



NOvA Working Group Meeting

June 29, 2005

2:00 – 4:00 PM

Snake Pit

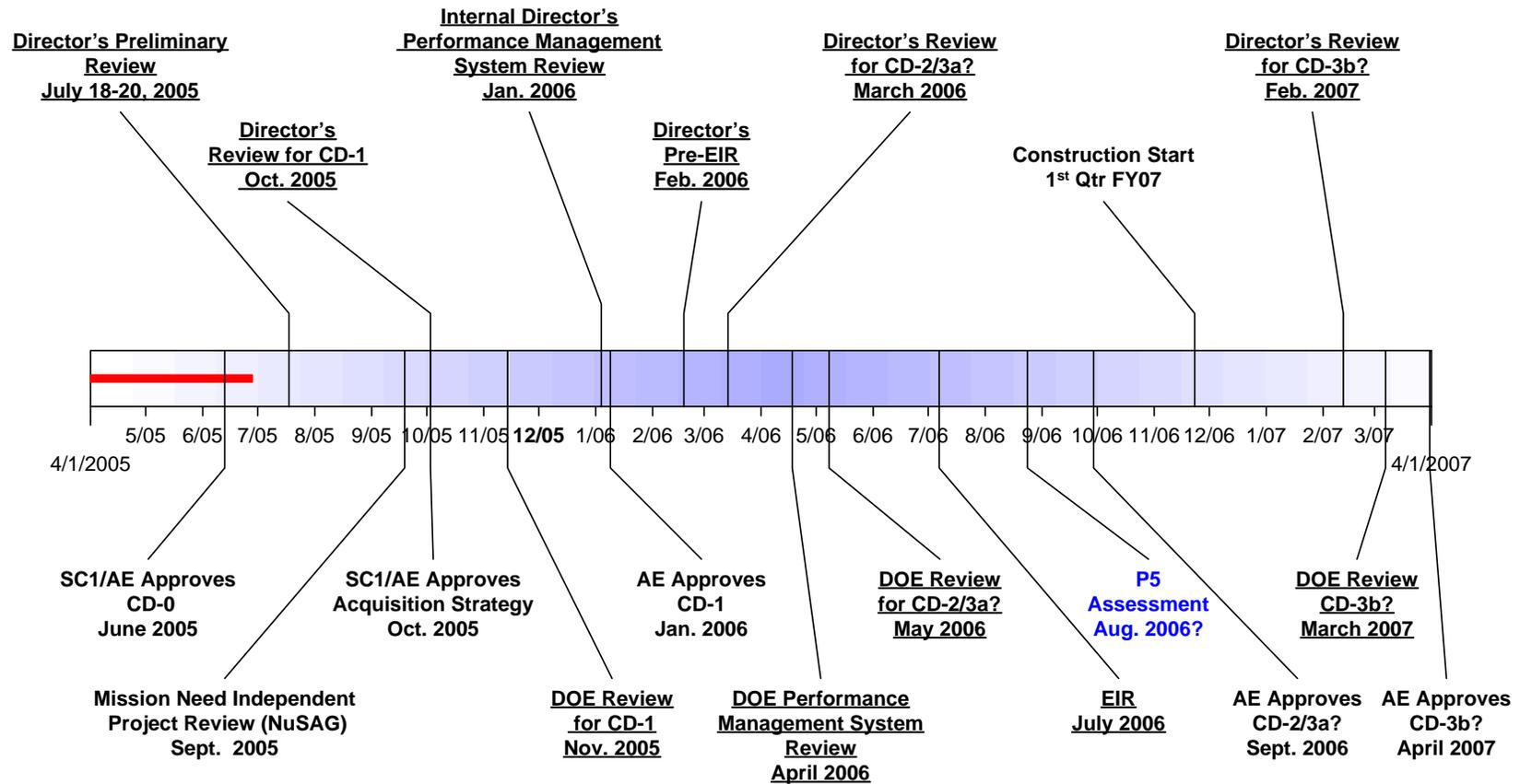
Agenda

- 1) Relate progress on the NOvA Work Breakdown Structure (WBS) – Cooper, Ray
- 2) Planning for July Preliminary Director's Review of NOvA – Cooper, Temple
 - Agenda, Review Committee Members, Review Steps / Procedures
 - Talks posted on Directorate website Thursday, July 16 before review. Talks in tabbed notebooks at the review. Desirable for standard template in landscape format (2-sided, “flip on long edge”)
 - Kephart “Proton Driver” talk template for presentation content
- 3) Key Aspects of Configuration Management – Temple
- 4) Brief update of status of Action Items from previous WGMs – Cooper
 - a) Draft a short “white paper” laying out the managerial controls and reporting requirements we want to have in place if University of Minnesota constructs the building under a grant from the DOE. [John Cooper with input from Rameika, Bock & Strait]
 - b) Prepare a paper describing the Orr-Buyck Rd alternate site similar to the Miller / Marshak note on the Ash River Trail site. [Cooper, Miller, & Marshak]
 - c) Pursue the EAW with intent to learn ASAP whether an EIS is really likely to be required. [Cooper & Kesich] *Report current thinking.*
 - d) Work with Fermilab procurement (Joe Collins) to develop and place (an RFP?) and environmental studies contract ASAP! [Cooper, Ray, Kesich] *Progressing. UPDATE.*
 - e) Identify Minnesota Environmental contractors who could begin the EAW work this summer. Check on U of MN football stadium contractor and get suggestions from Chris Laughton. [Cooper, Ray, Kesich] *RFP to be sent to selected list of five vendors.*
 - f) Prepare a paper giving the pros and cons of the NOvA site and building being a state action versus a federal action. [Cooper & Ray with input from Bock]
 - g) Propose a specific task performance and management model for design and construction of the NOvA building. [Cooper & Ray with input from Kuchler (& Lackowski)]
 - h) Develop a plan and make assignments for creating the detailed NOvA WBS. [NOvA Project Management] Report Progress June 29.
 - i) Directorate formally appoint NOvA Project Manager (and Deputy?) [Montgomery]
 - j) *PPD Division Office to make a plan for locating the NOvA Project Office.[Strait & Crisler]*
 - k) *Discuss administrative support staffing needs for project office. [Strait & Phillips]*
 - l) *Determine whether an EAW is required for the near detector and what type of document or action is needed. [Lutha & Griffing]*
 - m) *Discuss the approach of Fermilab designing and U of MN performing construction of the far site with others at U of MN. Determine whether NOvA can use the existing Soudan PMG as a vehicle for communications and resolving conflicts.[Cooper & Marshak]*
 - n) *Prepare a write-up on the site selection process including physics related requirements/implications. [Cooper & Ray]*



