

MARKET SPOTLIGHT:

Growing UK Composite Capability



EXECUTIVE SUMMARY

Composite structures allow manufacturers to drastically reduce the weight of aircraft components which is key to unlocking efficiencies and reducing fuel burn and aircraft emissions. The demand for composite components in the civil aircraft fleet is growing, leading to a doubling in market value by 2032 and further growth to 2050. The UK aerospace sector has the opportunity to grow its market share in composites sixfold by 2050 through a targeted approach to technology differentiation and improving competitiveness. ATI analysis shows the UK aerospace sector is well-positioned for the next programme launch to bid and successfully secure composite contracts, which will help retain and grow its market share. The ATI is convening interested parties from across the aerospace ecosystem to develop activities that will fast-track specific technologies to underpin a national capability. This paper sets out a proposition for working towards that ambitious 2050 goal, with an interim aim of maturing UK composite capability by 2030.

INTRODUCTION

This paper is the first in a series that highlights market opportunities for the UK aerospace sector. The series looks at several capability areas that support and enable increased UK market and value share on current and future generations of aircraft. Within the papers, the Aerospace Technology Institute (ATI) sets out the size of the opportunity suggesting investment priorities and actions needed to maximize UK business growth.

THE IMPORTANCE OF COMPOSITES

Composite materials are changing the way aircraft are made by reducing the weight of components, allowing manufacturers to make different choices around design and integration. Modern widebody commercial aircraft such as the Boeing 787 and Airbus A350 are around 50% composite by weight, compared to 6% on the Boeing 747, mainly in wings, fuselage and empennage (tail) structures. Metallic structures feature in demanding and specialised functions such as engines, landing gears and structural connections. Narrowbody aircraft, such as the A320, feature composite empennage and nacelle (engine) constructions, while the newer A220 also includes composite wing and control surfaces.

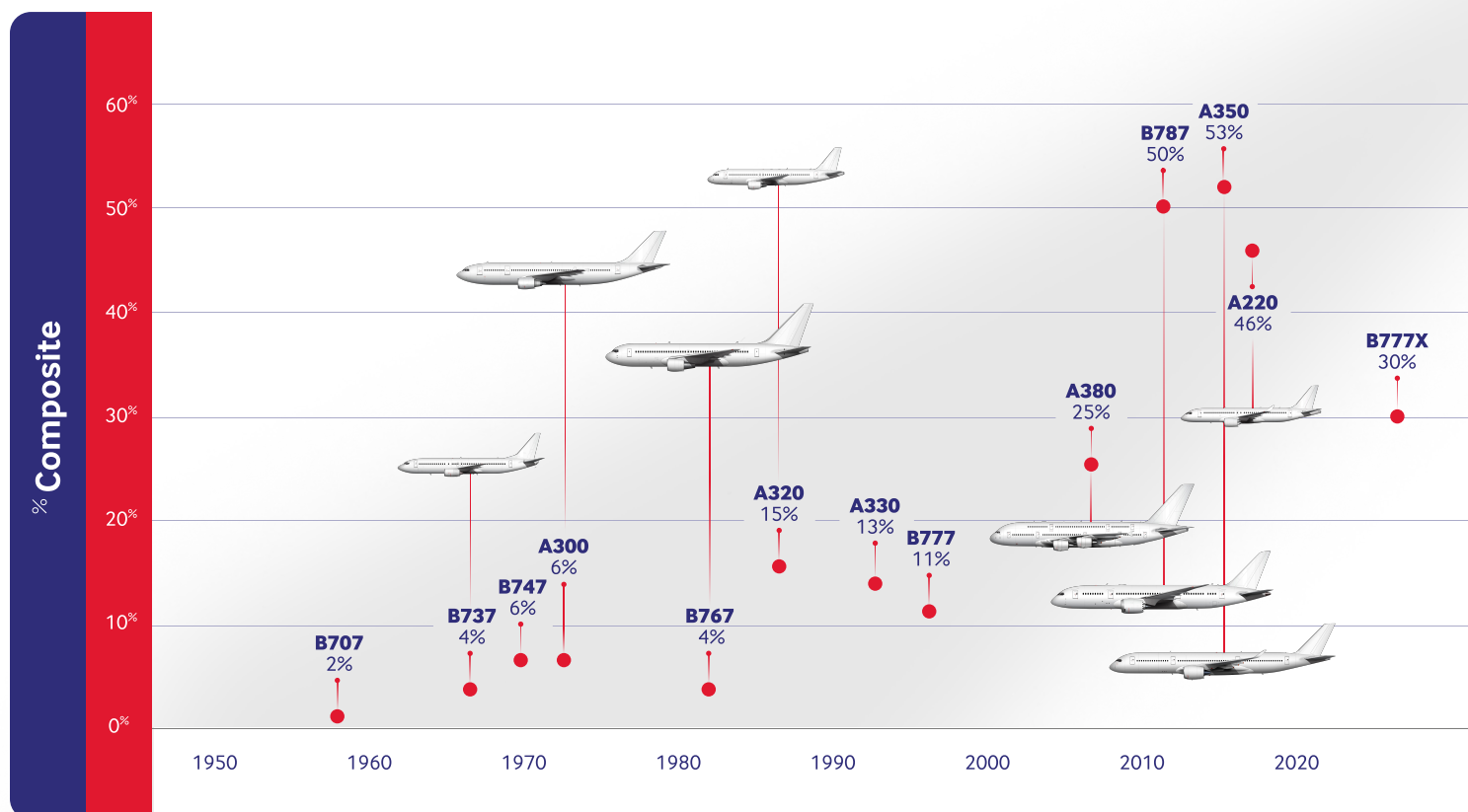
Looking ahead, the use of composite materials will enable new aerodynamic concepts, such as aero-elastic tailored structures and laminar flow wings, unlocking additional efficiencies across the airframe. It is likely that the location of composite manufacture supply chains will become an increasingly important factor in selecting sites for aerostructures production. Developing composites capability therefore underpins UK current capability as well as targeting future market share.

