

Chapter 1: Introduction to Project Management

**Information Technology
Project Management,**

Learning Objectives

- Understand the growing need for better project management, especially for information technology projects
- Explain what a project is, provide examples of information technology projects, list various attributes of projects, and describe the triple constraint of projects
- Describe project management and discuss key elements of the project management framework, including project stakeholders, the project management knowledge areas, common tools and techniques, and project success

Learning Objectives (continued)

- Discuss the relationship between project, program, and portfolio management and the contributions they each make to enterprise success
- Understand the role of the project manager by describing what project managers do, what skills they need, and what the career field is like for information technology project managers
- Describe the project management profession, including its history, the role of professional organizations like the Project Management Institute, the importance of certification and ethics, and the advancement of project management software

Introduction

- Many organizations today have a new or renewed interest in project management
- Computer hardware, software, networks, and the use of interdisciplinary and global work teams have radically changed the work environment
- The U.S. spends \$2.3 trillion on projects every year, or one-quarter of its gross domestic product, and the world as a whole spends nearly \$10 trillion of its \$40.7 gross product on projects of all kinds

Project Management Statistics

- Worldwide IT spending totaled more than \$1.8 trillion in 2005, a 6 percent increase from 2004, and spending is projected to grow 8 percent in 2006 and 4 percent in 2007
- In 2005, the total compensation for the average senior project manager was \$99,183 per year in the United States, \$94,646 in Australia, and \$106,374 in the United Kingdom
- The number of people earning their Project Management Professional (PMP) certification increased by more than 70 percent from 2004 to 2005, with more than 200,000 PMPs worldwide by the end of August, 2006

Motivation for Studying Information Technology (IT) Project Management

- IT Projects have a terrible track record, as described in the “What Went Wrong?” section
- A 1995 Standish Group study (CHAOS) found that only 16.2% of IT projects were successful in meeting scope, time, and cost goals
- Over 31% of IT projects were canceled before completion, costing over \$81 billion in the U.S. alone

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 (less stress)

What Is a Project?

- A **project** is “a temporary endeavor undertaken to create a unique product, service, or result” (PMBOK® Guide, Third Edition, 2004, p. 5)
- Operations is work done to sustain the business
- Projects end when their objectives have been reached or the project has been terminated
- Projects can be large or small and take a short or long time to complete

Examples of IT Projects

- A help desk or technical worker replaces ten laptops for a small department
- A small software development team adds a new feature to an internal software application for the finance department
- A college campus upgrades its technology infrastructure to provide wireless Internet access across the whole campus
- A cross-functional task force in a company decides what Voice-over-Internet-Protocol (VoIP) system to purchase and how it will be implemented

Top Ten Technology Projects in 2006

- VoIP
- Outsourcing
- Data networking
- Customer relationship management
- Collaboration
- Supply chain management
- Desktop upgrades
- Application performance management
- Business analytics
- Compliance tracking

Media Snapshot: Where IT Matters

- In 2006, Baseline Magazine published “Where I.T. Matters: How 10 Technologies Transformed 10 Industries” as a retort to Nicholas Carr’s ideas (author of “IT Doesn’t Matter”)
 - VoIP has transformed the telecommunications industry and broadband Internet access
 - Global Positioning Systems (GPS) has changed the farming industry
 - Digital supply chain has changed the entertainment industry’s distribution system

