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PILT 1010 Air Transportation

December 6, 2012

### Boeing vs. Airbus

#### **Summary:**

In the 1970s and 1980s, four companies divided the tumultuous business of making and selling passenger airplanes. The Boeing Company, Lockheed Aircraft Corporation, McDonnell Douglas Corporation (also known as McDac in the trade), and Airbus Industrie. Long one of America's most successful and admired corporations- and its biggest exporter- Boeing struggled to maintain 50 percent of the market share for commercial aircraft after being overtaken by the European upstart Airbus in the late 1990s. But Airbus did not remain on top for long. By 2006, the company suffered from mismanagement and had adopted the kind of complacent, risk-averse culture that had once characterized its competitor.

An existential pendulum governs the fortunes of the companies that struggle to gain an edge in this unsteady business. At one time, the advantage might have drifted from Douglas to Lockheed to Boeing. Then, in the years between 1985 and 2005, the gestalt changed. As the weaker players fell away, the focus shifted to a hardier but dissimilar pair: mighty Boeing and the arriviste Airbus.

For much of that time, Boeing held a commanding lead, its supremacy not really contested. Nevertheless, by the mid-1990s, if not before, the gallery could see this twosome's fortunes start to converge, as Boeing, complacent and risk averse, became less committed to the fundamentals of its trade-building new and better models and treating airline customers with care. Airbus, on the other hand, was stressing the fundamentals, gaining credibility, and making a dent in the market. With the passage of not much more time, the seemingly fanciful notion of Airbus catching up with and even moving ahead of Boeing in market share acquired reality.



Boeing vs. Airbus

In making airplanes of 150 or more seats, Airbus and Boeing controlled the market. Both had successful product lines. Together they constituted a maturing duopoly- an anomaly in this marketplace. Still, nothing stays the same for very long in this business. In just eighteen months, from January 2005 to June 2006, Airbus tumbled off the comfortable area of stability it was sharing with Boeing. Its fortunes fell steeply, more so than Boeing's had fallen during the decade in which it had lost the leadership role. The top tier of Airbus's management had become nearly as complacent and risk averse as Boeing's had been then. Moreover, Boeing had put on offer a new and highly innovative midsize airplane called the 787, one that might all but dislodge Airbus from the richest segment of the market unless Airbus acted swiftly to match its rival's aggressive move. In failing to do that, Airbus is paying, and will continue to pay, a heavy price. That much had become clear by mid-2005.

A year later, Airbus management unveiled a new midsize airplane, the A350, which was designed to compare favorably with Boeing's 787. However, its superjumbo A380 was draining away financial resources. Questions about the A380's future and whether it had one were immediately linked with larger, far more complex

issues involving management and company strategy. Airbus's central problem, and the crippling one, is a jerry-built corporate structure that is aimed at satisfying the narrowly focused political interests of the company's French and German stakeholders. In order to balance these interests, the structure seems to require two chief executives and two chairmen. Not surprisingly, this dual management arrangement has, over the years, become steadily less functional and less competent. Airbus is unlikely to compete again on even terms with Boeing unless it can substitute a simple, straightforward managerial structure for what it is saddled with now. Conversely, Airbus's new vision for 2050 may put them back on top.

### Being Number One:

Newhouse affirms (2007), "In the 1980s, Boeing still reigned supreme. Its airplanes covered the market. Its product support was exemplary. Boeing was universally judged one of America's best and most admired companies, partly because its sales abroad of large commercial airplanes were the country's biggest export, and partly because it had learned to build these airplanes better, faster, and cheaper than anyone else had done. "World-class" was Boeing's lofty but accurate characterization of itself" (p.3).

There was virtually no competition. McDonnell was going through a stable but fatal decline and at the Boeing's home base, Seattle, Airbus was just another European wannabe that would not last very long. Today, that is not the case. Boeing and Airbus are the exclusive suppliers of big airliners, but over the past couple of decades, they embarked in contradictory directions. Boeing's numerous issues, most of them because of their own faults, led to an end of its dominance and propelled Airbus's ascent.

