Lessons Learned in Building the Ares Projects

John P. (Phil) Sumrall

Since being established in 2005, the Ares Projects at Marshall Space Flight Center have been making steady progress designing, building, testing, and flying the next generation of exploration launch vehicles. Ares is committed to rebuilding crucial capabilities from the Apollo era that made the first human flights to the Moon possible, as well as incorporating the latest in computer technology and changes in management philosophy. One example of an Apollo-era practice has been giving NASA overall authority over vehicle integration activities, giving civil service engineers hands-on experience in developing rocket hardware. This knowledge and experience help make the agency a "smart buyer" of products and services. More modern practices have been added to the management tool belt to improve efficiency, cost effectiveness, and institutional knowledge, including knowledge management/capture to gain better insight into design and decision making; earned value management, where Ares won a NASA award for its practice and implementation; designing for operability; and Lean Six Sigma applications to identify and eliminate wasted time and effort. While it is important to learn technical lessons like how to fly and control unique rockets like the Ares I-X flight test vehicle, the Ares management team also has been learning important lessons about how to manage large, long-term projects.

National Aeronautics and Space Administration

Phil Sumrall

Advanced Planning Manager, Ares Projects

NASA Masters Forum

May 13, 2010

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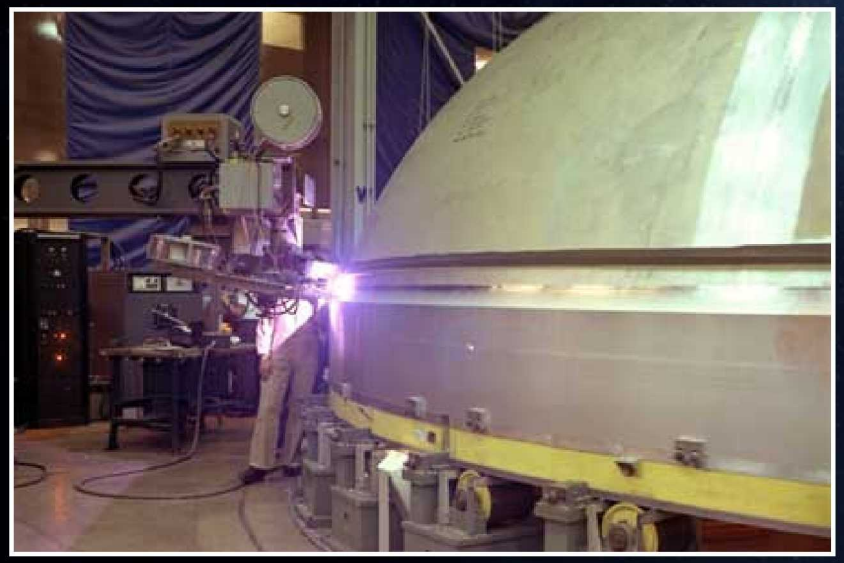
Agenda

- Rebuilding In-house Capabilities from the Apollo Era
- NASA Vehicle Integration Activities
- Making the Agency a “Smart Buyer”
- Anticipating Problems
- Knowledge Management / Capture
- Lean Six Sigma
- Design, Development, Processing, Flying, and Controlling New Launch Vehicles
- Q & A

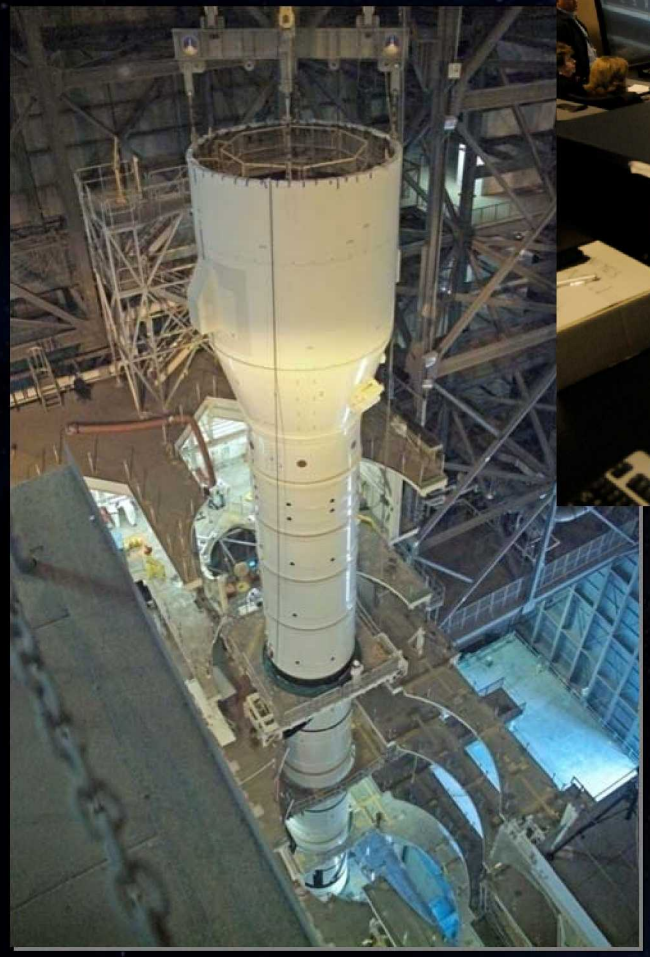
Rebuilding In-house Capabilities from the Apollo Era



