**Friday Podcasts**

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| **Headings** (after)  Crashes  **MCAS:**   * Purpose * Flaw   **Regulation**  **Hearings:**   * Technical pilot’s findings * Boeing’s Response (Part 1) * Employees’ concerns * Boeing’s Response (Part 2) * Who is Accountable? * After the Hearings | **Notes** (during)  **Chief Executive of Boeing: “If we knew everything back then that we know now, we would have made a different decision.”**  He apologizes, promises improvements.  1st Crash (October 2018): Could be new automated system on plane.  2nd Crash (Less than 5 months later): Crash in Ethiopia. Planes are grounded.  MCAS system was supposed to help pilots but constantly pushed the nose of the plane downwards (fatal nose-dives).  Federal Aviation Administration let Boeing determine the safety of the aircraft (Boeing basically regulated itself).  ***Hearings:***  Mark Forkner, who was then Boeing’s chief technical pilot for the Max, talked with Mr. Gustavsson, Boeing’s 737 chief technical pilot, about how the MCAS system was giving him trouble in the simulator in November 2016 (long before the crashes).  Forkner had asked the F.A.A to take MCAS out of the pilots’ manual, describing it as a system that would almost never activate during a normal flight (he played down its risks).  ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~  Dennis Muilenburg (Boeing’s CEO) says that he became aware of the simulation problems before the second crash but did not dig into the details until recently.   * Ted Cruz (senator) believes that Muilenburg should have been more involved as he is the CEO. * Senators ask why the planes weren’t grounded sooner.   Muilenburg says that if they could go back, they would have made a different decision (if they had the information then that they did now, they would have grounded the planes after the 1st crash).   * Lawmakers say that Boeing did have some of this information and that they could have acted sooner.   *Overall Idea:* CEO knew something before the second crash but did not act (Boeing should have acted sooner to prevent the second crash).  ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~  In 2015 (2 years before the Max was cleared to fly), a Boeing employee raised concerns that the MCAS system could trigger based on just one sensor (vulnerable to a single A.O.A sensor failure).  In 2018 (after the Max was cleared to fly but before the 1st crash), Boeing employees determined that if the pilots took more than 10 seconds to intervene after the MCAS malfunction, the result could be deadly.   * There were so many warnings when the MCAS malfunctioned that the pilots were overwhelmed. * Pilots were fighting against the nose-down movement before the fatal nose-dive.   In June 2018, a Boeing employee said to the general manager of the 737 program that the workforce was exhausted. His email went straight to Muilenberg.   * High pace for extended periods of time causes fatigue, which leads to mistakes. * Schedule pressure, combined with fatigue, creates a culture where employees circumvent established processes, either deliberately or unconsciously.   ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~  Muilenburg says that he had follow-up sessions with the employee but that they did not slow down production (stayed at 52 planes per month).   * Said that it would have compromised safety to slow down production suddenly but did not explain how.   These issues may have not been taken seriously at the time (viewed as part of the process) but in retrospect, they can look much more significant.   * Boeing’s job is to produce safe airplanes. Lawmakers, investigators, and family members of the victims are going to ask why the company didn’t do more.   Boeing’s CEO says overall that Boeing did what they could at the time with what they knew but that they couldn’t have prevented the 2 crashes.  Lawmakers feel that Boeing did not do all that it could do (matter of accountability). They wanted more than one person to be held accountable.   * *They ask Muilenburg what “accountability” meant for the company.*   No pay cuts (board decides their pay)  No bonuses for anyone  Muilenburg will not step down (he says that he will take responsibility and see that changes are done).  ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~  ***After the Hearings***  Nadia Milleron, mother of one of the victims, describes her dissatisfaction towards Boeing’s actions.   * She is horrified that Muilenburg is getting $15 million as a reward after the crashes. * She is shocked by the new revelations of complaints sent by Boeing’s employees about the MCAS system that were ignored. * She goes to Muilenburg and tell him to leave (he isn’t the right person to do the work).   Families of victims want Muilenburg out. He says that he hears them but is not going anywhere.  *No one seems satisfied by the hearings.* | **Academic vocabulary…**  Culpability  Palpably  Rampant  Problematic  Nine-Alarm Fire  Implementation  Catastrophic  Fatigued  Circumventing  Retrospect  Rectify  Comprehensive  Unanimous Consent  Incensed  Impasse  Transparency  Vulnerable |
| **Technical terminology…**  Regulators  MCAS System  F.A.A  Chief Technical Pilot  A.O.A Sensor  Dennis Muilenburg  Mark Forkner  Mr. Gustavsson |

Response

* Regarding accountability: Who should be held accountable for these crashes and how?
* Your response should be 100-200 words.

I believe that there are multiple parties who should be accountable for these crashes. Firstly, I believe that Boeing should have taken extra precautions to make sure that their Boeing 737 Max was safe for commercial use. They should have taken their employees’ concerns more seriously as even though it may not have seemed that important at the time, it is their job to do everything they can to make sure that their planes are as safe as possible. It is possible that the rush to compete with Airbus may have led to this lapse in safety precautions. Also, I believe that the FAA should have been stricter in their regulations as they mostly allowed Boeing to regulate themselves (which led to this situation). I feel that there should have been a need beforehand to make sure that the FAA has stricter regulations on Boeing and other companies. I feel that the FFA should be held accountable by having to make changes to become more regulatory/knowledgeable. Boeing should be held accountable by having stricter restrictions such as having to listen to all complaints/warnings. I also believe that there should be compensation for the families of the victims in some way.

Unanswered Questions / Research Questions

* Identify unanswered questions and/or generate research questions based on this podcast. Create 5-10 questions total.
* How did the FFA become so unknowledgeable on what Boeing and other companies were doing that they had such loose regulations?
* Why did Boeing ignore their employees’ warnings? Was it the competition against Airbus or was it something else?
* After finding out about the dangers of the MCAS system, why didn’t Boeing try to fix it before something went wrong (why didn’t they do anything)?
* After finding out the dangers of the MCAS system, why didn’t Mark Forkner or someone else go back to the FAA to get the training/information back into the pilots’ manual?
* What steps will the FAA take to prevent something like this from happening again?
* What steps will Boeing take to make their planes safer and provide compensation to the families of the victims?
* What changes will the lawmakers make in terms of airplane safety after these events?