DRAFT NOvA Project Timeline for Critical Decisions & Reviews

Updated 27-Jun-05



Note: Changes from last update are in BLUE

Draft Agenda for Preliminary Directors Review

Monday, July 18

8:00 – 8:30 AM	Executive Session	Temple
8:30 – 9:30 AM	Physics Justification Physics Requirements translated to Detector Performance Requirements	Feldman
9:30 – 10:30 AM	Project Overview Scope of Project How Performance Requirements are met Project Organization Project Management Method of Accomplishment Overall Cost and Schedule Overall Risks Site Selection Plan / Process NEPA Documentation Plan and Schedule Early Thoughts on Decommissioning	Cooper
10:30 – 10:45 AM	BREAK	
10:45 – 11:45 AM	Active Detector (Far Detector)	
11:45 – 1:00 PM	LUNCH	
1:00 – 2:00 PM	Building and Outfitting	
2:00 – 2:30 PM	Near Detector and NuMI Beam	
2:30 – 2:45 PM	BREAK	
2:45 – 3:30 PM	Electronics, Trigger and DAQ	
3:30 – 4:15 PM	Installation, Shipping and Customs Charges	
4:15 – 6:00 PM	Executive Session	

Draft Agenda for Preliminary Directors Review (continued)

Tuesday, July 19

8:00 – 9:00 AM	Cost Estimate Presentation Walk through several examples in Cost Estimate Spreadsheets
9:00 – 9:30 AM	Schedule Presentation Discuss several Activity Durations and start constraints
9:30 – 12:00 Noon	Breakout Sessions Active Detector (including Near Detector and Installation Electronics, Trigger and DAQ Building Management, Cost, and Schedule
12:00 – 1:00 PM	LUNCH
1:00 – 2:30 PM	Continue Breakouts
2:30 – 4:00 PM	Executive Session
4:00 – 6:00 PM	Report Writing

Wednesday, July 20

8:30 – 9:00 AM	Send Draft Closeout Presentations to dhoffer@fnal.gov
9:00 – 10:30 AM	Closeout Dry Run
10:00 – 11:00 AM	Compile Closeout Presentations on Single Computer
12:00 – 1:00 PM	LUNCH
1:00 – 2:00 PM	Closeout

List of Reviewers

Detector

Linda Stutte

Giorgio Apollinari

Rich Stanek

Bldg & Outfitting

Randy Ortgiesen

Karen Hellman (pending)

Electronics/Trigger and DaQ

Peter Wilson

Stu Fuess

Installation, Shipping and Customs

Pat Lukens

Dima Denisov

Project Management

Mike Lindgren

Pat Lukens

Cost and Schedule

Dean Hoffer

Ed Temple

Guidance for Plenary Session for the Project Overview

- High Level Technical (Scope)/Cost/Schedule/Funding-Cost Profiles
- Management: Organizational Structure and Management Plan
- Funding Profile
- Assumed Physicist Availability Profiles
- Schedule overview, milestones, etc.
- Contingency Control
- Contracting / Procurement Planning and Organization

Bob Kephart's
“Proton Driver” talk template
for
presentation content

Title of Your Talk Here

Your Name

March 15 , 2005

Outline

- Your Outline 1
- Your Outline 2
- Your Outline 3
- Your Outline 4

Titles This Big

- What systems are you talking about ?
- Technical issues
 - Performance Specifications
 - Design Concept
 - Design Issues
 - R&D Program
 - Past Results
 - Future plans (don't go smaller than this in font)
- Show pictures of real hardware if you can

Titles This Big

- Why do you conclude that your part is technically feasible ?
 - E.g. someone built similar widgets elsewhere
 - We built similar widgets here
- Why can you say the costs are understood
 - Similar to widgets build at lab X, costs based on that
 - TESLA cost estimates, etc.
- Conclude that your system is technically and financially feasible

Guidelines

- Stay within you time: Plan on questions
- Plan on ~ 0.75 slides per minute of talk time allocated
- Absolute limit is 1 slide per minute
- Keep text and figures large
- Limit complexity of slides
- Focus on import points, skip complicated details or agree to discuss them in a breakout session

CONCLUSIONS

- My Part is Technically feasible
- My Part is Financially feasible
- The Risks are Understood
- The R&D planned will Reduce the Risk
- We have a Plan for what to do next

Key Aspects of Configuration Management

Excerpts from ANSI/EIA-649 on Configuration Management

The purpose and benefits of configuration management include the following:

- **Product attributes are defined. Provides measurable performance parameters. Both Buyer and Seller have a common basis for acquisition and use of the product.**
- **Product configuration is documented and a known basis for making changes is established. Decisions are based on correct, current information. Production repeatability is enhanced.**
- **Products are labeled and correlated with their associated requirements, design and product information. The applicable data (such as for procurement, design or servicing the product) is accessible, avoiding guesswork and trial and error.**
- **Proposed changes are identified and evaluated for impact prior to making change decisions. Downstream surprises are avoided. Cost and schedule savings are realized.**
- **Change activity is managed using a defined process. Costly errors of ad hoc, erratic change management are avoided.**
- **Configuration information captured during the product definition, change management, product build, distribution, operation, and disposal processes, is organized for retrieval of key information and relationships, as needed. Timely, accurate information avoids costly delays and product down time; ensures proper replacement and repair; and decreases maintenance costs.**
- **Actual product configuration is verified against the required attributes. Incorporation of changes to the product is verified and recorded throughout the product life. A high level of confidence in the product information is established.**

Table 1— Phases of a Product’s Life Cycle

Phases	Conception	Definition	Build	Distribution	Operation	Disposal
Aliases	Marketing Concept Study Research Exploration Pre-Development	Development Design Engineering Program Definition & Risk Reduction Engineering & Manufacturing Development Coding/Software Build ¹	Fabrication Production Construction Manufacturing	Sales Delivery Installation Fielding Deployment	Operational Maintenance Warranties Service Life Performance Operation & Support Repair	Removal From Service Disposition Unsupported
Characteristics	Need Opportunity Mission Analysis Trade-Offs Investigation Survey Functions Pre-Concept & Concept Definitions	System Definition Specification Architecture Preliminary Design Detailed Design Software Code & Test Manufacturing Planning Prototyping Testing Evaluation	Facility Construction Production Assembly Installation ¹ Inspection	Order Supply Stock Transport Acceptance Deployment Installation Setup	Use Utilization Operate Maintain Service Depreciate	Mothball Discard Deactivate Destroy Disassemble Scrap Recycle Disposition

Note: 1. Alias or characteristic may apply in more than one product phase.

CM Processes	Typical CM Activities	
CM PLANNING & MANAGEMENT <i>Selection, tailoring, guidance, assessment</i>	<ul style="list-style-type: none"> Define application environment Select tools, techniques and methods suitable for the environment Plan implementation Integrate CM within Enterprise defined processes 	<ul style="list-style-type: none"> Prepare procedures Perform training Measure performance
CONFIGURATION IDENTIFICATION <i>Attributes, identifiers, baselines</i>	<ul style="list-style-type: none"> Define product structure and select sub-elements to be managed Assign unique identifiers Select configuration document types & formats Define product attributes, interfaces, details in configuration documentation Conduct review and coordination of configuration documentation and if required, obtain customer review and approval Establish release process; Release configuration documentation, authorizing use 	<ul style="list-style-type: none"> Baseline configuration documentation for internal design control and, as applicable, for customer configuration change management Assign serial and lot numbers, as necessary to differentiate individual units and groups of units, respectively Ensure marking or labeling of products and documentation with applicable identifiers enabling correlation between the product, configuration documentation and associated data.
CONFIGURATION CHANGE MGMT <i>Manage changes</i>	<ul style="list-style-type: none"> Identify need for change or variance Document each request for change or variance and assign identifiers Evaluate each change and variance, coordinating with affected areas of responsibility Classify each request and establish effectivity 	<ul style="list-style-type: none"> Disposition each request, obtaining required approvals Plan change implementation Implement change and verify re-established consistency of product, documentation, operation and maintenance information, services and training
CONFIGURATION STATUS ACCOUNTING <i>CM information & status</i>	<ul style="list-style-type: none"> Identify and customize information requirements Implement information system <ul style="list-style-type: none"> Capture and report information about: <ul style="list-style-type: none"> Product configuration status Configuration documentation Current baselines Historic baselines Change requests Change proposals 	<ul style="list-style-type: none"> Change notices Variations Warranty data/history Replacements by maintenance action <ul style="list-style-type: none"> Configuration verification and audit status/action item closeout Provide availability and retrievability of data consistent with needs of the various users
CONFIGURATION VERIFICATION & AUDIT <i>Verify performance & consistency</i>	<ul style="list-style-type: none"> Verify product within normal course of process flow Assure consistency of release information and production/modification information Conduct formal audit when required Review performance requirements, test plans, results, other evidence to determine product performs as specified, warranted & advertised 	<ul style="list-style-type: none"> Perform physical inspection of product and design information; assure accuracy, consistency & conformance with acceptable practice Record discrepancies; review to close out or determine action; record action items Track action items to closure via status accounting
CM OF DIGITAL DATA <i>Assure data integrity</i>	<ul style="list-style-type: none"> Apply identification rules to document representations and files Use business rules based on data status for change management and archiving of data 	<ul style="list-style-type: none"> Maintain data-product relationships Apply disciplined version control Assure accurate data transmittal Provide controlled access

Note: Some activities are not applicable in every application environment

Figure 1 — Typical Configuration Management Activities
 NOVA Working Group Meeting

