

# I.T PROJECT MANAGEMENT FUNDAMENTALS

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# Course Objectives

- *Understand the growing need for better project management, especially for information technology (IT) projects*
- *Explain what a project is, provide examples of IT projects, list various attributes of projects, and describe the triple constraint of project management*
- *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*
- *Discuss the relationship between project, program, and portfolio management and the contributions each makes to enterprise success*
- *Understand the role of project managers by describing what they do, what skills they need, and career opportunities for IT project managers*



# Introduction

- Many people and organizations today have a new or renewed interest in project management
- The U.S. spends \$2.3 trillion on projects every year, an amount equal to one-quarter of the nation's gross domestic product (GDP).
- Worldwide IT spending was \$3.5 trillion in 2017, a 2.4 percent increase from 2016 spending
- The Project Management Institute reported that the number of jobs reached almost 66 million in 2017. By 2027, employers will need 87.7 million individuals working in project management-oriented roles
- More than sixteen million people regard project management as their profession; on average, a project manager earns more than \$82,000 per year.\*



# Introduction

- In 2017, the average annual salary (without bonuses) for someone in the project management profession was \$112,000 in the U.S. and \$130,866 in Switzerland
- The top skills employers look for in new college graduates are all related to project management: teamwork, problem-solving, and verbal communications
- Organizations waste \$97 million for every \$1 billion spent on projects, according to PMI's Pulse of the Profession® report



# Motivation for Studying Information Technology (IT) Project Management

- IT projects have a terrible track record
  - *A 1995 Standish Group study (CHAOS) found that only 16.2% of IT projects were successful and over 31% were canceled before completion, costing over \$81 B in the U.S. alone*
  - *A PricewaterhouseCoopers study found that over half of all projects fail and only 2.5% of corporations consistently meet their targets for scope, time, and cost goals for all types of project*
- The need for IT projects keeps increasing
  - *In 2000, there were 300,000 new IT projects*
  - <sup>5</sup> • *In 2001, over 500,000 new IT projects were started*



# What is a Project?

✓ Operations

✓ Projects

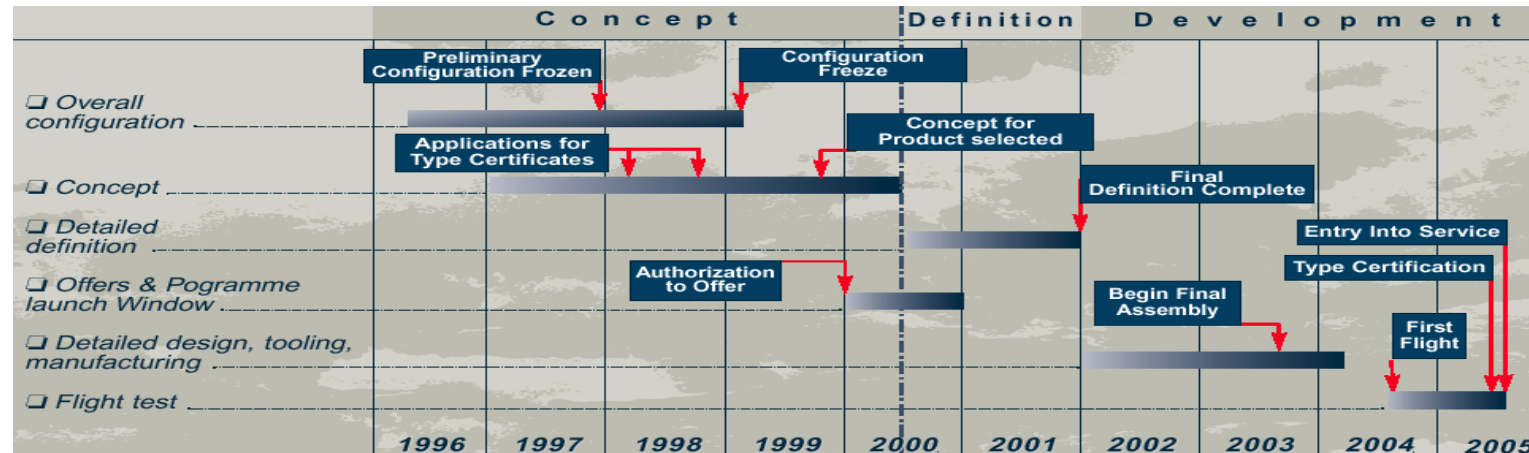


# Definitions

- A Project is a planned set of activities
- A Project has a scope
- A Project has time, cost, quality and resource constraints

It is

- performed by people
- constrained by limited resources
- planned, executed and controlled





# What is a Project?

- ✓ “Unique process consisting of a set of coordinated and controlled activities with start and finish dates, undertaken to achieve an objective conforming to specific requirements, including constraints of time, cost, quality and resources”
- ✓ “A project is a problem scheduled for solution.” This definition forces us to recognize that projects are aimed at solving problems and that failure to define the problem properly is what sometimes gets us into trouble.

