



# **CSSE 372 Software Project Management: Program and Portfolio Management**

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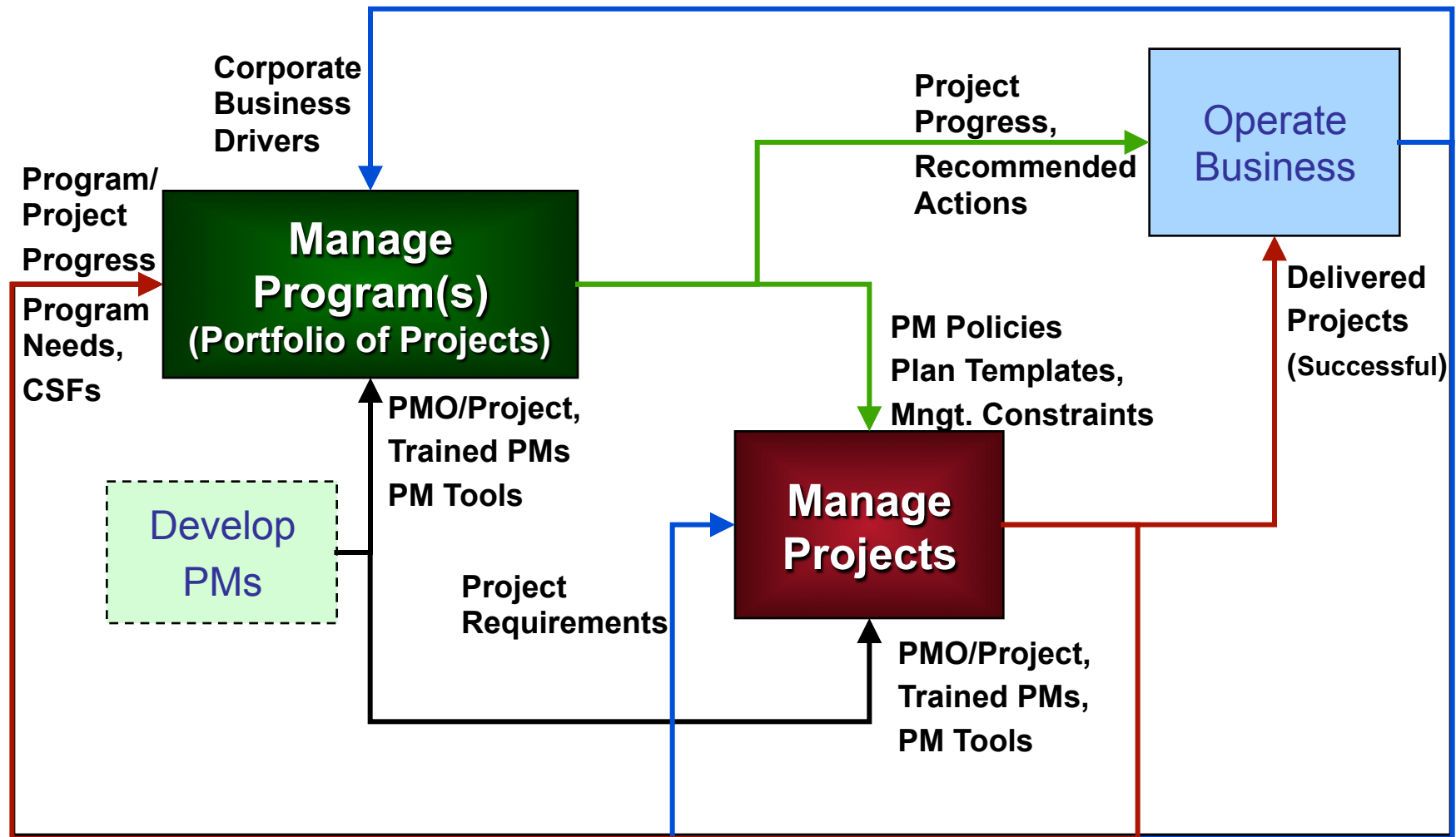
# Objectives: Fundamental Elements

## Identify fundamental elements of Software Project Management

- Describe how Projects multiply into Programs
- Introduce of Program Management
- Examine key elements of Project Portfolio
- Illustrate Portfolio Management Techniques

