



PLM World 2011

JPL PLM Overview

Bill Allen

**Jet Propulsion Laboratory
California Institute of Technology**



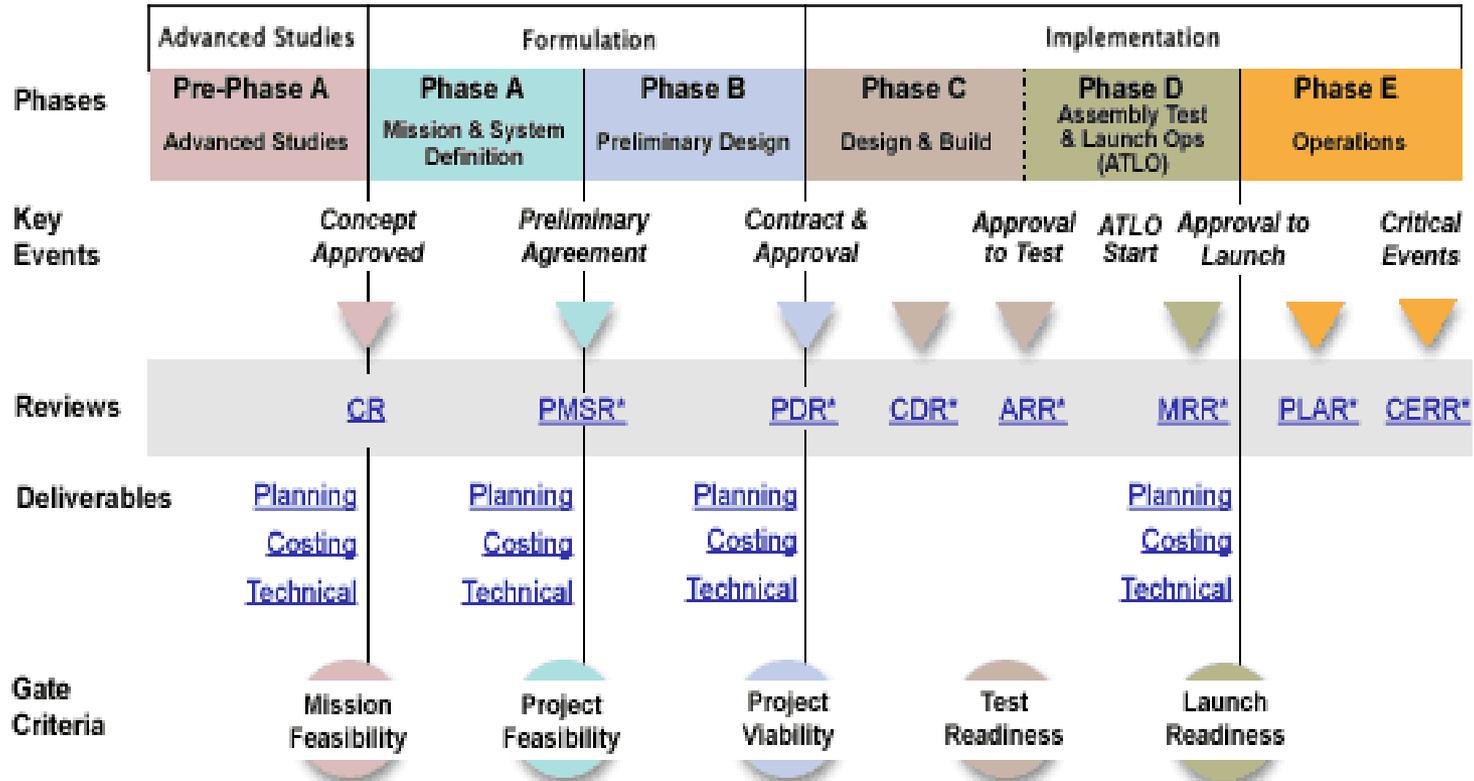
- Project Lifecycle at JPL
- Product Lifecycle Management (PLM) at JPL
- Top-Down Design Approach for One-Off Prototype
- Typical challenges for business base (MSL Pilot Example)
- Future directions
- Conclusion



