Aircraft development cooperation in advanced composite technologies

JEC Forum Asia 2026 - Taipei, Taiwan

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an AIRBUS company

ACE AIDC CTC we are composites

Agenda

01 Who are we?
Introduction to german & taiwanese collaboration partners

02 History with Taiwanese composite industry
Reviewing our long-term partnership and milestones

03 AIDC's development target / project
Strategic goals and upcoming technical projects

04 How to organize a joint development project?
Framework and governance for our cooperation

05 What did we achieve together?
Summary of success stories and key outcomes

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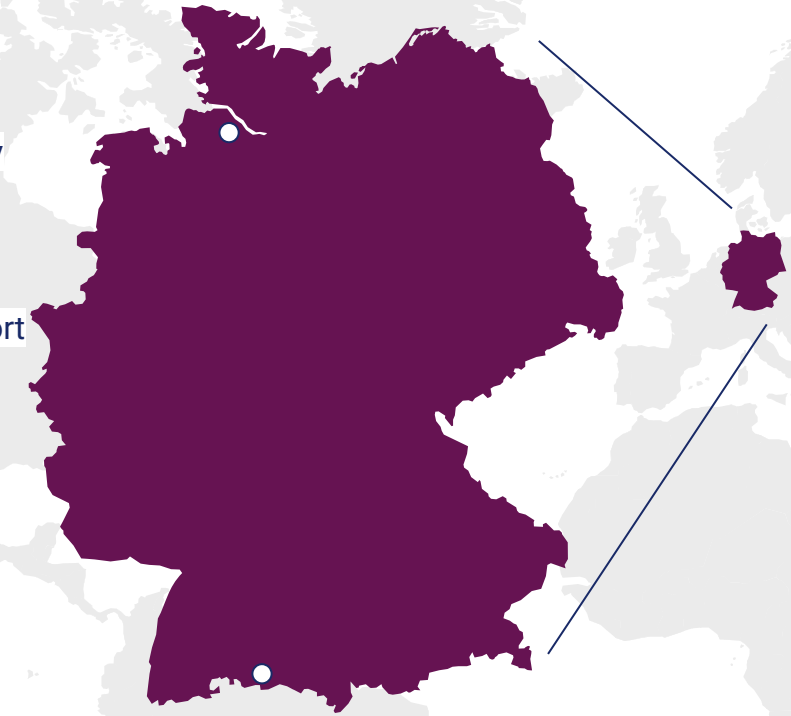
Introduction - Collaboration Structure

CTC (Composite Technology Center GmbH): A 100% subsidiary of Airbus, CTC serves as a full-service partner for developing series production processes. We provide technical guidance, support for TRL (Technology Readiness Level) maturation and act as a bridge to Airbus R&D.[236]



ACE (Advanced Composite Engineering GmbH): Provides specialized expertise in designing composite components, calculating static and dynamic properties and developing preform and RTM (Resin Transfer Molding) systems.

AIDC (Aerospace Industrial Development Corporation): Acts as the primary industrial partner. We provide advanced engineering skills in design, material testing and quality control, leveraging extensive manufacturing network in Taiwan.

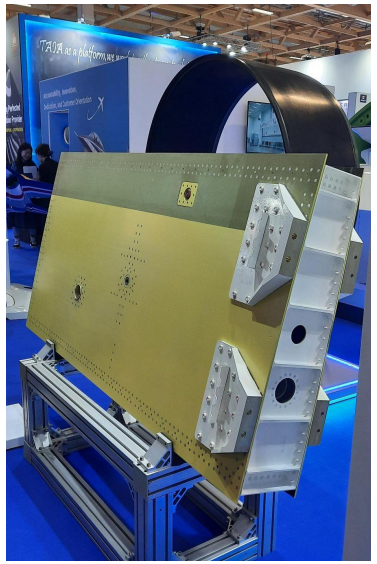
History with Taiwanese composite industry

Source: Deutsches Museum

Former DORNIER Engineers supported AIDC onsite to transfer from military products to commercial aircraft products made in composite.

ACE & CTC support AIDC to optimise their Prepreg composite part manufacturing for AIRBUS parts

Source: CTC



Source: CTC

ACE & CTC supported AIDC to develop a co-cured composite wing fuel box demonstrator

ACE & CTC introduced AIDC to Thermoplastic Research & Development in Europe

Source: CTC

1990s

2014 - 2016

2020 - 2022

2023 - …

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GE-EC-not-technical
ECCN:

AIDC’s development target / project

Over 30 Years of Global Aerospace Expertise: Trusted supplier for civil and military composite aircraft structures worldwide.

