



Boeing et la France



GP Aéronautique des Ingénieurs Arts et Métiers Paris
3 octobre 2011

Boeing and France

Agenda

1.The Boeing Company

- History
- Organization

2.Boeing in France

- Commercial airplanes
- Military airplanes

3.Boeing and the French Aerospace Industry

- The Boeing French Team

4.Boeing, a good citizen

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Founded in 1916 in the Puget Sound region of Washington state

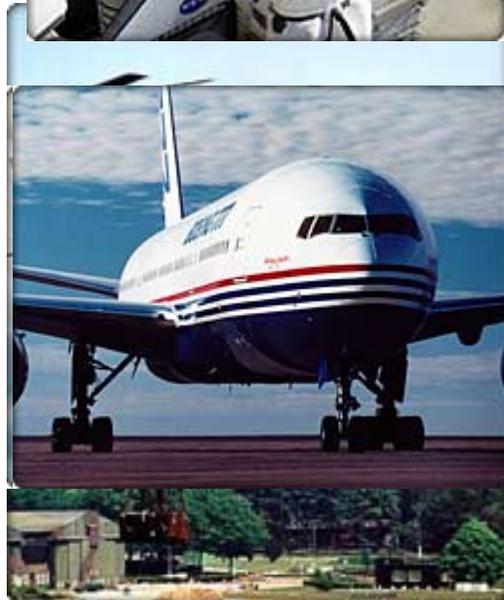


That means that Boeing is older than companies like **Warner Bros**, **Citroën**, **Raytheon**, **Caterpillar**, **Rhône-Poulenc**, **Walt Disney Pictures**, **Dassault Aviation**, **Ray-Ban**, **Sony** or **Ferrari**

Undertook a series of strategic mergers and acquisitions to become the world's largest, most diversified aerospace company



Became a leading producer of military and commercial aircraft



Boeing – a Balanced portfolio

**Integrated
Defense
Systems**

2010: \$31.8B → 49.4%



**Commercial
Airplanes**

2010: \$31.9B → 49.6%

Other – 1.1%

2010 Revenue \$64.3B

Boeing... the global leader in aerospace

Boeing Commercial Airplanes

- Headquartered in the Puget Sound region of Washington state
- 2010 revenues of \$31.8 billion, operating margins of 9.4%
- Approximately 74,000 employees
- Offering a family of airplanes and a broad portfolio of aviation services for passenger and cargo carriers worldwide
- Boeing airplanes represent three quarters of the world's fleet, with nearly 12,000 jetliners in service
- **Approximately 70 percent of Boeing commercial airplane sales (by value) go to customers outside of the United States**



The industry's source for customer-focused solutions

Boeing Defense, Space & Security

- Headquartered in St. Louis, Mo., with global operations in 4 nations and 21 states
- Designing, building and supporting net-enabled platforms and systems for government and commercial customers
- 2010 revenues of \$31.9 billion, operating margins of 9%
- Approximately 64,000 employees
- International sales have grown from 7 % of overall revenue to nearly 18% of the business unit's revenue in 2010.
- **Objective is to achieve export sales of 25% or more of the overall revenue by 2013**



Delivering the future

Boeing Capital Corporation

- Financing subsidiary of The Boeing Company
- Focused on assets that are critical to the core operations of Boeing customers
- Arranging and/or providing financing for customers of Boeing products
- Midyear 2011 portfolio valued at approximately \$4.5 billion



**Providing financial services
in support of Boeing sales**

Engineering, Operations & Technology

- Formed in 2006 to establish technical and functional excellence for the enterprise by maximizing Boeing's R&D yield
- Ensuring technology readiness
- Providing efficient, effective, secure IT solutions
- Protecting, leveraging intellectual property
- Driving environment, health & safety performance



Boeing's 2011 R&D forecast is between \$3.7 and \$3.9 billion

Company Leadership



Jim McNERney
Chairman, President and
Chief Executive Officer

Executive Council*



Jim Albaugh
Executive Vice President,
President and CEO,
Commercial Airplanes



James Bell
Executive Vice President,
Corporate President and
Chief Financial Officer



Michael Luttig
Executive Vice President,
General Counsel



Dennis Muilenburg
Executive Vice President,
President and CEO,
Defense, Space & Security



Wanda Denson-Low
Senior Vice President,
Internal Governance



Tom Downey
Senior Vice President,
Communications



Shep Hill
President, Boeing International
and Senior Vice President,
Business Development and
Strategy



