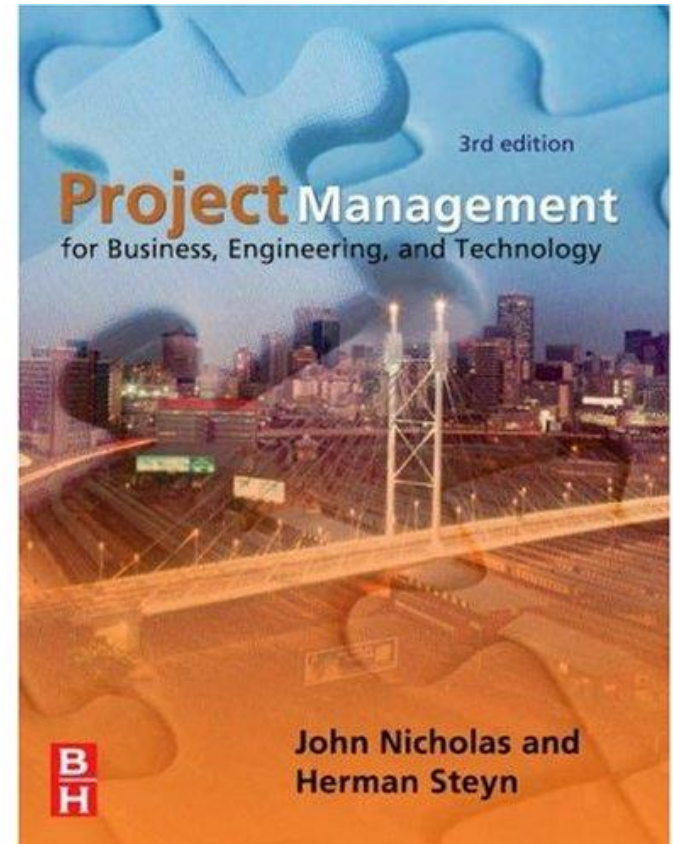


Chapter 16

The Management of Project Management

Project Management for Business,
Engineering, and Technology

Prepared by
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Loyola University Chicago



Project Meta-Management

- Next several topics address project “meta-management”
 - Project management methodology
 - Project management maturity
 - Project knowledge management
 - Project management office (PMO)
 - Project portfolio management
 - Project Meta-management: issues important to project success but often beyond realm of the PM
-

Project Management Methodology

Methodology

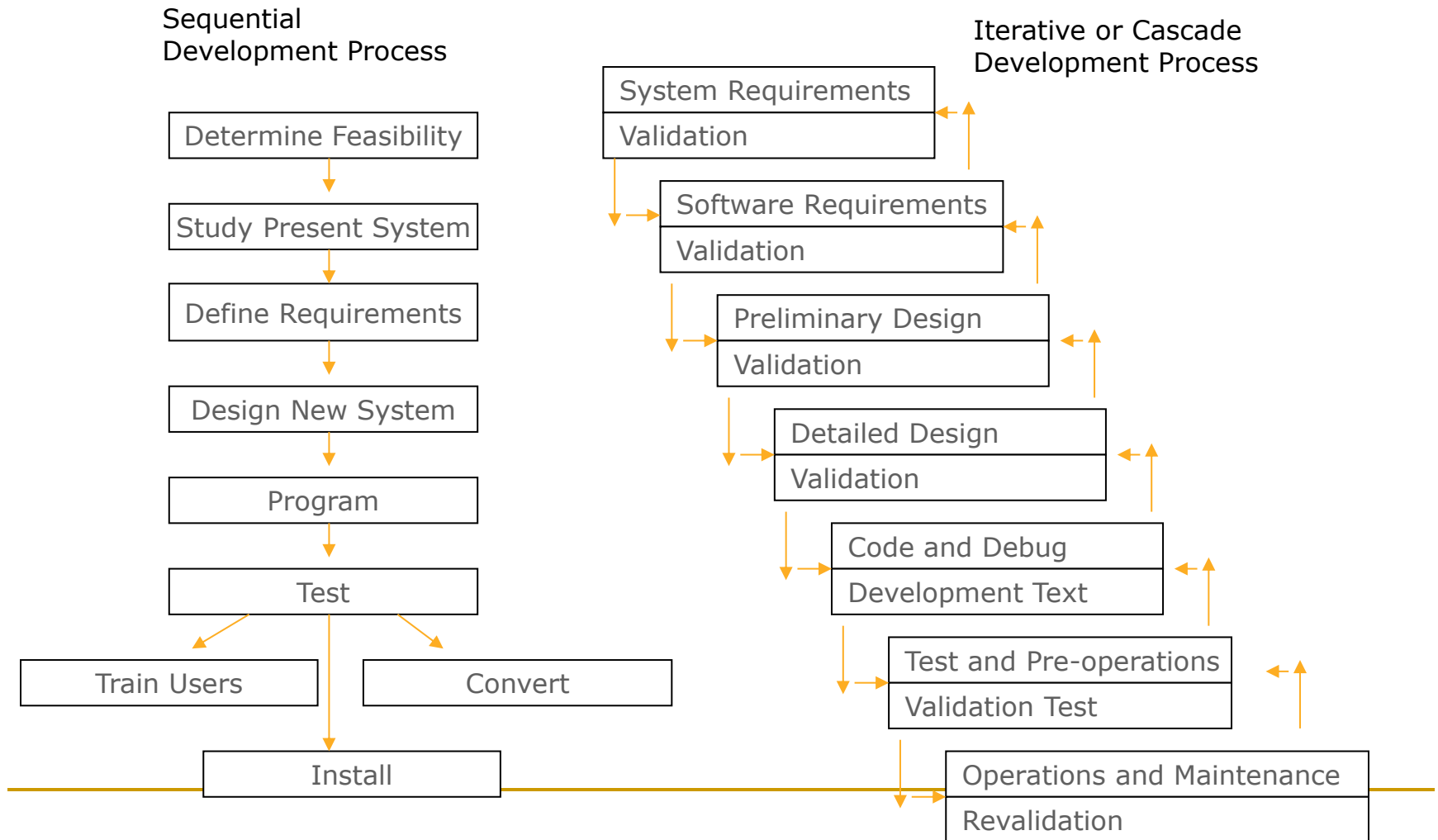
- Process or procedure to accomplish an end result
 - Recommended, standardized procedure assumed to be best means to achieve particular end result
-

Project Management Methodology

- Most of this course has been devoted to **ELEMENTS** of project management methodology
 - Methodology is way all of these elements are combined and used in a *particular* project and organization
 - Some methodologies for design and development you might already know:
-