Project Attributes

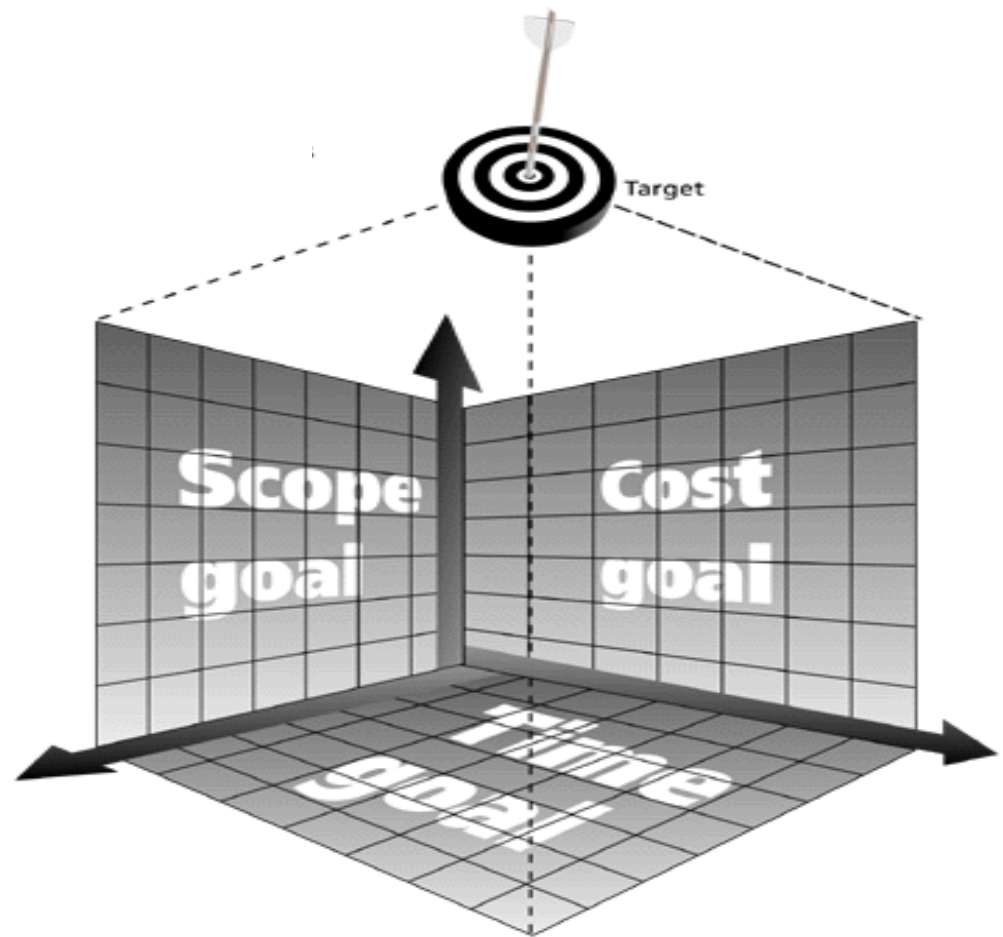
- A project:
 - Has a unique purpose
 - Is temporary
 - Is developed using progressive elaboration
 - Requires resources, often from various areas
 - Should have a primary customer or sponsor
 - The **project sponsor** usually provides the direction and funding for the project
 - Involves uncertainty

Project and Program Managers

- **Project managers** work with project sponsors, a project team, and other people involved in a project to meet project goals
- **Program:** group of related projects managed in a coordinated way to obtain benefits and control not available from managing them individually (PMBOK® Guide, Third Edition, 2004, p. 16)
- Program managers oversee programs and often act as bosses for project managers

