports has shown that having better control over a programme’s time, cost, risk, change and quality from inception to completion is essential. This not only ensures projects can be delivered on time and to budget, but also achieve better overall business outcomes and value for our aviation clients.

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SIX STEPS TO CREATING A SUCCESSFUL AIRPORT

1. Airport Strategic Planning
2. Smart Procurement
3. Project Delivery
4. Performance Driven Design
5. Programme Management
6. Operational Readiness

- Improving passenger or customer experience
- Reducing time and cost over-runs
- Increasing revenue per m² of airport development
- Minimising the operational costs
- Enhancing the overall financial returns
SIX STEPS TO CREATING A SUCCESSFUL AIRPORT

1. AIRPORT STRATEGIC PLANNING
Having an accurate and all-encompassing traffic forecast is fundamental to being able to develop a robust airport master plan. The resulting masterplan should be flexible and include “what-if” scenarios to allow room for modification or expansion in the future. This will help strengthen the airport’s vision as well as recognise ways to accommodate the growth in air traffic and enhance the airport operations in a controlled, efficient and sustainable way.

2. SMART PROCUREMENT
Having a tailored procurement strategy encompassing all procurement phases ensures the right approach is taken to meet the airport’s objectives at all times. It not only helps to appoint the best designer(s) and contractor(s) for the programme of works, but it also identifies efficiency opportunities that ensure maximum value can be obtained from all expenditure.

3. PROJECT DELIVERY CONTROLS
Whether it’s implementing appropriate project controls, analysing schedule risk or managing the whole construction programme, every component of an airport project requires a process of tracking, reviewing, controlling and monitoring. This allows early identification of risks, or elements that show signs of deviation from plan, both of which are key to ensuring the right decisions are made at the right time by the right people.

4. PERFORMANCE DRIVEN DESIGN
The design development of the airport is where we bring the masterplan to life. As well as aligning the design with the vision and strategy, it should also focus on optimising the operating space and reducing the OPEX cost. This will ensure that maximum operational performance can be delivered with minimum capital investment. A high performance design will also include appropriately sized and located commercial spaces to maximise non-aeronautical revenues for the growing airport.

5. PROGRAMME MANAGEMENT
From initial planning to handover and close out of multiple projects, the role of programme management supports airport operators and investors in maximizing the return on investment economically, environmentally, and socially. Robust programme management shall bring cost, schedule, financing and asset performance certainty throughout the duration of all project activities.

6. OPERATIONAL READINESS
The success of a programme can only be claimed when a new airport facility has completed the journey into full operational use. Operational Readiness and Transfer (ORAT) can be used to bridge the gap between the construction project and operation of the live airport. It brings the construction team, airport operator and key stakeholders together with one shared vision. By doing this, handover issues can be identified and solutions implemented early, thereby ensuring that the completed project receives positive public feedback.
In 2009 London Heathrow made a decision to redevelop Terminal 2 in order to increase terminal capacity, accommodate larger aircraft and improve the passenger experience. This $2.5bn programme involved the construction of a five-storey main terminal building, a satellite pier, a multi-storey car park, new aircraft stands and a new central road layout.

To ensure this large programme of work could be delivered on time and on budget within a live airport environment, Heathrow Airport needed a trusted partner to help oversee all of the project activities and to ensure the multiple stakeholders involved were fully aligned.

Arcadis was appointed as Programme Manager to lead the delivery of the new terminal throughout the construction stages. Using our in-depth Aviation sector expertise, we worked closely with the client and their suppliers to deliver a successful outcome.

THE OUTCOMES

- We developed a high performing client and supplier team by fostering stronger collaboration among all key stakeholders
- We ensured schedule milestones could be delivered by focusing on integrated programme interface management
- The 4-D model BIM environment that we advised our client to invest in became the primary tool for design coordination, interface management and temporary works planning.
NEW DELHI INTERNATIONAL AIRPORT

As one of the world’s fastest growing economies, India has faced a rapid growth of airport passengers and new airlines coming into the country in recent years. The New Delhi Airport, the primary aviation hub of India, made a decision in 2014 to build a new air traffic control (ATC) tower in order to meet the market demand. The new ATC tower is expected to help the airport to a much higher level of efficiency and maximise the utilisation of the three runways. To ensure the desired outcomes could be achieved, Arcadis was appointed to deliver airport planning services undertaking an airside and terminal operational efficiency and capacity analysis.

Our team helped the client to deliver an aeronautical assessment on the new ATC tower design, a risk assessment on the proposed different runway operating modes and also develop an airside simulation model to investigate the feasibility of the airside development options within the Master Plan.

THE OUTCOMES

- We helped to identify potential hazards and impact on the new ATC tower, runway capacity and aircraft taxi times
- The results of the airside capacity analysis were used to further optimize the standard operating procedures and ATC arrival and departure routings.
CATHAY PACIFIC AIRPORT LOUNGE, HONG KONG INTERNATIONAL AIRPORT

Cathay Pacific is one of the world’s leading airlines carrying over 31 million passengers across more than 200 destinations each year. With its main hub based at Hong Kong International Airport, the airline saw a need to upgrade four of its First and Business Class airport lounges in order to provide a more luxurious and comfortable environment for passengers.

Arcadis was appointed as the lead Project Manager for the expansion and refurbishment works for the airport lounges. Our team evaluated the design requirements through a series of value engineering exercises and provided options that were within the client’s budget and met their needs. Our extensive experience in delivering fit-out projects within an airport environment enabled us to shorten the project timeframes and reduce associated project costs.

THE OUTCOMES

• We collaborated with the design team to incorporate wear resistant and durable materials, ensuring high quality standards can be maintained for a longer time period.
• We avoided the risk of project delays by carefully managing the sourcing process of the high quality finishes.
BRUNEI INTERNATIONAL AIRPORT

Brunel International Airport is the main airport in the country currently serving 1.5 million passengers each year. The introduction of new aircraft in recent years has driven a need to rehabilitate and upgrade the runway and other airport facilities so that larger aircraft can operate safely.

Arcadis was first appointed in late 2013 to help recover the stalled airfield redevelopment project and recommence the design. This included the rehabilitation and upgrade of the runway, all taxiways and aircraft aprons.

Our team helped the client to develop a revised and more cost effective airside master plan, developed the resulting design, and provided support throughout the tender and evaluation process. We were also asked to undertake the project management role for the construction phase of this large-scale project.

THE OUTCOMES

- We developed alternative design options to allow the client to determine a preferred design solution to meet the available budget
- We shortened the project timeline by delivering a tender package 8 weeks after the commencement of design
- We delivered a detailed design 16 weeks after the launch of the design phase
- We facilitated the tender process and delivered a full tender analysis and recommendation ahead of programme.
ABOUT ARCADIS
Arcadis is a global natural and built asset design and consultancy firm working in partnership with clients to deliver sustainable outcomes that help to improve the quality of life. Through the work that we do, we are helping our clients to address the toughest challenges within the built and natural environments, delivering value for them and the communities and cities that we live in.
We are 28,000 people generating more than €3 billion in revenues. Within Asia we can call upon the skills and resource of 5000 professionals based across the wider region.
Combining our sector expertise, technical insight, local understanding and international experience, our Aviation team advises clients in Asia on how to make the most from their investment and expenditure in airport assets. With our extensive knowledge in aviation, we are also bringing solutions spanning Project and Programme Management, Masterplanning, Operational Readiness and Efficiency and Capital and Operational Expenditure Planning.

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