Project Management Methodology

Examples of “Development” Methodologies



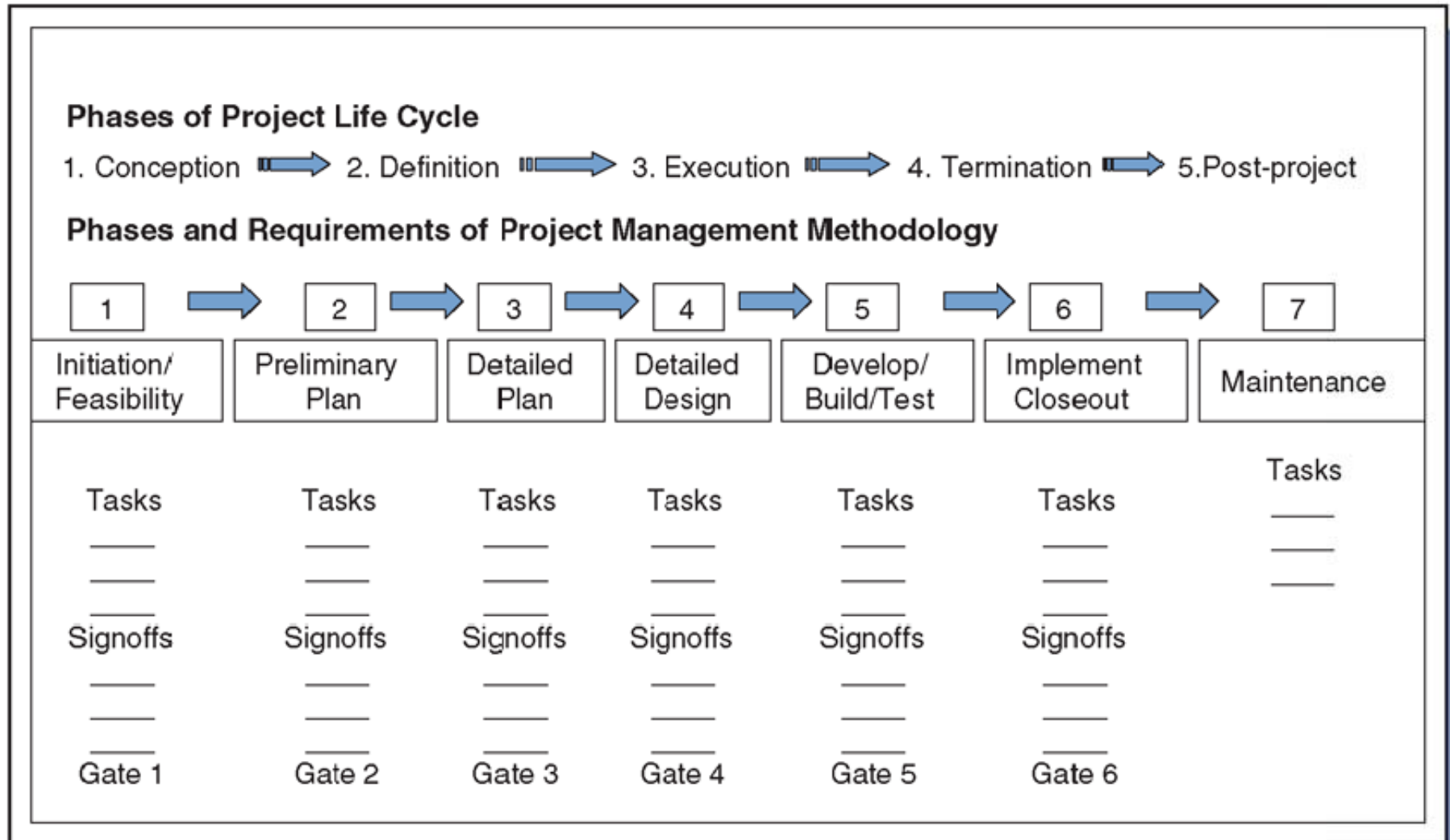
Project Management Methodology

- PM methodology specifies the phases/stages of projects and requirements at each phase
 - Each organization should develop its own methodology
 - Example
-

Project Management Methodology

Figure 16-1

Project life cycle phases versus project management methodology.



Project Management Methodology

Specifies Tasks and Deliverables for

- ❑ Project initiation/proposal
- ❑ Project selection
- ❑ Proposal development
- ❑ Project planning
 - Requirements/specifications
 - Work definition
 - Resource needs
 - Time and cost estimating
 - Scheduling
 - Budgeting/accounting
 - Risk analysis
- ❑ Contract management
- ❑ (next slide)

Project Management Methodology (cont'd)

Specifies Tasks and Deliverables for

- ❑ HR recruiting, training, layoffs
- ❑ Project tracking/review
- ❑ Data entry
- ❑ Reporting to management
- ❑ Project auditing
- ❑ Quality control/assurance
- ❑ Process control
- ❑ Change control
- ❑ Project closeout
- ❑ Post-project review
- ❑ Post-implementation review
- ❑ Knowledge management/sharing

Project Management Methodology (cont'd)

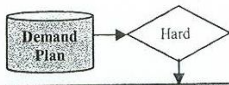
- Two examples of comprehensive project management methodologies (next)



Project Approval	Customer Requirements	Solution Analysis/ Recommendation	Detailed Design	Attain the Solution	Solution Implementation
Preliminary Plan Project initiation form Preliminary task list Risk analysis Issue log Prelim customer business unit analysis	Preliminary Plan Updated project initiation form Preliminary task list Risk analysis Issue log Scope management Prelim customer business unit analysis	Detailed Plan Updated project initiation form Preliminary task list Risk analysis Issue log Scope management Prelim customer business unit analysis	Working Plan Updated project initiation form Detailed task list Risk analysis Issue log Scope management Final customer business unit analysis Benefits realization plan Implementation plan Conversion plan Training plan Resource plan Procurement plan Documentation plan Operations/support plan	Working Plan Updated project initiation form Detailed task list Risk analysis Issue log Scope management Final customer business unit analysis Benefits realization plan Implementation plan Conversion plan Training plan Resource plan Procurement plan Documentation plan Operations/support plan	Working Plan Updated project initiation form Detailed task list Risk analysis Issue log Scope management Final customer business unit analysis Testing plan/QA Implementation plan Conversion plan Training plan Resource plan Procurement plan Documentation plan Operations/support plan Benefits realization plan
Deliverables Project initiation form • general business case • project description • project timeline • project spending plan • assumptions • dependencies • potential risks • project team • governance team • requirements for next phase • ROI • sign-offs Resource plan High-level requirements Change control process Communication strategy	Deliverables Process definition Business function requirements • business model • work process flows Define target population Current and proposed states Outputs/inputs Budget cap Business rules Policy changes Metrics Security Regulatory Environmental Interfacing Recovery requirements	Deliverables Conceptual design Solution evaluation Feasibility/proof of concept Customer sign-off document Contingency plan Fit analysis • architecture • functionality • skills • training	Deliverables Business impact plan • detailed work flow • organization impact • business process • reengineering • operations impact • resource plan QA/user test plan Back-out plan Security	Deliverables QA/user test documentation Implementation checklist Change management	Deliverables Closure document Final communication Shut-down old systems Hand-off to operations Project post-completion review Schedule benefits review
Phase Review: Governance Team	Phase Review: Governance Team	Phase Review: Governance Team	Phase Review: Governance Team	Phase Review: Governance Team	Phase Review: Governance Team
Sign-offs Project sponsor Project champion Project manager Governance team Customer business unit manager	Sign-offs Project sponsor Project champion Project manager Governance team	Sign-offs Project sponsor Project champion Project manager Governance team Customer business unit manager	Sign-offs Project sponsor Project champion Project manager Governance team Customer business unit manager	Sign-offs Project sponsor Project champion Project manager Governance team	Sign-offs Project sponsor Project champion Project manager Governance team

Figure 16-2
 Comprehensive six-stage project management methodology.

