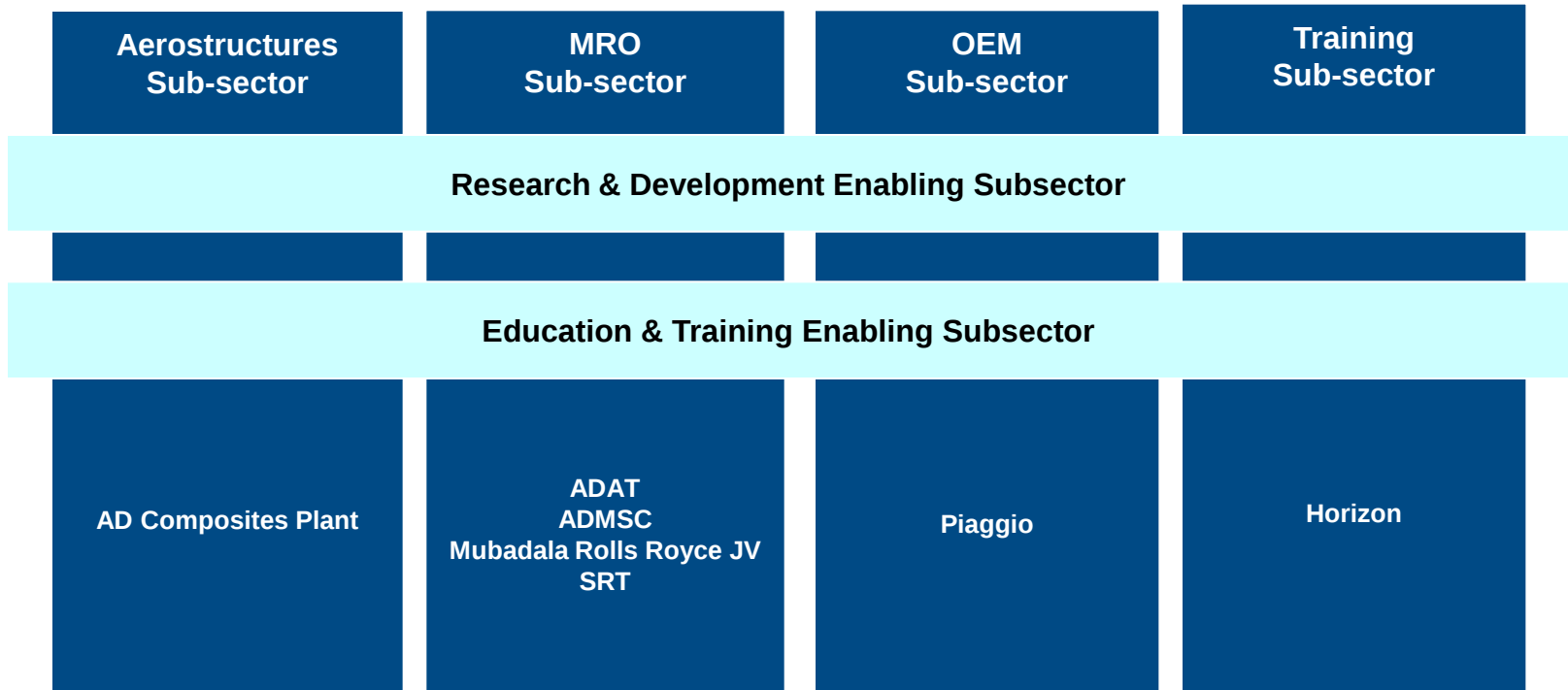


Mubadala Aerospace Strategy

The aerospace strategy focuses on **four industry-facing sub-sectors**, supported by **two enabling sub-sectors**

Mubadala Aerospace



STRATA لستراتا

Composite Aerostructures Manufacturing Business



An Advanced Composite Aerostructures Business in the Emirate of Abu Dhabi

November 2009

Objectives of this briefing

- ▶ **To introduce Strata and explain the rationale behind the creation of an Aerospace Business in Abu Dhabi**
- ▶ **To provide an insight into Strata, a Composite Aerostructure Manufacturer, and to explain its business aims**
- ▶ **To provide the timeline**

Introduction to Strata

- ▶ **Strata Manufacturing PJSC is a 100% owned subsidiary of Mubadala Development Company**

- ▶ Part of a significant investment in creating an integrated Aerospace Business in Abu Dhabi
- ▶ Focused on Advanced Aerostructures Manufacturing

- ▶ **Strata has already secured work from the OEMs**

- ▶ Work packages are already secured from Airbus, FACC and Alenia Aeronautica
- ▶ Manufacturing activities are to commence in 2010
- ▶ Further opportunities are being pursued in the US