Timothy Keating
Senior Vice President,
Government Relations



Rick Stephens
Senior Vice President,
Human Resources and
Administration



John Tracy
Senior Vice President,
Engineering, Operations
& Technology, CTO

* All members of the Executive Council are elected officers of The Boeing Company

Global Boeing

- Customers and customer support in 150 countries
 - Total revenue in 2010: \$64.3 billion
 - 70 percent of commercial airplane revenue historically from customers outside the United States
- Manufacturing, service and technology partnerships with companies around the world
 - Contracts with 22,000 suppliers and partners globally
- Research, design and technology-development centers and programs in multiple countries
- More than 165,000 Boeing employees in 50 states and 70 countries

Partnering worldwide for mutual growth and prosperity

Focus on Services

- 2010 total Revenues: \$64.3
 - ✓ Products 52.6
 - ✓ Services 11.9

Already 18.5% of total revenues

- Recent acquisitions demonstrate commitment to grow:



Provider of new aviation parts and related aftermarket services



Flight information solutions and computerized flight planning software



Services and software systems for tracking and distribution of equipment and spare parts



Real-time network traffic and analytics software used to protect against cyber attacks



Developer of command, control, communications, computers, combat, intelligence, surveillance, and reconnaissance (C5ISR) systems



Develops decision-support software in the areas of Logistics Planning and Execution, Transportation Planning and Tracking, and Data Quality and Validation

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France: an uncommon country

- Home of our some of our main competitors:

- EADS/Airbus



- Dassault Aviation



- Ariane Espace



- At the same time, the French Aerospace Industry has a world-wide reputation in terms of excellence and is the leading sector in terms of exports and also in sales profit, contributing almost €18 billion to France's trade balance. Unconsolidated revenues rose slightly in 2010 to **€36.8 billion** (+3.5% at constant structure)

**Boeing and France:
A unique Relationship i.e. competitor and partner at the same time**

Boeing in France

A long and on-going story

- 1955 Start of the collaboration between Air France and Boeing: Air France became the first airline outside of the United States to enter the jet age on the wings of a Boeing 707
- 1964 France orders 12 tankers C-135s
- 1966 Air France orders its first 747
- 1985 France buys 3 tankers KC-135s
- 1990 France orders 4 AWACS E-3F
- 1998 First 777 delivered to Air France
- 2002 Creation of Boeing France and opening of the Paris Office
- 2003 Yves Galland is appointed as President, Boeing France
- 2009 777th 777 is delivered to Air France
- 2010 200th Boeing airplane is delivered to Air France (777-300ER)
Mid-Life Upgrade Contract is signed for the 6 French AWACS
- 2011 Air France orders 25 787-9s

Commercial Airplanes: Air France, a major customer

Air France KLM Fleet

(as of March 31, 2011)

Air France : 389 aircraft, incl. 133 regional jets

- Long-haul: 101 including 66 Boeing (56 777s et 10 747s) and 35 Airbus (16 A340s, 15 A330s, 4 A380s)
- Medium-haul : 141, all Airbus (55 A320s, 24 A321s, 18 A318s, 44 A319s)
- Cargo : 5 Boeing (3 747s et 2 777s)

KLM : 213, incl. 48 regional jets

- Long-haul: 67 including 56 Boeing (22 747s, 20 777s, 10 MD-11s, 4 767s) and 11 Airbus (A330)
- Medium-haul (incl. Transavia): 86, all Boeing 737s
- Cargo: 12 Boeing (5 747s, 7 MD-11s)



AFA Recent Selection reinforces partnership

September 16, 2011: Air France KLM announces the order of 110 Airbus A350 and Boeing 787 aircraft



- Firm order for 25 787-9s and 25 A350-900s
- 25 options for 787-9 and 35 for A350-900
- First 787-9 will enter into service in 2016 with KLM
- First A350-900 will enter service with Air France in 2018
- Both airlines will operate both types of aircraft
- 787-9 engines to be selected at a later stage
- A350-900 will be equipped with Rolls-Royce Trent XWB engines

Other French airlines also operate Boeing airplanes

- **Air Méditerranée**



737-500

- **Open skies**



All Boeing fleet (757-200)

- **Corsairfly**



747-400

- **Europe Airpost**



All Boeing fleet (737-300QC)

- **Transavia.com**



transavia.com

All Boeing fleet (737-800)

- **XL Airways**



737-800

Military Airplanes: French Ministry of Defense, a long-standing customer

- France bought 14 KC-135 in the 60's and 80's for its strategic and nuclear deterrence missions.