This all commenced in the late 1980s. On April 1, 1993, Moody's downgraded Boeing's debt rating for the first time in the company's seventy-six-year history. Still, even in the late 1990s, Boeing held 62 percent of the market, Douglas 23 percent, and Airbus with only 15 percent. In present day, Douglas is gone, having been absorbed by Boeing in August 1997, and in 2004 and 2005 Airbus was the highest seller.



Boeing 737 vs. Airbus A320

The low end of the market is covered by two single-aisle airplanes, Boeing's 737 and Airbus's A320. They are roughly the same size, seating up to 190 people. Both are exceptionally successful, having exceeded the most optimistic forecasts of their respective companies. The 737 is older and has been greatly improved over the years. But the A320, a newer, slightly larger, and more comfortable aircraft, is outselling the 737, not least in the low-cost market that Boeing had monopolized. In December 2004, the surge in orders for A320s from low-cost carriers caused Boeing to rethink its sales force and release its chief salesman.

For many years, Boeing has had the market for the biggest revenue earners, 200 to 300 seat airplanes largely to itself with the 757, a long, single-aisle airplane, and the double-aisle 767. The 757 could seat up to 239 passengers, while the more popular 767 carries 218 to 304, depending on the version. The extended-range version of the family became the most profitable of all Boeing aircraft and became the first long-range, transatlantic, twin-engine airliner. It was followed by a less popular Airbus A310.

However, in the mid-1990s, Airbus revamped their popularity with the A330-200, a new medium-silver airplane that quickly became the prime choice with airliners as a vehicle for moving both people and cargo. The intense demand for this airplane drove Boeing out of the middle market, the richest segment. In October 2003, the

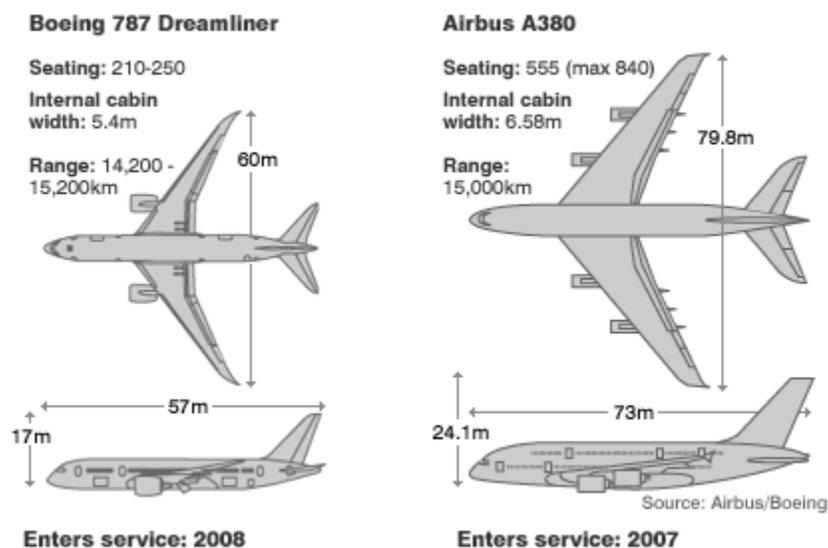
company announced that they were going to discontinue the production of their single-aisle 757 because of low sales, leading to the loss of employment for many in their workforce.

This rivalry continued between the two manufacturers, leading to a paradigm shift of the attitudes that each company exuded about itself. According to Newhouse (2007), “Starting in the 1980s, Boeing’s arrogance began to coexist with a concern that it was losing its edge, that it was no longer as good at making airplanes more productively than the competition. Its concern about itself deepened. It began to take the threat from Airbus more seriously, while still avoiding risks of the sort it had once taken and that had accounted for its success” (p. 9). While Boeing’s confidence was declining, it appeared Airbus was radiating with self-assurance. Airlines were fond of Airbus because they saved them money and implemented favorable designs into their products, such as standardizing the cockpits in its family of airplanes, a feature known as “commonalty”, which Boeing was reluctant to bring about, mainly because of the costs involved, but that was eventually adopted in their new midsize airplane, the 787.