- ▶ **Capital Expenditure investment**

- ▶ 21st Century state-of-the-art facility in Al Ain
- ▶ High tech machinery, tooling and information systems
- ▶ To secure intellectual property capability
- ▶ To fund training, development and technical assistance to the new work force

Rationale for Composite Aerostructures Business in Abu Dhabi

▷ Commercial Aircraft Market: Middle East and Asia

- ▷ These are the large growth areas for new aircraft purchases
- ▷ This significant investment will secure a position in the rapidly growing demand for air travel, which is expected to continue growing at 5% per annum over the next decade

▷ Abu Dhabi's 2030 Plan

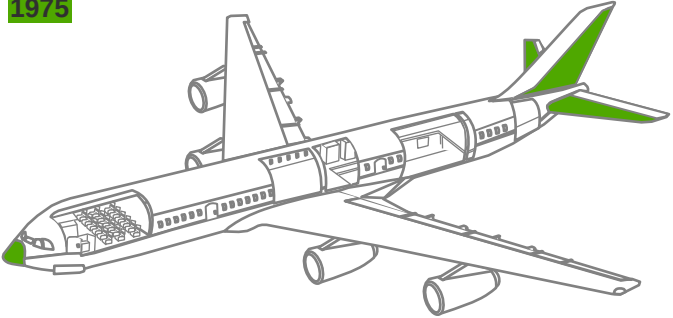
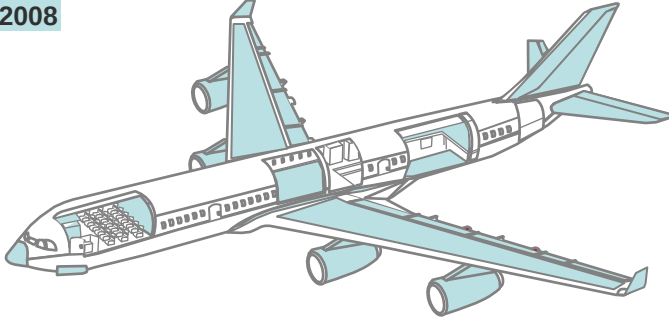
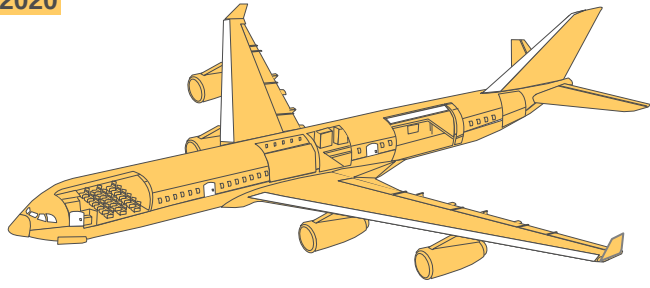
- ▷ The current diversification policy, away from the petrochemical sector, has led to the creation of several new productive high technology, capital intensive sectors
- ▷ As part of this plan, a significant investment has been made in developing an integrated aerospace business in the Emirate of Abu Dhabi
- ▷ With this investment, Strata will build an advanced airframe composite manufacturing facility in Al Ain:
 - ▷ Production of high technology aerostructure products, using advanced composite materials
 - ▷ Adoption of automation and industry leading practice production techniques

▷ Strata's Mission

- ▷ To be in the top 3 Tier One companies in the GLOBAL AEROSTRUCTURES industry by 2015, in time for the development of the next generation of commercial transport aircraft

