Workshop on NPR 7120.6, "The NASA Lessons Learned Process"

Establishing an Effective NASA Center Process for Lessons Learned

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Workshop Overview

- Workshop Goal & Objectives
- Characteristics of the Existing NASA Lessons Learned System
- Overview of the Requirements of NPR 7120.6
- NPR 7120.5C Requirements Related to Lessons Learned
- Definition of the Existing Center Lessons Learned Process
- Alignment of the Center Lessons Learned Process with 7120.6
- Other Discussion Topics
Workshop Goal & Objectives

- **Workshop Goal**
  - To achieve compliance with the newly released NPR 7120.6, and **establish an effective lessons learned process** at each NASA Center
    - **An “Effective” Process**: One that solicits, documents, and infuses lessons learned throughout the Center and NASA in a manner that will lead projects away from critical errors, or toward critical project success factors, encountered by their predecessors

- **Workshop Objectives**
  - Gain an understanding of the Center’s existing lesson learned process
  - Identify NASA and Center-specific issues related to the existing lessons learned process that may hinder or aid effective implementation of NPR 7120.6
  - Identify Center and NASA process improvements needed for NPR compliance
  - (Also identify effective lessons learned practices demonstrated at this Center that may be communicated to other Centers at subsequent workshops)
The Existing NASA LL System

- NASA Centers have contributed 1500 lessons learned to the LLIS
- Lack of consistent Center lessons learned processes (and results)
- Objectives of issuing NPR 7120.6
Overview of NPR 7120.6

- Overview of the NPR 7120.6 requirements pertinent to the Center lessons learned process.
  - Why do we need a NASA lessons learned process?
- NPR, Sec. 1.4, *NASA Lessons Learned Organizational Requirements*, includes the following paragraphs
  - NASA Headquarters, Office of the Chief Engineer (OCE)
  - Lessons Learned Steering Committee (LLSC)
  - Lessons Learned Committees (LLC)
  - Center Data Manager (CDM)
  - Headquarters Data Manager (HDM)
  - Lessons Learned Curator
- NPR, Appendix A, includes the following paragraphs
  - Collection and Processing
  - Infusion
NPR 7120.5C and the LL Process

- Lessons learned content of *NPR: 7120.5C, NASA Program and Project Management Processes and Requirements* (March 22, 2005)
  - **Ch 1, Overview of the NASA Environment:** Para. 1.2, NASA’s Strategic Framework. “NASA does the following: … f. Continually learns and implements valuable lessons from previous programs and projects.”
  - **Ch 2, Program Mgmt. Regs.:** Para. 2.2, Program Formulation: 2.2.2.a, Prepare a Program Plan. “(3) The Program Manager shall evaluate lessons learned from existing and previously executed programs and projects to identify applicable lessons for use in program planning and execution.”
  - **Ch 3, Common Project Mgmt. Regs.:** Para. 3.2, Project Formulation; 3.2.1.2.a, Prepare the Project Plan. “(5) The Project Manager shall evaluate lessons learned from existing and previously executed projects to identify applicable lessons for use in project planning and execution.”
  - Para. 3.4, Project Implementation; 3.4.8, Capture Knowledge. **3.4.8.1, Purpose:** The intent of this activity is to accrue knowledge in an organized fashion to improve the performance, and reduce the cost and risk of future programs and projects, and to adhere to Federal and NASA requirements for records management and retention. Lessons learned are disseminated by the OCE and reflected in modifications to NASA training and technical standards and practices.”
• Lessons learned content of NPR: 7120.5C (Continued)

- Para. 3.4, Project Implementation; 3.4.8, Capture Knowledge. “3.4.8.2, Requirements: The Project Manager and the project team shall:
  “3.4.8.2.b: Provide the OCE with inputs to the Lessons Learned Information System in the form of captured experiences and lessons learned by the project team throughout the project lifecycle, for example, at major milestones.”

