

Boeing Technological Issues and Challenges: Nosedive Strategy



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Abstract: Major aircraft manufacturing companies – Boeing & Airbus based at US & France respectively are in severe competition with each other. Therefore, both the companies tried to develop innovatory technological changes to offer their airplanes with better features and performance. Accordingly, Boeing developed 737 Max with special technical features and claimed on its website this model as its fastest selling airplane. The latest technological changes developed for 737 Max are not known to the industry. In Oct 2018, its first 737 Max crashed killing all the 189 passengers and in Mar 2019, another plane crashed killing 157 passengers. The issues of software with MCA in these planes is being enquired upon as these installations made aircrafts more powerful and aggressive that it nosedived the flight. This paper is about the issues of 737 Max and its future challenges s all 737 Max numbering around 300 have been grounded in all the countries.

Keywords: 737 Max Boeing plane, nosedive strategy, technology, aerospace

I. INTRODUCTION

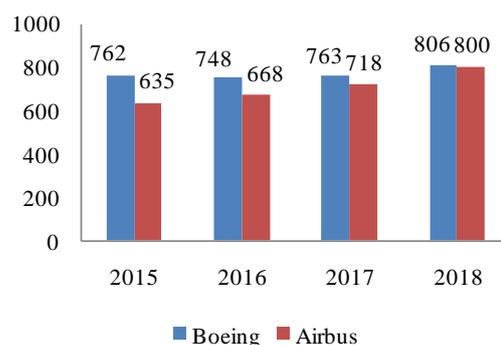
In 21st century, travelling long distances in a short span of time is one of the requirements of most of the people throughout the world. The best way to address this scenario is through airways. Availability of airport, aircraft, pilot, cabin crew, talented manpower, technology, security, arrangements, aviation fuel, infrastructure etc. are few of the basic requirements for connecting one place to another through the use of airways as a mode of transportation. This industry has seen many turbulent situations to reach to the state where thousands of planes are flying every hour in the sky enabling people to travel from one place to another. Aircraft is one of the most important elements for an airline firm operating in an aviation industry.

II. CIVIL AIRCRAFT MANUFACTURING FIRMS

The five major manufacturers of civil transport aircrafts are Airbus, Boeing, Bombardier, Embraer and Tupolev. Among them Airbus and Boeing are the major airplane manufacturers (Aircraft Manufacturers). Boeing is a Chicago based US company and its European Competitor Airbus are in severe competition for orders and deliveries of planes on year to year basis. The performance of world’s two biggest aircraft manufacturers is closely watched by most of the countries as it affects all airlines and aviation industry throughout the world. The number of planes delivered by the Airbus and Boeing is used to understand the overall market

size of aviation industry globally. If the number of planes delivered by both the firms increase, this can be interpreted as growth of the aviation industry. This exhibit how significant is the presence of both the firms in the aviation industry. The quantity, quality, and fuel efficiency of planes manufactured by the Boeing and Airbus affects the revenue of airlines. There has been constant increase in the sales of Airbus in last 4 years (2015-2018), whereas, the sales of Boeing have seen a dip in 2016. The sales of Airbus have been at a CAGR of 8 percent during the period 2015-2018, whereas, CAGR is 1.89 percent for Boeing during the same period. In 2014 the gap between both the firms towards sales was of 127 planes which has been narrowed to just 6 planes by 2018. Such intense competition between two multinational corporate giants keeps both the companies engaged in innovation, developing new technology, speeding up deliveries of aircrafts, re-designing of seats in order to accommodate more passengers within the same available area and various others. These firms always try to maintain an edge over each other. Unfortunately, this spirit of competition turned these firms possibly insensitive towards the safety of passengers, resulting in the crashes of two brand new planes of the same model i.e. 737 MAX aircrafts of Boeing in October 2018 and March 2019 killing all 346 passengers on the board in both the flights.

Number of Aircrafts Added to the Global Aircraft Fleet



Source - (Statista, 2019)

Fig. 1 - Number of Aircrafts Added to the Global Aircraft Fleet

Thus, the race stopped at bloody end with the grounding of around 300 numbers of MAX 737 Boeing planes by most of the airlines spread across the world, and slowing the manufacturing of these planes at Boeing’s production facilities in United States. In today’s scenario, forget about running in a race, Boeing is not even in a position to walk.

