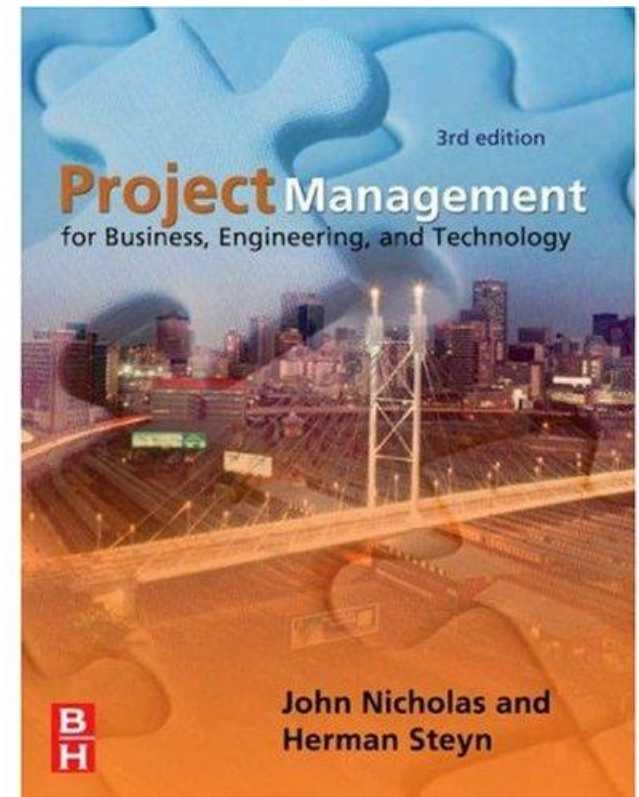


Introduction

Project Management for Business, Engineering, and Technology

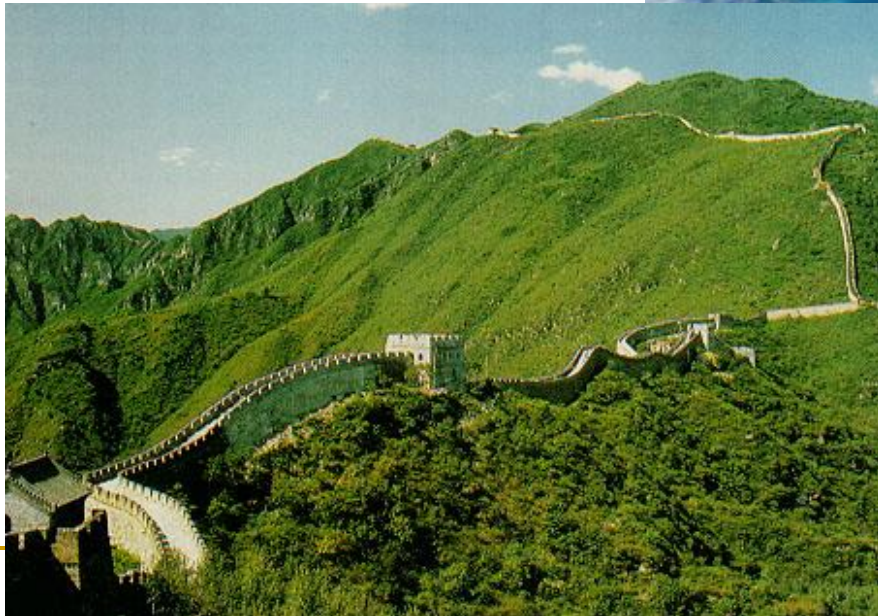
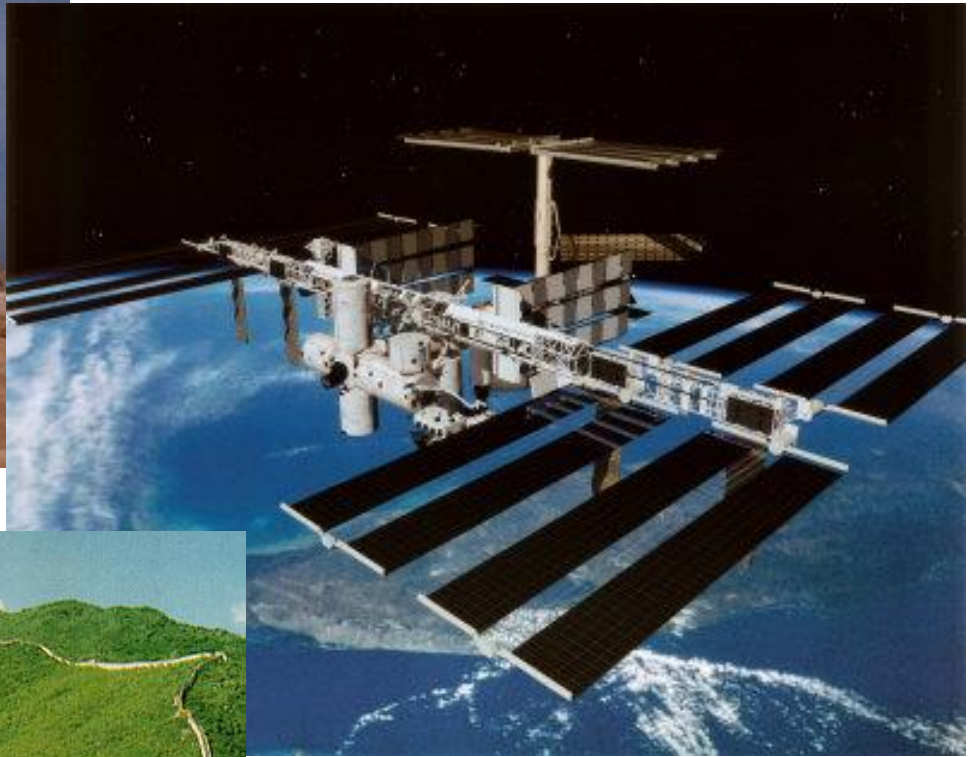
Prepared by
John Nicholas, Ph.D.
Loyola University Chicago



