

# NLIT Brown Bag Seminar

Bill Boroski

Fermilab

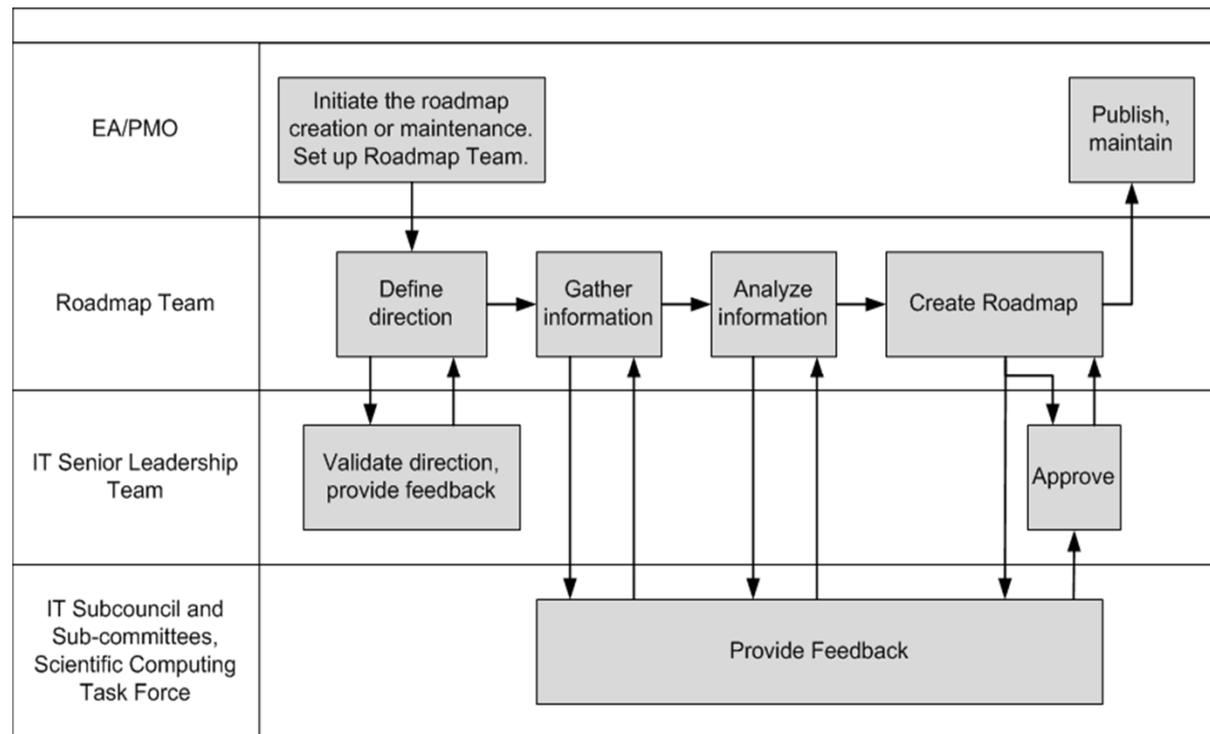
July 12, 2011

## Overview

- Attended a number of interesting presentations on IT governance, service delivery process improvement, portfolio and project management, and strategic planning
- Strategic Planning at SLAC using Technology Roadmaps
  - Not covered today: Using a pattern-based approach for aligning information management strategy with mission at Idaho National Laboratory
- Agile Development Experiences at Pacific Northwest National Laboratory (PNNL) and Sandia National Laboratory (SNL)
- Technical Design Review Methodology at SLAC
- My presentation:
  - Implementing PPM and PM Methodologies in a Laboratory Environment

## Strategic Planning using Technology Roadmaps

- Imre Kabai (Enterprise Architect, SLAC) outlined the approach SLAC is taking for developing technology roadmaps to inform their strategic planning.
- Outlined a 9-step process using a graded and agile approach to develop roadmaps for various technology domains
- Process overview:



## Roadmap Deliverables

- Deliverables for each technology domain:
  - Time-based roadmap (high-level Gantt chart view)
  - List of proposed/planned initiatives (Excel spreadsheet)
  - Technology matrix (spreadsheet; see below)
  - Appendix (contains text documenting decisions made in roadmap development)
- Technology matrix example:

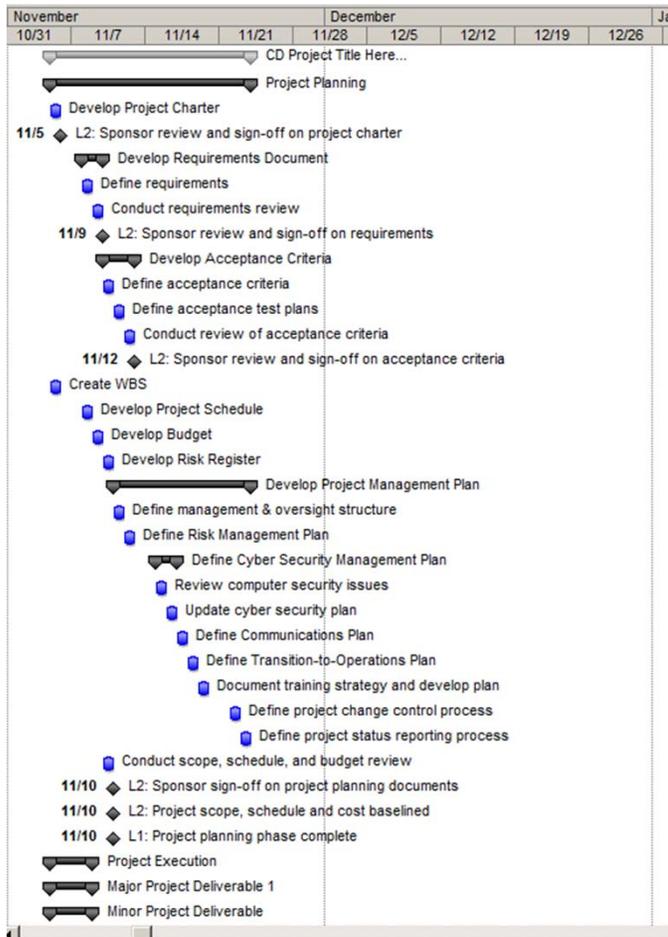
Technology Matrix	Baseline (what we have today)	Invest (The initiatives)	Emerging (To track)
Strategic (2-5 years)	Multi Vendor Equipment	VOIP Trunking, VOIP Sets	Convergence (Video/IP)
	Gigabit/10GigE	802.1x port Network Access Control	Faster Network Speeds
			Wireless Everywhere
Tactical (0-2 years)	MPLS Networks	Standardization and Refresh	
	Swithed Cisco LAN	Compliance with CVD	
	10Mbit/100Mbit	Network Lab	
Contain (No new investment)	Point to Point WAN		
	Cisco ISR Firewalls		
	802.11i WLAN Authentication		
Retire (Eliminate)	Unsupported Hw		
	Celera Equipment		
	10/100 Ethernet		
	Cat 5 Media and Below		

## Agile Development Experiences

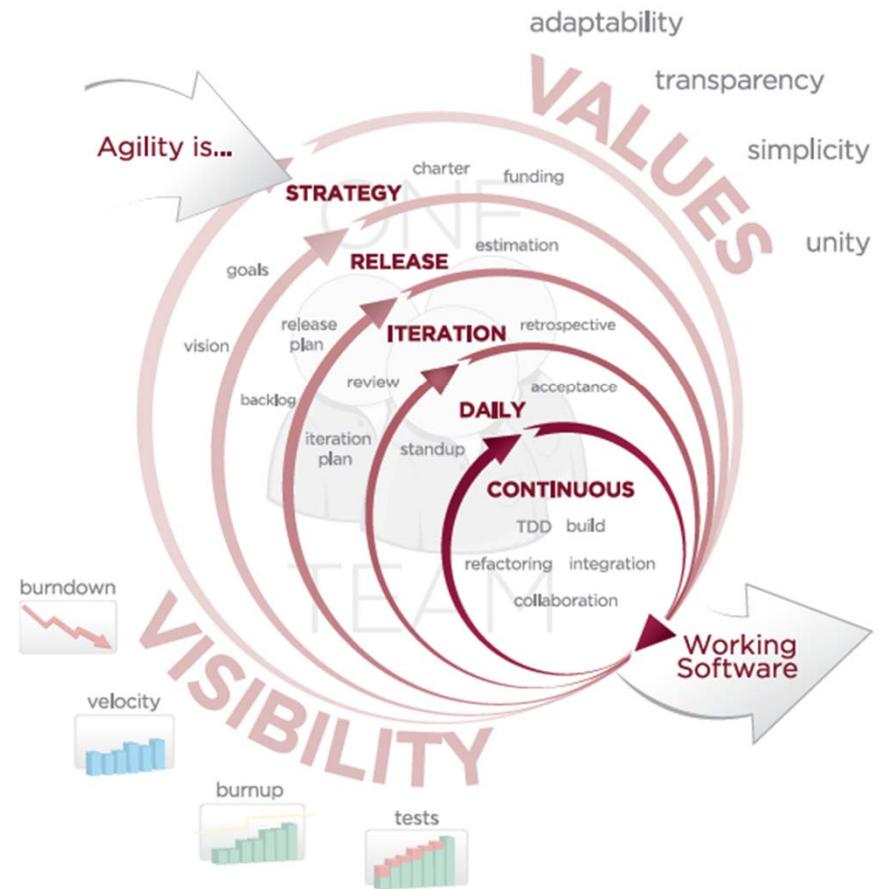
- Attended two presentations discussing experience implementing agile/scrum development methodologies
  - PNNL SharePoint Capability Service using Agile Development, Courtenay Rojas, Pacific Northwest National Laboratory
  - Agile Methods Applied to Work at the Lab, Hope Niblick, Sandia National Laboratory