Project Lifecycle



04/02/03

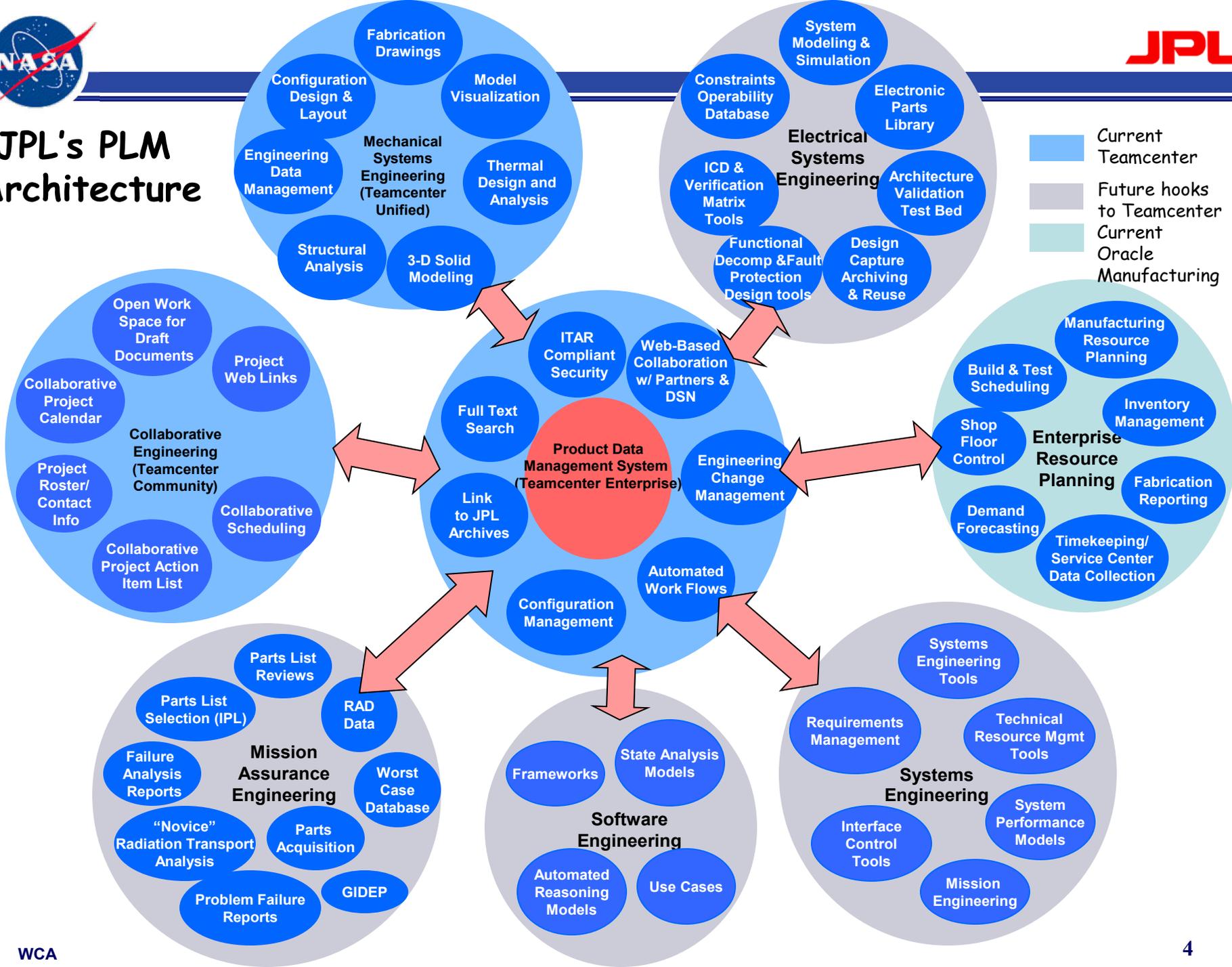


Abbreviations

- CR - Concept Review
- PMSR - Preliminary Mission & System Review
- PDR - Project/System Preliminary Design Review
- CDR - Project/System Critical Design Review
- ARR - ATLO Readiness Review
- MRR - Mission Readiness Review
- PLAR - Post Launch Assessment Review
- CERR - Critical Events Readiness Review

