

# Project Management: Process, Technology, and Practice

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## Chapter 1 Projects and Project management

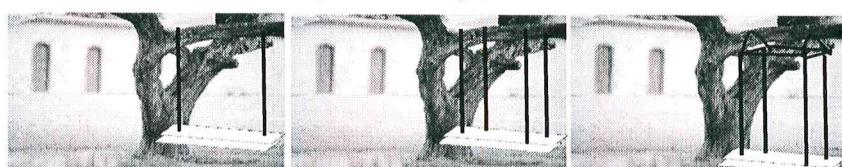
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## Projects and Project Management

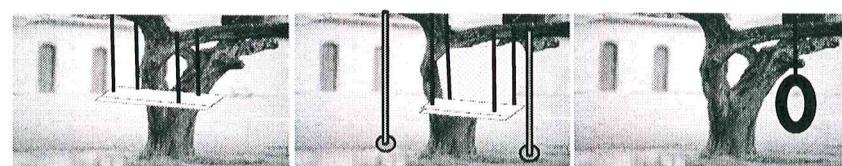
### Projects and Project Management



Proposed in Project Charter

Specified in Project Scope

Designed



Programmed

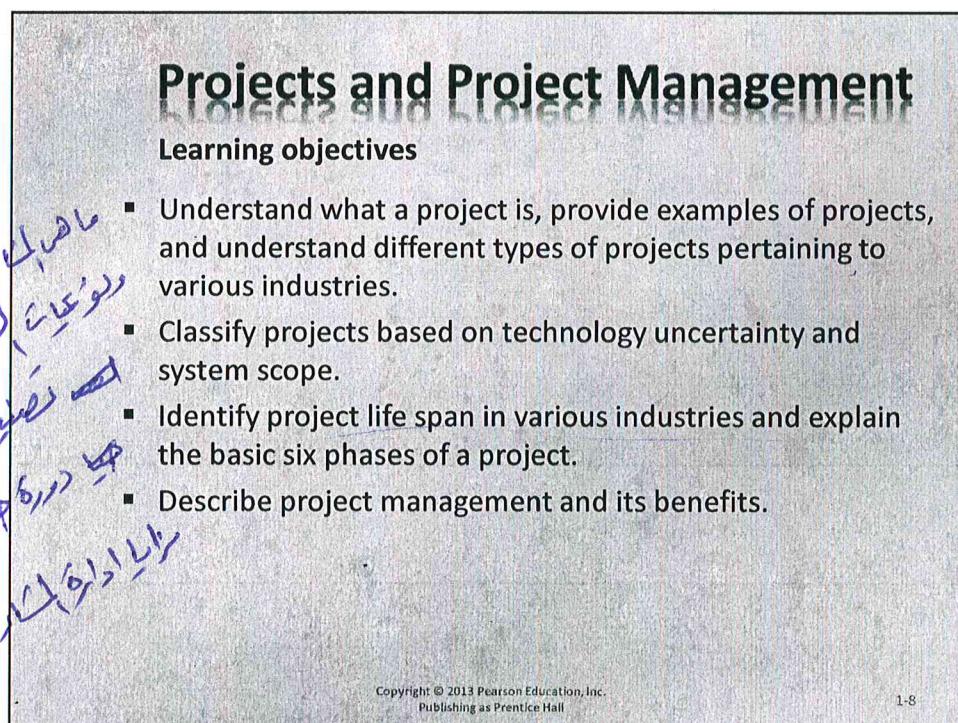
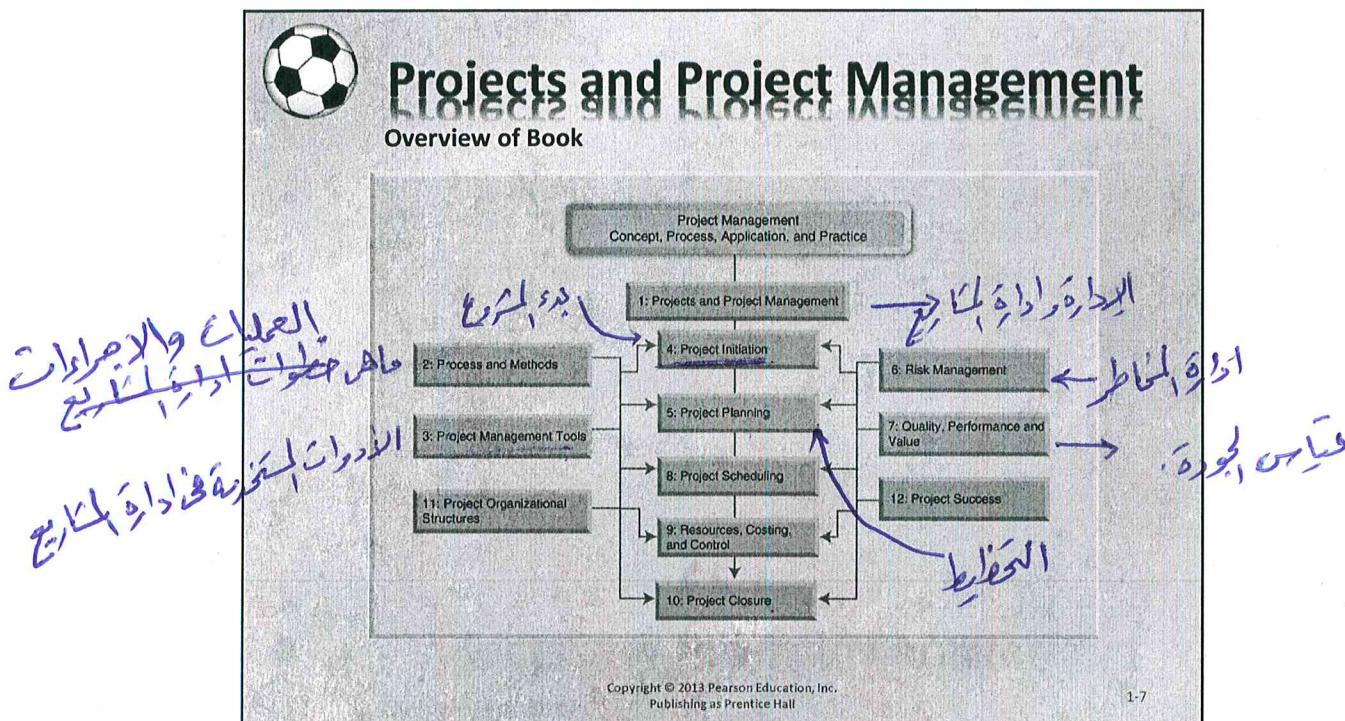
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What the user wanted!

