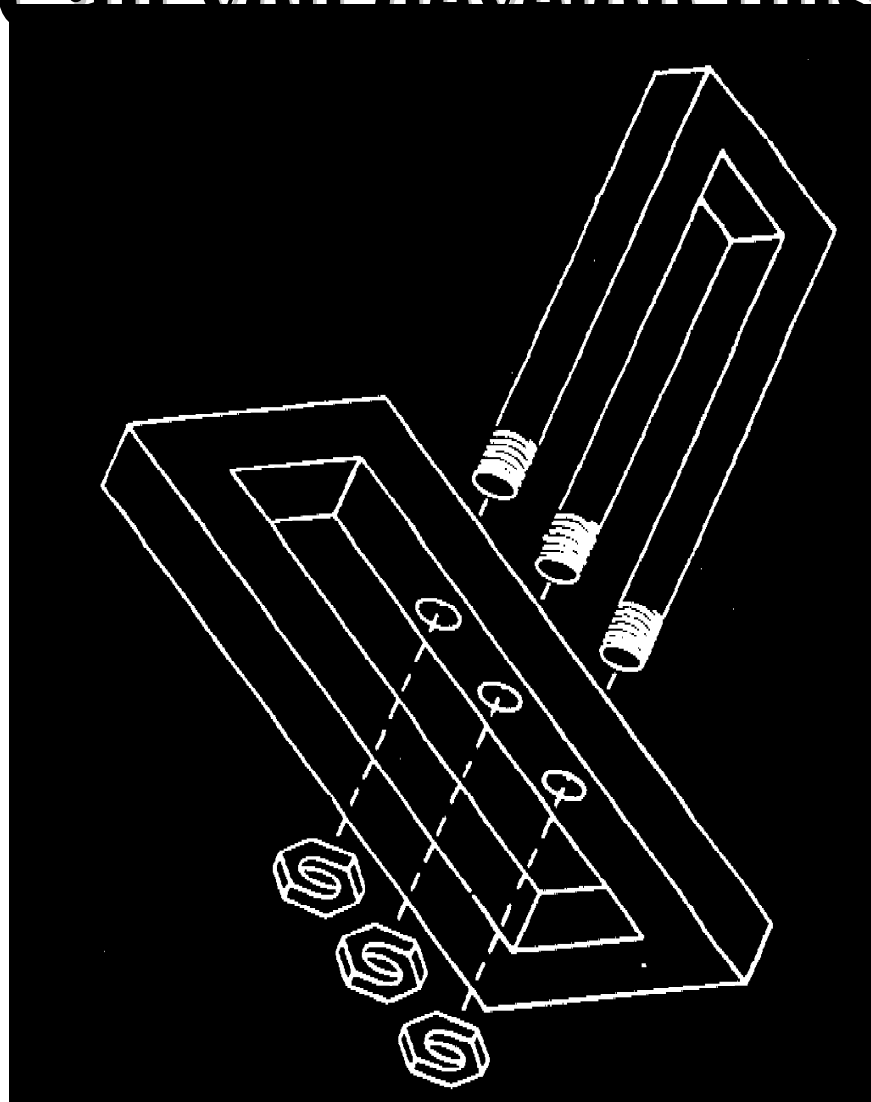


CS3733 – Software Engineering

Lecture #4 Project Management



Can you develop this?



What is project management?

Managing the production of a product within given time and funding limits.

Braude

Software Project Management is the art of balancing competing objectives, managing risk, and overcoming constraints to successfully deliver a product which meets the needs of both customers (the payers of bills) and the users.

