Understanding the NASA Taxonomy and Information Architecture: Creating Context for Content

Jeanne Holm, Chief Knowledge Architect, NASA/JPL
Jayne Dutra, Information Architect, JPL
Ron Daniel, Joseph Busch, Taxonomy Strategies

January 17, 2008

Collaborate

Communicate

Innovate

Motivate

Taxonomy Relating to Conversation

- Predefined organizational structure that covers a range of subjects, typically in a hierarchical arrangement, and may also show non-hierarchical relationships between subject areas
- Optimized information architecture that allows users to intuitively navigate to content or arrange search results
- Creating categories creates the structure in which people will have a conversation with, by, and about the organization
- How a taxonomy is structured and implemented will put change the way people view an organization and its value

Collaborate

Communicate

Innovate

Motivate

Current NASA Taxonomy Facets

Facets	Strategic Value	Source
Access Requirements	Sensitivity and access control	NODIS
Audiences	Who the content is intended for	Multiple: Including educational audiences
Business Purpose	Why the content was created	NASA Archive Filing System
Competencies	Relevant field or discipline	NASA CMS
Content Types	The genre of the content	Custom
Industries	External partners & businesses	NAICS Standard
Instruments	Flight payloads that yield science	PDS
Locations	Sites where work occurs	PDS/Custom
Missions/Projects	NASA's lines of business	NASA MDM/Polaris
Organizations	NASA organizations	Multiple
Subject Categories	The topic of the content	NASA STI Community