Project is defined as a Set of Well defined Inter-related Activities designed to achieve a Specific Objective and to be completed within a certain Time Frame and has a Budget.

*(WORLD BANK & CAMBRIDGE INT. DIC, 1997)*

- ✓ “A temporary endeavor undertaken to achieve a unique product, service or results.” PMI





# Examples

- effecting change in a structure, staffing or style of an organisation
- designing a new transportation vehicle
- developing or acquiring a new or modified information system
- constructing a building or facility
- building a water system for a community in a developing country
- running at campaign for political office
- implementing a new business procedure or process
- A team of students creates a smartphone application and sells it online
- A company develops a driverless car
- A small software development team adds a new feature to an internal software application for the finance department
- A college upgrades its technology infrastructure to provide wireless Internet access across the whole campus



# Attributes of projects

- A project
  - *has a unique purpose (well defined objectives)*
  - *is temporary (Has a Time-frame )*
  - *require resources, often from various areas*
    - Consume resources (i.e. money, people, tools and equipment)
  - *should have a primary sponsor and/or customer*
  - *involve uncertainty*
  - *drives change and enable value creation*
  - *It is unique:*
    - it may never be repeated in the same way by the same group of people at the same place



Project managers work with project sponsors, team, and other people involved in a project to achieve project goals

# PROJECT – Key Constructs

A project is:

- Temporary
- Has a distinct beginning
- Has a duration
- Has a clear-cut ending



# QUESTION?

- ❖ Suppose a military assignment is started and is supposed to end in 6 months. Due to a budget cuts, all activities are ended after 4 months.
- ❖ Can one consider this as a project?



# Project Constraints - The Triple Constraint

Every project is constrained in different ways by its

Scope goals: What is the project trying to accomplish?

Time goals: How long should it take to complete?

Cost goals: What should it cost?

