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ACS-A: From CRC Breakthroughs to Global Supply Chains

Written by Kerryn Caulfield, Executive Director, Composites Australia Inc.

Pioneering work in composite materials and processes developed by the Cooperative Research Centre for Advanced Composite Structures (CRC-ACS) has led to lasting applications across aerospace, defence, oil and gas. A notable example is the technology developed with what is now Boeing Aerostructures Australia, which helped secure from Boeing Commercial Airplanes, headquartered in the United States, a sole supplier contract for the Boeing 787 Dreamliner worth up to $5 billion over 25 years.

Over its 24 years from 1991, CRC-ACS became one of Australia's most successful and longest-running Cooperative Research Centres. Its objective was to bring together Australia's leading technical specialists and facilities to develop new world-class research capabilities and technologies for industry. Early partners included the Defence Science and Technology Group and four Australian universities, with directors from Hawker de Havilland and AeroSpace Technologies of Australia (now Boeing Aerostructures Australia) contributing aerospace design and manufacturing expertise. The Centre later attracted additional partners, including Airbus Australia, the German Aerospace Center, and Petronas in Malaysia.

The CRC for Aerospace Structures was initially led by Dr Gordon Long from the Aeronautical Research Laboratories, followed by Dr Ian Mair as Chief Executive Officer and then Professor Murray Scott in 2003. In 1997 the Centre expanded its scope to advanced composite materials and became the CRC for Advanced Composite Structures.

Composite Fitting Attachment (COFA) demonstrator — thermoplastic bracket ultrasonically welded to thermoset panel, developed by ACS Australia.

ADVANCED COMPOSITE STRUCTURES AUSTRALIA

ENGINEERING, INNOVATION & MANUFACTURING

Advanced Composite Structures Australia Pty Ltd (ACS-A) was formed in 2008 to manage the CRC's growing commercial activities. When CRC-ACS concluded its final funding round in 2015, ownership transferred to directors and employees, enabling ACS-A to continue as a commercial operation. Several of the original engineers and researchers who helped shape Australia's composites capability three decades ago remain with the company.

Today, ACS-A is an ISO 9001-certified engineering and manufacturing firm. Managed by Dr Paul Falzon, General Manager, the company combines this legacy with his expertise across engineering, technical and business roles. Dr Rodney Thomson, Engineering Manager, is recognised in the aerospace and composites sectors in Australia and internationally. ACS-A is governed by a board of directors and a management team that oversees projects from concept to delivery.

THE COMPANY OFFERS END-TO-END COMPOSITES ENGINEERING, INCLUDING:

Design & Analysis – modelling, crash and impact simulation, optimisation of composite structures

Product Development & Testing – prototyping, additive manufacturing, and full-scale assembly evaluation

Manufacturing & Assembly – precision tooling and composites for high-value production

Inspection & Repair – 3D scanning and sustainment solutions for aerospace, transport, energy and renewables

Breakthrough Technologies – thermoset welding, composite clamping systems, and high-temperature composites for hypersonics and space

To support growth, ACS-A is establishing a new 3,600 sqm facility in Melbourne for large-scale composites manufacture and assembly. The facility will include CNC machining, additive manufacturing, robotic trim and drill and other advanced processes, enabling delivery

PROF. MURRAY L. SCOTT ENGINEERING LEADERSHIP COMPOSITES AND AEROSPACE

Murray Scott's career spans more than four decades of aerospace engineering, composites innovation and international collaboration. He graduated from RMIT in 1978 with a BEng in Aeronautical Engineering and then obtained an MSc in Aircraft Design from Cranfield in the UK. His early work as a design engineer with the Commonwealth Aircraft Corporation (CAC) – now Boeing Aerostructures Australia (BAA), followed by an engineering role at Northrop (now Northrop Grumman) in the United States, gave him a global focus that would shape his contributions to advanced composite materials and their application in industry. A highlight of his period as an active researcher was the development of design and manufacturing technologies for integrally-stiffened post-buckling composite structures, which were validated on full-scale wing control surface demonstrators.

He led the Cooperative Research Centre for Advanced Composite Structures (CRC-ACS) for 13 years, guiding collaborations that delivered globally competitive composite technologies, including those adopted for the Boeing 787 Dreamliner. Since 2016, he has chaired the board of Advanced Composite Structures Australia, steering its role as both an engineering services provider and a composites product manufacturer for sectors including aerospace, defence, mining, transport and renewable energy.

Prof. Scott's influence extends well beyond Australia. He served as President of the International Council of the Aeronautical Sciences (ICAS) and continues to contribute as an Honorary Fellow and Programme Committee member. He is also a World Fellow and past President of the International Committee on Composite Materials (ICCM). In Australia, he founded the Australian Composite Structures Society (ACSS), which hosted the ICCM conference for the first time in the southern hemisphere in 1997 on the Gold Coast [ICCM-11] and subsequently again in 2019 in Melbourne [ICCM-22]. He currently chairs the Joint Board for Aerospace Engineering, a collaboration between Engineers Australia (EA) and the Royal Aeronautical Society Australian Division (RAeS), and last year was bestowed the rare honour by EA of Honorary Fellowship.

He has long worked with RMIT University as Professor, Adjunct Professor and industry adviser, linking research with application and supporting future engineers. He also serves on boards and committees in sustainability and manufacturing, including the R&D committee of Paintback Ltd, the paint industry's product stewardship body.

Prof. Scott's recent election as a Fellow of the American Institute of Aeronautics and Astronautics (AIAA), recognised in Washington, DC in April, reflects the international calibre of engineering expertise developed in Australia.

of specialist solutions for aerospace, defence, marine, renewable energy and other sectors.

ACS-A participates in national innovation networks. It is a partner in the Blue Economy CRC, contributing engineering and manufacturing expertise to renewable energy and aquaculture projects such as wave energy converters and MoorPower™ demonstrators. It is also a member of the Australian Composites Manufacturing CRC, focused on building sovereign composites manufacturing capability through Industry 4.0 transitions and workforce training. More recently, ACS-A has collaborated with RMIT University and industry partners through the Economic Accelerator Innovate Program on smart wind turbine blades, and with the University of Queensland through the Australian Research Council's Industrial Transformation Research Program to develop series manufacturing of high-temperature composites.

ACS-A also supports future talent. Through the Defence Industry Internship Program, engineering, manufacturing and technology students apply their university learning to Defence projects while working alongside experienced professionals. The company also invests in apprenticeships to strengthen its technical workforce.

ACS-A demonstrates how research and industry collaboration can deliver competitive advantage, build domestic capability, and extend Australian engineering expertise to global markets.