# Agile vs. Waterfall

## WATERFALL APPROACH

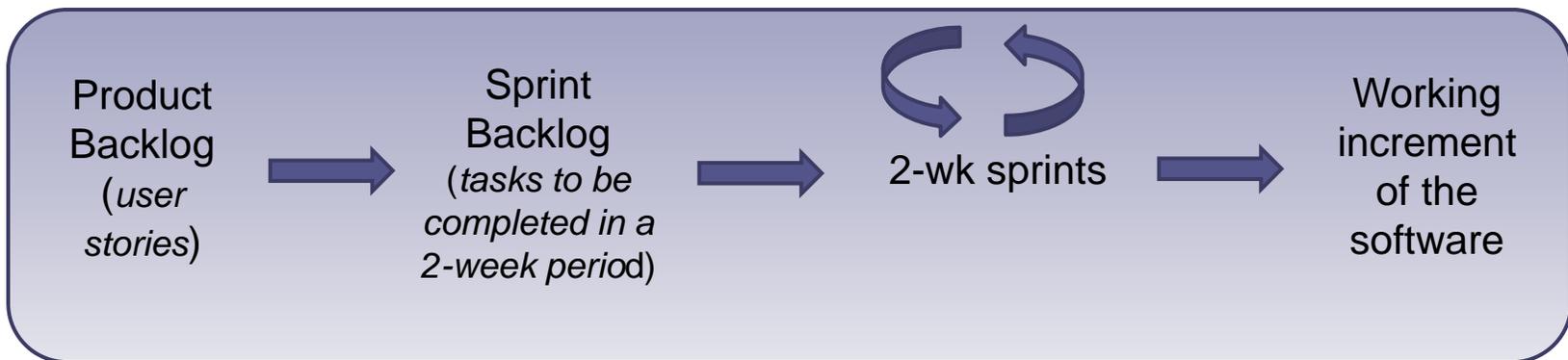


## AGILE DEVELOPMENT



## Agile Development Approach

- **Scrum** – Iterative, incremental framework for project management often seen in agile software development. Can also be used as a general project management approach.
- Development based on “user stories”
  - Who is the user?
  - What is needed?
  - What is the value?
- Also incorporates test cases and acceptance testing
- Two-week iteration cycle with review



- Each 2-week sprint concludes with a demonstration of user stories completed; participants include developers, users, customers, etc.
- Worked best when teams were co-located (2-3 developers per team)
  - Cautioned against allowing teams to be disturbed during sprints

## Some Lessons Learned

- What went well
  - Implementing scrum for software development: “even team members who initially resisted came to like the approach....”
  - The use of “scrum boards”
    - Ideally located in an area in which they can be left undisturbed during the development period
    - Using sticky “Post-it” notes in various colors quickly tells the story
  - Periodic “retrospectives”
    - Provided an opportunity for people to express their opinion of the process
    - Provided a baseline for accountability – if the team agreed they would not do something again, was captured in writing.
    - Provided an opportunity to fine-tune things that didn’t quite go as well as the team would have liked.
  
- What didn’t go so well
  - Software to run scrums didn’t work – slowed down the process. Use sticky-note scrum boards.
  - Resistance from customers
    - Expecting standard set of project management artifacts.
    - Expecting to know exactly when specific tasks would be completed.
      - Inconsistent with agile flexibility to change order in which user stories will be done.
  
