

Aerospace

Factsheet 2010

Singapore: Asia's Aerospace Hub

At a Glance

Singapore is well known today as an air hub. With more than 250 awards, Changi International Airport is recognised as one of the world's best airports. We are also a regional leader in aerospace maintenance, repair and overhaul (MRO), manufacturing and research and development (R&D). Since 1990, the Singapore's aerospace industry has grown at an average rate of 12 per cent to become the most comprehensive MRO hub in Asia. In 2009, Singapore's Aerospace industry achieved an output of S\$7 billion, employing some 18,000 workers.

There are more than 100 international companies carrying out MRO in Singapore. We possess nose-to-tail capabilities that include airframe maintenance, engine overhaul, component repair, structural and avionics systems repair, as well as aircraft modifications and conversion. These core competencies, coupled with our commitment to quality and safety, have made Singapore a recognised one-stop solution provider for airlines' maintenance and repair needs.

Besides MRO, Singapore is also home to leading aerospace design and manufacturing OEMs and suppliers. These companies look to Singapore for our strong engineering capabilities, a comprehensive IP regime, a productive workforce and a pro-business environment which keep Singapore cost competitive. Products manufactured in Singapore include engine casings, engine gears, valves, electrical power systems and galley equipment.

Aerospace-related R&D in Singapore has also grown significantly over the last two years and is set to grow further. Major aerospace companies have already established R&D centres here that leverage on the capabilities of our local research institutes and universities.

Due to our excellent connectivity, Singapore is also the location for several aerospace regional distribution centres (RDCs). This includes the RDCs of key aerospace companies such as Boeing, Airbus, Embraer and GE.

Key Investments

MRO

Singapore has the complete range of MRO capabilities for both passenger and freighter aircraft. The continued expansion and investment by aerospace companies further augment Singapore's position as the region's MRO centre. Highlights include:

Eurocopter's new 8,200 sq-m facility at the Seletar Aerospace Park, which will have twice the hangar capacity of its existing premises. Eurocopter will also carry out training and R&D activities at its new premises.

Safran Electronics Asia and Singapore Airlines Engineering Company's (SIAEC) joint venture to establish a dedicated Centre of Excellence & OEM warranty repair centre for avionics components.

ST Aerospace's two new hangars at Seletar Aerospace Park to cater to narrow-body MRO and Passenger-to-Freighter Conversion. Hangar 600 and Hangar 700 will be able to accommodate up to three narrow-body jets such as Boeing 737 and Airbus 320 at a time. This will allow ST Aerospace to capture more MRO work from the rapidly growing Asian budget airlines and help generate downstream MRO work for the industry as well.

Goodrich's 530,000 sq-ft aircraft component and systems maintenance and repair campus in Singapore. The campus brings together several Goodrich service businesses under one roof and represents Goodrich's largest MRO campus worldwide. In addition to MRO, the campus will also perform OEM manufacturing and R&D activities.

Manufacturing

Singapore's strong manufacturing base, skilled manpower and focus on science and engineering is ideal for aerospace manufacturing activities. Highlights include:

Rolls-Royce's establishment of a factory in Singapore for the manufacture of hollow titanium wide chord fan blades (WCFBs). This will be Rolls-Royce's first facility outside UK to manufacture the specialist component. The factory will be located at Rolls-Royce's Seletar campus alongside the company's other new facility for the assembly and test of large

commercial aircraft engines. Rolls-Royce's campus at Seletar will create some 500 jobs when fully operational.

GE Aviation will be manufacturing engine components at its newly expanded GE Aviation Services Operations facility at Loyang.



Supply Chain Management

Singapore's connectivity and robust infrastructure have made it ideal for aerospace companies to site their regional distribution centres here. Highlights include:

Boeing Integrated Materials Management's (IMM) new IMM Asia Regional Center in Singapore. Boeing's Integrated Materials Management helps maintain and manage airline's spare parts inventory, providing items to the airline as needed.