Evidence of projects is everywhere...



From: blog.lib.umn.edu/muwah005/architecture/



From: www.educ.uvic.ca/.../438/CHINA/CHINA-WALL.HTML

...and in the news. Recent examples:

- Millennium Park, Chicago
 - Ground breaking targets, 1998:
 - Total cost: \$150 million
 - Gehry band shell: \$10.8 million
 - Completion: 2000 (millennium!)

 - Actual
 - Total Cost: \$475 million
 - Gehry band shell: \$60.3 million
 - Completion date: Summer 2004



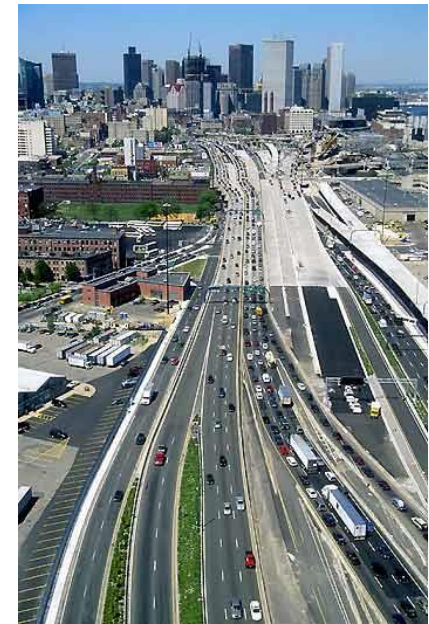
Recent examples



From: www.cegltd.com/story.asp?story=8751&headline=...

■ Boston Big Dig

- Cost estimate for total project:
Circa 1989, seeking federal funding \$ 2.5B
- 1991, ground-breaking \$ 5 B
- 1997 \$10.8 B
- Summer 2004, 92% complete \$14.6 B
- Projected at completion \$ 20 B??



