



CREATING  
WORLD-CLASS  
AIRPORTS





## Changi Airports International

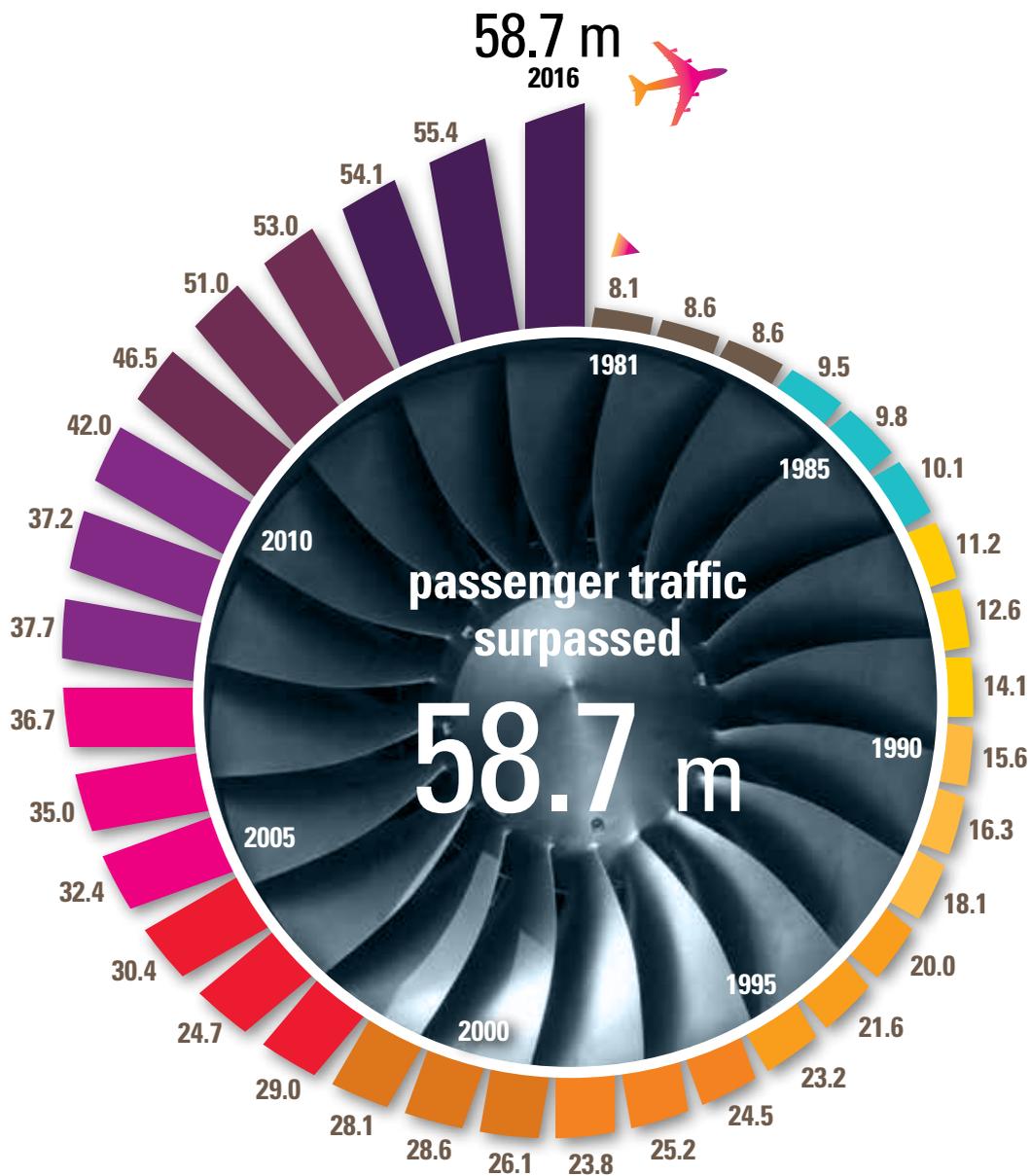
Changi Airports International (CAI) is a leading consultant, manager and investor in the global aviation market.

CAI sees airports as a vital part of a country's infrastructure, intricately linked to economic growth and development. As a strategic partner, CAI designs integrated solutions that enable its clients and partners to fulfil their potential of being world-class airports.