Project Management Methodology (example)



Project Feasibility

- Open Artemis Project
- Assess Client Request
- Preliminary Technical Feasibility
- ID Small/Med/Large Methodology Path
- Obtain Project Lead
- Develop Requirements, Analysis and Design Funding Request
- Request 20%-30% of total project expense range
 - Small: 0-500K
 - Med: 500K - 2 Million
 - Large: 2 Million +
- Obtain Funding and Approval to Proceed
- Client, Sponsor
 - Steering Committee

Project Initiation

- Complete Project Setup
- Assemble Team and Stakeholders
- Provide SQA Mentoring
- Document Business Requirements (REM1)
- Define Scope, Strategic Impact, Goals & Objectives
- Assess Risk
- Complete ORM Risk Assessment

Plan

- Document Functional and Non-Functional Requirements (REM2)
- Evaluate Vendors, if applicable
- Develop Conceptual Architecture
- Develop the Project Plan
- Document Technical Requirements (REM3)
- Evaluate Application Vendors and/or Resource Providers, if applicable
 - Develop Use Cases
- Refine Risk Assessment
- Start SCM
- Start Vendor Management Process, if necessary
- Develop High-Level Test Plan

- Architecture Checkpoint
- Confirm Project Path (Small/Med/Large)
 - Finalize Project Plan
 - Confirm that Sufficient Design Funding Remains

Business Go/No Go

- If Design Funding Needed,
- Prepare Funding Request
 - Obtain Approval to Proceed
- Assemble the Design Team
- Complete Admin Activities
- Conduct SQA Review

Assess Change/ Manage Scope

- Manage Scope and Change Requests
- Manage Issues
- Update Documentation
- Assess Team Member Performance for HR cycle

Report Status

- Update Team
- Monitor Project Expenses
- Update Management
- Ensure RFC is Current
- Conduct SOA Reviews

Control the Project

- Manage Meetings and Build Teams
- Control Quality, Risk, Cost, and Schedule
- Manage Supplier Relationships
- Audit and Control SCM Libraries
- Take Corrective Action

Close

- Deliver Post-Implementation Support
- Create/Revise Final Documentation
- Obtain Sign-off on Support Acceptance
- Conduct Project Debrief

- Assess Team Member Performance
- Conduct SQA Review
- Shutdown the Project
- Perform Benefits Realization Analysis
- Validate Ongoing Support Costs

Manage Project: Assess, Report, Control

SYSTEM DEVELOPMENT LIFECYCLE ACTIVITIES

Functional Design/Model

- Develop Back-Office Operational Design/Detailed Process Flows
- Perform Detailed Use Case Analysis
- Define System Architecture
- Architecture Checkpoint
- Define User Security Classes
- Develop Functional Specification

Signoff on Functional Specification

Technical Design

- Develop Technical Design
- Develop Support Transition Plan
- Develop Implementation Plan
- Signoff on Technical Design and Implementation Plan**
- Request Remaining Resource Availability
- Develop Funding Request
- Obtain Funding and Approval to Proceed**
- Client, Sponsor
 - Stakeholders
 - Steering Committee
- Complete Admin Activities

Develop/Build

- Develop/Build Infrastructure
- Develop/Build Prototype; Conduct Walkthrough
- Develop/Build Application
- Develop Detailed Test Scripts/Cases
- Build/Prepare Test Environment
- Unit Test
- Integration Test
- Develop Marketing /Communication Materials
- Create Operational Procedures
- Build/Setup Security Architecture
- Prepare Production Environment including Physical Space
- Create/Revise User Manual(s)

Test

- Review Entry Criteria
- Pre-System Test, if desired
- System Test
- Data Conversion Test
- Review Exit Criteria
- Coordinate Other Tests:
- User Acceptance
 - Performance
 - Pre-Prod.

Train/ Convert

- Training**
- Develop Training Plan
 - Develop Training Materials
 - Conduct "Train the Trainer" Sessions
 - Arrange Training Logistics
 - Deliver Training
 - Deliver Support Training (if applicable)
- Conversion**
- Conduct Mock Conversion
 - Convert Data
 - Convert Pilot/Beta Customers (in production)
 - Convert Customers (in production)

Implement

- Develop Turnover Documentation
- Finalize Support Transition Plan (including checklist)
- Finalize Implementation Plan
- B&T Implementation Signoff**
- Turnover into Production
- Validate Production Implementation
- Disable Old System
- Count Production Defects

PM Methodology: Why Important

- Methodology supports consistency in project management
 - All projects managed according to standardize policies and procedures that reflect “good” PM
 - Without a methodology,
 - management of projects varies manager-to-manager and project-to-project
-

PM Methodology: Why Important

One Size Fits All?

- Sometimes, yes. Methodology is framework with specified deliverables for management
 - The *details* of work process and tasks allowed to vary by project, as determined by project team
 - Baseline from which project management policies and procedures are improved
-

PM Methodology: Why Important

One Size Fits All? (cont'd)

- Sometimes no.
 - Create multiple methodologies according to kind of project – NPD, capital improvement, maintenance, infrastructure, etc.
 - One company has five!
 - Problem: which to use?
-

Creating the Methodology

- PM methodology should reflect kinds of projects and level of project management “maturity”
 - Created by group of most-experienced project managers
 - References PM methodologies of other organizations for ideas, formats, contents
-

