

Boeing case study

Business



At the end of the AR, William Boeing started to concentrate solely on commercial aircraft. He started to secure contracts to supply airmail service and built a successful airmail operation.

Later on he created a passenger service that eventually evolved into United Airlines. Boeing was said to be a private person, a visionary, a perfectionist, and a nitpicker for the facts. He was a fast and passionate reader and remembered everything he read. Origins of the EWE Project In 2003 the Boeing Company stated plans to build and sell a new, "super-efficient" commercial jet called the EWE, also known as the "Adrenaline".

During this time the United States went to war against Iraq, and on top of this a deadly and contagious illness called "SARS" created a lot of fear and resulted in global travel warnings. These reasons are what caused airline profits to plummet and were the worst seen in a generation.

Boeing hasn't introduced a new commercial aircraft since the stressful // project, an Alarms executive was quoted saying that Boeing "seemed to be promising a salesperson's dream and engineer's nightmare". The EWE was to carry 200 to 250 passengers, would be capable to travel on short, domestic flights and also long, international flights.

This plane will use 20% less fuel than existing planes of its projected size and be 10% cheaper to operate than its competitor Airbus's A320XLR. Of course at a time when major airlines are having difficulties making profits, less fuel, cheaper operating costs and long and short distance flexibility would be very appealing at the right price. In order to make the EWE more fuel efficient, it

would be built primarily out of carbon-reinforced material, which is stronger and lighter than the traditional aluminum.

This would make this the first commercial aircraft built this way, and Boeing used a more efficient engine which added to the fuel efficiency.

Boeing claimed this use of composites would also reduce manufacturing costs. With fewer components these planes can be assembled in 3 days instead of the 20 days it currently would take to put together the Boeing 767. In order to produce a short and long distance aircraft engineers would need to consider the possibility of snap-on wing extensions. This would raise question if this idea would be too costly or even be technically possible.

Commercial Aircraft Industry Airbus & Boeing In 2002, Boeing and Airbus both dominated the large plane commercial aircraft industry.

Boeing historically held the lead in this market but Airbus slowly became number 1. In 2002, Airbus received 233 commercial orders compared to Boeing's 176 orders, representing 57% unit market share which would estimate to be a 53.5% dollar value of market share. Some of Airbus's large commercial aircraft products consisted of the A310, A320, A321, A330-300, and the A350-900 families. Airbus announced in 2000 that they were going to produce the A380, a superdomes four-engine Jet.

It was set to fly in 2006 with a 550 passenger configuration and a long distance range up to 8000 miles.

This would be the largest passenger aircraft ever built. On the other hand, Boeing was split into two primary segments: commercial airplanes and <https://assignbuster.com/boeing-case-study/>

integrated defense systems. Boeing Integrated Defense Systems (IDS) is a unit of The Boeing Company and is responsible for the defense and aerospace products and services. Boeing's Defense, Space, & Security make Boeing the second largest defense contractor in the world and they were responsible for a good portion of the company's income.

Boeing received rewards in 2002 up to \$16.6 billion in defense contracts, and this was second to Lockheed Martin with \$17.

Billion. An example, Exhibit 1 will show that in 2002, Boeing's earned revenues was almost equal. (REFERENCE EXHIBIT 1) Although commercial aircraft revenues were falling, revenues from the defense sector had been rising. Analysts felt Boeing would be able to transfer significant amounts of technology from the defense R to the commercial aircraft segment. In 2003, Boeing projected they will deliver 280 commercial aircrafts and expected between 275 and 300 in 2004.

Boeing's revenues estimated to be approximately \$22 billion for their commercial airplane segment down from \$28 billion in 2002. Boeing acknowledges the negative impact of the September 11th terrorist's attacks on the commercial aircraft demand. Production rates had to be cut in half in order to maintain profitability in that segment. Boeing's retained earnings were \$14.26 billion was caused by a drop in airplane deliveries from 527 in 2001 to 381 in 2002, but most of the decline was due to an accounting change (SEAS No. 142).

