NASA Knowledge Community Briefing: Accomplishments & Future Challenges

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NASA Chief Knowledge Officer

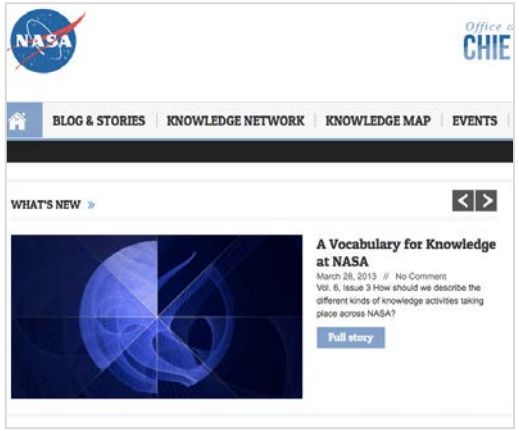
I. Top Accomplishments to Date

1. CKOs /POCs

2. Knowledge Policy

3. Knowledge Map

4. km.nasa.gov



The knowledge community has enabled all other accomplishments

1. Knowledge Community CKOs/POCs

Name	Center / Organization
Donald Mendoza	ARC
Bradford Neal	DFRC
Marton Forkosh	GRC
Edward Rogers	GSFC
David Oberhettinger	JPL
Jean Engle	JSC
Michael Bell	KSC
Manjula Ambur	LaRC
Dale Thomas	MSFC
John Stealey	SSC

Name	Center / Organization
Susan Minor	ARMD
Dave Lengyel	HEOMD
George Albright	SMD
Don Moses	Acquisition
Ed Hoffman	NASA
Daria Topousis	NEN
Lauren Leo	OHCM
Dan Yuchnovicz	NESC
Mike Lipka	NSC
Prasun Desai	STMD
Gerald Steeman	STI

2. Knowledge Policy

Key features of NPD 7120.6 include:

- Federated approach to governance: Centers and Mission Directorates determine their own knowledge strategies while sharing across NASA to the greatest extent possible.
- Formal roles and responsibilities for leaders and all employees.
- Common vocabulary of six categories to describe the many knowledge activities already taking place at NASA.

3. Knowledge Map

Sortable by six knowledge categories

Sortable by organization

Sortable by CKO/POC

4. km.nasa.gov

The knowledge community's website hosts:

- NASA knowledge map
- Calendar, knowledge-based publications, and timely updates about resources
- CKO communications

II. Primary Responsibilities at Centers/MDs

- Center Director/Mission Directorate AA: Appoint CKO or POC for knowledge

- Center/Mission Directorate CKOs/POCs
  - Oversee planning and execution of knowledge services
  - Develop your organization's knowledge strategy
  - Serve as champion for your organization's knowledge needs
    - Support a culture of learning and open sharing
    - Provide direction to organizational goals
    - Be a resource for practitioners

III. New ASAP Finding

Knowledge Capture and Lessons Learned

Finding: Knowledge management and transfer within NASA does not always result in critical knowledge from mishaps, accidents, technical investigations, and other important events being incorporated into standards and other documents, or shared in ways that are easily discoverable across NASA. Lessons learned, accidental discoveries, and collateral benefits from all of NASA's human space flight activity are immeasurable.

Recommendation: The ASAP strongly recommends a formal effort to ensure that NASA prioritizes the most critical knowledge that emerges from events such as mishaps, accidents, and technical investigations. This knowledge should be made highly visible and easily accessible.

Rationale: When one looks at what has been lost or difficult to regain from Apollo, one can see the importance of capturing the wisdom of those who have gone before.

CKO Meeting with ASAP

- Met at HQs with ASAP 02/27/14 (small committee) to discuss recent finding:
  - ASAP sees recent progress in knowledge management: Community of CKOs at Centers and Mission Directorates; Policy/governance framework; comprehensive map of existing knowledge assets
- ASAP wants to see NASA do more to prioritize and share critical knowledge from mishaps, accidents, etc.

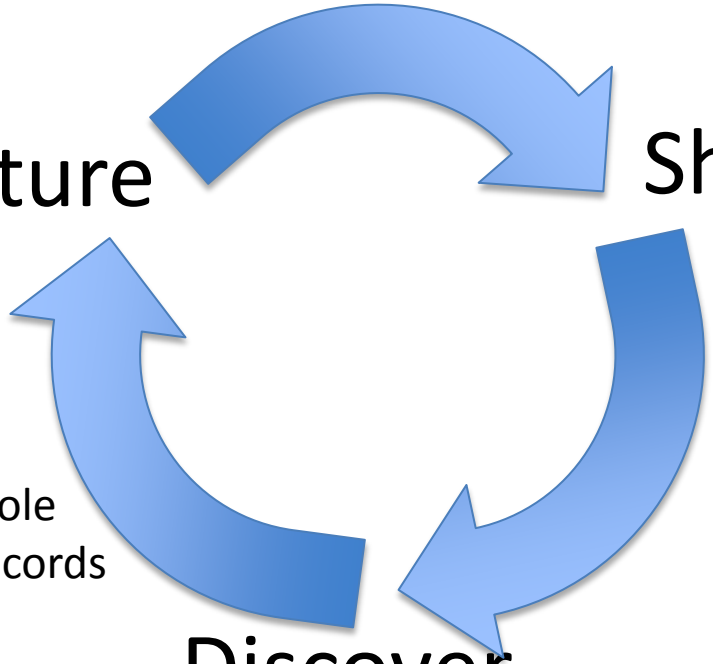
Formal Response to ASAP Finding (1/2)