It is the project manager's duty to balance these three often competing goals

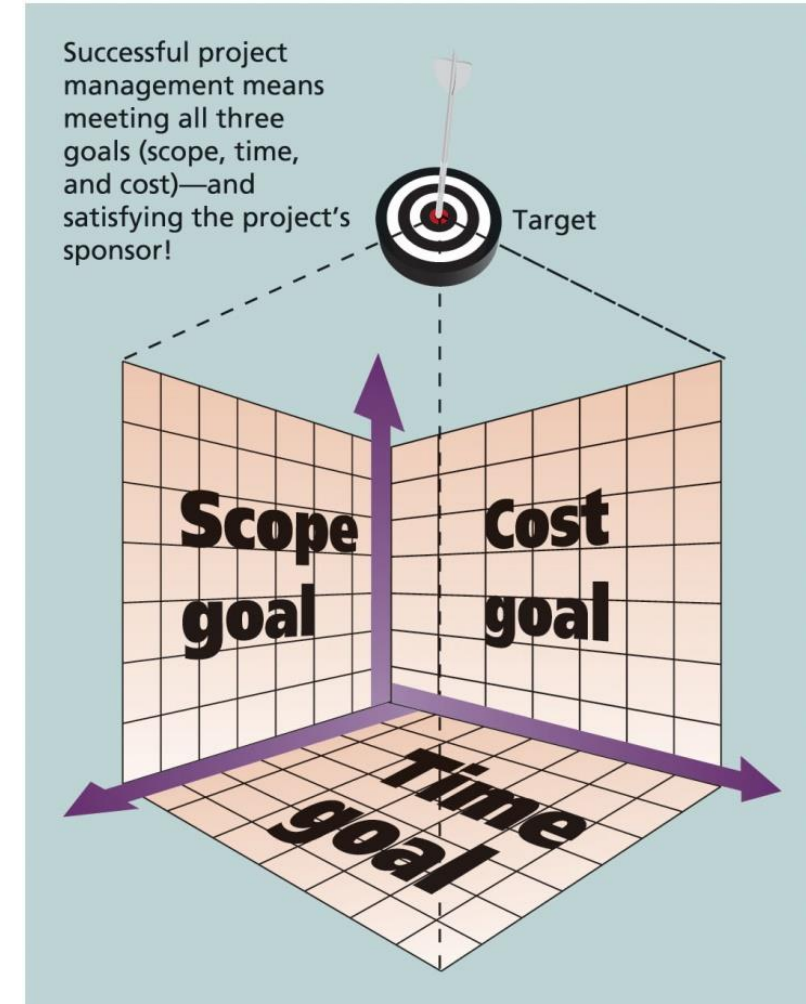


FIGURE 1-1 Project constraints

# What is Project Management?

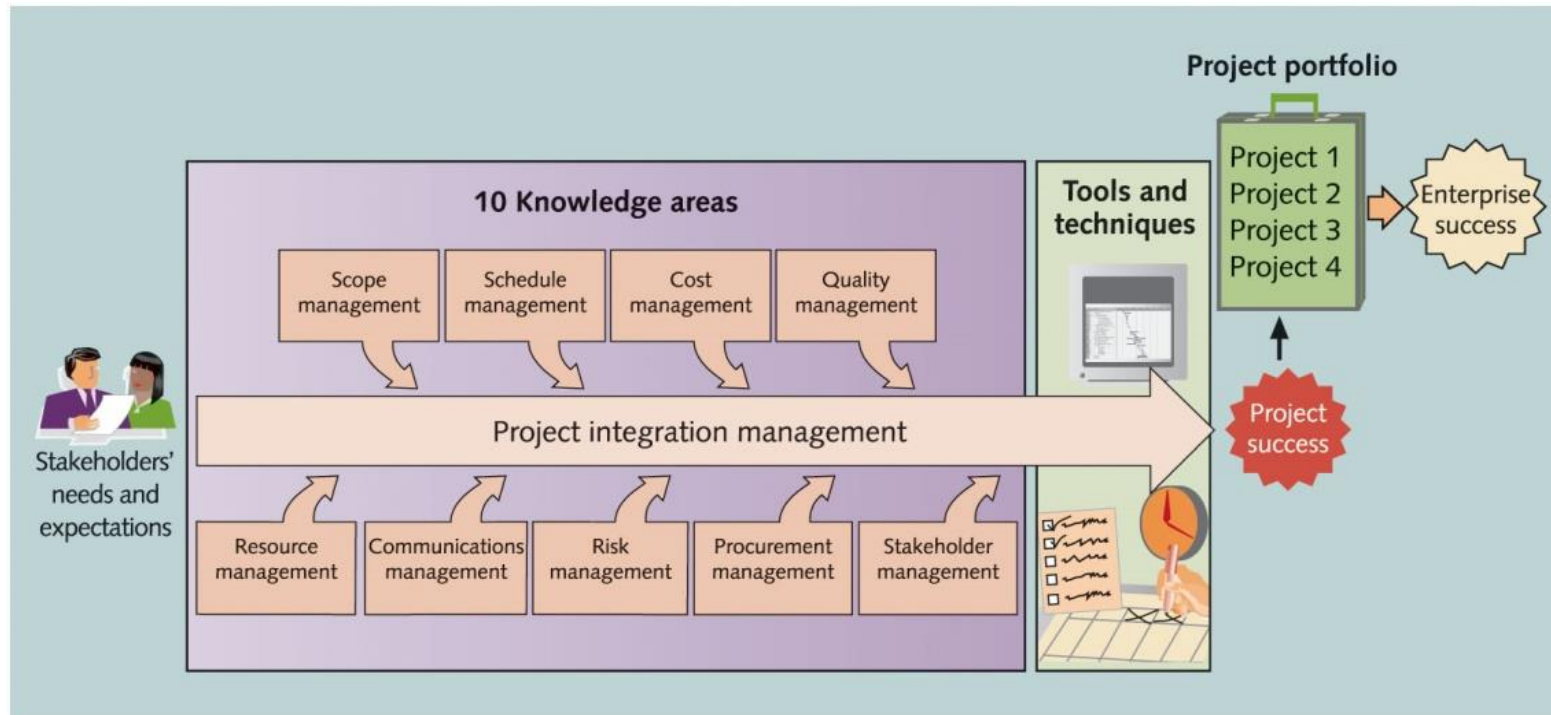
- The art of organising, leading, reporting and completing a project through people
- Project management is the planning, scheduling, and controlling of project activities to meet project objectives.
- Project management is “the application of knowledge, skills, tools, and techniques to project activities in order to meet project requirements” (PMI\*, Project Management Body of Knowledge (PMBOK® Guide), 2000, p. 6)
- Program: group of related projects managed in a coordinated way to obtain benefits and control not available from managing them individually