Boeing's earnings per share took a big hit from 2001 \$3.46 to 2002 only being \$0.2, and Exhibit 3 will show you these numbers. Boeing created a 20
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year forecast from 2003 to 2022, for 24, 276 new commercial aircraft, valued to be at \$1. 9 trillion. They predicted a composition of 4, 303 smaller regional Jets, these would have fewer than 90 seats, 13, 647 single aisle airplanes, 5, 437 intermediate twin aisle airplanes and 889 747 size or larger airplanes.

This expectation would double the world fleet, with a quarter of the market coming from aircraft replacement and three quarters from projected passenger and cargo growth. Exhibit 4 will give you a look at Boeing's delivery distribution forecast for 2003-2022.

On the other hand, Boeing's competitor Airbus predicted to deliver 15, 887 new commercial aircraft in 2002, valued at \$1. Trillion. This would include 10, 201 single aisle aircraft, 3, 842 twin aisle aircraft, 1, 138 very large aircraft, and 706 freighters.

Out of the 15, 887 predicted commercial aircraft to be built, none included planes that would be less than 90 seats. Boeing and Airbus's numbers cannot be directly comparable because of their slight difference in time periods and aircraft classifications, so it appears Airbus was more optimistic about the market for large aircraft than Boeing was.

Airbus forecasted to be in the \$270 billion market, including 1138 passenger units, Boeing only projected \$214 billion with 653 assenter units, but Boeing was able to estimate that their share of intermediate size airplanes would increase from 18% to 22%. Boeing stated that these intermediate sized airplanes would economically allow airplanes to fly the increased frequencies, city pairs, and nonstop flights requested by passengers. Recent study by Frost & Sullivan said that " the Airbus market projection for the <https://assignbuster.com/boeing-case-study/>

AWAY was “over optimistic”, therefore giving Boeing hope that their predictions would be the best assessment.

Boeing's Aircraft Development and Lifestyle Any plans to develop new airframe would be characterized by substantial initial cash outflows that might require between ten or twenty years to recoup.

Each new aircraft would be a “bet the ranch” proposition. Over time, in order to survive in the industry you would depend on introducing successful products and having deep financial pockets to endure the initially volatile cash flow. While aircraft sales were subject to short term, cyclical deviations, there was some degree of certainty in sales.

Sales would usually peak shortly after new aircraft were introduced and then fall. Consequently, sales would rise and fall as derivatives of the aircraft were offered. Cycles for the first 20 years of the 757 and 767 sales are shown in Exhibit 6 below.

The EWE “Adrenaline” The entire concept of the Boeing EWE gained motivation from customers and their requirements. Boeing's knew their customers would soon need to replace their aging fleet of mid-range planes, such as the 737, 747, 757, 767, 777, 787, and the 797. The idea was to create a plane with lower operating costs.

A company called Fair, held discussions with over 40 airlines throughout the world, and identified a fresh market to replace these mid-sized planes. Not only lowering operating costs, but also reading mid-sized planes that could

travel long distances, something only previously done by large planes, such as the A350-900.

Boeing's new aircraft would be able to offer nonstop service on routes that required long range planes but didn't need the subsequent larger size. Frost estimated that there could be more than 400 city pairs, for example Atlanta to Athens, that could be served efficiently nonstop by this EWE.

Boeing considered two new members for their EWE family, a basic and a stretch version. Exhibit 7 below will give a description of Boeing's two configurations (ATTACHED ON REAR). Some other things Boeing will improve for passengers are wider aisles, lower cabin altitude, and increased cabin humidity.

To add to this was the EWE would include systems that provided in-flight entertainment, Internet access, real time airplane systems, structured health monitoring and crew connectivity. In addition, Boeing claimed the EWE would have the smallest sound "footprint" with the quietest takeoff and landing in its class.

Boeing projected a demand for between 2000 and 3000 of their EWE planes within 20 years of entering service. Frost and Sullivan study predicted the sale of at least "2000 Bee's". This demand is depending highly on whether Boeing can fulfill their promise to deliver the mid-sized aircraft that would provide 20% cheaper fuel costs and the long and short range flexibility. If this range flexibility would require the snap-on wing extensions that

engineers argued the planes would need in order complete short and long flights, then building costs may increase significantly for the EWE.

