Getting to First Flight —

Equipping Space Engineers to Break the Start-Stop-Restart Cycle

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Agenda

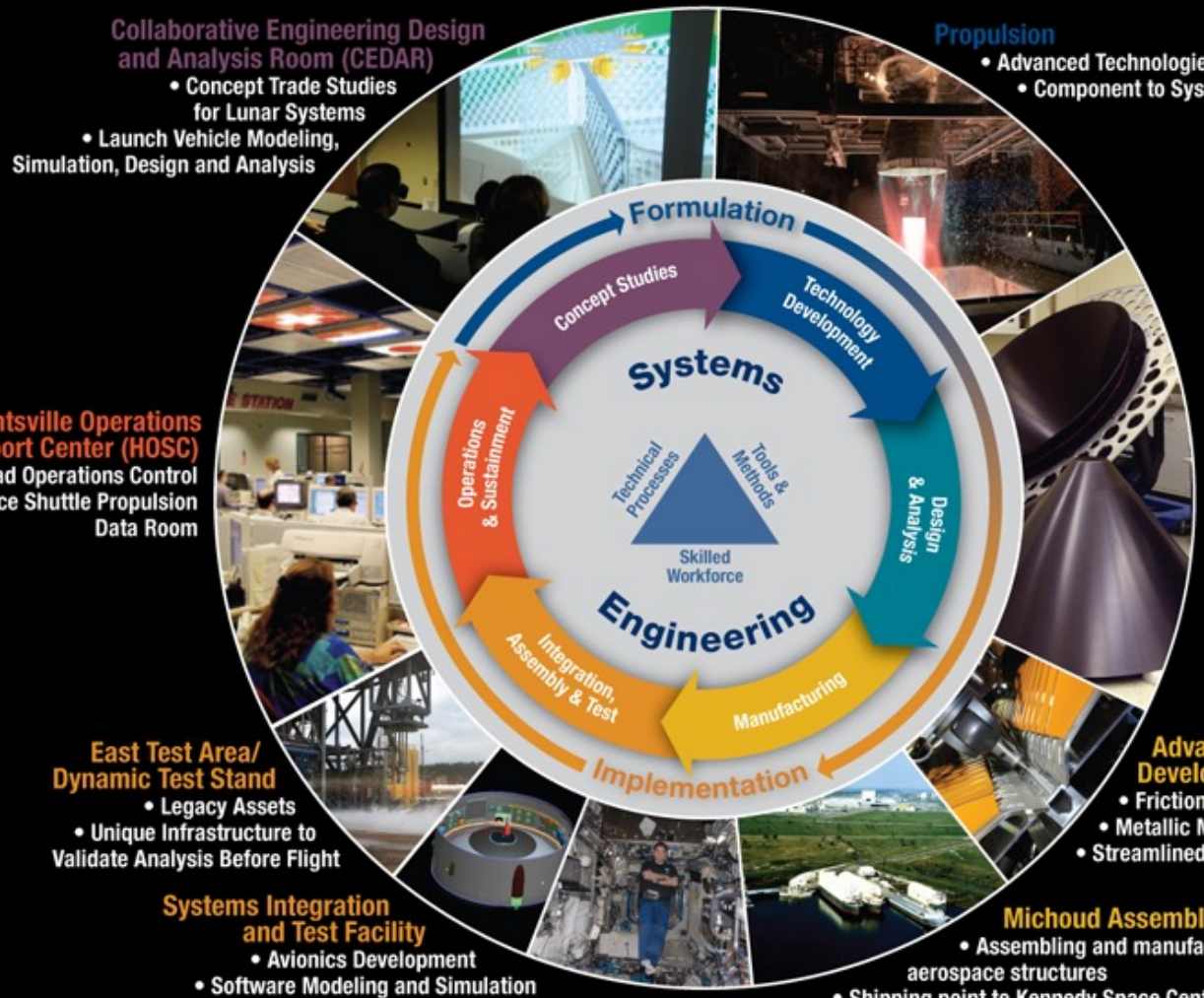
- NASA: Why America Explores Space
- Marshall Space Flight Center Capabilities
- Marshall Engineering
- The Workforce Environment
- NASA Programs are Tied to Administration Cycles
- Consistently Communicate the Engineering Continuum
- Engineering is the Art of Creative Compromise
- Plan Programmatic Content to Deliver Incremental Capability
- Communicate Significant Accomplishments
- Mission Success Requires Talent and Tenacity