- Ch 6, Flight Systems & Ground Support Projects; 6.2, Project Formulation. 6.2.1, Project Planning Requirements: The Project Manager and the project team shall:
  “6.2.1.g: Assure that the project team seeks to learn and apply relevant lessons from successful flight systems and ground support projects, mission anomalies and mishaps.”
The Existing Center LL Process

- Workshop participants assist in defining the present Center lessons learned process flow
- Characterize the existing Center process, e.g.
  - How is lesson acquisition planned?
  - How are lesson candidates validated?
  - How is lesson generation coordinated and managed?
  - How are lesson drafts edited, reviewed, and approved?
  - Is the lesson approval process sufficiently rigorous to prevent backlash?
  - How are products disseminated throughout the Center? How do you judge their impact?
  - How do lesson recommendations engage the Center’s closed-loop corrective action process?
  - How are lesson recommendations infused into procedures and training.
- Discuss the strengths and deficiencies of the Center’s process
  - Solicit possible improvements. Discuss solutions offered by other centers.
Session Break

- 15-minute session break
- After the break, the remainder of the workshop will discuss process enhancements that may improve the Center’s lessons learned process and bring it into closer alignment with the requirements of 7120.6.

Discussion will include methods that have proven successful at other centers
NPR 7120.6, Para. A1 refers to a range of activities constituting an effective lessons learned process, depicted in a process flowchart.
Para. A.1.1, *Collection and Processing*, refers to the central role of the Lessons Learned Committee (LLC) in the lessons learned process.
Para. A.1.1 further states, “The LLC procedures should include:
- (a) Actively soliciting lessons learned material…”

Active vs. passive modes of LLC outreach:

Checking the Lessons Learned Candidate box on the PRACA form (circled on the left) generates an automatic e-mail notification (on right).
NASA Center Alignment (Continued)

(b) Reviewing significant events... for their candidacy as lessons learned

- JPL reviews and prioritizes candidate lessons based on their applicability to current and future projects.

JPL LLC formally reviews PRACA reports designated as lessons learned candidates, and documents its findings.
(c) Validating lessons learned with subject matter experts, if required

JPL LLC maintains a lesson candidate/status list

<table>
<thead>
<tr>
<th>JPL LESSONS LEARNED COMMITTEE</th>
<th>Lesson Learned Candidate List</th>
<th>4/5/05</th>
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<tr>
<td><strong>Event</strong></td>
<td><strong>Rank</strong></td>
<td><strong>Point of Contact</strong></td>
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<tr>
<td>1. If a Command References an Incorrect Transaction Request File (TRF) Name, the Command Will Be Ignored</td>
<td>P</td>
<td>Tim Larson</td>
</tr>
<tr>
<td>2. MER pixel corruption</td>
<td>D</td>
<td>PFR Z77062 [A2] LL Candidacy Reviewer: M. Schnoebelen</td>
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<td>PFR Z86520</td>
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<tr>
<td>4. Beagle 2 Commission of Inquiry: Recommendation 16</td>
<td>9</td>
<td>Lincoln Wood, Wyatt Johnson, Joe Guinn</td>
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</table>

*Rank: 1-9 Priority (9 being the highest priority), P=Pending, D=Deferred . Completed or invalidated candidates are moved to the Retired Candidate List.

JPL LLC tracks the status of lessons learned candidates from all sources and assigns a priority to each.
– (d) Evaluating lessons learned submissions and developing a final lessons learned draft that includes actionable recommendations
– (e) Other procedural steps to ensure a quality product

• What methods has the Center found successful in obtaining timely draft lessons?
  – Who writes them: topic originator, single author/editor, a partnership?
  – Who reviews them, and how are conflicts resolved?

• What type of recommendations are appropriate and useful?
  – EXERCISE: Participants to review set of recommendations from a MIB report and discuss which would make good lessons learned-- and why. (Schedule for one hour into workshop?)
- Para. A.1.2, *Infusion Process*, states that “A lessons learned infusion process is required to ‘close-the-loop’ on actionable lessons learned recommendations at the Center and HQ levels.”

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<th>C</th>
<th>D</th>
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<tr>
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<td>OSP</td>
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<td>Anomaly summary &amp; Recommendations Related to Process</td>
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Track the status of lessons learned infusion into Center-wide processes (procedures and training).
Other Discussion Topics

- **Attendee Feedback.** Suggestions for improving subsequent NASA center workshops are solicited.

- **Lessons Learned Technology Enhancements.** How do we get more clever about telling our stories?

- **Evaluating Success.** Are the present measures of NASA lessons learned process success adequate? Are there better metrics for evaluating our performance? How is lessons learned performance evaluated by other enterprises?