

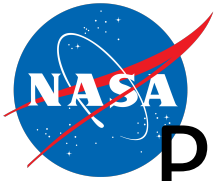


# PDS4 Operational Readiness Review

## Software Process, Documentation and Release Cycles

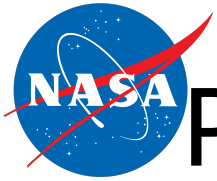
E. Law  
Engineering Node



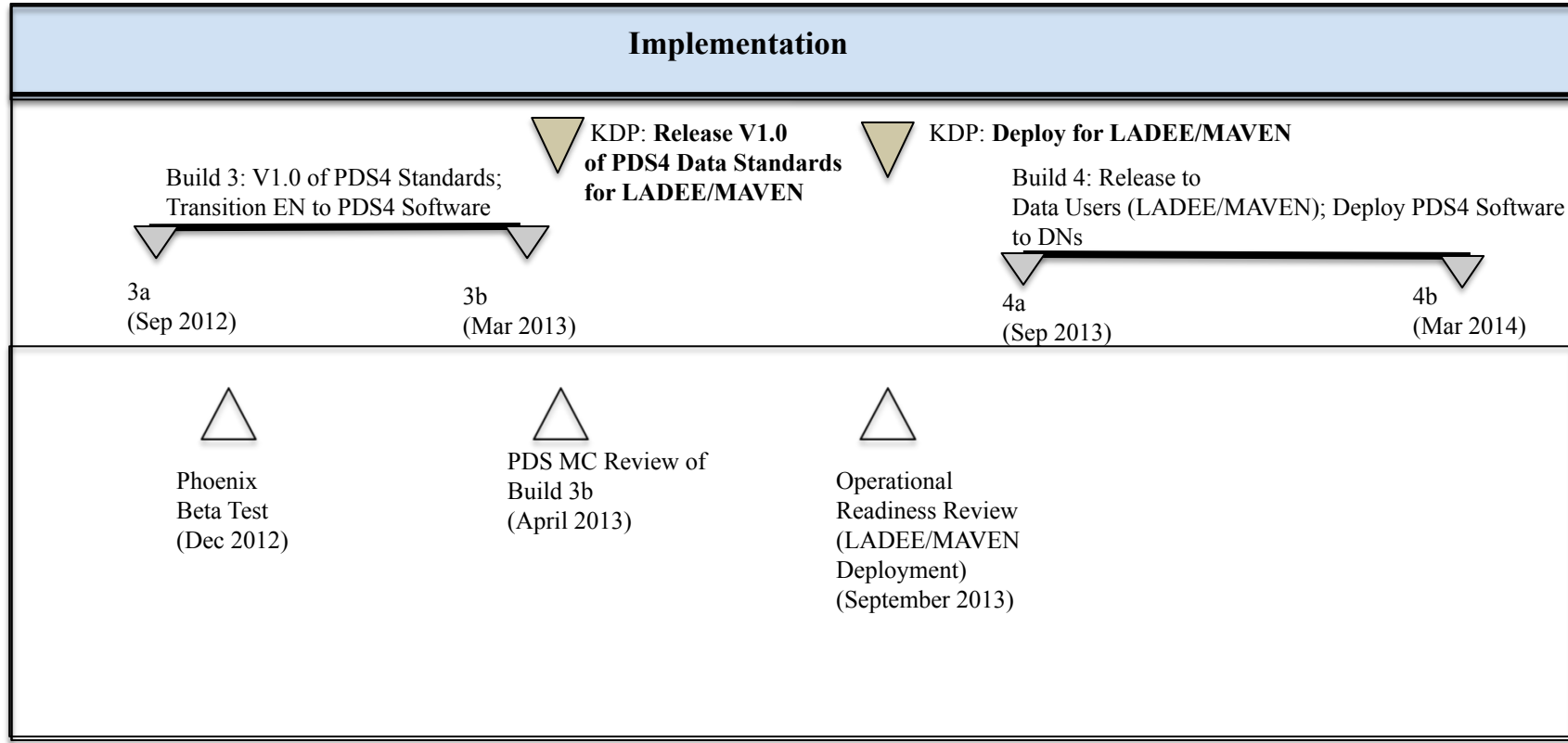
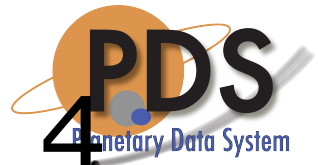