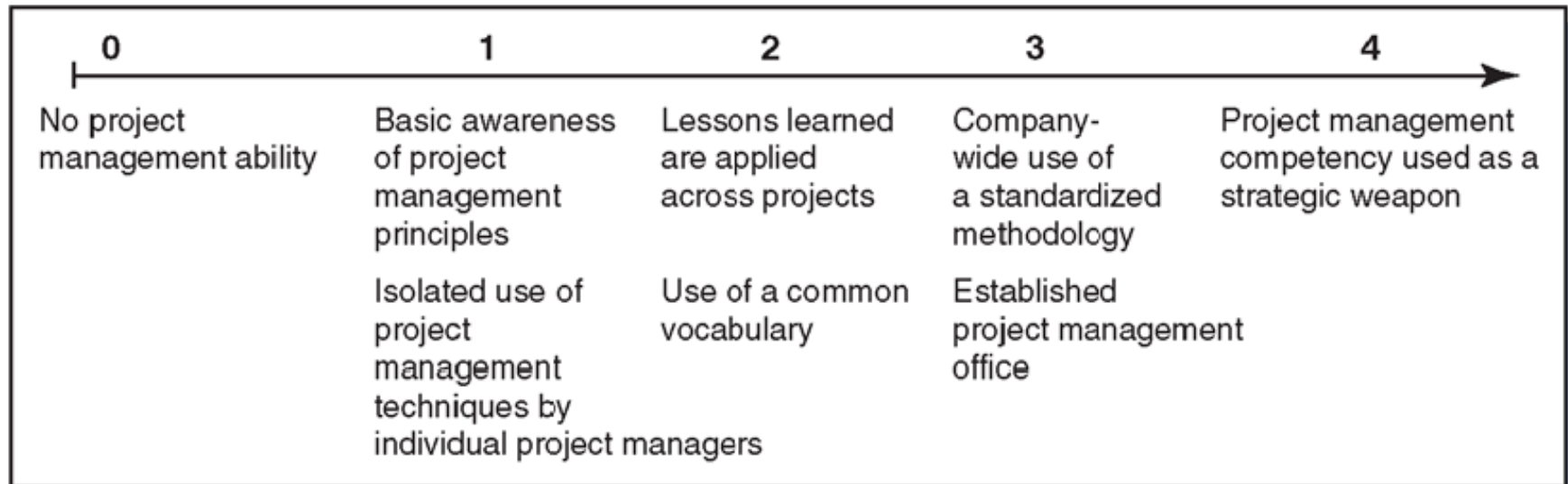
Creating the Methodology

- Reflects the “wisdom” and “best practices” of PMs in the organization and industry (trade and professional groups – PMI)
- Is revised and updated to reflect
 - new best practices
 - growing level of maturity of PM
 - changes in projects
 - suggestions of PMs
- PMs should want to follow methodology and be able to follow it

Project Management Maturity

Figure 16-3

Levels of project management maturity/competency.



Project Management Maturity Models

Maturity Models measure an organization's project management maturity

- Models fall into three general categories
 - Technical Delivery Process Models
 - Project Management Process Models
 - Total Organization Models
-

Project Management Maturity Models

- Emphasize formal processes and procedures (focus only on explicit knowledge)
 - Weakness: ignore tacit knowledge (knowledge about leadership, communication, teamwork, etc.)
 - Correlation between maturity project success? Uncertain.
-

Knowledge Management in Project Organizations

- In project organizations
 - Teams disband after each project ends
 - Team composition changes with every project
 - Turnover of valued employees may be high
 - PMs may be over-worked and seldom talk to each other
 - No post-mortem or summary review at project completion
 - Insights gained or lessons learned by individuals or teams are not documented or shared with others
-

Knowledge Management in Project Organizations

- The Result: Minimal organizational learning
 - People do not learn or forget what they learned
 - Inefficiency in planning and executing project.
 - New projects are treated as unique or first-time
 - Project outcomes tend not to improve much, even after years of experience
-

Knowledge Management

Solution: Knowledge Management:

- Formal mechanisms for
 - Capturing knowledge (learning)
 - Retaining knowledge
 - Transferring knowledge (sharing knowledge with those who need and can use it)
-

Kinds of Knowledge Explicit vs. Tacit

Explicit knowledge

- Easily documented with steps, procedures, and lists.
 - Easy to store.
 - Easy to transfer.
-

Kinds of Knowledge Explicit vs. Tacit

Tacit Knowledge

- Difficult to express in written words and diagrams
 - Usually exists in people's heads.
 - Difficult to transfer, but may include exceptionally valuable information
 - Most knowledge includes both explicit and tacit components
 - Most companies focus too much on explicit knowledge and too little on tacit knowledge
-

Kinds of Knowledge Explicit vs. Tacit

- Most “knowledge” includes both explicit and tacit components
 - Most companies focus too much on explicit knowledge and too little on tacit knowledge
-

Knowledge Management Methods in Projects, Tacit vs. Explicit

- Capturing Project Knowledge

1. After-action reviews T + E (captures both tacit and explicit knowledge)
2. Post-project reviews (postmortem) T + E



Knowledge Management Methods, Tacit vs. Explicit (cont'd)

□ Retaining Knowledge

3. Structured, documented post-project reviews E (retains only explicit knowledge)
4. Documented “lessons-learned” E
5. “Who to talk to” list/database T + E
6. Project reports in library/database E
7. Structured project methodology:
 templates, checklists, procedures, forms E
7. Professional forums (meet people) T + E
8. Technical experts T + E
9. Project peers T + E
10. Project consultants/knowledge experts T + E

Knowledge Management Methods, Tacit vs. Explicit (cont'd)

□ Knowledge Transfer

11. Technical Experts T + E
12. Project Peer Reviews T + E
13. Project Consultants T + E
14. frequent meetings with all PMs T + E
15. Meetings to share lessons learned E
13. Formal training sessions/seminars T + E
14. Enforced usage of project methodology E
15. PMs facilitating project debriefs for others' projects T + E

Examples of Formal KM Processes

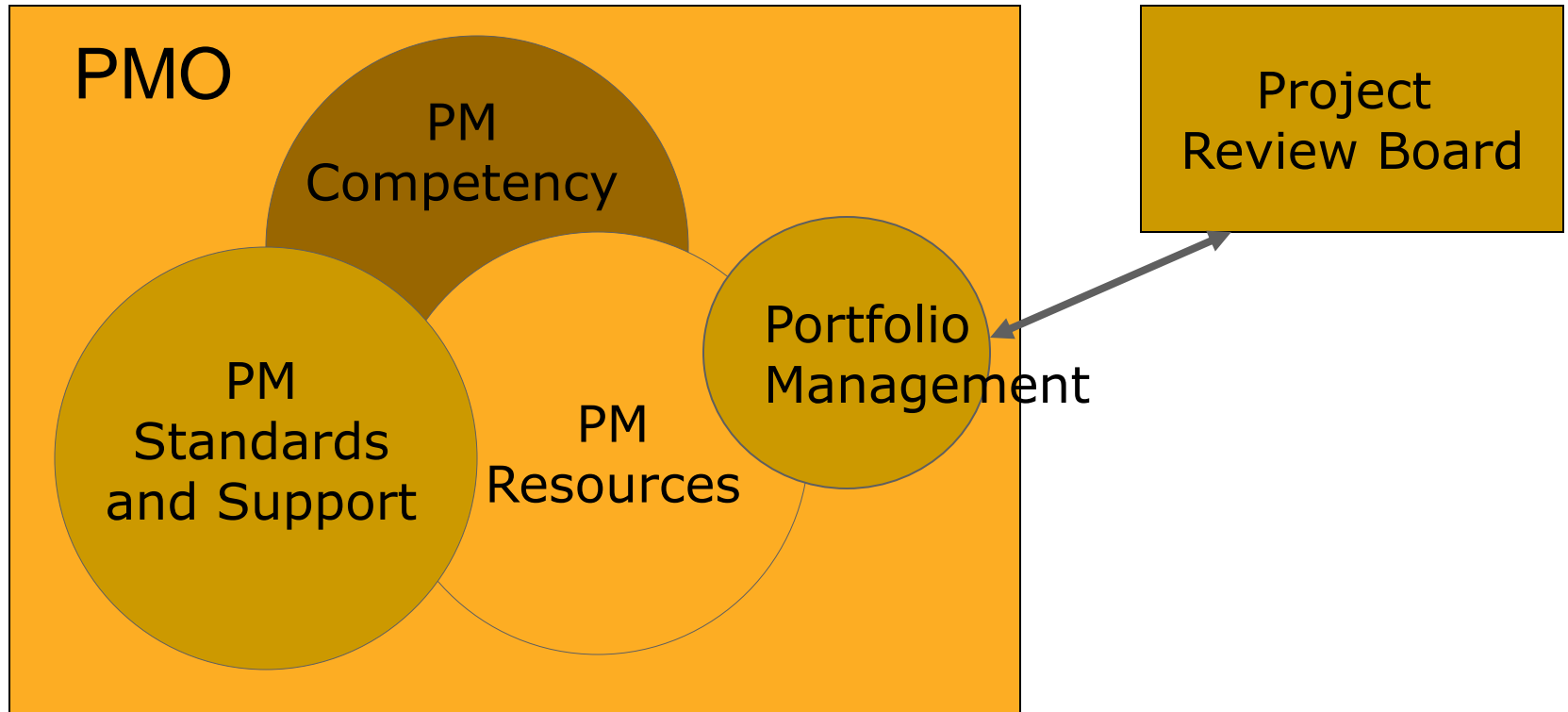
- Some KM methods are under direct control of PM (after-action review, project formal reviews and post-mortems)
- Many other KM methods must be handled by a support function (a “knowledge management team” the PMO), which provide:
 - The PM methodology with methods/deliverables/requirements that enforce KM
 - Support for KM:
 - Databases
 - Templates
 - Meetings/forums among PMs
 - Formal peer reviews
 - PM seminars
 - Project consultants and technical experts