- NASA Response: NASA concurs with the recommendation to pursue a formal effort to prioritize critical knowledge that emerges from events such as mishaps, accidents, and technical investigations. This strategy will facilitate augmenting, integrating, and improving on current knowledge services efforts occurring across the Agency as briefed by the NASA Chief Knowledge Officer (CKO) to the ASAP on 27 February 2014 at NASA Headquarters.
  - These efforts will **focus on the twin overall goals of knowledge visibility and accessibility, to include improving knowledge search capabilitie**s based on the latest digital knowledge tools, processes, and procedures.
  - For prioritizing critical knowledge, NASA will review current policies and procedural requirement documents (i.e. NPR 8621.1 - NASA Procedural Requirements for Mishap and Close Call Reporting, Investigating, and Recordkeeping) to **identify opportunities to improve codifying standards based on mishap report lessons** as well as incorporating identified critical knowledge into existing or new standards and other documents for distribution to the program and engineering community.
  - NASA will develop and implement an administrative mechanism to serve as a **NASA Headquarters knowledge referee**, consisting of appropriate Agency Technical Workforce representatives that will play a formal role in identifying critical knowledge that should receive the highest levels of Agency visibility and accessibility.

Formal Response to ASAP Finding (2/2)

- NASA Response (continued):
  - **Recommendations for improving NASA managerial focus** on knowledge services will be created for incorporation into Agency leadership development programs, knowledge-related competencies and capabilities, and established as criteria for Agency leadership evaluation and selection.
  - These efforts will be accompanied by the **development and publication of a digital Agency Knowledge Management Handbook** supported by accompanying knowledge content development products and services that will describe best and emerging practices of effective knowledge capture, sharing, and discovery as well as formalizing standardization of Agency and Center knowledge practices.
  - NASA welcomes the opportunity to discuss with the ASAP ways that it can continue to improve its ability to function as a learning organization that optimizes its knowledge resources.

IV. Future Capabilities and Priorities



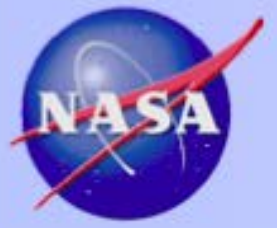
Mature capability:
Case studies
LLIS
Videos
Shuttle Knowledge Console
Knowledge-based risk records

Mature capability:
Online tools and portals
Face-to-face events
(many captured digitally)
Communities of practice
(aided by digital tools)

Inadequate capability:
Search – enhanced ability to discover
Culture – expectation to discover
"Nudges" – reminders to discover

V. 2014 Challenges

- Digital strategy
- Prioritization of knowledge across NASA
  - "Knowledge referee"
- Learning materials for knowledge expertise
- Measures of knowledge maturity: how do we communicate this to senior leaders and external stakeholders?



BACKUP

Questions, Comments, Clarifications

- What are the things that are being done well in knowledge services at NASA?
- What are the things that need improvement in knowledge services at NASA?
- What are the things that will significantly improve knowledge services capabilities at NASA in the short term and long-term?
- What are the things that work against these short and long-term strategies?

Focus on Practitioners

- NASA CKO has visited MSFC, JSC, KSC, GRC, GSFC, JPL and ARC since summer 2012, knowledge services becoming coordinated
- Held meetings with practitioners, young professionals, Center CKOs, and Center Directors
- Key themes from practitioner conversations:
  - Strong desire for effective search capability
  - Young professionals prioritize access to people and relationships over technology-based knowledge solutions

I. NPD 7120.6

- Critical Activities
  - Codification and efficient flow of knowledge
  - Environment that fosters continuous learning and adaptation
  - Adoption of innovative global practices in knowledge
  - Mitigation of knowledge loss
  - Knowledge infusion
- Approach to Knowledge Management
  - Identify critical Agency knowledge
  - Assess gaps
  - Implement steps to address gaps
- Roles and Responsibilities
  - Chief Engineer
  - Center Directors and Mission Directorate Associate Administrators
  - NASA CKO
  - Center and Mission Directorate CKOs
  - All NASA personnel

II. Elements of Effectiveness