CAI has extensive global experience that spans over 20 countries and more than 50 airports, including Singapore Changi Airport. Some of the projects include Brazil's Tom Jobim International Airport, India's very first aerotropolis, five airports in Russia's Krasnodar and the eastern regions, and King Abdulaziz International Airport in Saudi Arabia.

CAI is committed to being a valued partner in the global aviation market, creating airports of the future and delivering sustainable growth to our partners and investee airports. CAI is a wholly-owned subsidiary of Changi Airport Group.

# The Singapore Changi Airport Success Story



**S\$2.3b** concession sales  
Over **580** retail and F&B outlets  
Over **92,000 sqm** of commercial space  
Over **530** Best Airport Awards

## Key Figures

### Building the World's Most Awarded Airport

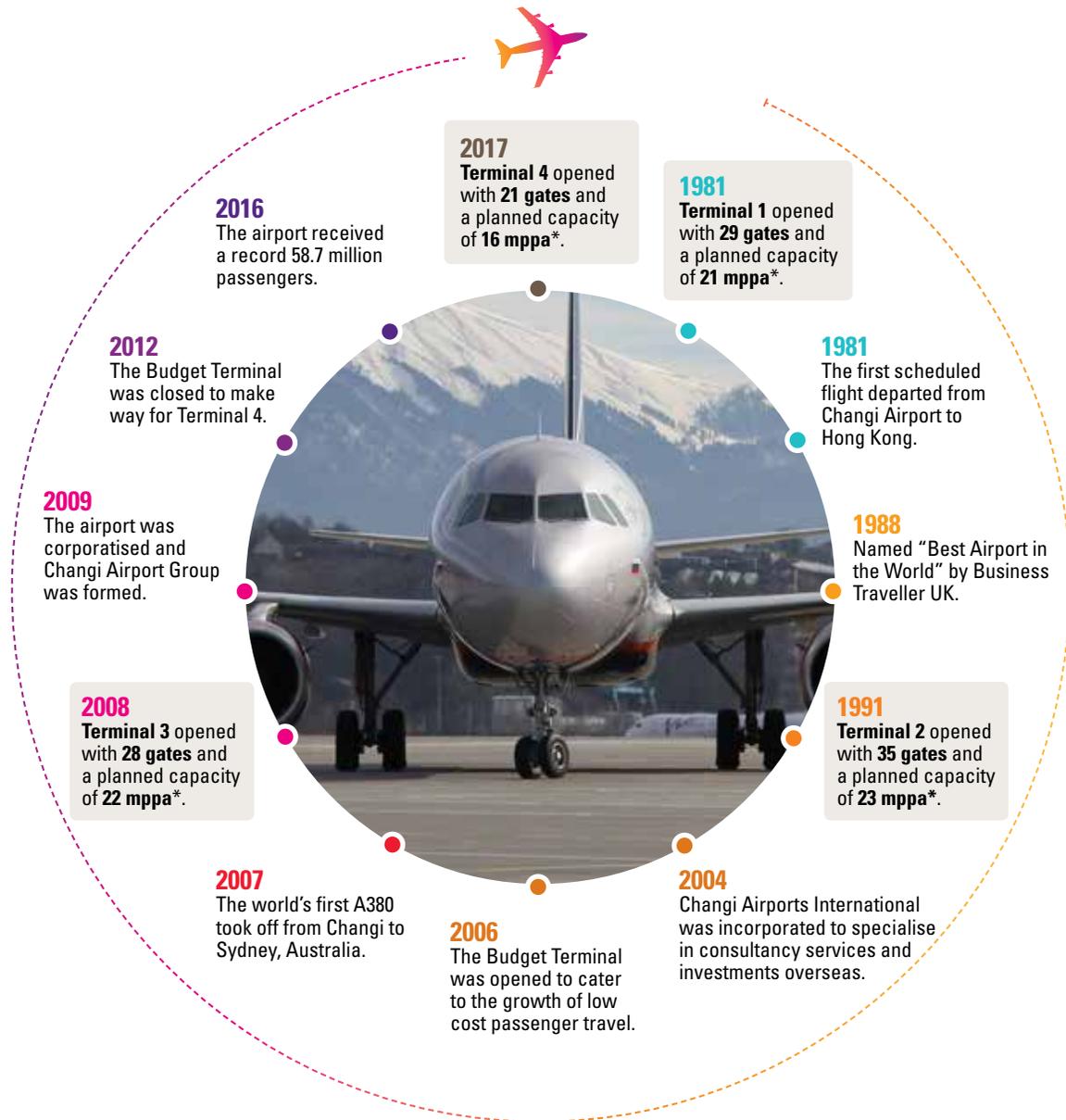
When the inaugural flight took off from Singapore Changi Airport in 1981, the airport had one simple goal – to accelerate Singapore's economic development. The airport had to constantly innovate. In just three decades, annual passenger traffic at Singapore Changi Airport grew from eight million to close to 60 million; and it established itself as one of the world's most awarded airports, with more than 530 accolades under its belt. Singapore Changi Airport's stellar performance attracted numerous requests for consultancy services from airports around the world. CAI was formed to spearhead consultancy and management projects, as well as global investment opportunities.