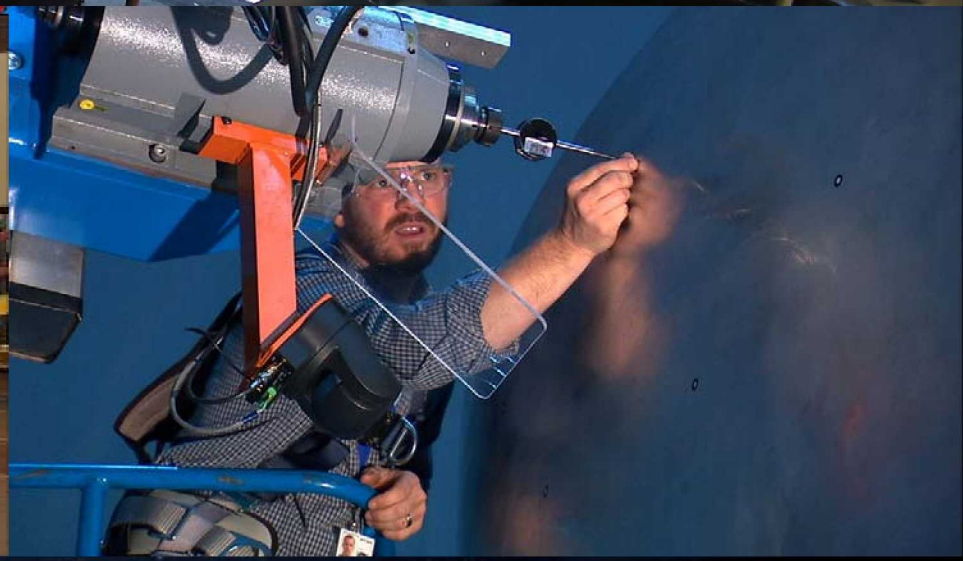
Establishing and Fixing Requirements Early

- Why is it advantageous to do this?
- How well are we doing it?
- What can be done to make it better?
- What could any project—not just Ares—learn from doing this?