- Overall, both organizations found scrum to be very effective

## Technical Design Review Process at SLAC

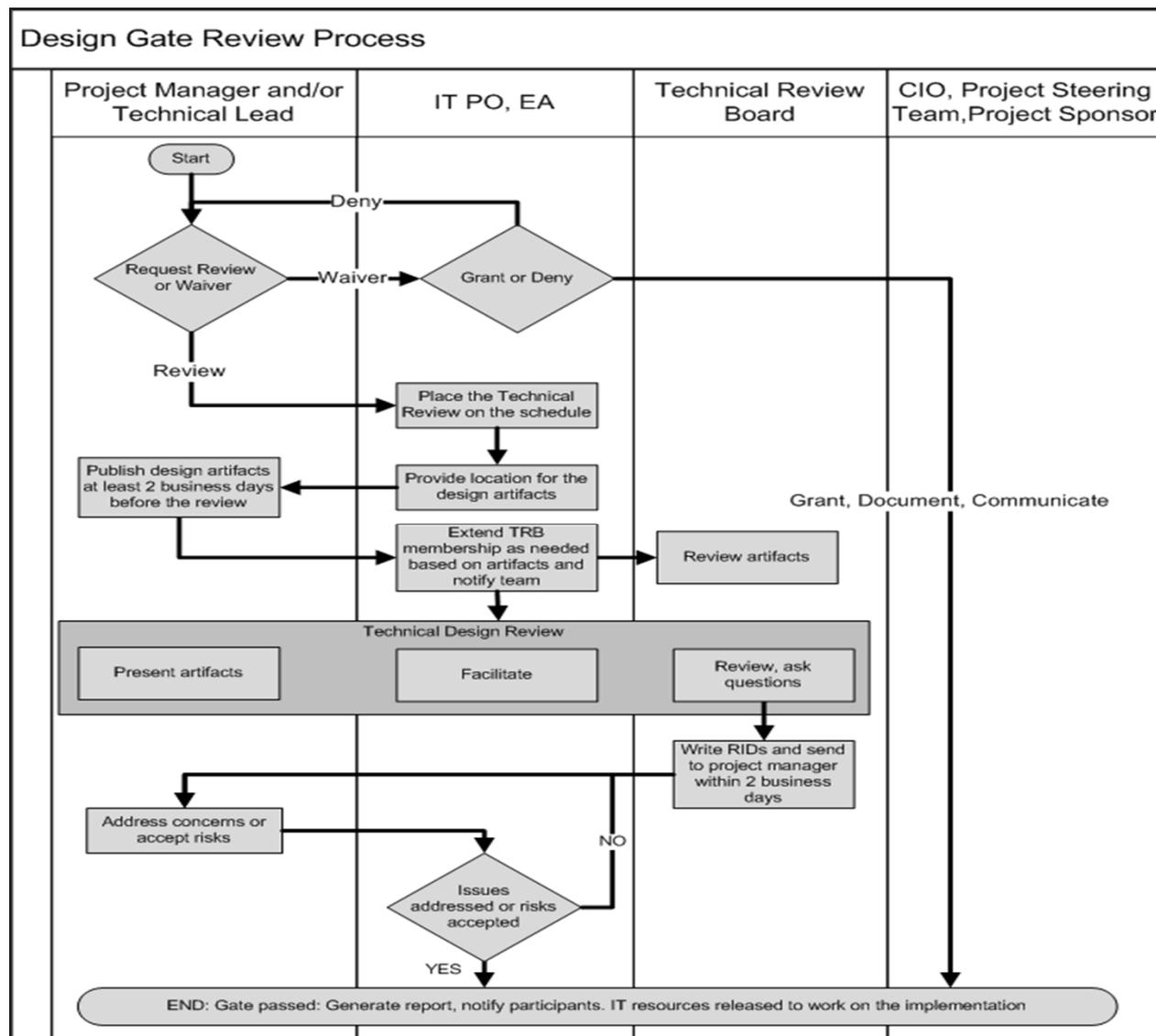
- Presented by Imre Kabai, Enterprise Architect, Office of the CIO, SLAC
- “You can use an eraser on the drafting table or a sledge hammer on the construction site.” – Frank Lloyd Wright
- Design Review Purpose
  - Project quality assurance
    - Provide independent assessment of system design completeness and correctness
    - Multidisciplinary review and input from most experienced technical staff
    - Ensure that the project’s design satisfies the requirements
    - Improve system maintainability and supportability
  - Promote use of best practices
    - Ensure the use of Technology Roadmaps and IT Standards to drive strategic and tactical alignment
  - Explore alternatives and help projects avoid potential problems
    - Provide projects with suggestions that may result in cheaper, faster, or better approaches
    - The earlier a gap, problem, or bad assumption is identified in the life cycle, the easier, and cheaper, it is to fix it.

## Technical Design Review - Details

- **In-Scope: All projects where (A or B or C or D or E) and F**
  - A: Requires significant IT resources to implement (>80 FTE hours)
  - B: Significant impact on current IT systems and/or support practices
  - C: Complex dependencies or new, unknown technologies
  - D: High impact on IT stakeholders and/or high visibility
  - E: IT sponsored projects
  - F: Not waiver from Enterprise Architecture to bypass the review process
- **What happens if the Technical Design Review is not passed?**
  - IT resources can not be assigned to the project's implementation phase
  - IT resources can not be assigned to provide ongoing support
- **Despite this the process is designed:**
  - Not to police
  - Provide advice and value
- **Technical Design Review Board**
  - Service owners represented on board as standing members
  - Review Item Discrepancy (RID) forms are used to document risk, questions, or concerns.

# Technical Design Review - Process

- Design artifacts are made available 2 business days before the review.
- Two-hour time block set aside for review.
- Special documents are not created for the review; only artifacts created as part of the normal design process.
- Process being developed at SLAC seems reasonable
  - Integrates project management, enterprise architecture, service management, and others.