RUP 2003

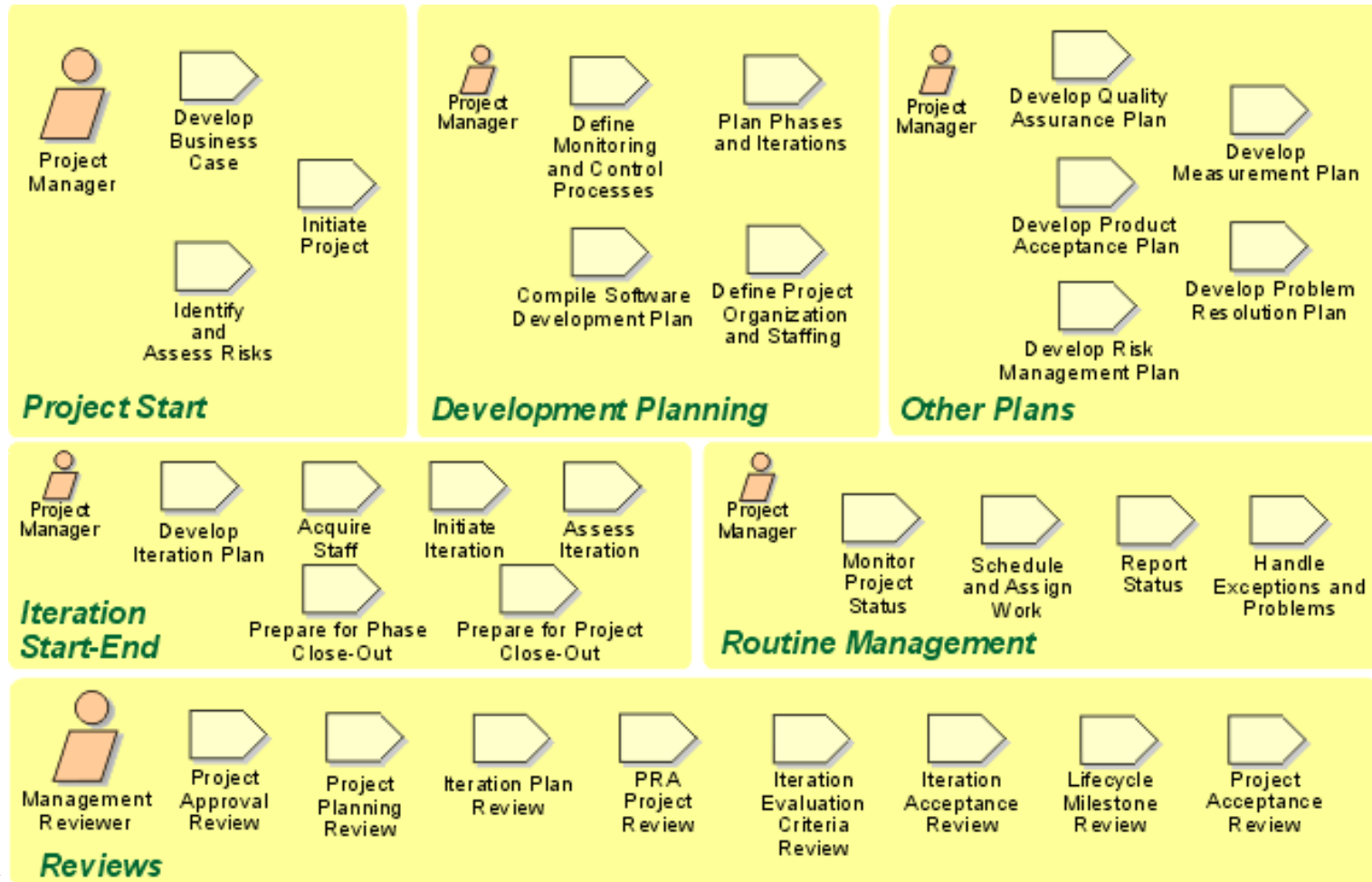


Key project management activities

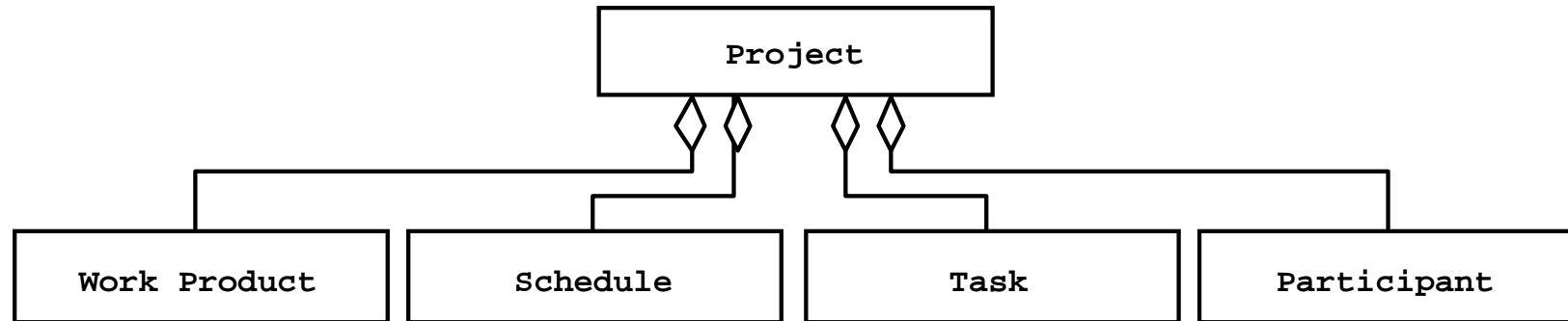
- Develop business case
