



AIRBUS ANNUAL REVIEW 2008

Overview

The year 2008 was a very demanding one with volatile oil prices, while the worldwide financial situation and turbulent economy has impacted overall investment. Despite this challenging environment, Airbus has achieved a tremendous amount. The most apparent successes include the delivery of 483 aircraft – 30 more than in 2007, which is a new record for Airbus.

In terms of new contracts across all our programmes, Airbus has booked 777 aircraft orders (net) valued US\$ 100 billion at list prices, leading to a solid market share of 54 percent (aircraft above 100 seats). This commercial achievement comfortably exceeds that originally predicted at the start of the year, a remarkable success in a difficult year, and clearly a vote of confidence in our products from our customers. Importantly, as the new orders in 2008 are much higher than our already high delivery rate, our order book has expanded even further. Indeed, Our total backlog amounts today to over 3,715 civil aircraft, worth US\$ 438 billion at list prices, equaling six years of full production.

It should be noted that since 2002 Airbus has achieved a successive delivery increase in each subsequent year – a telling success for our single-aisle and long-range programmes, and indeed, for the entire supply chain.

Our youngest development programme – the A350 XWB – has made very good progress in 2008. In December 2008 we passed A350 detailed-definition freeze review at aircraft level, and we now have an excellent architecture for this aircraft.

Airbus' successes in 2008 are not limited only to the programme side. Rather, the new organisation and leaner processes developed through 'Power8', combined with careful cash management, have resulted in Airbus again exceeding our annual targets. To this end we have already achieved gross savings of over 1.3bn euros – which is halfway to our 2010 objective.

A key facet of Power8 – our aerostructures strategy – has also seen very good progress in 2008: Laupheim and Filton manufacturing sites are now in the hands of experienced Airbus partners – Diehl/Thales and GKN respectively. Meanwhile Aerolia in France and Premium Aerotec in Germany began operation just a few weeks ago. The overall objective is to combine the divestment of non-core activities and sites in order to establish a network of strong suppliers. This, in turn, will allow Airbus to concentrate on its core business of being an aircraft architect and integrator. Not only will all companies be significantly involved in the A350 XWB programme, they will also commit to the EADS/Airbus Power8 targets. Aerolia for example has already decided to extend its enterprise and invest in a new plant in Tunisia. Moreover, the importance of Power8 and Power8+ for our performance in 2009 will increase given the prevailing economic conditions.

In parallel with Power8, Airbus also made great strides towards internationalisation by expanding its industrial footprint. The new A320 Final Assembly Line in Tianjin, China is a good example which will help gain access to strategic markets and tap into the best and brightest talents worldwide.

A350 XWB – the world’s fastest selling airliner

In 2008 Airbus added 163 net orders and 16 customers to its already high launch customer base, culminating in a total of 478 net orders from 29 customers. This achievement also means that in 2008, the A350 XWB enjoyed a majority 64 percent market share, compared with 36 percent for its nearest rival. Moreover, in only two years since its industrial launch, the A350 XWB has set the record as being the fastest selling airliner ever.

The A350 XWB development is now advancing rapidly, having just passed the detailed definition freeze milestone. This review assessed the maturity of the programme at all levels including: the technical baseline and configuration; technology readiness; product offering; airlines operations; industrial and build concept; and the deployment of methods and tools. The achievement of this milestone was helped in part by the success of a new way of working, using the “Unified Planning Tool” which was implemented in April 2008 to enable the dedicated development team to work quickly and efficiently. Also, for the first time, Airbus has a single Digital-Mock-Up (DMU) and a single tool-set, which unites, in real-time the whole A350 XWB team across Airbus and its “extended enterprise” and supply chain.

Following the successful review, Airbus now presses ahead with further specific design work, in parallel with the development of associated tooling and building investments. In December, Airbus laid the first stone of the A350 XWB hangar in Nordenham, and now we celebrate the groundbreaking ceremony for the A350 XWB Final Assembly Line here in Toulouse, to be ready for the A350 XWB, which will re-shape the efficiency of our industry from 2013 onwards.