Figure 1-1: The Triple Constraint of Project Management

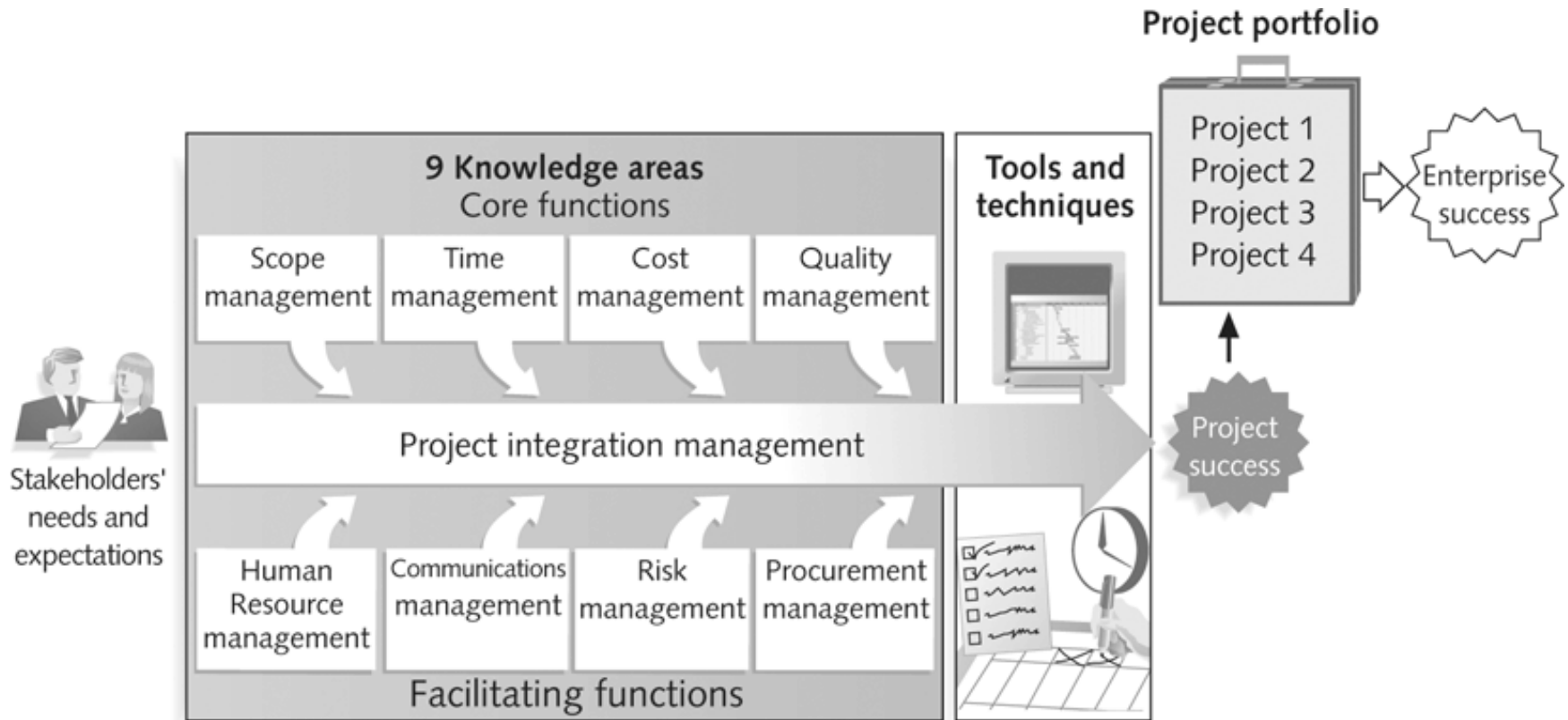
Successful project management means meeting all three goals (scope, time, and cost) – and satisfying the project's sponsor!



What is Project Management?

- **Project management** is “the application of knowledge, skills, tools and techniques to project activities to meet project requirements” (PMBOK® Guide, Third Edition, 2004, p. 8)
- Project managers strive to meet the **triple constraint** by balancing project scope, time, and cost goals

Figure 1-2: Project Management Framework



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 to the project

Nine Project Management Knowledge Areas

- **Knowledge areas** describe the key competencies that project managers must develop
 - Four core knowledge areas lead to specific project objectives (scope, time, cost, and quality)
 - Four facilitating knowledge areas are the means through which the project objectives are achieved (human resources, communication, risk, and procurement management)
 - One knowledge area (project integration management) affects and is affected by all of the other knowledge areas
 - All knowledge areas are important!

Project Management Tools and Techniques

- **Project management tools and techniques** assist project managers and their teams in various aspects of project management
- Some specific ones include:
 - Project charter, scope statement, and WBS (scope)
 - Gantt charts, network diagrams, critical path analysis, and critical chain scheduling (time)
 - Cost estimates and earned value management (cost)
 - See Table 1-1 for many more

Super Tools

- “Super tools” are those tools that have high use and high potential for improving project success, such as:
 - Software for task scheduling (such as project management software)
 - Scope statements
 - Requirements analyses
 - Lessons-learned reports
- Tools already extensively used that have been found to improve project importance include:
 - Progress reports
 - Kick-off meetings
 - Gantt charts
 - Change requests

What Went Right? Improved Project Performance

- The Standish Group's CHAOS studies show improvements in IT projects in the past decade

Measure	1994 Data	2002 Data	Result
Successful projects	16%	34%	Doubled
Failed projects	31%	15%	Halved
Money wasted on challenged and failed projects	\$140 B out of \$250 B	\$55 B out of \$255 B	More than halved

Why the Improvements?

"The reasons for the increase in successful projects vary. First, the average cost of a project has been more than cut in half. Better tools have been created to monitor and control progress and **better skilled project managers with better management processes** are being used. The fact that there are processes is significant in itself."*

*The Standish Group, "CHAOS 2001: A Recipe for Success" (2001).

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, such as making or saving a certain amount of money, providing a good return on investment, or simply making the sponsors happy

Table 1-2: What Helps Projects Succeed?*

- | | |
|-------------------------------------|---|
| 1. Executive support | 7. Firm basic requirements |
| 2. User involvement | 8. Formal methodology |
| 3. Experienced project manager | 9. Reliable estimates |
| 4. Clear business objectives | 10. Other criteria, such as small milestones, proper planning, competent staff, and ownership |
| 5. Minimized scope | |
| 6. Standard software infrastructure | |

*The Standish Group, “Extreme CHAOS,” (2001).