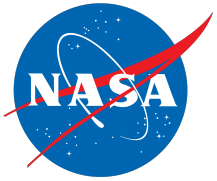
# Project Lifecycle Thru Build 1 & 2

Project Lifecycle	Pre-Formulation	Formulation	Implementation			
<b>Project Lifecycle Gates &amp; Major Events</b>	<p>△ Begin Study Project</p> <p>△ Study/Concepts</p> <p>▽ KDP: Study</p>	<p>△ Project Plan</p> <p>△ PDS4 Prelim Architecture</p> <p>▽ KDP: Project Plan &amp; Arch</p>	<p>△ PDS4 Design</p> <p>▽ KDP: Prelim Design</p>	<p>△ 1a (Oct 2010)</p> <p>△ 1b</p> <p>△ 1c</p> <p>△ 1d (Aug 2011)</p> <p>Build 1: Prototype build</p>	<p>△ 2a (Sept 2011)</p> <p>△ 2b (Mar 2012)</p> <p>Build 2: Prepare for label design</p>	<p>▽ KDP: Beta Release for LADEE/MAVEN</p>
<b>Project Reviews</b>	<p>△ PDS MC Concept Review (Dec 2007)</p>	<p>△ PDS MC Impl Review (July 2008)</p> <p>△ PDS MC Arch Review (Nov 2008)</p>	<p>△ PDS MC Preliminary Design (August 2009)</p> <p>△ PDS External System Design Review I (Mar 2010)</p>	<p>△ Build 1b PDS Stds Assessment (Dec 2010)</p> <p>△ Build 1c IPDA Stds Assessment (April 2011)</p> <p>△ PDS External System Design Review II (June 2011)</p>	<p>△ Build 1d External Stds Assessment (Aug 2011)</p>	<p>△ ORR (Start Label Design) (LADEE/MAVEN) (November 2011)</p>



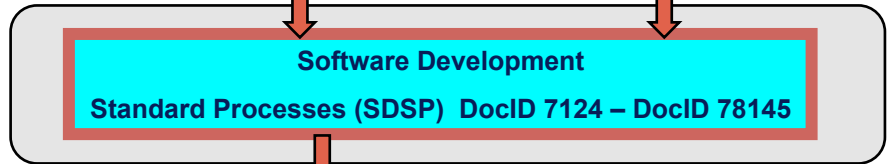
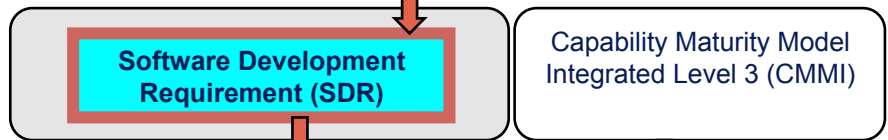
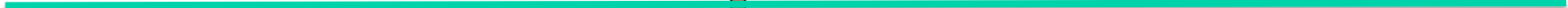
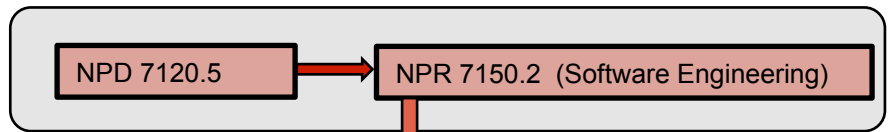
# Project Lifecycle Build 3 & 4



