



CSE 321 Software Engineering

Software Engineering Concepts

Md. Shamsul Haque

# Software



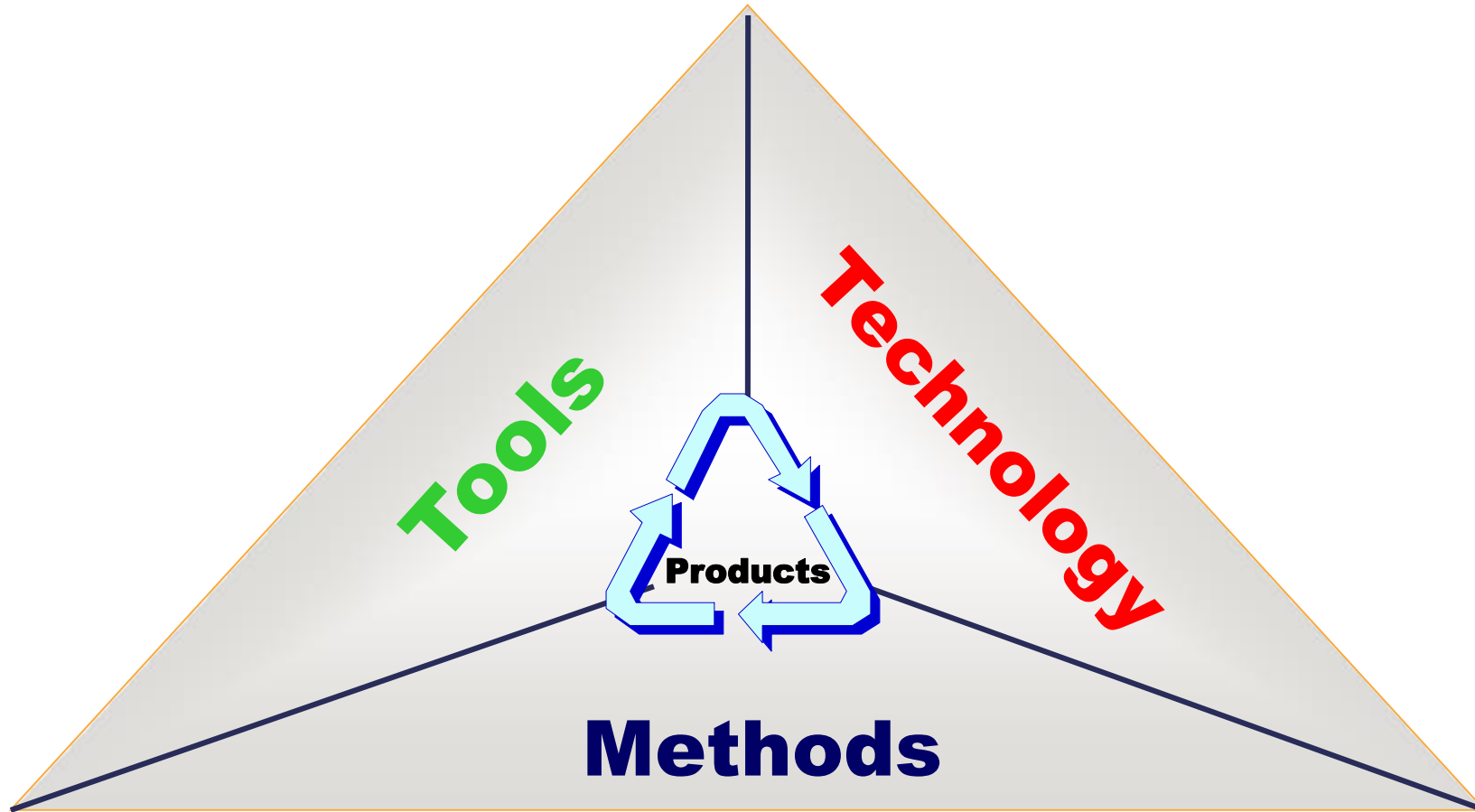
Product

# Engineering



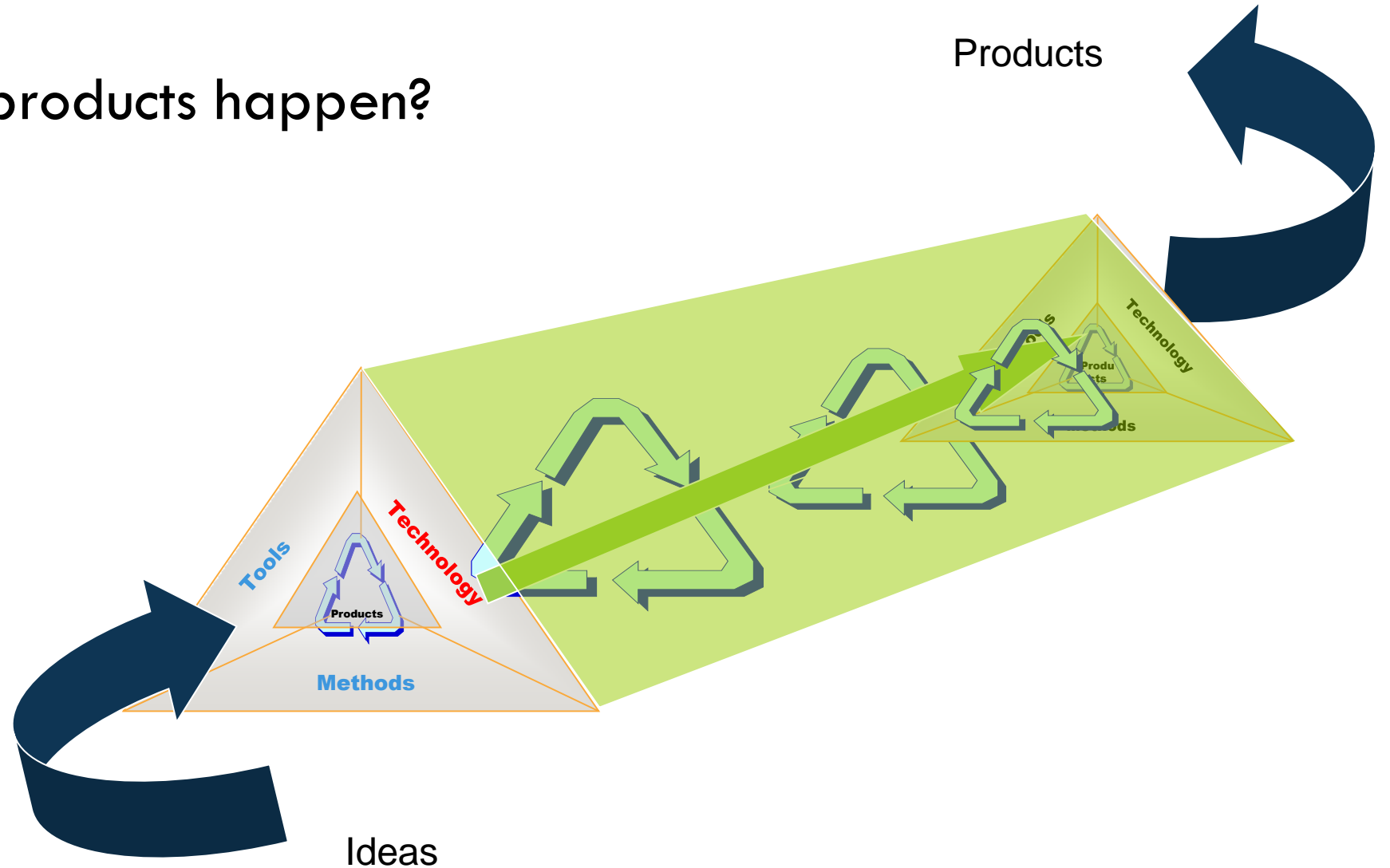
Process

SOFTWARE == PRODUCT



# SOFTWARE == PRODUCT

How do products happen?



# PRODUCT DEVELOPMENT

- Technology

- Application of scientific knowledge in industry or business

- Tool

- An implement or machine used to do work or perform a task.

- Method

- A manner, means or process for accomplishing something.

# So What is Software ?

*Software is:*

- (1) instructions (computer programs) that when executed provide desired features, function, and performance;*
- (2) data structures that enable the programs to adequately manipulate information and*
- (3) documentation that describes the operation and use of the programs.*

# WHAT IS SOFTWARE ?

- Software can be considered a product of engineering just like an airplane, automobile, television, or an other object that requires a high degree of skill to turn a raw material into a usable product.
- But software is developed or engineered, not manufactured!