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# Projects and Project Management

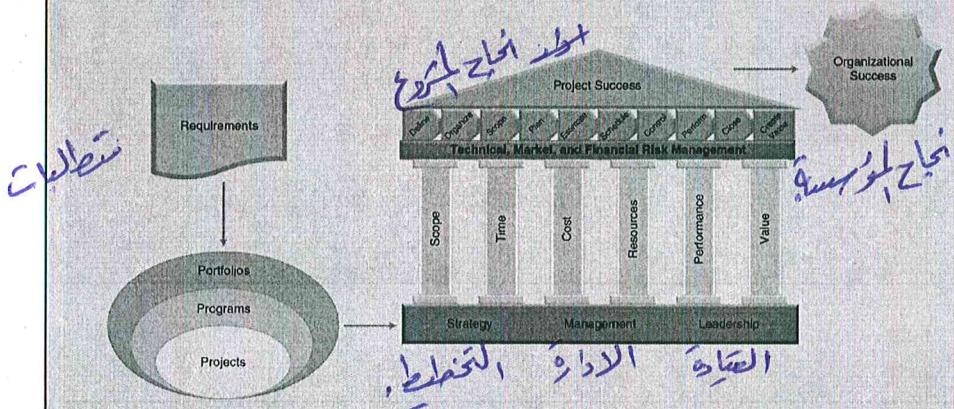
## Learning objectives

- Identify factors for project success and project management success and understand how these factors affect either the success or failure of projects as well how each one of these factors impact the other five factors in project success.
- Identify project management components and understand how these components can be used to realize project success.

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# Projects and Project Management



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# Projects and Project Management

## Projects

- A project:
    - Is a unique activity.
    - Has a beginning.
    - Has an end – a definite end.
    - Has constraints and requirements.
- Scope, Cost, Schedule, Resources, Performance, Value
- Has to add value.

Chores for the day...