More than **380** city links  
Over **100** scheduled airlines  
**36 years** rated deficiency free by IFALPA\*\*

*\* Figures as at October 2017*

*\*\* The International Federation of Airline Pilots' Association*



## Milestones

\* Million passengers per annum

# Our Portfolio

CAI has a proven track record that spans over 20 countries and more than 50 airports.



- **Singapore**  
Changi Airport  
Seletar Airport

- **China**  
Beijing Airport  
Chengdu Airport  
China-Singapore Aviation  
Management Academy  
Chongqing Airport  
Dalian Airport  
Fuzhou Airport  
Guangzhou Airport  
Kunming Airport  
Nanjing Airport  
Ningbo Airport  
Qingdao Airport  
Shenzhen Airport  
Taiyuan Airport  
Xiamen Airport  
Yantai Airport  
Zhengzhou Airport

- **India**  
Bangalore Airport  
Durgapur Aerotropolis  
Mumbai Airport  
Nagpur Airport

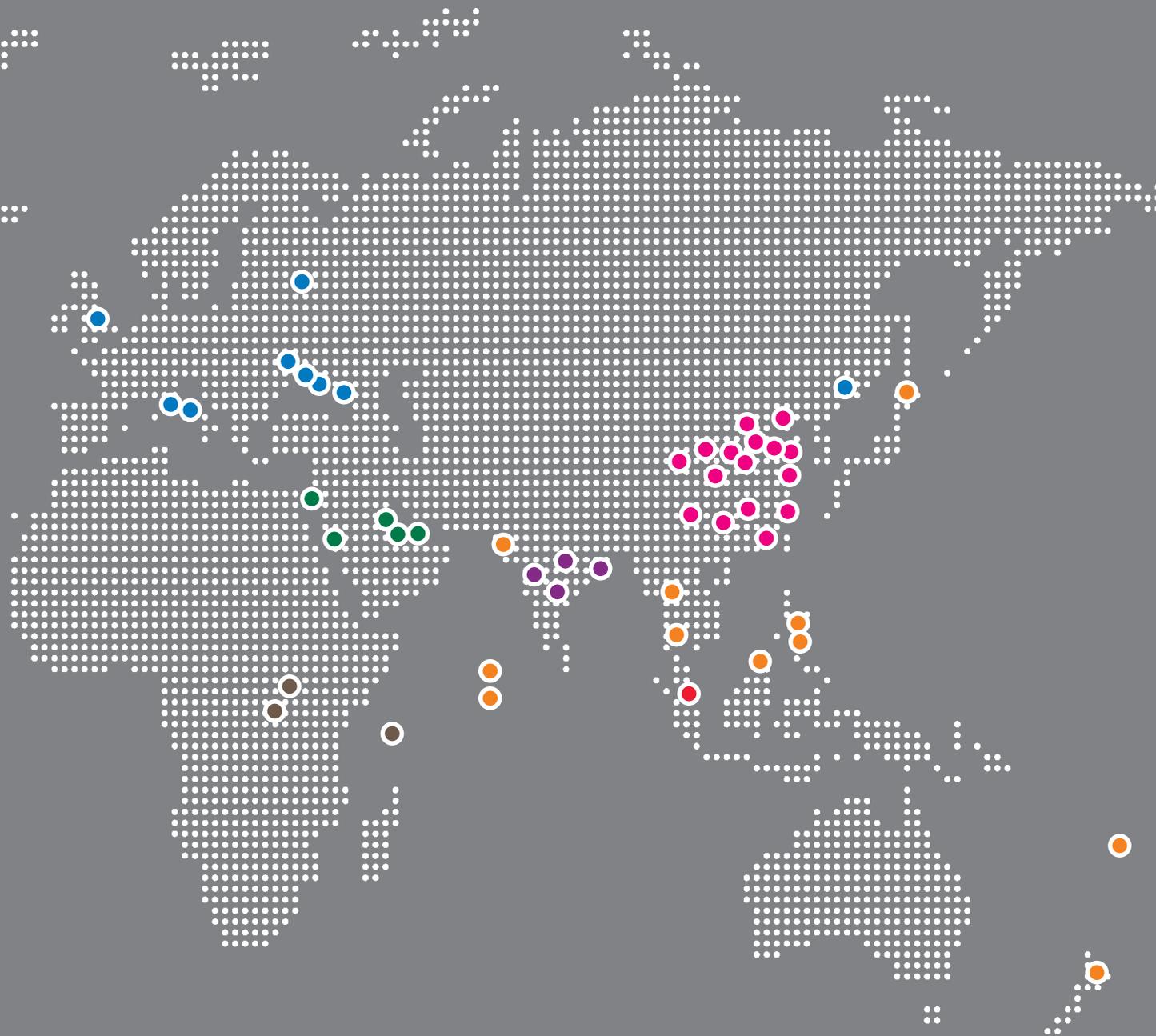
- **Africa**  
Kigali Airport, Rwanda  
Seychelles Airport, Seychelles  
Entebbe Airport, Uganda