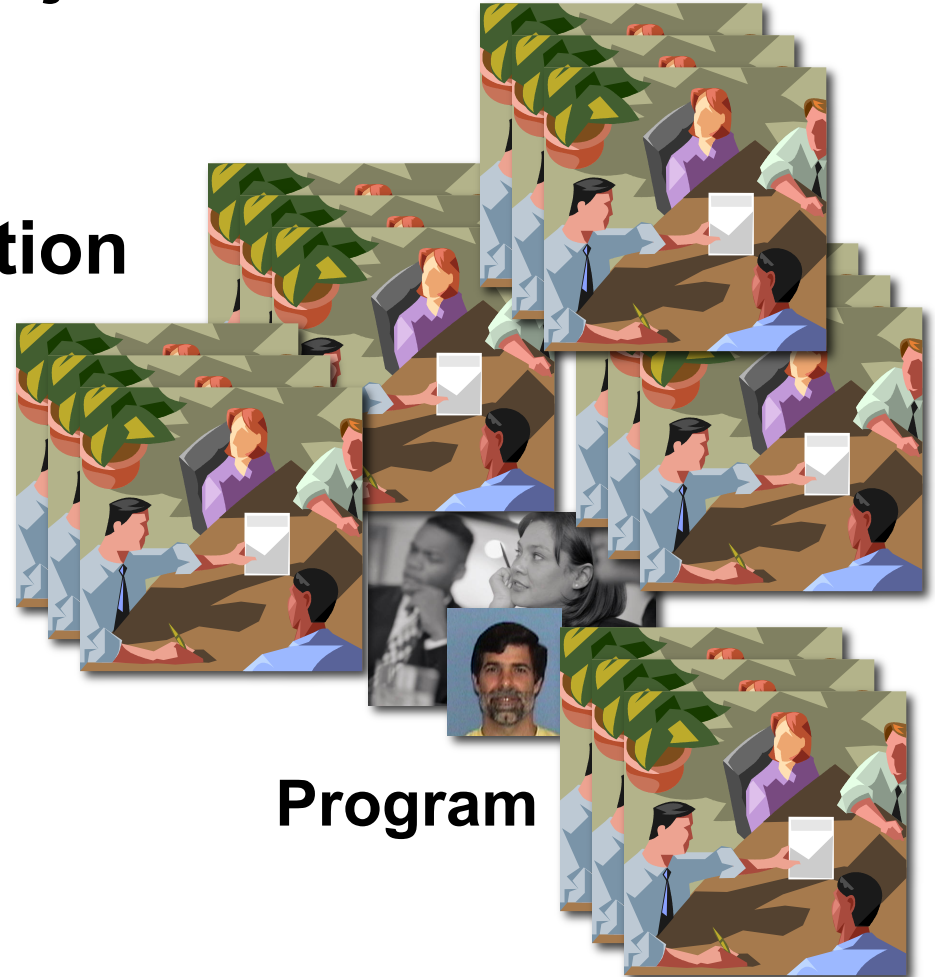


# Context for Program Management



# Why do we need Program Management?

- Manage the range of projects in an organization
- Manage the volume of projects in an organization
  - Size/Scale
  - Complexity (e.g., sophistication)
  - Distributedness (e.g., Global teams)
- Manage Value
  - Risks
  - Investments



# Quick Exercise: Be Program Managers

**Make this simple -- You have:**

- 12 projects with varying team configurations
- 12 different clients with varying expectations and sophistication
- Project deliverables all due at the same time
- Team members (students) will change
- Clients may change
- Quality must be maintained/rewarded
- Team members must learn (be trained)



**How would you organize for all of this?**

# Recall: Program Management Organization

## ■ Project Office

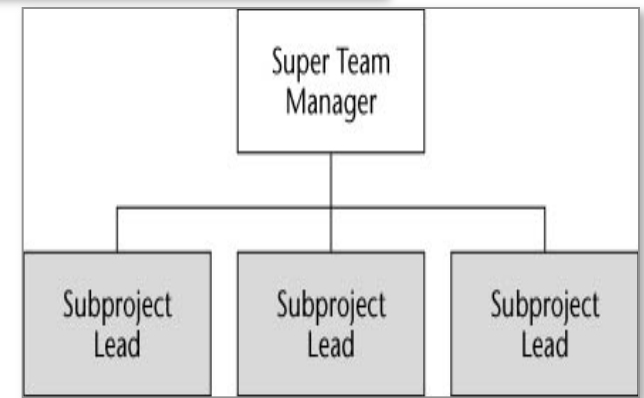
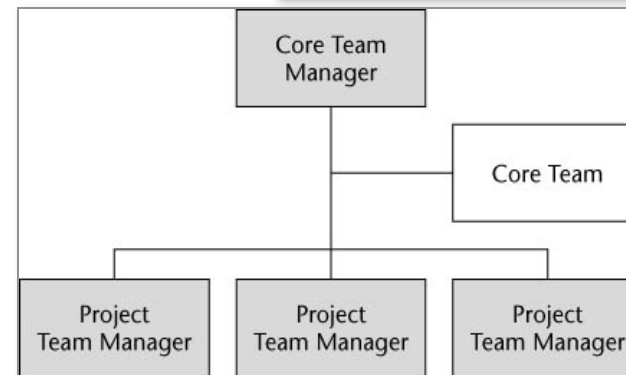
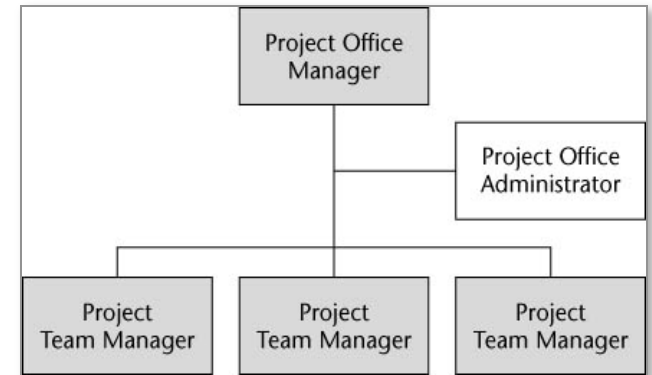
- Layer of management to provide support and coordinate teams
- Temporary structure for big projects

## ■ Core Team

- Similar to the PO, but it has an advisory committee
- Subject matter experts work with teams as advisors

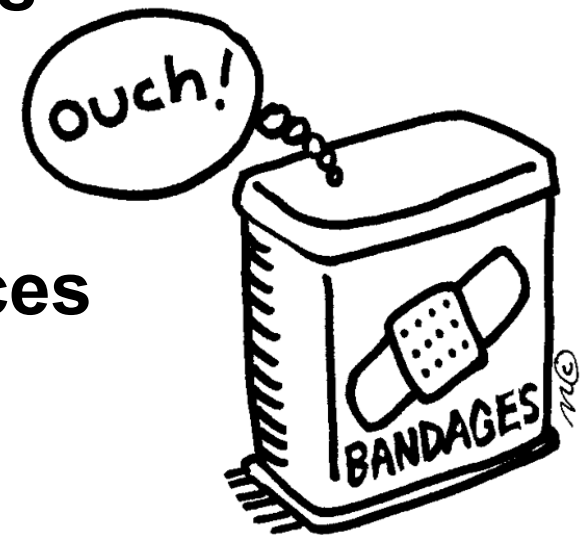
## ■ Super Team

- Integrate various teams into a huge super team
- Divide them into groups to focus on particular aspects