- Le Groupe de ravitaillement en vol (GRV) 2/91 Bretagne est sur la brèche depuis le début des opérations en Libye. Ses avions, KC-135 et C-135 FR, opèrent chaque jour depuis Istres pour ravitailler les avions de combat de la coalition au large des côtes libyennes (1).
- Son chef, le lieutenant-colonel Laurent Paquot, nous explique que son groupe effectue "deux à trois sorties par jour", soit une quinzaine par semaine. Il s'agit de vols longs, de 7 h à 10 heures, même si en général, ils se situent plutôt autour de 8 heures. Tous les vols partent d'Istres et le temps de rejoindre de la zone de ravitaillement dure plus de deux heures. Les avions restent donc de deux à quatre heures sur zone, afin de ravitailler les chasseurs, sous le contrôle de l'Awacs.

- France bought 4 AWACS in the late 80's for C4ISR missions. Mid-Life Upgrade starts next year

- So far, the coordination with fellow alliance members has been smooth, said French Air Force Lt. Col. Vincent Dabadie, who commands the country's airborne warning and control system, or AWACS, squadron, which is helping to coordinate flights over Libya. The alliance is keeping at least one radar-equipped AWACS airborne 24 hours a day to manage airstrikes and humanitarian flights, and to watch for planes that might be trying to breach the no-fly zone over Libya.
- "The interoperability is 100 percent effective," Dabadie said. The planes perform missions of up to 11 hours' duration over the Mediterranean Sea. The French Air Force personnel who work onboard the E-3F use the same radar at the same time to control the airspace within the no-fly zone and to manage the air battle, Dabadie said.



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Boeing and the French Aerospace Industry: recent past

- First milestone was the formation, in 1974, of a joint venture between General Electric and the French aerospace Safran (then Snecma) to build the **CFMI** jet engines that power the entire 737 Classic and Next-Generation fleets
- As a result, Boeing is currently Snecma's Number 1 customer
- Did you know that CFM is not an acronym? The company (CFM), and product line (CFM56), got their names by a combination of the two parent companies' commercial engine designations: GE's CF6 and Snecma's M56
- CFM engines are the power behind more than 8,000 commercial and military aircraft
- In 2010, CFM received the 2010 Boeing Supplier of the Year award (Propulsion Category)

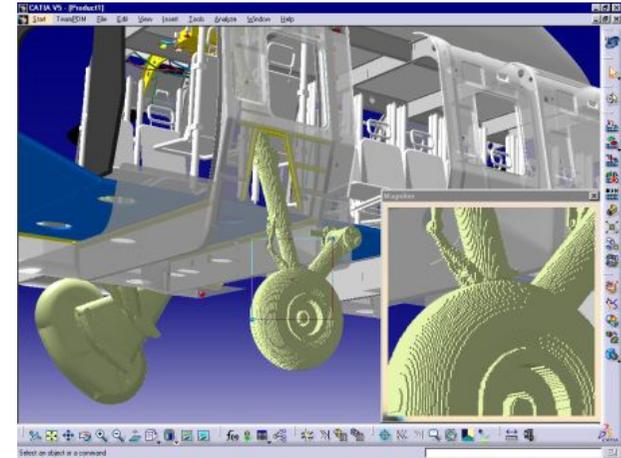


THE POWER OF FLIGHT



Boeing and the French Aerospace Industry: next breakthrough

- Collaboration between Boeing and **Dassault Systèmes** for the development of the 777
- Thanks to Dassault Systèmes, Boeing engineers designed and electronically pre-assembled the 777 using computers. New laboratory facilities enabled the various airplane systems to be tested together as a single integrated entity in simulated flight conditions, before the first jetliner took to the air.
- In 1995, The 777 received a Smithsonian Computerworld Award for digital product definition and preassembly in manufacturing.