1. Clean room
2. Do Homework
3. Make a sandwich - everything is in the fridge
4. Complete journal entry

Chore



Project

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# Projects and Project Management

## Types of Projects

- Computer related hardware and software projects
  - Include networking, infrastructure, and software design and development projects
  - Computer hardware related projects include computer assembling projects, erasable programmable read only memory (EPROM) projects, video related projects, web services projects, mobile commerce projects, data center projects.
  - Computer software projects include system software projects, programming software projects, and application software projects.

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# Projects and Project Management

## Types of Projects

- Healthcare

- Projects will typically be varied in their nature, according to the needs of the client and the hospital.
- Projects focus on improving patient care and service delivery while increasing innovation and efficiency.
- Stakeholders may include:
  - Doctors, Pharmaceutical and Insurance companies.
  - Payers: Individuals, businesses, government organizations.
  - Fiscal intermediaries: MOs, and Pharmacy.
  - Hospitals, delivery networks, and individual clinics.
  - Groups who aggregate healthcare products and services.

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# Projects and Project Management

## Types of Projects

- New Product Development

- Firms use new product development process as the first stage in generating and commercializing new products to maintain or grow their market share.
- The project manager's task is to coordinate deployment of a product or new releases, coordinate testing of such new products and releases, and coordinate pilots with potential product users.
- Priority of development objectives, planned timing, sequence of development activities, major project milestones and prototypes are mechanisms for coordination among team members.

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# Projects and Project Management

## Types of Projects

- Construction
  - Small (home) to Large (Airports)
  - Construction projects are often time-consuming.
  - Require several phases and may involve:
    - financial organizations
    - government agencies
    - engineers and architects
    - insurance companies
    - attorneys
    - contractors, material suppliers, and builders.

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# Projects and Project Management

## Classification of Projects

- Three underlying dimensions that encompass almost all aspects of technology are complexity, interdependence, and uncertainty.
- *Complexity* refers to the number of products or operations that are performed at the same time and the resulting degree of difficulty.
- *Interdependence* refers to the extent to which the items or elements upon which work is performed or the work processes themselves are interrelated.
- *Uncertainty* refers to the variability in the process of transformation of inputs to outputs or in the inputs themselves.

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## Projects and Project Management

### Classification of Projects

Dimension of Projects Based on Technology Uncertainty				
Project Type Classification	A	B	C	D
	Mature	Improvement	Integration	New Development
<b>Description</b>	Using existing and well tested technologies	Adapting existing well tested technologies with slight improvements	Integrating existing mature technologies	New technologies
<b>Examples</b>	New website	A new website with database integration and new features	SAP implementation, New hardware, Military systems	Space projects

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## Projects and Project Management

### Classification of Projects

Dimension of Projects Based on Complexity			
Complexity Level Classification	1	2	3
	Low	Medium	High
<b>Description</b>	Assembling components and modules in order to perform a single function	Develop subsystems in order to perform a wide range of functions or activities	Build large systems that function as a single entity in order to achieve a common purpose
<b>Examples</b>	DVDs, CDs, Refrigerators	Computers, iPads, Smart phones, radar, aircraft, ships	Cloud services, a city, public transportation system

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# Projects and Project Management

## Classification of Projects

Type A projects rely on mature technologies for all industries to have equal access. Hence, there is no competitive advantage. Type B projects rely on mature technologies with new modifications and new features. The goal is competitive advantage. Type C projects use new technologies leading to new products thus providing competitive advantage. Type D projects require development of new technologies, providing great competitive advantage.

Scope 1 classification deals with no subsystems and is primarily focused on a single function. A DVD player when developed in 1996 was a high-tech (Type C) assembly (Scope 1) project according to this classification. The first F-117A Nighthawk stealth fighter was delivered in 1982, the project was a super high-tech (Type D) system (Scope 2) project according to this classification. Transit authority subway systems are examples of such array projects or programs that categorize Scope 3.

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# Projects and Project Management

## Project Life Span

- Project life span is a progression through a series of differing stages of development of a project. It is the total phases through which a project passes from the time it is initially conceived until the time it is either in use as a success or abandoned as a failure.
- |  |  |
|--|--|
| <ol style="list-style-type: none"> <li>①</li> <li>②</li> <li>③</li> <li>④</li> <li>⑤</li> <li>⑥</li> </ol> | <ul style="list-style-type: none"> <li>• Phase 1 – Conceptualization or Pre-Feasibility</li> <li>• Phase 2 – Planning or Feasibility or Demonstration</li> <li>• Phase 3 – Design/Development</li> <li>• Phase 4 – Implementation/Execution/Testing</li> <li>• Phase 5 – Launch or Termination or Closure</li> <li>• Phase 6 – Post Implementation Review</li> </ul> |
|--|--|

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# Projects and Project Management

## Project Life Span

- Phase 1: Conceptualization or Pre-Feasibility

- Conceptualization: A conceptualization is an idea or thought that refers to the reflection of a targeted business function or process and how the various facets of the process or function relate to each other.
  - A thought process is a series of ideas, thoughts, or decisions.
  - How and when does this conceptualization process originate?
- Pre-feasibility study: A pre-feasibility study is a preliminary study to assess whether to conduct a full feasibility study or not.

