

Toxic Cultures and Organizations: NASA and the Columbia Shuttle Disaster

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The National Aeronautics and Space Administration (NASA) has proven to be a classic example of an agency plagued by administrative evil and normative conflicts. Groupthink has been symptomatic of decision making problems within this organization. Unfortunately, the fatalities of two crews of astronauts have occurred as a result of this faulty process. In response to conflict and the toxic organizational culture, employees at NASA have developed faulty behavior patterns in order to function. This research note provides a description of NASA's organizational culture leading up to and during the fatal Columbia mission, as well as a discussion of the ensuing investigation in which management was largely cited for the failure of the mission. Various examples of groupthink errors, faulty behavior patterns, and administrative evil are provided.

February 1, 2003 – On a roadside in rural Texas lays a charred NASA shirt patch, a space helmet, and the scattered remains of one of seven space shuttle astronauts. Shortly before 9 a.m., individuals from Louisiana to Texas reported hearing a rumbling sound like a tornado, thunder, a sonic boom and resonating rumbling for several minutes. Some reported seeing “bright balls” and weather radar indicated a red streak across the radar screen. Pieces of the shuttle began to shower down from Dallas to Louisiana. The public was warned to not touch the debris fearing it may be toxic. FEMA quickly began a joint effort to collect the pieces as television news stations broadcasted a telephone number for citizens to report locations of debris.

Let me start with a personal memory related to Columbia's maiden voyage in April 1981. As a child, I was fascinated with space exploration; thus, it will come as no surprise that I fought with my mother about getting ready for school just so I could watch the Columbia's launch. I remember my mother threatening to walk out of the house without me while I was watching the shuttle rumble and roar as it wobbled on the launch pad, smoke rising around it. I remember thinking that the shuttle was going to explode. Suddenly, the Columbia rose about the smoke. I shrugged at what I had just witnessed, assuming it was supposed to shake and wobble like that.

It was not until many years later that I learned that what I had witnessed that morning was actually a grave mistake in judgment by members of the National Aeronautics and Space Administration (NASA). The launch pad was designed with a water base underneath it to absorb shock from rockets that fire their engines all at once; in fact, NASA experts did not realize that the launch pad was not designed to absorb the shock of

intermittent firing of the space shuttle engines. As engines simultaneously fired, the shockwaves were absorbed back into the shuttle damaging the tiles and threatening the structure causing it to shake uncontrollably. It was only by sheer luck that the Columbia did not explode in place, wiping out everything around it, including the massive audience in the observation area.

Readers might be quite shocked to learn how many critical errors and/or situations there have been in the history of NASA's space shuttle program. Could NASA repeat a fatal mistake, one that was very similar to the 1986 Challenger disaster?

As the investigation of the 2003 Columbia explosion unfolded, experts found that the same organizational problems that plagued NASA in the lead up to the Challenger incident were very similar to those of the Columbia disaster 17 years later.

In this article, I will attempt to explain the administrative evils that have plagued NASA, resulting in the fatal Columbia shuttle disaster. These evils – faulty adaptations to normative conflict (faulty behavior) and groupthink (faulty thinking) – were symptomatic of NASA's failures. In the section that follows, I will review the literature relating to administrative evil and describe the concepts of groupthink and normative conflict adaptations. Next, I will use the Columbia disaster as a case study to illustrate how the elements of administrative evil contributed to the fatal Columbia disaster in 2003. I will then discuss the various data used to determine whether NASA management was truly faulty and if administrative evil was evident. Comparison studies of successful missions will also be provided. To conclude,

I will provide an update on the latest practices that have resulted from the lessons learned from the Columbia accident. I will also discuss the results of the investigation and whether or not the subsequent recommendations proved sufficient to stamp out administrative evil within the organization.

ADMINISTRATIVE EVIL AND GROUPTHINK

In the book *Unmasking Administrative Evil*, Guy Adams and Danny Balfour (2004) describe administrative evil as a force that has resulted from modern reliance on scientific analysis and technical advancement. They use the term *technical rationality* to describe the mindset that has cultivated this masked breed of unethical practices that can occur easily and often without being observed or recognized. As administrators have developed their systems for organizations and government based on advancements in technology and science, they have attempted to create checks and balances to satisfy compliance and “control for chaos” within their set structures. In essence, they have built complicated bureaucracies, and in these bureaucracies they cultivate an ideal climate for administrative evil to spawn.