## Highlights from My Presentation

- Implementing PPM and PM Methodologies in a Laboratory Environment
  - Introducing IT governance to the laboratory
  - Approach for implementing Project Portfolio Management; and progress to date
  - Approach for implementing project management methodologies for larger portfolio-level projects; and progress to date

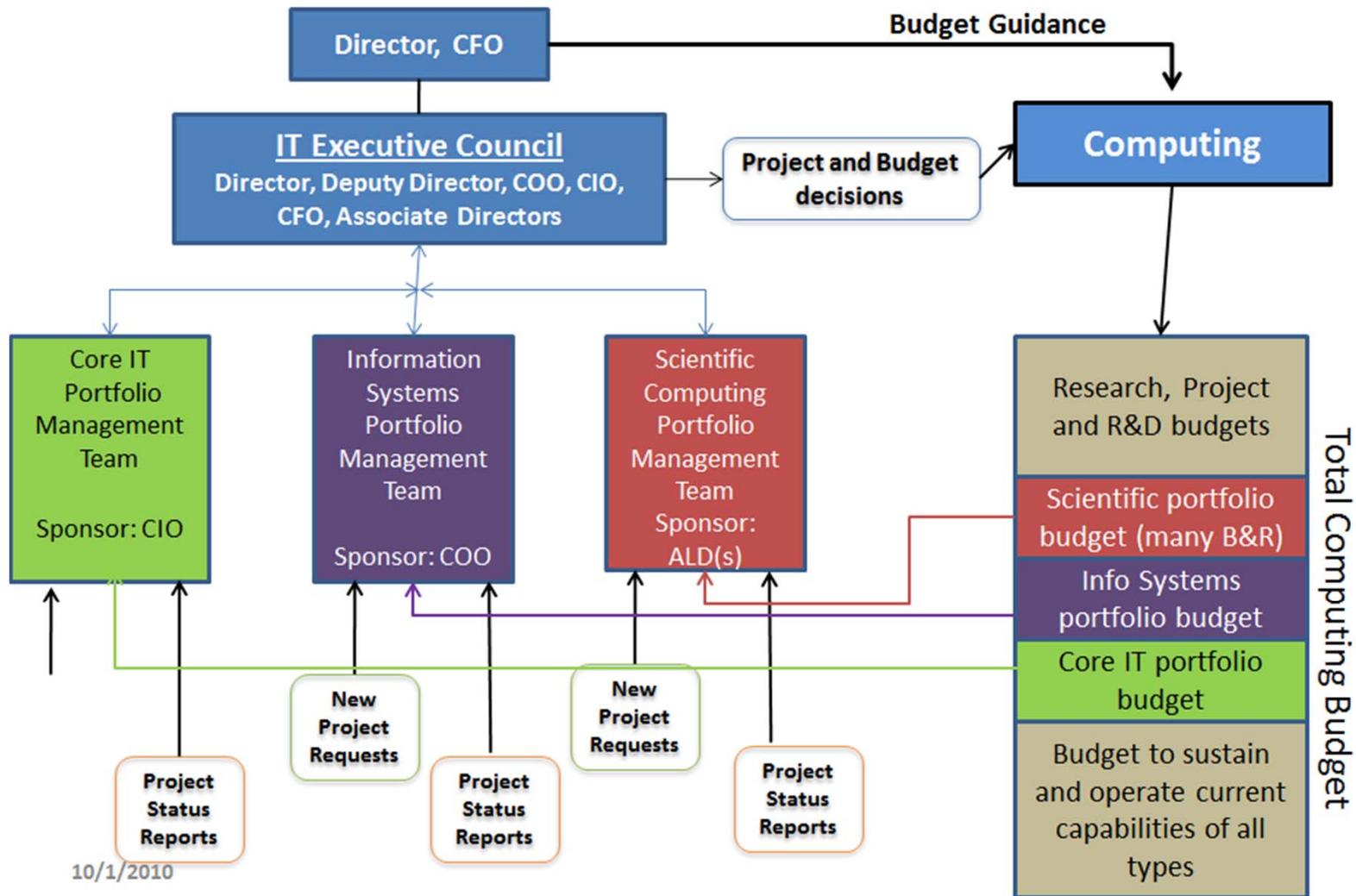
## IT Governance at Fermilab

- The processes, policies, roadmaps and plans through which we ensure that IT investments are aligned with the laboratory's strategic plan, business plan, goals and priorities.
- Aimed at addressing four simple questions
  - Are we doing the right things?
  - Are we getting them done?
  - Are we doing them the right way?
  - Are we getting the benefits?
- Implementing Project Portfolio Management establishes one aspect of IT governance
  - Aligns IT investments and priorities with the science and operational goals of the lab
  - Ensures that customer voices are heard and that cost/benefits of demands are understood
  - Establishes accountability and decision rights