Meanwhile, Airbus engineers are already validating the aircraft’s advanced structures: Demonstrators for wings and fuselage have been developed, and the first fuselage cross-section demonstrator, ‘Barrel 1A’, has validated the innovative construction methods and establish maturity. To this end, has been used for static load testing, and has showed a good level of correlation with the original prediction for the ultimate loads. Moreover, in 2009 this demonstrator will also be used for the electrical systems network testing.

A second ‘Barrel 1B’ demonstrator incorporates production representative composite frames and a door, and will refine dynamic fatigue testing. This demonstrator will also contribute to the eventual airworthiness certification dossier.

The supplier selection side has also progressed smoothly: All key partners are now on board, and all major fuselage work packages have been assigned, as well as the major work packages for the wings. Importantly, in line with Airbus’ new supplier policy, many packages are much larger than with previous programmes as suppliers become involved much earlier in the development process to work in partnership with Airbus, taking on greater responsibility.

A320 – the ‘single-aisle’ leader

In 2008 Airbus booked 472 net orders for the A320 Family, raising the programme’s backlog to around 2,600 aircraft. To maintain its strong market position, the A320 Family is benefiting from continuous enhancements to maintain its position as the world’s preferred single-aisle aircraft family as well as boosting residual values of the fleet.

Examples of new developments include a lighter and brighter new cabin, the offering of a passenger-to-freighter “P2F” conversion; and also the possibility of extending the passenger aircraft’s service life by 10 years, or perhaps 20 years, via a programme of ‘extended service goals’ (ESG) for longer maintenance intervals. The overall aim is to enable A320 Family operators to earn additional revenue by flying their aircraft longer.

In addition, Airbus is now offering A320 operators a new take-off weight capability of 78 tonnes – an increase of one tonne over the current offering. This new capability is available as an option on new build aircraft, and will also be available as an upgrade to later versions of the A320-200. In addition to this A320-200 enhanced take-off weight capability, A319 Corporate Jet (ACJ) customers can also benefit from an upgrade to 76.5 tonnes – a one tonne increase.

Today, Airbus is producing 36 single aisle aircraft per month. Our 2009 production is fully booked and will remain so for the years to come. Nevertheless, in view of the economic situation, Airbus has decided to maintain production levels at their existing (record) levels as a measure of prudent housekeeping. Of course, Airbus continuously monitors and assesses the market situation and is ready to implement further measures if required.

A380 – one million passengers carried, and rising

For the A380 programme, Airbus achieved its promised goal of delivering 12 aircraft in 2008, with the 12th aircraft milestone delivery occurring on December 30th to Emirates for its ferry flight from the Airbus delivery centre in Hamburg, Germany to Dubai. The 12 jetliners provided to Airbus customers during 2008 comprised five for Singapore Airlines (which received the first-ever delivered A380 in October 2007), four aircraft for Emirates, and three for Qantas. This bodes well for the ongoing programme ramp-up in 2009 as Airbus finalises the switchover to what is referred to as “Wave 2” production whilst continuously placing emphasis on achieving quality and maturity, efficiency and delivery on time.

Up to now almost a million passengers have flown the A380, which is already connecting four continents and on seven major international routes where airlines can benefit from 20 percent lower operating costs. Moreover, the airport operators – especially at congested airports – are benefiting from new growth opportunities. For example, two frequencies with existing aircraft can easily be replaced by one modern A380, reducing cost, air space occupancy, noise and emissions at the same time.

With nine new orders in 2008, orders for the A380 stand currently at 198 from 16 customers. Last year’s orders made up a 75 percent market share in this segment. Overall we continue to see a market of 1,700 aircraft in this category in the next 20 years. With efficiency being ever more crucial, we expect a bright future for this modern, eco-efficient double-decker.