- **Asia Pacific**  
Brunei Airport, Brunei  
Nadi Airport, Fiji  
Sendai Airport, Japan  
Gan Airport, Maldives  
Male Airport, Maldives  
Hanthawaddy Airport, Myanmar  
Auckland Airport, New Zealand  
Karachi Airport, Pakistan  
Manila Airport, Philippines  
Zamboanga Airport, Philippines  
Koh Samui Airport, Thailand

- **Europe and CIS**  
Ciampino Airport, Italy  
Fiumicino Airport, Italy  
Anapa Airport, Russia  
Gelendzhik Airport, Russia  
Krasnodar Airport, Russia  
Sheremetyevo Airport, Russia  
Sochi Airport, Russia  
Vladivostok Airport, Russia  
London Luton Airport,  
United Kingdom

- **Middle-East**  
Aqaba Airport, Jordan  
Doha Airport, Qatar  
Dammam Airport, Saudi Arabia  
Jeddah Airport, Saudi Arabia  
Abu Dhabi Airport,  
United Arab Emirates

- **South America**  
Belo Horizonte Airport, Brazil  
Brasilia Airport, Brazil  
Tom Jobim International Airport,  
Brazil  
Juan Santamaria International  
Airport, Costa Rica  
Hato International Airport,  
Curacao  
Jorge Chavez International  
Airport, Peru



● Tom Jobim International Airport, Brazil



● Chongqing Jiangbei International Airport, China



● Kazi Nazrul Islam Airport, Bengal Aerotropolis, India



● Rome Fiumicino and Ciampino Airports, Italy



● Sochi International Airport, Russia



● King Abdulaziz International Airport, Saudi Arabia



● King Fahd International Airport, Saudi Arabia



● Samui International Airport, Thailand

# Airport Consultancy, Management & Investment



## Hub & Route Development

Driving growth in traffic and network through end-to-end airline and passenger development and management.

## Commercial & Retail Development

Optimising airport performance and competitiveness in non-aeronautical business.

## Operational Efficiency & Service Quality

Enhancing the travel experience at every touch point with efficient service processes and resource management.

## Airport Planning & Engineering

Securing the airport's future through a holistic approach to long-term capacity planning.



## Human Capital Development

Building a high performance culture through an integrated and practice-based approach that focuses on the strategy, structure, systems, processes and capabilities.

## Integrated Management

Constantly delivering integrated solutions that meet the needs of stakeholders and create value for shareholders.

## Airport Investment

Actively engaging stakeholders in all levels of asset management to drive profitability and sustainable growth.

# Hub & Route Development

Decades of managing Singapore's renowned Changi Airport and generating success for its partner airports has CAI well-positioned to help other airports achieve their goals. With its diverse experiences and core skills, CAI provides holistic and practical solutions, delivering the desired results to clients and partners.

