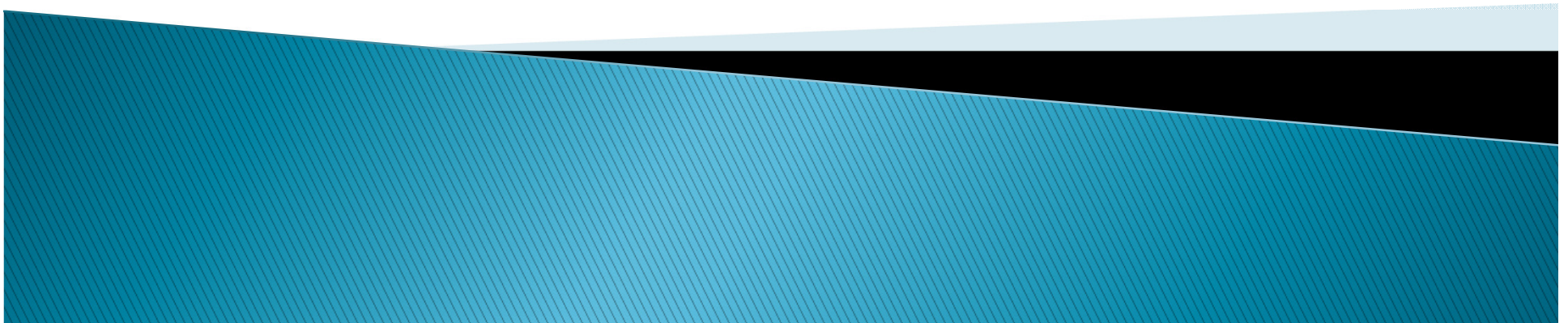


INSE 6230

**Total Quality Project
Management**



Plan of the lecture

- ▶ Course outline
- ▶ Introduction to project management
- ▶ The project management process groups
- ▶ Project initiation

Introduction

- ▶ Many organizations today have a new or renewed interest in project management
- ▶ The world as a whole spends nearly \$10 trillion of its \$40.7 trillion gross product on projects of all kinds
- ▶ More than 16 million people regard project management as their profession
- ▶ The number of people earning their Project Management Professional (PMP) certification continues to increase

Introduction

- ▶ Projects have a terrible track record
 - A 1995 study on the success of IT projects:
 - Only 16.2% of IT projects successful in meeting scope, time, and cost goals
 - Over 31% of IT projects were canceled before completion
 - A 2004 study on the success of projects of all types:
 - Only 2.5% of corporations consistently meet their targets for scope, time, and cost goals for all types of projects
 - Half of all projects fail

Introduction

- ▶ Advantages of using formal project management:
 - Better control of financial, physical, and human resources
 - Improved customer relations
 - Shorter development times
 - Lower costs
 - Higher quality and increased reliability
 - Higher profit margins
 - Improved productivity
 - Better internal coordination
 - Higher worker morale

What is a Project?

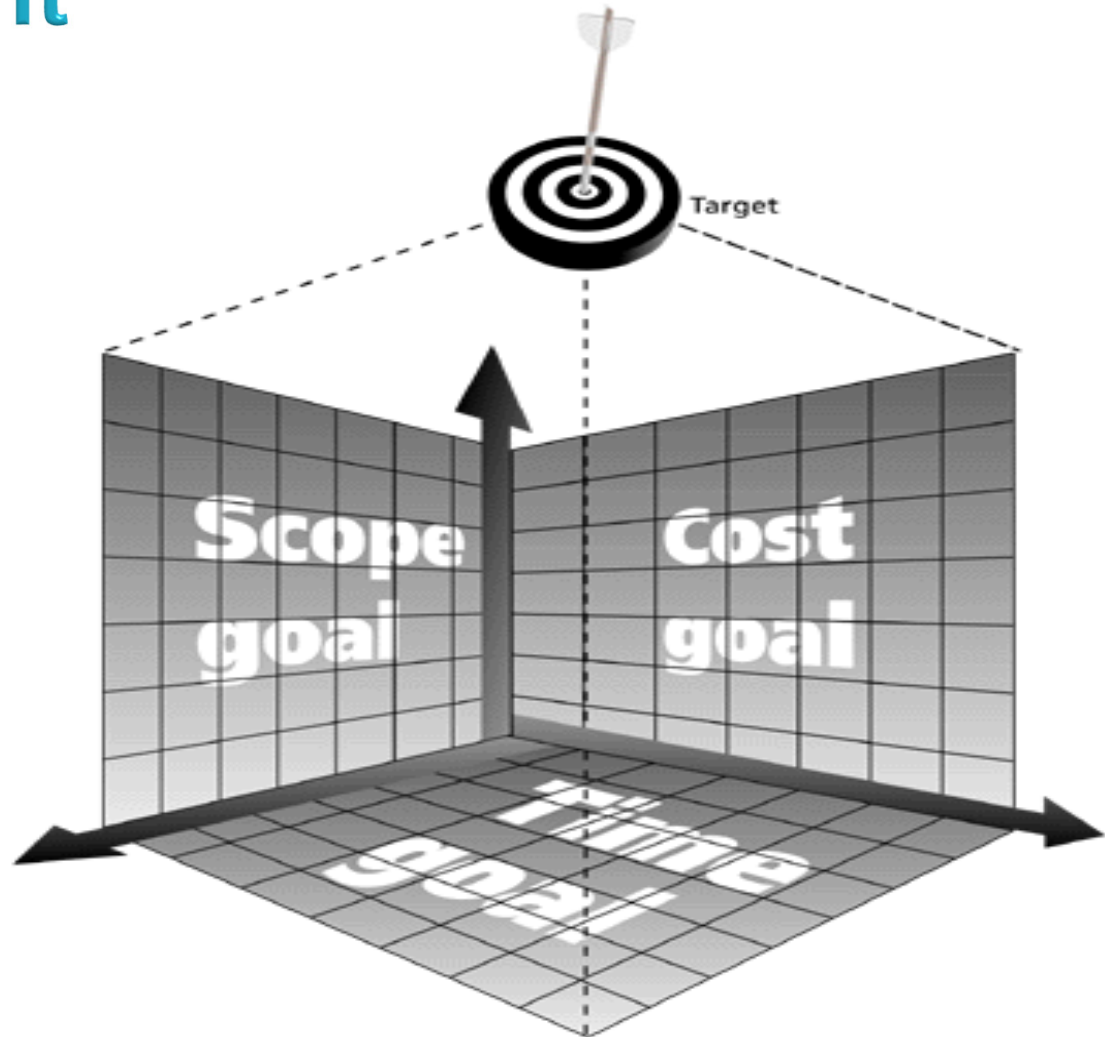
- ▶ A **project** is a temporary endeavor undertaken to create a unique product, service, or result
 - A project:
 - Has a unique purpose
 - Is temporary
 - Projects end when their objectives have been reached or the project has been terminated
 - Can be of any size, scope or time frame
 - Is developed using progressive elaboration
 - Requires resources, often from various areas
 - Should have a primary customer or sponsor
 - The **project sponsor** usually provides the direction and funding for the project
 - Involves uncertainty
 - Project uniqueness, information, external factors