NASA: Why America Explores Space

Opening New Frontiers

Marshall Space Flight Center Capabilities

Marshall Engineering



Collaborative Engineering Design and Analysis Room (CEDAR)
- Concept Trade Studies for Lunar Systems
- Launch Vehicle Modeling, Simulation, Design and Analysis

Propulsion
- Advanced Technologies R&D
- Component to System Levels

Huntsville Operations Support Center (HOSC)
- Payload Operations Control
- Space Shuttle Propulsion Data Room

Materials & Processes
- Composite Materials Research & Development
- Spray-on Foam Insulation

East Test Area/ Dynamic Test Stand
- Legacy Assets
- Unique Infrastructure to Validate Analysis Before Flight

Advanced Manufacturing Development
- Friction Stir Welding
- Metallic Materials Research
- Streamlined Manufacturing Processes

Systems Integration and Test Facility
- Avionics Development
- Software Modeling and Simulation

Michoud Assembly Facility (MAF)
- Assembling and manufacturing large aerospace structures
- Shipping point to Kennedy Space Center

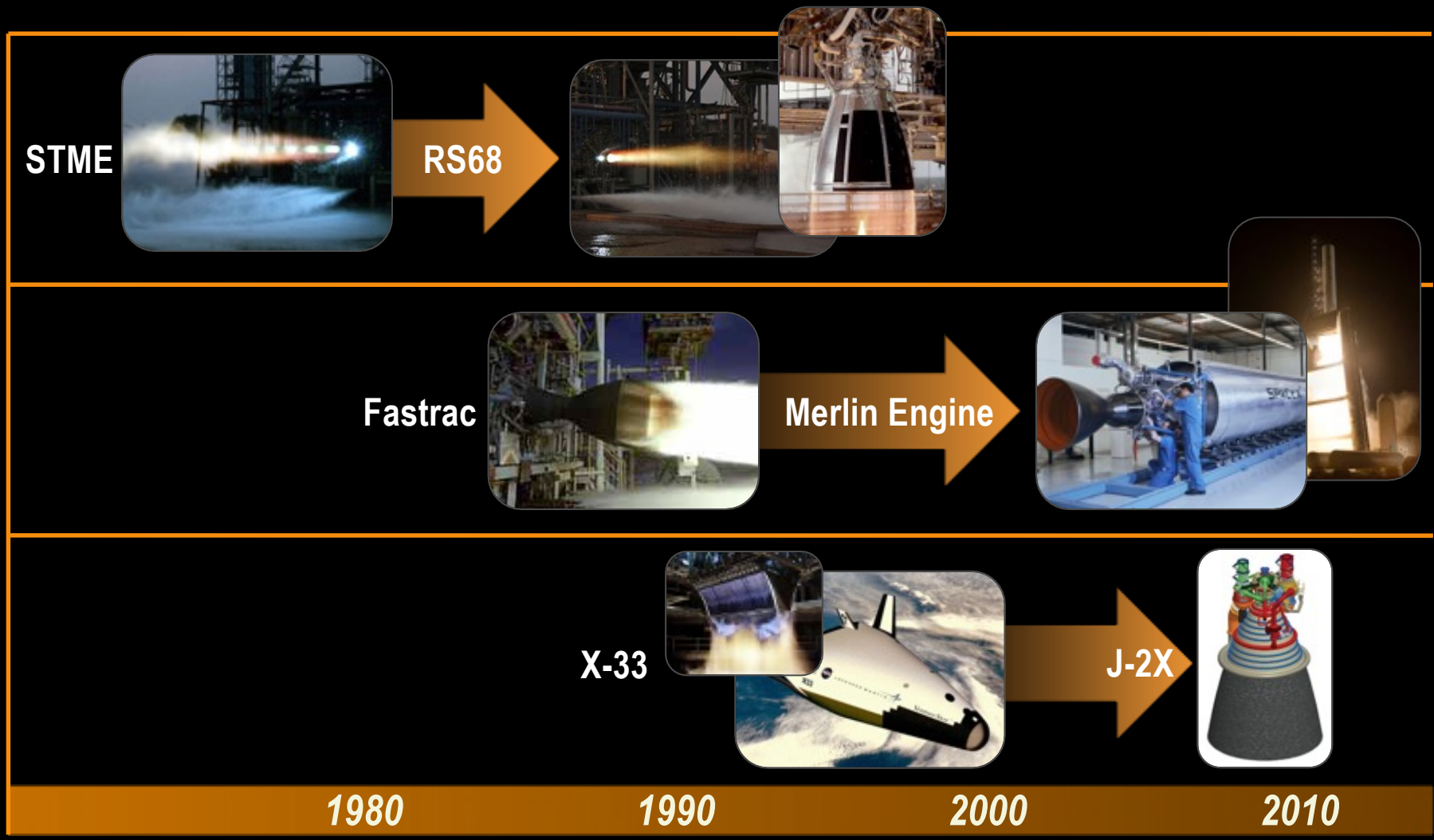
Environmental Control and Life Support System (ECLSS)
- Water Recycling
- Sustaining Engineering

