The Columbia Accident

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The first thing I noticed about the *Columbia Accident Investigation Board* report, though not necessarily relevant to the either the foam that broke free from the external fuel tank or the engineering culture at NASA that may have contributed to the disaster, was the appearance of the report itself: full-color pictures of the Shuttle on the launch pad, photos taken during lift-off, images of the planet taken from the Shuttle during STS-107, and so on. I was a bit surprised to find that a review board quite damning of NASA culture in a variety of ways would assemble such a flashy document in response to this tragic, catastrophic event. What did this layout say about the contents? Did they match up? Did the document's appearance compromise the message the Board was trying to get across by wrapping it in romantic imagery? Of course, the photos and layout elements in question were not the only visual aspects of this report, but the overall presentation got me thinking about one of the questions from the syllabus: *what strategies are adopted by interests that feel threatened by emerging technologies*?

In this case, a strategy we see employed in this document – and in some sense a strategy employed by NASA in general – has to do with public relations side of space exploration. NASA has, since its inception, been reliant on steady and enthusiastic public support for space exploration and research. Their projects are funded through taxpayer money, and as the Board report states, they enter into a kind of "Faustian bargain" with the nation that demands a unique kind of vigilance and commitment to safety at an

unusually high level.[1] The feeling on the part of the Board was that NASA had succeeded at convincing the public that it was holding up its end of that bargain, but in fact it had failed in serious and significant ways, as the *Columbia* accident dramatically illustrated. While the question in our syllabus of how institutions respond strategically to threats is written with regard to emerging technologies rather than existing technologies (and, I'm assuming, about engineering responses more specifically), I think it is applicable to questions about PR in a couple of ways. One is the procedure by which the Board itself was formed to address the causes of the accident. NASA had established a system for addressing disasters after *Challenger* that resulted in, among other things, the creation of the Board within two hours of the accident. I do not mean to suggest that this was a cynical gesture by any means, meant only to placate the public, but the shrewdness of this maneuver is evident in light of the intensely negative public reaction to the foot-dragging by the Bush Administration in response to Hurricane Katrina. Had NASA failed to immediately address the disaster both by providing as much information as possible as to what had occurred, and by committing itself to investigating the accident, public support for future NASA projects could have been seriously compromised. The *Columbia* disaster was, in this sense, a threat to NASA as an institution that required strategic as well as tactical responses.

I would also suggest that the visual qualities of the report play into this same strategy. NASA was in a difficult position after *Columbia*: it needed to both admit to and address its shortcomings, wherever they might be, to prevent future disasters – but at the same time needed to maintain public support for manned space exploration. Had the

[1] See Part Two, page 97.

accident report – by nature a public document – been a crooked mimeograph from type-written pages, how might it have been received differently, even if the content was essentially the same? By producing an attractive document, NASA responded to a potential threat to its public support by acknowledging an adage of media communication attributed to media theorist Marshall McLuhan: the medium is the message. An attractive report that illustrates both the seriousness of inquiry and its findings, but not at the expense of the romantic feelings about space travel and exploration that brought NASA into existence, demonstrates NASA's commitment to improve and acknowledge its mistakes as well as serving as a reminder to the public about why they are funding NASA in the first place.

While the focus of our seminar is on engineering and how engineers respond to uncertainty, I think it is important to remember that responses to uncertainty take many forms, some of which lie outside of what might otherwise be considered the traditional domain of engineering. There is a kind of engineering that takes place in the media as well as in the lab or the hanger. For NASA, whose basis for support comes from both public funding and public enthusiasm, ignoring the media element in the *Columbia* investigation would have been a huge strategic mistake. This report, along with a great deal of other media they produce on their website and elsewhere, illustrates that along with engineering prowess, NASA must also possess an equal level of PR prowess.

On something of a side note, I'm curious about how this same question about strategic responses to threats can be addressed in the context of NASA's new space exploration system. The system looks to these untrained eyes to be nearly identical to the old systems of the Apollo era – the crew in a capsule up top (with an escape system), a

multi-stage rocket underneath to send aloft both the capsule and modular vehicles for docking with the space station or facilitating moon journeys, etc. Given NASA's experience with the last Shuttle launch, where many similar problems from the *Columbia* mission were still evident in spite of the Board report and its recommendations, can this reconfigured older system be viewed as a response to a threat? By stepping back to well-tested and better understood vehicle configurations and away from the Shuttle, is NASA trying to shift to an operational rather than a developmental space system, lest its support and funding by the public be revoked? Is the uncertainty surrounding the future of the Shuttle too large a threat to NASA's longevity that anything less than a radical strategic and engineering shift would ruin its future?