Boeing and the French Aerospace Industry: a diversified development

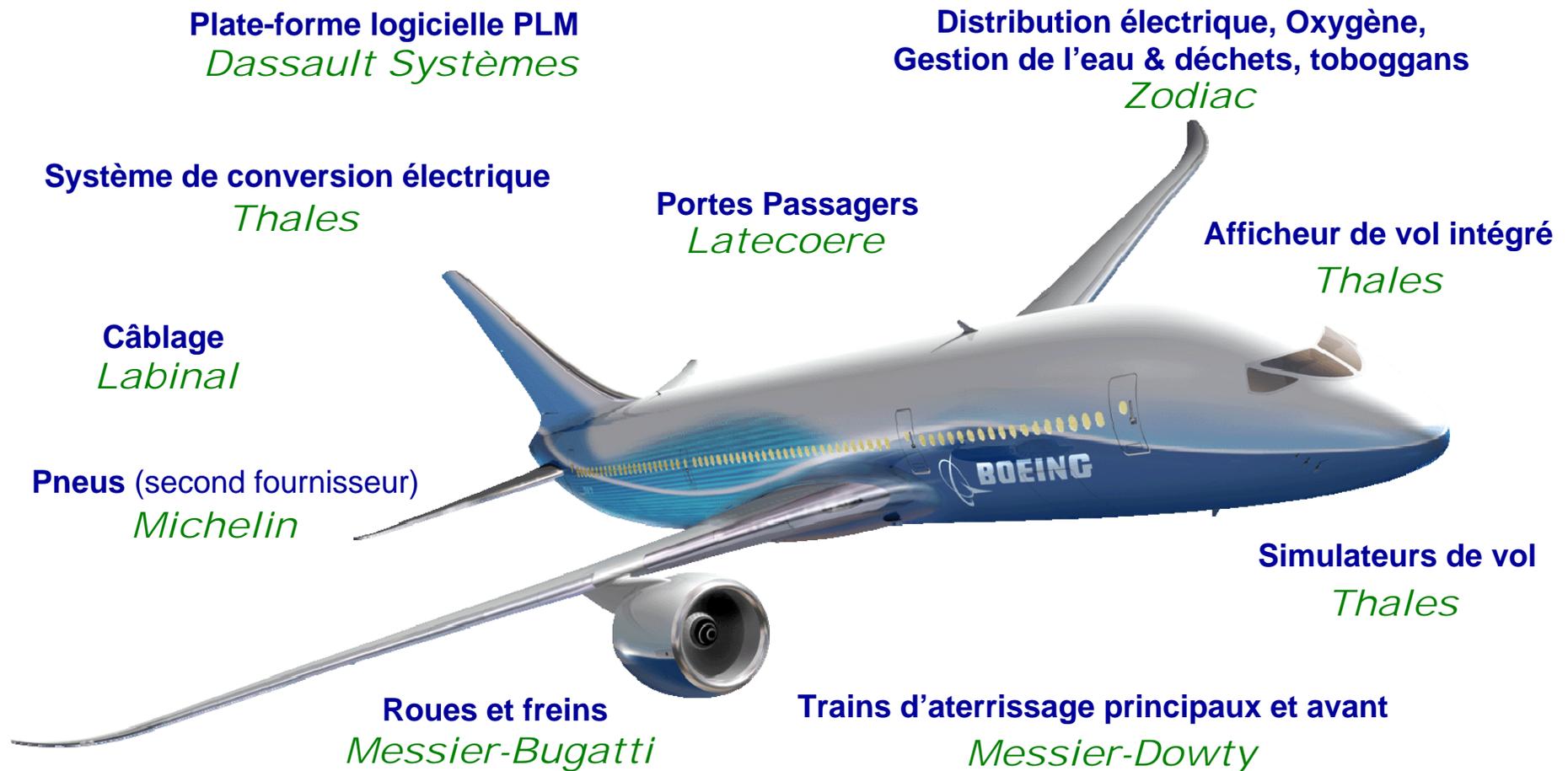
'Best of Industry' Approach:

- More than 50 of the world's most capable top-tier supplier partners are working with Boeing to bring innovation and expertise to the 787 program. The suppliers have been involved since the early detailed design phase of the program and all are connected virtually at 135 sites around the world.

The result: the 787, a revolutionary airplane:

- **Maintenance savings:** 30 percent
- **Advantage of the new electric architecture:** Extracts as much as 35 percent less power from the engines than traditional pneumatic systems on today's airplanes
- **More fuel efficient:** 20 percent more fuel efficient than similarly sized airplanes
- **Produces fewer emissions:** 20 percent fewer than similarly sized airplanes

Boeing and the French Aerospace Industry: a significant French presence on 787



Other French equipment includes passenger seats, In-flight Entertainment, etc.