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III. DESIGN AND DROWTH OF BOEING 737 MAX

Boeing was on the verge of introducing all together new model of civil plane in 2011. But it dropped the idea in between and took a strategical U-turn with a thought of upgrading the existing 737 to MAX 737 due to the intense competition from its chief rival, Airbus. The upgraded version 737 MAX was launched by Boeing and it became the most sought aircraft by most of the airlines resulting in a great demand for the plane. “With Boeing quickly took orders for more than 5000 Boeing 737 MAX planes, securing billions of dollars worth of orders that would keep the company manufacturing the MAX for years to come and thus generate revenue” (The New York Times, 2019).

IV. CRASHES – BOEING 737 MAX

“It was 29 October 2018, when the world was shocked with the news that a passenger plane, brand new Boeing 737 MAX of Indonesia’s Lion Air carrying 189 passengers crashed in minutes after its takeoff. This fatal crash killed all the 189 passengers on the board” (Bloomberg, 2018).

“Nurchahyo Utomo, the aviation head of the national transportation safety committee of Indonesia informed that the plane experienced technical difficulties shortly after takeoff. The plane then began careering up and down, to a height of 5,000ft. As the aircraft began to nosedive, the pilot attempted to offset the action, fighting to keep it in the air. However, it became increasingly difficult to control the airplane as the load on the steering wheel became too heavy for the pilot to manually control, and then the plane drops. The aircrafts crashed into the sea at a speed of more than 400mph” (The Guardian, 2018). Boeing was complacent with the business of MAX, that the company did not take this crash of MAX of Indonesia’s Lion Air earnestly. Just two months after the crash, in January 2019, Boeing’s executives said, “The Max was the fastest selling plane in its history and the company expected to deliver between 895 and 905 airplanes this year.” (The Guardian, 2019).

Even still the company was relying upon MAX for changing its business fortunes instead of thinking seriously about the safety of passengers in its product to avoid any further loss of precious life in future, “Boeing predicted in January, that 2019 would be record year for aircraft profits and deliveries due to its MAX, the best-selling model. Boeing reported an order of 5,011 MAX from 79 airlines in January 2019.” (BBC, 2019).

Unfortunately, Boeing kept on conducting research about the crash of its product (727 MAX) in a routine manner. However, all these things became stand still when second MAX crash took place. Unfortunately, after four months and twelve days of the first crash of Boeing in Indonesia, the second fatal crash of brand new MAX of Ethiopian Airlines happened in March 2019 killing another 157 passengers on the board. It was carrying the passengers from around 35 countries including US, China, India, Canada, France, Britain, Kenya (BBC, 2019). It all happened as Boeing adopted a nosedive strategy, that not only put its present and future business in trouble, but it has become a rare case where its past sold products have also come under skepticism by the governments and regulators of the countries where airlines were using MAX 737 and become liability on the company.

V. POSSIBLY TECHNOLOGICAL ISSUES BEHIND CRASHES

It is fact that latest aircrafts are equipped with advanced technologies for their various functions. Aircrafts take direction from many types of software for safe and efficient flights. But at the same time, two crashes of same aircraft model manifest the serious technical failure which was even beyond the control of pilots flying these jets. Investigations are being conducted by US Justice Department.

As per BBC News, “Boeing admitted that the company knew the problem with 737 MAX airplane around one year before the two crashes involving 737 MAX.”

“Boeing accepted that an alarm device was shifted in the category of optional features from standard one. This feature is known as the Angle of attack (AOA). As per Boeing AOA data was fed to the aircrafts Manoeuvring Characteristics Augmentation Systems (MCAS), an anti-stall system which has become an issue under investigation since the crashes.” (BBC, 2019).

VI. NOSEDIVE STRATEGY

Looking at the complete scenario, author has framed a new strategy christened as Nosedive Strategy. As per nosedive strategy, the companies kill their own business in order to earn more by becoming blind to the safety of customers/public and business ethics.