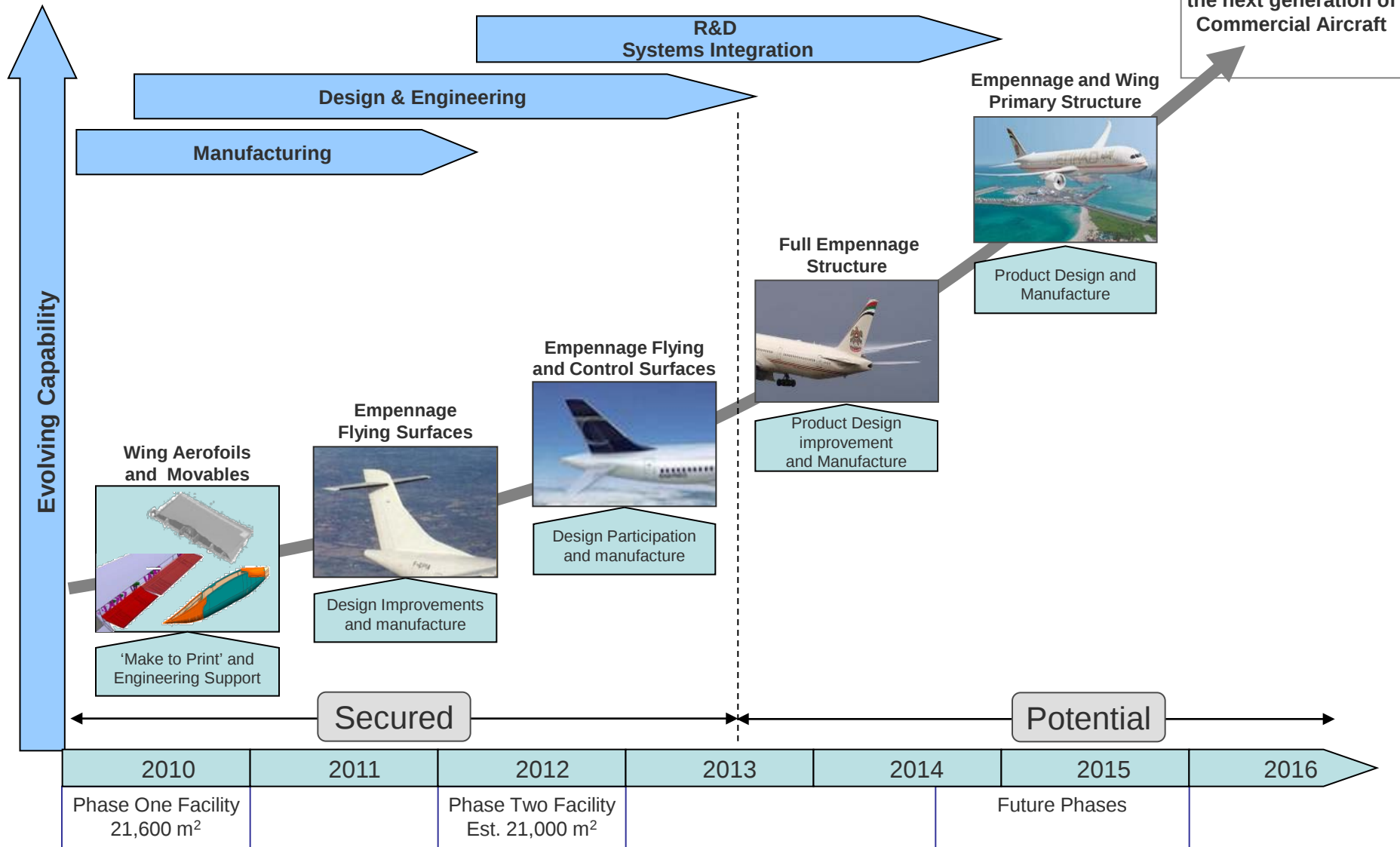
Rationale for Commercial Aircraft Composite Aerostructures

- ▶ Evolving composite content resulting in increasing fuel efficiency and airframe strength

1975 	1975: The Early Days ▪ Airbus pioneered the use commercial composite aerostructures on the A300<table border="1" data-bbox="1391 411 1796 506"><tr><td>Boeing 747</td><td>4%</td></tr><tr><td>Airbus A300</td><td>4%</td></tr></table> ▪ Composite Components: Radome, Horizontal Stabilizer, Vertical tail fin, Fairings<table border="1" data-bbox="1391 578 1796 635"><tr><td>Boeing 777</td><td>12%</td></tr></table>	Boeing 747	4%	Airbus A300	4%	Boeing 777	12%
Boeing 747	4%						
Airbus A300	4%						
Boeing 777	12%						
2008 	2008: Composites become mainstream ▪ The use of composites is extended to primary structures, including: – Wing assembly, flap track fairing, winglets – Nacelles and thrust reversers – Keel beam, cargo flooring – Elevator, rudder, tail cone – Flying control surfaces <table border="1" data-bbox="1391 842 1796 899"><tr><td>Airbus A380</td><td>25%</td></tr></table>	Airbus A380	25%				
Airbus A380	25%						
2020 	<table border="1" data-bbox="1391 971 1796 1063"><tr><td>Boeing 787</td><td>40%</td></tr><tr><td>Airbus A350 XWB</td><td>52%</td></tr></table> 2020: Limited aerostructure areas still to be metallic ▪ It is anticipated that leading commercial aircraft will have limited parts made from metal	Boeing 787	40%	Airbus A350 XWB	52%		
Boeing 787	40%						
Airbus A350 XWB	52%						