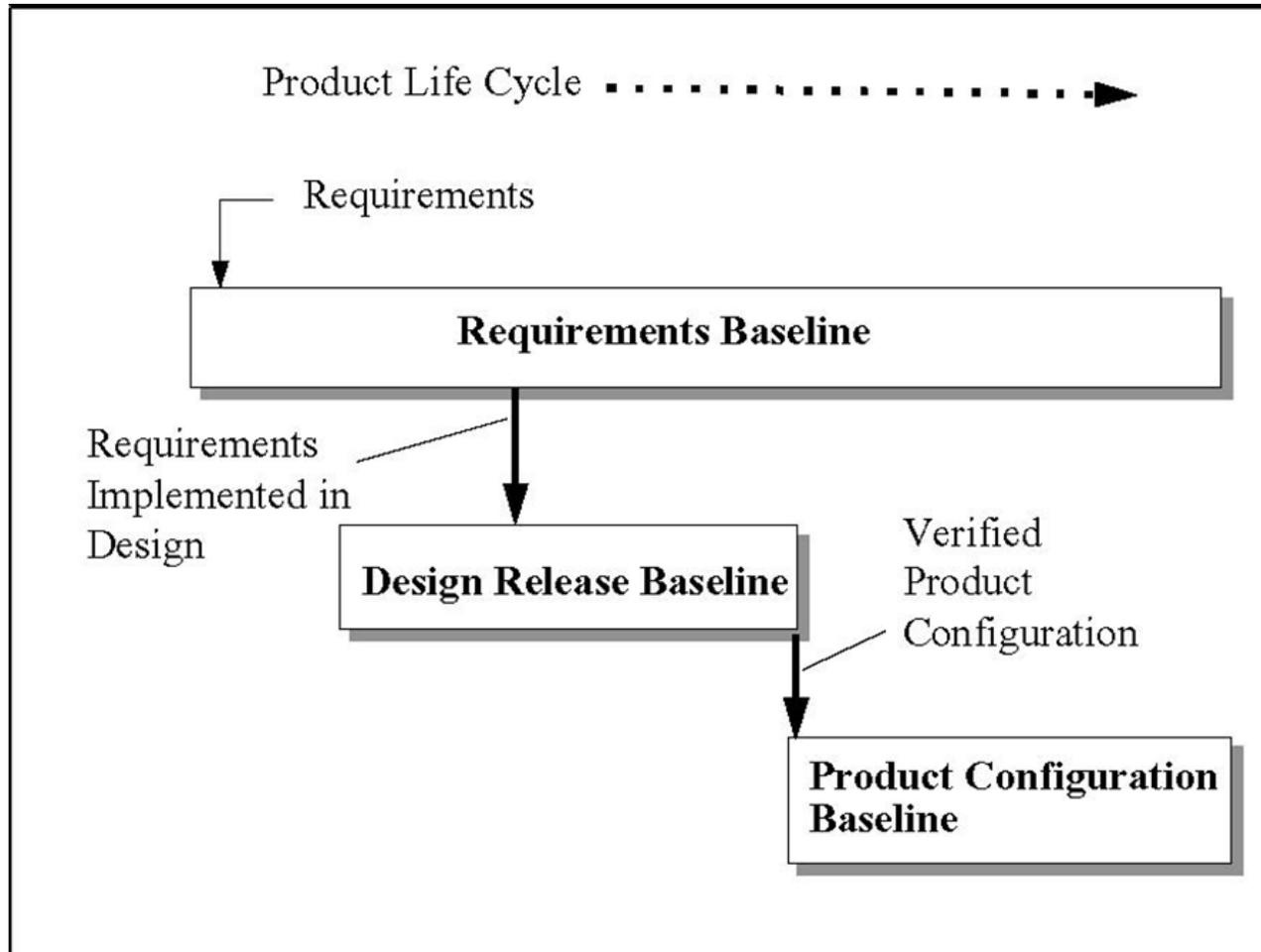


Figure 3 — Configuration Baselines

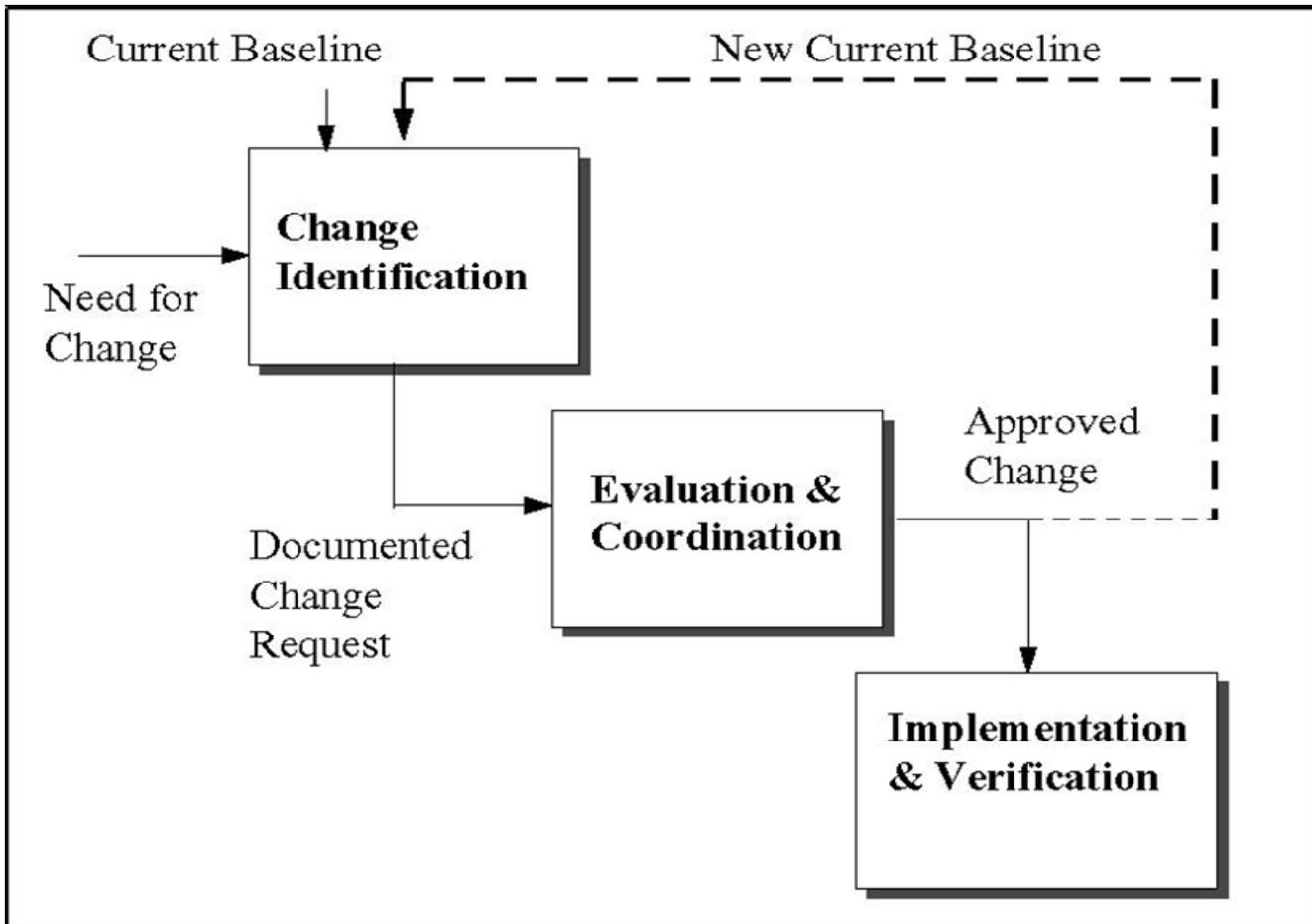


Figure 4 — Change Management Process Model

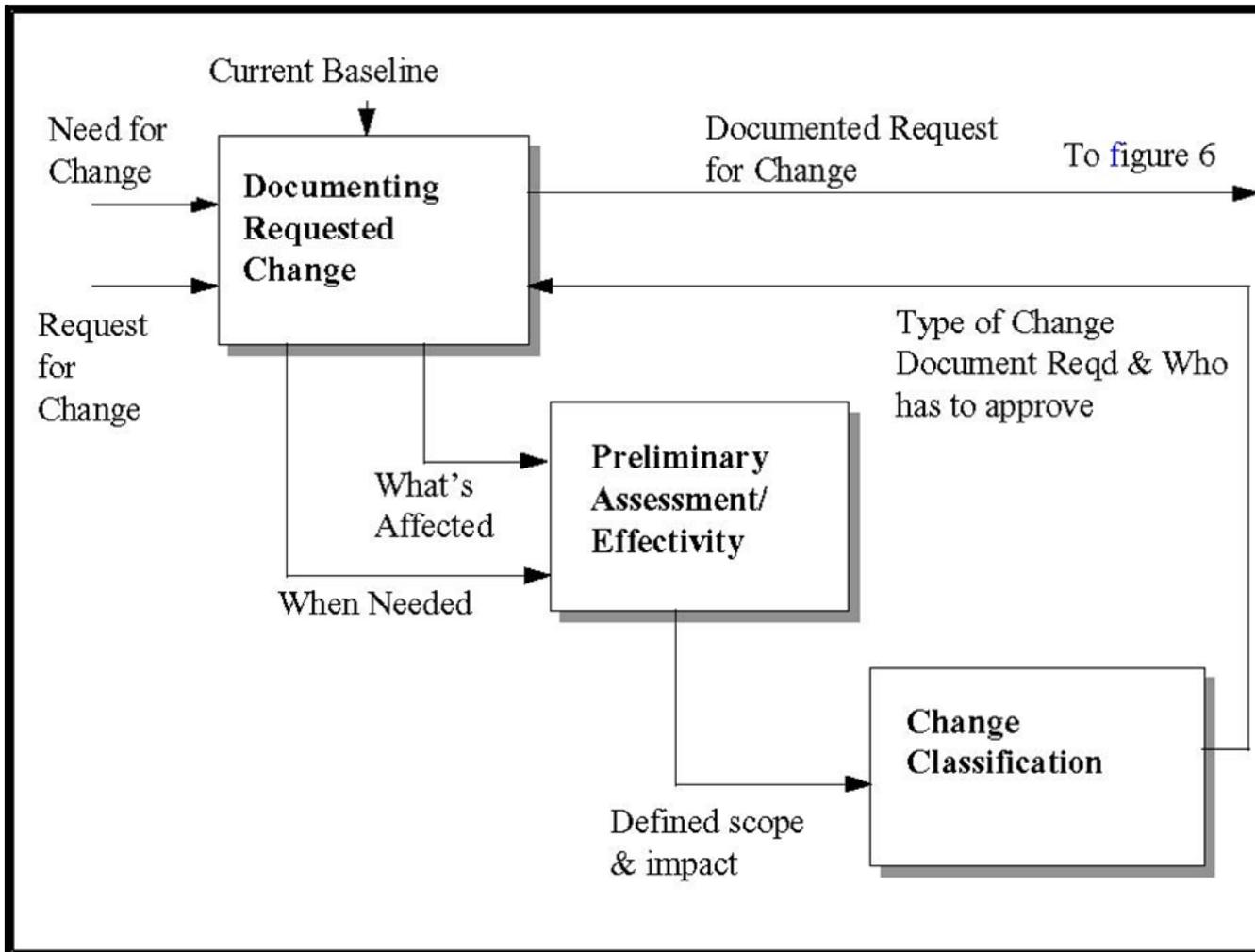


Figure 5 — Change Identification Process Model

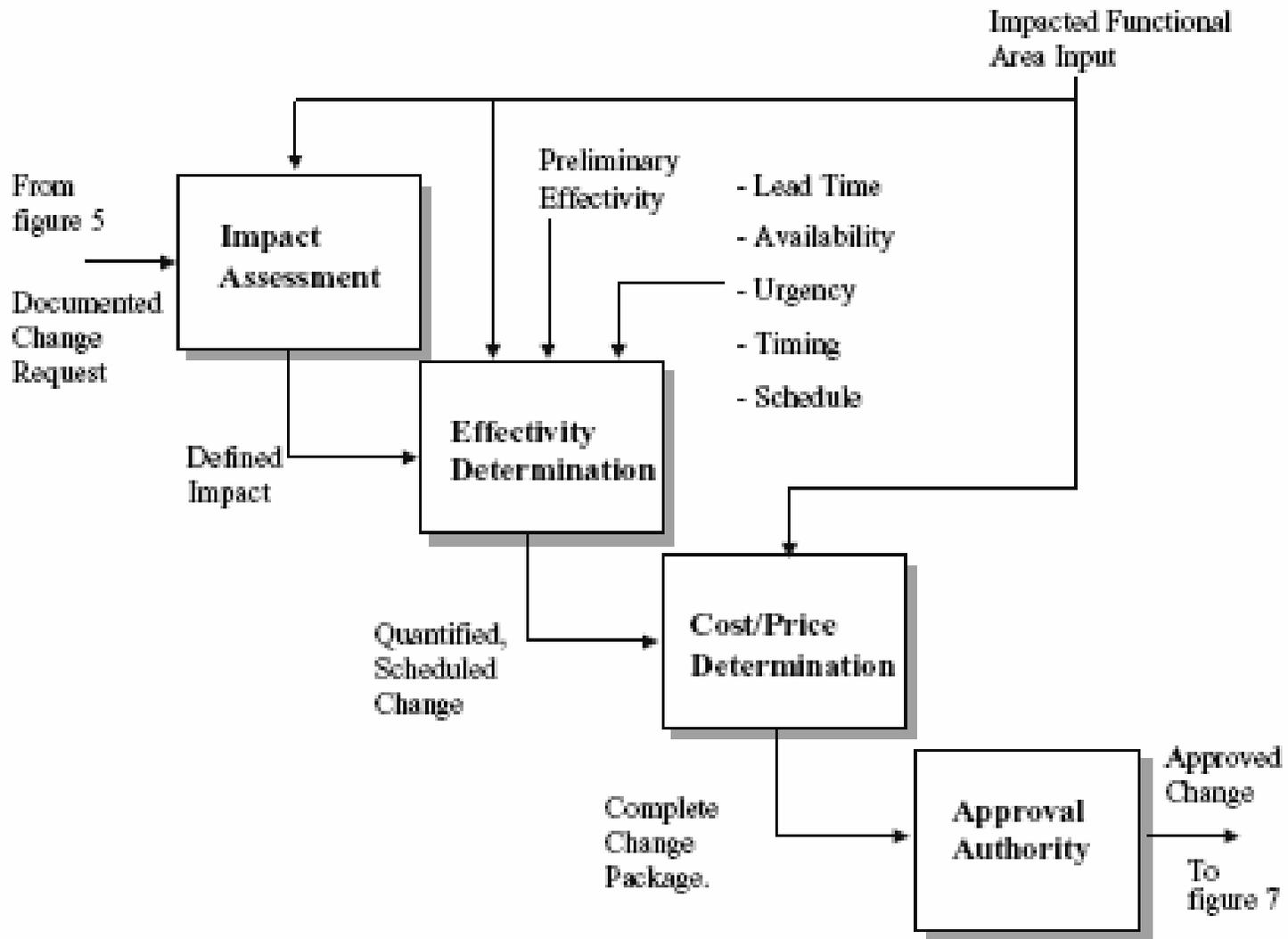


Figure 6 — Change Evaluation and Coordination Process Model

From figure 6
Approved Change