Boeing and the French Aerospace Industry: A unique collaboration

- The Boeing French Team was created at the end of 2005
- A direct result of the 787 'Best of the Industry' Approach, it was initially based on a core team of 8 French partners

- It grew subsequently and now gathers 14 companies:

- ✓ Dassault Systemes (Software Solutions)
 - ✓ Deutsch (Connectors)
 - ✓ Labinal (Wiring)
- ✓ Latecoere (Passenger Doors)
- ✓ Liebherr Aerospace (Aircraft Systems)
 - ✓ Lisi (Fasteners, Components)

- ✓ Messier-Bugatti (Brakes)
- ✓ Messier-Dowty (Landing Gear)
 - ✓ Michelin (Tyres)
 - ✓ Radiall (Connectors)
 - ✓ Snecma (Engines)
 - ✓ Souriau (Connectors)
- ✓ Thales (Cockpit and Cabin Equipment)
 - ✓ Zodiac (Aircraft equipment)



The BFT – Key Initiatives

2006

April 787 Roadshow



May Visit of Boeing's CEO and Chairman Jim McNerney – Business meeting and dinner with the Boeing French Team

October Symposium about “Re-inventing the Pleasure of Flying”



December Stakeholders Event with all BFT members in attendance

The BFT – Key Initiatives

2007

May

‘Sponsor’ visit to Seattle: each BFT member invited a French Company new to Boeing. Total delegation of 30 companies, in partnership with Air France



June

Publication of the first “Boeing and the French Aerospace Industry” Brochure

December

Symposium about “the Environmental Challenge”



Stakeholders Event with all BFT members in attendance



The BFT – Key Initiatives

2008

October

“Aerospace Revolution: the Environmental Challenge”

- Co-written with an aerospace reporter
- Reinforces key Boeing messaging and commitment on Environment.
- Distributed to key local stakeholders as well as political and environment decision-makers (800+ mailing)
- Extensive Press coverage

December

Stakeholders Event with all BFT members in attendance



The BFT – Key Initiatives

2009

March **BDS - Industrial Seminar**

Objective: understand how to best work with DGA

Partners: Sagem (SAFRAN), Dassault Systèmes

BDS - Program Management Workshop with MoD (DGA)

Objective: Share best practices between Boeing and DGA
Shape market and requirements and position Boeing



November

The 36 Hours of Global Technology

- High-level contacts during 1.5 day in in the Paris Office, with each member of the BFT to meet with the Boeing Global Technology representatives (John Tracy, Matt Ganz and Paul Pasquier) and introduce their technology capabilities.
- Invitation to present was extended to companies Boeing is not working with yet through the GIFAS
- Strasbourg University and ONERA also involved

The BFT – Key Initiatives

2010

January **The 12 Hours of the Dreamliner**

Full “Open Doors” Day in our Paris office the day after the first flight in Seattle. Throughout the day, several sessions (total attendance around 300 people) were set up, including:

- ✓ Press briefing in the morning about 787 update, French Companies onboard the program and French job numbers
- ✓ Presentation of two videos
- ✓ Ground floor setting with French contribution to the aircraft (components, photos, panels) on display



The BFT – Key Initiatives

2011

Q4

Aéronautique Solidaire



Announcement re. Selection of new members of the BFT

Boeing and the French Aerospace Industry: over 100 French suppliers work for Boeing

Beyond the BFT, they include:

- **Suppliers** (they provide parts or components made according to a Boeing spec) like Aubert & Duval, Manoir Aerospace, Saft, Ratier Figeac, SMAC, Gerflor, Ateliers de la Haute Garonne, JPR, Alcan Rhenalu, Alcoa, ELTA, EADS Sogerma, Espa Hutchinson, TEAM, Vison Systems Aeronautics, Air Liquide, etc.
- **Processors** (they offer manufacturing processes) like Alcore Brigantine, Aluminum Pechiney, Bodycote-Serres Castet, Creuzet Aéronautique, Exova SA, Le Joint Français, Mecaprotec Industries, Metal Improvement Company-Bayonne, Metalscan Echographie Industrielle, NDT Expert, Pechiney Aviatube, Prodem, Timet Savoie

Boeing and the French Aerospace Industry: a major partnership

- Boeing purchases **\$4.0 Billion a year** of services and goods from French partners
- These partnerships generate revenues of **\$2.8 Billion**, plus a further **\$1.2 Billion** for supplying spare parts to maintain Boeing fleets
- Using France's usual calculation method, **11,500 direct jobs and 11,500 indirect jobs** are now linked to the partnership between Boeing and French industry