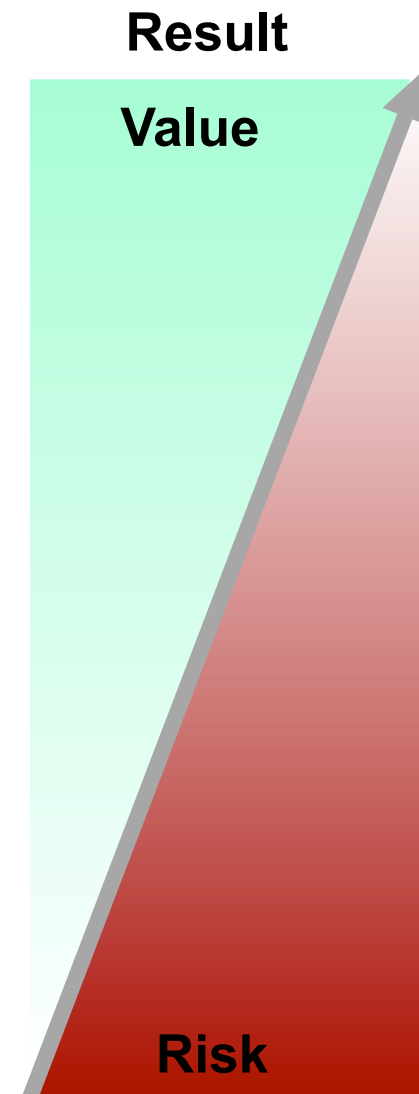
# Program Management Needed if...

- Project failure rates are too high
- Training is not producing results
- Project staff planning isn't effective
- Inability to leverage best practices
- Lack of control over the project portfolio
- Inconsistency in project reporting
- Too many resource scheduling conflicts
- Gap between process and practice



# PMO Capability Maturity Model

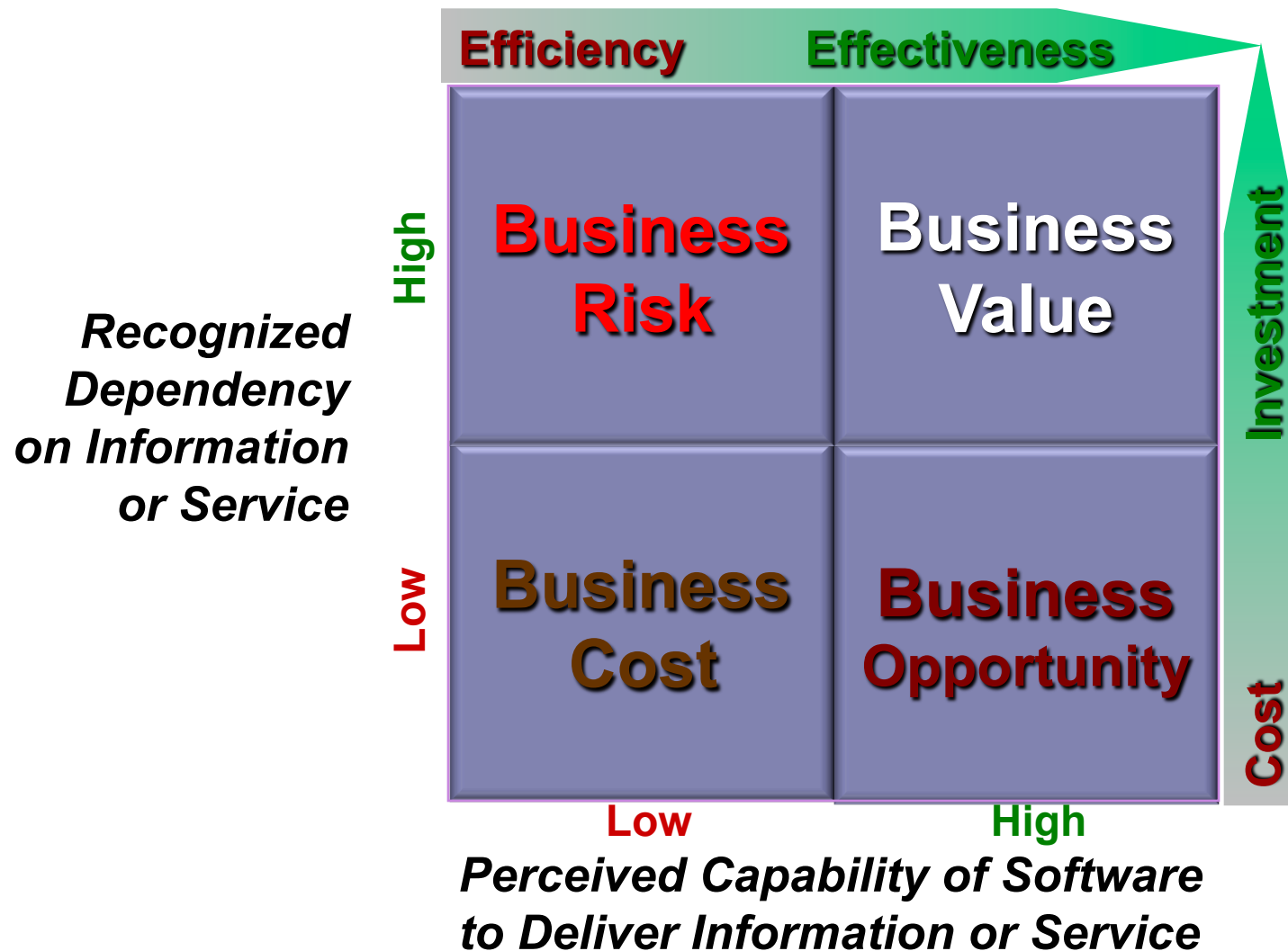
Maturity Level	Key Process Area Concentrations	Strategic Inflection Point	Effective Span
<b>5 Incorporated</b>	Value Management, Business Continuity Planning, Procurement Management, Outsourcing and Contract Management, PM Center of Excellence	Integration with Business	Enterprise / Industry
<b>4 Managed</b>	Program Process Management, Project Integration Management, Project performance Management, Vendor Management, PM Career Path, Staff Performance Management, Customer Relationship Management, Contingency Management, Communications Management	Dynamic Micro-Level Change	Multiple Business Units
<b>3 Defined</b>	PM Methodology, PM Training, Change Management, Staff Resource Management, Environment Resource Management, Conflict/Issue Management, Skills Management, Risk Management,	Static Macro-Level Change	Multiple Project
<b>2 Stable</b>	Planning, Tracking, Schedule Management, Budget/Cost Management, Scope Management, Progress Reporting, Estimation, Risk Identification,	Stabilize Performance	Single Project
<b>1 - Initial</b>	Acquiring New PMs		