In Nosedive strategy, a company creates unfavorable factors for itself which attacks the growth of its business on short, long term or both short and long term basis. There are many companies which lost their business or got closed down, not due to macro unfavorable factors but due to their own poor decision making and unethical practices. The failures of firms in all these cases can be attributed to application of Nosedive Strategy.

“A number of legal cases have been filed by the families of deceased in the two crashes of Boeing’s MAX planes. Boeing is under many investigations from the Department of Justice due to the crashes of its two 737 MAX planes within four months’ period. Moreover, investigation has also been extended to production of its Dreamliner model.” (CNBC, 2019). Boeing one of the world’s largest passengers plane manufacturers whose business growth used to be in flight mode with highest plane orders and deliveries of planes in most of the financial years has been reduced to crawling mode within three-four months’ period because of the implementation of Nosedive Strategy.

VII. DESCENT OF BOEING

In order to understand how a multinational giant like Boeing in corporate sector reached to such a situation, there is a need to analyze the some of the important aspects of the case. “In total, some 300 planes in operation were grounded globally. In addition, there are more than 4000, MAX737 planes on order that have yet to be delivered, and according to Bloomberg, the crashes have put those \$600 billion worth of orders in jeopardy of not being completed.” (Vox, 2019).

“Neither 737 MAX aircraft in Indonesia nor Ethiopia crashes had sensors sold for extra cost but one could become standard on planes.

The two safety features in question were not included in the aircraft by Boeing as standard safety features, according to a report in The New York Times.” (The Guardian, 2019).

“Boeing has admitted that it knew about a problem with its 737 MAX jets a year before the aircraft was involved in two fatal accidents, but took no action. The plane maker said it had intended to provide the feature as standard, but did not realize until deliveries had begun that it was only available if airlines purchased an optional indicator.” (BBC, 2019).

“Boeing boss Dennis Muilenburg said, “We clearly fell short and the implementation of AOA was a mistake, right, we did not implement properly.” In an interview with Norah O’ Donnell of CBS News he said Boeing was now fixing the problem.”(BBC, 2019).“US pilots who fly the Boeing 737 MAX have registered complaints about the way the jet has performed in flight.” (CNN, 2019).

“After the second crash of the same model of Boeing within four months, the world lost confidence over the product MAX aircraft to the extent that the planes of MAX model were grounded globally. In UK, the Civil Aviation Authority has banned the Boeing 737 MAX planes to take off, land, or fly within UK airspace.” (The Guardian, 2019).

It did not happen in Boeing for the first time, in fact, overpromising, under delivering, delays and slow decision-making are embedded in the culture of Boeing. In 2008, Boeing released a statement that it would compensate its customer Air India for the delay in deliveries of its Dreamliner planes (PTI, 2008). Boeing delivered first 787-800 Dreamliner plane to Air India after around four years delay which is significant delay by any corporate standards throughout the world. After the Dreamliner became operational with Air India for its commercial flights, “The delivery of the twin-aisle planes, ordered in January 2006, was delayed for several years by production problems at Boeing, leading Air India to seek compensation. The Indian Government on 3 August 2012 permitted Air India to take delivery of the planes from Boeing after the two sides came to an agreement on the compensation amount.” (Choudhury & Chaturvedi, 2012).

It was not only the case of late deliveries of Boeing to Air India, but the Dreamliners developed technical snags on many occasions resulting the grounding of the planes frequently. It also includes the mid night replacement of one plane in Paris and other on Kolkata-Delhi flight. Things went to the extent that Air India’s engineering union urged management to defer deliveries of remaining aircrafts from Boeing till it rectified the defects. “Air India was losing revenue as well as reputation about its time performance due to the grounding of faulty Dreamliners frequently.” (PTI, 2016). Remaining in complacency mode after the first crash of its plane in October 2018; Boeing found itself clueless and directionless when second crash of its hot selling plane happened in March 2019. Whenever, companies are in such a state, external forces act. Accordingly, most of the governments and regulators of the countries where the airlines were using MAX 737 planes issued orders for their grounding. In America the orders of grounding were issued by the president of America. “The President Trump said all these must be grounded and if they were in flight, would be grounded upon landing.” (Rosen, 2019).