NASA Taxonomy Website and Resource

Collaborate

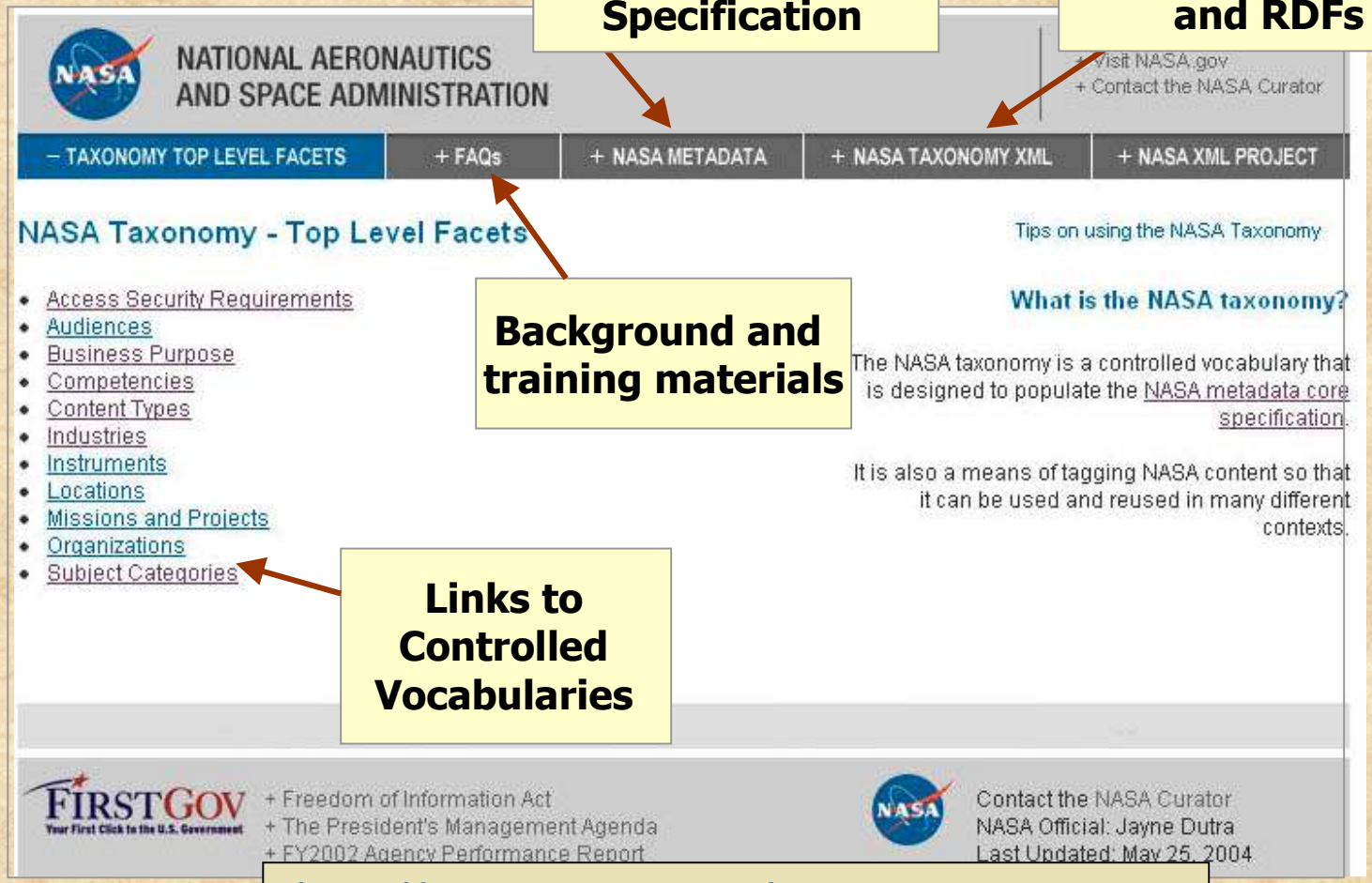
Communicate

Innovate

Motivate

Link to Metadata Specification

Link to XML DTDs and RDFs



Background and training materials

Links to Controlled Vocabularies

http://nasataxonomy.jpl.nasa.gov

Collaborate

Communicate

Innovate

Motivate

Gold Sources – Stitching Together NASA's Knowledge

- Taxonomy Facets use existing NASA sources as much as possible
- Core Team Members suggested specific NASA-wide sources to be considered
- Centers will make their own extensions to the NASA Taxonomy
  - The 'attachment points' must be common to most Centers
  - Enables data mash ups for the future