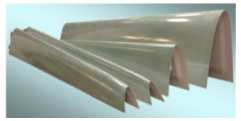
Innovative & Sustainable Manufacturing: Advanced automation and sustainable materials for high-performance, lightweight solutions.

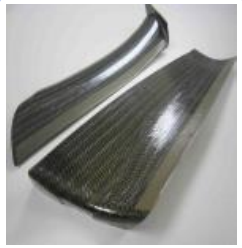
Thermoset Development

Manual Lay-up → Automated Lay-up
Autoclave → RTM, VaRTM, OOA Process


Co-cured Cockpit

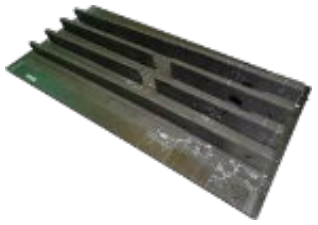

Sandwich Bonding

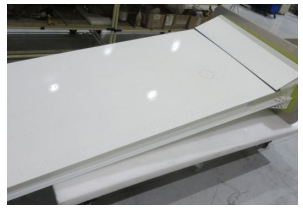

Leading Edges


RTM Vane

Advanced Technology

Composite Wing Fuel Tank





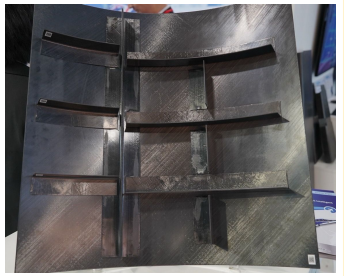
Source: AIDC

Thermoplastic Development

Stamp Forming, AFP, Injection Molding, Overmolding, Welding


Wing Rib


Wing Spar


Door Panel

Source: AIDC

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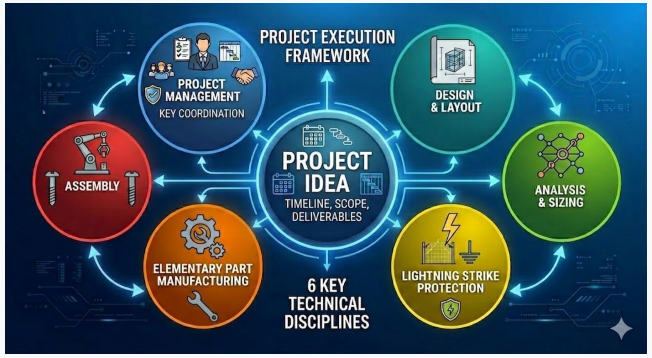
ECCN:

Composite Wing Fuel Box - International Collaborative Development

1. Development of project organization

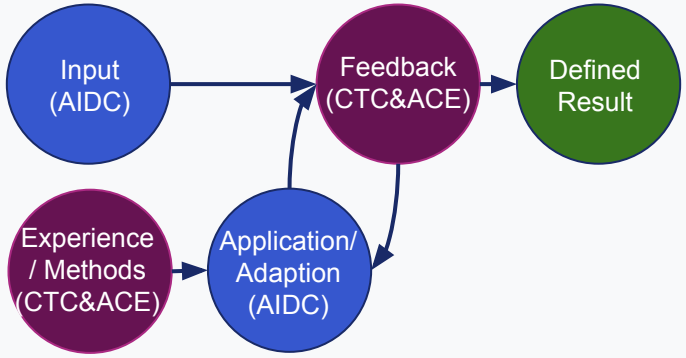


Source: AI generated

Set up project structure and team to customer needs:

- **Analysis** of customer project needs
- **Identification** of key technical disciplines
- **Set up** of couples for each discipline
- **Coordination** of specialist for effective online meetings & workshops

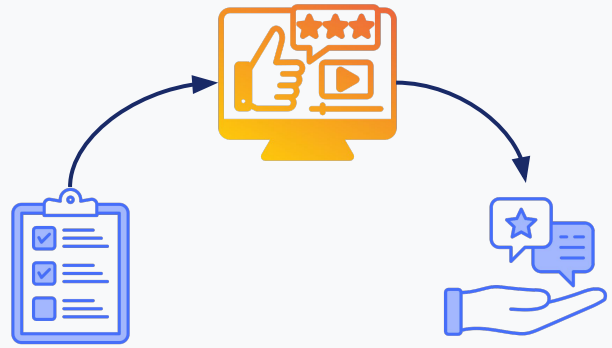
2. Continuous Development



Collaborative Workflow:

- **Identification:** Understanding the mutual starting point in development
- **Asynchronous Prep:** Specialist back-office review between time zones.
- **Validation:** Full team understanding before documenting.