The peace loving people of the world mourned the deaths of 346 passengers and are looking for the accountability of officials responsible for two crashes. Due to its poor decisions and insensitivity towards human lives after first

crash, its corporate image has been seriously affected. There is trust deficit about its 737 MAX and real question in the minds of people: “Why should we take a risk of life to fly by MAX?” (Hollister, 2019).

Present challenge in front of Boeing is to address the security issues of its planes and rebuild the reputation lost after two major crashes of its brand new MAX planes.

In January 2019, and that too after the crash of its first plane, Boeing claimed 737 MAX as its hot selling plane with lot of orders with the company; literally, Boeing was enjoying the status of orders than regretting about the crash of its plane that killed 189 passengers.

This is the condition of Boeing like multinational company today for which its management is responsible and not due to the decision by any government, external factor, customer, economy, politics, society etc. During all this turmoil, one of the most important stake holders suffered a lot and that is public. In two flights of Boeing planes around 346 people lost their lives without their any fault. After the second crash, due to the grounding of MAX 737 planes globally, airlines are facing shortage of planes in their fleet, resulting in increase in ticket prices and these higher ticket prices are finally borne by passengers. Moreover, due the availability of lesser planes with airlines, frequency of flights has been reduced on many routes. Ultimately, public is paying for the poor and unethical decisions of Boeing.

“Chief Executive Dennis Mailenburg has apologized on behalf of the plane maker for the 346 lives lost in accidents in October and March, and promised to eliminate the risk that flight software meant to prevent the plane stalling could be activated by wrong data.” (Reuters, 2019).

Donald Trump (the president of America) weighed in with his thoughts, “What do I know about branding, may be nothing (but I did become president!), but if I were Boeing I would fix the Boeing 737 MAX, add some additional great feature and rebrand the plane with a new name. No product has suffered like this one.” (Reuters, 2019).

In today’s scenario, Boeing does not see the taker of its new 737 MAX (enjoying the status of hot selling product just two months back before the second crash), and around 300 planes of this model sold in past have been grounded.

The following are the major troubles being faced by Boeing after the second crash of its 737 MAX

Firstly, Boeing is passing through the turbulent phase as it is losing huge revenue with reduced production schedule due to significant drop in orders.

Secondly, the airlines which had purchased 737 MAX earlier are also losing revenue on day to day basis as the governments and regulators of most of the countries have banned the usage of these planes. “Therefore, airlines have started demanding for the compensation for the same from Boeing and it is a huge amount.” (Business Insider, 2019).

Thirdly, the families of passengers, killed during 737 MAX crashes have taken Boeing in various courts and asked for action against the company along with compensation which could also be a big amount if approved by courts.

Fourthly, the American regulator is conducting investigations about the manufacturing, safety, technological and software issues related to 737 MAX.

VIII. CONCLUSION

In corporate sector, there are companies that even mishandle favorable factors to their disadvantage to the extent that their existence is threatened. Boeing MAX's lesser fuel consumption technology is one of the major favorable factors but the safety concerns has threatened its existence. The introduction of MAX hurriedly, and the crash of two such planes has raised suspicion about the safety of Boeing's latest planes. Boeing admitted that the company knew the problem with 737 MAX airplanes around one year before the two crashes involving 737 MAX. Boeing accepted that an alarm device was shifted in the category of optional features from standard one. This feature is known as the Angle of attack (AOA). As per Boeing AOA data was fed to the aircrafts Manoeuvring Characteristics Augmentation Systems (MCAS), an anti-stall system which has become an issue under investigation since the crashes. Even after knowing the problem Boeing did not fix it. This finding reveals that the company was never serious with the safety of flyers. By shifting the alarm device from standard to optional feature, Boeing was interested to earn more from the technical features known as the Angle of attack (AOA). Such approach did not only nosedive its two aircrafts, but put whole company in nosedive mode as its all the 737 MAX jets have been grounded globally. Carrying with the same culture, the Boeing company showed insensitiveness to the extent that it did not even take initiative to issue advisory to the airlines for grounding the planes of MAX 737 after the first crash till the findings of the real cause of first crash. Boeing kept on conducting research in routine way about the crash as the deaths of 189 passengers were not a matter of urgency for them. With the result second crash happened further killing 157 innocent passengers. Re induction of MAX 737 would be challenging for Boeing at this stage when flyers are fresh with the memories of deaths of 346 innocent passengers in two crashes few months back. On the other side, removing MAX from the business of Boeing means huge business loss for the company as it was bestselling model in the history of Boeing before the second crash.