THE MARKET OPPORTUNITY

Currently, companies in Europe, the US and Japan dominate the composite aerostructures market, with significant investments seen in Turkey, South Korea, and China. The global market for composite components in civil aerospace was valued at \$16billion in 2022¹ and is expected to grow to \$34billion by 2032².

¹ Counterpoint Market Intelligence. ² Counterpoint Market Intelligence

FIGURE 1
COMPOSITES AS A % OF AIRCRAFT STRUCTURAL WEIGHT (1980-2040)
Recreated using data from Counterpoint Market Intelligence.



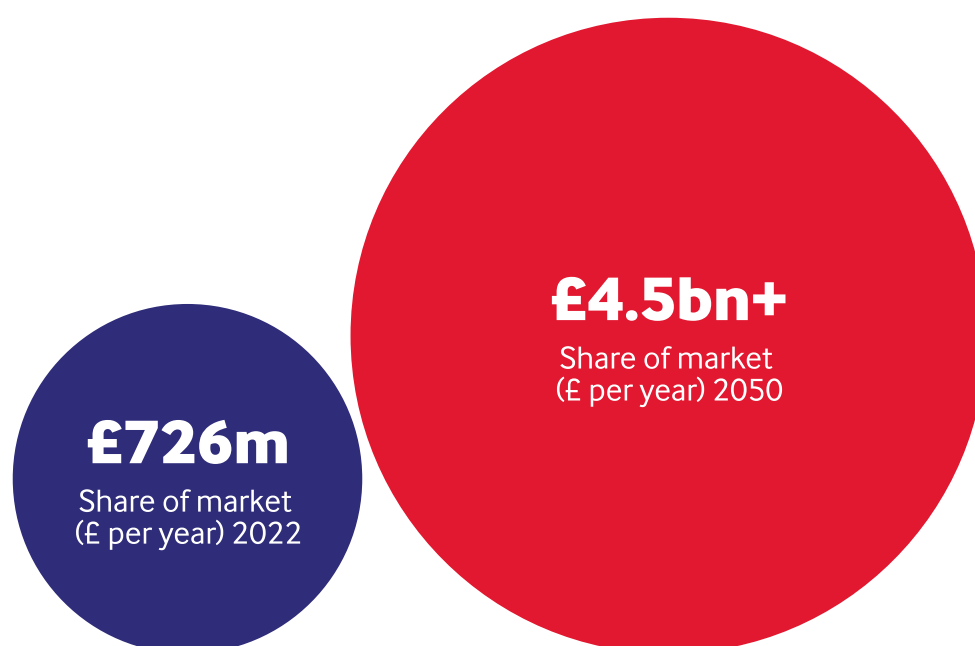
Securing UK-manufactured wings on next generation aircraft is critical to achieving ATI-projected market share, national economic growth forecasts and regional benefits driven by the creation of high value jobs. Today, almost all Airbus commercial wings are assembled in the UK, alongside manufacture of a number of key components. The ATI estimates that the UK's addressable market for composite wing components on future ultra-efficient platforms could be worth over £65 billion between 2025 and 2050. By targeting this market, the UK would underpin wing manufacture and integration assemblies in North Wales and South West England. It could also open up economic opportunities for UK-based supply chains in aerostructures, propulsion and systems, cement UK's sovereign capability and insure the sector against global challenges affecting imports.