A330/A340 – backlog exceeds 400 and 1,000th delivery approaches

For the long-range A330/A340 aircraft Family, Airbus gathered 138 net orders in 2008, leading to a market share in this segment of 63 percent. The A330 is particularly in demand and steadily expands its broad and well-established market base. In 2008 Airbus recorded its 1,000th A330 sale bringing the combined A330/A340 programme order book to around 1,500 aircraft.

To satisfy high demand, production of A330/A340 models at the Toulouse facilities has now reached a record high of eight aircraft per month. Indeed, with a sales backlog that now exceeds 400 aircraft, our widebody production line is fully booked for several years.

To maintain the aircraft’s leading position, Airbus continues to invest in A330/A340 product improvements, the most notable being new maximum take-off weight options for the A330-200, providing a payload / range capability increase from its current 6,750nm (12,500km) range at 233,000kg MTOW, to well beyond 7,000nm (13,100km) at a new optional maximum allowable takeoff weight of 238,000kg (524,700lb).

Meanwhile, the Family's newest member, the A330-200 Freighter, will soon become reality as it progresses well towards final assembly and first flight of the initial aircraft in 2009. With a maximum payload capability of up to 69 tonnes, the A330-200F is the new reference in the mid-size long range cargo market.

Airbus Corporate Jetliners & 'Prestige' families

Airbus Corporate Jetliners again proved popular in 2008, with customers placing firm orders for 23 aircraft worth more than \$3 billion at list-prices. The orders comprised 14 single-aisle aircraft and nine widebodies – a record number of larger aircraft.

Most of the sales were to private customers, but Airbus also won sales from companies and governments. Overall, Airbus Corporate Jetliners won more sales than its direct competitor.

In addition to offering VIP customers the world's most modern aircraft, Airbus offers the widest spread of aircraft sizes allowing it to provide customers with the comfort that they want in the size that they need. Airbus can offer corporate jet versions of its entire modern aircraft family, from the A318 Elite all the way up to the double-deck A380. Notably, in 2008, Airbus' latest corporate jet offering, the A350 XWB "Prestige", achieved eight sales.

Military

On the military side, EADS CASA signed orders in 2008 for 18 A330-200 'Multi-Role-Tanker-Transport' (MRTT) aircraft, bringing the total order book to 23 aircraft for four customer air forces. Moreover, extensive flight trials have confirmed that the A330-200 is an exceptionally good basis for these applications. One should also bear in mind the win of the A330-based KC45 Tanker programme, which is led by Northrop Grumman. However, following the intervention of politics and the halting of the award, Northrop Grumman with Airbus are gearing-up to take a second shot later this year, especially as we are confident that the KC45 offers the best product the US Air Force. Moreover, other air forces have already acknowledged that the A330 is clearly the tanker platform of choice.

Regarding the challenging A400M military transport aircraft, development is moving forward following completion and roll-out of the airframe in 2008: A flying-test-bed aircraft commenced tests in December to expand the performance envelope of the world's most advanced turboprop powerplant system – developed specifically for the A400M. This should pave the way for the start of the actual flight test phase later this year, followed by an extended period of development, prior to service entry in the future. Moreover, to facilitate a greater level of overall programme management efficiency, the Military Transport Aircraft Division (MTAD) will become fully integrated into Airbus itself. However, the significance of this goes beyond the A400M. MTAD will soon become the fully-fledged military arm of Airbus and thus facilitate a stronger and more integrated business going forward.

Innovation

In 2008 Airbus continued its on-going, extensive research and development into future technology options to safeguard our technology leadership. This approach is helping Airbus to prepare new game-changing technologies providing options for a quantum leap in efficiency – our overriding goal. This is why Airbus was the first to fly with alternative fuels and fuel cells on-board in 2008. And that is also why we have recently launched a university contest. As part of this, student teams worldwide to come up with innovative ideas to shape the future of aviation and help to enhance the sector's eco-efficiency. Over 2,350 students from 130 universities and 82 countries had initially registered. After a first round of selection we are now continuing to work with 86 teams from 28 countries. The objective: creating more value with less impact on the environment.