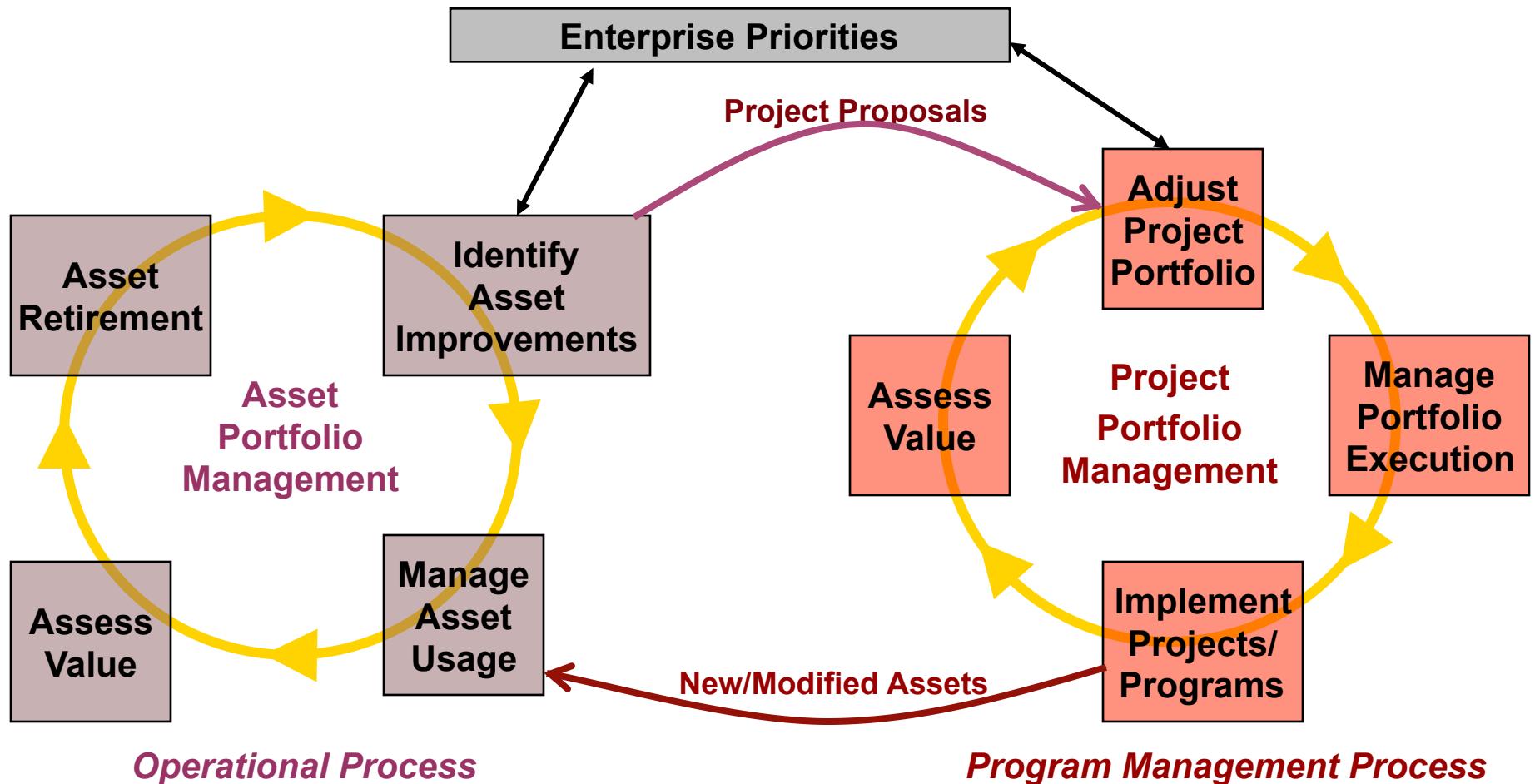
# Dilbert on Managing the Project Portfolio