Examples of Formal KM Processes (cont'd)

- The meta-management function that deals directly with these two points is project management office, PMO



PMO vs. PRB



PMO vs. PRB

- Project Management Office (PMO)
 - Charged with effective management of *all* projects
 - Project Review Board (PRB)
 - (aka Steering Committee or Governance Board)
 - Charged with project selection, monitoring, approval
-

PMO vs. PRB (cont'd)

■ Purposes

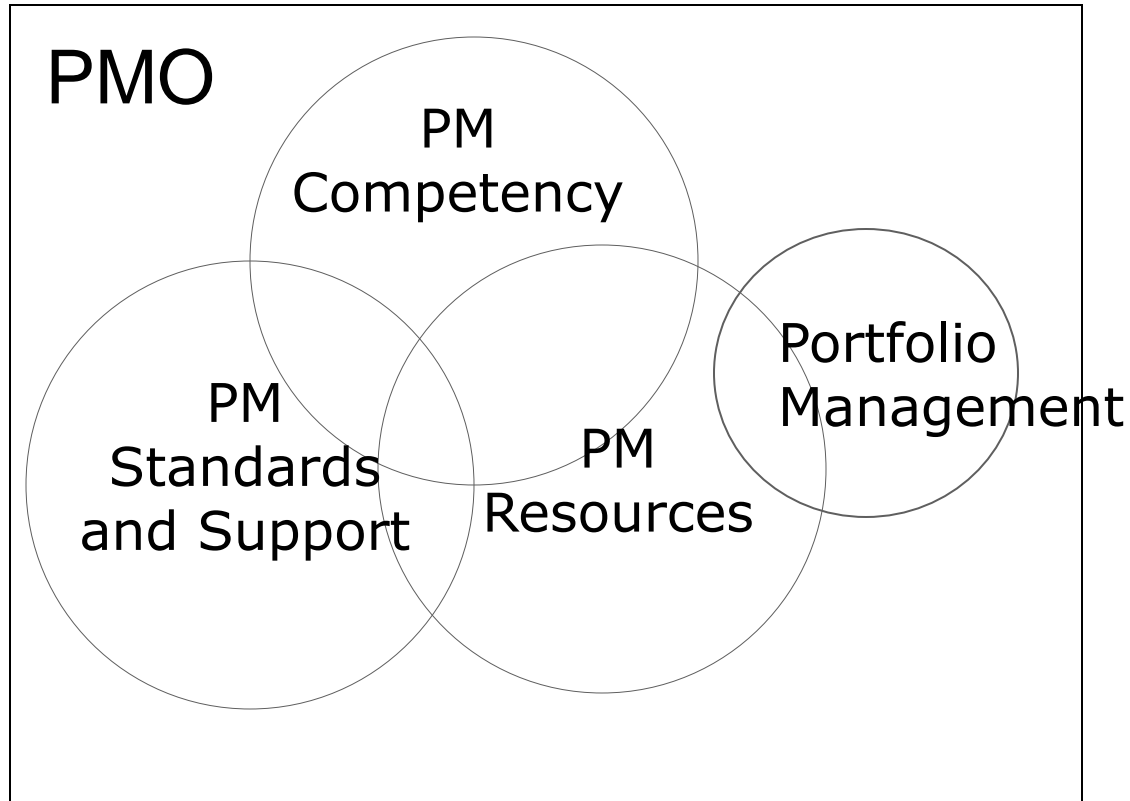
- PMO: do projects right
 - PRB: do the right projects
-

PMO Functions

PMO

- Department or group responsible for conduct of project management in an organization or division.
- Main purposes
 - Increase **competency** of PMs in the organization
 - Allocate and coordinate **project resources**
 - Set and enforce **standards** for project management
 - Assist PRB *in portfolio management*
- The PMO has a major role in
 - Setting and enforcing *project management methodology*
 - Providing *mentoring and consulting* services for PMs

PMO Functions



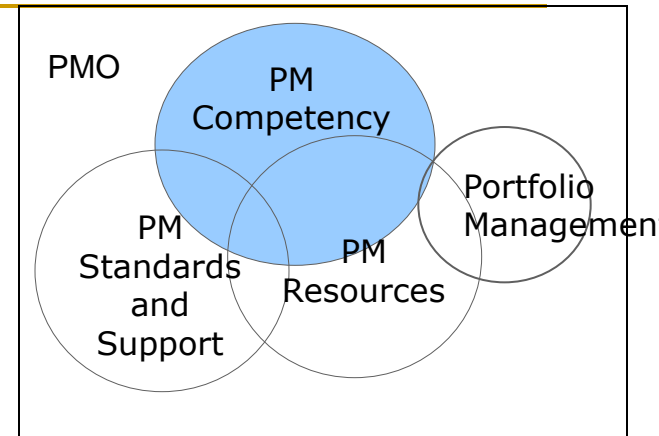
Project Manager Competency

PM Competency Standards/Criteria

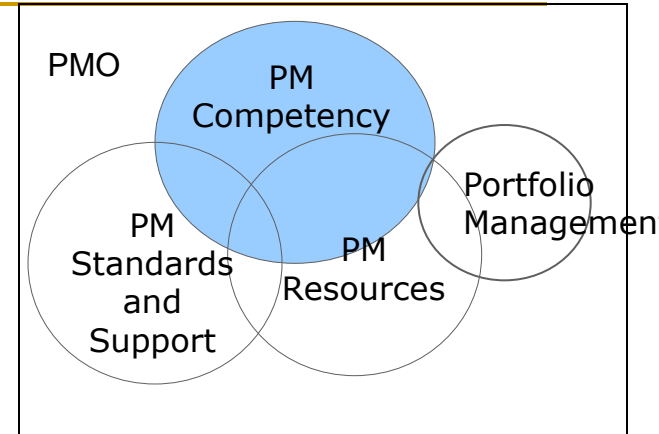
- Set PM competency requirements
- Assess individual PM competency
- Determine need for internal vs. external PMs
- Develop training plan