A notable R&T milestone was a series of flight tests to evaluate the 'PurePower' PW1000G technology demonstrator engine which features P&W's 'Geared Turbofan' (GTF) architecture. The tests were performed at Airbus' flight test facility using Airbus' own A340 flight test aircraft. Airbus is also working with all major engine manufacturers and will conduct similar tests with them in the coming years. Moreover, through such tests, Airbus will obtain data to validate the fuel burn and CO₂ emissions that could be achieved with each new engine technology.

2008 also saw the start of flight testing of new Blended Winglet devices from API on an Airbus A320. The objective of these tests and the subsequent evaluation is to identify both the performance and economic benefits that these devices could offer for Airbus aircraft. In conjunction with follow-up analyses, they will provide data on the overall viability of the devices and help to determine whether the technology could be considered for an integrated Airbus programme for the A320 Family.

Another important and innovative development was the official start of work as part of the seven-year EU "CleanSky" Joint Undertaking in which Airbus and Saab will lead the Smart Fixed Wing Aircraft (SFWA) Integrated Technology Demonstrator (ITD). The programme's objectives are closely related to three of the four environmental challenges set by the Advisory Council for Aeronautics Research in Europe (ACARE): to reduce fuel consumption and CO₂ emissions by 50 percent to reduce perceived external noise by 50 percent and to reduce NO_x by 80 percent by the year 2020.

And in terms of improving future aircraft and air traffic operational performance, the highlight of the year was undoubtedly Airbus' selection by the EU to provide the Industrial Support for the Single European Sky ATM Research (SESAR) Joint Undertaking (JU). By 2020, SESAR is aiming for a threefold increase in capacity in Europe, while improving safety by a factor of 10. The JU was created by the European Union with, as founding members, the EU and Eurocontrol, to manage the research and development for SESAR, which aims to reorganise European air traffic management (E-ATM) systems by 2020. The programme also seeks to reduce the environmental impact per flight by 10 per cent, thus supporting the sustainable growth of air traffic.

On a more immediate and 'local' scale, Airbus has already been working with operators of its aircraft to advance operational technologies and procedures. For example, Air New Zealand became the first Airbus operator in the world to have its entire Airbus fleet approved to "RNP-AR" capability. This is the very latest and most accurate standard of "Required Navigation Performance" (RNP). RNP-AR thus enhances accessibility by enabling specially trained and authorised pilots to fly to lower altitudes with a more precise and efficient route into the airport, saving fuel and emissions and helping reduce the impact of bad weather on services. The airline has fitted the new technology onto its fleet of 13 A320s and received its RNP-AR certification for its A320 fleet from the country's Civil Aviation Authority in September 2008, following a nine-month trial programme.

Airbus also worked with Scandinavian Airlines International (SAS), Swedish Service Provider LRV and Stockholm Arlanda airport on the "AURORA" project, which has successfully concluded long-haul flight trials using 'Continuous Descent Approaches' (CDA) by an Airbus A330 of SAS. CDA reduces fuel consumption and CO₂ emissions, as well as reducing approach noise.

Outlook

As with most industries, the aircraft sector will be exposed to the effects of the global economic recession. However, Airbus continues to deliver on record levels in response to robust long term market demand. Indeed, one thing is certain: the demand for more efficient and environmentally friendly aircraft will continue. Airbus' priorities for 2009 are fourfold: to keep the close dialogue with our customers; to early anticipate their needs; to carefully manage the order book and to protect our cash position. Whilst 2009 will not be about raising the numbers, delivering on-time and to-quality will be Airbus' priority goals. Fortunately much has been accomplished recently to prepare ourselves for economic turbulence, and we will be ready to fully adapt to any changing conditions. Securing our long-term competitiveness and employment are key objectives for the Airbus top-management in 2009. In short, Airbus is ready to face the short and medium term challenges whilst preparing for the future.

* * *