What the Winners Do

- Recent research findings show that companies that excel in project delivery capability:
 - Use an integrated project management toolbox (use standard/advanced PM tools and lots of templates)
 - Grow project leaders, emphasizing business and soft skills
 - Develop a streamlined project delivery process
 - Measure project health using metrics, like customer satisfaction or return on investment

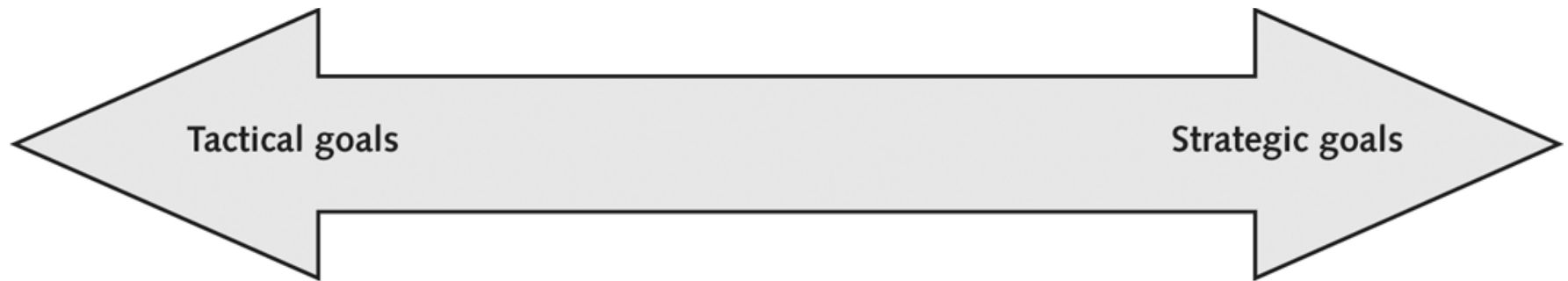
Program and Project Portfolio Management

- A **program** is “a group of related projects managed in a coordinated way to obtain benefits and control not available from managing them individually” (PMBOK® Guide, Third Edition, 2004, p. 16)
- A **program manager** provides leadership and direction for the project managers heading the projects within the program
- Examples of common programs in the IT field: infrastructure, applications development, and user support

Project Portfolio Management

- 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

Figure 1-3: Project Management Compared to 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?

Best Practice

- A **best practice** is “an optimal way recognized by industry to achieve a stated goal or objective”*
- Robert Butrick suggests that organizations need to follow basic principles of project management, including these two mentioned earlier in this chapter
 - Make sure your projects are driven by your strategy; be able to demonstrate how each project you undertake fits your business strategy, and screen out unwanted projects as soon as possible
 - Engage your stakeholders; ignoring stakeholders often leads to project failure
 - Be sure to engage stakeholders at all stages of a project, and encourage teamwork and commitment at all times

*Project Management Institute, Inc., *Organizational Project Management Maturity Model (OPM3) Knowledge Foundation* (2003), p. 13.

