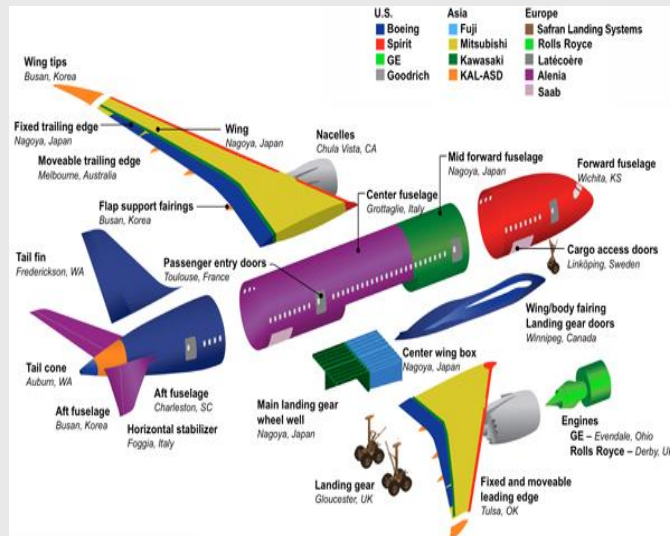


Box 3.2 The CRC for Advanced Composite Structures — applications ranging from aerospace to oil & gas

The CRC for Advanced Composite Structures (CRC-ACS, 1991-2015) was one of the longest-running CRCs and one of the most successful. It operated in a period when there was strongly increasing interest in the use of new composite, lightweight, high-performance materials in manufacturing. Composites are being used in sectors including aerospace, automotive, defence, infrastructure, oil and gas. The use of composites requires a very high level of engineering capability, along with highly developed manufacturing and technical skills. CRC-ACS brought together Australia’s leaders in composites, building a centre with an international reputation for excellence and reinforcing Australia’s reputation as a successful innovator in composite structures.

From its beginnings, CRC-ACS employed a large staff to engage in collaborative programs, reaching a peak of 40 employees. The staff worked with researchers and industry personnel, promoting education and becoming experts in the technology. Half of the CRC’s more than 100 postgraduate students were employed by industry or research organisations. There was also a focus on demonstrating the technology, with CRC-ACS striving to reduce the gap between new technology and its adoption by industry partners. CRC-ACS adopted limited royalty-free licensing of IP for major investors in 2010 while increasing SME engagement and commercial contracting through its new spin-out company – Advanced Composite Structures Australia Pty Ltd.



The major success of CRC-ACS was technology and expertise development in collaborative projects involving Hawker de Havilland, which became Boeing Aerostructures Australia (BAA) and secured a sole supplier contract for the Boeing 787 Dreamliner worth up to \$5 billion over 25 years.

The CRC was vital to Australia remaining as a significant supplier to major aircraft manufacturers, with technology developed inside CRC-ACS, allowing BAA to put forward innovative manufacturing and engineering approaches. These were central to helping it secure Tier 1 supplier status with Boeing, as well as a major package of advanced design and manufacturing work. International engagement was a significant feature of CRC-ACS. Their participation in EU Framework Program projects led to further significant work with Airbus and others.



CRC-ACS engaged with the international Oil & Gas (O&G) industry by developing novel repair technologies using composites. The development of a lightweight, corrosion-resistant customisable pipeline clamp for the O&G industry offers the potential of significant economic and environmental benefits through rapid, inexpensive installation and long-life performance.

The clamp is a highlight of the collaboration achieved through Australian and international universities and SMEs, and PETRONAS – Malaysia’s national O&G company.

This novel composite clamp was awarded the prestigious JEC 2014 Innovation Award in the O&G category. With massive weight savings (one-sixth the weight of the equivalent steel clamp), the technology can save significant costs through minimising requirements for divers and support infrastructure. It combines fast customisation capability and is not subject to corrosion. PETRONAS licensed the technology for the deployment of the clamp locally and internationally.

CRC-ACS helped its partners make substantial contributions to the Australian economy. While the details of these remain confidential, one partnership alone is understood to have contributed more than \$1 billion to Australia’s GDP. By the close of funding, CRC-ACS and its collaborators had received four international awards for composites as well as four CRC Association awards.

Source: CRC-ACS Exit Report, CRC Association

Manufacturing CRCs made up 18 per cent of the CRCs for which economic benefits were identified and made up 15 per cent of economic benefits. It is important to note that many of the most substantial economic benefits are imminent impacts, expected to mature in the years from 2021. For example, Innovative Manufacturing CRC reported significant collaborative impacts occurring in 2024-25 – an expected \$310 million in costs avoided and \$282 million in increased revenue.