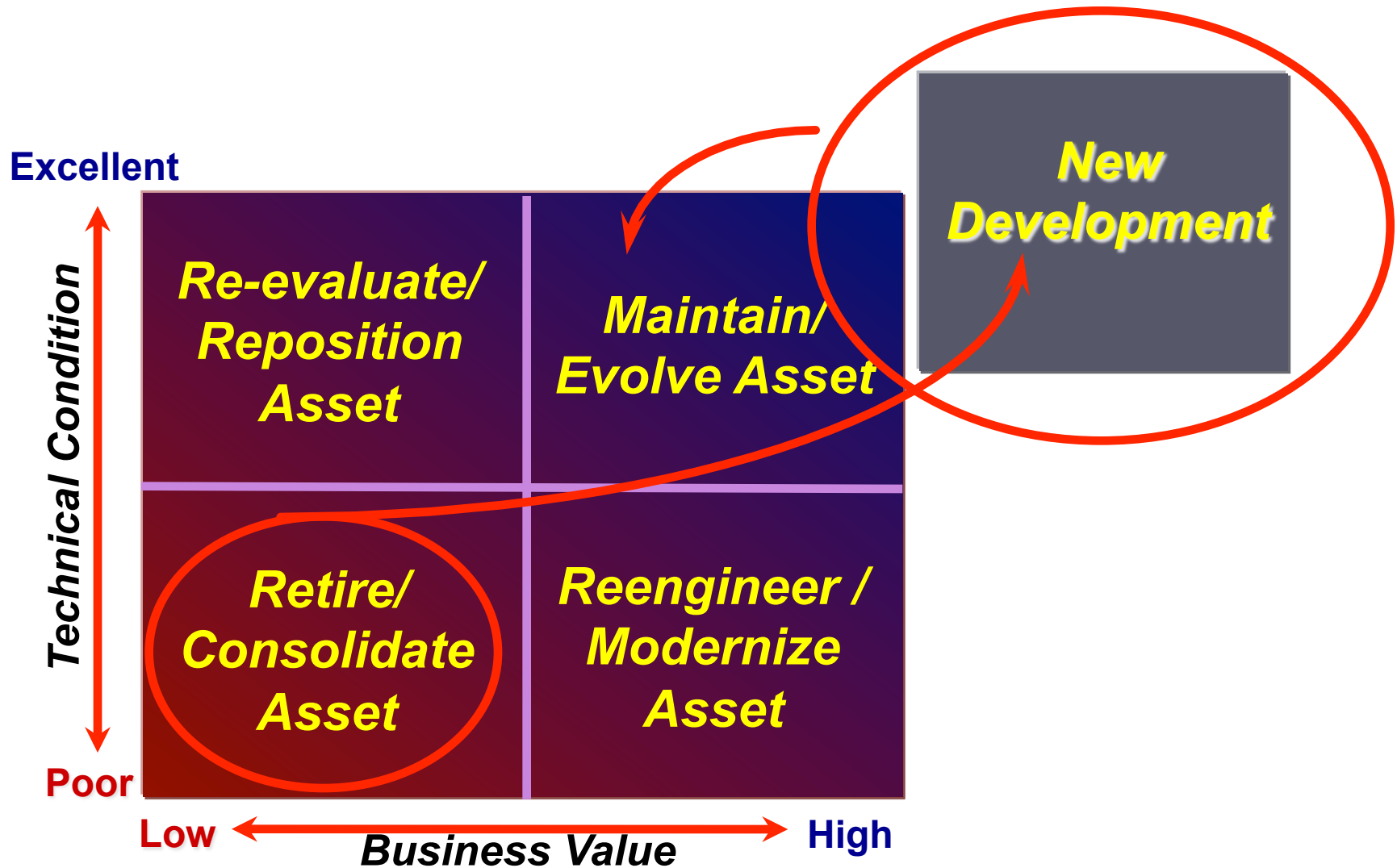
# Perception of Software System Value



# Software as Assets in a Portfolio Management Ecosystem

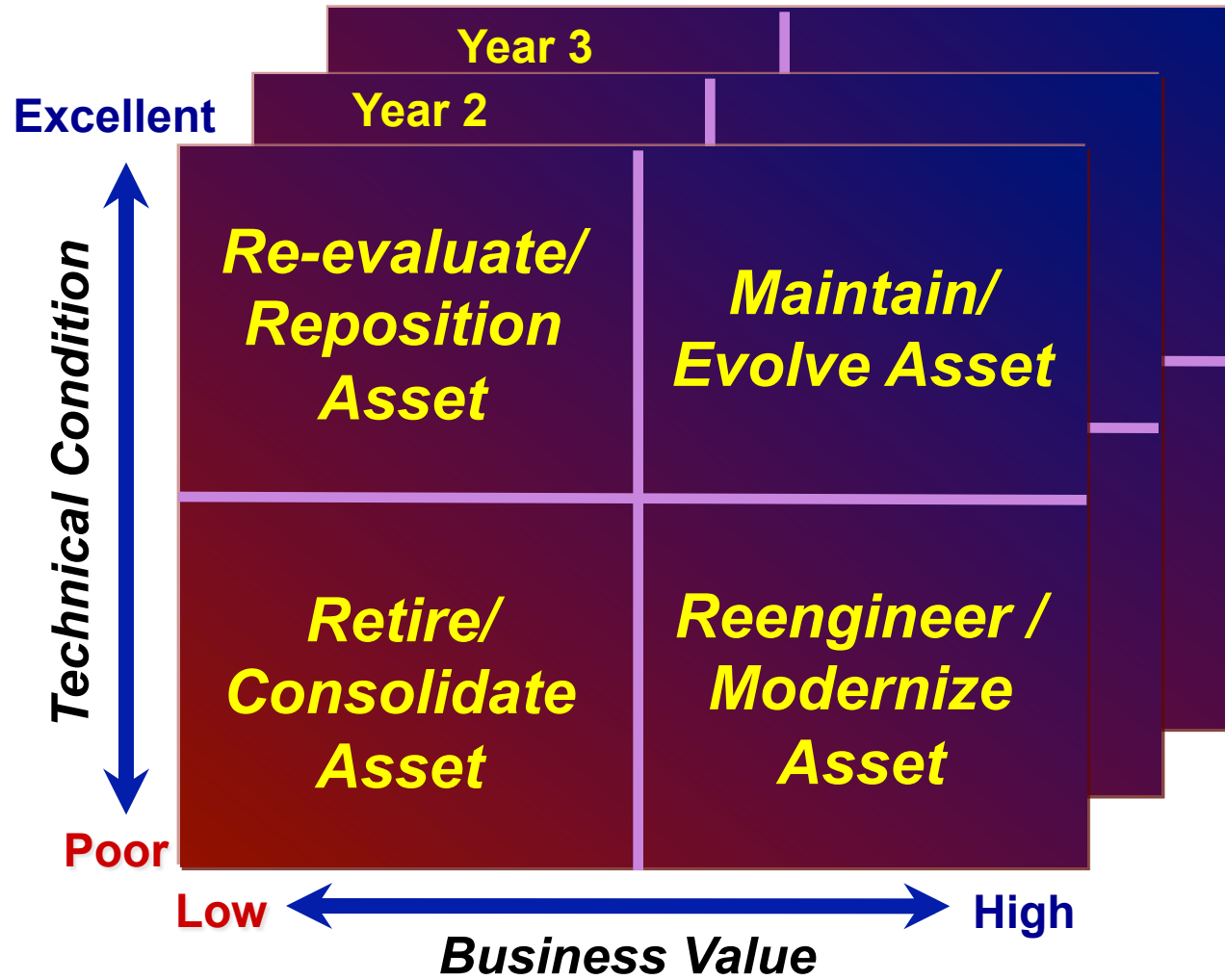


# Software Portfolio Analysis



# Software Portfolio Planning

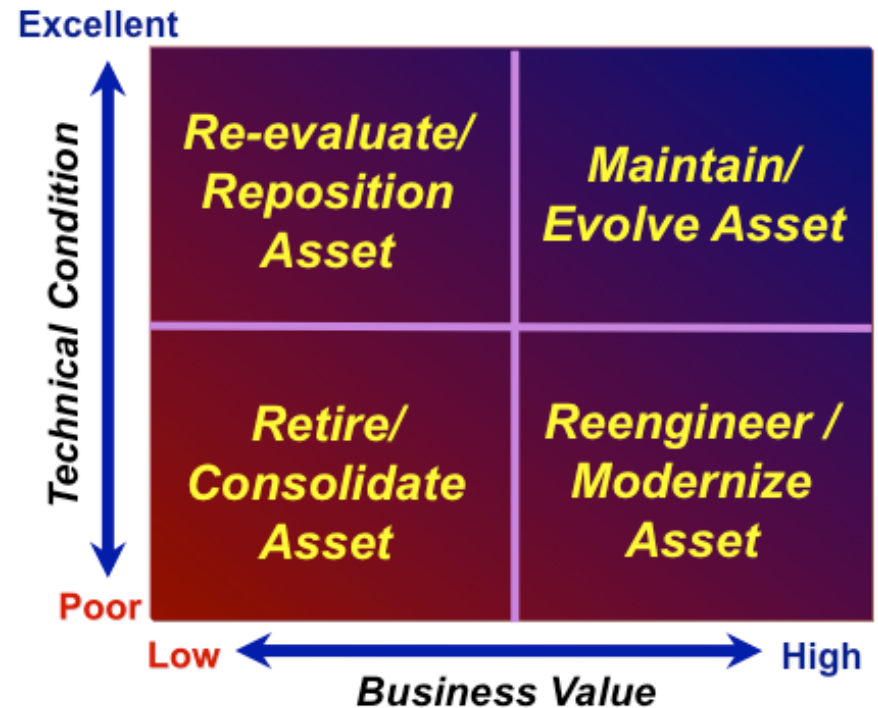
Year 4...



# Exercise: Let's play you bet your job!

## You have 3 Software Assets

1. Old system with lots of quality and maintainability issues. Client is highly dependent on this system
2. 3 year old system with lots of changes coming in from an important customer.
3. New project to produce a key system for an emerging customer-base