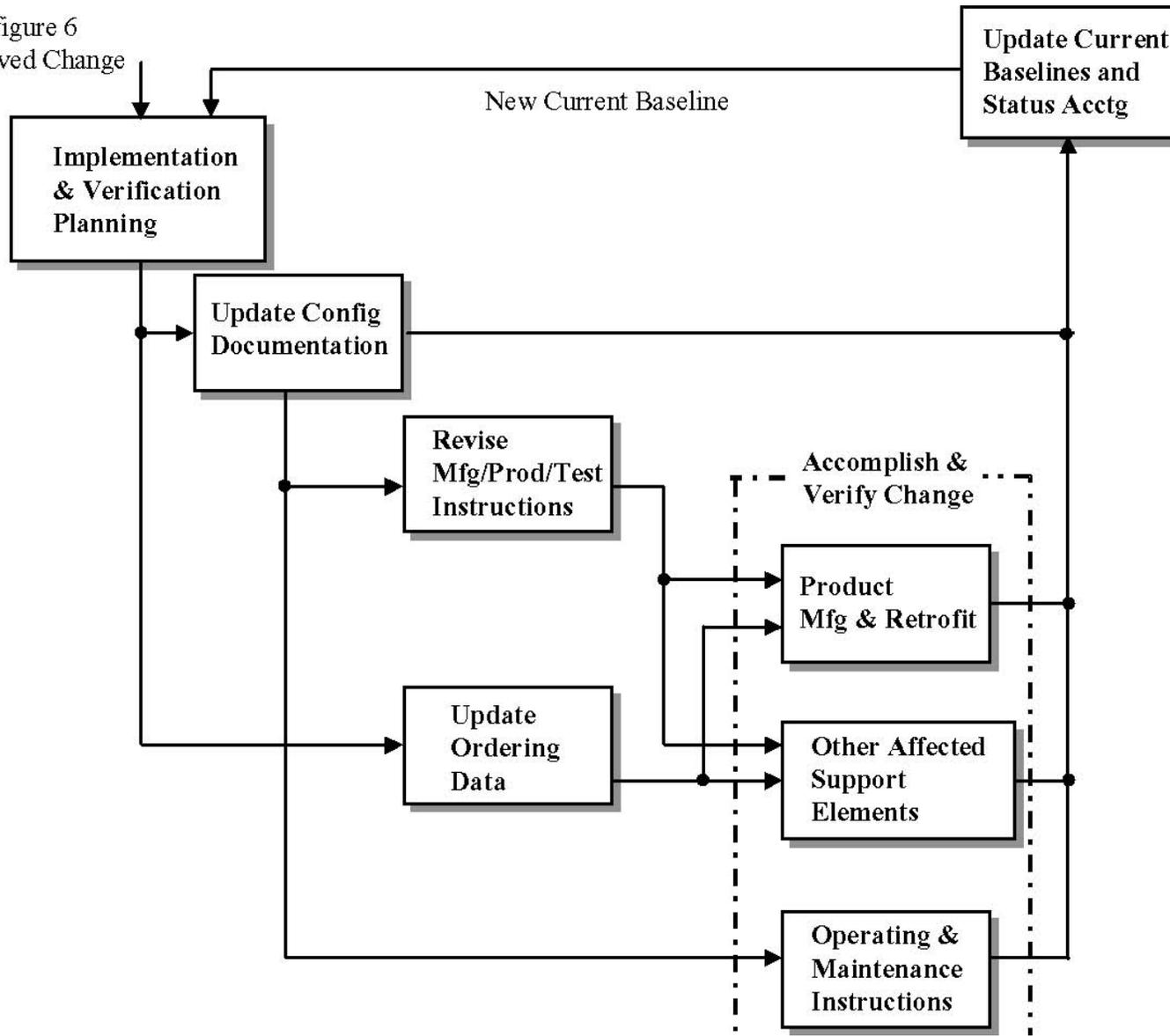


Table 5—Typical Status Accounting Information Across the Product Life Cycle

	CONCEPTION	DEFINITION	BUILD	DISTRIBUTION	OPERATION	DISPOSAL
Life cycle Phases Typical CSA Information (Select, where applicable and appropriate)						
Requirements documentation	•	•	•	•	•	•
Product structure information		•	•	•	•	•
Configuration documentation		•	•	•	•	•
Configuration documentation change notice		•	•	•	•	
Change request and proposal	•	•	•	•	•	
Engineering change effectivity		•	•	•	•	
Variance documentation		•	•	•	•	•
Verification and audit action item status		•	•	•	•	•
Event date entries		•	•	•	•	•
Product as-built record			•	•	•	
Product as-delivered record				•	•	
Product warranty information				•	•	•
Product as maintained, as modified					•	•
Limited use, shelf life restrictions, etc.			•	•	•	•
Product operation and maintenance information revision status					•	•
Product information change requests and change notices					•	•
On-line information access directory or index					•	•
Restrictions due to facility/product performance degradation					•	•
Product replacement information						•
Environmental impact information (where applicable)	•	•	•	•	•	•
Product or Parts salvage information						•

