

Lifting Malaysia's fortunes sky-high

INNOVATIVE: Steps are under way to promote national competency in the aerospace sector

BUILDING aircraft requires perfection in a coordinated manufacturing process that ranks among the most complex of any industry, involving hundreds of suppliers and the assembly, integration and certification of thousands of individual components.

Competing in the aerospace world demands skills, technology and resources beyond the requirements of almost all other industries. But it's an industry that certainly has the potential to aerodynamically lift Malaysia's fortunes to the sky. Our country has all the necessary ingredients for success: geographic location, "business-friendly" government policies and stability, infrastructure and highly skilled human resources. Among Malaysia's other advantages: internationally recognised safe aviation and legal frameworks.

Aerospace embraces many ad-

vanced technologies and offers abundant opportunities in engineering, electronics, composite materials as well as manufacturing and systems integration. Further developing the sector here, therefore, will help us acquire higher technology and build skills, many of them transferable to other industries.

Today, Malaysia has approximately 200 aerospace-related organisations, with estimated combined earnings of more than RM27.5 billion and more than 54,000 employees. The critical underpinnings for all of these enterprises are science, technology and innovation in a modern economy.

Science, technology and innovation are important contributors to economic growth and crucial factors determining the market competitiveness of firms both nationally and internationally.

Research and development (R&D) are widely recognised prerequisites of technological advancement, and levels and rates of growth of R&D expenditures are viewed as reliable indicators of innovative capacity.

The 10th Malaysia Plan aims to ensure that investment in R&D reaches at least one per cent of gross domestic product by 2015. Achieving this target requires a bold commitment of funding not only from the public sector but also

more importantly from the private enterprise.

Worldwide, two-thirds to three-quarters of all R&D activities are financed and carried out within the private sector. Business involvement in research-driven activities is simply crucial for Malaysia's future economic growth and competitiveness.

One innovative approach to encouraging more private sector R&D here is the Aerospace Malaysia Innovation Centre (AMIC), which was launched by Prime Minister Datuk Seri Najib Razak on Dec 5, 2011.

The AMIC is jointly funded by the government, two leading international aerospace industry leaders — EADS, the maker of Airbus, and Rolls-Royce — and two local players, Composite Technology Research Malaysia Sdn Bhd and the Malaysian Industry-Government Group for High Technology (MIGHT). University partners are led by Universiti Putra Malaysia (UPM).

Significant to note within AMIC's approach: university-based R&D will be customised to industry needs. The university will also train master's and doctoral level students in aerospace technology.

AMIC is an R&D centre of excellence that will emulate the highly successful Advanced Manufacturing Research Centre (AMRC) in Sheffield, the United Kingdom, a £60 million (RM291 million) partnership between the University of Sheffield and more than 40 partner companies, including Boeing.

According to the university, AMRC "is dedicated to enabling UK manufacturers to create better, faster, cheaper, easier and greener products using composite materials".

"It builds on the shared scientific excellence, expertise and technological innovation of the world's leading aerospace companies, and world-class research within the University of Sheffield's Faculty of Engineering."

It also pursues research into composite materials, "an area crucial to the development of Boeing's next generation aircraft".

AMRC is situated on an Advanced Manufacturing Park, where it is co-located with other internationally significant research and technology transfer organisations.

AMRC's counterpart here at home, AMIC, will catalyse and facilitate cooperation between industries and universities in Malaysia on aerospace-related projects. It is a significant step towards promoting our national competency in the aerospace sector.

UPM will coordinate research and technology projects, competencies and manage linkages between the academic sector and industries.

Higher Education Minister Datuk Seri Mohamed Khaled Nordin recently renewed his call for such enhanced university-industry linkages, including through establishment of centres of excellence and singled out AMIC as a viable model for the Malaysia Re-

search University Network to follow.

Key R&D priorities identified by AMIC include:

JET fuel production from micro-algae;

INNOVATIVE manufacturing of aerospace composites structures;

NEW green materials for use in aerospace manufacturing; and,

IMPROVED technologies for systems integration

With Malaysia's abundant biodiversity, there are high prospects for us to identify, isolate and cultivate micro-algae strains that can eventually yield top-grade jet fuel.

Innovation in manufacturing will include, for example, production time-saving technologies, new methods, cost-efficient design and process simulations.

And, the initiative on new green aerospace materials would include developing eco-friendly materials for cabin and cargo areas.

The unique university-industry research collaboration exemplified by AMIC is a work in progress that propels Malaysia towards the industrialised, high-tech country we all aspire to.

It is an effort to tap into the expertise and resources of our friends in the developed world to strengthen our local human capital, while at the same time maximising the sustainable use of our abundant natural resources.

The author co-chairs both MIGHT and the Aerospace Malaysia Innovation Centre



Datuk Dr Zakri Abdul Hamid
is science adviser to the prime minister