In recent years, the adversary companies acquired different body language. The Airbus style was forward leaning. Boeing’s became wary and defensive, the arrogance a little less transparent. Although both tend to maximize the prospects for its product line and to plant or reinforce doubt about the other side’s, Airbus learned to be more or less honest, at least with itself. Meanwhile, Boeing was looking to place blame anywhere but within itself for things going wrong. As for the being number one, Boeing and Airbus continue to attempt to prove that they each are.

### Trading Places:

Airbus and especially Boeing each gambled massively on two new airplanes that represent radically different approaches to the market. There is probably no precedent for such a divergence. The A380, because it can carry a huge number of passengers, is designed to fit within the hub-and-spoke pattern of air travel that the big airlines have favored. An A380 could take 550 passengers from Tokyo, to, say, Los Angeles or New York, where many of them would then transfer to flights going to Denver, Phoenix, Cleveland, and so on. And, Airbus argues, this superjumbo airplane will be cheaper to operate than other aircraft, partly because it will burn less fuel per passenger. Its operating costs are expected to be 15 percent below those of Boeing’s 747.



Boeing 787 Dreamliner vs. Airbus A380

Boeing had the better strategy. Until recently, an airplane’s range was equated with its size; the bigger it was, the farther it was expected to travel. But with today’s more advanced technology, that needn’t be the case.

Boeing's 787 will carry half as many passengers as the A380 between cities set equally far apart, but will carry them *directly* from one point to another- from Tokyo, say, to Denver, Phoenix, or Cleveland- with no intermediate stop in a hub airport.

In arguing that its Dreamliner is more responsive to current market trends than the A380, Boeing is right. Flying on a double-aisle airplane eighty-five hundred miles from point to point- rather than from one hub to another and then transferring, which lengthens travel time for passengers bound for smaller places- is certain to have a strong appeal for travelers, especially those who can afford to pay for that convenience. They can also avoid the risks of missing a connecting flight or losing a bag.

As for the leviathan, the A380, it may be too big for today's market, or may have come along too soon. The Airbus claim is that this new airplane and the thinking behind it will be fully vindicated over a period of five to twenty years. With airline traffic expected to triple over the next twenty years (also Boeing's estimate), Airbus argues that a superjumbo-sized platform will be the only sensible way to move so many people. There probably won't be any new airports at the major hub cities or more room to expand existing facilities; the carriers will be unable to schedule more flights into existing space, the reasoning goes, since airports can absorb only so many takeoffs and landings in one day; indeed, air traffic control is said to be saturated in most large airports.

Another Airbus argument is that thanks to new technologies, the A380 will take up less landing and takeoff space than the 747 even though it is bigger. Not only was it designed to fit into all the same airports, it will fit into the eighty-meter box on runways that is a standard airport requirement.

In a brief period spanning the last two months of 2004 and the first two of 2005, Airbus and Boeing made a great deal of news. A succession of campaigns lost to Airbus in the low-cost airline market led to a shake-up of the Boeing sales force in early December 2004. In a competition involving two airplanes with little to choose between them, winning is likely to depend on strict adherence to first principles, one of which is paying unstinting attention to the customer's interest, large and small. Another is finding the right moment in the campaign to cut the price of your airplane. In the Air Berlin campaign, as in so many others in recent years, Boeing neglected both these principles.

In winning various campaigns, Boeing was now tearing a page from the Airbus playbook by making what are sometimes called "bad sales", a term for selective transactions that cause pain because the seller earns little, if any, return. However, a bad sale that snares one of the other party's customer airlines is usually seen as a strategic move and well worth the sacrifice. In losing sequential battles to Airbus for sales to low-cost carriers, some of them expected to buy its 737, Boeing had suffered a heavy blow. Then, Airbus experienced a similarly hard blow when Boeing began selling sizable numbers of 787's to carriers that had been flying A330's in the middle market and had been counted on by Airbus to buy its newer version, the A305.