What is Project Management?

- ▶ **Project management** is the application of knowledge, skills, tools and techniques to project activities to meet project requirements
- ▶ Project managers work with project sponsors, the project team and other people involved in a project to meet project goals.
- ▶ Achieving objectives means meeting the **triple constraint** by balancing:
 - Project scope goals
 - Project time goals
 - Project cost goals

The Triple Constraint of Project Management

- Balancing the three goals:
 - Scope
 - Time
 - Cost
- Quality!
 - Quadruple constraint



Project Success

- ▶ There are several ways to define **project success**:
 - The project met scope, time, and cost goals
 - The project satisfied the customer/sponsor
 - The results of the project met its main objective, e.g.
 - making or saving a certain amount of money
 - providing a good return on investment
 - making the sponsors happy
 - etc.

Project Stakeholders

- ▶ **Stakeholders** are the people involved in or affected by project activities
- ▶ Stakeholders include:
 - The project sponsor
 - The project manager
 - The project team
 - Support staff
 - Customers
 - Users
 - Suppliers
 - Opponents of the project

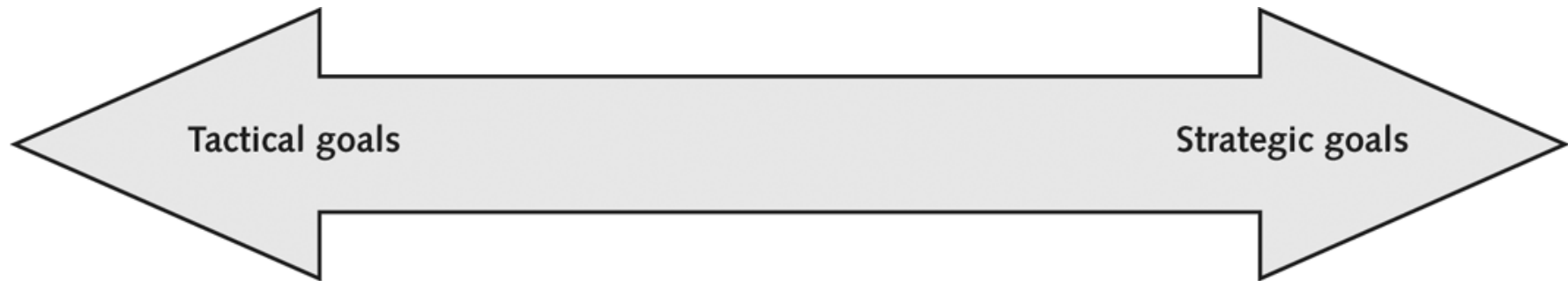
Project Management Knowledge Areas

- ▶ **Knowledge areas** describe the key competencies that project managers must develop
 - *Core knowledge areas* lead to specific project objectives:
 - Scope
 - Time
 - Cost
 - Quality
 - *Facilitating knowledge areas* are the means through which the project objectives are achieved:
 - Human resources
 - Communication
 - Risk
 - Procurement
- Project integration management is affected by all of the other knowledge areas
- All knowledge areas are important!

Program and Project Portfolio Management

- ▶ A **program** is a group of related projects managed in a coordinated way to obtain benefits and control not available from managing them individually.
 - A **program manager** provides leadership and direction for the project managers heading the projects within the program.
- ▶ As part of **project portfolio management**, organizations group and manage projects and programs as a portfolio of investments that contribute to the entire enterprise's success.
 - **Portfolio managers** help their organizations make wise investment decisions by helping to select and analyze projects from a strategic perspective.

Project Management and Project Portfolio Management



Project management

- Are we carrying out projects well?
- Are projects on time and on budget?
- Do project stakeholders know what they should be doing?

Project portfolio management

- Are we working on the right projects?
- Are we investing in the right areas?
- Do we have the right resources to be competitive?