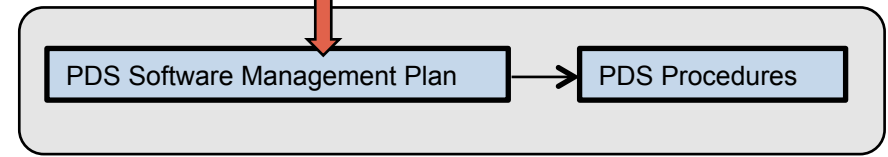
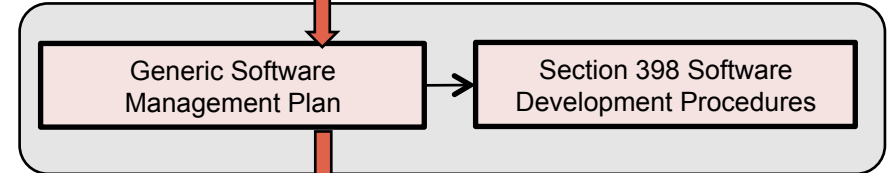


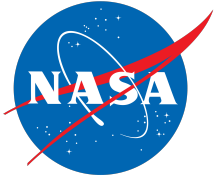
# Software Management

NASA



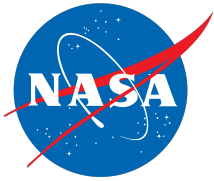
JPL



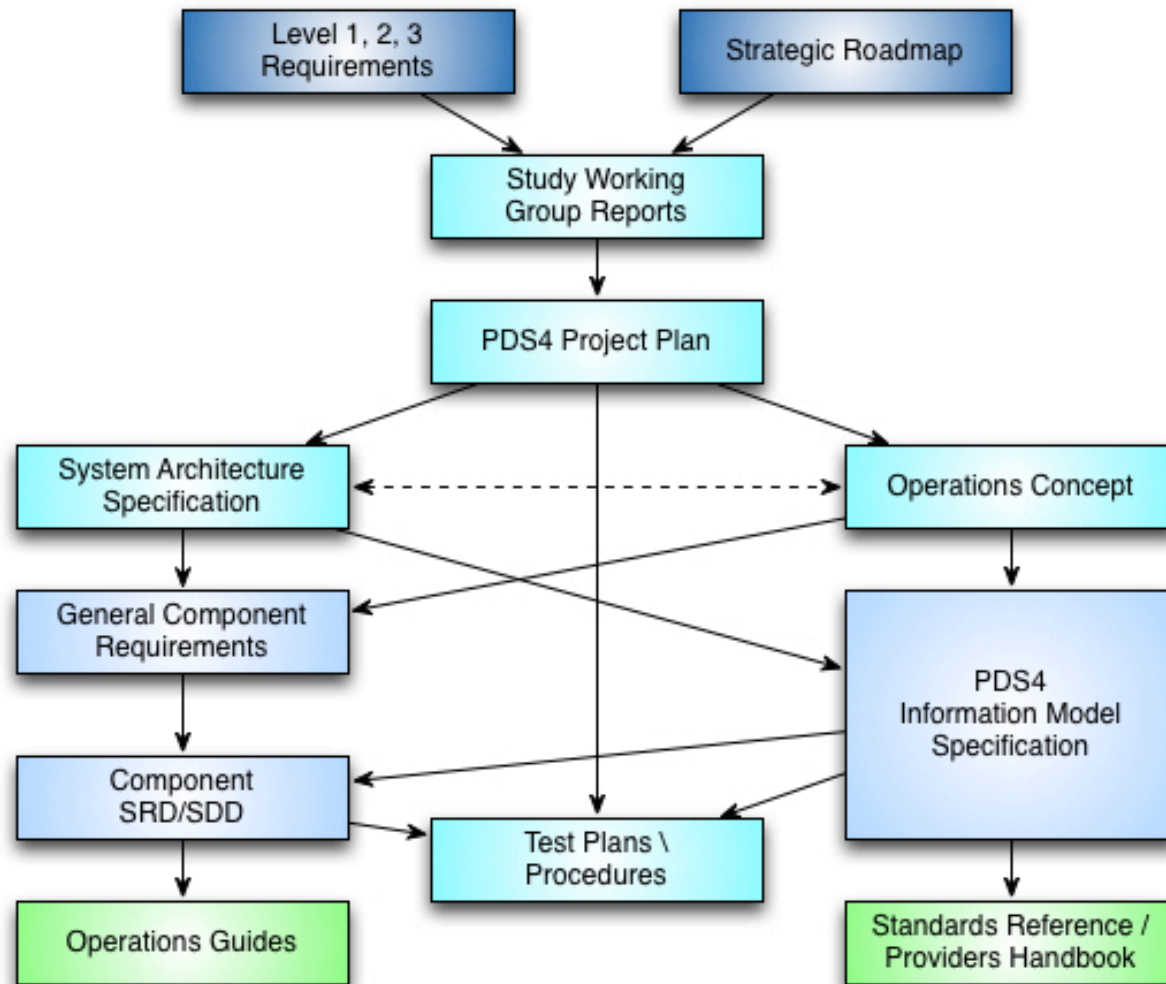


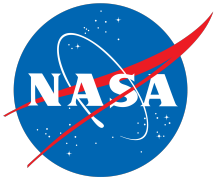
# Key Project Documents

- Requirements
  - PDS Level 1, 2, 3
- Project Plan
  - Contains management approach and implementation plan
- Multiple Concept Papers
  - Architecture, user services and data design
- System Architecture
  - Defines data and software architecture