Education and Training (non-technical)

- Conduct project methodology training
- Conduct basic and advanced PM skills training (e.g., scheduling, leadership)
- Conduct processes and procedures training



Project Manager Competency



Professional Certification

- Encourage professionalism
- Develop and support internal/external certification programs
- Prepare PM for certification

Career Path Management

- Establish PM career path
- Coach and counsel for career paths
- Track career paths
- Perform annual performance reviews

Project Management Resources

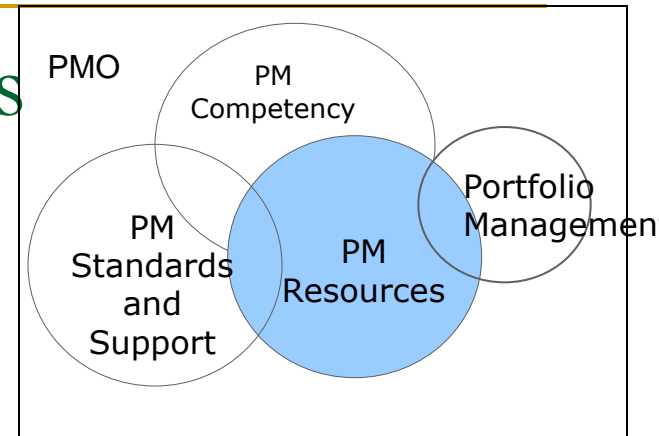
System and Software

- Select and implement

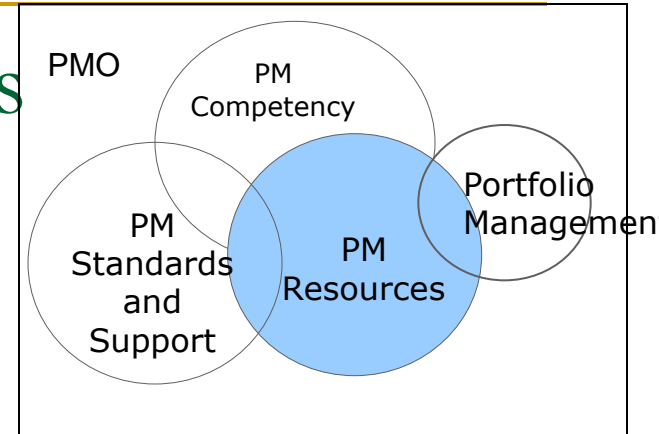
- PM software
- Communication systems; e.g., internet/intranet, telecom

- Manage PMIS

- Manage interface with systems for finance, HR, procurement, etc.
- Maintain databases
- Gather/track time sheet information



Project Management Resources



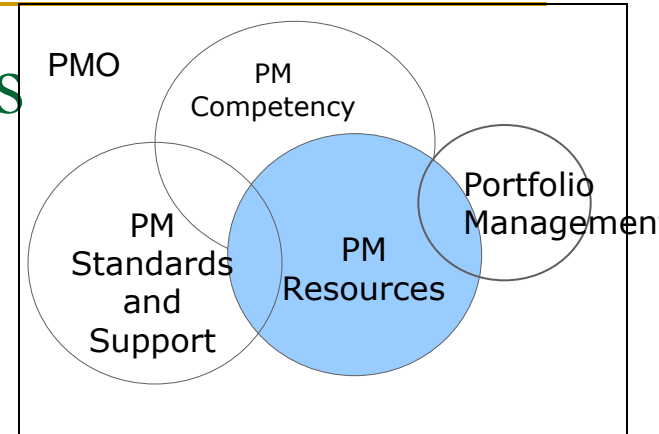
Multi-Project Resource Management

- Assess and allocate resources (including PMs)
- Resolve resource conflicts/set priorities
- Track/report summary status of all projects

PMO and Project Facilities

- Manage PMO office
 - Schedule project conferences and meeting rooms
 - Set up onsite and remote project facilities
-

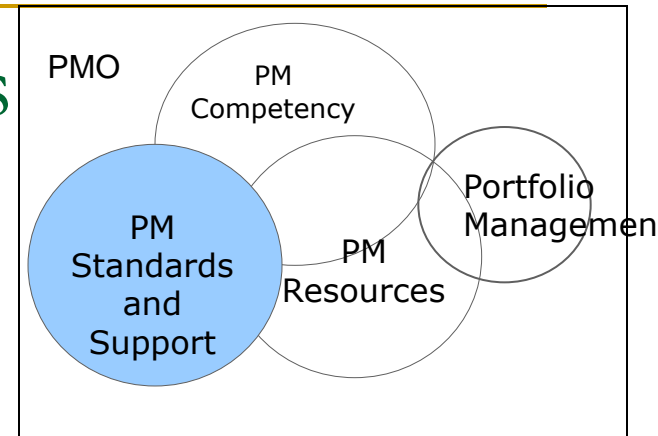
Project Management Resources



Knowledge Management

- Set guidelines/requirements for documenting best practices and lessons learned
 - Sponsor PM get-togethers (informal discussion groups or formal seminars, status meetings)
-

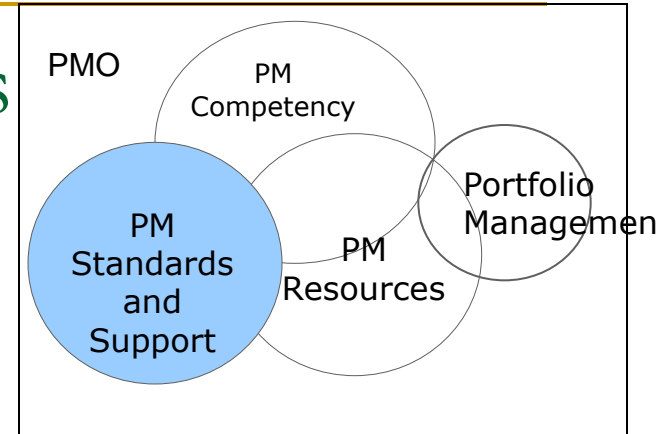
Project Management Standards and Support