Zimbardo (2007: 438) notes:

Administrative evil is systemic, in the sense that it exists beyond any one person once its policies are in place and its procedures take control. Nevertheless, I would argue, organizations must have leaders, and those leaders must be held accountable for creating or maintaining such evil. I believe that a system consists of those agents and agencies whose power and values create or modify the rules of and expectations for “approved behaviors” within its sphere of influence. In one sense, the system is more than the sum of its parts and of its leaders, who also fall under its powerful influences.

Adams and Balfour (2004) note that “[a]dministrative evil may be masked in many different ways, but the common characteristic is that people can engage in acts of evil without being aware that they are in fact doing anything at all wrong.” What happens is that faulty thinking patterns develop. There is often a great deal of “distance” between an administrator’s decision and the impact of the result of that decision; thus, it is often easy for an administrator to rationalize the effect a decision can have on lower-level employees or the public.

Another example of administrative evil lies in dehumanizing someone or using language that promotes negative connotations against an individual or set group of people (Adams & Balfour, 2004). As we separate ourselves from those who are not like us, we are more likely to engage in acts that might damage or discount them. We also rationalize our actions because they are not part of our culture or “in group.” In a

group situation, influence such as this has a strong impact.

In American society, it is our heritage to cultivate individuality. In cultivating individuality, we tend to focus on who we are and what is important to us. We attach ourselves to certain organizations or groups that share our beliefs and cultures. These individual trait characteristics can influence our decision making. If faulty rationalizations are constructed based on our beliefs, upbringing, or influence based on our attachments, they can also be instrumental in making decisions that create administrative evil (Adams & Balfour, 2004).

The challenge of administrative evil also lies in our obedience to authority or our attachment to an organization or institution. If what we consider a “legitimate authority” tells us to do something, most often we are inclined to act without questioning authority. Consider Adams & Balfour’s (2004) comments in regard to the state of the individual in these circumstances: “[W]e must conclude that the power of the individual’s conscience is very weak relative to that of legitimated authority in modern organizations and social structures more generally...current ethical standards do too little to limit the potential for evil in modern organizations.” The authors argue that only through *deliberative democracy* and remaining mindful of our capability to engage in evil can we combat the problem of administrative evil. In a deliberative democracy we encourage deliberation of issues, active citizenship and responsibility, and sound judgments that serve the whole of humanity and not a select group or individual.

Another aspect of faulty thinking that can manifest itself in group decisions and organizational culture is *groupthink*, a term coined by psychologist Irvin Janis in 1971. Janis defined the concept as “[t]he mode of thinking that persons engage in when concurrence-seeking becomes so dominant in a cohesive in-group that it tends to over-ride realistic appraisal of alternative courses of action” (in Myers, 1996). Janis identified overconfidence, close-mindedness, and group pressure as major symptoms of groupthink.

Within these major descriptions of groupthink, there are numerous subsets of behaviors and attributes. Overconfidence is best described as overestimating the group’s “might and right” (Myers, 1996). The group or organization becomes adapted to illusions of invulnerability and a false sense of greater morality.

As groups become close-minded, they develop faulty rationalizations and spend the majority of their time justifying their actions or decisions. They may develop a stereotyped identity against their challenger or outside sources such as contractors, clients or constituents. These attributes bear a close resemblance to Adams and

Balfour's (2004) description of the elements of administrative evil.

Third, group pressure and conformity caused heightened self-censorship and lack of dissent among group members. It is uncomfortable to be a dissenter when it appears that everyone else in the room is in strong agreement. However, this illusion of unanimity was created by the group. Some members may dominate the group, playing the role of *mindguard*, and protect the group or some group members from dissenters or those that may provide a source of conflicting information that would be disagreeable to the facts in place.

Workgroups or organizations affected by administrative evil and groupthink will often have elements of normative conflict as well. Some studies suggest that groupthink is only a portion of the problem associated with substandard performance in toxic organizational climates (Choi & Kim, 1999; Aldag & Fuller, 1993). Beyond elements of false consensus or faulty rationalities in decision making is the process of implementing the decision. Faulty behavior or deviant conduct can arise from dissent or normative conflict in a toxic organizational environment; this is, for the most part, acted out in a passive aggressive manner.