- Project and iteration planning
- Staff and resource acquisition and management
- Status reporting
- Manage risk



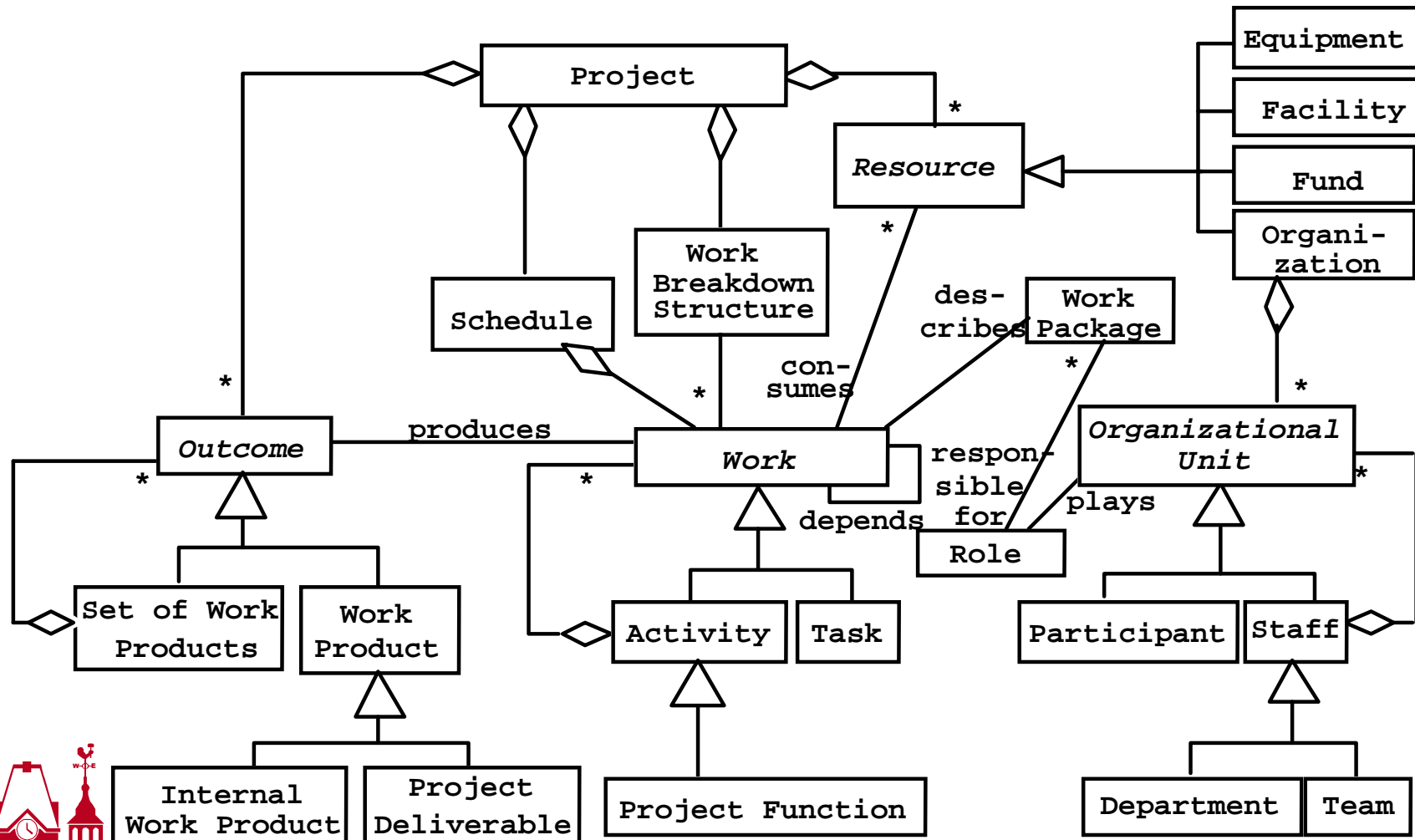
PM activities (RUP)