Figure 1-4: Sample Project Portfolio Approach

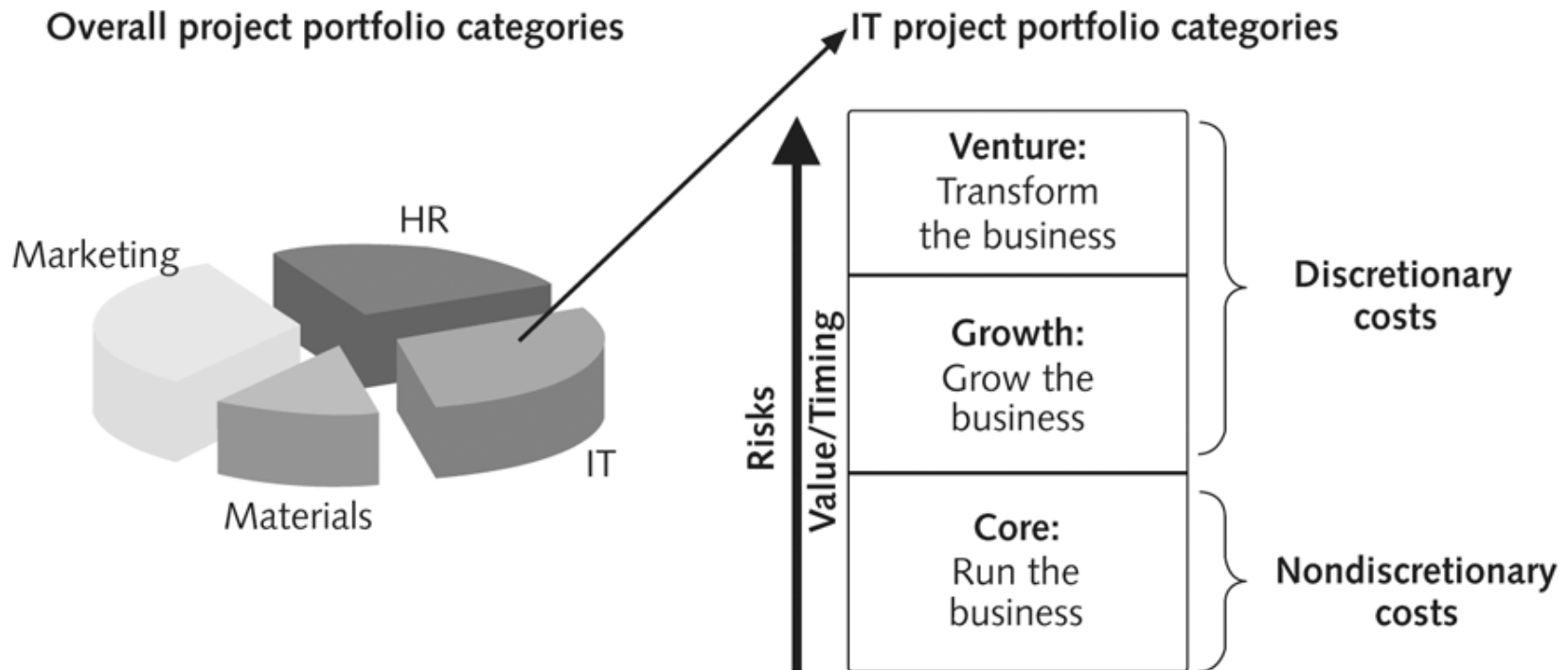


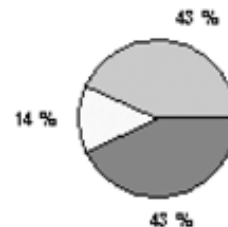
Figure 1-5: Sample Project Portfolio Management Screen Showing Project Health

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

Suggested Skills for Project Managers

- Project managers need a wide variety of skills
- They should:
 - Be comfortable with change
 - Understand the organizations they work in and with
 - Be able to lead teams to accomplish project goals

The Role of the Project Manager

- Job descriptions vary, but most include responsibilities like planning, scheduling, coordinating, and working with people to achieve project goals
- Remember that 97% of successful projects were led by experienced project managers, who can often help influence success factors

Suggested Skills for Project Managers

- The Project Management Body of Knowledge
- Application area knowledge, standards, and regulations
- Project environment knowledge
- General management knowledge and skills
- Soft skills or human relations skills

Table 1-3: Ten Most Important Skills and Competencies for Project Managers

1. People skills
2. Leadership
3. Listening
4. Integrity, ethical behavior, consistent
5. Strong at building trust
6. Verbal communication
7. Strong at building teams
8. Conflict resolution, conflict management
9. Critical thinking, problem solving
10. Understands, balances priorities

Different Skills Needed in Different Situations

- Large projects: leadership, relevant prior experience, planning, people skills, verbal communication, and team-building skills are most important
- High uncertainty projects: risk management, expectation management, leadership, people skills, and planning skills are most important
- Very novel projects: leadership, people skills, having vision and goals, self-confidence, expectations management, and listening skills are most important

Importance of Leadership Skills

- Effective project managers provide leadership by example
- A **leader** focuses on long-term goals and big-picture objectives while inspiring people to reach those goals
- A **manager** deals with the day-to-day details of meeting specific goals
- Project managers often take on the role of both leader and manager

Careers for IT Project Managers

- In a 2006 survey by CIO.com, IT executives ranked project/program management the skills that would be the most in demand in the next two to five years

Table 1-4: Top IT Skills (partial list)

SKILL	PERCENTAGE OF RESPONDENTS
• Project/program management	60%
• Business process management	55%
• Business analysis	53%
• Application development	52%
• Database management	49%
• Security	42%
• Enterprise architect	41%
• Strategist/internal consultant	40%