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# Projects and Project Management

## Project Life Span

- Phase 2: Planning or Feasibility or Demonstration

- Before the start of any major project, a complete, realistic, and accurate project plan is very important.
- Project planning is the process of setting goals, developing strategies to support an organization's strategic goals, and outlining tasks and schedules to accomplish project goals.
  - Planning a project assumes that the project under consideration has been approved for implementation.
  - The approval can result from Phase 1 conceptualization or pre-feasibility findings.
- A feasibility study is a detailed study in a controlled process to identify potential problems and opportunities.

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# Projects and Project Management

## Project Life Span

- Phase 3: Design/Development or Development or Engineering/Manufacturing Development
  - Once Phase 2 is completed, Phase 3 is initiated, and takes a project from planning through construction or realization of project scope.
  - Design and development follows customer requirements and assesses for quality against predefined criteria.
  - While analysis is discovering what the requirements are, design is evaluating a number of choices and choosing the best solution.

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# Projects and Project Management

## Project Life Span

- Phase 4: Implementation or Execution and Testing or Production and Deployment
  - This is the phase where products, services, and systems are realized. After the design of a product and its components, the method of manufacturing or production is defined in this phase.
  - This phase usually consists of both implementation and testing of the implemented product or system.
  - Drawings, specifications, and contract documents that were prepared in the design phase will be implemented, software will be coded, contracts will be tendered and awarded, and construction work will be undertaken.

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# Projects and Project Management

## Project Life Span

- Project closure: Business stakeholders agree to release the product and launch the product for the user or consumer.
- Phase 5: Launch or Termination or Closure
  - A project is brought to its proper completion in this phase.
  - This is where the business stakeholders agree to release the product and launch the product for the user or consumer.
  - The client's formal acceptance is essential in this phase.
  - Often, lessons learned from previous project completions and installations are used in this phase.
  - Launch of a product or system usually combines contributions from multiple disciplines in an organization.

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# Projects and Project Management

## Project Life Span

- Phase 6: Post-Implementation Review
  - Progress and success are measured, project documents are archived, lessons learned are captured, and project activities are formally closed.
  - The post-implementation phase allows an organization to step back and review processes and results.
  - The organization will consider processes that need adjustment, highlight the most effective processes, and provide action items to improve future projects.
  - Post-occupancy evaluations are also used to assess the effectiveness of construction or production or implementation.

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# Projects and Project Management

## Project Life Span

The graph illustrates the 'Project Life Span' with 'Cost and Resources' on the vertical axis and 'Time' on the horizontal axis. The curve shows the progression of a project through six phases (I to VI). The cost and resources increase from phase I to a peak in phase IV, and then decrease back to zero by phase VI.

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# Projects and Project Management

## Project Management

- Management is defined as the act of getting people together to accomplish desired goals and objectives.
- Management is composed of planning, organizing, and controlling an organization or a group of people and other needed resources to accomplish a goal.
- Projects consist of many activities, and those activities are brought together to make up a project including:
  - Project management; and
  - Engineering and services of projects.
- Project management is the act of collaborating people and other required resources such that the project is planned, organized, and controlled effectively to accomplish project goals and objectives.