# Project Manager

- Project managers work with project sponsors, project team, and other people involved in a project to meet project goals
- The major objectives that must be met include performance, cost, and time goals, while at the same time you control or maintain the scope of the project at the correct level.

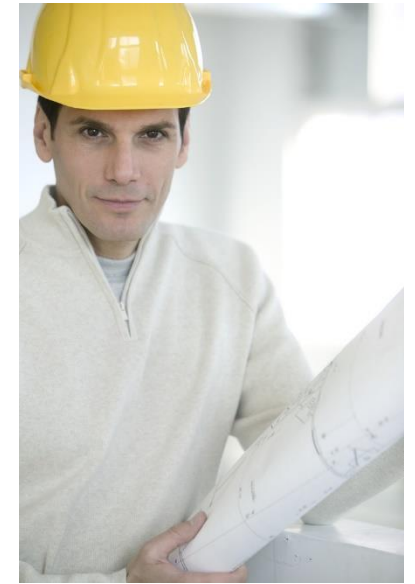


**FIGURE 1-2** Project management framework



# Project Manager Role

- A Good Project Manager
  - *Takes ownership of the whole project*
  - *Is proactive not reactive*
  - *Adequately plans the project*
  - *Is Authoritative (**NOT** Authoritarian)*
  - *Is Decisive*
  - *Is a Good Communicator*
  - *Manages by data and facts not uniformed optimism*
  - *Leads by example*
  - *Has sound Judgement*
  - *Is a Motivator*
  - *Is Diplomatic*
  - *Can Delegate*



# Project Stakeholders

- A person or group of people who have a vested interest in the success of an organization and the environment in which the organization operates
- Stakeholders include
  - *the project sponsor and project team*
  - *support staff*
  - *customers*
  - *users*
  - *suppliers*
  - *opponents to the project*
  - *the project manager*
  - *banks and other financial institutions*



# Stakeholder Engagement process

- Identify Stakeholders
- Assess needs
- Define actions
- Establish communication channels
- Gather feedback
- Monitor and review



# Project Management Knowledge Areas

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



# The scope of project

- The scope of a project should remain constant throughout the life of the job.
- Unforeseen problems or an inadequately defined problem the most common reason for **scope changes** is that something is forgotten.
- In most cases the magnitude (scope) of the work increases, as a result of overlooked details.
- Scope generally increases.  
The only time project scope decreases is when the budget is cut, and some of the originally planned work is put on hold.
- The problem with scope changes is that they tend to be small and incremental, if a number of them occur, the project budget or schedule may suffer. This is a fairly common cause of project failures.





- **A project manager has a responsibility to keep stakeholders informed about the impact of scope changes on the project, protecting them from surprises at the end of the job and protecting the project manager from being evaluated on original targets rather than on revised ones.**

# 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 (work breakdown structure) (scope)*
- *Gantt charts, network diagrams, critical path analysis, critical chain scheduling (time)*
- *Cost estimates and earned value management (cost)*