Past and current investment means the UK is well positioned to address the future composites market. The UK was instrumental in the development of composite technology and our share of the aerospace composite components market in 2022 was £726m³ per year, which is already over 5.5% of the civil aerospace market. Now, there is an opportunity to increase UK share to over £4.5bn per year by 2050 by growing the depth and capability of our supply chain.

³ UK Composites Industry Competitiveness and Opportunities – Lucintel – 2020

FIGURE 2

POTENTIAL GROWTH IN UK MARKET SHARE FOR AEROSPACE COMPOSITES



ADDRESSING THE CAPABILITY GAP

To secure and grow its market share, the UK needs to continue to strengthen its advanced composite aerostructures capability. In the past decade, the UK Government and industry have invested £827m through the ATI Programme towards composite material research and technology. This gives the UK a good foundation and, as Original Equipment Manufacturers (OEMs) recover from recent market disruption and continue to seek efficiencies, they will be seeking suppliers who can produce the right combination of cost, quality and delivery reliability with the lowest risk. To maximise our sector competitiveness, ATI analysis shows we need to target the following areas:

- Mature our industrial system with a rate-capable, credible, integrated supply chain by growing advanced tooling capability, technology providers, manufacturers and integrators.
- Develop technology solutions at pace that encompass the entire manufacturing cycle from materials to end product.
- Demonstrate all key technologies to manufacture large composite structures at rate to TRL6 by 2030.

The ATI Technology Strategy, Destination Zero, highlights the importance of composites and we will continue to support the industry through the ATI Programme. Given the potential of composite material structures to drive economic growth, high-value jobs, and sustainable aviation, the ATI believes the sector needs a common approach to support the strengthening of the aerospace composites manufacturing supply chain in the UK.

DELIVERING A UK AEROSPACE COMPOSITES STRATEGY

The UK innovation ecosystem is well-connected and boasts a successful history of public-private partnership. The UK is a centre of excellence for aerostructures, propulsion and systems design and manufacturing.

The UK's research and academic organisations are world-leading in materials and manufacturing technology, drawing on expertise and knowledge across all areas of composite development. Our capability ranges from fundamental materials manufacturing and formulation to large-scale component manufacture and is underpinned by state-of-the-art capabilities and technologies, many of which cannot be accessed anywhere else in the world. We are also among the world's leading countries for scientific production with multiple research hubs and projects active in fundamental research of composites, which have the potential to disrupt long-established practices.

UK Research and Technology Organisations (RTOs), including TWI, HVM Catapult, AMIC, and NPL, specialise in transferring innovative ideas from low TRL up the ladder of technology maturity. In collaboration with industry, they enable rapid industrialisation and exploitation of innovation. Working together around a joint strategy, this ecosystem will support the UK aerospace sector to reach its full potential in this market.

TARGETING FUTURE INVESTMENT

ATI analysis identifies key areas for UK growth, including advanced tooling capabilities, innovative structural concepts, high-rate industrial systems, material supply chain resilience, and enhancing the depth of the manufacturing supply chain. Addressing these areas will boost the UK's competitiveness and ability to capitalise on future economic opportunities.

A COLLABORATIVE APPROACH

To develop this view of priorities, the ATI has analysed our funding portfolio, reviewed technology trends in global aerospace composites and consulted industry and institutional stakeholders. We now invite innovation and technology stakeholders to collaborate on finalising and delivering a national aerospace composites strategy. By focusing on partnerships and consortia, we can reduce barriers, open up opportunities, leverage existing strengths, and deliver technology and capabilities efficiently.

GET INVOLVED

To reach the full UK market potential the sector needs to come together around this opportunity and focus on achieving our agreed priorities. The ATI is now seeking feedback and active engagement from across the sector to refine the strategy and drive through the technology development needed.

To register your interest to attend our Composites in Aerospace workshop, join our upcoming composite-themed events or provide feedback on this paper

[Click here](#)

ATI COMPOSITES WORKING GROUP

To refine the approach, the ATI is setting up a Composites Working Group. The group will be made up of subject matter experts and organisations who will advise on priority areas for investment, finalising the strategy, scoping projects, funding routes, stakeholder engagement and assessing progress. Individuals and organisations operating in adjacent sectors will also be involved in discussions concerning proposed interventions as appropriate to explore opportunities for collaboration and coalescence of efforts.

The Composites Working Group will meet monthly from April 2025 and members will need to be prepared to contribute up to 100 hours of their time in the period to October 2025 to support the meetings, review document drafts, provide feedback, and engage in workshops.

If you would like to be considered for membership of the Composites Working Group please email composites@ati.org.uk by 17:30 on Friday 4th April 2025 with your contact details, reason for applying and relevant experience.

To remain connected with news and updates from the Aerospace Technology Institute, sign up to our mailing

[Click here](#)