## Our Expertise

### Traffic Forecasting

- Econometric based traffic projections
- Scenario planning
- Risk assessment

### Network Strategy

- Airport positioning
- Strategic network and traffic growth plan
- Traffic analysis

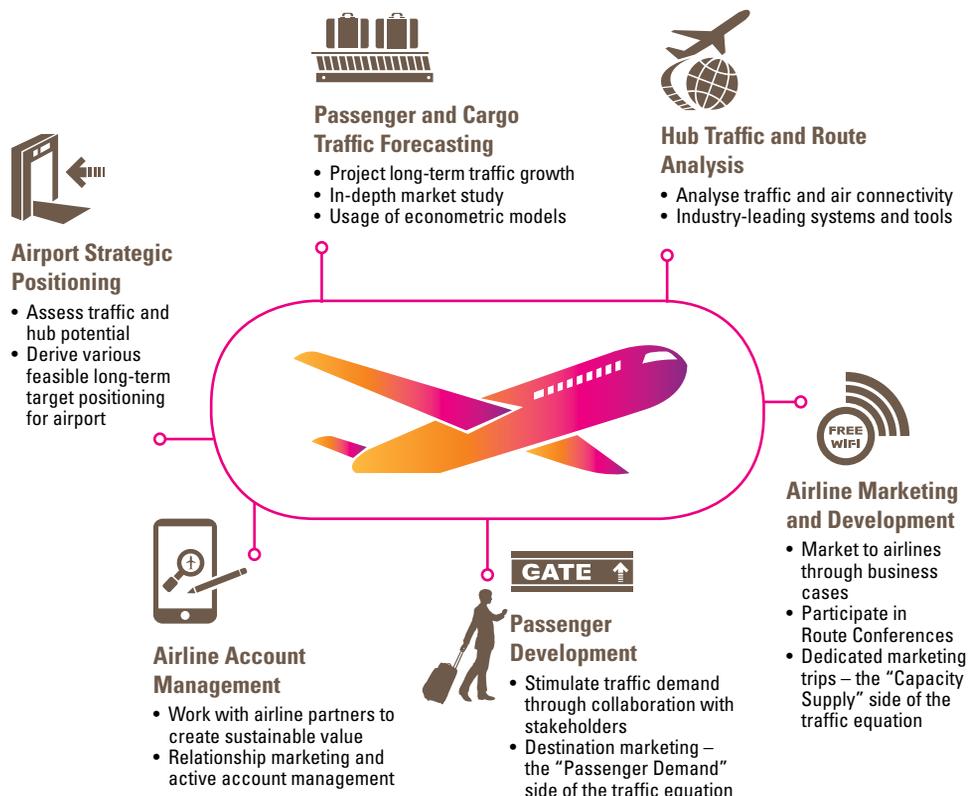
### Airline Development

- Airline strategic engagement
- Airline account management
- Traffic rights policy and strategy
- Business cases
- Marketing trips and conferences
- Incentive schemes

### Passenger Development

### Cargo Development

## End-To-End Air Hub and Airline Development



### Success Story: King Fahd International Airport

CAI started an Operations and Management Agreement with King Fahd International Airport (KFIA) in Dammam, Saudi Arabia in 2008 to transform, commercialise and corporatise the airport, and reverse its declining market share.

CAI worked closely with the local management team to implement a hub development programme that included airline engagement, route development and destination marketing.

Within two years, KFIA was recognised with a Routes Airport Marketing Award (Middle East) at the 8th Routes Asia Conference in 2010.

In 2016, passenger traffic at KFIA had grown 110% from 2008. KFIA surpassed its competitor airport for the fourth consecutive year to become the largest airport by traffic volume in its catchment.

The airport was also named the Most Improved Airport in the Middle East, and third Best Airport by Region (Middle East), at the Airports Council International 2015 Airport Service Quality Awards.

# Commercial & Retail Development

CAI designs strategic plans to ensure that an airport's commercial potential is fully realised. Beyond the aeronautical business, areas like retail, car-parking facilities, advertising and real estate are potential revenue streams that can be positioned for long-term competitiveness.

## Our Expertise

- Retail management
- Business model development
- Retail investment analysis
- Retail and F&B positioning
- Financial analysis
- Design overall shopping experience with passenger flow and space planning
- Concession development
- Project and tender management
- Due diligence support

## Commercial Planning



### Retail Management

Develop appropriate airport retail management organisation to support, maintain and stimulate commercial business operations.



### Business Model

Assess appropriate commercial model to follow including concession model, outsourcing-insourcing decisions, rental structures and risk sharing.