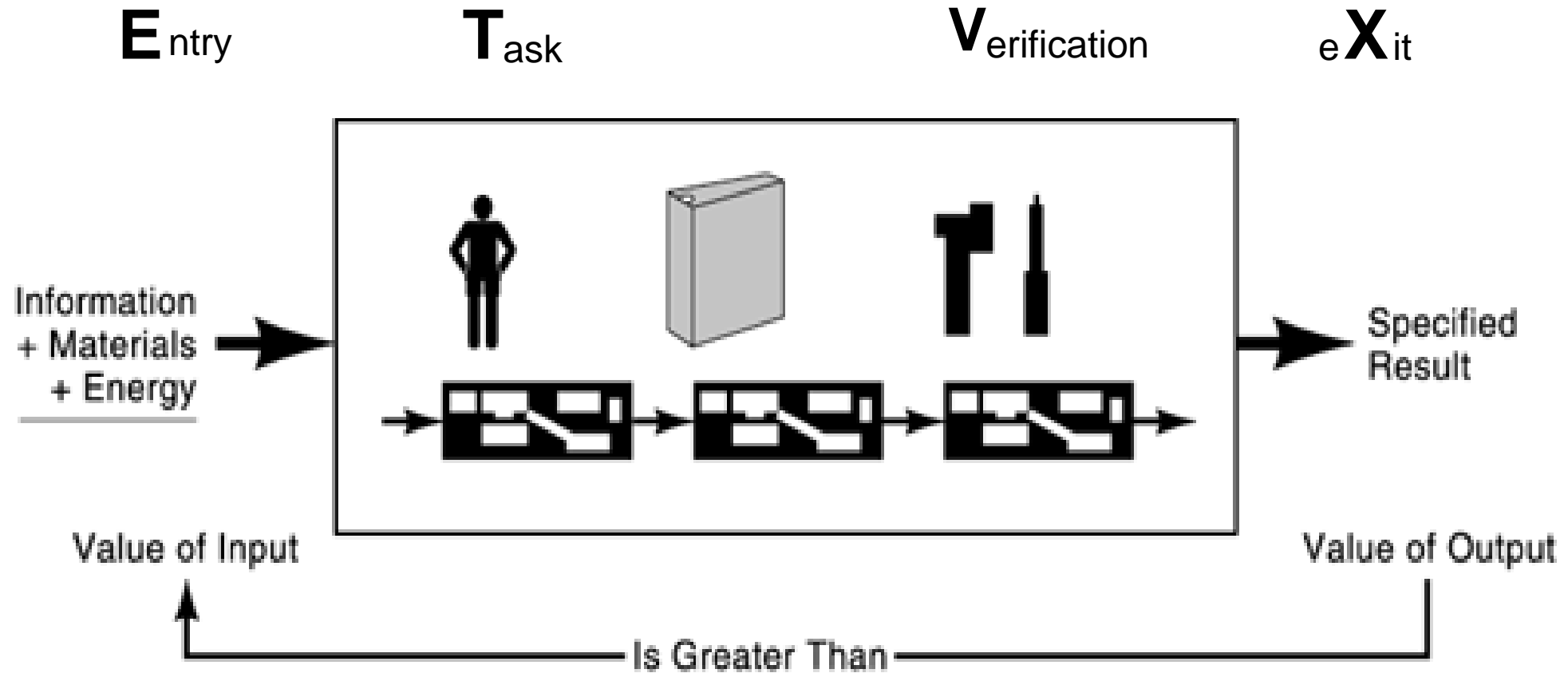
# WHAT IS SOFTWARE ENGINEERING ?

The IEEE definition:

*The application of a **systematic, disciplined, quantifiable** approach to the **development, operation, and maintenance** of software;*