# 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



# Sample Gantt Chart

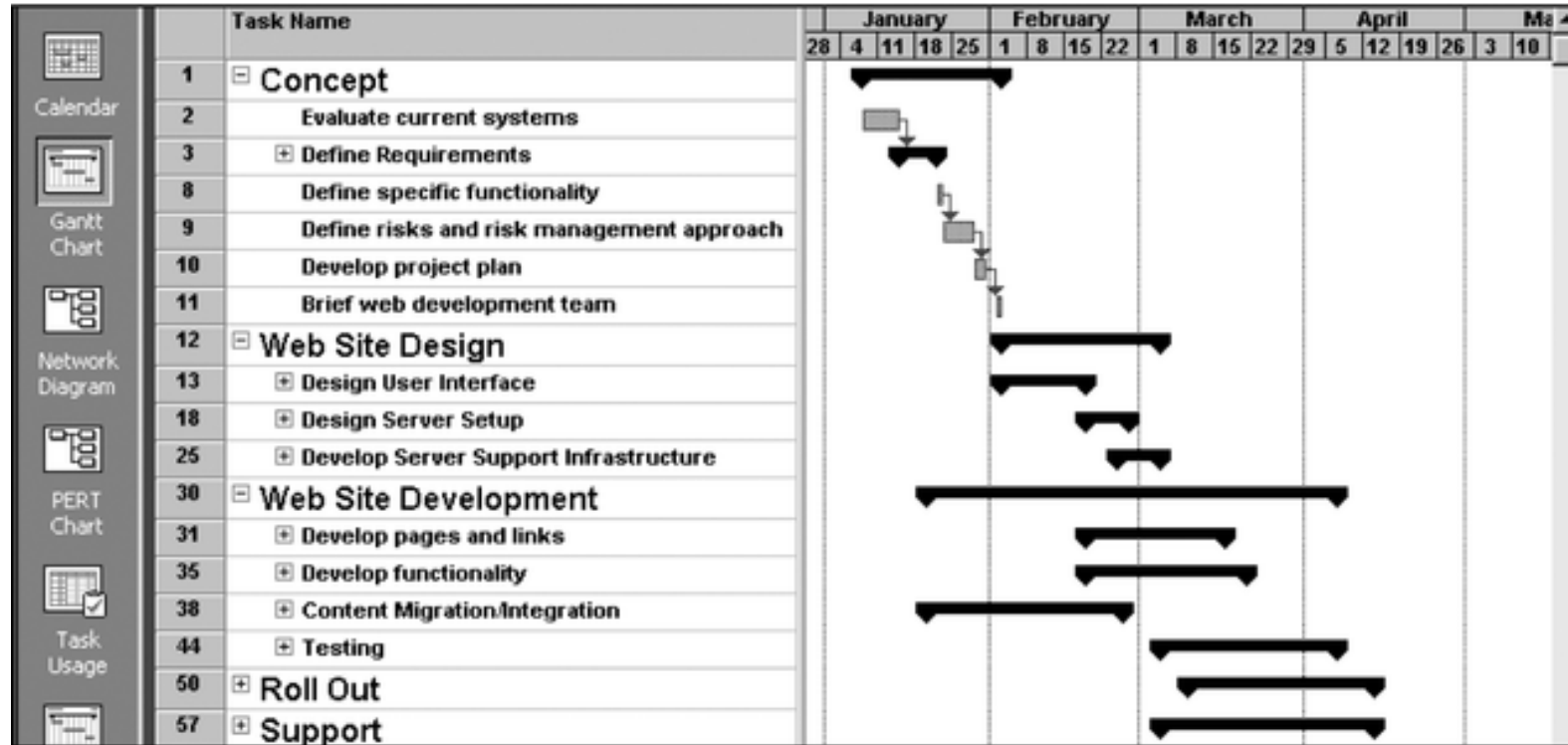


Figure 1-3. Sample Gantt Chart in Microsoft Project 2002

The WBS is on the left, and each task's start and finish date are shown on the right using a calendar timescale. Early Gantt Charts, first used in 1917, were drawn by hand.