Source: OW Research of public domain information 2009

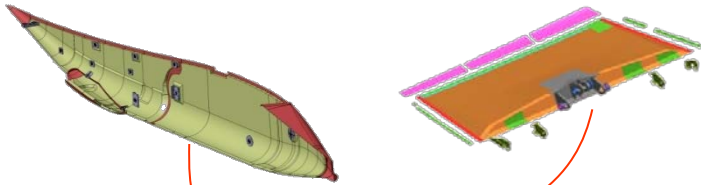
Product Technology & Capability Roadmap



Secured & Near Term Work Packages

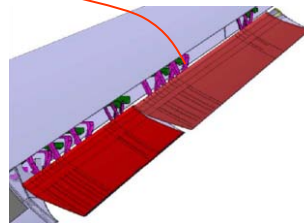
▷ FACC Work Packages:

- ▷ A330/340 Flap Track Fairings
- ▷ A380 Flap Track Fairings
- ▷ A330/340 Spoilers
- ▷ B787 Spoilers



▷ Airbus Work Packages

- ▷ A330/340 Ailerons
- ▷ A330/340 VTP Ribs & Spar



▷ Alenia Work Packages:

- ▷ ATR Fin, Rudder and Horizontal Stabiliser



▷ Composite Airframes



▷ Other partners

- ▷ Wide Body Empennage



The ability to produce these work packages sets Strata on its way to achieve its goal of becoming a Tier One supplier by 2015

Establishing our market differentiators

▷ Partnering

- ▷ Our global aircraft manufacturer partners have contractual commitments to develop Strata as a Tier One supplier
- ▷ Opportunity for OEMs to establish a reference site, setting the standard in their global supply chains (Center of Excellence)

▷ Investment in '21st century' state-of-the-art facilities

- ▷ Specifically designed to meet the capability and volume demands of the airframe sector
- ▷ Investment in latest advanced materials, automated processes and product design technology

▷ Establishment of a highly trained and competent workforce

- ▷ Focus on qualification, cost effectiveness, responsiveness and agility
- ▷ Aerospace Academy providing comprehensive curriculum, embracing leading practices from Partners

▷ Development of a world class global supply chain

- ▷ Cost effective, highly qualified source of supply
- ▷ Co-located in the Aerospace Park in Al Ain

Value gained from our unique Partnerships

- ▶ Partner expertise into development of 21st century Facilities
 - ▶ Factory layout
 - ▶ Machinery & Tooling
- ▶ Establishment of world leading Aerospace Academy for training:
 - ▶ Engineering, Manufacturing Operations, Manufacturing Management
 - ▶ Partner locations and Abu Dhabi
 - ▶ Classroom and 'on the job' training
- ▶ Transfer of technology and 'know-how'
- ▶ Transfer of experienced, competent people
- ▶ Technical assistance for work package transfer and start-up
 - ▶ IT and data management
 - ▶ Qualification and certification
- ▶ Ability to leverage Partners' procurement strength for equipment and materials



Other Major OEM

Strata's State-of-the-art Facilities in Al Ain

- ▶ The new facility in Al Ain will be constructed in phases
- ▶ Phase One Facility
 - ▶ Providing 21,600m² of productive floorspace
 - ▶ Construction has commenced and is scheduled for completion, including all machinery and tooling installation and commissioning, by May 2010
 - ▶ OEM approval scheduled for Q3 2010 and serial production by Q4 2010
- ▶ Phase Two Facility
 - ▶ Providing approximately 21,000m² of productive floorspace
 - ▶ This facility will concentrate on automated manufacture
- ▶ Further facilities
 - ▶ It is anticipated that there will be at least one further facility by 2015, likely to bring total floorspace for all facilities to c.70,000m²



Developing a World-Class Workforce

- ▶ Selected an experienced international management team
 - ▶ Expertise from both out-of-sector and in-sector
- ▶ Investment to establish an Aerospace Academy
 - ▶ Industry-leading training programmes from partners
 - ▶ Continuous 'through-life' training and development
- ▶ Accreditation to international standards
- ▶ Current secured contracts provide employment for over 800 staff by 2014



Timeline

▷ People

- ▷ March 2009: Strata top management team in place
- ▷ September 2009: Blue collar labour recruitment to commence
 - ▷ Training facilities being established in Al Ain for a professional school based on Airbus' best practice
 - ▷ Engineering training in partner facilities to commence

▷ Partners

- ▷ 2008: Partnership Agreements and Contracts secured
- ▷ 2009: Agree on further Work Packages
- ▷ March 2010: Work Package transfer commences

▷ Plant

- ▷ April 2009: Design & Construction company contracted
- ▷ May 2010: Factory completed and plant machinery installed and commissioned
- ▷ June 2010: Commence First Article Inspection (FAI) process
- ▷ Sept 2010: Commence Serial Production

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Any Questions?

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