Embraer's choice of Singapore for its regional logistics and spares hub to provide spares and rotables support to regional airline customers.



R&D

Singapore is fast establishing itself as an R&D hub. According to the Agency for Science, Technology and Research (A*STAR), Singapore's gross domestic expenditure on R&D increased to more than S\$6.3 billion in 2007. In the same year, the total number of researchers in Singapore was more than 27,000, with the private sector employing close to 60% of them. Several aerospace companies have established R&D centres in Singapore to capitalise on this vibrant research environment. Highlights include:

EADS has established EADS Innovation Works Singapore, its first Research and Technology (R&T) centre outside of Europe. The R&T centre undertakes R&D for EADS' wide variety of businesses ranging from aerospace to defence and security systems. In some instances, some of the R&D will be done in collaboration with our Research Institutes and universities.

Thales established the Thales Technology Centre Singapore (TTCS), a global centre of excellence for specific R&D areas in dual-use technologies - technologies that may be used in defence or commercial applications. TTCS is significant in that it is one of the four Thales corporate R&D centres in the world, and the first outside Western Europe.

In addition to the company established research centres, Boeing, EADS, Pratt & Whitney and Rolls-Royce are collaborating with A*STAR and its research institutes under the SERC Aerospace Programme to conduct pre-competitive basic-directed and applied research work.

Training

Singapore is committed to developing its talent base to meet the needs of the industry. Aerospace courses and specialisations offered at local tertiary institutes and universities remain very popular. Highlights include:

EADS will be co-sponsoring six Ph.D. students from the Nanyang Technological University and National University of Singapore. The programme will boost efforts to developing postgraduate talent for the aerospace industry. Under the programme, the students will be jointly supervised by university professors and researchers from EADS Innovation Works Singapore (EADS IW), and work in EADS IW upon graduation.

Embraer set up a simulator in Alteon's regional training centre to support pilot training. The Level D Full Flight Simulator (FFS) has the capacity to train an average of 300 pilots per year. Its customer base includes airlines from Australia, India, China and Japan, among other countries.

Seletar Aerospace Park

To support the future development of Singapore's aerospace industry, a new aerospace park is being developed at Seletar.

The Seletar Aerospace Park is a dedicated 300ha industrial park that will host an integrated cluster of activities including aerospace MRO; design and manufacture of aircraft systems, components, and light aircraft; business & general aviation activities; and a regional aerospace campus for education, research and training. Companies that set up in Seletar Aerospace Park can reap the benefits of a world-class business infrastructure, complete with runway access, and the synergies from cluster integration.



Outlook & New Growth Opportunities

The long term prospects of the aerospace industry remain positive in spite of the current economic climate. Air traffic and aircraft fleet size in Asia is poised for strong growth, bolstered by rising demand from China, India and ASEAN countries.

The global Aerospace industry is also in a phase of exciting developments. There has been a recent surge in new aircraft types being developed and brought into service. These include the Airbus A380 and A350, as well as, the Boeing B787 Dreamliner, to list a few. These aircraft employ new technologies, including the extensive use of composites in airframes, the development of more efficient engines and the testing of environmentally friendly fuels.

Singapore is committed to further developing our manpower capabilities and infrastructure. This will put us in strong position to capitalise from emerging trends.

About the Singapore Economic Development Board

EDB is the lead government agency for planning and executing strategies to enhance Singapore's position as a global business centre and grow the Singapore economy. We dream, design and deliver solutions that create value for investors and companies in Singapore. In so doing, we generate economic opportunities and jobs for the people of Singapore; and help shape Singapore's economic future.

'Host to Home' articulates how EDB is sharpening its economic development strategies to position Singapore for the future. It is about extending Singapore's value proposition to businesses not just in helping them improve their bottom line, but also in helping them grow their top line. EDB plans to build on existing strengths and add new layers of capabilities to enable Singapore to become a *'Home for Business'*, a *'Home for Innovation'* and a *'Home for Talent'*.

For more information on EDB, please visit www.sedb.com

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