# Sample Network Diagram

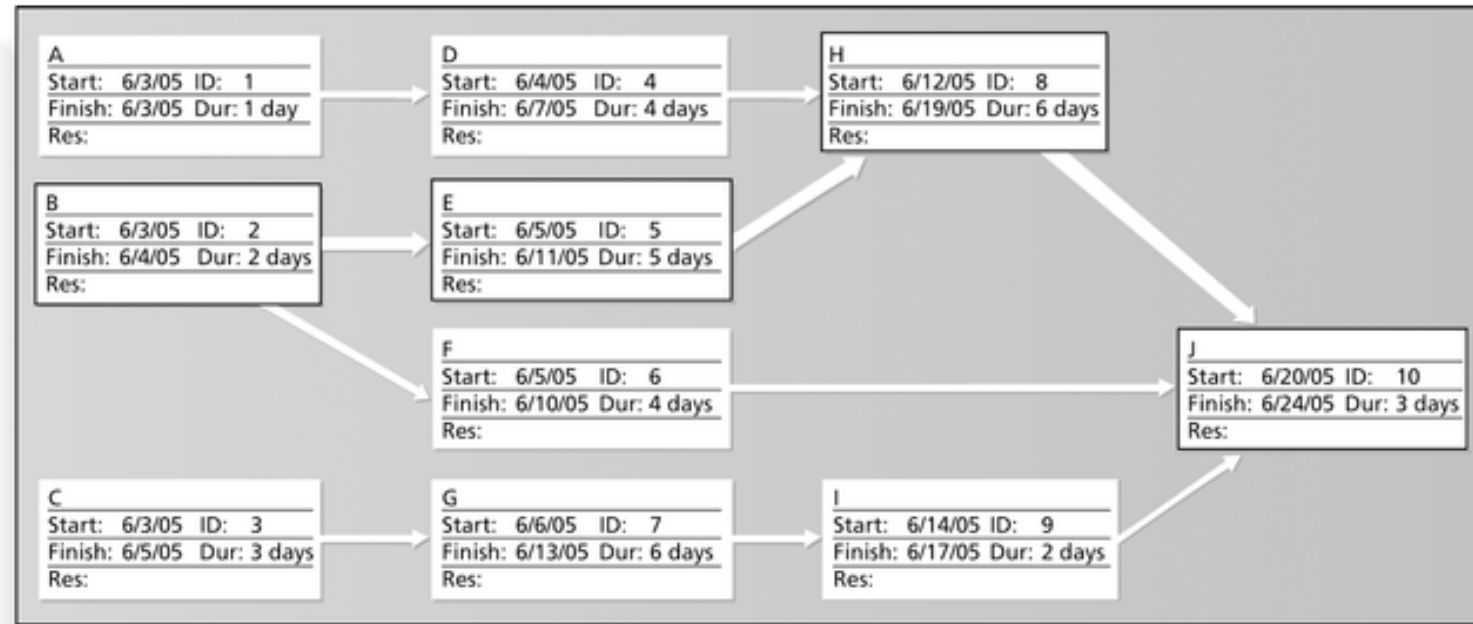


Figure 1-4. Sample Network Diagram in Microsoft Project 2002

Each box is a project task from the WBS. Arrows show dependencies between tasks. The bolded tasks are on the critical path. If any tasks on the critical path take longer than planned, the whole project will slip unless something is done. Network diagrams were first used in 1958 on the Navy Polaris project, before project management software was available.

# Sample Enterprise Project Management Tool



Company ABC Project Portfolio				
Project Name	Scope	Schedule	Budget	Links
<b>Active Projects</b>				
Project 1	○	●	●	
Project 2	●	●	●	
Project 3	○	○	○	
Project 4	○	●	●	
<b>Approved Projects</b>				
Project 10	○	○	○	
Project 11	○	○	○	
Project 12	○	○	○	
Project 13	○	○	○	
Project 14	○	○	○	
<b>Opportunities</b>				
Project 100				
Project 200				
○	White = going well			
●	Gray = some problems			
●	Black = major problems			

Figure 1-5. Sample Enterprise Project Management Tool

In recent years, organizations have been taking advantage of software to help manage their projects throughout the enterprise.

# The Project Management Profession

- The job of IT Project Manager is in the list of the top ten most in demand IT skills
- Professional societies like the Project Management Institute (PMI) have grown tremendously
- Project management research and certification programs continue to grow



# Top Ten Most in Demand IT Skills

Rank	IT Skill/Job	Average Annual Salary
1	SQL Database Analyst	\$80,664
2	Oracle Database Analyst	\$87,144
3	C/C++ Programmer	\$95,829
4	Visual Basic Programmer	\$76,903
5	E-commerce/Java Developer	\$89,163
6	Windows NT/2000 Expert	\$80,639
7	Windows/Java Developert	\$93,785
8	Security Architect	\$86,881
9	Project Manager	<del>\$95,719</del>
10	Network Engineer	\$82,906

Paul Ziv, "The Top 10 IT Skills in Demand," Global Knowledge Webcast  
([www.globalknowledge.com](http://www.globalknowledge.com)) (11/20/2002).