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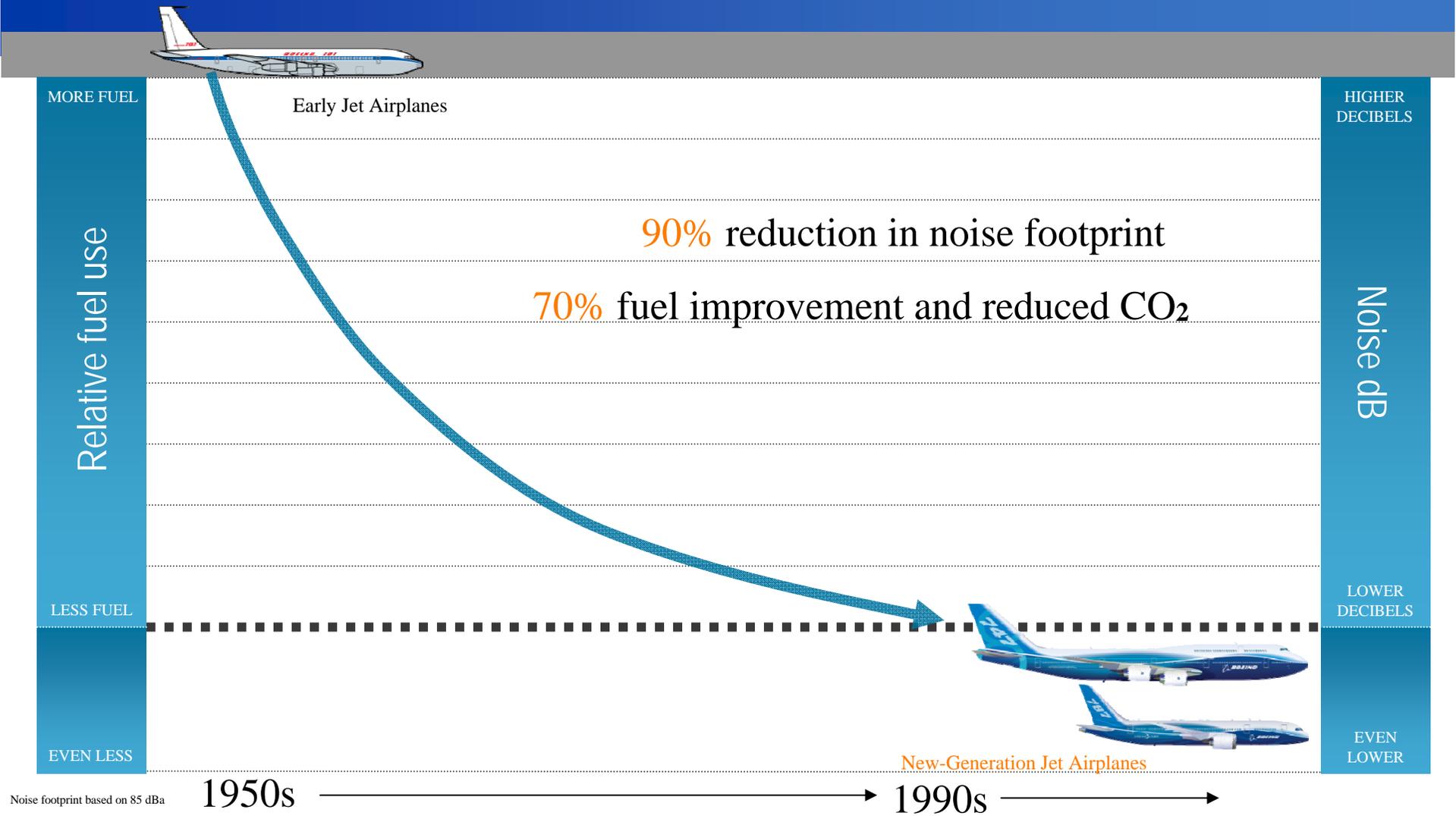
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Track Record of Significant Progress