From: www.roadtraffic-technology.com/.../big_dig1.html

Performance of IT Projects

- 2003 “Chaos” Report, Standish Consulting Group
 - Major IT projects that fail, 66%
 - Average cost overrun, 43%
 - Projects with schedule overrun, 82%
 - Required features/functions not included in released system, 48%
-

Performance (cont'd)

- Criteria for Project “Failure” or “Overrun”
 - >20% over budget, and
 - >20% late, and
 - >20% of business requirements not met
-

Why Do Projects Fail or Suffer Overruns?

■ Typical reasons

- ❑ Weather
 - ❑ Inadequate requirements definition
 - ❑ Insufficient resources
 - ❑ Changing priorities of customer or management
 - ❑ Intractable technical problems
 - ❑ Resistance from stakeholders
 - ❑ Wrong project for the stated needs
 - ❑ Inadequate tracking and control
 - ❑ Inexperienced project manager and/or team
-

Project Failure, Sources and Solutions

Internal to Project

External to Project

Reasons

Poor definition

Poor tracking

Technical barriers

Organizational

Inadequate resources

Changing priorities

Wrong project

Environmental

Weather

Competitors

Legal barriers

Project Failure, Sources and Solutions

Internal to Project

External to Project

Reasons

Poor definition

Poor tracking

Technical barriers

Organizational

Inadequate resources

Changing priorities

Wrong project

Environmental

Weather

Competitors

Legal barriers

Possible Solutions:

Planning / control

Risk mgt

Portfolio mgt

Risk mgt

PMO

Stakeholder mgt

Risk mgt

PROJECT MANAGEMENT!

What's a “Project?”

- Goal-oriented
 - Aims at a specific end result or deliverables
 - Somewhat unique
 - Non-routine
 - Time- and resource-constrained
 - Temporary; has target completion date and target cost
-

What's a "Project?" (cont'd)

- Cross-functional
 - Cross-disciplinary
 - Cross-organizational
- Somewhat unfamiliar and risky
 - Involves something new or different
- Something is *at stake*
- Follows logical sequence or progression of phases or stages



From: history.sandiego.edu/gen/WW2Index/picindex5.html

What is “Project Management?”

Simple Definition

- Management to accomplish project goals.



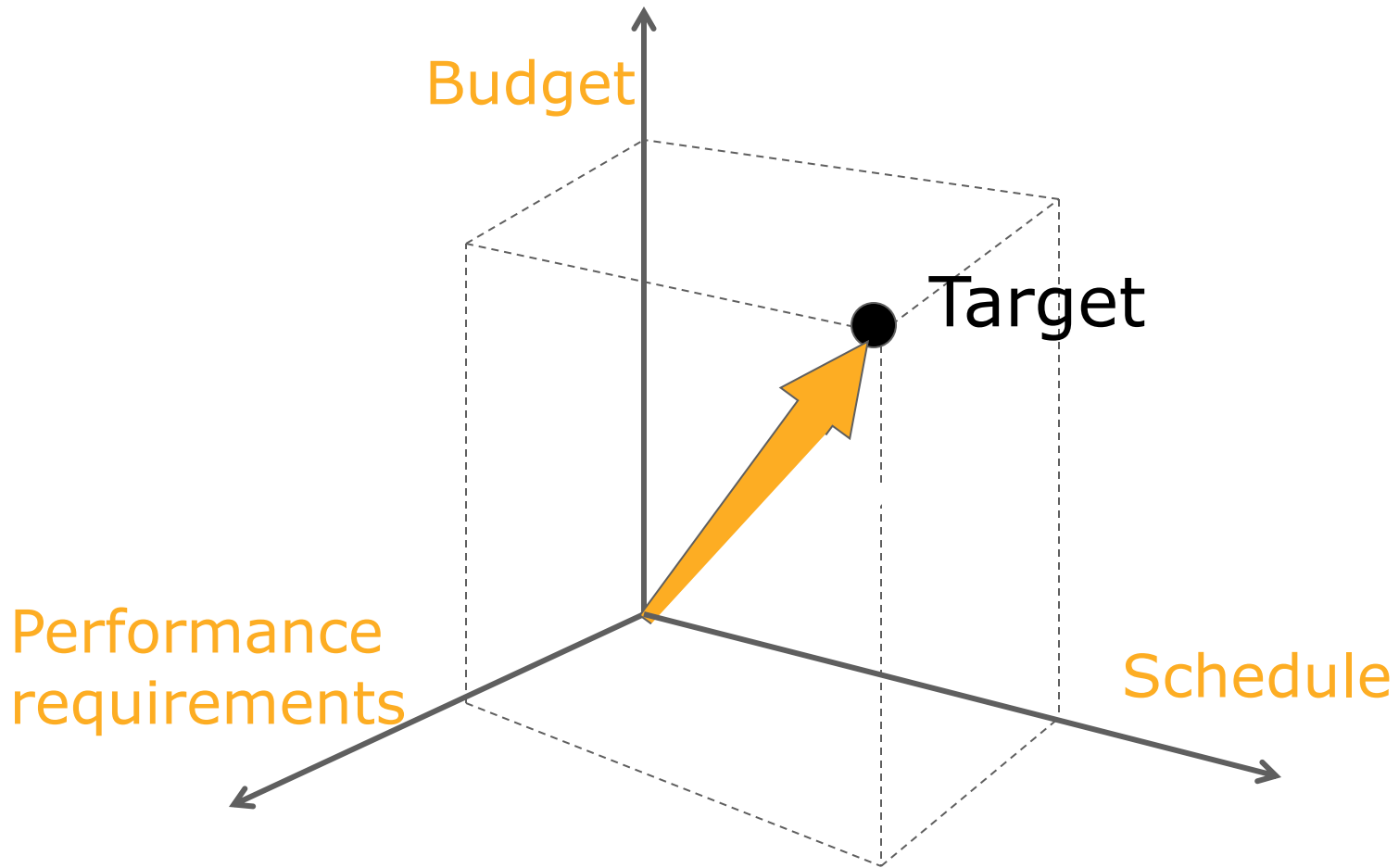
What is “Project Management?”