# Growth in PMP Certification, 1993-2002

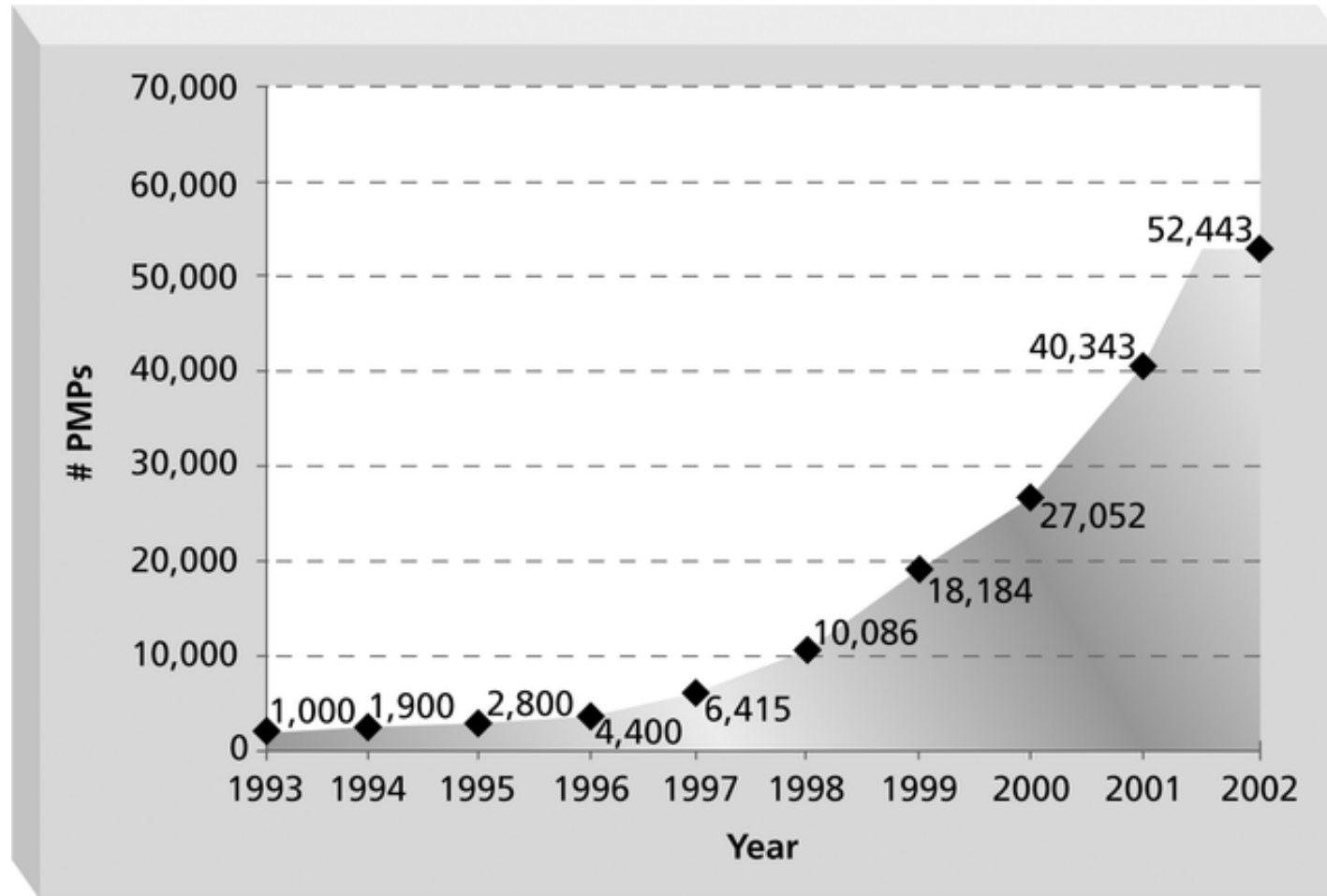


Figure 1-6. Growth in PMP Certification, 1993-2002





# You Can Apply Project Management to Many Areas

- Project management applies to work as well as personal projects
- Project management applies to many different disciplines (IT, construction, finance, sports, event planning, etc.)
- Project management skills can help in everyday life



# Assignment 1

This is to be submitted individually

Project management applies to many different disciplines (IT, construction, finance, sports, event planning, etc.)

- Write down Five IT Projects undertaken in Ghana.
- Write down Five typical project stakeholders in the above stated projects
- Write down Five attributes of a good Project Manager and explain why they are good.
- Explain the Project Constraints(The Triple Constraint) in IT Project Management