# WHAT IS PROCESS?



**A process is a series of actions that transform a set of inputs into a result.**

# Software

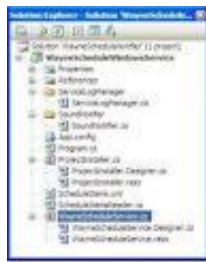
# Engineering



Product



Process



Tools



Technology



People

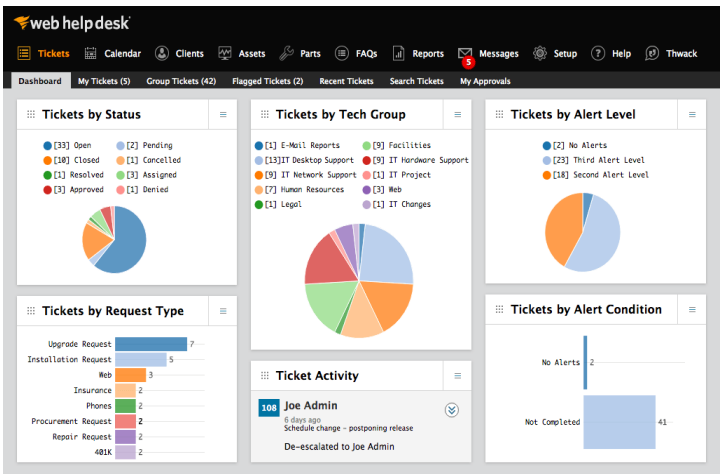
# SOFTWARE ENGINEERING –A LAYERED TECHNOLOGY



- |                  |                    |
|------------------|--------------------|
| 1. Functionality | 4. Efficiency      |
| 2. Reliability   | 5. Maintainability |
| 3. Usability     | 6. Portability     |

**According to ISO Standard**

# SOFTWARE APPLICATIONS



# WHAT IS PROJECT

It is a temporary endeavor (having specific start and completion dates) undertaken to create a unique product or service

# WHAT IS PROJECT? (ELABORATION)

- **Objective**

There must be a clearly defined goal or set of goals for the project. A project must accomplish something

- **Temporary**

It means that every project has a definite beginning and definite end

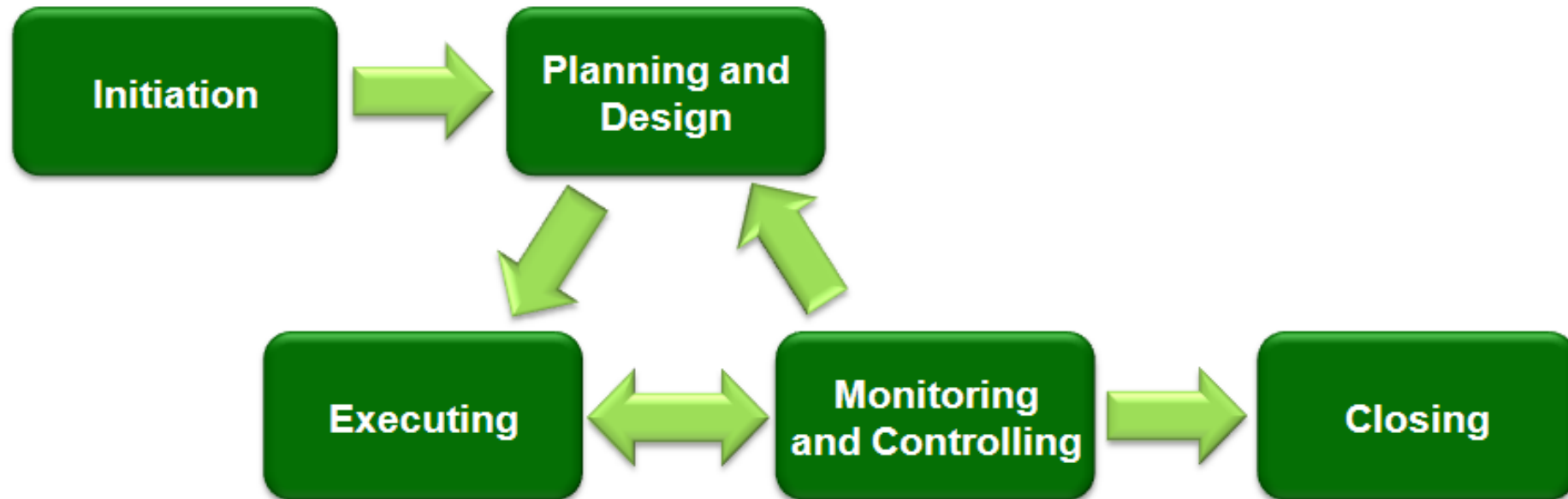
- **Unique**

It means that the product or service is different in some distinguishing way from all similar products or services