Longer Definition

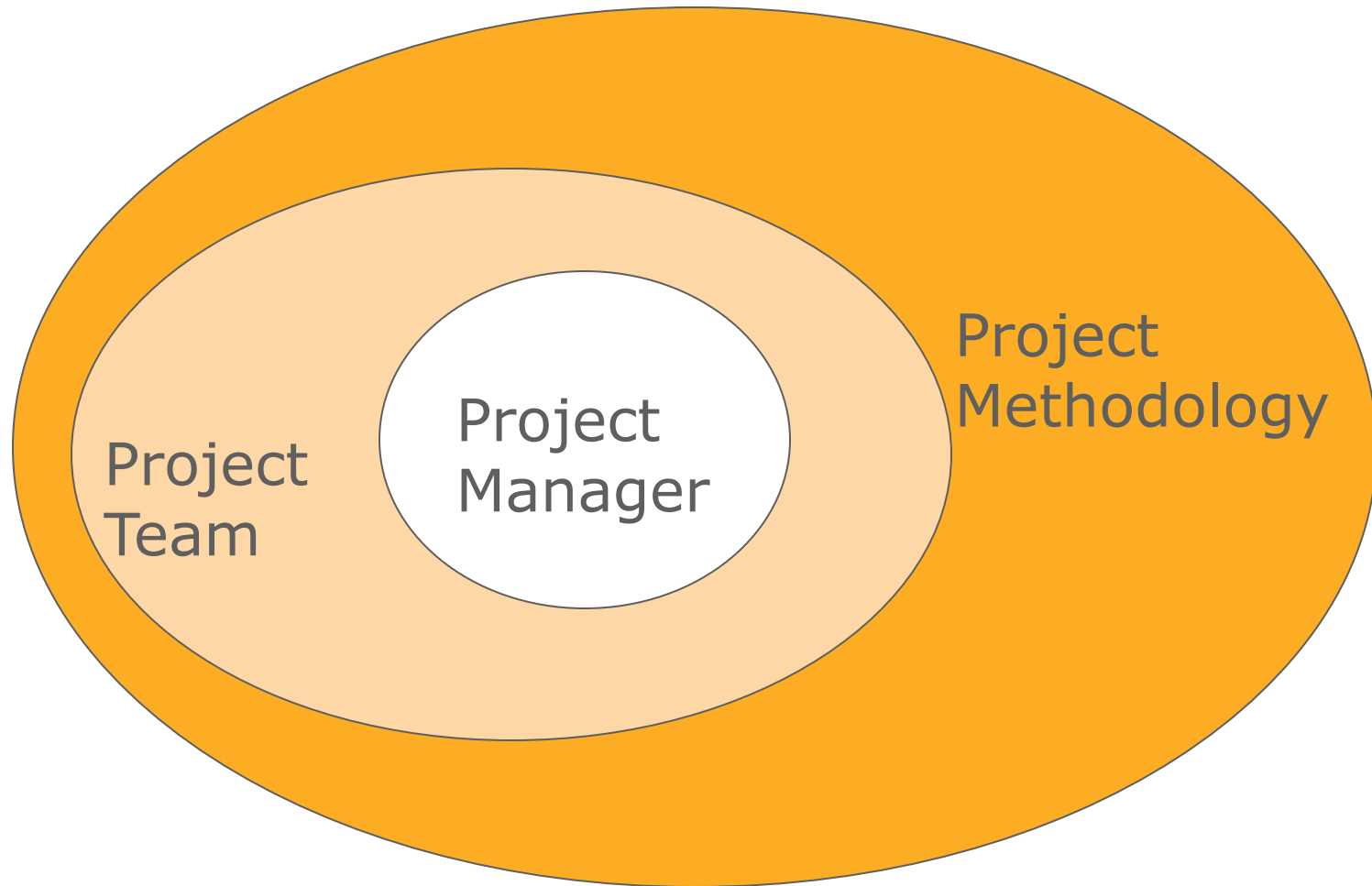
Management to

- Define and execute everything necessary to complete a **complex system** of tasks
 - Achieve project end results that might be **unique and unfamiliar**
 - Do it
 - by target **completion date**
 - with **constrained resources**
 - with an organization that is **cross-functional** and **newly-formed**
-

“Three Dimensions” of Projects: Requirements, Schedule, and Budget



Key Elements of Project Management:



PMBOK, Nine Areas of Knowledge



Project Management Institute

- Project Integration Management
 - Project Scope Management
 - Project Time Management
 - Project Cost Management
 - Project Quality Management
 - Project Human Resource Management
 - Project Communications Management
 - Project Risk Management
 - Project Procurement Management
-

Book chapters

Key:

P = PMBOK Knowledge Area is a major focus of this chapter

* = PMBOK Knowledge Area is addressed in this chapter

PMBOK Knowledge Areas

Book chapters	Introduction	Project Life Cycle and Organization	Project Management Process	Project Integration Management	Project Scope Management	Project Time Management	Project Cost Management	Project Quality Management	Project Human Resource Management	Project Communications Management	Project Risk Management	Project Procurement Management
Introduction	P	*	*									
Chapter 1: What is Project Management?	P		*									
Chapter 2: The Systems Approach and Systems Engineering			*	*	*							
Chapter 3: System Development Cycle and Project and Conception		P	*	*							*	P
Chapter 4 Project and System Definition		*			P							
Chapter 5: Planning Fundamentals		*	*	*	P				*			P
Chapter 6: Time Planning and Project Networks	*		*			P						
Chapter 7: Advanced Time Planning			*			P					*	
Chapter 8: Cost Estimating and Budgeting			*				P					*
Chapter 9: Project Quality Management			*					P				
Chapter 10: Project Risk Management			*								P	
Chapter 11: Project Execution and Control			*	*						P		*
Chapter 12: Project Evaluation, Communication, and Closeout	*		*							P		*
Chapter 13: Project Organizations: Differentiation and Integration	*	P		*								
Chapter 14: Project Roles, Responsibilities, Authority		*	*						*			
Chapter 15: Project Leadership and Teamwork		*	*						P			
Chapter 16: Managing Project Management	*	*										
Chapter 17: Project Selection and Portfolio Management	*								*		*	*
Chapter 18: International Project Management	*			*	*	*	*		*	*	*	*