### Retail and F&B Mix

Identify the positioning and concepts of key product categories, brand mix and space.



### Financial Analysis

Analyse overall value-add of airport retail & F&B plans and return on investment. Consider impact on overall financial performance and regulatory models.



### Space Planning

Plan the optimal retail locations based on demand assessment, retail concepts, space and dimensional requirements and operating considerations.



### Passenger Flow

Study the passenger flow and footfall and work with planners and managers to achieve balance between passenger comfort and retail exposure.



### Demand Assessment

Determine the passenger profile, mix and future growth of each segment. Identify customer needs and behavioral trends.



## Success story: Chongqing Jiangbei International Airport

Chongqing Jiangbei International Airport, an emerging regional hub in China, first appointed CAI in 2008 to consult on the commercial development of one of its terminals.

CAI worked with the airport to configure the retail layout and product mix at Terminal 2A and shared its expertise in retail management to optimise commercial revenue. This brought about a 30% increase in commercial sales per passenger when the terminal became operational in 2010.

This partnership was extended in 2011 with the new Terminal 3A, which has a capacity of 45 million passengers per annum. CAI was engaged to work with the airport to plan the terminal's commercial area.

Terminal 3A was inaugurated in August 2017, with a total demarcated retail space of 35,000 sqm filled with an extensive selection of top international brands and renowned local labels that promote the city's unique identity.

# Operational Efficiency & Service Quality

CAI works with partner airports to create efficient operations and a responsive environment for a best-in-class, stress-free travel experience.

## Our Expertise

### Process

- Airport Process Timing Measurement programme
- Terminal optimisation and enhancement
- Self-service master plan
- Way-finding system reviews and implementation

### People

- Passenger and baggage flow evaluation
- Airport operations organisation structure review
- Airport Operations Control Centre planning

### Measurements

- Airport service quality performance management system
- Operational expenditure optimisation

### Project Implementation

- Operational Readiness and Airport Transfer (ORAT)
- Event management

## Service Level Improvement and Capacity Enhancement Process



### Key Passenger Touch Points



### Success story: Sochi International Airport

In June 2012, CAI invested in a group of four airports in southern Russia. One of these is Sochi International Airport, the host airport for the 2014 Sochi Winter Olympic and Paralympic Games.

CAI worked with the airport operating company to introduce a slew of operational initiatives to get the airport ready for the Games. These included the addition of ten passenger loading bridges, a new carpark with 700 lots and a temporary games terminal to handle the expected increase in passenger volume.

CAI also enhanced the way-finding system, implemented accessibility upgrades for Paralympic visitors and athletes, and refined operational processes and contingency planning.

In the Winter Olympic month of February 2014, Sochi International Airport handled more than 360,000 passengers, three times the volume in February 2013. Notwithstanding the stretched conditions, 90% of the flights were on time. The airport received numerous commendations from dignitaries, athletes and visitors for its operational excellence and efficiency during the Games.

Sochi International Airport has been named Best Airport every year in its traffic category since 2015 by the National Airport Infrastructure Show and Civil Aviation, and Airports Council International Service Quality Awards. It was also awarded Best Regional Airport 2016 by Business Traveller Russia.

# Airport Planning & Engineering

Planning airport capacity requires a fine balance. Over capacity may result in under-utilised funding and lower operating margins, while under capacity may lead to lost opportunities and public confidence.

Changi Airport Planners and Engineers (CAPE) builds airports for the future. It takes a long-term approach to design and capacity planning, aimed at delivering service quality without compromising on sustainable growth and room for expansion.

## Our Expertise

### Airport Master Planning

- Air traffic forecast
- Airfield planning
- Airside/Landside facilities
- Utilities planning

### Airport Engineering

- Airfield geometry design
- Pavement design
- Drainage design
- Pavement rehabilitation

### Terminal Planning

- Functional planning
- Architectural concepts
- Capacity assessment
- Building information modelling (BIM)

### Project Management

- Design management
- Construction management
- Cost management

## Airport Master Planning



### Site Selection

- Determine appropriate site
- Review geographical, environmental, archaeological, meteorological data

### Inventory Assessment

- Assess existing airport facilities, conditions, capacity



1

### Activity Forecast

- Forecast for air traffic: passenger, cargo, aircraft movement, etc
- Determine required processing facilities



2

### Facilities Requirements

- Assess existing airport facilities, conditions, capacity
- Determine requirements based on projected air traffic
- Capacity planning



3

### Airport Master Plan

- Efficient allocation of land resource
- Optimal location of facilities
- Perform airfield layout design



4

### Implementation in Phases

- Phased approach for the implementation of facilities to support corresponding demand



## Success story: Singapore Changi Airport

Since 2007, CAPE has overseen the development of key airport infrastructure, such as aircraft pavements, runways and taxiways, and airfield drainage at Singapore Changi Airport.