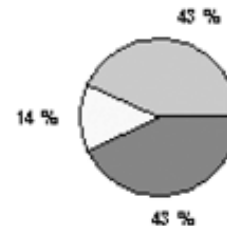
Sample Project Portfolio Management Screen Showing Project Health

PLANVIEW

Project Health (Effort Based)



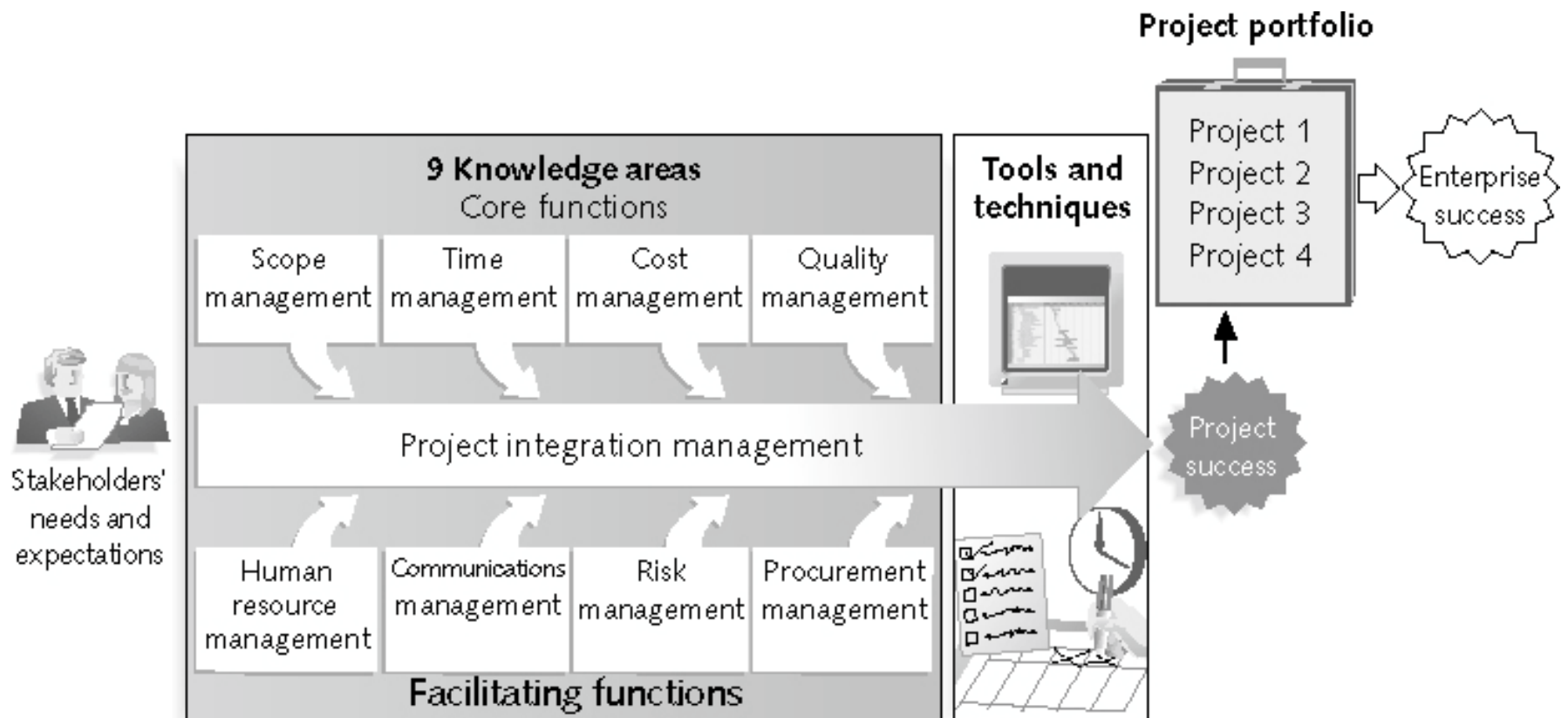
Schedule Variance	Project Count
On Target	4
In Trouble	3



Cost Variance	Project Count
On Target	3
At Risk	1
In Trouble	3

Work Id	Project	% Complete	Schedule Variance	Cost Variance	Budget Variance	Risk Pct
0000051	Upgrade Sales Staff Laptop PC's	100.0 %	✓ 0.0	▲ -74.0	▲ -74.0	✓ -
CAW-035	CRM Website	75.8 %	✓ 8.0	✓ 18.0	✓ 18.0	● 39.7 %
CW-2002	MyMystic.com Customer Website	97.0 %	● -120.0	● -343.0	● -263.0	✓ -
PARMS-0	PARMS Implementation	50.4 %	● -440.0	● -192.0	✓ -8.0	✓ 3.9 %
POS-2002	PlanView and SAP Financial Integration	98.6 %	✓ 0.0	● -221.0	● -221.0	✓ -
SSR-012	Strategic Systems Review	0.0 %	✓ 0.0	✓ 0.0	▲ -72.0	▲ 15.9 %
TAU-2002	Tax Accounting Update 2002	24.9 %	● -119.0	✓ -15.0	✓ 33.0	✓ 0