Paul De Latt (1994) identified four types of deviant responses that may result in this instance. The first of these responses is defined as *retreatism*. This is a withdrawal from the group or process. The group or organization member becomes indifferent, neglectful, or perhaps develops a high rate of absenteeism. The second type of response is called *ritualism*. In ritualism, the member exaggerates the follow through of rules or policies which results in disruption of flow and may causing bottlenecks in the process or broken lines of communication. Third, *divergent innovation* is a deviation of policy or procedure that undermines the actual policies or procedures and their intended purpose. This adaptation thwarts the design of procedures and policies set in place by upper management. Rules may be bent or ignored. It is a covert attempt to thwart or tamper with the processes. On the surface, it appears to be carried out with positive intentions to remedy a situation or enhance a procedure. Finally, the fourth adaptation is *overt challenge* in which absolute rebellion occurs and discontent is blatantly revealed (De Latt, 1994).

THEORETICAL PREMISES

What happened in the case of the Columbia shuttle disaster that led the investigation board to conclude that management within the organizational structure at NASA was largely to blame for the failed mission and the lives of seven astronauts? I present two theoretical premises:

- Theoretical Premise 1. NASA's organizational climate was symptomatic of administrative evil and groupthink.
- Theoretical Premise 2. Normative conflict was present in the NASA organization and maladaptive behaviors resulted.

CASE STUDY: THE COLUMBIA INCIDENT

The Columbia Accident Investigation Board (CAIB) cited eight missed opportunities to investigate and evaluate the foam damage problem. There were three denied requests from engineers for photo imagery to assess the damage to the spacecraft (CAIB, 2003). An outside contractor, Boeing, was left to make a determination about the tile damage and whether it provided a safety risk, using an inadequately designed software simulation program to do so. The mission management leader had developed a culture in which she discounted and discouraged discussion of the foam problem (Sawyer & Pianin, 2003). Finally, the mission manager explained that there was nothing they could do anyway and any repairs or damage exploration would hamper the progress of the mission (Wald & Swartz, 2003).

NASA, to the common person, is bigger than life. We expect that nothing less than the most brilliant minds to be employed here. We expect that NASA would conduct the most rigorous checks for safety and durability of the space craft before launching. We expect them to be absolutely certain of success when they send humans into space. We even expect this, more so, considering the devastating effects of the 1986 Challenger disaster.

And yet, nearly two decades following the Challenger explosion, ethical problems at NASA contributed to another shuttle disaster. NASA had again lost sight of safety, effective leadership, inter-agency communication, effective engineering, and accountability. As the shuttle re-entered the earth's atmosphere, a puncture to the left wing from foam debris allowed heat to build inside the hole from aerodynamic forces. The structure of the shuttle began to break down at the left wing sending the orbiter tumbling out of control. Within seconds, the shuttle broke up, killing its crew of seven. In the following section, I will explain how the Columbia mission – a mission mired in bureaucratic sludge – met with its fatal end.

The Technical Problem. Within approximately 82 seconds after liftoff, Columbia lost the left bipod foam¹ piece from its left external fuel tank. This piece of foam – believed to be the size of a brief case or small television – traveled at a speed of 500 miles per hour and struck the left wing of the orbiter at an approximately 20 degree angle. It is one of the largest pieces of foam ever known to hit a shuttle in flight.

Coined “foam shedding,” this design flaw is dangerous and has plagued the space shuttle program since the maiden voyage. The orbiter structure and thermal protection system can easily be marked with a thumbnail; this low tolerance to impact leaves the shuttle surface vulnerable to foam, ice, birds, and other debris from the launch pad (CAIB, 2004). In the space shuttle program manual (3.2.1.1.17), it is clearly stated that “no debris shall emanate from the critical zone of the external tank on the launch pad or during ascent except for such material which may result from normal thermal protection system recession due to ascent heating” (in CAIB, 2004).

Foam shedding has been recorded 65 of the 79 times it has been filmed during liftoff.² Foam bipod shedding has occurred in seven filmed instances. Of these seven instances, five can be attributed exclusively to Columbia. Statistically speaking, it can be said that loss of the left bipod foam was experienced in 10 percent of shuttle missions (CAIB, 2004). More disturbing, however, is that Columbia had experienced the greatest number of left bipod losses. The most recent bipod loss event prior to the Columbia mission was only three months prior in the Atlantis mission of October, 2002. At the time, NASA had set the course for analyzing and resolving this problem but deadlines for this issue were not expected to yield results from engineers and labs until sometime after the next two scheduled missions.