*Place each of these on the quadrant chart.*

*How can you quantifiably justifying your choices?*

# Project Prioritization Approaches

## ■ Non-Quantitative

- Forced Ranking
- Q-Sort
- Must Do – Should Do - Postpone

## ■ Quantitative

- Criteria Weighting
- Paired Comparison
- Risk/Benefit

**Growth**

**OR**

**Survival**

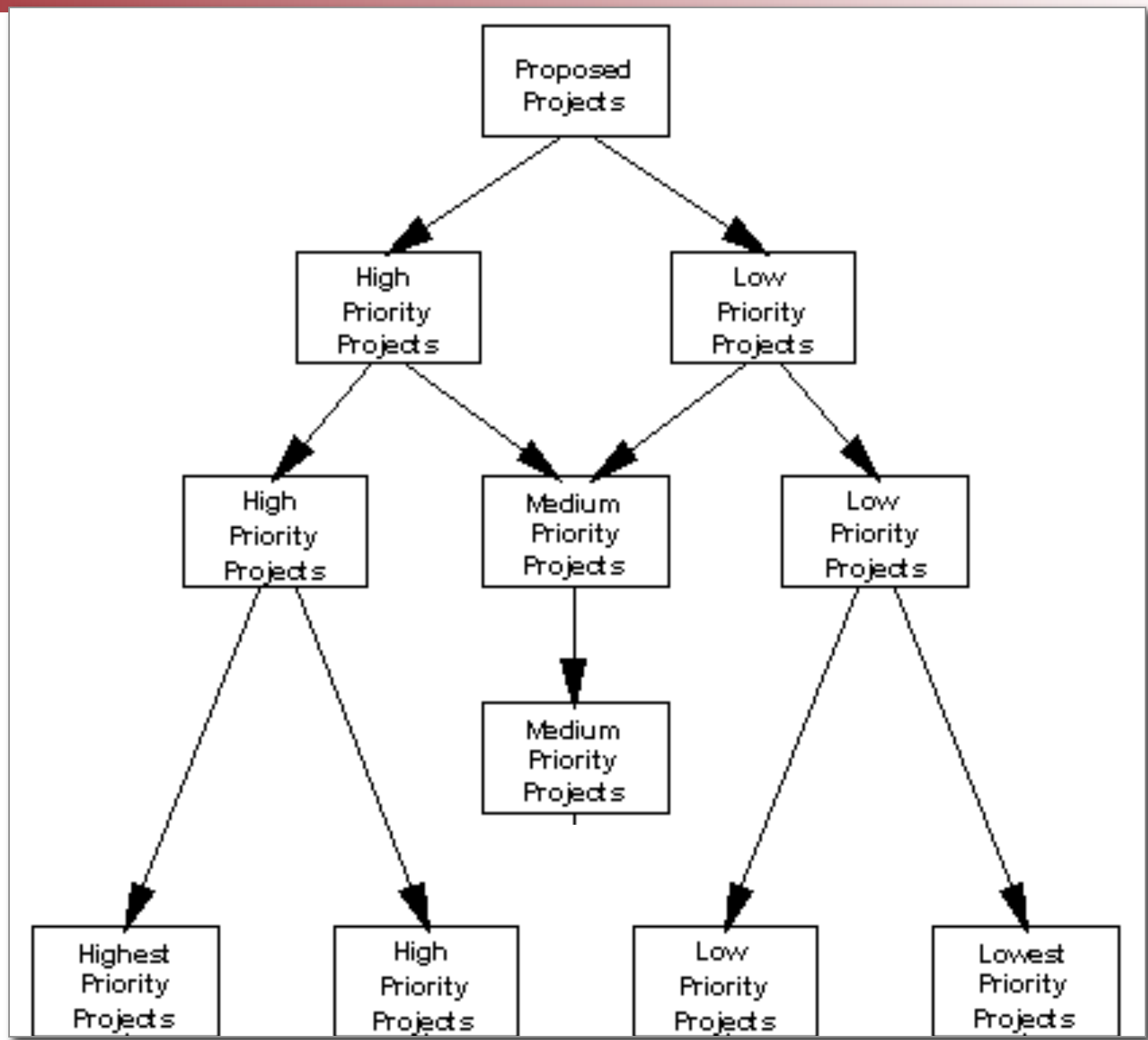


# Forced Ranking

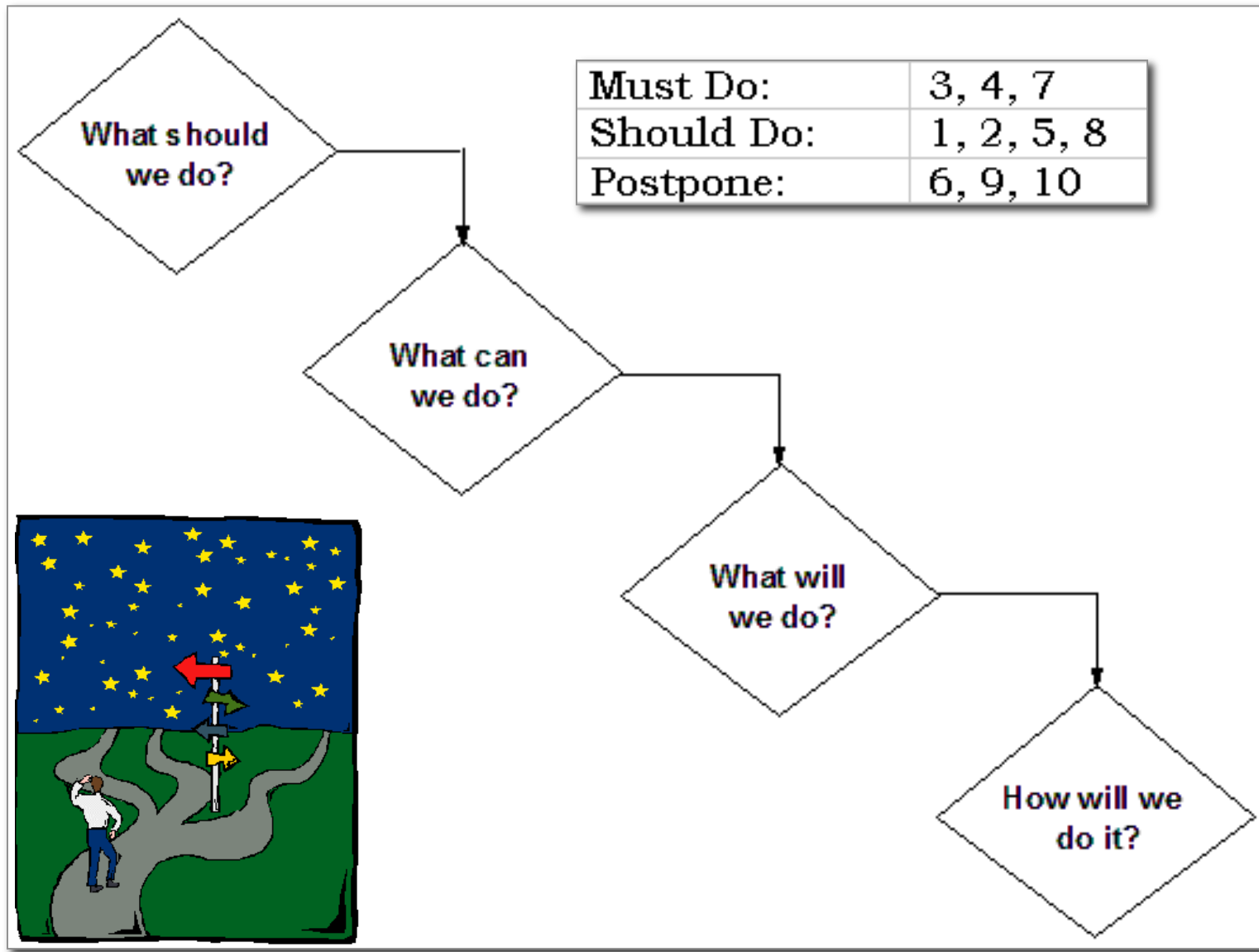
Project #	A	B	C	D	E	F	Rank Sum	Forced Rank
1	2	5	3	2	1	6	19	2
2	4	3	2	7	9	10	35	6
3	7	4	9	8	6	3	37	7
4	1	8	5	1	2	2	19	3
5	3	6	8	4	7	5	33	5
6	8	9	10	9	10	8	54	9
7	5	1	1	3	3	4	17	1
8	6	2	4	5	4	1	22	4
9	10	10	7	10	8	9	54	10
10	9	7	6	6	5	7	40	8



