

Demonstration of Autonomous Rendezvous Technology (DART)

Case Study Transcript

Chris Calfee & Jim Snoddy

Changes in Risk
Posture 1

Chris Calfee

Early-on, as we've talked about before, DART was proposed and accepted as a high risk, low cost project. What came with that should have been a high threshold for risk and a reasonable amount of acceptance that there could be a failure here—it was a flight demonstration. So decisions were made early-on with that in mind, with those assumptions firmly in place and thought to be understood by management. As time evolved—and really it wasn't an evolution that it changed, it was like it flipped overnight—DART suddenly went from a 'high risk, low cost' to a 'can't fail, low cost' project. Decisions were made early-on that really needed to be revisited, decisions were made early-on that you really could not undo, so that put the entire team in a difficult position. We handled it as best we could, but what can you do about that. You can continually try to assess risk, but when it changed overnight like it did on DART, it made it very difficult to change those ground rules and create a project that was proposed as low risk—I'm sorry—high risk to a high chance of success.

Jim Snoddy

DART was originally awarded the philosophy of faster, better, cheaper with the utilization existing at launch vehicle technology that was basically extended to a spacecraft. In the beginning the verification approach was using a very similarity approach very heavily weighed toward similarity and analysis with not a full recognition of in space environments, a launch vehicle and the complication of the technology being very low with very little hardware in the loop, system-type test, so as we evolved out of the CDR and the DCR for DART it was a recognition that all these really high level system, higher integrated tests, such as hardware in the loops, system integration laboratories to let the hardware and software work together were paramount to the success of DART and were added at significant cost growth to DART, post-DCR to raise the cost from probably in the 25 million range to 50, doubling the cost of DART.