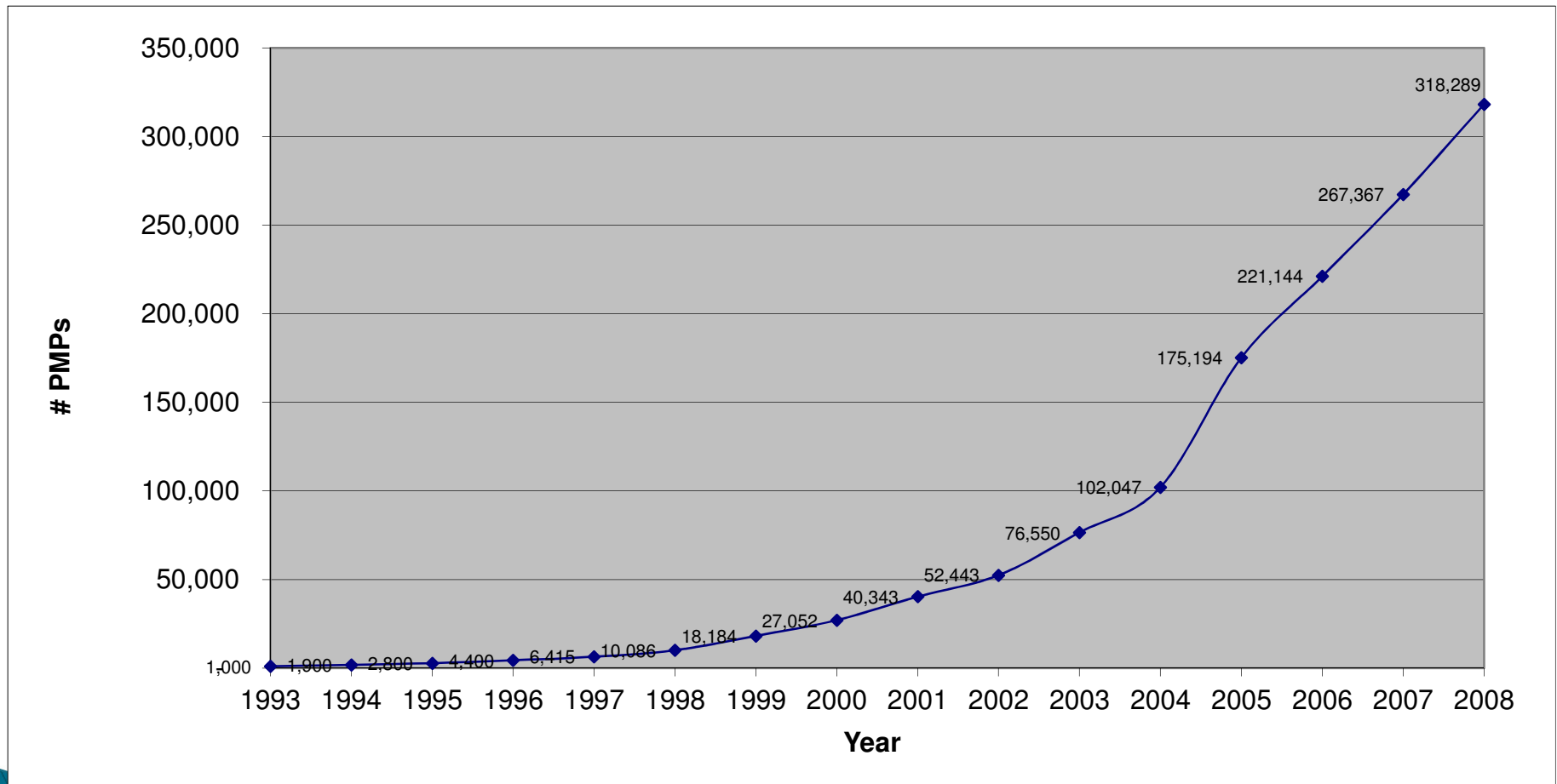
Project Management Framework



The Project Management Institute

- ▶ The **Project Management Institute (PMI)** is an international professional society for project managers founded in 1969
 - PMI has continued to attract and retain members, reporting 277,221 members worldwide by August 31, 2008
 - Project management research and certification programs continue to grow
 - Students can join PMI at a reduced fee (see www.pmi.org for details)
- ▶ PMI provides certification as a **Project Management Professional (PMP)**
 - A PMP has documented sufficient project experience, agreed to follow a code of ethics, and passed the PMP exam
 - The number of people earning PMP certification is increasing quickly

Growth in PMP Certification



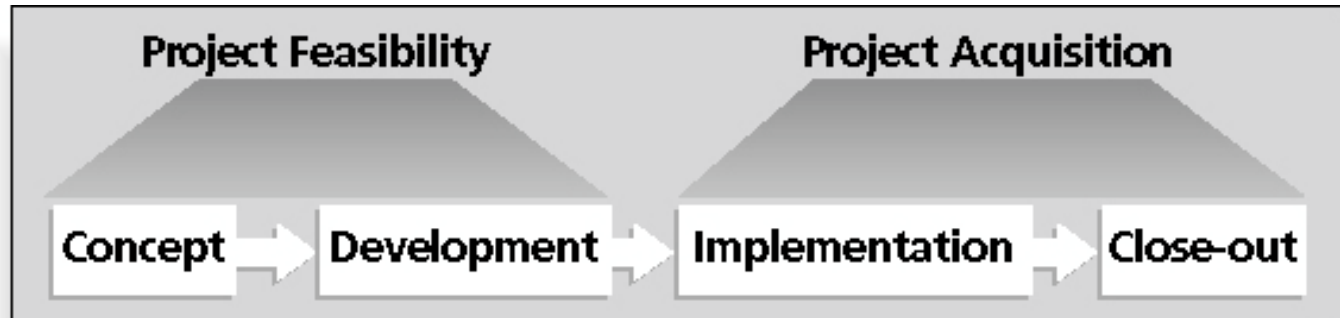
Project Life Cycle

- ▶ A project life cycle is a collection of project **phases**
- ▶ The project would in general have the following phases:
 - Concept (Starting)
 - Development (Organizing & Preparing)
 - Implementation (Carrying out)
 - Closing (Finishing)
- ▶ Phases have a beginning and an end, they do not overlap
- ▶ What is defined:
 - What **work** will be performed in each phase
 - **What deliverables** will be produced and **when**
 - A **deliverable** is a product or service produced or provided as part of a project
 - **Who** is involved in each phase
 - How management will **control** and approve work produced in each phase