Expertise for Scientific Space Exploration

NASA Programs are Tied to Administration Cycles

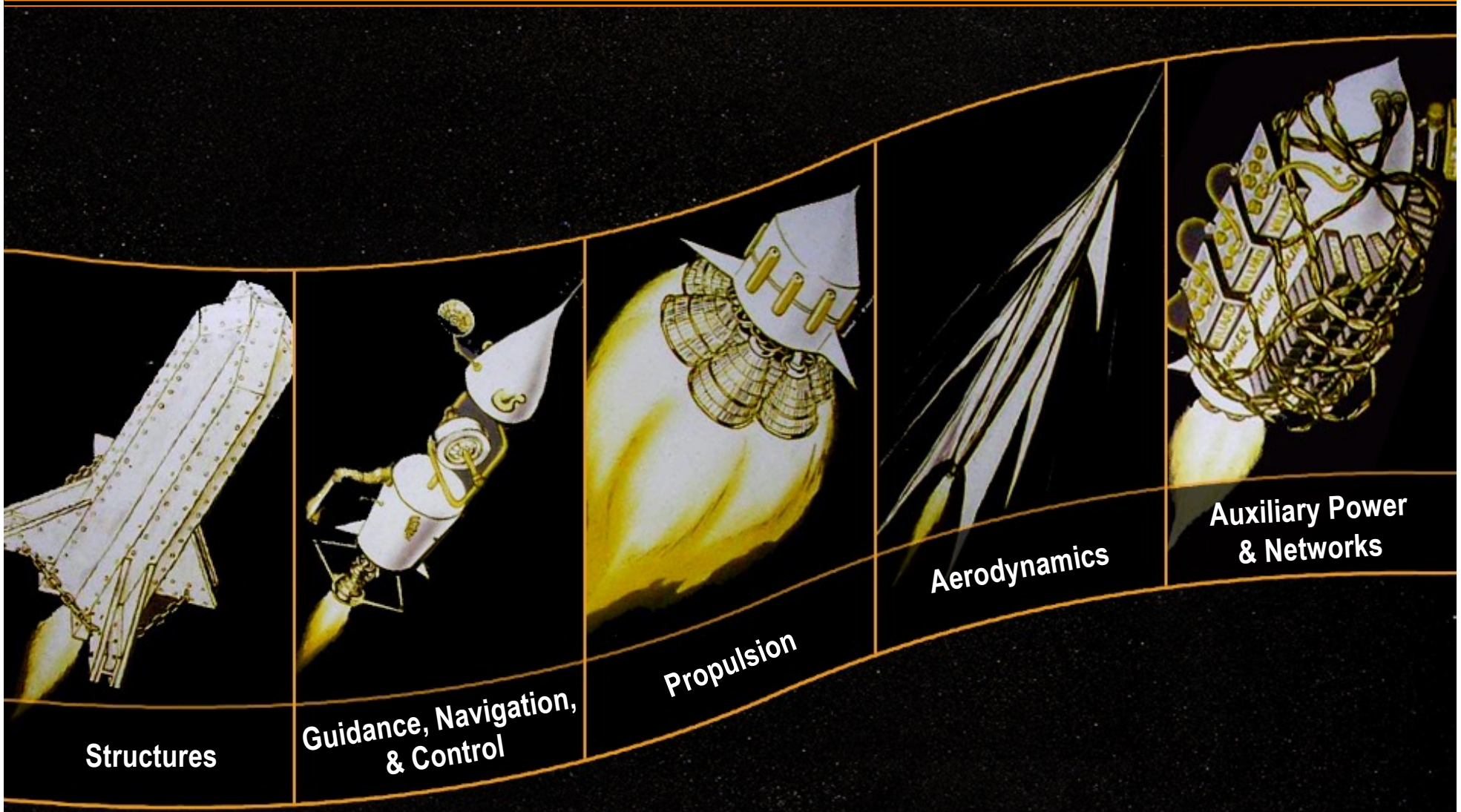
Direction and Redirection Come Every 4 to 8 Years