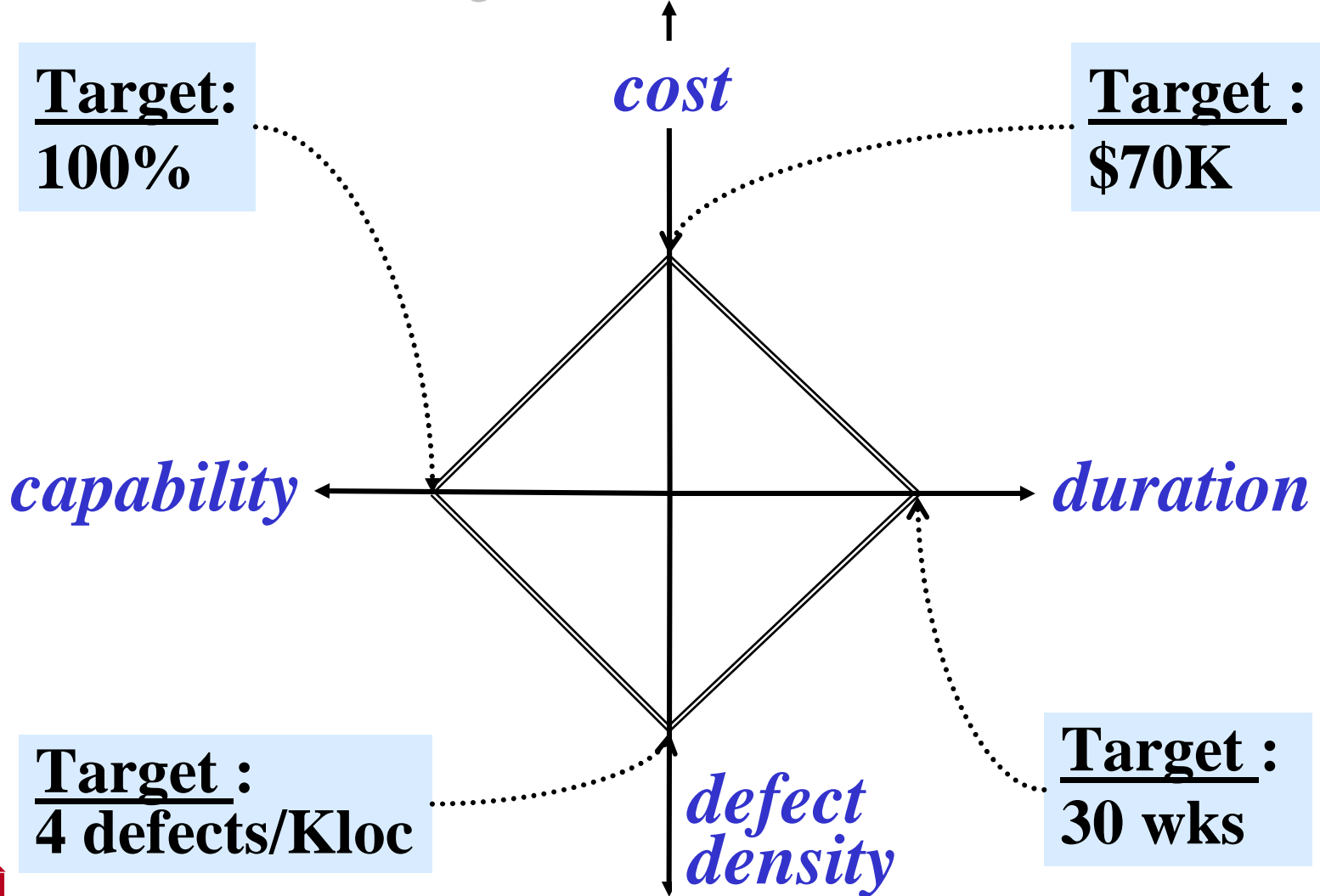
Components of a Project



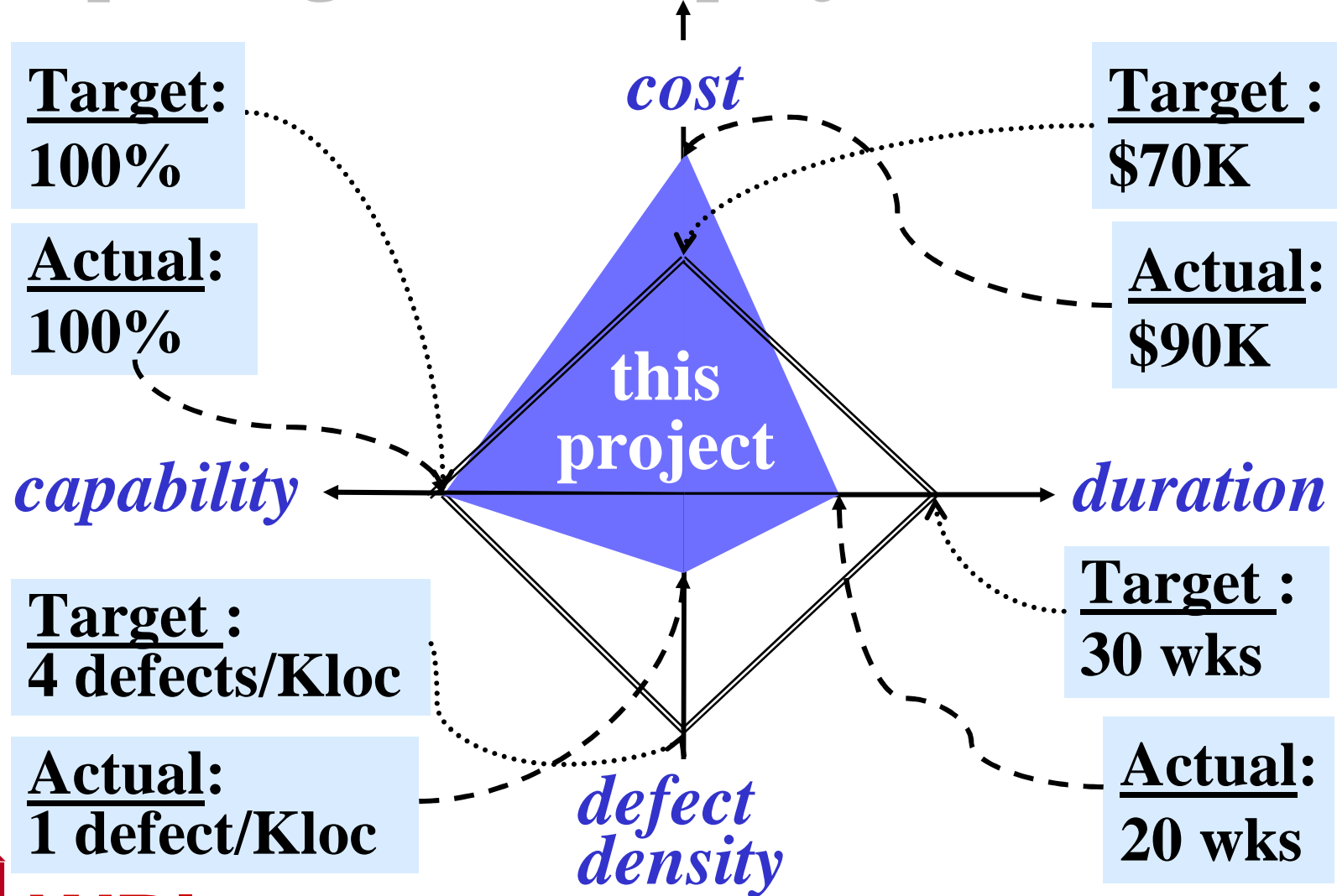
A More Complex Model



Project variables



Reporting status vs. project variables



WPI

IEEE Std 1058: Standard for Software Project Management Plans (SPMP)