Foam shedding has found its way through a variety of critical classifications. No constant classification and unavailable information about the risk factors associated with foam shedding has been one of the most persistent (and difficult) problems to plague the shuttle program. Thus, foam shedding could not be classified in the “accepted risk” category; it does not meet the criteria in that it is not “known and understood...yet cannot be completely eliminated...unlikely to reoccur” (CAIB, 2004). Prior to bipod loss on Atlantis in October 2002, it was considered an “in-flight anomaly.” However, in November 2002 it was changed to merely an “action,” which meant it would be addressed while other missions were being carried out.

The switch in risk category classification for foam shedding is an important indicator of the atrophy in shuttle safety and marks one of several problems at NASA that can be contributed to administrative evil. The foam shedding problem had been a problem throughout the history of the program. As each shuttle mission closed successfully despite foam shedding, the problem became normalized and was finally categorized as “in family” which is “a known problem that is within the known experience base, was believed to be understood, and was not regarded as a safety of flight issue” (CAIB, 2004; Chapter 6, 3/56).

The Organizational Climate. Although NASA members knew that there was a significant risk involved with foam strikes, the organization took a gamble with its safety protocols. Despite the critical warning from the October, 2002, Atlantis mission, the NASA management team focused on scheduling issues instead of safety protocols. Their decision to reclassify a critical safety issue – foam shedding – in order to press forward with the shuttle launch schedule forced the engineering and safety departments to compromise policies and standards. Each time a foam shedding incident occurred, the critical classification was breached in the name of progress; this can be classified as administrative evil using Zimbardo’s (2007) definition. Furthermore, symptoms of groupthink were prevalent: pressure, conformity, and the development of the illusion of unanimity.

The second factor that influenced the organizational climate at NASA was the management’s efforts to keep Congress satisfied while operating on a post-Vietnam budget. The external political climate was problematic. In 2002, Sean O’Keefe was appointed by President Bush to head NASA and bail the agency out of “probation” (Sawyer & Pianin, 2003). NASA was struggling with its progress on the International Space Station and was over budget constraints. Thus, the shuttle program suffered because of the extensive focus on the space station. The Endeavor, Atlantis, and Discovery were used as mules to cart supplies, parts, and manpower to the space station. However, Discovery was scheduled to be out of service for 17 months for maintenance; thus, at the end of its mission, Columbia was scheduled to undergo design changes that would enable it to become an active vehicle in this process. Up to this point, NASA had been trying to maintain a delicate balance between shuttle missions used for research and space technology and missions that helped in the construction of the space station (referred to as “up-massing”). In addition, space station personnel were only allowed to spend 180 days in space and the shuttle schedules were often altered in order to transport these individuals. Often, NASA was pushing the clock to get them down within the 180 days.

In its attempts to meet these three sets of demands – conducting research, transport of materials, and transporting personnel – the mission schedule was as taxed as it was in the days leading up to the Challenger accident in January 1986. The Rogers Report, issued after the Challenger explosion, admonished NASA not to allow this to happen again (CAIB, 2004; Sawyer & Pianin, 2004). Yet, NASA was facing an arbitrary deadline – February 14, 2004 – for the completion of Node 2 (or “U.S. Core Complete”) on the space station. As a motivational strategy, O’Keefe ordered screensavers for all administrative personnel which displayed the countdown to this date by days, hours, and minutes. During the investigation, many workers commented that they felt threatened that NASA would

shut down if they did not meet this schedule. “Tricks” were developed to shuffle launches and shuttles through the maintenance bays. This compromised safety and elevated the risk of damaging shuttles during these moves (CAIB, 2004).

A Game of Chicken. According to former NASA engineer and organizational consultant Joseph Grenny, a phenomenon known as “NASA Chicken” developed (Wald & Schwartz, 2003). This phrase was coined by many of the contractors that worked with NASA. “NASA Chicken” was defined as the fear of being the first to bring up or discuss potential hazards to NASA management. Grenny says, “The NASA culture does not accept being wrong ... within the agency the humiliation factor always runs high.” He claimed that people are disinclined to speak up and will hope and wait for others to do so instead (Wald & Schwartz, 2003). This is an excellent example for evaluating Adams & Balfour’s (2004) discussion of individual weakness against “legitimate authority.” This behavior is also a classic adaptation to normative conflict, one that is described by De Latt (1994) as *retreatism*. The workers distanced themselves from the process by cowering away and refusing to voice concerns or issues.