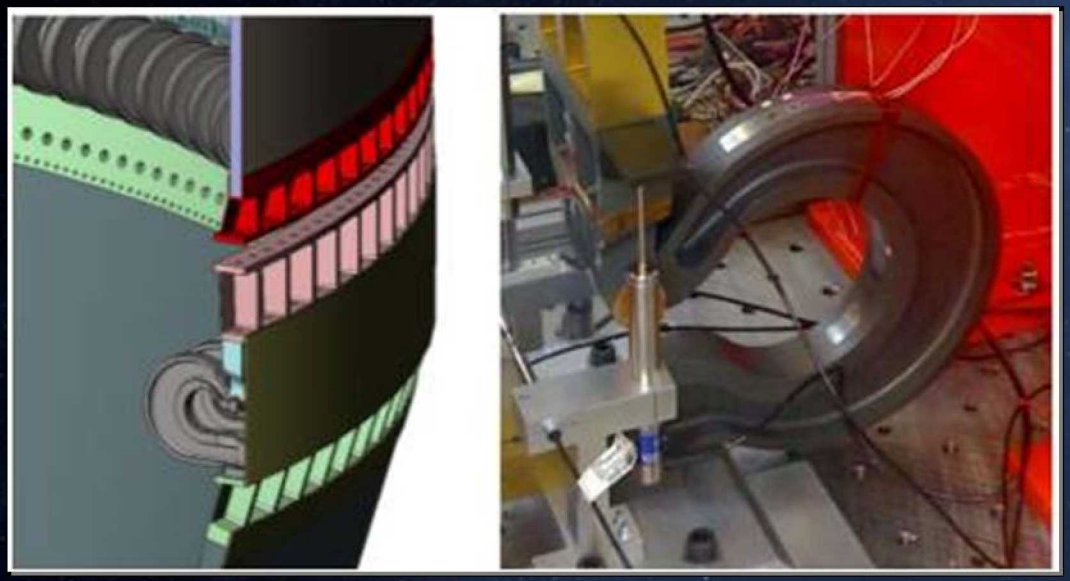
NASA Vehicle Integration Activities



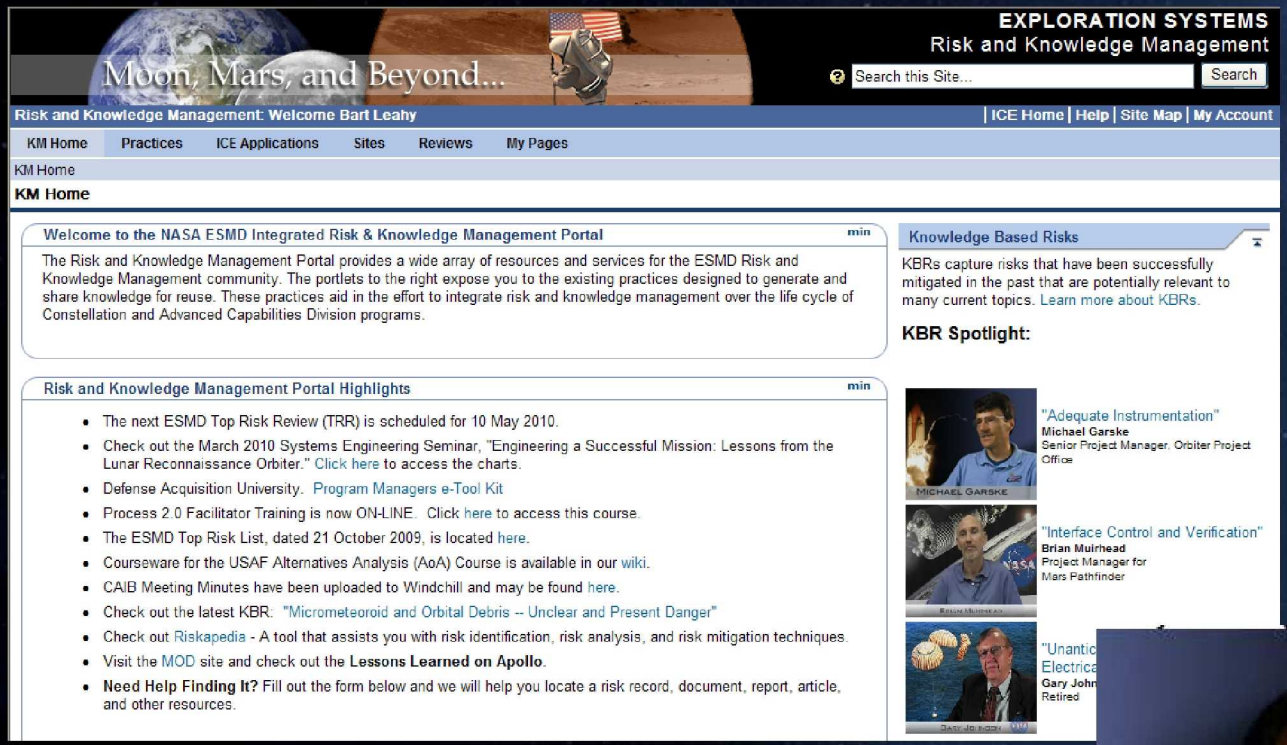
Hands-on Experience / Making the Agency a "Smart Buyer"