Project Life Cycle

- ▶ The phases in companies vary a lot, but in general:
 - In **early phases** of a project life cycle:
 - Resource needs are usually lowest
 - The level of uncertainty (risk) is highest
 - Project stakeholders have the greatest opportunity to influence the project
 - In **middle phases** of a project life cycle:
 - The certainty of completing a project improves
 - More resources are needed
 - The **final phase** of a project life cycle focuses on:
 - Ensuring that project requirements were met
 - The sponsor approves completion of the project

Project Life Cycle



Sample deliverables for each phase	Business case	Project management plan	Last work package	Completed work
	Preliminary cost estimate	Budgetary cost estimate	Definitive cost estimate	Lessons learned
	2-level WBS	3+-level WBS	Performance reports	Customer acceptance

- **Management review** after each phase
 - To evaluate the progress
 - To determine the future of the project

Summary

- ▶ A **project** is a temporary endeavor undertaken to create a unique product, service, or result
- ▶ **Project management** is the application of knowledge, skills, tools, and techniques to project activities to meet project requirements
- ▶ A **program** is a group of related projects managed in a coordinated way
- ▶ **Project portfolio management** involves organizing and managing projects and programs as a portfolio of investments
- ▶ The project management profession continues to grow and mature
 - ▶ Projects should successfully pass through each phase of the **project life cycle**

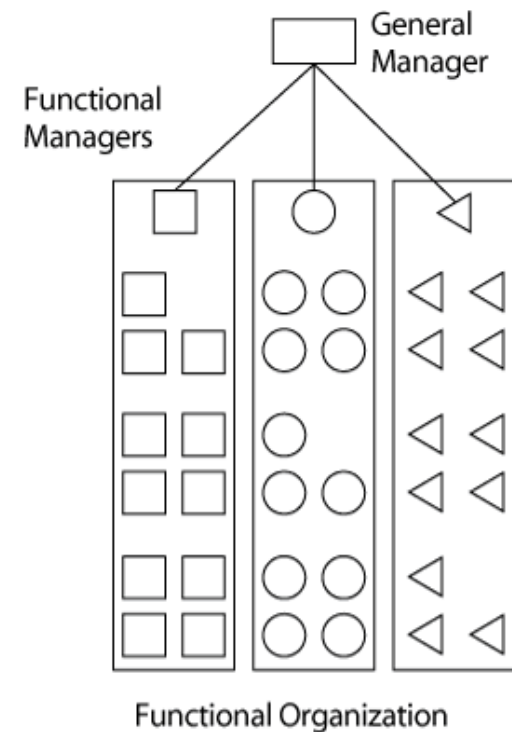
Organizational Structures

- ▶ How do we organize the employees in the organization to carry out the projects in an effective manner?
- ▶ Classification of workforce based on their function or projects:
 - Function
 - The area of responsibility
 - Usually involves education, training and/or experience
 - E.g. marketing, design, manufacturing
 - Project
 - The set of activities performed for a particular product
 - These classifications overlap



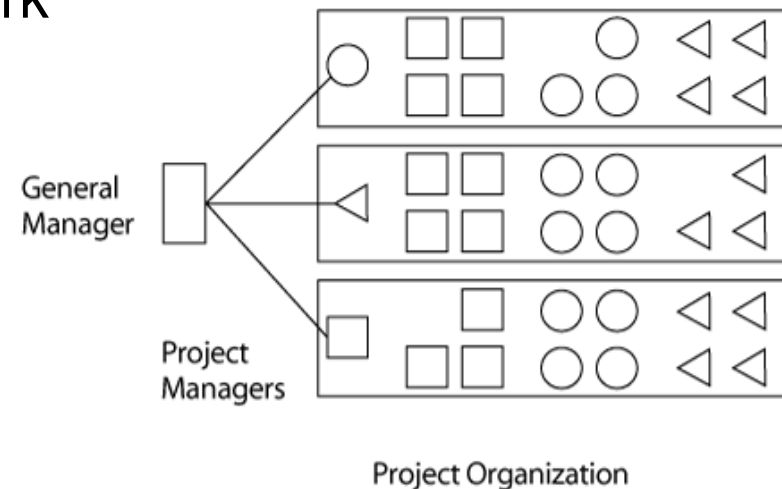
Organizational Structures

- **Functional organization**
 - The organizational links are primarily among those who perform similar functions
 - Groups/teams specialized in marketing, R&D, design, manufacturing, etc.
 - Team members involved in many different projects
 - Fosters development of specialization and expertise



Organizational Structures

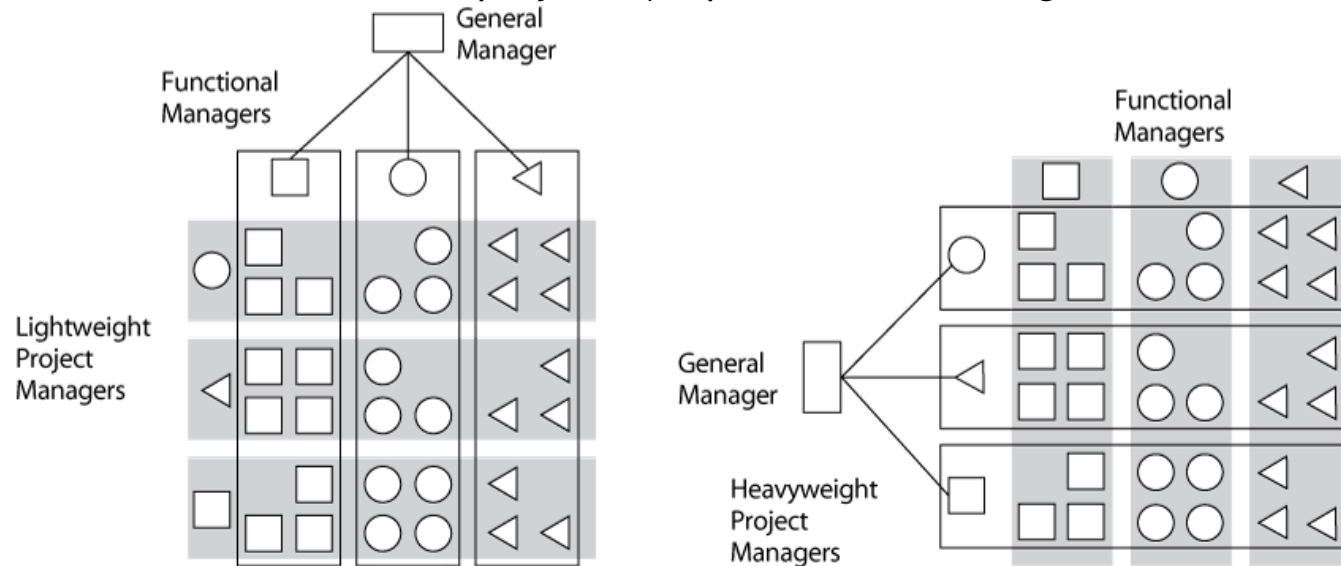
- **Project organization**
 - The organizational links are primarily among those who work on the same project
 - Teams include people from several different functions (marketing, design, manufacturing, etc.)
 - Each team focused on one particular project
 - Easier coordination and administration of projects



