JPL KM Process
NASA Knowledge Services Quarterly
June 26, 2012

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Agenda

- JPL Guiding Principles
- JPL Rules!
- JPL Lessons Learned Process
- JPL Project Support
- JPL Product Data Management System
- JPL Electronic Library Service
- JPLSpace
- JPL Beacon, Technical Reports Server, Unlimited Release System
- JPL Wired
- JPL Gateway
- Others
JPL Guiding Principles

- Flight Project Practices, Rev. 8
- Design, Verification/Validation & Ops Principles for Flight Systems (Design Principles), Rev. 4
- Available on JPL Rules! System (for JPL internal only) and on NASA Engineering Network (for NASA employees)
- Training for all JPL engineering staff
JPL Rules!

- All official JPL Rules are centrally managed on JPL Rules!
- Includes FPP and Design Principles
- Rules! embed our most important knowledge and how-to’s
- Workflow driven
- Process/Document owner empowered
- Includes waiver system
JPL Lessons Learned Process

• NPR 7120.6, *The NASA Lessons Learned Process*, was largely modeled on the process implemented by JPL for the past 25 years

• Principal features of the JPL lessons learned process:

1. Lessons Learned Committee (IAW NPR 7120.6, Para 1.4.4)
   - LLC has met weekly since 1984. Chaired by the JPL OCE, with representatives from SMA and each of the major technical divisions. Functions are to (1) identify, validate, and prioritize lesson learned candidates, (2) prepare and approve lessons learned, and (3) serve as a *de facto* JPL Corrective Action Board

2. Lessons Learned Infusion (IAW NPR 7120.6, Paragraph A.1.2): a four-pronged approach to assure that lessons learned get used by projects
   - (1) Targeted Distribution. JPL CDM reviews newly published LLIS entries and forwards them to appropriate JPL subject matter experts
   - (2) Project Self-Assessment. At major project milestones, projects perform detailed reviews of their compliance with NASA lesson learned recommendations
(3) **Center-Wide Infusion.** LL recommendations are cross-referenced to specific paragraphs in the primary JPL engineering standards-- the *Design Principles* and the *Flight Project Practices*. (With this closed-loop infusion, the institution need not wholly rely on the appropriate person applying a lesson at the proper point in the project lifecycle.)

(4) **Corrective Action Board.** Project incidents with institutional impacts are reviewed by the LLC which, where warranted, engages the closed-loop JPL Corrective Action Notice (CAN) system to obtain JPL-wide resolution.

**Other features of the JPL lessons learned process include:**

3. **Documented Lessons Learned Process** *(IAW NPR 7120.6, App A)*
   - The JPL lessons learned procedures and process flowchart (Slide #4) are documented in the JPL Lessons Learned Guideline *(JPL DocID 72252)*

4. **Publication in the LLIS** *(IAW NPR 7120.6, Para 1.4.4 (b))*
   - JPL maintains no lessons learned repository. The LLC submits all lessons learned to the NASA LLIS for NASA-wide and public access
5. **JPL Projects are Required to Submit and Use Lessons Learned** (IAW NPR 7120.5D, Para 3.13)
   - The JPL *Flight Project Practices* (JPL DocID 58032), Para 5.22, requires JPL projects to (1) submit lessons learned to the JPL OCE and (2) review existing lessons learned and take appropriate action.

6. **Lessons Learned Dissemination** (IAW NPR 7120.6, Para 1.4.4 (d))
   - The LLC Chair (CDM) periodically e-mails a summary of recently published lessons learned to the JPL Mission Assurance Managers and Project System Engineers for further dissemination to their projects.
   - JPL Project Managers now formally report lessons learned at major project milestones—SRR, PDR, CDR, PLAR, end of primary mission.

7. **De facto Corrective Action Board** (IAW NPR 7120.6, Para 1.4.4 (c))
   - A JPL PRACA report (i.e., PFR, ISA) may be designated as a Lesson Learned Candidate. By reviewing these reports for Center-wide impacts, the LLC provides the only functional link between the JPL PRACA system and the JPL Corrective Action Notice (CAN) system. This additional LLC role transcends the lesson learned process by cost effectively identifying Center-wide engineering process deficiencies.
• Knowledge resource portal for JPL Flight Projects
  – Key deliverables, artifacts, guidelines
  – Templates and Examples
  – All Lab-wide services for projects (launch services, IT services, scheduling, systems engineering, etc.)
Product Data Management System

- Central information service for flight project designs, drawings, ECR’s, CI’s, AIDS
- Embeds our FPPs and Design Principles
- Comes with a Configuration Management Engineer
Electronic Library Service

- Central information service for flight project documents, formal, informal, in work
- Embeds our FPPs and Design Principles
- Allows access to knowledge from archived projects
- Comes with an Information Management Engineer
Computer-Aided Engineering

- Central service for CAE tools (MatLab, NX, CATIA)
- Shared licenses
- Integration with PDMS
- Embeds our FPPs and Design Principles
- Discipline knowledge embedded in templates, models, examples

Current CAE News

4-5922 for details.

--- New AutoDesk Tools ---

AutoCAD 2012 and 3ds MAX Design 2011 are now available through the ECAE page. Please call Jim Hu at 4-5922 for details.

--- ECAE Blog now online ---

The ECAE Blog is now available. Click here to access. Use your JPL username and password to login. Contact Eric Cassel for details.

--- Welcome to ECAE ---

Charter

The Institutional Computer Aided Engineering (CAE) Tool Service provides the Laboratory’s Engineering Staff & Scientific communities with state-of-the-art CAE Design Automation Tools and processes to support JPL projects (Reference, JPL Rules).

The Office of the Chief Information Officer (OCIO) supplies support for these tools and processes through the CAE Tool Service. The CAE Tool Service works with the technical divisions to select and provide tools and develop the associated processes.

There are 3 tool services within CAE:

- ECAE: Electrical and RF/High Power Electronic tools
- MECA: Mechanical tools
- SS.CAE: System & Software tools

Responsibilities of the service centers:

- ECAE: Divisions 33, 34, 37 & 38
- MECA: Division 39
- SS.CAE: Division 31

Institutionally Funded Tools

MatLAB, ArcGIS, and Dynamic Object Oriented Requirements System (DOORS) are funded by the Institute and are available at no cost.
• JPL Institutional Portal
• Portal to all resources, plus news, announcements, search, quicklinks, JPL 101
• Portal to Library services

• Online journals, library books, purchase new books, archive of all JPL scientific papers and reports, engineering documents, photos
• JPL engineering wiki

• Peer contributed knowledge and knowledge that needs a home
Gateway

- JPL social networking site
- In addition to sharing your status, shares your uploaded work with colleagues
Others Resources

- Training (Learning Management System)
- JPL Story
- JPL 101
- Speaker Series
  - Von Karman lectures
  - Caltech Management Association lectures
- Cost Estimating templates
- iPics Enterprise Resource Planning
- New Technology Reporting System
- Team X (Mission Design Center)
- Left Field (early mission concept design)
- Mechanical Design Center