Consistently Communicate the Engineering Continuum



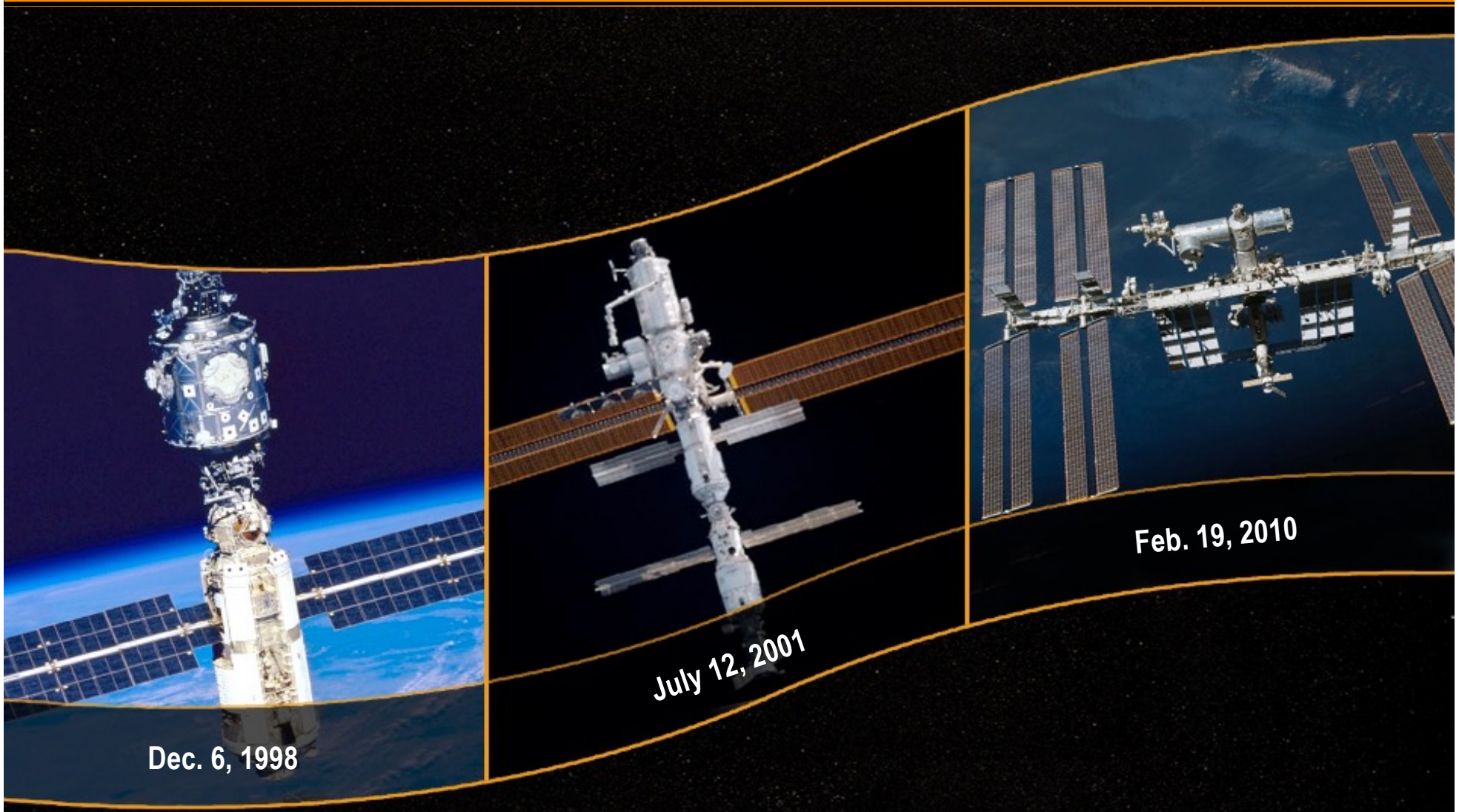
Technical Successes Transcend the Start-Stop-Restart Cycles