- Operations Concept
  - Interactions of PDS across the mission phases and from ingestion thru to distribution
- System Design Specifications for services and tools
- In addition, PDS maintains policies, requirements, standards, and schedule information online at the Management Council and Engineering nodes

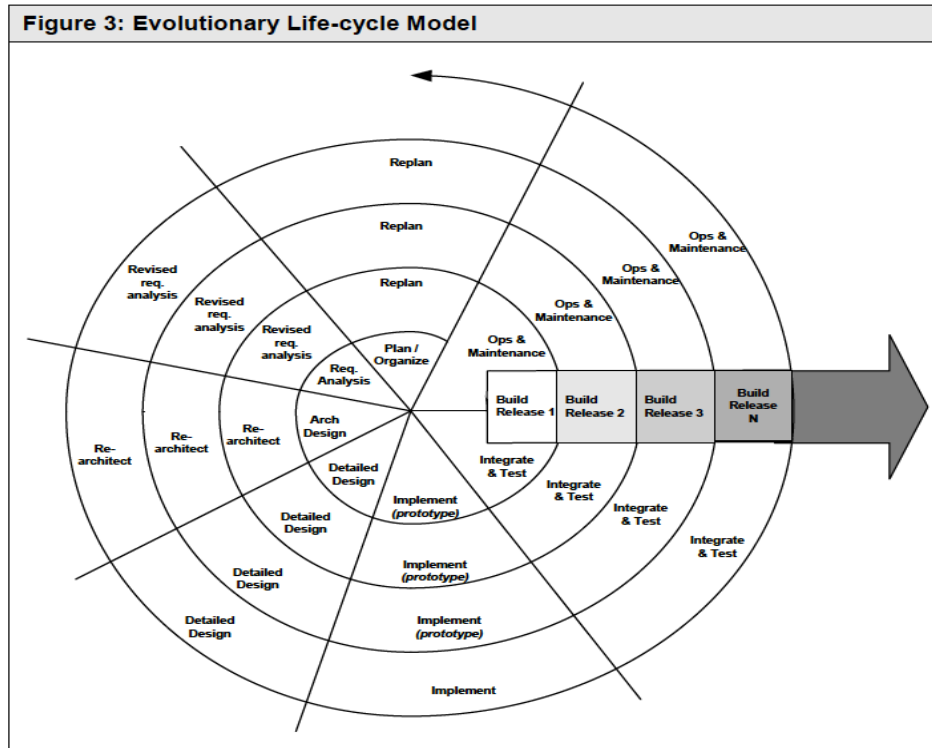


# Document Tree

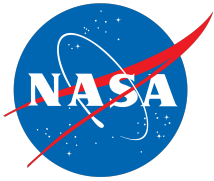




# Release Lifecycle



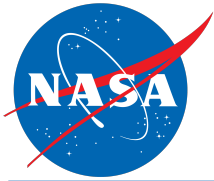
*JPL-D 76772 Rev 1*  
*NASA Software Management Guidebook – NASA-GB-001*