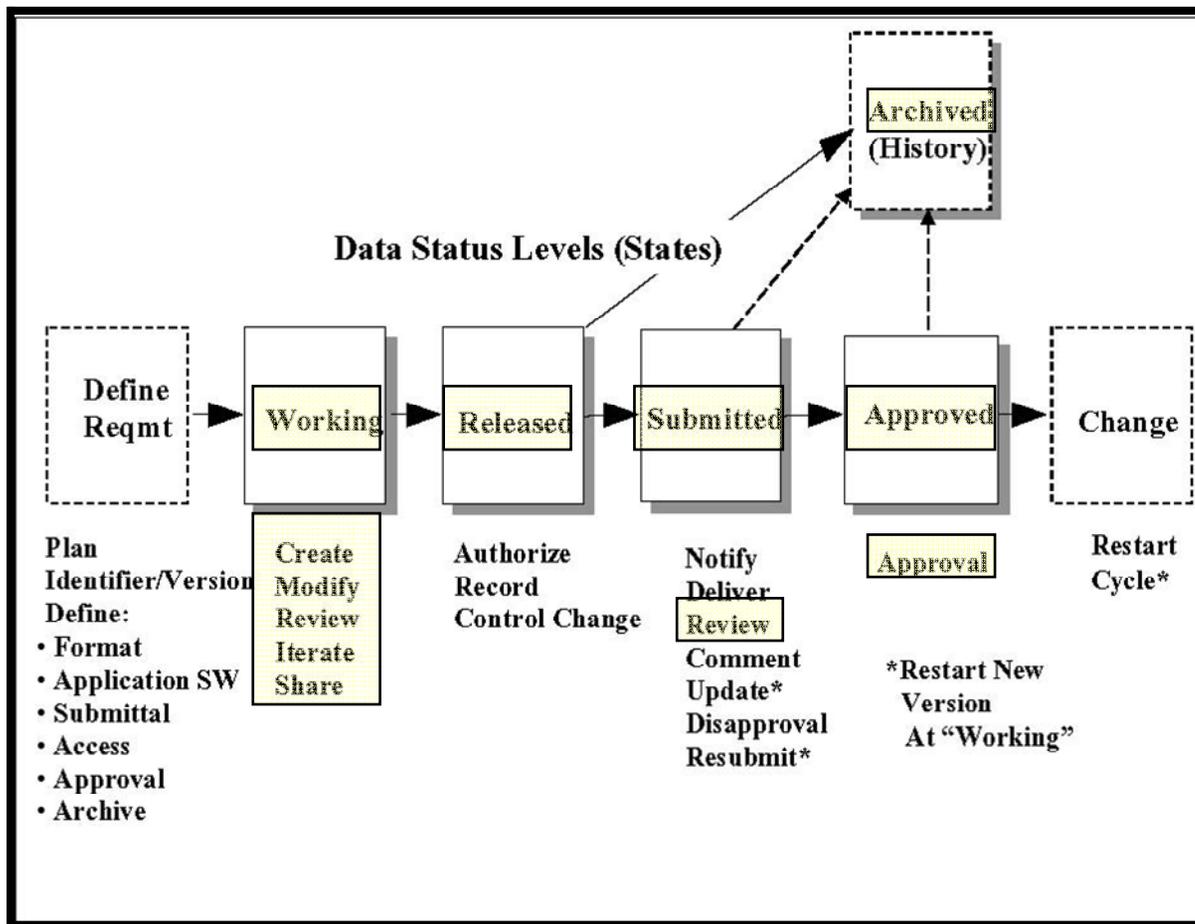


Figure 8 — Standard Data Life Cycle Model

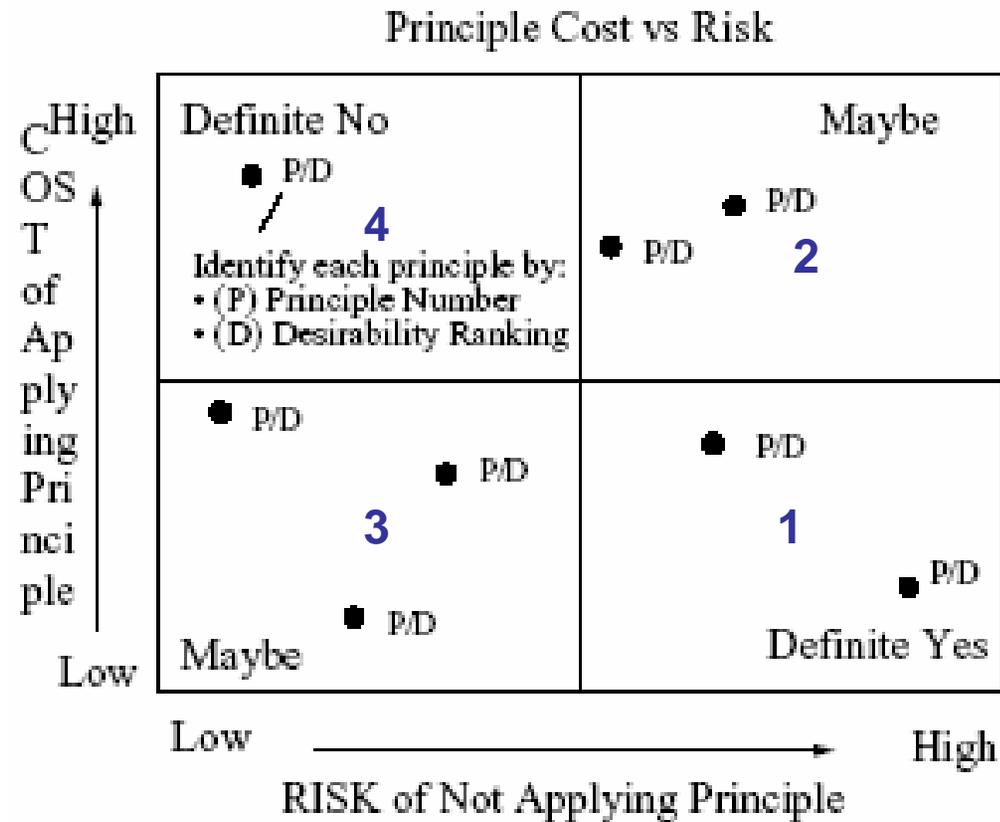


Figure B.1 — Affordability of Desirable CM Principles

Open Action Items

- a) Draft a short “white paper” laying out the managerial controls and reporting requirements we want to have in place if University of Minnesota constructs the building under a grant from the DOE. [John Cooper with input from Rameika, Bock & Strait]
- b) Prepare a paper describing the Orr-Buyck Rd alternate site similar to the Miller / Marshak note on the Ash River Trail site. [Cooper, Miller, & Marshak]
- c) Pursue the EAW with intent to learn ASAP whether an EIS is really likely to be required. [Cooper & Kesich] *Report current thinking.*
- d) Work with Fermilab procurement (Joe Collins) to develop and place (an RFP?) and environmental studies contract ASAP! [Cooper, Ray, Kesich] *Progressing. UPDATE.*
- e) Identify Minnesota Environmental contractors who could begin the EAW work this summer. Check on U of MN football stadium contractor and get suggestions from Chris Laughton. [Cooper, Ray, Kesich] *RFP to be sent to selected list of five vendors.*
- f) Prepare a paper giving the pros and cons of the NOvA site and building being a state action versus a federal action. [Cooper & Ray with input from Bock]
- g) Propose a specific task performance and management model for design and construction of the NOvA building. [Cooper & Ray with input from Kuchler (& Lackowski)]
- h) Develop a plan and make assignments for creating the detailed NOvA WBS. [NOvA Project Management] Report Progress June 29.
- i) Directorate formally appoint NOvA Project Manager (and Deputy?) [Montgomery]
- j) *PPD Division Office to make a plan for locating the NOvA Project Office.[Strait & Crisler]*
- k) *Discuss administrative support staffing needs for project office. [Strait & Phillips]*
- l) *Determine whether an EAW is required for the near detector and what type of document or action is needed. [Lutha & Griffing]*
- m) *Discuss the approach of Fermilab designing and U of MN performing construction of the far site with others at U of MN. Determine whether NOvA can use the existing Soudan PMG as a vehicle for communications and resolving conflicts.[Cooper & Marshak]*
- n) *Prepare a write-up on the site selection process including physics related requirements/implications. [Cooper & Ray]*