In other portions of the investigation, there were also problems with documentation for critical points and research findings. Often these were limited to PowerPoint presentations. There were difficulties obtaining hard formal copies of documents regarding research, design changes, rationale for design/specification changes, or previous mission problem correction data. This posed accountability issues.

The toxic organizational culture at NASA was evident in the days leading up to the Columbia disaster. In the following paragraphs I will describe this scenario in more detail; then I will elaborate on the missed opportunities that were not as obvious.

Missed Opportunities. The foam strike was detected on the morning of day two from the available ground cameras by Marshall and Kennedy Space Centers. At this point, the Intercenter Photo Working Group (IPWG) dispatched their findings throughout the NASA organization, the United Space Alliance (USA), and Boeing. At approximately 11 a.m. the Mission Evaluation Room had logged that “vehicle may have been damaged by impact.” That afternoon, Bob Page, head of IPWG contacted Wayne Hale, Shuttle Program Manager for Launch Integration at Kennedy Space Center, and Lambert Austin, Head of Space Shuttle Integrations at Johnson Space Center, to discuss the possible shuttle damage. He also solicited Hale to request imagery. Hale called Linda Ham, Chair of the Mission Management Team, and Ron Dittmore, Space Shuttle Program Manager, to tell them about the possible damage, stating that a formal report would be

presented later in the afternoon. According to the CAIB, this was the first missed opportunity. Hale had a top-secret clearance and was well versed in the procedures needed to order imagery. However, he did not inform Ham and Dittmore about the request.

Concurrently, the deputy manager of Johnson Space Center Shuttle Engineering put together a Debris Assessment Team (DAT). Since USA had taken over most of the space shuttle engineering, the Mission Evaluation Room (MER) designated the foam strike as an “out of family” incident. According to NASA guidelines, a “Tiger Team” should have been developed (CAIB, 2004). Tiger teams have clearly defined roles and missions; thus, by creating the DAT, the investigative team was left in an organizational limbo and had limited power. Rodney Rocha of NASA, Head Engineer of Thermal Protective Systems (TPS), and Pam Madera, Engineering Manager at USA, were assigned as co-chairs of this DAT. This rule bending is an example of *divergent innovation*. The above discussion also illustrates one of the more subtle nuances of NASA’s fragmented and scattered command structure. Although the above individuals were busy communicating with each other about the foam strike report, the duties of each individual were not clearly defined.

At 4:37 p.m., MER issued ordered that TPS should be “turned away” as this incident was seen as a MER problem. Furthermore, MER indicated that there would be no need for official action by Boeing or USA. In the MER problem log, the incident is documented as “not a problem” (CAIB, 2004).

As the incident occurred over a holiday weekend, mission meetings were not held until the final photographs and reports were completed on Monday afternoon. Yet, according to space shuttle program requirements, the mission management team must meet every day. In reality, the management team did not meet again until Tuesday, January 21. Three additional meetings were held on Friday, January 24, Monday, January 27, and Friday, January 31. Thus, only four meetings were held during the 16 days leading up to the Columbia disaster (CAIB, 2004).

During the investigations, Ham argued that mission managers are in and out all the time; therefore, there was no need for meetings that weekend. Informal meetings, emails, hallway discussions made it difficult to determine what information was given to whom and how this information was watered down in the MER log regarding the foam strike problem (CAIB, 2004).

In the meantime, Boeing worked over the weekend despite being cleared. A low level engineer ran a software package called “Crater.” This program used an algorithm to predict size, velocity, and impact data for small debris against smaller surface areas. It is viewed as a conservative tool. The engineer had little

experience in running the software and did not consult with senior engineers before disclosing his findings. Second, the program was used to make a determination about debris and surface areas between 400-650 times larger than what it was calibrated for. The surface area configuration should have matched a small dowel stick (approximately 3 ½ inches long and ¾ inches wide); the actual size entered into the program was comparable to a log 20 inch long and 6 inches wide. The actual debris piece was 20 inches long by 10 inches wide and 6 inches deep. However, the results came very close to being exactly what was found later. The DAT discounted the results, stating that the Crater program would predict more damage than what would actually occur. In addition, they argued that the location of the debris strike would determine the significance of the hit. Thickness varies on the orbiter exterior and foam is less dense than ice. A hit near the door to the landing gear or some other key areas would be a source of concern (CAIB, 2004).