IX. RECOMMENDATIONS

The best strategy at this stage for Boeing is to refer Burberry. Burberry was also on the verge of losing its corporate image as people came to know from its annual report that the company burns its unsold products every year. The people were upset as Burberry was polluting environment and wasting precious resources while burning its unsold products. In initial stage, Burberry took stand like Boeing, and tried to justify its unholy act of burning unsold products. However, well in time, Burberry, sensed the resentment of public over their act of burning huge amount of its unsold products and realized that no company and its ego could be bigger than customer, who is supreme and an integral part of society. They changed their strategy from burning their products to repairing, recycling and donating them and saved the company from major crash. Boeing should learn from Burberry and change its flubbed corporate strategy to impose MAX planes on its customers anymore. The strategically mission of the company should be zero tolerance on safety, even at the cost of lesser profits and revenue. The companies need not to hire people from

branded institutes but should employ technical experts who should be sensitive to safety of flyers also (Sarin, Lehman: Premier Branded Talent Syndrome, 2009). Boeing admitted that an alarm device was shifted in the category of optional features from standard one. This feature is known as the Angle of Attack (AOA). Boeing had taken this decision due to two reasons. One of the reasons was to reduce the standard price of 737 MAX in order to make it more competitive in order to sell more planes and earn more revenue. Second, let the customer pay additional amount for the Angle of Attack (AOA), while purchasing it as optional device. In both cases, it was greed to earn more at any cost. It is appropriate for Boeing to follow Anil Sarin's Contributory Theory of Existence, which directs that companies should utilize 'Let me give' factor in such situations and save their businesses from decline on long term basis (Sarin, 2009). The Boeing is not in a position to absorb third crash (for heaven sake it should never happen), as it will not only put lock on the company but the whole world would stand up against the management of the company. In order to win the trust of airlines and people, Boeing must reveal the cause/s of both the crashes in transparent manner along with the measures taken by them to make their planes safer. Boeing shall address snags in planes and then use MAX planes for its own executives (with their consent only) movement for business trips. Once company uses MAX for its own executives successfully for the next two years, only then company may be able to develop confidence in people about the safety of aircrafts. Until that, Boeing should carry on its business with Dreamliners and other models of planes that are already in maturity stage of product life cycle. The company should understand that, it is not in business of selling planes, but to facilitate airlines to transport passengers safely and efficiently. The Boeing should select at least two independent directors on its board from the victims who have nearer and dearer lost their lives in these two crashes. This step is required to bring safety-focused sensitivity in the boardroom. It will improve the trust of people on the company that is all time low after two crashes and develop the culture in company, where decisions would be safety oriented than exclusively revenue oriented. The company should show honest intentions and bring real issues in front of the world, open heartedly as people love ethical, transparent, and socially sensitive companies. Increase the engagement of passengers, pilots and airlines in your company and communicate about the significant changes brought by you about the safety features in your planes. This strategic approach would not only save the company but also improve Boeing's corporate image with the increase of trust of passengers, airlines and governments.

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Professor Dr. Anil Sarin is IMI product, did his PhD in Business Administration and Post Doctorate-D.Litt. in Management. Possibly the first Indian professor of management based in India whose management theory - Anil Sarin's Contributory Theory of Existence has been accepted and published in the Journal of American Academy of Business Cambridge in its March 2009 issue. His theory has been cited in many PhD thesis/Post-Graduate research submitted to the renowned universities in the world like: The University of Waikato, Hamilton, New Zealand, Capella University, USA, University of Phoenix, USA, Walden University, Washington Ave, USA, British University in Dubai, Universidade da Beira Interior, Covilhã, Portugal, North Central University, USA. Dr. Sarin's article about his theory got published in The Hindustan Times, Shine, 'Let the employees give too' has been appeared on the site with following link which has crossed one lac seventeen thousands readership till date. <http://www.isrworld.org/2009/05/contributory-theory-of-existence.html>