The Project Management Profession

- The profession of project management is growing at a very rapid pace
- It is helpful to understand the history of the field, the role of professional societies like the Project Management Institute, and the growth in project management software

History of Project Management

- Some people argue that building the Egyptian pyramids was a project, as was building the Great Wall of China
- Most people consider the ***Manhattan Project*** to be the first project to use “modern” project management
- This three-year, \$2 billion (in 1946 dollars) project had a separate project manager and a technical manager

Figure 1-6: Sample Gantt Chart Created with Project 2007

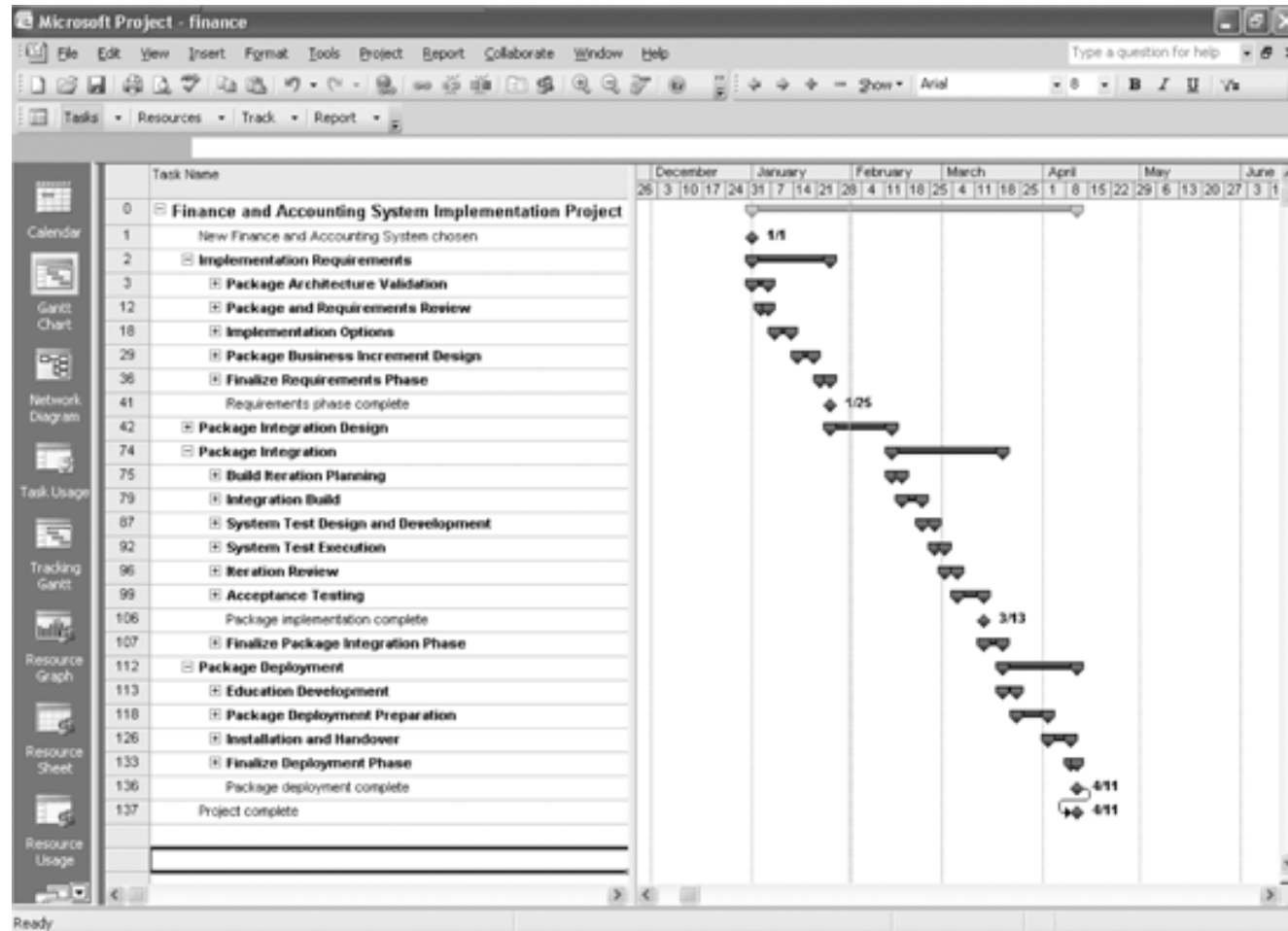
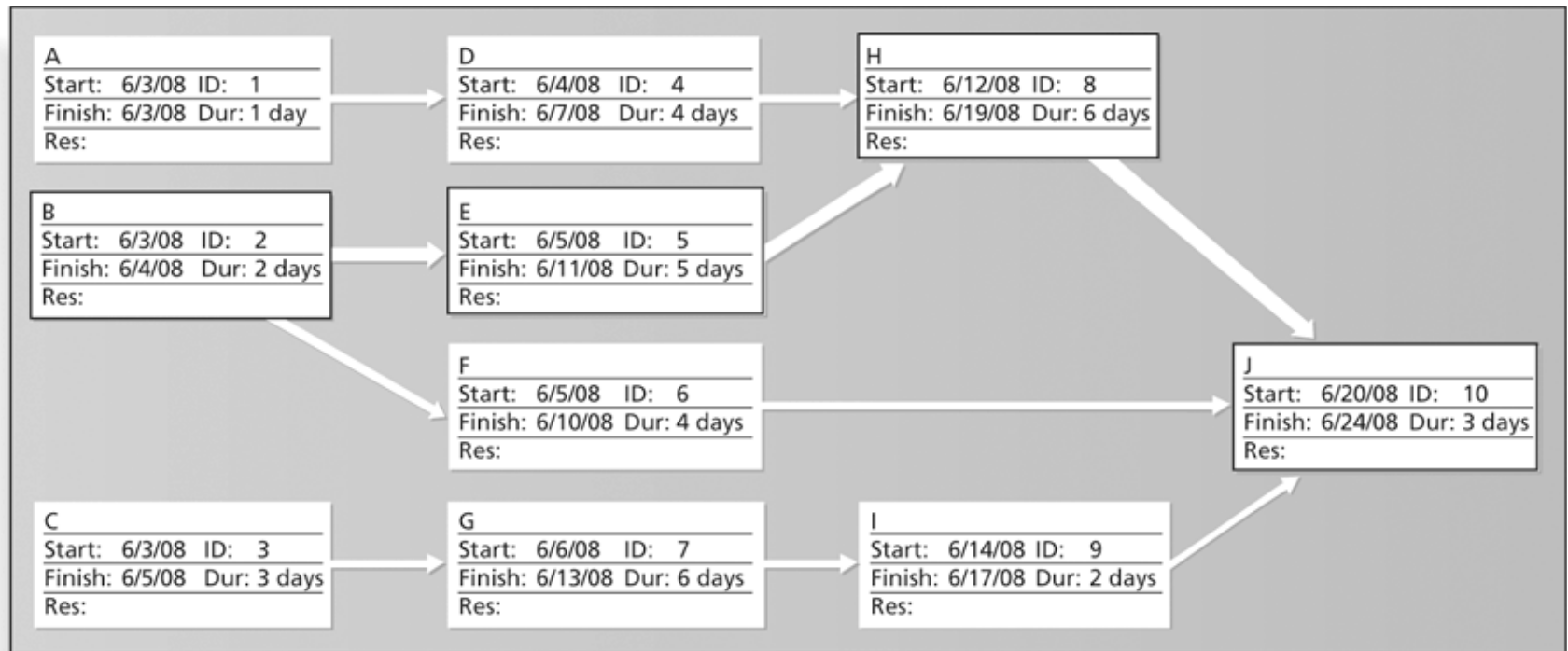