Engineering is the Art of Creative Compromise



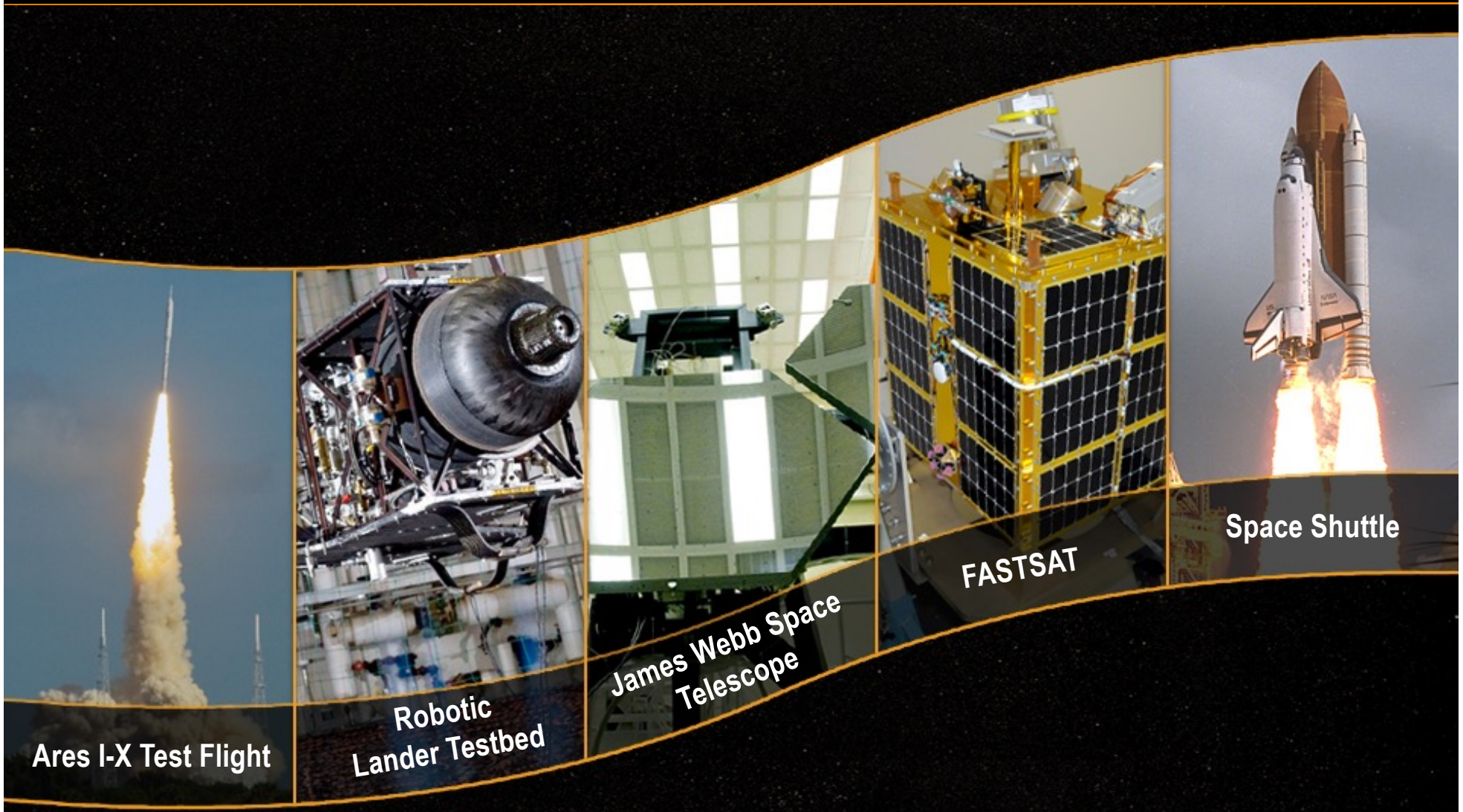
Relationships Overcome Conflicting Cultural Views of Shared Requirements

Plan Programmatic Content to Deliver Incremental Capability



Engineering Takes Time and Patience… and Compromise

Communicate Significant Accomplishments



Focus the Workforce on Successes

Mission Success Requires Talent and Tenacity

Space Engineering is the Work of Generations

For more information:

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