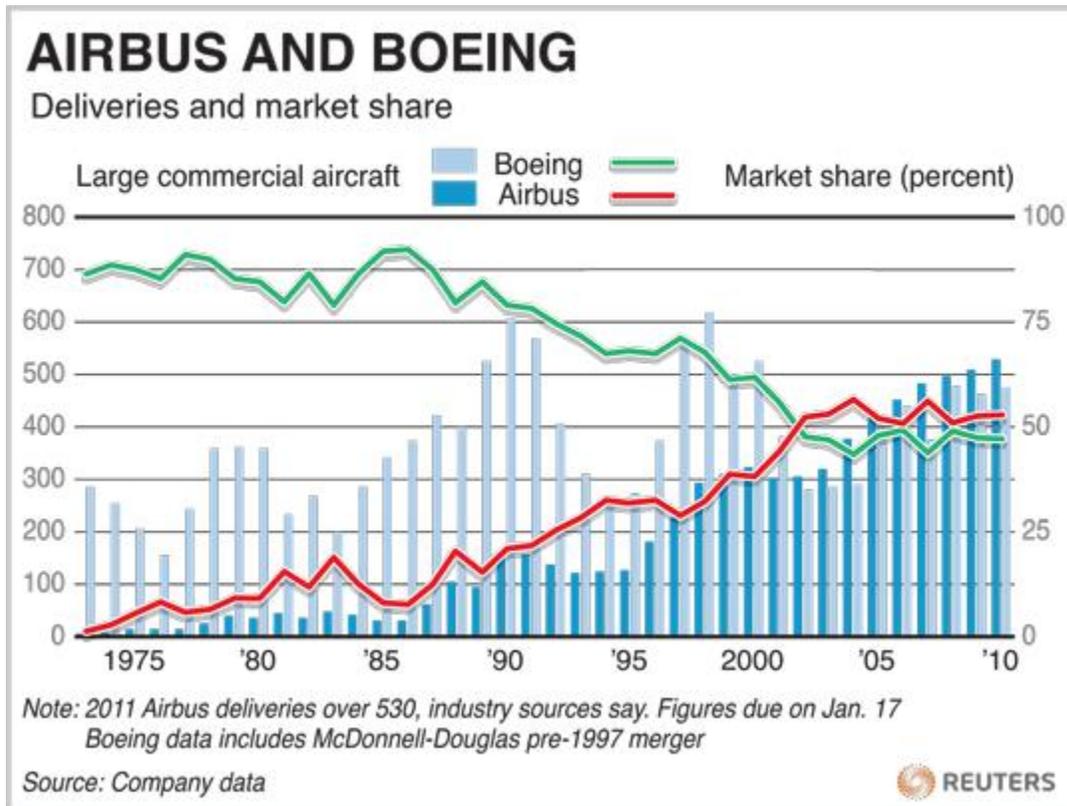
Things in this business are often not what they seem. For many years, Airbus had the advantage of being the underdog. It did not have the heavy legacy of product obsolescence- the legacy of a successful past. Boeing had a family of good airplanes built with dated methods and 1960s technologies. The new arrival could afford to be innovative and bold; and Airbus was all of that. As the 1990s wore on and Boeing's troubles grew, the two companies seemed to have traded places. Boeing became the underdog.

As Newhouse puts it:

As for what may dictate the impermanence of advantage, it can be changes in one party's corporate culture; these occur over a period of years and are not reversible overnight. It may be the greater willingness of one party to exploit a technology that is available to both. It may be just good luck, as one party accidentally hits on a product that is precisely what the market decides it must have. With its 787, Boeing showed a greater

willingness than Airbus to exploit some advanced technology, and was then able to design a product that looked right to several airlines and later to the financial markets.

### Market Share- the Airlines' Enemy:



Deliveries and market share graph

The major U.S. airlines are floundering. In little more than three years after September 11, 2001, the industry worldwide lost more money than it had earned since the start of powered flight. Rising oil prices enlarged the difficulties, as did the SARS epidemic. The heaviest losses were incurred by American carriers.

Although the impact of 9/11 on airlines everywhere was substantial, their problem was not and is not passenger traffic. Over the years, demand for air travel has shown itself to be reliably resilient. It normally falls off in periods of turbulence and then bounces back quickly. Boeing estimates that air travel worldwide has tripled since 1980. Boeing and Airbus are both forecasting 5 percent annual growth in airline travel over the next twenty years.