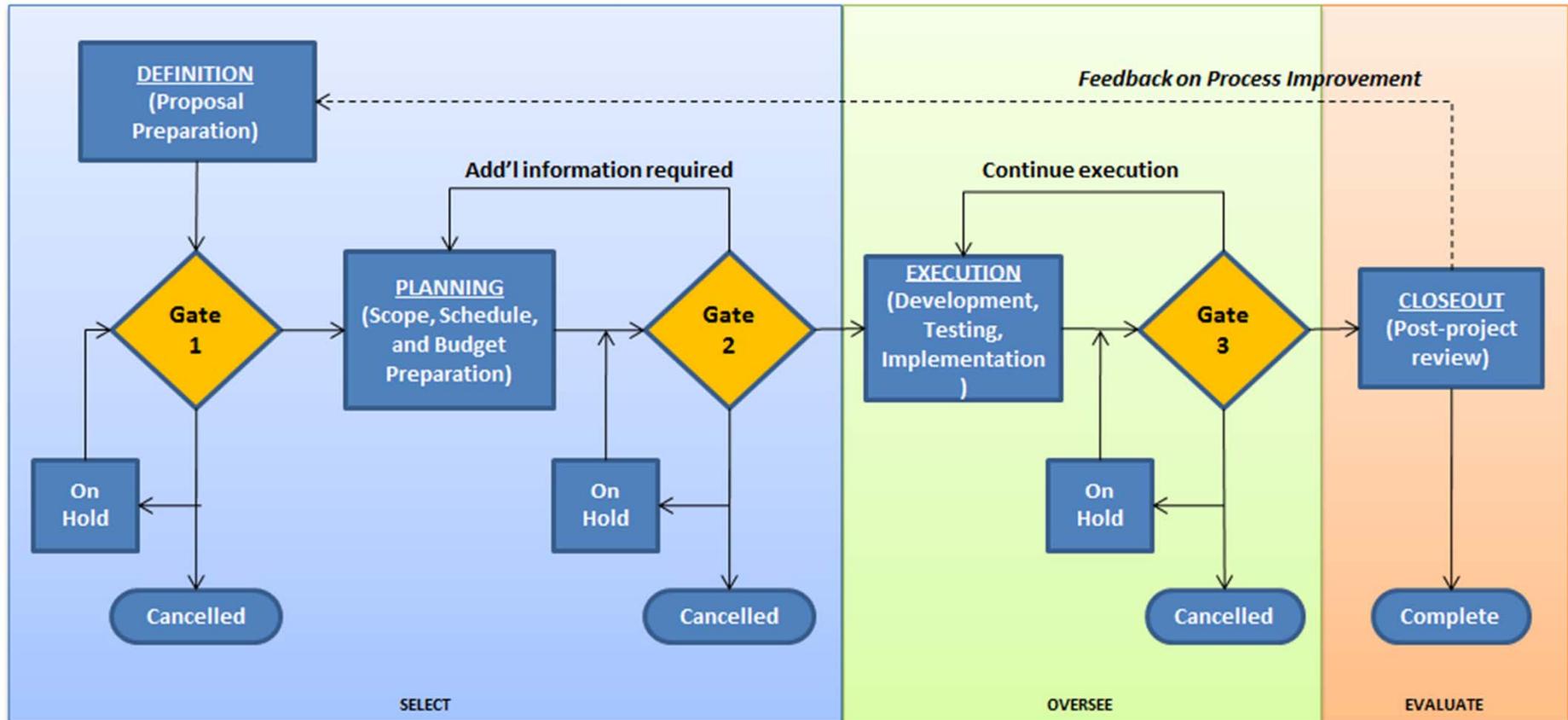
# Project Portfolio Management

- For our computing projects, we entertain the notion of big “P” and little “p” projects
  - Big “P” projects are typically portfolio-level projects with broad laboratory impact, etc. Require a higher degree of rigor and formality. Typically led by formally-trained project managers, including some PMPs.
  - Little “p” projects are typically smaller service improvement or upgrade projects that benefit from the application of project management principles and practices at an appropriate level.
- Initially focused on implementing PPM for “Portfolio Projects”
  - Projects that have broad laboratory impact and are intended to achieve strategic objectives, meet performance goals, maintain regulatory compliance, or increase functionality in a significant way to meet specific needs. They are typically sponsored by a senior member of laboratory management.
  - Note that we have intentionally avoided defining portfolio projects based on cost, duration, and other such factors.

