Faster, Better, Cheaper: A Sociotechnical Perspective on Programmatic Choice, Success, and Failure in NASA’s Solar System Exploration Program

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Solar System Exploration @ 50
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Space Exploration: A Sociotechnical System
### FBC: A New Operating Philosophy

**1980s: “Too big to fail”**

- Few, complex spacecraft to few destinations
- Many objectives, instruments per mission
- Science determines cost
- Long development schedules
- Engineering conservatism
- Every mission counts, near-term focus
- Extensive management reviews and oversight
- NASA determines all missions

**1990s: “Failure is ok”**

- Many, simple spacecraft to many destinations (portfolio approach)
- Few objectives, instruments per mission
- Constrained cost determines science
- Fixed development schedules
- Risks should be taken
- Missions as sites for trying new technology and investing in future exploration
- Streamlined management
- Scientists compete/responsible for some missions
Reports: NASA’s approach to exploration not working
"...REALLY STUCK THE LANDING!!"