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# Projects and Project Management

## Project Failure Factors

- Relations with the client
- Contracts and legal agreements
- Politics and conflicts
- Decreased Profitability
- Unrealistic goals
- Poor Communications
- Competitive disadvantage
- Client dissatisfaction
- Perceived value of the project

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# Projects and Project Management

## Project Management Failure Factors

- Inadequate rationale, objectives, tasks, and goals الأهداف والمهام والأعمال
- Wrong project manager 项目经理错误
- Unsupportive top management 上层管理不支持
- Lack or misuse of project management techniques 缺乏或误用项目管理技术
- Inadequate project planning 项目规划不足
- Lack of commitment to the project 对项目的承诺不足

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# Projects and Project Management

## Project Management Failure Factors

- Factors and constraints affect either the success or the failure of projects:
  - Completion of project within scope or customer requirements
  - Completion of project within allocated budget
  - Completion of project within allocated schedule or period of time
  - Completion of project using allocated resources
  - Completion of project within established performance and technology standards
  - Completion of project to maximize project value for stakeholders

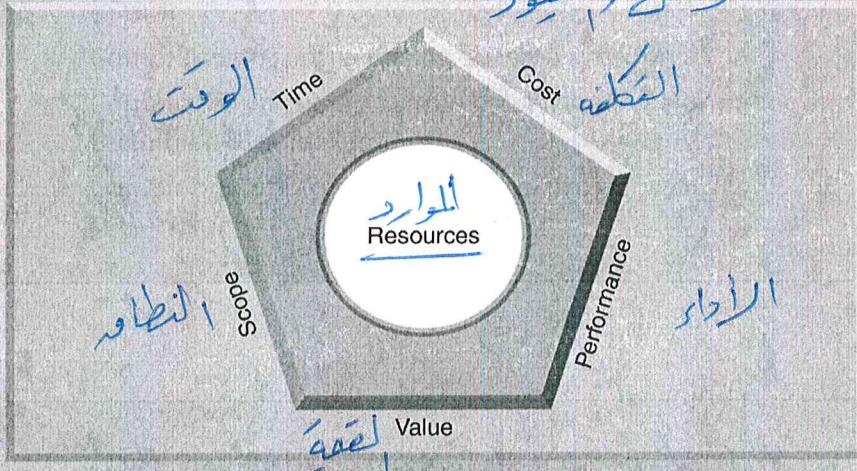
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العوامل التي تؤدي إلى نجاح أو فشل المشروع  
 أكمل المشروع في نطاق وتحيزات العميل  
 أكمل المشروع في الميزانية المحددة  
 أكمل المشروع في الموعد المحدد  
 أكمل المشروع بأدوات وأدوات محددة  
 أكمل المشروع بجودة محددة  
 أكمل المشروع بقيمة محددة

# Projects and Project Management

## Factors and Constraints



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العوامل والمتغيرات  
 الموارد  
 الأداء  
 القيمة  
 الميزانية  
 المدى  
 الوقت

## Projects and Project Management

### Project Scope and Product Scope

- The scope of a project is the work that needs to be accomplished to deliver the results of the project with specified features and functions.
- Scope is based on the customer and organizational requirements of a project, and the scope constraint refers to what must be done to produce the project's end result.
- The scope of a product is the general work that needs to be accomplished to deliver a product, a system, a structure, or a service with the specified features and functions.
- The product scope consists of the features and functions that characterize a product, a service, a system, or a structure.

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## Projects and Project Management

### Other factors of success

عوامل أخرى للنجاح

- Project schedule: The list of all activities of a project with intended start and end dates linked by dependencies and constraints of a project
- Project cost: The sum of all costs to complete a project
- Project resources: An available supply of assets, capabilities, processes, attributes, and knowledge in an organization
- Project performance: The overall quality of a project in terms of its impacts and benefits
- Project value: The overall worth of a project

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**Projects and Project Management**

**Six Factors of Project Success** *العوامل الست لنجاح أي مشروع*

<b>Impact of six factors on project success</b>	
<b>Factors</b>	<b>Impacts</b>
<b>Scope</b>	Increase in scope can lead to increased time, increased cost, better or worse performance, increase in resources, and increase or decrease in value
<b>Time</b>	Tight time constraint can lead to increased cost, reduced scope, reduced performance, increase in resources, and reduced value
<b>Cost</b>	Tight budget constraint can lead to increased time, reduced scope, reduced performance, increase or decrease in resources, and reduced value

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**Projects and Project Management**

**Six Factors of Project Success**

<b>Impact of six factors on project success</b>	
<b>Factors</b>	<b>Impacts</b>
<b>Resources</b>	Unskilled, less, faulty, bad quality resources lead to increased time, reduced performance, reduced value, higher costs, and short of scope
<b>Performance</b>	Stringent performance measures can lead to increased time, increased scope, increased cost, increase or decrease in resources, and increase or decrease in value
<b>Value</b>	Expected value measures can lead to increased scope, increased time, increased cost, demand for better resources, and better or worse performance

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