NASA Taxonomy

Content Types
- Designs and Specifications
- Quality Control

- Problem Failure Report
- Incident Surprise Anomaly
- Corrective Action Notice

JPL Taxonomy

Combined through RDF for Seamless Integration

Collaborate

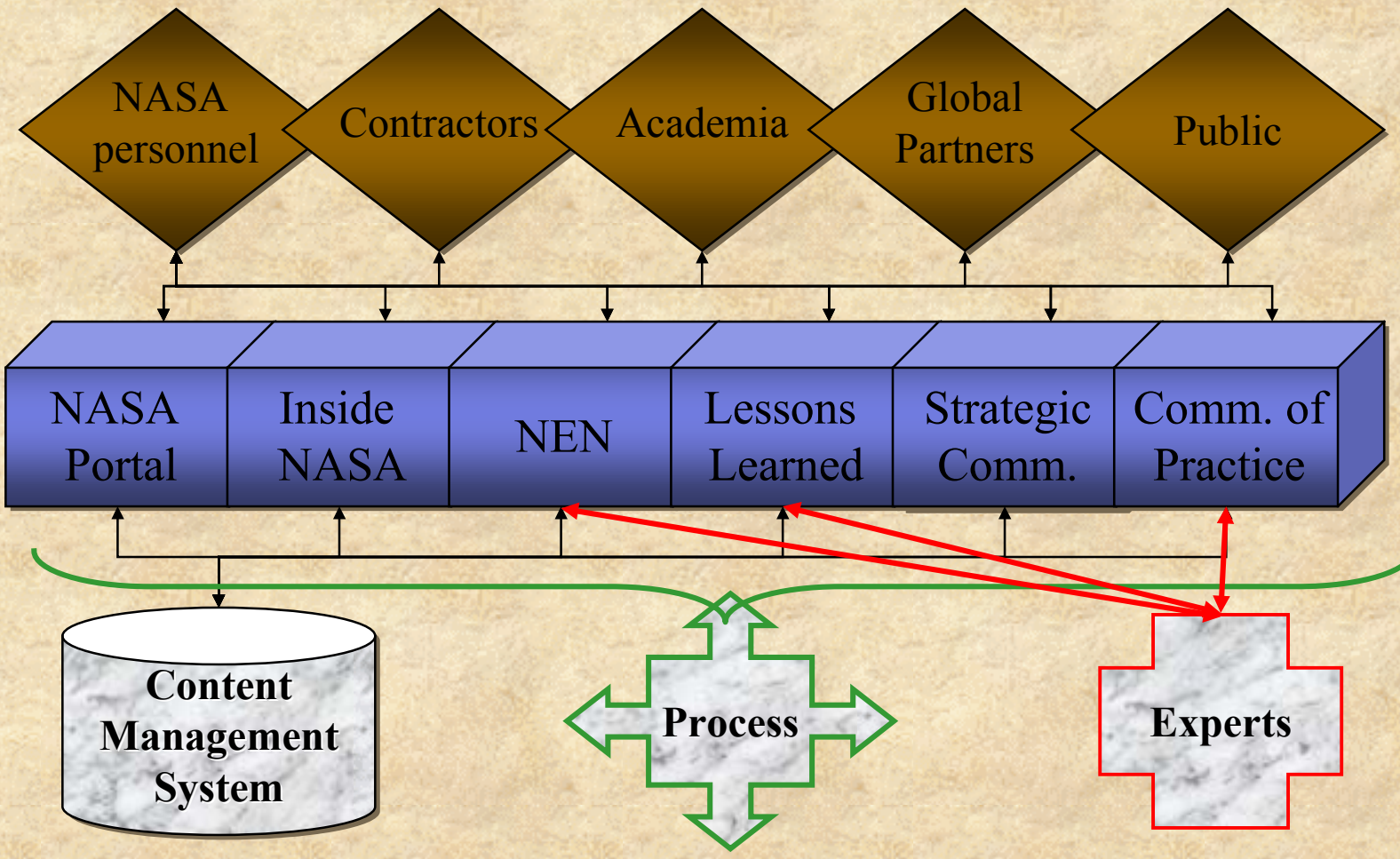
Communicate

Innovate

Motivate

Knowledge Management Environment

- Integrating knowledge management into our engineering and project management lifecycle



