IT/Software Project Management

Core Functions

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- The following references were mostly used in the preparation of the course; the order reflects the intensity of usage:

- Some information were taken from the following sites:
  - The Institute of Electrical and Electronics Engineers (IEEE)
  - The International Organisation for Standardisation (ISO)
  - The Software Engineering Institute (SEI) at Carnegie Mellon University.
IT/SW Project Management

Core Functions

Project Management Framework

The Triple Constraint
Objectives

- To introduce the triple constraint on projects
- To explain the relation between the triple constraint and quality
The Triple Constraint

- Every project has 3 constrains
  - **Scope** goals: What work will be done?
  - **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-competitng goals.
Successful Software Project Management: satisfying 3 goals:

- **scope** ‘requirements’
- **time**
- **cost**

• Think of quality !!
The Triple Constraint – An Example

An IT project having:

- **Scope**: Identify 30 potential IT projects (ending with a report & a presentation)

  - Initial **Time**: 2 months

  - Initial **Cost**: $60,000
Examples:
Managing the Triple Constraint

- Make **trade-offs** between Scope, Time & Cost

- **Examples:**
  - Increase budget to meet scope & time goals
    - Large scope and fast execution require **higher** budget
  - Reduce scope to meet time & cost goals
    - Limited time and cost necessitates **less** scope
  - Increase time to meet scope & cost goals
    - Low productive resources need more time but cost less
Quality & The Triple constraint

- The Triple Constraint interrelate the project’s triple of scope, time, and cost

- **What about project QUALITY !!**

- Quality is a key factor in projects

- You will not accept an IT system that satisfies the triple constraint (of scope, time, and cost), **BUT is not at the expected quality level**
Quality & The Triple constraint

- Time constraint may lead to \textit{less quality} because of:
  - less time for analysis,
  - less time for planning,
  - less time for reviewing,
  - less time for checking,
  - less time for monitoring,
  - less time for control,
  - Ignoring some customer requirements, …
Quality & The Triple constraint

- Cost constraint may lead to less quality because of?
  - Hiring less skilled people,
  - Getting less quality resources (Hardware, Networks)
  - Ignoring some customer requirements
Quality & The Triple constraint

- Scope limitations may lead to **less quality** because of?

  - Satisfying Time & Cost constrains will lead to the previously shown less quality
  - In addition, Scope limitations may lead to Ignore some customer requirements
Quality & The Quadruple constraint

- Quality is a key factor for projects success
- We may add Quality as a 4th constraint:

\[
\text{The Quadruple constraint} = \text{The Triple constraint} + \text{Quality constraint}
\]
Quality & The Triple constraint

Scope

Quality

Budget

Time
What is Project Management? *

- **Project management** is “the application of
  - knowledge,
  - skills,
  - tools
  - and techniques
  
to project activities to meet project requirements.”*