The woes of America's airlines were largely self-inflicted, decades in the making, and are worsening. Much of what has gone wrong can be traced to 1978, when the Airline Deregulation Act was adopted. It liberated the airlines by allowing them, instead of a government agency, to decide which routes they could fly and at what cost to the passenger. Government supervision of what had been judged a public utility gave way to free market economics. Predictably, the industry's irrational tendencies took over, and it quickly outgrew itself. By the late 1980s, the legacy carriers- the half-dozen major carriers that have been around longer than most of the others and operate both nationally and internationally- had embarked on a feeding frenzy, adding new airplanes to their fleets without retiring older ones. Credit wasn't a problem- there was a great deal of money chasing airplanes; airlines were borrowing 120 percent of the net purchase of their new aircraft. And they were busily expanding their hub airports.

Airline deregulation, a useful step in principle, was never about building a strong industry; it was about lowering ticket prices by creating competition. And it did give rise to a commodity marketplace, hence competition. But most airlines either didn't favor deregulation or, like Delta Airlines, openly opposed it. The carriers, having foolishly overextended themselves, became largely oblivious to the harmful effects on earnings of rampant competition, much of it mindless. Their new equipment not only allowed but dictated expanded service—more airlines battling one another on more routes.

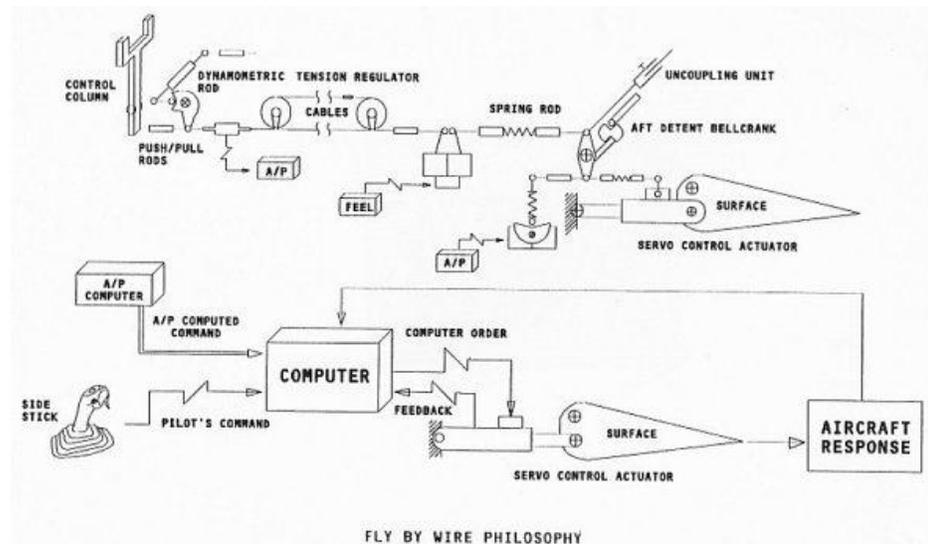
Acquiring greater transparency were the encrusted problems of the airlines. The financial pressure got heavy. Lenders who had helped the industry by softening loans after the events of 9/11 restored the stiffer terms. Over the next four years, U.S. airlines cut capital spending by 62 percent while taking on \$16 billion of new debt cover losses. Since 2000, the legacy carriers have eliminated more than one hundred cities from their schedules, although regional airlines now operate many of the routes.

In recent years, the most intense struggle between Boeing and Airbus has matched the 737 against the A320 for supremacy in the low-cost market. Over time, the A320 gradually gained the advantage because it is a newer airplane and, for various reasons, increasingly in favor with low-cost carriers. That is important, because those carriers, plus various leasing companies, are buying the airplanes. The strapped legacy carriers are buying very little new equipment. Instead, some of them are cutting back.

### Playing the Game:

Quite obviously, Newhouse (2007) states the “rough-and-tumble business in which Airbus and Boeing battle for every sale is strewn with traps. Nothing is certain until the contracts are signed” (p.91).

