

Aerospace: Appendix A- Case Studies for Innovative Projects

1. Development in Morocco's Aerospace Industry

This sector in particular witnessed an unprecedented growth in Morocco. The need for the aerospace global industry to reduce costs led a number of companies to explore Morocco as a production platform. The number of companies has increased from a handful in 2000 to fifty today. Prestigious companies such as Labinal, Teuchos, Aircelle, DL Aerotechnologie, Safran Group, DAHER, EADS, Creuzet etc. have set up production units in Morocco. The aerospace activity is mainly located in Casablanca and Tangier. The Casablanca hub at the international airport is called "Aeronautic City". The industry in Tangier Free Zone is also expanding rapidly.

Today, the sector is made of 50 companies, provides 5000 jobs and has a \$394 million. Within few years, Morocco has developed an aerospace industry hub that gathers a large scope of expertise such as studies surveys, mechanics and tooling, composites, assembly, distribution of chemical products, surface treatment, wire bundles, electric and electronic components, civil, military aircrafts and helicopters maintenance, engine maintenance, nacelles, aeronautic training. Most of these industries are EN9100 certified.

The fast development of this sector in Morocco prompted the organization of the first international exhibition in North Africa, bringing together major aeronautics players.

2. Korean Aerospace industry growth & pursuit towards building Aerospace clusters

With its T-50 Golden Eagle, South Korea joined a select club of nations to have successfully developed a supersonic aircraft. Quite apart from breaking the sound barrier, South Korea is hoping to also break into new export markets with its advanced jet trainer. Four task forces comprising civilian, government and military experts have been created to action these targets. The four groupings are a regional aircraft team; helicopter team; next-generation fighter team; and a maintenance, repair and operating (MRO) team. The MRO side will build upon existing service bases at Incheon and Cheongju International Airports.

Integral to this strategic 2020 plan are four major and far-reaching programmes: (1) utility military helicopter; (2) light/mid-weight attack helicopter; (3) cutting-edge next-generation fighter; and (4) regional 90-seat commercial jet. Midterm and long-term goals are elaborated in the Aerospace Industry Primary Plan (2010-2019) released in January 2010. Efforts are being made to create aerospace industry clusters in the specialist areas of aircraft production, research and development (R&D) and MRO. Aircraft production will focus on the southern Jinju/Sacheon area.

Since a European company and not a firm of the U.S., which was a traditional aircraft exporter to the Republic of Korea, was selected as the primary partner of KAI in the KHP, such countries as the U.K. and Germany are paying increasing attention to the Korean market.

Following the KHP, the KFX (a next-generation fighter development project) is to be implemented as a large-scale government project. Said countries are seeking to participate in the project as a partner.

From this perspective, the most realistic options identified by Korea to attract foreign investment include pursuit of industrial-academic-research cooperation by encouraging foreign companies to set up R&D centres in Korea or pursuit of their indirect participation in the domestic defence/civilian aerospace industries through investment in and strategic partnerships with domestic businesses.

3. National Aerospace Centre of Excellence – South Africa

The Department of Trade and Industry (DTI) formulated the National Aerospace Centre of Excellence (NACoE) in 2005 under a policy to establish industrial centres of excellence to provide specific support to specific emerging sectors to mitigate a skills shortage in the aerospace industry. The NACoE is the pilot project under the DTI's policy to see if such an initiative is viable. Since the establishment of the NACoE, the DTI has opened a number of similar, but smaller, centres. However, NACoE is leading the way in understanding how industry-university partnership models in the aerospace industry function.

The formation of the strategy, known as the Aerospace Industry Support Initiative, developed by the DTI, was an effort to fast-track the repositioning of the South African aerospace manufacturing industry to be firmly integrated into the international supply chains driven predominantly by large commercial airliner manufacturers Boeing and Airbus.

The DTI has committed itself to provide core funding for the NACoE for the initial five years to demonstrate the relevance of the centre, and for the NACoE to find new partners. The NACoE is hosted by the University of the Witwatersrand (Wits), but it is a national programme of the DTI, with some of the funding administered through the National Research Foundation on behalf of the department. It is also the only university in the country that has A-rated aeronautics research and state-of-the-art facilities.

NACoE Focus Areas

The NACoE has identified three fields that need attention in the aerospace industry, and the centre will fund skills development and industry-focused research around these fields.

- The first area is aeronautics, dynamics, modelling, simulation and control. This area is one where South Africa has significant potential to liaise with international companies. The focus is on the development of aircraft flight control systems, which include electronics and software. The area also entails software modelling and the development of aircraft.
- The second area of focus is aero- space manufacturing processes and materials, which include the advanced machining processes required for parts and components for aero structure manufacturing. Research in this field is vital to support the industry's future work, and the focus includes aero structure materials, such as composite materials and titanium alloys.
- The third field the NACoE focuses on increasing appreciation of the importance of industrial engineering in the aerospace industry. The centre believes that academic knowledge around industrial engineering should be more integrated into the aerospace industry, with specific models and tools to be developed in consideration of South Africa's unique challenges.

4. Strategic Aerospace & Defence Initiative - Canada

Canada's aerospace, defence, space and security (A&D) industries are major contributors to the national economy. In 2008, the aerospace sector alone had sales of \$23.6 billion and employed 80 000 Canadians across the country. To support R&D in aerospace industry, government of Canada has launched Strategic

Aerospace and Defence Initiative (SADI). The Strategic Aerospace and Defence Initiative (SADI) have three main objectives:

- To encourage strategic research and development (R&D) that will result in innovation and excellence in new products and services;
- To enhance the competitiveness of Canadian A&D companies;
- To foster collaboration between research institutes, universities, colleges and the private sector.

Strategic R&D projects under SADI will use technologies that either:

- Support the development of next-generation Aerospace & Defence (A&D) related products and/or services;
- Build on existing Canadian strengths in A&D technology development;
- Enable Canadian companies to participate in major platforms and supply chains; or
- Assist the A&D industries in achieving Canada's international obligations (e.g. development programs supported by Canada).

Types and Amounts of Contributions

SADI provides Canadian aerospace and defence (A&D) industries with repayable contributions for strategic R&D projects. ITO calculates the contribution amount for each project on the basis of it being the minimum amount of assistance required to ensure that the project proceeds successfully and generates benefits for Canadians. Contributions to SADI projects will equal approximately 30 percent of a project's total eligible costs. ITO is not required to distribute specific amounts of funding or percentage funding levels by region.

The Strategic Aerospace and Defence Initiative (SADI) have benefit Canadians in numerous ways: Technologically, they have witnessed new materials; new information technologies and other innovations have also evolved. Regional diversification and economic development has energized an already healthy economy. Reduced greenhouse gas emissions and other new energy efficiencies have greatly help the environment, and safety, security and defence measures also have improved. This all has helped to enhance the quality of life for Canadians, and provided value for money.

These benefits will be measured both during the lifespan of the project and once SADI contributions end. Benefits will vary, depending on each of the projects approved under SADI. However, individual Canadians and companies stand to inherit new skills, knowledge and capabilities. New or improved technologies are also likely to come to the fore, benefiting suppliers who have participated in the project.