Organizational Structures

▶ Matrix organization

- Hybrid of functional and project organizations – individuals are linked to others according to both the projects they work on and their function.
- Each individual would have two supervisors (project and functional)
- Combines benefits of both functional and project organizations, but it is difficult to balance functions and projects (requires more managers and administrators)



• Lightweight project matrix organization (weak matrix)

- Functional manager dominates (budget, performance evaluation, hiring & firing)
- Project manager coordinates and administrates his/her specific project

• Heavyweight project matrix organization (strong matrix)

- Project manager dominates (budget, performance evaluation, hiring & firing)
- Functional manager has little control

Organizational Structures

Project Characteristics	Organizational Structure Type				
	Functional	Matrix			Project
		<i>Weak Matrix</i>	<i>Balanced Matrix</i>	<i>Strong Matrix</i>	
Project manager's authority	Little or none	Limited	Low to Moderate	Moderate to high	High to almost total
Percent of performing organization's personnel assigned full-time to project work	Virtually none	0-25%	15-60%	50-95%	85-100%
Who controls the project budget	Functional manager	Functional manager	Mixed	Project manager	Project manager
Project manager's role	Part-time	Part-time	Full-time	Full-time	Full-time
Common title for project manager's role	Project Coordinator/ Project Leader	Project Coordinator/ Project Leader	Project Manager/ Project Officer	Project Manager/ Program Manager	Project Manager/ Program Manager
Project management administrative staff	Part-time	Part-time	Part-time	Full-time	Full-time

PMBOK® Guide, 2000, 19, and PMBOK® Guide 2004, 28.

Project Management Process Groups

- ▶ **A process** is a series of actions directed toward a particular result
- ▶ Project management can be viewed as a number of interlinked processes
- ▶ The project management process groups include:
 - Initiating processes
 - Planning processes
 - Executing processes
 - Monitoring and controlling processes
 - Closing processes
- ▶ Process groups cannot equate project phases!

Project Management Process Groups

▶ **Initiation processes**

- Initiating processes involve recognizing and starting a new project or project phase
- The main objective of project initiation is to formally select and start off projects

▶ **Planning processes**

- The main purpose of project planning is to guide execution
- E.g. project schedule, cost estimation, risk management, HR planning, communications planning, work breakdown structure

▶ **Executing processes**

- Project execution involves actions necessary to ensure that activities in the project plan are completed
- Executing processes usually take most time and resources
- Project execution involves managing and performing the work
- E.g. creating project team, performing quality assurance, distributing information, conducting procurements