# System Builds

- PDS4 uses system builds to bring together the software and the information model
  - Established very early in the project to organize releases
  - Provides a predictable structure to bring the teams together
  - Provides incremental functionality
  - Allows for feedback both inside and outside PDS
  - Allows for adoption by the DNs which have varying needs over time
- Each build provides a full lifecycle to capture, CM, integrate, test and deploy the release

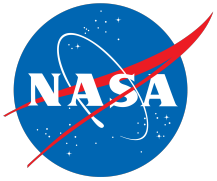




# Builds

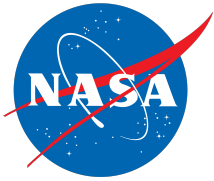


Phase	Purpose	Release	Date
Build 1 Prototype/ Test	<ul style="list-style-type: none"> <li>• Early formalization of the data standards</li> <li>• Early formalization of software</li> <li>• Integration between software and data standards</li> <li>• Stakeholder input</li> </ul>	<ul style="list-style-type: none"> <li>• PDS4 beta info model, standards reference, data dictionary, schemas baseline</li> <li>• Early releases of Harvest, Registry and Security services</li> <li>• First set of process, documentation and tutorial</li> </ul>	Oct 2010 Feb 2010 May 2011 Aug 2011
Build 2 Begin Label Design for LADEE/ MAVEN	<ul style="list-style-type: none"> <li>• Support LADEE, MAVEN Label Design and Planning</li> <li>• Begin pilot deployment of PDS4 at Engineering Node and transition</li> </ul>	<ul style="list-style-type: none"> <li>• PDS4 beta info model, standards reference, data dictionary, schemas baseline</li> <li>• Release of Harvest, Registry, Report and Security services</li> <li>• Validation and catalog ingest tools</li> <li>• Updated documentation</li> </ul>	Sept 2011 Feb 2012 June 2012
Build 3 V1.0 of PDS Data Standards for LADEE/ MAVEN	<ul style="list-style-type: none"> <li>• Transition entire PDS3 catalog to PDS4</li> <li>• Baseline PDS4 standards as version 1.0</li> <li>• Support validation of PDS4 bundles</li> <li>• Support ingestion and PDS4 data into the PDS4 registry</li> <li>• Support search and access to PDS3 data sets and PDS4 bundles</li> <li>• Support LADEE/MAVEN data ingestion</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Stable release of data standards</b></li> <li>• Incremental releases of validation and PD3 catalog ingest tools</li> <li>• Incremental releases of harvest, registry, report and security services</li> <li>• Deployment of Registry Services at EN</li> <li>• Deployment of the PDS4 search service at EN</li> </ul>	Sept 2012 March 2013
Build 4 User Services	<ul style="list-style-type: none"> <li>• Support PDS4 data distribution services for LADEE, MAVEN</li> <li>• Support PDS4 data transformation</li> <li>• PDS4 user tools</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Incremental release of PDS4 Standards</b></li> <li>• Distribution services for initial PDS4 bundles</li> <li>• Transformation services for initial PDS4 bundles</li> </ul>	Sept 2013 March 2014



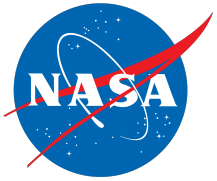
# Configuration Management

- Subversion and wiki for managing software and documentation and artifacts
  - Project management (plan, schedule)
  - System/Standards development/deliverables
- DocuShare for storing presentations and reports
- JIRA for issue tracking and change requests
- Formalized a PDS4 change process via Change Control Board (CCB)



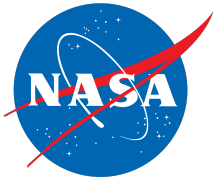
# Reviews

- Full lifecycle planned out with deliverables for each build (project plan, requirements, design, CM/build, test, release)
- Reviews at Key Decision Points planned in the process
- Assessments throughout getting stakeholders' feedback
- All inputs captured, documented, analyzed, classified and disposed accordingly via JIRA and CCB



# Summary

- PDS4 project adheres to well defined processes throughout its project lifecycle
- These processes ensure the success in project planning, management, documentation, review, software and standards development, deployment and operations
- They ensure that PDS4 is ready to support LADEE and MAVEN



Thank you

Questions?