Collaborate

Communicate

Innovate

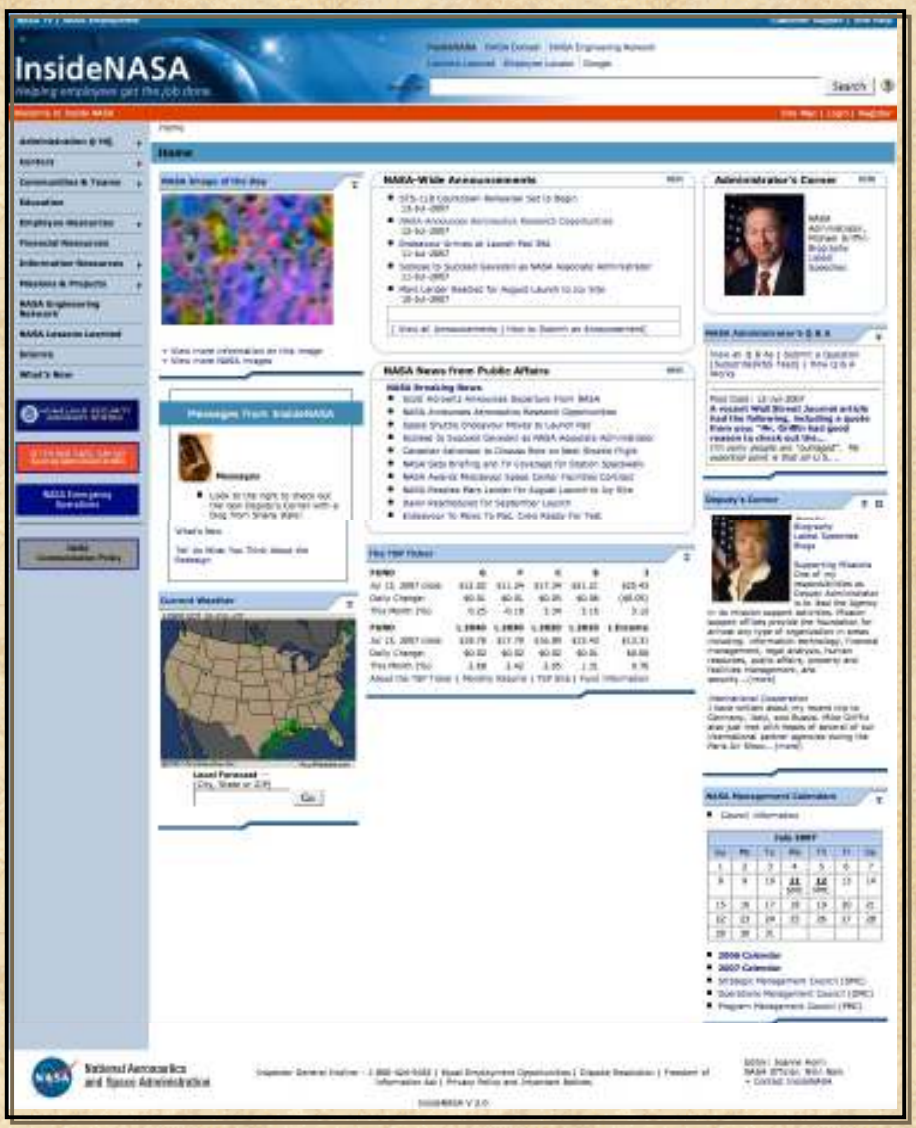
Motivate

Sample Use Cases

- Project Manager or PEM
  - "I want to hire someone at a different Center to be my team Cog E since the work is being done there. Who has the right skills and experience? Who has done this type of work before?"
- Cognizant Engineer:
  - "I'd like to see all problem failure reports on a subsystem I designed and flew 5 years ago so I can incorporate the lessons learned into my current mission."
- Scientist:
  - "I'd like to see what types of data were returned on earlier missions using a particular instrument to help with the Science Definition Goals of my new project."
- Taxonomy flows across communities to drive relevant information into the places/spaces people are already gathering
  - NASA Technical Fellows
  - Structures
  - Propulsion
  - Systems Engineering
  - Lessons Learned Community
  - Nondestructive Evaluation
  - Software Engineers

Inside NASA

- For employees and partners
- Customizable
- Access to e-mail
- Secure instant messaging
- Collaborative tools
- Application integration
- Wikis and blogs (e.g. Shana Dale)