Standards and Metrics

- Incorporate best business practice into PM standards
- Set technical standards
- Set time and reporting standards
- Set documentation standards
- Set metrics for project performance assessment and reporting
- Establish standards for report preparation and distribution

Project Management Standards and Support



Mentoring

- Provide project mentoring to PMs and executives
- Facilitate project team activities

Consulting

- Provide technical expertise
- Assist PM knowledge transfer

Project Management Methodology

- Develop, implement, maintain, and improve PM methodology

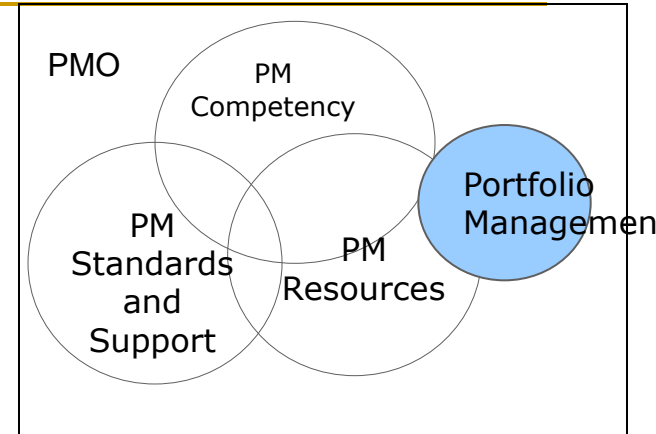
Project Management Standards and Support

PMO specifies deliverables; provides templates/assistance for

- 1 Project initiation/
proposal
- 2 Project selection
- 3 Proposal development
- 4 Project planning
 - 5 Requirements/
specifications
 - 6 Work definition
 - 7 Resource needs
 - 8 Time and cost
estimating
 - 9 Scheduling
 - 10 Budgeting/accounting
 - 11 Risk analysis
- • 12 Contract management
- 13 HR recruiting, training,
layoffs
- 14 Project tracking/review
- 15 Data entry
- 16 Reporting to management
- 17 Project auditing
- 18 Quality control/assurance
- 19 Process control
- 20 Change control
- 21 Project closeout
- 22 Post-project review
- 23 Post-implementation review
- 24 Knowledge
management/sharing

These are determined by the PM methodology

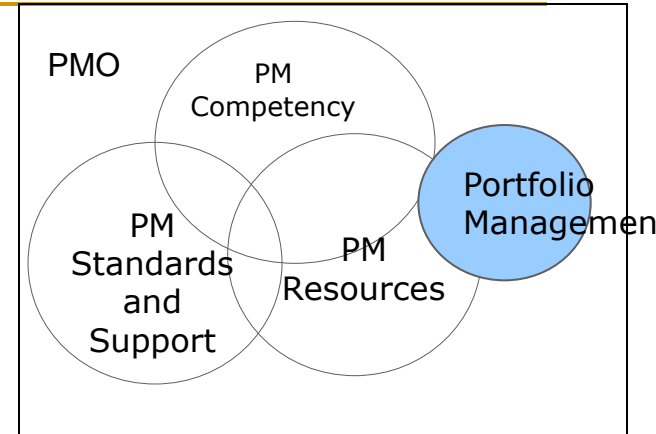
Portfolio Management



Assist Project Review Board (PRB)

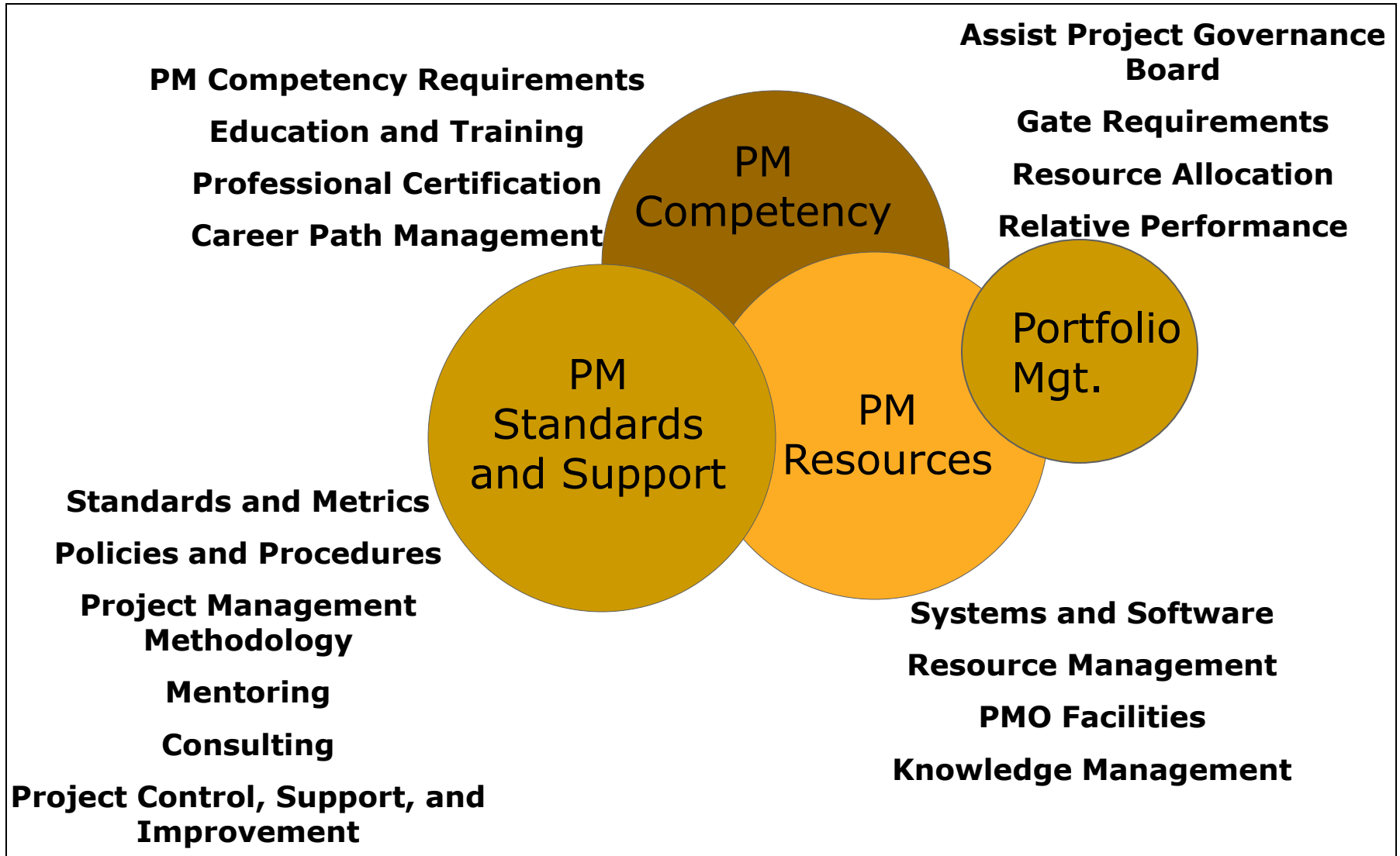
- Provide overview information about projects in portfolio
 - Assist with portfolio decisions:
 - Project prioritization
 - Approval
 - Cancellation
-