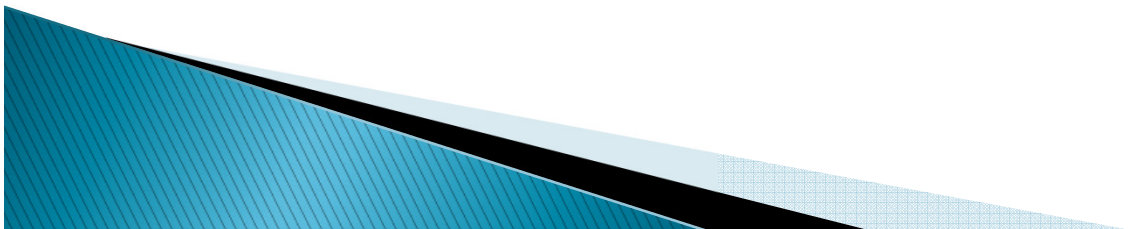
Project Management Process Groups

▶ **Monitoring and controlling processes**

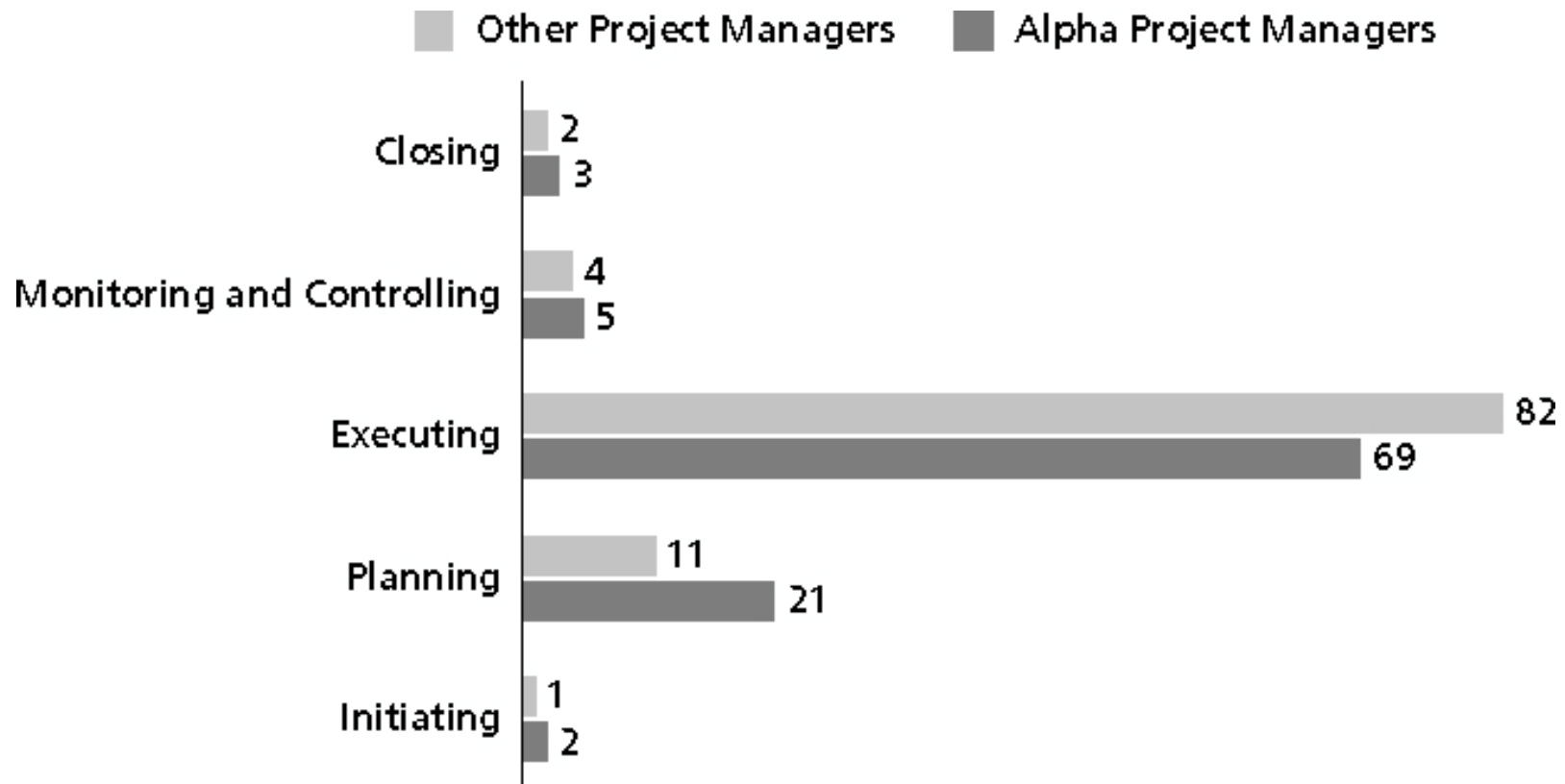
- Involves measuring progress toward project objectives, monitoring deviation from the plan, and taking correction actions
- Monitoring project work includes collecting, measuring, and disseminating performance information

▶ **Closing processes**

- To close a project or a phase, you must finalize all activities and transfer the completed or cancelled work to the appropriate people
- Involves gaining stakeholder and customer acceptance of the final products and services
- It includes verifying that all of the deliverables are completed
 - Even if projects are not completed, they should be closed out to learn from the past



Percentage of Time Spent on Each Process Group



Project Management Overview

- ▶ There are **five project management process groups**: initiating, planning, executing, monitoring & controlling, and closing processes
- ▶ There are **nine knowledge areas**: integration, scope, time, cost, quality, risk, human resource, communications and procurement
- ▶ You can map the main activities of each process group to the nine knowledge areas

Knowledge Area	Project Management Process Groups				
	Initiating	Planning	Executing	Monitoring and Controlling	Closing
<i>Project Integration Management</i>	Develop project charter	Develop project management plan	Direct and manage project execution	Monitor and control project work, Perform integrated change control	Close project or phase
<i>Project Scope Management</i>		Collect requirements, Define scope, Create WBS		Verify scope, Control scope	
<i>Project Time Management</i>		Define activities, Sequence activities, activity durations, Develop schedule		Control schedule	
<i>Project Cost Management</i>		Estimate costs, Determine budget		Control costs	
<i>Project Quality Management</i>		Plan quality	Perform quality assurance	Perform quality control	
<i>Project Human Resource Management</i>		Develop human resource plan	Acquire project team, Develop project team, Manage project team		
<i>Project Communications Management</i>	Identify stakeholders	Plan communications	Distribute information, Manage stakeholders expectations	Report performance	
<i>Project Risk Management</i>		Plan risk management, Identify risks, Perform qualitative risk analysis, Perform quantitative risk analysis, Plan risk responses		Monitor and control risks	
<i>Project Procurement Management</i>		Plan procurements	Conduct procurements	Administer procurements	Close procurements

Strategic Planning and Project Selection

- ▶ Next lecture

Project Pre-initiation

- ▶ Lay the groundwork for a project before it officially starts
- ▶ Pre-initiation tasks:
 - Determine the scope, time, and cost constraints for the project
 - Identify the project sponsor
 - Select the project manager
 - Develop a **business case** for a project
 - Meet with the project manager to review the process and expectations for managing the project
 - Determine if the project should be divided into two or more smaller projects