- **Progressively Elaborated**

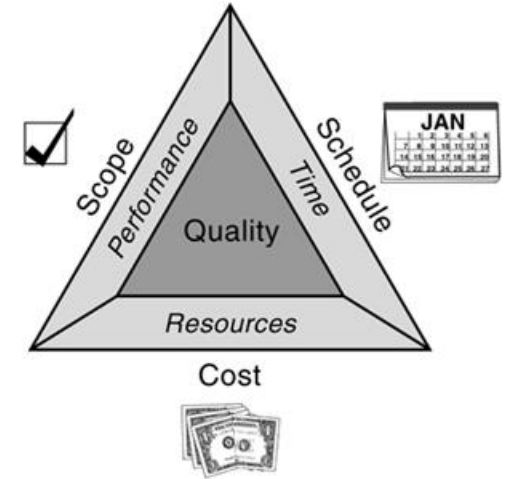
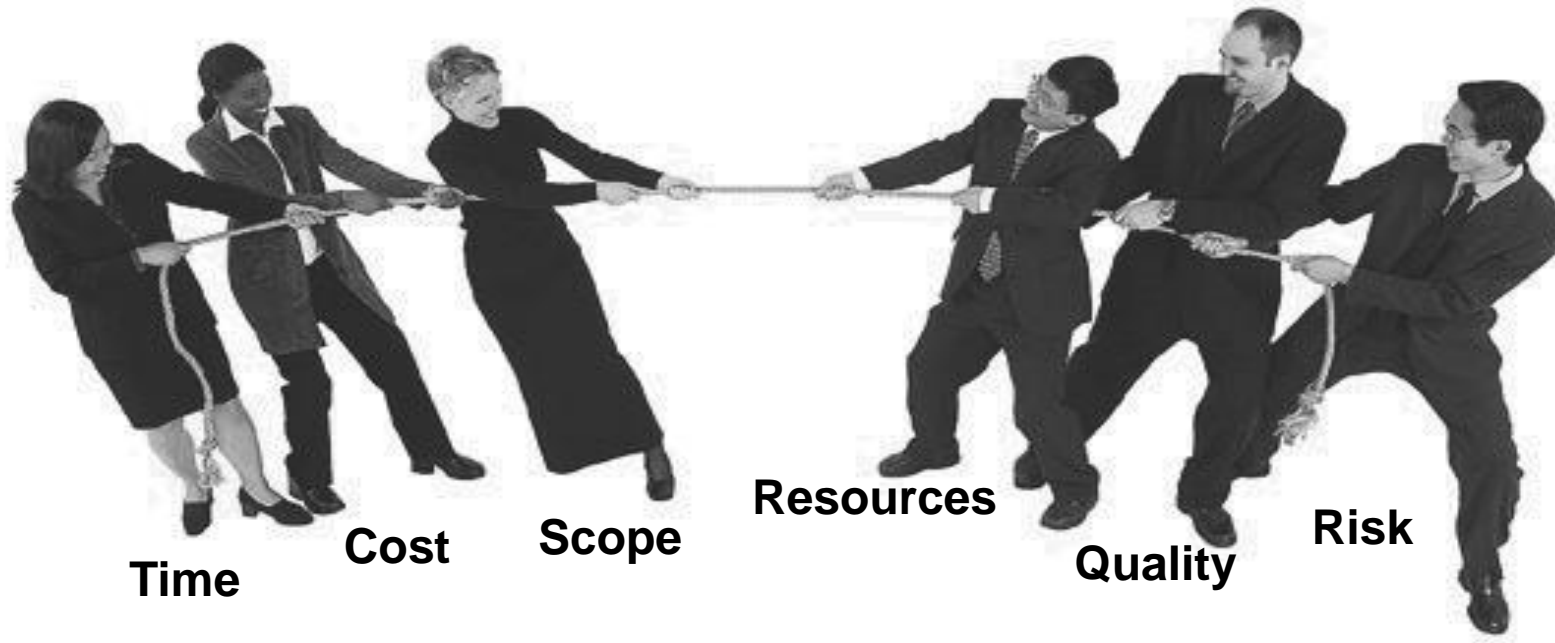
You learn more and more about a project as it goes on. When you start, you have goals and a plan, but there is always new information to deal with as your project goes on and you'll always have to make decisions to keep it on track. While you do your best to plan for everything that will happen, you know that you will keep learning

# PROJECT MANAGEMENT PROCESS



# PROJECT CONSTRAINT

*If you don't manage all six constraints at the same time, you risk managing in favor of just one constraint.*





# PROJECT SUCCESS

**Customer  
Requirements  
satisfied/exceeded**

**Completed within  
allocated time  
frame**



**Completed within  
allocated budget**

**Accepted by the  
customer**

# PROJECT FAILURE

**Scope Creep**

**Poor Requirements  
Gathering**

**Unrealistic planning  
and scheduling**

**Lack of resources**



Thank You