In 2011, CAPE was engaged to replace The Budget Terminal with the new Terminal 4. This includes feasibility studies, revision of the airport master plan, terminal concept design, and detailed airfield engineering works. The team worked with CAG to ensure that when Terminal 4 opens in 2017, it will have the flexibility to cater to the growing regional travel segment through efficient terminal operations.

CAPE is also the lead consultant for airfield engineering for the Changi East Development which encompasses Terminal 5. It is involved in the airport master plan, airfield and engineering design, and functional design review of the future terminal. The new development will also have facilities to support airfreight and air express operators, and MRO activities.

*CAPE was formed in 2007 to share the experience of developing Singapore Changi Airport with the world. Since then, it has executed nearly 60 projects in more than 20 countries, covering a broad spectrum of services including master planning, airport engineering, terminal design and project development.*

# Human Capital Development

CAI offers an integrated practice-based approach to enable our partner airports' people agenda to achieve sustainable business success.

Its comprehensive approach focuses on strategy, structure, systems, processes and capabilities that are critical to creating and growing a high performance culture.

## Consulting and Customised Training

### Our Expertise

#### Organisation Strategy

- Organisation and people diagnostic
- Alignment of people strategy with the organisation's strategy

#### Organisation Design

- Organisation design study
- Human capital study
- Talent management and development

#### Organisation Development

- Competency gap analysis
- Build learning and development plan
- Develop senior management competencies
- Develop airport professionals and leaders

#### Organisation Performance

- Implement performance management system
- Design knowledge management plan
- Train-the-trainers



### Success story: King Fahd International Airport

CAI has been training the employees of King Fahd International Airport (KFIA) in Dammam, Saudi Arabia since 2008.

The CAI programme is focussed on creating and growing human capital to support the successful transformation, commercialisation, and corporatisation of KFIA into a best-in-class international airport.

The airport's senior management and middle level managers are trained in the areas of leadership, management, and airport operations. The high potential staff undergo a customised airport professional development programme in Singapore to develop the required operational, service, and management skills as future leaders of KFIA.

Training sessions are also conducted onsite to equip general staff with the knowledge and skills required to support the business objectives.

To date, CAI has conducted over 9,000 training days for KFIA. Through training and development, as well as various knowledge transfer initiatives, CAI has equipped KFIA management and staff with the know-how to execute the functions of growing, supporting and organising the business.

# Integrated Management

Creating value in airports requires a holistic understanding of airports as both an essential public infrastructure and a commercial entity.

CAI brings together the knowledge, experience and skills needed to help partner airports deliver a best-in-class travel experience while optimising the airport's commercial potential.

## Our Expertise

- Operations and management
- Technical support service
- Transaction advisory and management
- Management of joint ventures
- Airport diagnostics
- Airport privatisation advisory and management

## Sustained Shareholder Value Creation



### Success story: Airports of Southern Russia

CAI marked its first foray into Russia in June 2012. It invested in four airports in the Krasnodar region which serves the resorts of Anapa, Gelendzhik, Sochi, and the business centre and political capital of the region, Krasnodar.

CAI provides a comprehensive range of services to the investee airports to drive multi-faceted improvements across all business lines. This includes traffic development, capacity planning, commercial and retail development, and operations and service enhancements.

Improvements such as self check-in counters and a new service blueprinting concept were introduced to uplift the passenger experience. Sochi and Anapa Airports inaugurated a new VIP terminal and a passenger terminal respectively to cater to evolving passenger demands. Krasnodar and Sochi Airports also revamped their commercial space, to offer passengers even more shopping options, while work is underway to expand the capacity at Gelendzhik Airport.

With CAI's active participation, the airports' traffic hit 10 million passengers in 2016 – nearly double that of 2012.

The results of CAI's integrated management approach were validated when all four airports garnered top accolades in 2015, 2016 and 2017 at the National Aviation Infrastructure Show. The judging criteria was based on passenger service quality, airline marketing and services, infrastructure modernisation, security, non-aviation business as well as public relations strategy. Sochi International Airport also came up tops at the Airports Council International Airport Service Quality Awards in 2015 and 2016.