Communities for Collaboration

Collaborate

Communicate

Innovate

Motivate

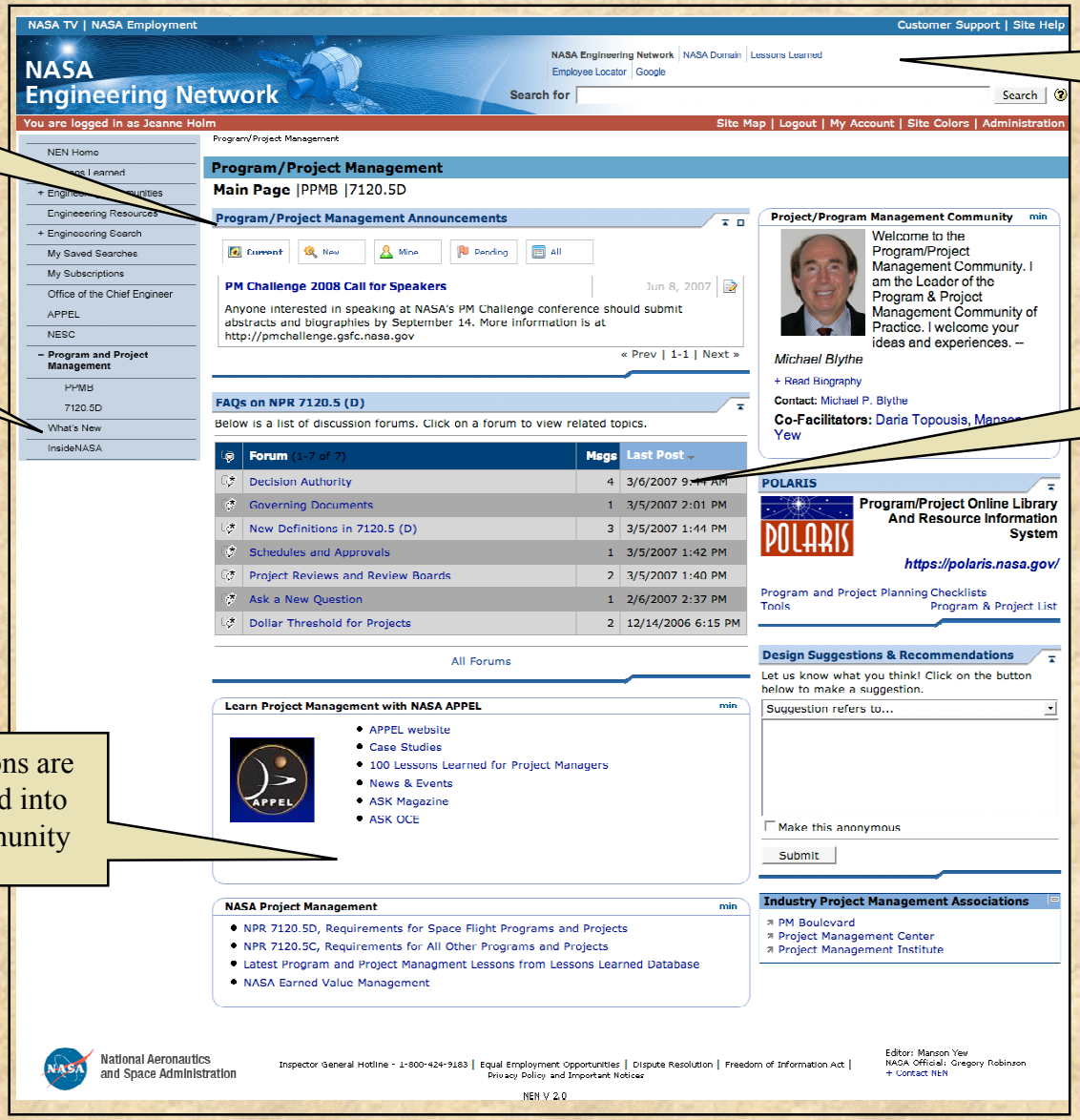
Integration to document management

Saved searches and subscriptions

Key lessons are integrated into the community

Find information

Discussions and Q&A



Collaborate

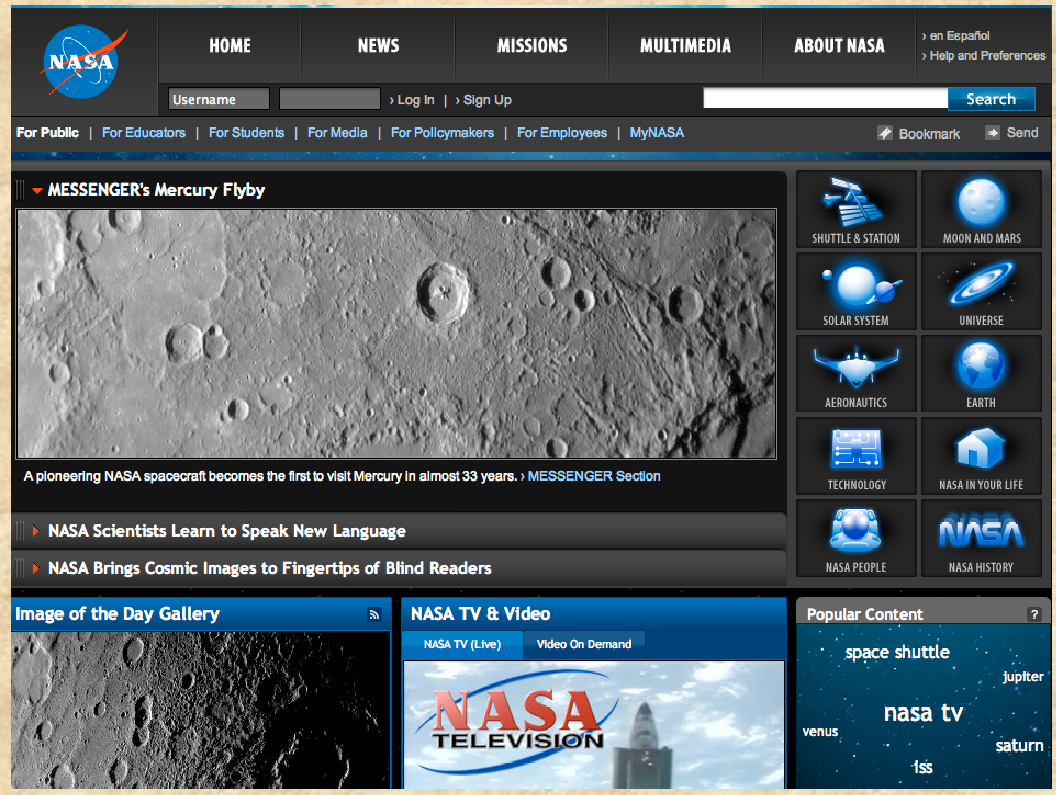
Communicate

Innovate

Motivate

NASA Public Portal

- Facets of the taxonomy are reflected in the NASA portal at www.nasa.gov
- These facets help to drive the audience usage, and how people look for information



Collaborate

Communicate

Innovate

Motivate

Architecture Drives Conversation

- Caution: taxonomy choices can be a self-fulfilling prophecy
  - If you have matured the area of engineering in your taxonomy
    - People who publish information can select that facet = more content is tagged for it
    - People who are looking for information can both browse that facet and search results drive people to that content
    - Communities can gather rich content based on specific needs expressed within the taxonomy
  - If you do not have a mature taxonomy in an area that is of potential interest to your users (internal or external)
    - People who publish cannot link to this area, with less content published, less traffic yields less likelihood to publish
    - People looking for information can find through full content search, but not through browse or metadata search
    - Communities struggle harder to find information that is relevant to them