Portfolio Management



- Ensure each project meet requirements for each gate
 - Track resource allocation for all projects vs. requirements for current projects
 - Provide status reports to PRB about relative performance for all projects (use “dashboard,” etc.)
-

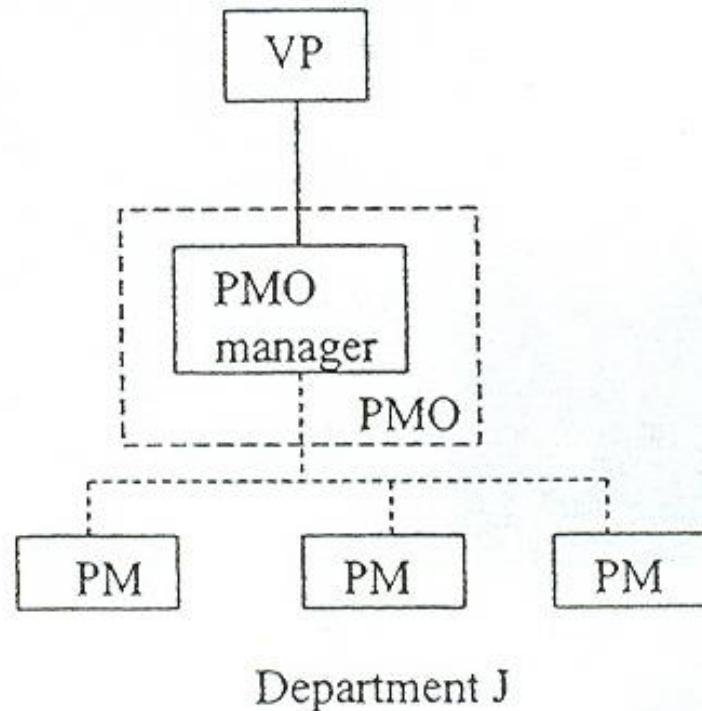
Summary PMO Functions



PMO Evolution, Phase 1

PMO:

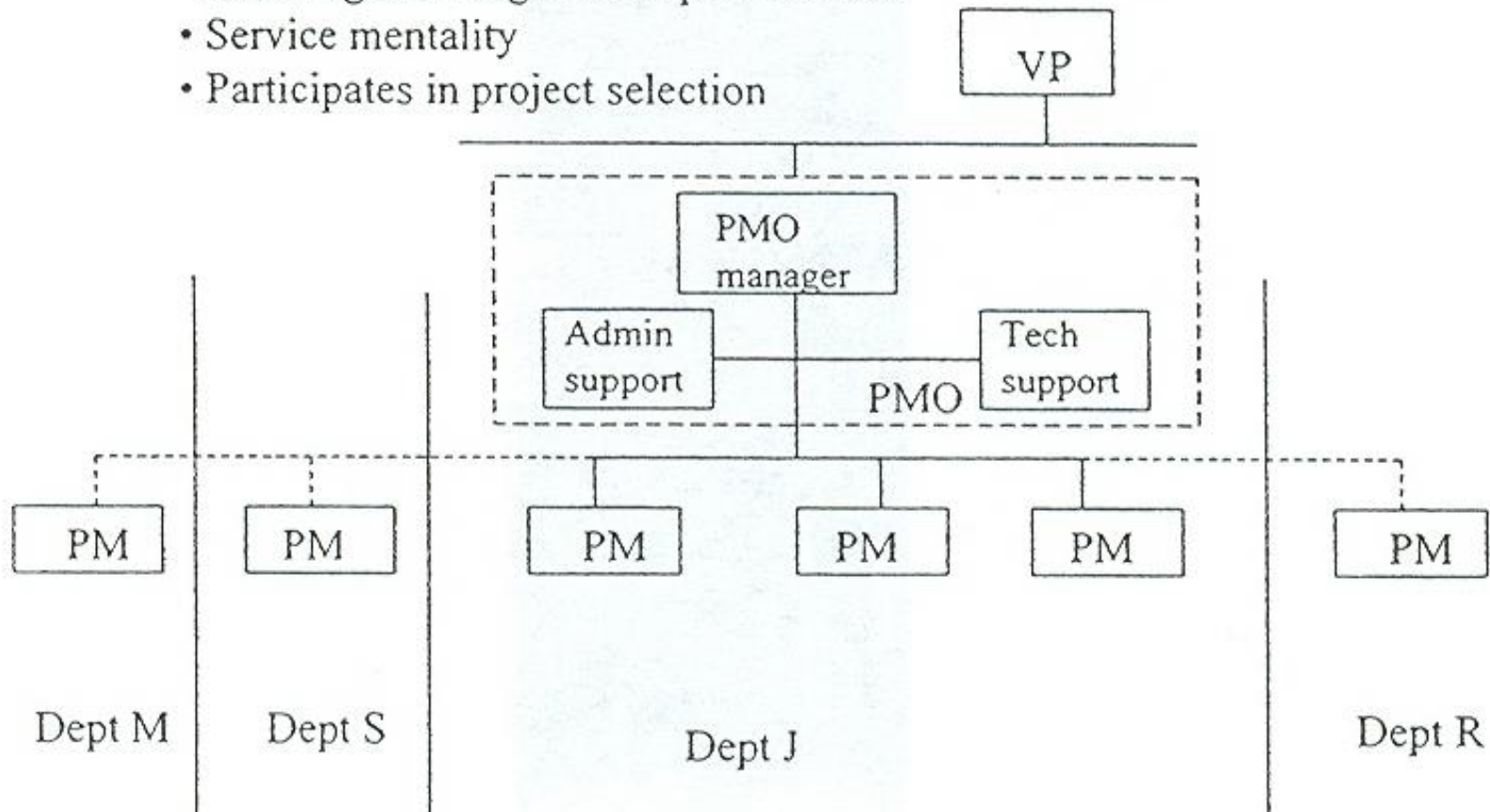
- Most emphasis on project control, especially projects in trouble
- Coordinates/integrates PM processes and methodology
- Directed by one manager on a full- or part-time basis
- Office is small, maybe only the manager
- Located in and manages projects in one department/division, e.g., IT or PD
- PMO coordinates/supports PMs; no direct reports



PMO Evolution, Phase 2

PMO

- Assists with project estimating, planning, controlling
- Directed by full-time manager
- Has administrative and technical-expert support staff
- Located in one department/division, but oversees projects involving other areas
- PMs might or might not report to PMO
- Service mentality
- Participates in project selection



PMO Evolution, Phase 3

PMO:

- Headed by Director at VP level
- Has mentors and PM consultants
- Is stand-alone office that oversees all projects
- Is “home” of all PMs; tracks/assists PM in career paths
- Major role/ responsibility for project decisions at gates
- Assigns PMs and other resources
- Tracks/audits/assesses project performance