The Boeing Company Current Financial Analysis (2002) According to Exhibit 1 we can see that Boeing's revenues have been slightly creasing from \$31, 171 million in 2000 to \$28, 387 million in 2002. The balance sheet for 2002 and 2001 shows an increase in total assets as well as total liabilities and shareholders equity, from \$48, 978 million in 2001 to \$52, million in 2002. The income statement shows an increase in operating expenses from 2001 to 2002, and earnings per operations have stayed the same. Their interest and debt expense has increased, which implies additional leverage.

In 2002 the company's net earnings decreased significantly from \$2, 827 million to \$492 million, subsequently the earnings per share also dropped from \$3.

46 to \$0. 62. Boeing's current ratio increased slightly from 2001 to 2002, from . 819 to . 850 respectively. The current ratio is under which suggests that Boeing is unable to pay off its obligations if they came due at that point in time.

Their debt to equity ratio is 3. 524 in 2001 and 5. 801 in 2002. This implies that in 2002 Boeing became more leveraged and less liquid than in the previous year.

Boeing's return on assets decreased from 5.

7% in 2001 to . 9% in 2002, and their return on equity has also decreased from 26% to 6% in 2002. This indicates hat the company is being inefficient
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in managing its assets to generate earnings in the most recent year of 2002. The company's net profit margin increased from 66% in 2001 to 72% in 2002, this potentially indicates that Boeing has high levels of profitability as well as a high share price. Overall Boeing is highly leveraged, but is maintaining high profit margins and high operating profits.

Their total identifiable assets have increased from \$43, 534 million in 2000 to \$52, 342 million in 2002; the acquisition of these additional assets was most likely financed, Justifying the higher leverage ratios and interest expense. Financial Analysis for Proposed EWE Project In the case study a 20-year forecast is generated of free cash flows from the Boeing Adrenaline project if it were to proceed. From this generation it is estimated that the Adrenaline project will have an estimated Internal Rate of Return (IRR) based on a few factors.

From Frost & Sullivan aviation industry analysis it is estimated that at least 2000 units would be ordered from Boeing. For forecasting, Boeing used 2500 units from years 1 through 20.

The forecast also estimated that sale forecast from year 21-30 would match that of the previous 20 years. The pricing of the EWE and EWE stretch were derived from the previous sale prices of the Boeing 767 and 777 prices in 2002. Using range and other variables it was determined that the EWE would have a minimum price of \$114. Million and the EWE Stretch would have a minimum price of \$144. 5 million. It is also assumed that aircraft prices would increase at the rate of inflation which was assumed to be 2%.

The Costs and Expenses associated with the production of the EWE & EWE Stretch was estimated to range from 77.9% to 81.1% for Cost of Goods Sold and a General, selling, and administration expenses range from 7.0% to 7.7%.

Boeing also depreciates its assets on an accelerated basis. The Research and Development for the Adrenaline was estimate to be from 1.7% to 2.3% of sales.

The total development cost, which includes research and capital requirement costs, estimated by analysts for the Adrenaline is ranged from \$6 billion to \$10 billion.

From the years 2000-2002 Boeing had a negative net working capital due to such factors as advanced payments by customers. The years prior to 2000 Boeing had a positive working capital. Using the time from 1997-1999 it was determined that the working capital as a percentage of sales is to range from 3.5% to 11.2% Given these factors for this analysis the following were used:
Revenue Estimation: 2500 units from Year 1-20 Price for IEEE Stretch with 5% price premium: \$120. Million/ \$151.

7 million Expense: Cost of Goods Sold: 80% COGS Expense: General, Selling, & Admit. : 7.5% Expense: R&D cost as a percentage of sales 2.3% Expense: Marginal Effective Tax Rate: 35% Initial Development Cost: \$8 billion Net Working Capital: 6.7% The 5% price premium for the Adrenaline is forecasted in the assumption that customers would be willing to pay the premium for the lower operating costs. Also of the 2500 units forecasted to

sell, 1342 will be the Stretch model with the remainder being the regular Adrenaline.