Business Case

- ▶ Business case provides **the need for the project** and the basic underlying concepts
- ▶ Usually not the responsibility of project manager
- ▶ May be highly structured & comprehensive or verbal & short
- ▶ It may include:
 - Introduction/background
 - Business objective
 - Current situation and problem/opportunity statement
 - Critical assumption and constraints
 - Analysis of options and recommendation
 - Preliminary project requirements
 - Budget estimate and financial analysis
 - Schedule estimate
 - Potential risks
 - Exhibits

Project Initiation

- ▶ Initiating a project includes recognizing and starting a new project
- ▶ Initiating processes:
 - Identify stakeholders
 - Develop project charter
 - Organize kick-off meeting

Project Stakeholders

- ▶ **Stakeholders** are the people involved in or affected by project activities
- ▶ Stakeholders include:
 - The project sponsor
 - The project manager
 - The project team
 - Support staff
 - Customers
 - Users
 - Suppliers
 - Opponents of the project

Stakeholder Register

- **Stakeholder register** includes details related to the identified key project stakeholders

Name	Position	Internal/ External	Project Role	Contact Information
Joe Fleming	CEO	Internal	Sponsor	joe_fleming@jwdconsulting.com
Erica Bell	PMO Director	Internal	Project manager	erica_bell@jwdconsulting.com
Michael Chen	Team member	Internal	Team member	michael_chen@jwdconsulting.com
Kim Phuong	Business analyst	External	Advisor	kim_phuong@client1.com
Louise Mills	PR Director	Internal	Advisor	louise_mills@jwdconsulting.com

Stakeholder Management Strategy

- **Stakeholder management strategy** helps increase the support of stakeholders throughout the project
- Indicates real interest, real support or influence of stakeholders

Name	Level of Interest	Level of Influence	Potential Management Strategies
Joe Fleming	High	High	Joe likes to stay on top of key projects and make money. Have a lot of short, face-to-face meetings and focus on achieving the financial benefits of the project.
Louise Mills	Low	High	Louise has a lot of things on her plate, and she does not seem excited about this project. She may be looking at other job opportunities. Show her how this project will help the company and her resume.

Contents is often sensitive, so do not publish this document!

Project Charter

- ▶ A project charter is a document that formally recognizes the existence of a project and provides direction on the project's objectives and management
- ▶ Project charters are normally short (1-2 pages) and include key project information and key stakeholder signatures
- ▶ A signed charter is a key output of the initiation process
- ▶ Some projects do not have charters (*e.g.* internal)
- ▶ Charter can play an important role later (when referring back to the requirements, or when a project managers has a difficulty in getting support from stakeholders)

Project Charter - *Example*

Project Title: DNA-Sequencing Instrument Completion Project

Date of Authorization: February 1

Project Start Date: February 1

Projected Finish Date: November 1

Key Schedule Milestones:

- Complete first version of the software by June 1
- Complete production version of the software by November 1

Budget Information: The firm has allocated \$1.5 million for this project, and more funds are available if needed. The majority of costs for this project will be internal labor. All hardware will be outsourced.

Project Manager: Nick Carson, (650) 949-0707, ncarson@dnaconsulting.com

Project Objectives: The DNA-sequencing instrument project has been underway for three years. It is a crucial project for our company. This is the first charter for the project, and the objective is to complete the first version of the software for the instrument in four months and a production version in nine months.

Main Project Success Criteria: The software must meet all written specifications, be thoroughly tested, and be completed on time. The CEO will formally approve the project with advice from other key stakeholders.

Project Charter – *Example (continued)*

Approach:

- Hire a technical replacement for Nick Carson and a part-time assistant as soon as possible.
- Within one month, develop a clear work breakdown structure, scope statement, and Gantt chart detailing the work required to complete the DNA sequencing instrument.
- Purchase all required hardware upgrades within two months.
- Hold weekly progress review meetings with the core project team and the sponsor.
- Conduct thorough software testing per the approved test plans.

ROLES AND RESPONSIBILITIES

Name	Role	Position	Contact Information
Ahmed Abrams	Sponsor	CEO	aabrams@dnaconsulting.com
Nick Carson	Project Manager	Manager	ncarson@dnaconsulting.com
Susan Johnson	Team Member	DNA expert	sjohnson@dnaconsulting.com
Renyong Chi	Team Member	Testing expert	rchi@dnaconsulting.com
Erik Haus	Team Member	Programmer	ehaus@dnaconsulting.com
Bill Strom	Team Member	Programmer	bstrom@dnaconsulting.com
Maggie Elliot	Team Member	Programmer	melliot@dnaconsulting.com

Sign-off: (Signatures of all the above stakeholders)

Ahmed Abrams
Susan Johnson
Erik Haus
Maggie Elliot

Nick Carson
Renyong Chi
Bill Strom

Comments: (Handwritten or typed comments from above stakeholders, if applicable)

"I want to be heavily involved in this project. It is crucial to our company's success, and I expect everyone to help make it succeed." —Ahmed Abrams

"The software test plans are complete and well documented. If anyone has questions, do not hesitate to contact me." —Renyong Chi

Kick-off Meeting

- ▶ It is good practice to hold a **kick-off meeting** at the beginning of a project
 - Issues: stakeholders introduction, goals and objectives, review of documents, organizational structure, etc.

Kick-Off Meeting
[Date of Meeting]

Project Name: Project Management Intranet Site Project

Meeting Objective: Get the project off to an effective start by introducing key stakeholders, reviewing project goals, and discussing future plans

Agenda:

- Introductions of attendees
- Review of the project background
- Review of project-related documents (i.e., business case, project charter)
- Discussion of project organizational structure
- Discussion of project scope, time, and cost goals
- Discussion of other important topics
- List of action items from meeting

Action Item	Assigned To	Due Date

Date and time of next meeting:

Next lecture

- ▶ Strategic Planning and Project Selection
- ▶ Project Integration Management
- ▶ Project Scope Management