# IT Project Portfolio Management Organizational Overview



## Portfolio Management Team Phases & Gates

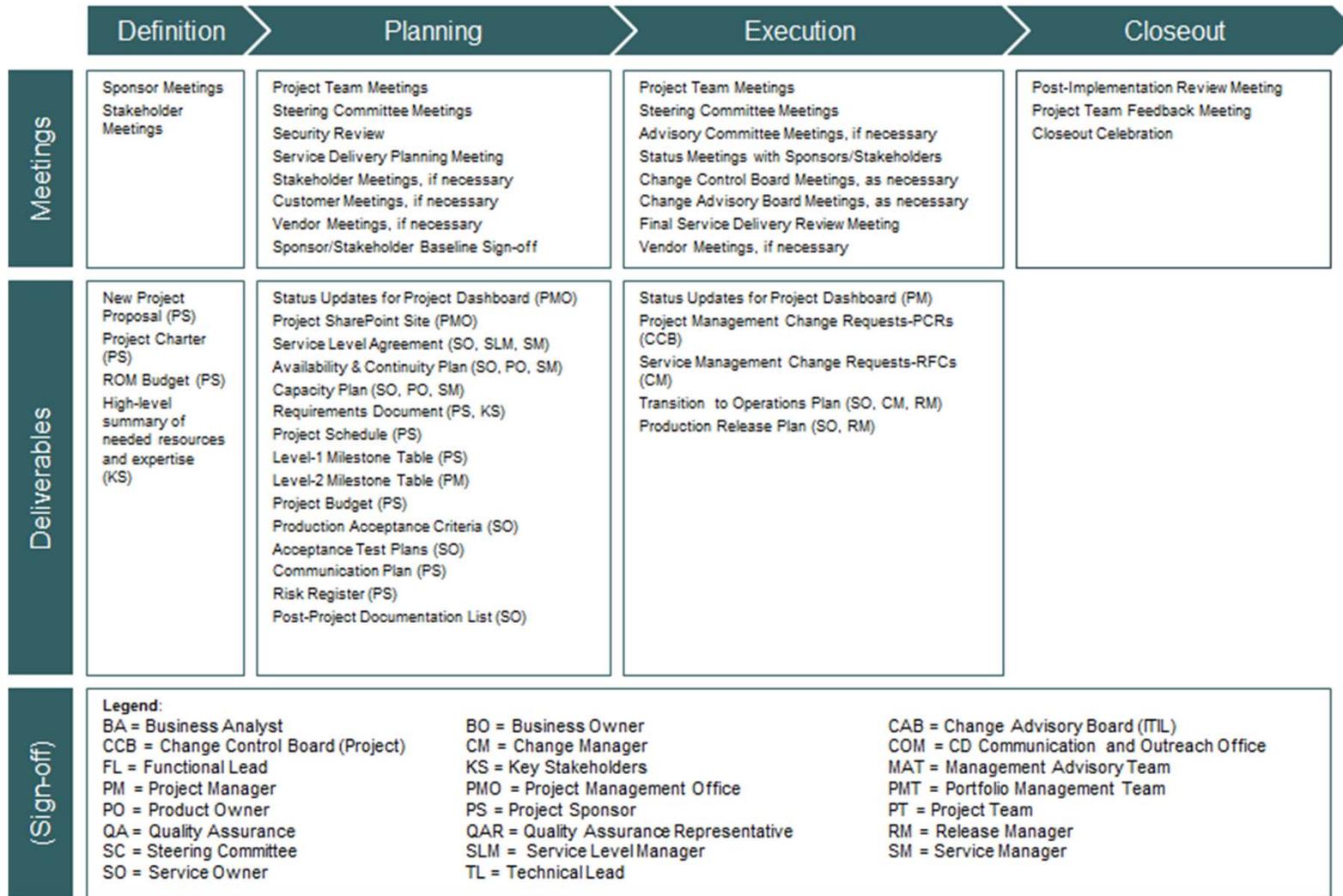


- During the “Select” phase, the PMT makes Go/Hold/Cancel decisions on proposals
- During the “Oversee” phase, the PMT monitors the health and continued relevance of projects under execution
- During the “Evaluate” phase, the PMT compares final project results to anticipated benefits to determine if key objectives were satisfactorily met. The review may also generate suggestions for process improvement and identity potential follow-on projects for future consideration.

## Project Management Implementation Approach

- Implement project management principles and methodologies at a level commensurate with the size and scope of our projects
  - Tailor PMBOK and other recognized standards and methodologies to meet our needs.
  - Most of our portfolio projects are being executed using the waterfall method.
  - One of our portfolio projects is being executed using more of an agile approach, but not rigorously following agile or scrum methods.
  
- Develop standardized SharePoint and document templates to speed project delivery and improve consistency
  - Modify and tailor document templates to meet our needs.
  - Develop templates for use on our portfolio projects.
  - Documents and templates are readily available through the PMO SharePoint site for use on smaller projects as appropriate and helpful.
  
- Using MS Project, Excel, Word and SharePoint to develop processes and approach; over time, may begin to evaluate other tools.

# Computing Project Lifecycle



# Project Documentation Deliverables Chart

- Documentation deliverables chart integrates project management, service management, and enterprise architecture into the project delivery process.
- Documents required for a given project are determined using a graded approach.
- Standardized document templates are being developed.
- Goal is to tailor deliverables to optimize project delivery.
- Deliverables chart is a living document – still evolving.