Unfortunately the DAT members did not have a clear picture of the left side of the craft and could not determine where the debris had hit. They determined that better images were needed and decided to request images from ground based assets. Rocha emailed the Johnson Space Center engineering directorate manager and asked for the Columbia crew to visually inspect the left wing. He received no reply. Routinely, Columbia crew members would download video to mission control. Some of the video downloaded that weekend ended just before the camera captured a view of the left wing. No one from mission control requested that the crew take additional video showing the left side, and more specifically, the wing. Furthermore, in another meeting between NASA Headquarters and National Imagery and Mapping Agency, second lower level engineer requests DOD imagery support. No action was taken.

Ham held a meeting at 8 a.m. on the Tuesday following the holiday weekend. During that meeting she downplayed the relevance of investigating the foam strike, stating that there would be no imagery requests due to time restraints and a lack of resources. Furthermore, she stated, “[E]ven if they did see something, they couldn’t do anything about it” (CAIB, 2004). By calling on members of her meeting to agree or interrupting those that questioned the process, she developed a *false consensus*.

At this point, Pam Medera, one of the co-chairs of DAT, wanted to change the request language to cite “mandatory.” Since DAT was not a Tiger Team, they did not have the authority to do so. Rocha went on to write an email that expressed his dissent; however, because he feared retaliation for not following the chain of command, he did not send it. However, Rocha did give copies of the email to some of his colleagues. He retreated against the overwhelming illusion of

unanimity in mission management and decides to not challenge *legitimate authority*.

On the same day, Bob White of USA called Austin Lambert for ground asset help from the DOD after he was pressured by his employees. Lambert did call the DOD, but stated that he was only “info gathering, not ordering” (CAIB, 2004). The DOD started to process the request; however, Hale made an attempt – through NASA’s liaison to the DOD – to get the imagery, without mission management approval and without using authorized channels. At the same time, Lambert called Ham to inform her that they had initiated imagery requests. Within ninety minutes, the request was cancelled. This is an example of *ritualism*, an over-exaggerated effort to follow procedure. It should be noted that LTC Timothy Lee sent an email to MER manager Don McCormick informing him that Lambert had requested DOD imaging. Thus, we can infer that McCormick knew that a request had been made.

After DAT did not receive a response from Johnson, the team asked Rocha to obtain the imagery from an outside source, one that was within the engineering directorates and not through mission management, thus making it look like a “noncritical” request. This backdoor request was an attempt to obtain the imagery from a source that was outside *mindguarding* climate created by Ham and McCormick in mission management. Yet, by the end of day 6 of the shuttle mission, mission management sent a direct and final denial to DAT for image requests.

During the CAIB investigation, it was further revealed that on the following day (i.e., day 7 of the mission) Ham had called several different department heads to ask who had ordered the requests. Even those individuals had knowledge about the request denied knowing anything – a form of *retreatism*. By the eighth day of the mission, NASA management sent DOD personnel a memo listing which individuals were authorized to make requests for the imagery.

In addition, during the investigation, Hamm denied the claim that she knew who had requested the imagery. Furthermore, she stated that since she didn’t know the source, she cancelled the request. Findings indicated that Ham was motivated to suppress these requests because it would delay the mission schedule. Since Ham was in a dual role – she was the Integration Schedule Manager for the next mission – examining the imagery and following through on the possible problems associated with the foam strike might have delayed her next launch. In retrospect, allowing Ham to be Mission Manager Chair for the Columbia mission and Integration Manager for the following mission presented a conflict of interest. Ham dominated all inquiries to ground imaging, crew imaging, or space walks, and thwarted all discussion of the matter. This is the most astonishing example of administrative evil and mindguarding. A leader should never express an

opinion on an open discussion of a problem or express the desired result to those in deliberation.