➤ What it does:

- Specifies the format and contents of software project management plans.
- It provides a standard set of abstractions for a project manager or a whole organization to build its set of practices and procedures for developing software project management plans
- Abstractions: Project, Function, Activities, Tasks

➤ What it does not do:

- It does not specify the procedures or techniques to be used in the development of the plan
- It does not provide examples .



Project Plan

- Plan number of iterations, schedule, and deliverables

Phase	Iteration	Primary Objective (risks/use cases addressed)	Scheduled Start/Stop	Effort Estimate (person days)
Inception	I1			
Elaboration	E1			
Construction	C1			
	C2			
Transition	T1			
	T2			

- Map people to roles

Person	Rational Unified Process Role
Sally Slalom, Senior Manager	Project Manager Deployment Manager Requirements Reviewer Architecture Reviewer Configuration Manager Change Control Manager
Matt Mogul, VP Operations	Management Reviewer Requirements Reviewer



Project Plan (SDP)

<Project Name> Software Development Plan

1. Introduction

2. Project Organization

2.1 Organizational Structure

2.2 External Interfaces

[Describe how the project interfaces with external groups. For each external group, identify the internal and external contact names. This should include responsibilities related to deployment and acceptance of the product.]

2.3 Roles and Responsibilities

[Identify the people or organizational units that have a role on the project, and what role(s) they play.]

Person	Rational Unified Process Role
Sally Slalom, Senior Manager	Project Manager Deployment Manager Requirements Reviewer Architecture Reviewer Configuration Manager Change Control Manager
Matt Mogul, VP Operations	Management Reviewer Requirements Reviewer



Project Plan (SDP)

3. Project Schedule

[Diagrams or tables showing target dates for completion of iterations and phases, release points, demos, and other milestones.] For example:

Phase	Iteration	Primary Objective (risks/use cases addressed)	Scheduled Start/Stop	Effort Estimate (person days)
Inception	I1			
Elaboration	E1			
Construction	C1			
	C2			
Transition	T1			
	T2			

4. Project Resourcing

[Identify the numbers and type of staff required here, including any special skills or experience, scheduled by project phase or iteration.

Describe how you will approach finding and acquiring the staff needed for the project.

List any special training project team members will require, with target dates for when this training should be completed.]

5. Budget

[Describe the size of the budget, how it is allocated, and how it will be monitored.]



Example Project Plan

PSP Tools Project Plan

1. Objectives

This project plan describes the overall work plan for version 1.0 of PSP Tools. PSP Tools is a set of programs (tools) that supports the Personal Software Process developed by Watts Humphrey. There is another purpose to the work, which is to use a process based upon the Rational Unified Process (RUP) and supporting tools and evaluate their effectiveness on a small project.

The document is a living document which will evolve as the project progresses.

2. Scope

The project plan identifies milestones and artifacts expected when the milestone is reached. Each iteration will deliver specific functionality which is identified in this document.

3. References

- Rational Unified Process (RUP) Version 2001.03
- *A Discipline for Software Engineering*, Watts S. Humphrey
- PSP Tools Development Case



Example Project Plan

4. Schedules

The following table shows the major milestones for the project. For each milestone it shows expected artifacts, the state of the artifacts at the milestone, planned, revised, and actual completion dates.