In 1982, Airbus decided to introduce the Fly by wire system, which, although by then being used in combat aircraft, was wholly alien to the culture of airline pilots. Fly by wire is a system for moving an airplane's control surfaces with electrical impulses transmitted by wire. It replaced the heavier standard system that did the job with cables and pulleys. The new electronic system, assuming it took hold, would allow computer-drive controls to hand an airplane and direct its course. The yoke, or joystick, would go. The system would give pilots little to do aside from putting navigational points into the computer and pushing buttons on a small side stick that transmitted impulses to the aircraft's flaps and ailerons.



FLY BY WIRE PHILOSOPHY

Fly by wire Philosophy

The Fly by wire system was installed into the A320 and became a turning point. Its importance to what has become of Airbus and Boeing can't be overstated. A truly pivotal mistake lay in Boeing's reluctance to replace the 737 with a new airplane. The A320 embodied an array of technological advances that became common to the Airbus models that were to come. Just the fly by wire should have been a wake-up call for Boeing.

Gradually, Airbus converted major users of the 737, some of whom had bought only Boeing aircraft, to the A320. It became Airbus's stalking horse. By the late 1980s the A320 was giving Airbus market share, credibility, and cash, all of which Airbus leveraged and used to create the A330 and A340. And the A330-200, which entered service in 1998, killed a Boeing workhorse, the 767.

The time between 1985 and 1998 was one in which Airbus rose and Boeing held steady. Together they killed McDonnell Douglas. For most of that time, Boeing chose to regard Airbus as an annoyance but not a serious threat. But Airbus unlike Boeing, was telling itself that technology matters, and so do new products.

The overspending by airlines no longer bound by federally imposed restraints reached a peak in the late 1980s. It appeared Boeing's cascade of new orders had slowed but its order book looked solid for the next two years. However, within those two years, each of the big three carriers- American, United, and Delta- scaled back orders of Boeing aircraft. And all three announced that they were reducing capacity- a step without precedent for any one of them. The airlines then commenced to divert their attention to Airbus much more closely.

Engines also played a big part in the game. An airline's contract with Boeing or Airbus guarantees certain performance characteristics of the engines, such as the amount of fuel they consume. The airline and the engine supplier sign a separate agreement that covers such matters as the cost of spare parts and the period of time, typically three thousand hours, during which the engine must perform reliably. Conversely, the interplay of the engine and airframe makers lacks rules and predictability; it can be chaotic. Boeing or Airbus will present a new airplane that is intended to carry, say, three hundred passengers for seven thousand miles. The company will guarantee a fuel consumption- fuel burn, as it's known- of no more than X. An engine company will see no difficulty in meeting the thrust requirement, but meeting a fuel-burn guaranty is always tough. Boeing and Airbus normally offer the airframe and engine guaranties to airlines as a single package, along with penalties to be impose if the guaranties are not fulfilled.

If an engine falls short of its guaranteed specifications, the airframe maker- Boeing or Airbus will inform the airline that its new plane will be able to go the full seven-thousand-mile distance but will be burning more than the agreed-upon amount of fuel. What will have happened is that the airplane just got heavier, as new planes usually do. And the additional weight dictates more engine thrust, hence a bigger fuel burn.

Although passenger aircraft and their engines are constantly improving and becoming more reliable, the companies still find plenty to quarrel about. Most often it is a carrier complaining that the costs of flying an airplane are unreasonably high. Its manufacturer then censures the engine for having too little thrust or consuming too much fuel. But the engine supplier almost certainly will blame the aircraft's designers for having allowed too much drag. Over the years, these disputes, although routine, have become steadily more hard-edged, as the importance of restricting fuel consumption drives the entire industry.

### **Conclusion:**

Boeing and Airbus are two, very different, aircraft suppliers. Nonetheless, history shows that they both have proved that they are willing to fight to stay on top and each offer extraordinarily separate options to several airlines. To this day, the competition between the two is astounding and continues to encourage the other to better their merchandise and instigate new and improved technologies into their aircrafts, so as to not fail in the air transportation industry. Through the good and the bad Boeing and Airbus both have demonstrated their right to continue to service airlines worldwide.

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