Improving Fuel Efficiency

New Airplanes



787

20% more fuel efficient than airplanes it replaces



747-8

16% more fuel efficient than airplanes it replaces



737 MAX

7% advantage in operating costs over future competing airplanes

Existing Airplanes



767

5.5% more fuel efficient with addition of winglets



777

1% more fuel efficient than earlier models



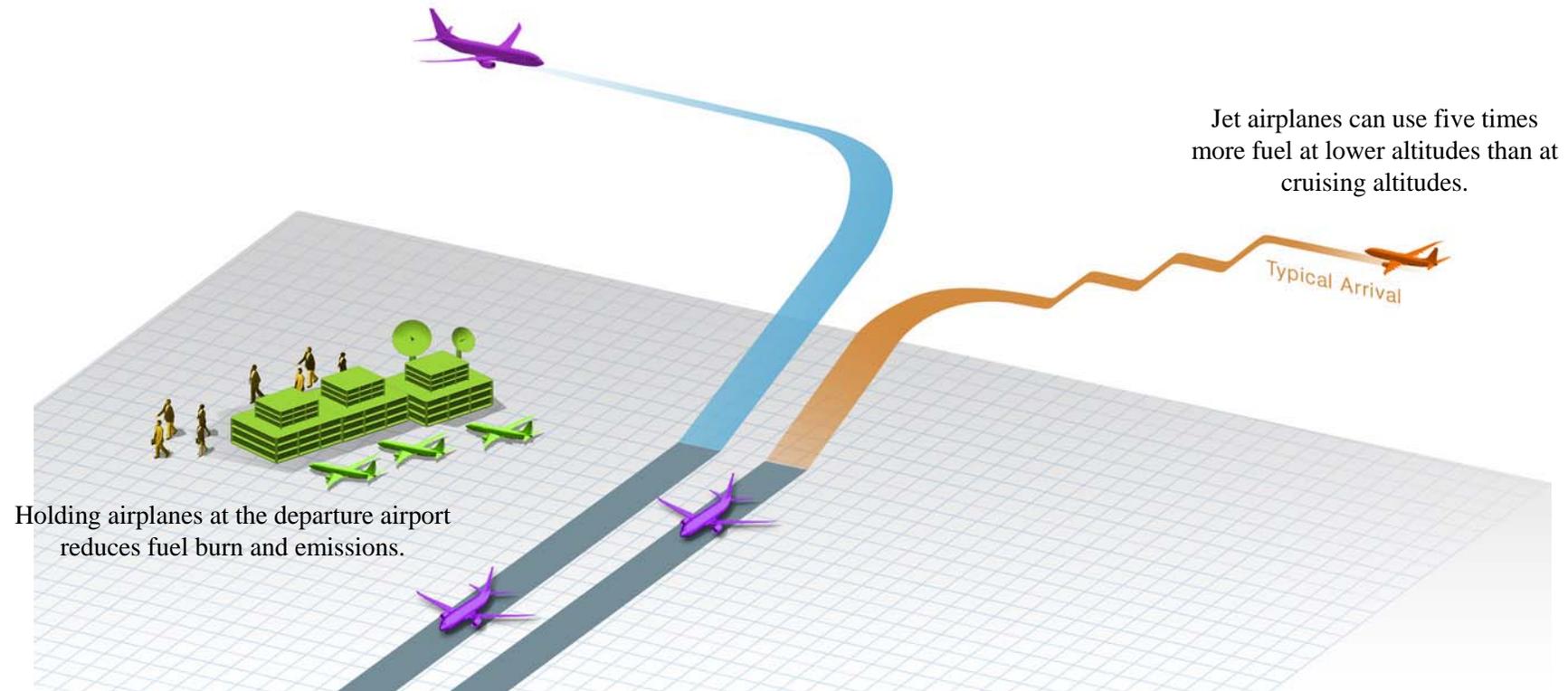
Next-Generation 737

2% more fuel efficient than earlier models

Each Gallon of Fuel Not Burned = 21 Pounds of CO₂ Not Emitted

Improved Fuel Efficiency Through Air Traffic Management

- Optimizing flight paths
- Relieving system congestion
- Integrating ATM and airborne technologies



Passengers Spend Less Time in the Air

Sustainable Aviation Biofuels



- Approved for commercial aviation:
 - 50-50 Jet A/biofuel blend approved by ASTM International in July
- KLM and Lufthansa operating sustainable biofuel flights
- Potential for 50% CO₂ reduction over life cycle

Sustainable: Don't Compete With Food for Land or Water

Sustainable Biofuels Test Flights



Feb 2008
Virgin Atlantic
Coconut/Babassu



Dec 2008
Air New Zealand
Jatropha



Jan 2009
Continental
Algae and Jatropha



Jan 2009
Japan Airlines
Camelina, Jatropha, Algae



Apr 2010
U.S. Navy F/A-18
Camelina



June 2010
Dutch AH-64 Apache
Algae and Cooking Oil



Aug 2010
U.S. Air Force C-17
Animal fats and plant oils



June 2011
Boeing 747-8 Freighter
Camelina

Boeing Is Leading Efforts to Identify Aircraft Recycling Options



AFRA goal: Certified members will recycle more than 90 percent of each end-of-service aircraft by 2012.

Carbon-fiber recycling was piloted at four Boeing sites in 2010.

AFRA member organizations have

- Recycled ~6,000 commercial aircraft.
 - Recycled ~1,000 military aircraft.
 - Remarketed ~2,000 airplanes.



