

A Summary of “*Columbia and Challenger: Organizational Failure at NASA*”
by Zachary Nelson

“*Columbia and Challenger: Organizational Failure at NASA*” by Joseph Lorenzo Hall featured in the ScienceDirect on December 18, 2016. Hall’s article goes through several reasons on how the organization of NASA breeds failure and will continue to do so unless certain things are changed about NASA’s organization.

The author starts out by describing some of the failures at NASA, most notably the Columbia and Challenger missions that failed. The Challenger mission failed at takeoff when a O-ring froze the night before so right after lift-off the Space Shuttle *Challenger* exploded. The author relates the story about how the night before, some low-level engineers expressed their concern over the O-rings and the cold temperature. Due to outside pressures, the higher-level engineers decided to overlook the problem. The Columbia mission failed as the *Colombia* Space Shuttle disintegrated during re-entry. On take-off, a piece of foam broke off from the wing of the *Columbia*, damaging the ship making it unable to have a successful re-entry. The author relates how the hierarchy NASA shut down any efforts to investigate the damage done to the Space Shuttle before re-entry.

Hall comments on how the root of these disasters come from within NASA. He claims that in each situation lower-level employees and engineers expressed concerns in each event and tried to prevent the failures in each mission. Because of the hierarchy of NASA these concerns were overlooked. He explained how in the Challenger mission, proof was needed to show that the mission had a critical problem. Since there wasn’t any proof that there was a problem and not enough time to do an investigation, the launch didn’t need to be delayed. Hall also explains that in the Columbia mission, some engineers were concerned about the foam that fell off the Space Shuttle. Due to upper management however, they deemed that the piece of foam didn’t pose a flight safety risk.

Hall puts in two proposed changes to NASA in order to prevent future mission failures. One of these proposed changes is to flatten the hierarchy at NASA. By flattening the hierarchy, the engineers don’t have to go through upper-management to express their safety concerns. The other change Hall proposed is to cut production pressures. By cutting these pressures, NASA’s employees and contractors can focus on safety rather than deadlines.

Joseph Lorenzo Hall claims that NASA’s organization has been the cause of their biggest failures. He proposes several ideas to change their organization to make it so that future failures will be limited and so that there are more safety checks.