Figure 1-7: Sample Network Diagram in Microsoft Project



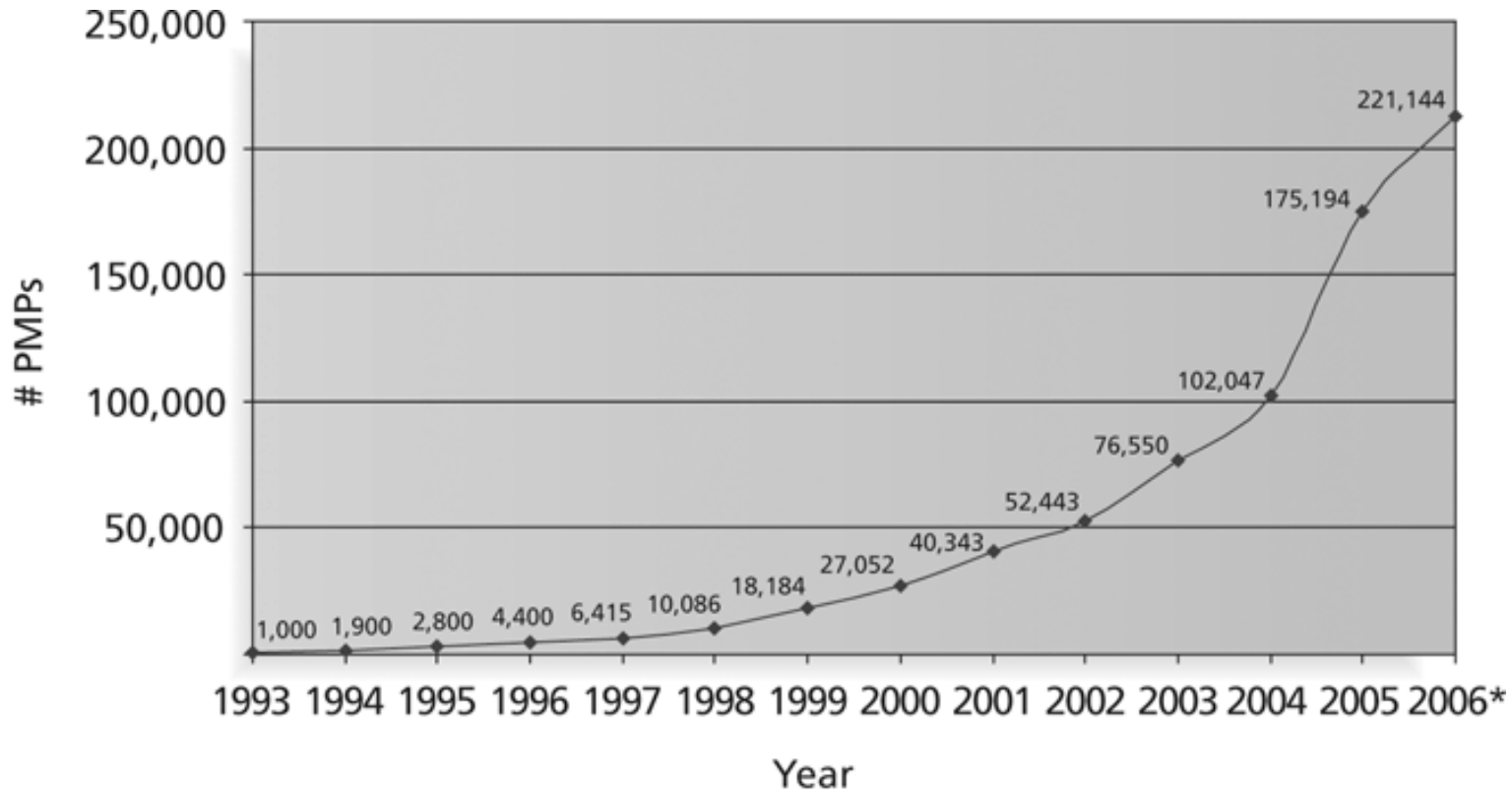
The Project Management Institute

- 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 225,432 members worldwide by 12/31/06
- There are specific interest groups in many areas like engineering, financial services, health care, IT, etc.
- Project management research and certification programs continue to grow

Project Management Certification

- PMI provides certification as a **Project Management Professional (PMP)**
- A PMP has documented sufficient project experience, has agreed to follow a code of ethics, and has passed the PMP exam
- The number of people earning PMP certification is increasing quickly
- PMI and other organizations are offering new certification programs (see Appendix B)

Figure 1-8: Growth in PMP Certification, 1993-2006



*As of December 31, 2006

Ethics in Project Management

- **Ethics**, loosely defined, is a set of principles that guide our decision making based on personal values of what is “right” and “wrong”
- Project managers often face ethical dilemmas
- In order to earn PMP certification, applicants must agree to PMI’s Code of Ethics and Professional Conduct
- Several questions on the PMP exam are related to professional responsibility, including ethics

Project Management Software

- There are hundreds of different products to assist in performing project management
- Three main categories of tools
 - Low-end tools: handle single or smaller projects well, cost under \$200 per user
 - Midrange tools: handle multiple projects and users, cost \$200-600 per user, Project 2007 most popular
 - High-end tools: also called enterprise project management software, often licensed on a per-user basis, like VPMi Enterprise Online (www.vcsonline.com); see front cover for trial version information
- See the Project Management Center Web site or Top Ten Reviews for links to many companies that provide project management software

Chapter 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
- Project managers play a key role in helping projects and organizations succeed
- The project management profession continues to grow and mature