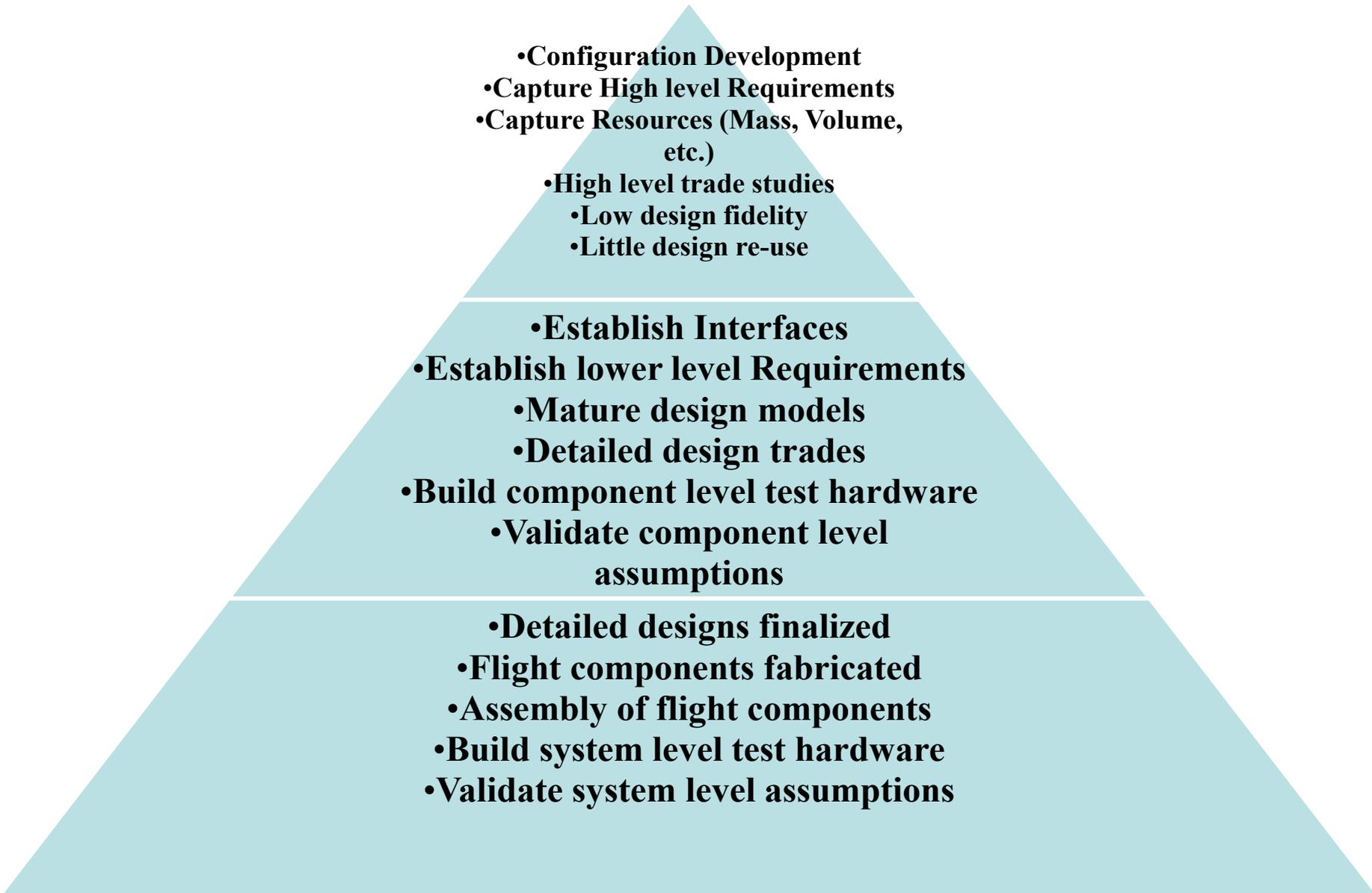


JPL's PLM Architecture



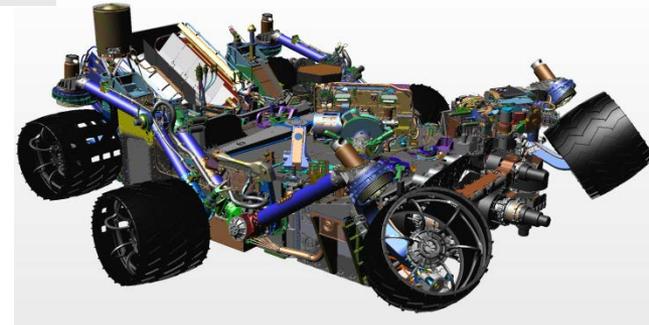
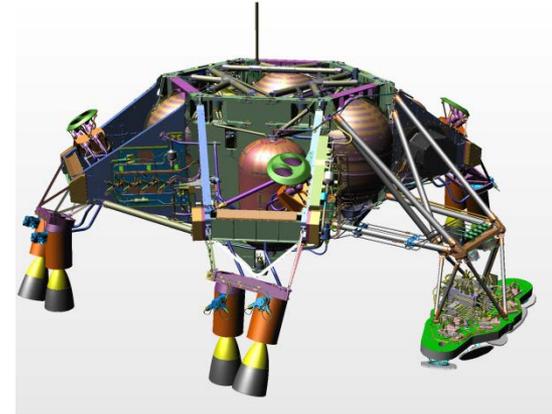
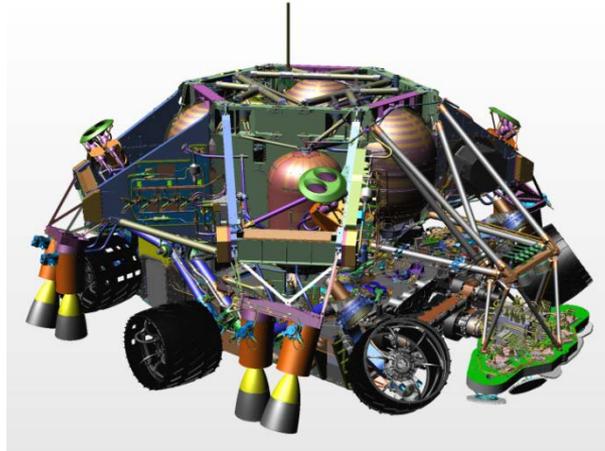
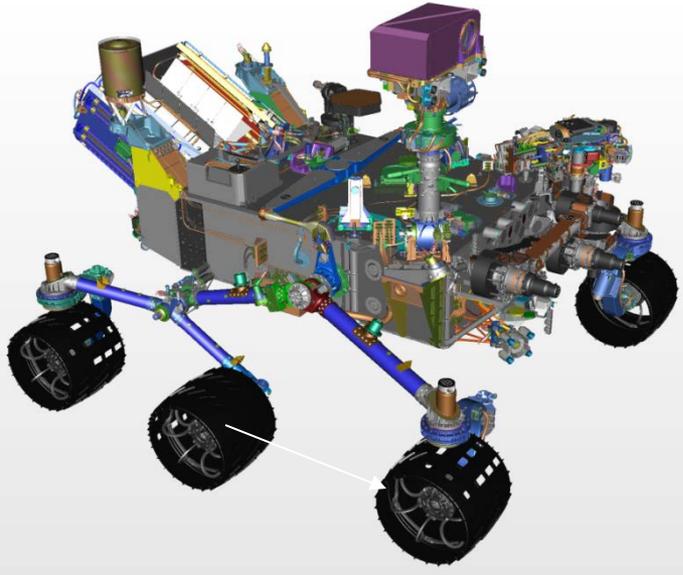
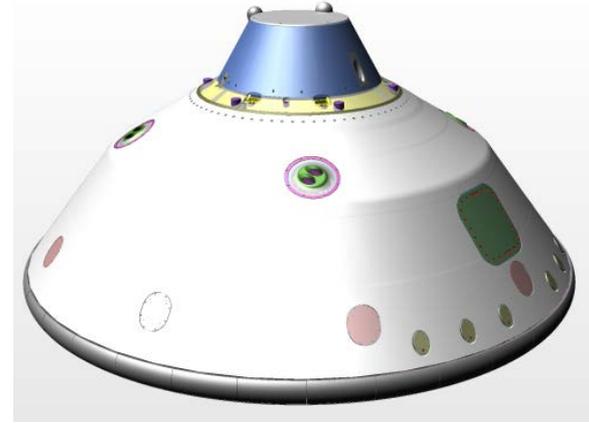
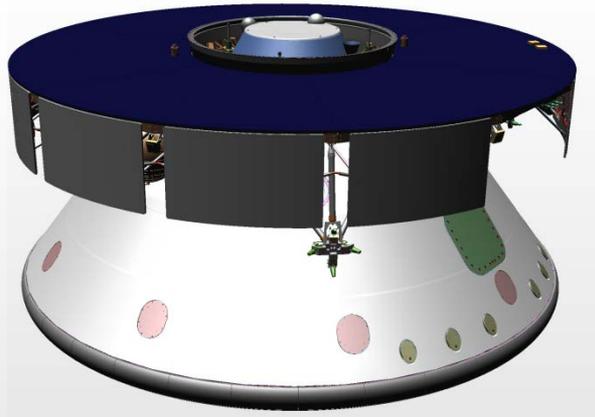
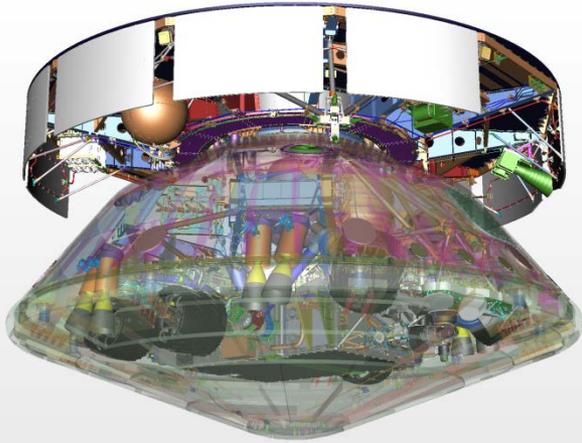


- Products developed require integration of multiple disciplines
 - Design
 - Engineering
 - System Engineering
 - Analysis (Thermal, Structural, Dynamics)
 - Fabrication
 - Propulsion
 - Cabling
 - Ground support, handling fixtures
 - Assembly
 - Testing
 - Planetary protection
 - Quality assurance
 - Data management





Mars Science Laboratory (MSL) PLM Pilot Project overview





- Challenges

- Need concurrent engineering approach to meet more aggressive schedule and leaner budgets
- Multiple disciplines
- Multiple tools
- Processes in flux due to new tools
- No history to base standard practices
- No history to enforce universal usage
- Complex design involving integration of dynamic subsystems in a multi-event environment

- Future vision
 - Collaboration environment to facilitate overlay of multi-discipline information
 - Re-use becoming more prominent (improving competitive edge)
 - Global partnering/collaboration expanded
 - Visualization of information becoming key
 - JT-centric environment
 - HD3D
 - Product Template Studio (PTS)
- Have developed a Mechanical Design Center (MDC) facility to accommodate above technology



WCA





- Resources becoming more challenging
 - Funding harder to acquire
 - Schedules reducing
 - Missions/Task more complicated
- Innovation mandatory in order to compete
 - Must have innovative tools and processes