3. Quality check & improvement



Source: Flaticon.com

Offsite support:

- **Definition** of tests or quality checks
- **Review** of results
- **Advice** approaches for improvement for further development

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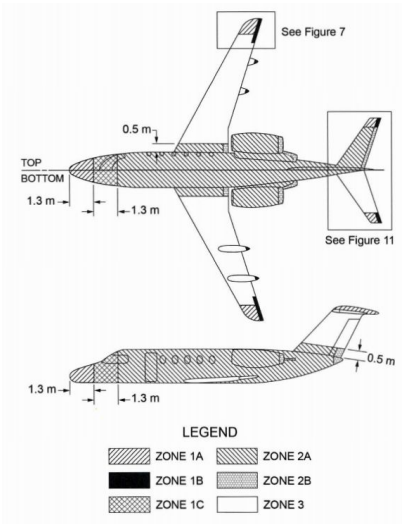
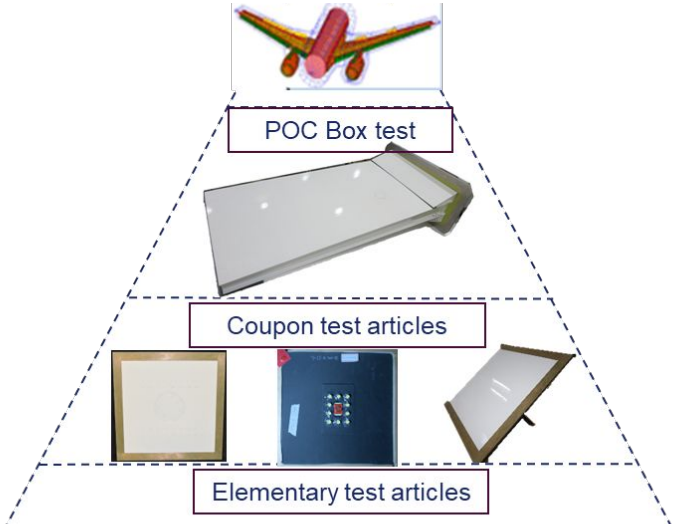
ECCN: n/a

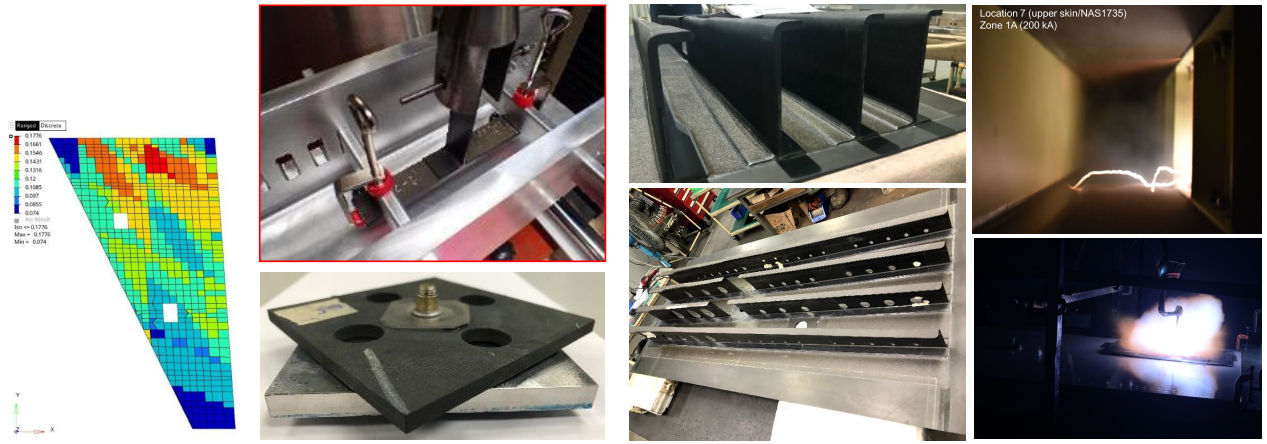
Achievements - Composite Wing Fuel Tank

Key Disciplines Covered:

- ✓ Material Selection (design requirements, properties, cost,…)
- ✓ Design (structures & lightning strike protection,…)
- ✓ Analysis (optimization, strength/stiffness, weight,…)
- ✓ Elementary Part Tests (verify design/analysis,…)
- ✓ Manufacturing (co-cured part, tooling design,…)
- ✓ Assembly (complex CFRP parts, tolerance chains, fasteners,…)
- ✓ Quality Verification (NDT, DT,…)
- ✓ Proof Tests (full scale verification)
- ✓ Certification & Lessons Learned







Source: AIDC

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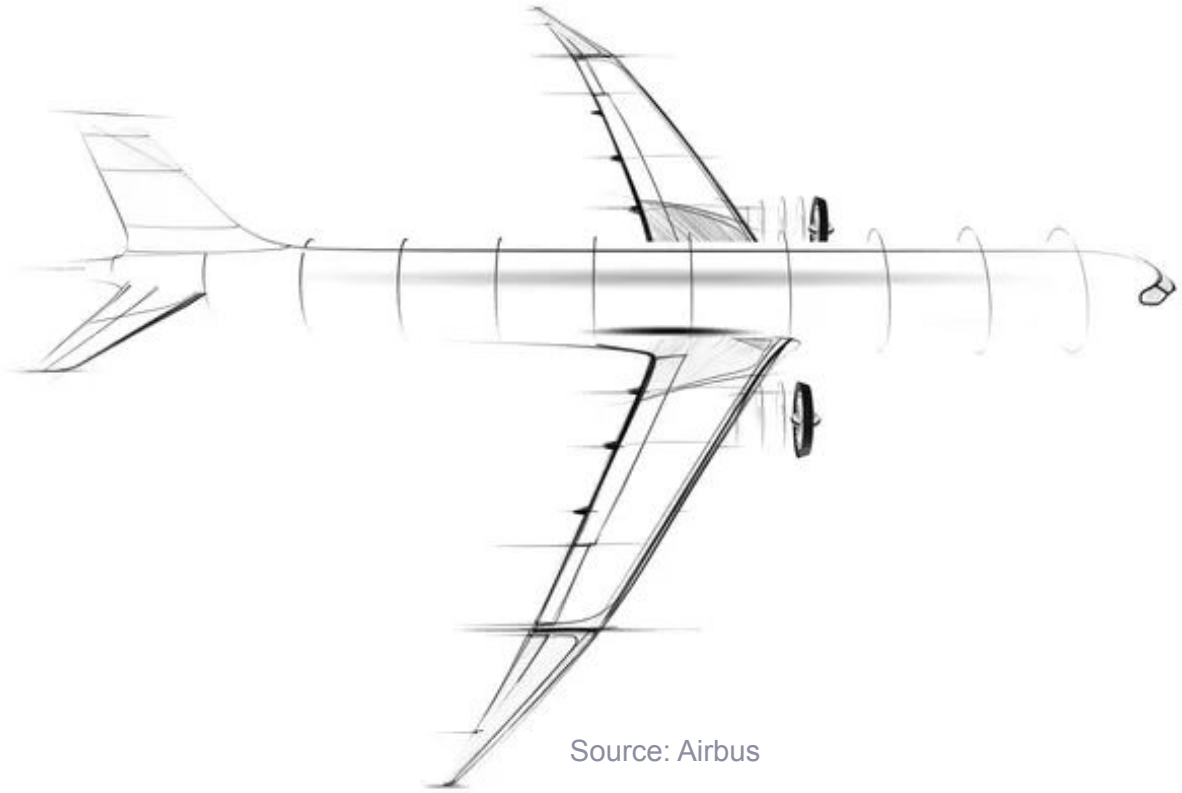
Outlook on next collaborative composite developments

Composite development targets on next generation single aisle

New materials being developed for the next generation of Airbus single-aisle aircraft:

- **Transition to Advanced Composites:** Airbus is moving beyond traditional carbon-fibre reinforced plastics (CFRP) and is investigating **CFRTP (thermoplastic polymer composites)**, which offer superior weight savings and manufacturing efficiency.
- **Streamlined Manufacturing:** New materials are being chosen specifically to enable **quicker assembly and reduced waste**, moving away from the more labor-intensive processes of previous generations.
- **Sustainability and Circularity:** An ambition is the use of **recyclable and bio-sourced materials** (like biomass composites) to ensure the aircraft is easier to reuse at the end of its life cycle.



Source: Airbus

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