Corporate Citizenship in France - Les Restos du Coeur

Build on 5+ years of collaboration with Les Restos du Cœur (a Health and Human Organization which provide food and other services to people living on the streets)



Corporate Citizenship in France - Les Restos du Coeur



- 2006: Les Jardins du Coeur
- 2007: Les Bébés du Coeur
- 2008: Les Toits du Coeur
- 2009 & 2010: La Péniche du Coeur



Ann Roosevelt visiting Les Restos in June 2009

Corporate Citizenship in France – New Project in 2011: l'Aéronautique Solidaire

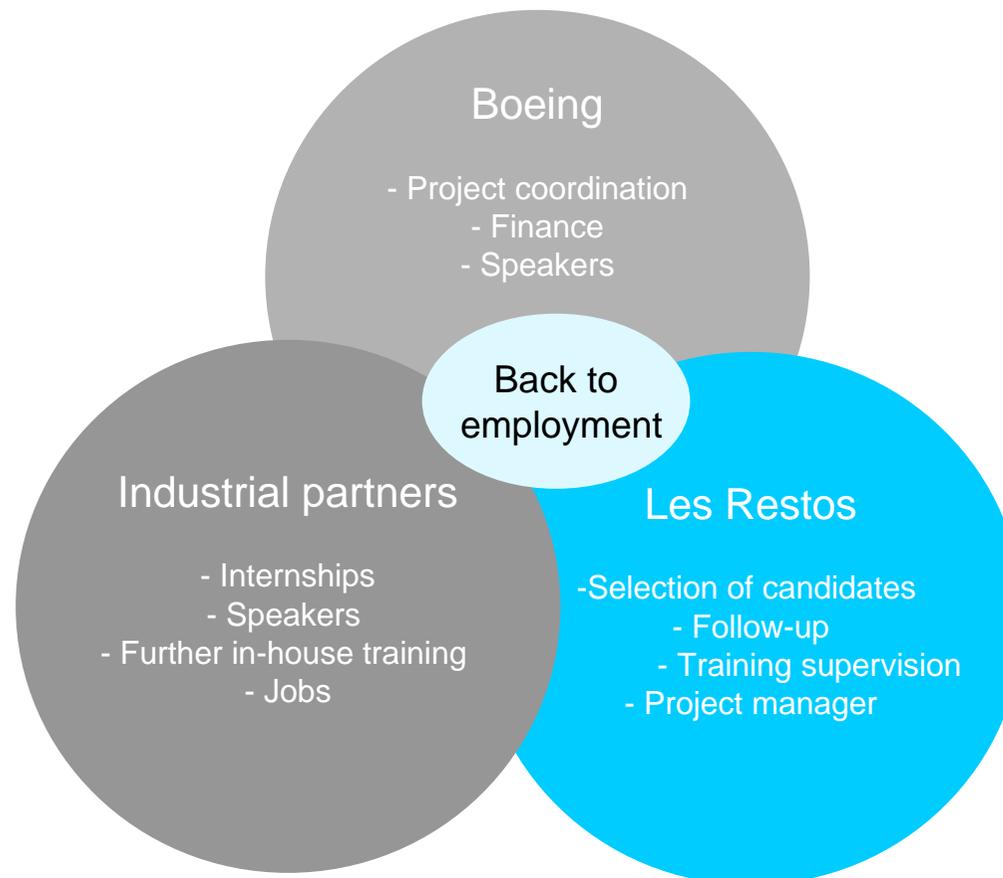
Objectives:

- address France community needs
- widen the scope of our Boeing business environment in France by involving our French industrial partners
- bring a system approach to community engagement and investment

Bring our GCC activities to the next level

Corporate Citizenship in France – New Project in 2011: l’Aéronautique Solidaire

Our partnership model



Corporate Citizenship in France – New Project in 2011: l'Aéronautique Solidaire

- Job training in aerospace companies for audiences identified by Les Restos as « not too far from employment » but in need of comprehensive supervision
- Program: a 10-day training session for 15 individuals followed by a four-week internship at one of our partners' manufacturing site.
- First session to start November 7, 2011, second session in January 2012.
- Following those two experimental sessions, assessment of the project, lessons learned and shaping further sessions.
- First session identified partners
 - Châteauroux Airport
 - Latécoère
 - Liebherr Aerospace
 - Safran Group
 - Zodiac Aerospace (SICMA Aero Seats)
- Other contacts with industrials of the Centre région, near the Chateauroux airport – still in discussion