Milestone	Artifact	Completion Dates		
		Planned	Revised	Actual
Iteration 1 (Inception)		2/16/2001	4/3/2001	
	Initial project plans	2/7/2001		1/29/2001
	Inception iteration plan	2/2/2001		2/2/2001
	Working environment set up, including the project repository and project Web site	2/14/2001	Taken out of Inception. Only partial environment by end of Inception.	
	Vision and product feature requirements	2/7/2001	3/21/2001	3/21/2001
	Supplementary requirements	2/12/2001	N/A Removed from project until needed.	
	Initial use-case model	2/14/2001	3/28/2001	
	Initial risk list	2/14/2001		2/2/2001
	Programming guidelines	2/7/2001		2/7/2001
	Test plan	2/14/2001		2/14/2001
	Iteration Assessment	2/16/2001	4/3//2001	
Iteration 2 (Elaboration)		3/12/2001	5/7/2001	
Iteration 3 (Construction)		4/23/2001	6/18/2001	
Iteration 4 (Construction)		6/4/2001	7/30/2001	
Iteration 5 (Construction)		7/16/2001	9/4/2001	
Iteration 6 (Transition)		8/6/2001	10/1/2001	



Example Project Plan

5. Objectives of Each Iteration

The following table lists the objectives for each iteration. The objectives identify what will be accomplished and what functionality will be implemented.

Iteration	Objectives
Inception	<ul style="list-style-type: none">• Process understood and development case written• Tools installed, environment set up and tested• The features for version 1.0 are defined• Use cases and actors are defined and use cases are prioritized
Elaboration	
Construction 1	
Construction 2	
Construction 3	
Transition	



Iterative Development



To mitigate risks, develop incrementally in an iterative fashion. Each iteration results in an executable release.



Iteration plan

<Project Name> Iteration Plan

1. Key Milestones

Milestone	Date
Iteration Start	
Iteration Stop	

2. Iteration Objectives

[Objectives may include creating or refining specific artifacts, addressing risks, or implementing specific requirements, or performing supporting tasks. Some example objectives are listed below]

Objective/Task	Assigned to
Implement Use Case: Register for Course, Basic flow, Alternative 1, Alternative 2	Fred
Complete Vision	Jill
Detail UC3: Publish Calendar	John
Test all developed requirements	Lance
Create plan for next iteration	Jill
...	...



Example Iteration Plan

1. Scope and Objectives

The objectives for the Inception iteration are:

- Define the critical features of the product
- Identify the major risks that must be addressed
- Identify and prioritize the system use cases

2. Plan

The following table shows the artifacts planned for this iteration, when they are expected, and the team member(s) responsible for them.

Artifact	Due	Responsible	Comment
Initial project plan	2/7/2001	Gary	Through Elaboration, reviewed and agreed upon
Vision and product feature requirements	2/7/2001	Jas, Gary	Reviewed
Programming guidelines	2/7/2001	Norm	
Supplementary requirements	2/12/2001	Jas	Reviewed
Tools environment	2/14/2001		
ClearCase		Gary, Liz	VOBs
Test environment		Chris	May not be completely set up
Requirements		Jas	RequisitePro attributes defined
Project Web site		Gary	
Initial use-case model	2/14/2001	Jas	Actors and use cases with brief descriptions
Initial risk list	2/14/2001	Gary	Reviewed and understood
Test plan	2/14/2001	Chris	Draft reviewed and agreed upon
Elaboration Inception Plan	2/16/2001	Gary	Reviewed and agreed upon



Example Iteration Plan

3. Resources

Team members will spend at least four hours per week completing their work. Disk space on the WSBU server will be used for local shared files. If the team decides to use hosted development services, space will be obtained on the Catapult systems.

4. Use Cases

No use cases or scenarios will be implemented during this iteration.

5. Evaluation criteria

The following list describes the requirements for successful completion of this iteration:

- Requirements, functional and non-functional have been entered into the requirements management software and agreed to by the customer.
- The risks are identified, prioritized, and mitigation strategies exist for each risk.
- Artifacts have been placed under version control.
- All plans have been updated to reflect the Elaboration iteration.



Example Risk List

Risk ranking/ Magnitude	Risk Description	Mitigation Strategy and/or Contingency Plan
1	Team members will not be able to allocate time to the project.	<ul style="list-style-type: none">• Revise team composition if necessary• Finer-grained tasks
2	Technology risks. Specifically XML and JDBC usage	<ul style="list-style-type: none">• proof-of-concepts developed “early” before we commit
3	Acceptance testing mechanisms are unclear	<ul style="list-style-type: none">• Make sure that we can do acceptance testing as part of the Elaboration phase.