Deliverable	Phase	Prepared by	Reviewed by	Approved by
Project Proposal	Definition	PM, BA, PS	PS	PS
Project Charter	Definition	PM, PS	PT, FL, KS, SC, EA	PS
ROM Budget	Definition	PM, PS	SC, PT	PS
High-level summary of needed resources and expertise	Definition	PM	PT	KS
Status Updates for Project Dashboard	Planning	PM	PM	PMO
Project SharePoint Site	Planning	PM, PMO	PMO	PMO
Service Definition, Service Level Agreement, Operational Level Agreement	Planning	SO, SLM	SO	SM
Availability and Continuity Plan	Planning	SO, SLM	SO	SM
Capacity Plan	Planning	SO, SLM	SO	SM
Requirements Document	Planning	PM, PS, KS	PS, SO, EA, KS, SC	PS, KS
Requirements Traceability Matrix	Planning	PM, PT	PS, SO, SC	PS
Project Schedule	Planning	PM, PS, KS, PT	PS, KS, PT	PS
Level-1 Milestone Table	Planning	PM	PS, KS, PMO	PS
Level-2 Milestone Table	Planning	PM	KS, PMO	
Project Budget	Planning	PM, PS, KS, PT	PS, SC	PS
Production Acceptance Criteria	Planning	SO, PM	SO	SO
Acceptance Test Plans	Execution	SO, PM	SO, QAR, CM, RM, PT	SO
Communication Plan	Planning	PM, COM	PS, KS, SC	PS
Risk Register	Planning	PM, PS, KS, PT	PS, KS, PT, SC	PS
Post-Project Documentation List	Planning	SO, PM	SO, PT	SO
Status Updates for Project Dashboard	Execution	PM	PM	
Project Management Change Requests (PCRs)	Execution	PM, PS, KS, PT	PS, KS, PT, SC	CCB
Service Management Change Requests (RFCs)	Execution	PM, SO	CAB	CM
Transition to Operations Plan	Execution	SO, CM, RM	SO, CM, RM	SO, CM, RM
Production Release Plan	Execution	SO, RM	SO, RM	SO, RM
Post-Completion Documentation	Closeout	SO	SO	SO
Lessons Learned Summary	Closeout	PM, PT	PT	PMO
Post-Implementation Review	Closeout	PMO, PS	PMO, PS	PMO, PS
Project Closeout Acceptance	Closeout	PM	SO, PS	SO, PS

<b>Legend:</b> BA = Business Analyst CCB = Change Control Board (Project) FL = Functional Lead PM = Project Manager PO = Product Owner QA = Quality Assurance SC = Steering Committee SO = Service Owner	BO = Business Owner CM = Change Manager KS = Key Stakeholders PMO = Project Management Office PS = Project Sponsor QAR = Quality Assurance Representative SLM = Service Level Manager TL = Technical Lead	CAB = Change Advisory Board (ITIL) COM = CD Communication and Outreach Office MAT = Management Advisory Team PMT = Portfolio Management Team PT = Project Team RM = Release Manager SM = Service Manager
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# Standardized Project SharePoint Site Templates with Readily-Available Standardized Document Templates - *example*

The screenshot shows a SharePoint site titled "Project Site Template - Home" in Internet Explorer. The address bar shows a URL from "https://intranet-int.fnrl.gov". The site is a document library for "Project Site Template" owned by William N Boroski. The "New Document" menu is open, showing a list of standardized templates:

- Document
- Decision Document
- Lessons Learned
- Meeting Agenda
- Meeting Notes
- Project Change Request
- Project Charter
- Project Management Workbook
- Project Schedule
- Status Report

The main content area displays a "Documents" library with the following table:

Name	Modified	Modified By
Design Documents	3/21/2011 9:34 AM	Melissa A. Tanner
Initiation	3/21/2011 9:34 AM	Melissa A. Tanner
Requirements and Use Cases	3/21/2011 9:34 AM	Melissa A. Tanner
Technical Documents	3/21/2011 9:36 AM	Melissa A. Tanner

Below this, there is a "Project Internal" section with another table:

Type	Name	Modified	Modified By
Folder	Budget	4/7/2011 8:36 AM	Melissa A. Tanner
Folder	Request for Proposal-RFP	4/7/2011 8:36 AM	Melissa A. Tanner
Folder	Statement of Work-SOW	4/7/2011 8:36 AM	Melissa A. Tanner

The right sidebar contains the Fermilab logo and sections for "Issues Log", "Action Items", and "Calendar", all of which are currently empty.

## Summary

- We're not alone on our journey...
- Many labs are in the process of implementing governance and project portfolio management, and striving for improved project delivery.
- They're also struggling with many of the same issues (e.g., project prioritization, resource management, reducing delivery time).
- NLIT provided a great platform for learning what others are doing and how we might leverage that expertise.
- We are ahead in several areas and the work that we've done was very well-received.