

Examining Boeing's Broken Safety Culture: Firsthand Accounts

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Chairman Blumenthal, Ranking Member Johnson, and members of the committee: Good morning, and thank you for the opportunity to testify today. I'm an Assistant Professor in both Integrated Systems Engineering and the Center for Aviation Studies at The Ohio State University (OSU). Prior to teaching at Ohio State, I was an airline pilot. During my time teaching at the university, I earned my PhD in Cognitive Systems Engineering.

Also, since leaving the airline, I have been running my own-safety consulting business helping safety critical organizations solve safety culture problems both before and after accidents.

However, today is specifically about Safety culture. Although there have been slight variations in its exact definition, one that has been used for years decades even, is... "*shared values, beliefs, assumptions, and norms which may govern organizational decision making, as well as individual and group attitudes about safety*"²

An incorrect understanding of Safety culture is that it is commonly referred to as a single concept, but rather it consists of four individual specific components. Whereas each one provides its own unique actions to the overall concept of Safety culture and without one,

¹ The opinions and conclusions expressed in this testimony are the author's alone and should not be interpreted as representing those of The Ohio State University or any of the sponsors of their research programs.

² Ciavarelli, A., Figlock, R., & Sengupta, K. (1996). Organizational factors in aviation accidents. In *Proceedings of the Ninth International Symposium on Aviation Psychology* (pp. 1033-1035).

the element and structure of the culture will fall apart. As such, each serves the greater goal of providing a robust, effective, and well proven safety tool for all high-risk industries, especially given its proven value in aerospace industries. It should be made clear this culture concept is not only for airline operations, but rather any aerospace operation where risk of injury or death is a possibility to employees and/or customers after product delivery.

This is extremely important in determining an organization's overall safety culture as they all complement each other. To be successful, organizations may not simply choose one or two of the four components because they are less expensive or more manageable. I have seen this done with some organizations. In addition, in aerospace, not following all four components of a safety culture or just the ones that have less impact thus to appear to regulators or shareholders that they are being responsive and expeditious is not acceptable. This type of action will produce a nonviable, misleading, and potentially dangerous safety culture that will teeter on failure and provide a false sense of security for those involved within the aerospace organization.

Listed below are the four components and a brief description of what they mean in practical terms:

➤ Reporting Culture

- One that gathers data (safety report programs like ASAP) from employees in a safe proactive manner. One where they know their jobs are safe because the employer is more interested in the safety of their products above any other metric such as production volume, financial status, and shareholder concerns. Failures in this area can produce whistleblowers.
- Not having a reporting culture is the number one best way to destroy your entire safety culture. Without this ability to come forward and capture the information that you would never know about is a single source information, around 70%, that is an extremely toxic amount of dangerous information that you no longer have access to. Your organization is in serious trouble.

➤ Just Culture

- One that is focused on accountability but not a punitive environment for “honest mistakes”. An environment where workers can feel coming forward admitting that they made a mistake and knowing that they are safe from being fired. “One where the company wants to hear the bad news” “and then try fix it with the help of the employees.”
- These are the organizations that do not ask themselves “who had an error” but rather “we had an error” Their immediate goal becomes one that is focused on examining the site to understand the human factors of how this could happen in addition to speaking to the employee in a non-threatening manner. They want to make sure this never happens again, and everyone is alright.

➤ Flexible Culture

- Constantly assessing risk. They are never satisfied that everything is ok. As they are always worried that they are missing something and that’s when everything appears to be going well. They are still looking for problems to stop while they are small before they become large.
- This is an extremely important component to a Safety culture because it shows a culture that is proactive. They are looking for problems before they become serious problems that can damage products and customers after delivery. This is as opposed to being reactive to problems.
- The safety world has known for many decades that when you try to exceed your productivity, you are always borrowing from safety. Let me be clear. There are a tremendous number of examples, try to increase productivity without the needed resources, like assembly line inspectors, you are always borrowing from safety. And case in point, this is where we see events like the door blow out with Alaska airlines. NASA learned the hard way many decades ago that their new plan was to operate “Faster, better and cheaper”. And it failed horribly. They learned that you can only have two of the three. Never all three at the same time or accidents will happen. This is the nature of safety cultures. This begs the question, what is the production strategy at Boeing regarding all three of these operations plans that NASA and other

organizations have learned the hard way from. How this mentality can damage your operational strategies and the safety culture that monitors the entire process. Further information will answer this question regarding Boeing but actions such as increasing production rate while all these problems are occurring sends strong concerns regarding the health of their safety culture.

➤ Learning Culture

- One that is willing to adjust the way they do business to achieve maximum safety, resilience, and an environment that wants to learn how to do it better. They observe their operation, make changes as needed, learn from other operators as much as possible.
- Part of this component of a healthy safety culture is that they listen and consider what their employees are saying about how to do some things better. Listen to your engineers and workers on the floor, they are your experts. Poor safety cultures are inverted in that the upper management does not listen to the experts and they think that they know the best ways to do everything. A dangerous management and engineering perspective.

Although not listed as one of the four, there is one more component that we as safety experts consider when trying to assess an organization's overall safety culture, and that is the organization's balance between production/finances and safety. When there are known production line problems, a significant reduction in what are typically referred to a quality assurance supervisor and the current inability to make the production line schedule by telling your workers to go faster, it is a recipe for disaster. If that is not bad enough, we see aerospace firms like Boeing, because of financial concerns, try to ramp up their production line even faster which only exacerbates any original problems.

As demonstrated from the four simple components of what constructs a safety culture, it appears that Boeing has none of them under control and there is no evidence that this trend is reversing. This was discussed at the Huntington Beach Conference in February 2023 but there does not appear to be any evidence of such changes to any of the components of a safety culture nor any on the horizon as a string of alarming events

continue to unfold. In the safety engineering work, we call these precursors to accidents, and I have never in my decades of aerospace safety work seen so many continuing to arrive one after another. When I try to help companies with their damaged or missing cultures, one of the questions I always ask is how much time does your CEO spend with the head of the safety department? They spend time on a regular basis with other groups that vary between companies. And those with damaged cultures also have the symptoms of their CEO never having weekly meetings with the safety department as they do with departments where money is the only focus. Where is the safety accountability all the way to the top which is what most of these companies profess to practice yet never seem to do? All safety programs, both safety culture and SMS that were developed in part by the FAA and provide guidance to the aerospace industry make it quite clear that safety accountability goes all the way to the top of any aerospace organization. Where is the proof of that in this case?

You would think that would have been made clear after having been directly responsible for two air carrier fatal accidents (B737MAX) that at its core causation was 100% about money. And yet we still have no proof that these programs (Safety culture & SMS) have even entered the lexicon at Boeing Aircraft despite the hollow comments to the contrary at the Huntington Beach Safety Beach Conference in February of 2023. So, it leaves one to wonder, have we gone backwards?

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