# Q-Sort



# Pragmatic: Must Do - Should Do - Postpone



SELECT – Graham-Englund Model

# Scoring Model: Criteria Weighting

<i>Project #7</i>								
Criteria	Criteria Weight	Very Good (8)	Good (6)	Fair (4)	Poor (2)	Very Poor (0)	Expected Level Weight	Expected Weighted Score
Fit to Mission	10	1.0					8.0	80.0
Fit to Objectives	10	0.2	0.6	0.2			6.0	60.0
Fit to Strategy	10			1.0			4.0	40.0
Contribute to Goal A	8				1.0		2.0	16.0
Contribute to Goal B	6	0.2	0.8				6.4	38.4
Contribute to Goal C	4		0.5	0.5			5.0	20.0
Uses Strengths	<b>Project #</b>	<b>Score</b>		<b>Project #</b>	<b>Score</b>			12.0
	1	300.2		6	178.8			
Uses Weaknesses	2	226.4		7	340.4			74.0
	3	200.0		8	265.8			340.4
	4	320.6		9	172.6			
	5	270.0		10	198.2			

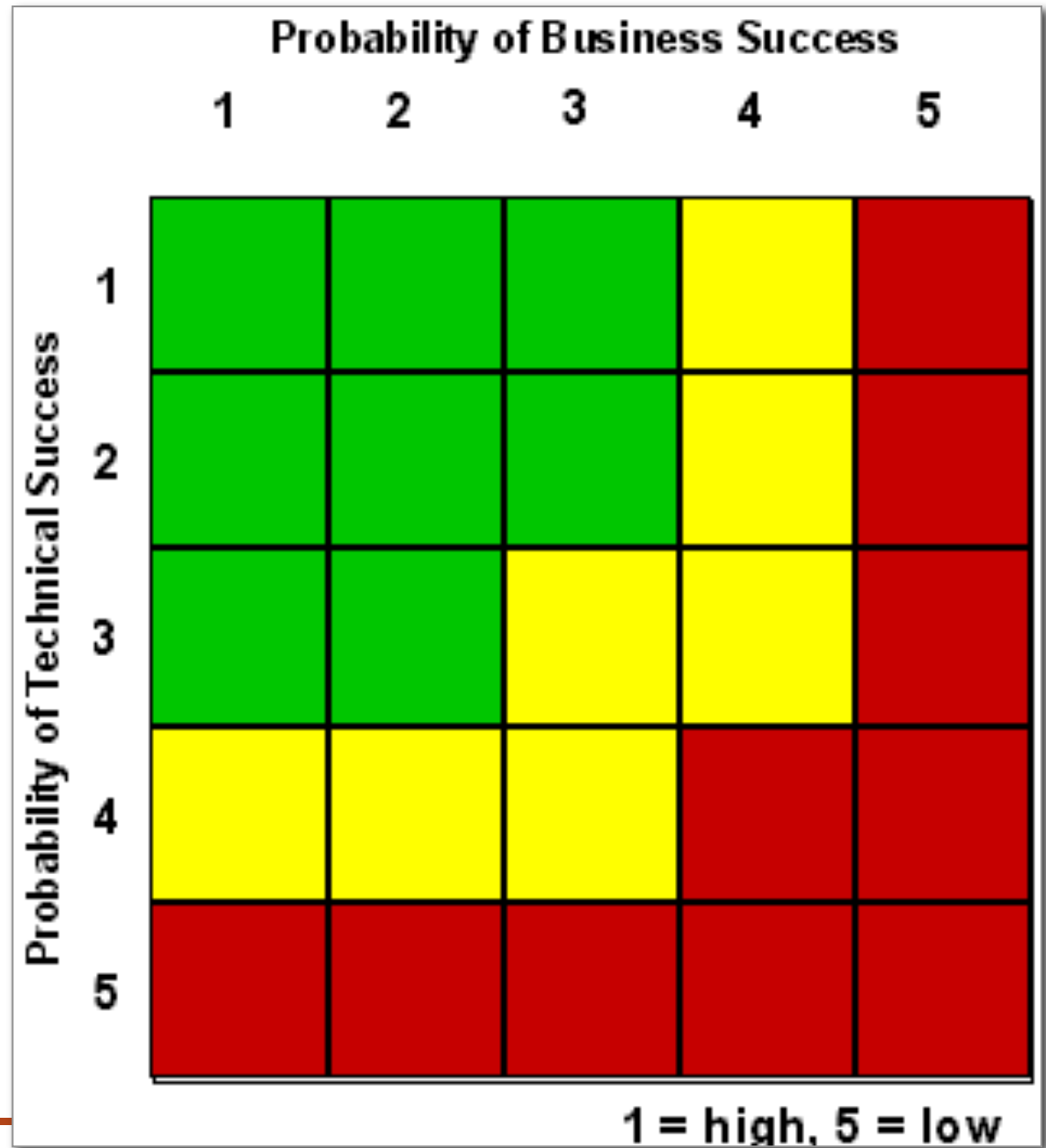


# Scoring Model: Paired Comparisons

	1	2	3	4	5	6	7	8	9	10	SUM	RANK
1	X	1	1	0	1	1	0	1	1	1	7	2
2	0	X	0	0	1	1	0	0	1	1	4	6
3	0	1	X	0	0	1	0	0	1	1	4	5
4	1	1	1	X	1	1	0	0	1	1	7	2
5	0	0	1	0	X	1	0	0	1	0	3	7
6	0	0	0	0	0	X	0	0	1	1	2	8
7	1	1	1	1	1	1	X	1	1	1	9	1
8	0	1	1	1	1	1	0	X	1	1	7	2
9	0	0	0	0	0	0	0	0	X	0	0	10
10	0	0	0	0	1	0	0	0	1	X	2	9

# Scoring Model: Risk/Benefit

-  Fund
-  Consider
-  Don't fund





# Homework and Reading Reminders

- **Complete Homework 7 – Review another team’s Software Project Management Plan**
  - Use SPMP Review Checklist available via Schedule page
  - Due by 11:55pm, Tuesday, November 6<sup>th</sup>, 2012
  
- **Prepare for Final Presentation**
  - Example and a template available via Schedule page
  - Due by 11:55pm, Tuesday, November 6<sup>th</sup>, 2012
  
- **Signup for Optional Final Exam on Angel (In Surveys)**
  - Due by 11:55pm, Wednesday, November 7<sup>th</sup>, 2012
  - Exam to be held at 1:00pm on next Monday in Olin 231