# Airport Investment

CAI is a sought-after partner in airport privatisation and M&A transactions as governments and investment consortia increasingly require airport operators to be involved.

CAI combines the expertise gained from the development of Singapore Changi Airport, with its own experience across multiple geographies and airport assets to provide value-add for its investments. With an integrated platform, deep industry knowledge and an ability to foster strong partnerships, CAI has the breadth to execute a wide range of airport projects.

CAI's focus is to invest in emerging and developed markets with airport opportunities that have strong growth prospects, potential for capacity expansion, and room for business transformation, combined with strong local partnerships.

## Investment Strategy

### Strong Catchment Potential

- Airports with traffic development potential underpinned by strong economic growth fundamentals, a large population base and an expanding middle class
- Critical mass for commercial and traffic diversification
- Favourable and robust regulatory and aviation policy environment

### Scope for Value-add

- Potential to transform the airport business, in particular, to develop non-aeronautical and unregulated business
- Potential to stimulate traffic, expand the airport catchment and diversify the hub network
- Opportunity to design or redesign the airport infrastructure to maximise value capture
- Ability to obtain significant operating efficiencies and improve service levels to meet and exceed public and stakeholder requirements

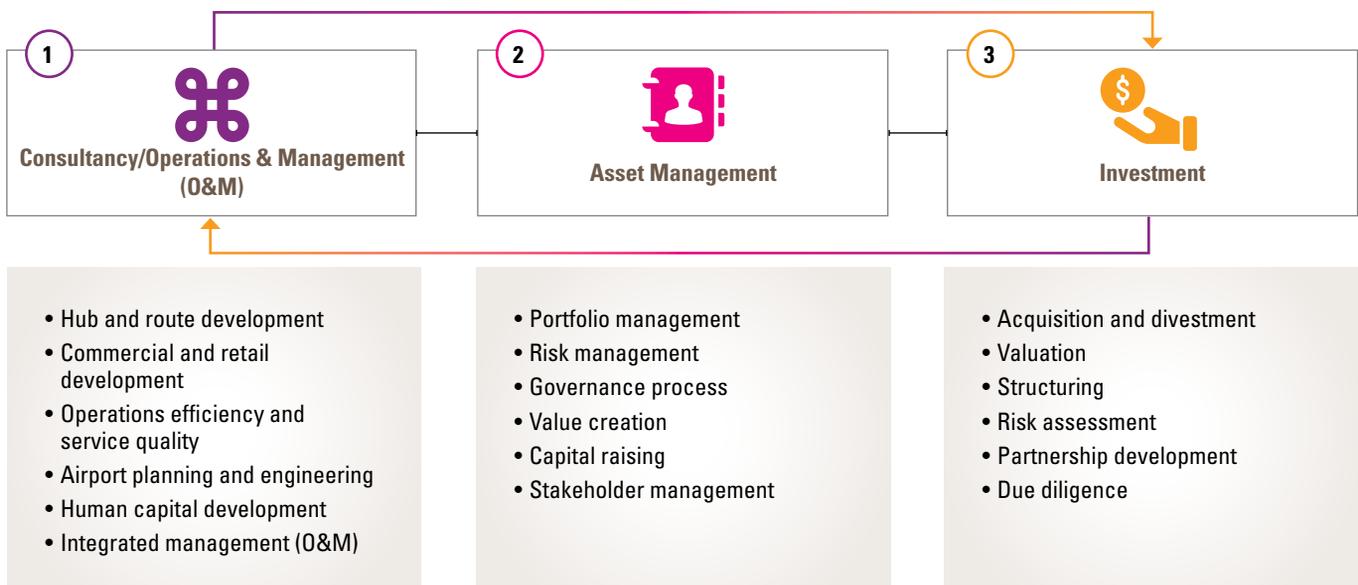
### Strategic Influence

- Substantive shareholder rights and ability to actively influence the overall management and development of the asset
- Preference to be majority shareholder or largest minority shareholder (with negative control rights)
- Ability to have regular engagement with regulatory bodies and ministries

### Strong Partnership

- Focus on forming strong consortia with the appropriate partners to manage key investments risks including execution, construction, or sovereign risks

## An Integrated, End-to-End Investment Platform



# Our Investment Experience





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