After the Challenger explosion in the 1980s, one of the requirements of the Rogers Commission was to have NASA reorganize its management structure to include a safety department that would give the final go for all critical reports and problems. NASA responded with a new department: Safety, Reliability, Maintainability and Quality Assurance (One Hundredth Congress Hearing, 1st Session, 1987). In 2000, Daniel S. Goldin, (then) Head of NASA since 1992, streamlined the organization to create a two-tiered decentralized agency. He was known to coin the phrase “faster, better, cheaper” in response to budget pressures. An examination of “The Red Book” (i.e., the *NASA Strategic Management Handbook*) seems to indicate that this division was dissolved and nearly all aspects of the department were erased from the management grid. During the Columbia investigation, it was noted that while safety officials were present in the meetings, they remained complacent and agreeable with all management recommendations. In the return to flight criteria from the Columbia investigation, the board called for NASA to again create two independently funded departments of safety and technical engineering authority (Sawyer & Pianin, 2003).

More recently, William Harwood (2005) reported that the management of the space shuttle program has continued to act in a short-sighted manner. He notes that they are too hasty in evaluating “how much or how little risk is associated with decisions, particularly decisions to sidestep or abbreviate any given procedure or process.” Harwood is specifically referring to reports from the Return to Flight Task Group and their continued investigation of the management culture. During its recent survey of NASA, the group discovered that three critical recommendations for return to flight had been ignored: (1) eliminating foam insulation debris; (2) hardening the shuttle shield system; and (3) developing reliable tile and wing repair techniques during orbit. The panel stated, “Throughout the return-to-flight effort, there has been a reluctance to appropriately characterize the risks inherent in the space shuttle program” (Harwood, 2005).

CONCLUSION

In conclusion, I have outlined some of the difficulties facing NASA prior to the Columbia mission. NASA employees were under pervasive pressure to perform on a tight schedule with a budget that was heavily taxed by both shuttle developments and the construction of the space station. Goldin led the organization with the phrase “cheaper, better, faster” and decentralized the organization. O’Keefe’s appointment was followed by the organization being placed on probation for being behind schedule and over budget on the construction of the space station. Workers claimed they felt “a train wreck was coming” and they were pushed to “an

uncomfortable point” (CAIB, 2004). Furthermore, they didn’t understand the deadline for completion of Node 2 of the space station, which seemed arbitrary to them. The employees also wondered if the organization would really be shut down by Congress. In the end analysis, they felt that schedule and budgeting were being prioritized over safety and resolving technical problems.

In light of these reports, it appears that NASA had developed a toxic organizational culture where administrative evil had taken root. The employees adapted their behaviors, either by retreating or by playing “NASA Chicken.” No one stood against the NASA management or sought to stop the abuses. An illusion of unanimity formed, which is strong evidence of a groupthink situation.

During the 16 days of the Columbia mission, transactions between the mission management and engineering sections at NASA provided insight to a seriously divided organization. Engineers were second tier to mission managers – mission managers who did not focus on technical problems and thwarted all attempts to repair Columbia in flight or send Atlantis up to rescue the crew. Allowing any of these alternative solutions to happen would have breached the schedule and compromised the Node 2 deadlines. Mission managers sought to justify their decisions with haphazard reasoning while soliciting department heads to support their claims with waivers or other documentation. They developed a false consensus, a classic symptom of groupthink. In response to the requests for imagery, they first denied having these requests, then claimed they went through false channels, and finally halted the requests. These three examples are representative of administrative evil at large.

This study in groupthink, faulty behavior in adaption to normative conflict, and administrative evil can be adapted to other public administrative positions. For example, a groupthink situation can develop when there is a meeting of more than two people. False consensus can occur when management is controlling and retaliatory. Sometimes administrative evil can overcome an administration without the employees being aware that they are doing something wrong if they lack the distance and perspective to the problem.

Research on the topic of administrative evil is limited. Organizational studies have dominated the area of administrative science. Interestingly, Choi and Kim (1999) took a turn at downplaying the role of groupthink as always a negative outcome. They seem to believe that in some instances groupthink can have positive outcomes. They argue that faulty behavior plays a greater role in the negative outcome than the groupthink dynamic. Further research on this topic may support their claims; however, I contend that more fruitful research would look focus on strategies that can

be used to insulate organizations from administrative evil.

NOTES

¹ The left bipod foam is a sculpted version of the hardware store variety of foam. It is sprayed on the external tanks to protect the integrity of the fuel inside against freezing.

² At this point it is important to note that accountable times are limited due to staff reduction and budget restraints on camera crews and filming of shuttle launches.

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