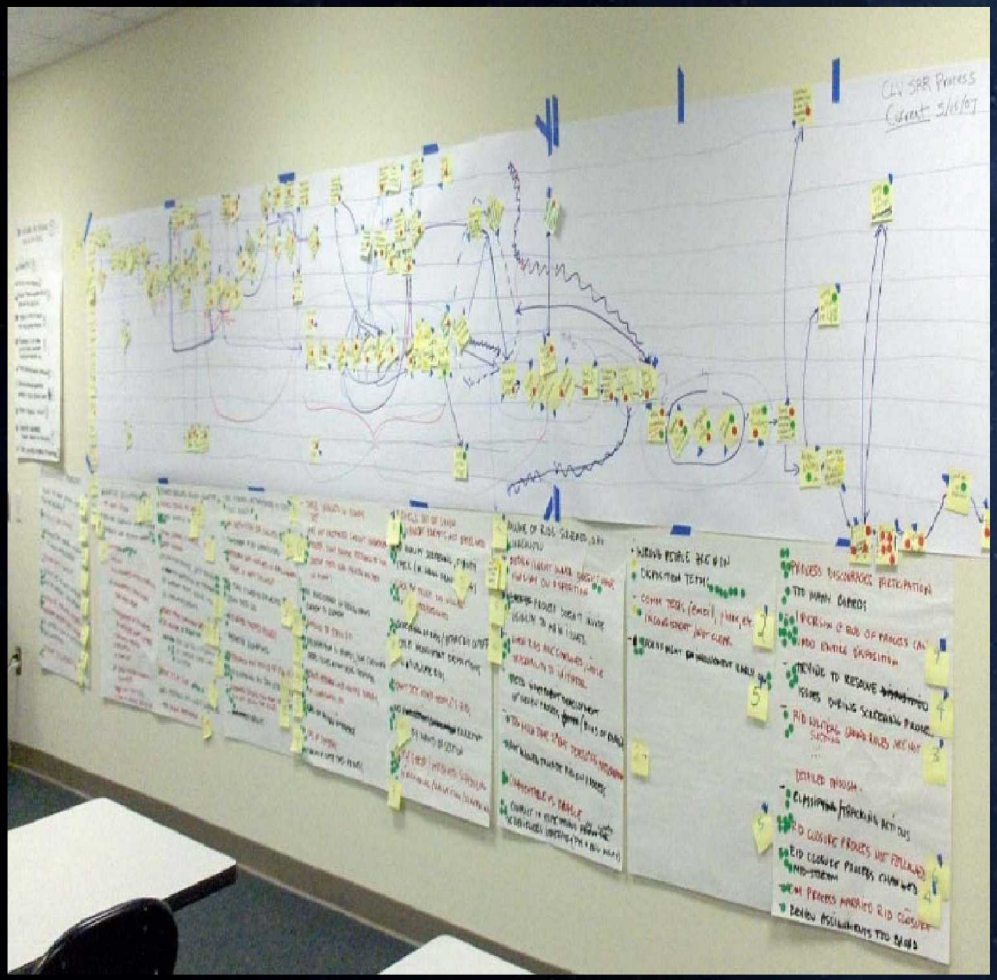
Anticipating Problems



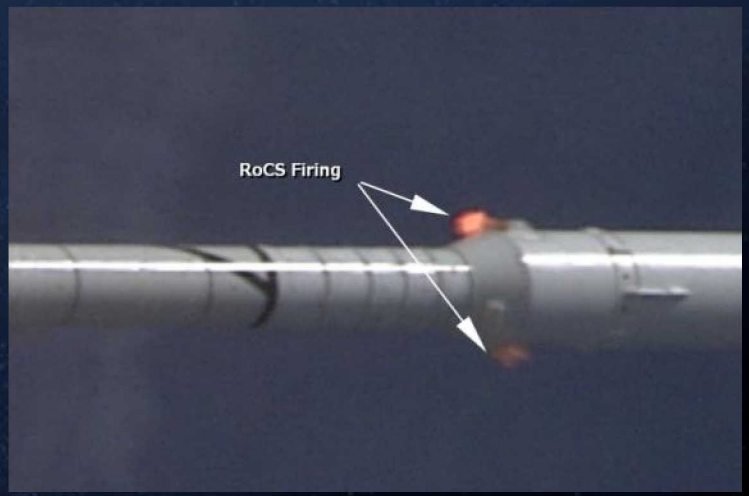
Knowledge Management / Capture



Lean Six Sigma



Design, Development, Processing, Flying, and Controlling New Launch Vehicles



Q & A