



# **SWE 4803**

## **Lec - 1**



# CLASSROOM RULES

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- ✓ BE ON TIME
- ✓ BE A GOOD LISTENER
- ✓ RAISE YOUR HAND TO SPEAK
- ✓ ASK QUESTIONS
- ✓ SHARE NEW IDEAS
- ✓ CONTRIBUTE TO DISCUSSIONS

# GOOGLE CLASSROOM & ONLINE CLASS INFO

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Join using Class Code

**rik6rplw**

**Use only IUT email to join**

# IMPORTANT FOR YOU



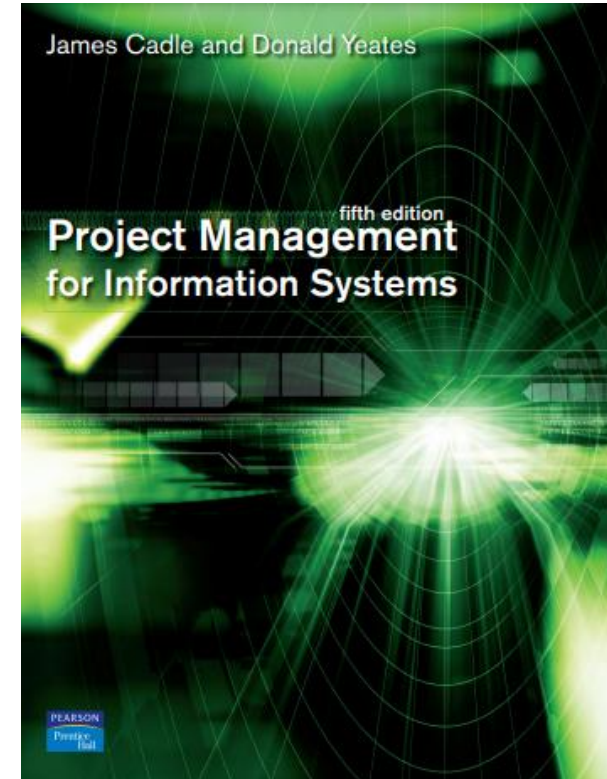
Course Code: SWE 4803

Course Name: Software Project Management

Text Book:

1. Software Project Management , **Bob Hughes, Mike cotterell**
2. Project Management for Information systems, **James Cadle, Donald Yeates**
3. Software project management: A unified framework, **Walker Royce**
4. Applied Software project management., **Stellman, Andrew, and Jennifer Greene**

**Following the lecture slides & class will be good enough**



# ASSESSMENT & GRADING POLICY



| Course Assessment Method |                         |          |                |
|--------------------------|-------------------------|----------|----------------|
| Class participation      | Quizzes and assignments | Mid-Term | Semester final |
| 10%                      | 15%                     | 25%      | 50%            |

| Grading Policy   |              |             |                  |              |             |
|------------------|--------------|-------------|------------------|--------------|-------------|
| Marks out of 100 | Letter Grade | Grade Point | Marks out of 100 | Letter Grade | Grade Point |
| 80 - 100         | A+           | 4.00        | 55 - 59          | B-           | 2.75        |
| 75 - 79          | A            | 3.75        | 50 - 54          | C+           | 2.50        |
| 70 - 74          | A-           | 3.50        | 45 - 49          | C            | 2.25        |
| 65 - 69          | B+           | 3.25        | 40 - 44          | D            | 2.00        |
| 60 - 64          | B            | 3.00        | 00 - 39          | F            | 0.00        |

# COURSE OBJECTIVE



**Upon completion of this course, you will be familiar with:**

- 01** All the essential concepts of software project management
- 02** Project management processes that are essential to complete large project successfully
- 03** Successful planning, executing and completion of software project within budget and schedule.

**NOT to make you a Good project manager**

# COURSE OUTCOME(CO)

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- 01 Explain the concepts of SW Project initiation & management for different organizational structure.
- 02 Prepare critical path and precedence network for a project.
- 03 Manage project resources, communication, stakeholders, risks, budget & quality with the help of suitable project management processes.

# OUTCOME BASED EDUCATION (OBE)



**Course outcomes (COs)** identify what the learner will know and be able to do by the end of a course or program.

**Program Outcomes(POs)** are narrower statements that describe what students are expected to know and be able to do by the time of graduation.

|       |   |
|-------|---|
| PO-1  | <b>Engineering knowledge:</b> Apply the knowledge of mathematics, science, engineering fundamentals and an engineering specialization to the solution of complex engineering problems.  |
| PO-2  | <b>Problem analysis:</b> Identify, formulate, research and analyze complex engineering problems and reach substantiated conclusions using the principles of mathematics, the natural sciences and the engineering sciences.   |
| PO-3  | <b>Design/development of solutions:</b> Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for public health and safety and of cultural, societal and environmental concerns.         |
| PO-4  | <b>Investigation:</b> Conduct investigations of complex problems, considering experimental design, data analysis and interpretation and information synthesis to provide valid conclusions.   |
| PO-5  | <b>Modern tool usage:</b> Create, select and apply appropriate techniques, resources and modern engineering and IT tools, including prediction and modeling, to complex engineering activities with an understanding of their limitations.  |
| PO-6  | <b>The engineer and society:</b> Apply reasoning informed by contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to professional engineering practice.  |
| PO-7  | <b>Environment and sustainability:</b> Understand the impact of professional engineering solutions in societal and environmental contexts and demonstrate the knowledge of and need for sustainable development.  |
| PO-8  | <b>Ethics:</b> Apply ethical principles and commit to the professional ethics, responsibilities and the norms of the engineering practice.  |
| PO-9  | <b>Individual work and teamwork:</b> Function effectively as an individual and as a member or leader of diverse teams and in multidisciplinary settings.  |
| PO-10 | <b>Communication:</b> Communicate effectively about complex engineering activities with the engineering community and with society at large. Be able to comprehend and write effective reports, design documentation, make effective presentations and give and receive clear instructions. |
| PO-11 | <b>Project management and finance:</b> Demonstrate knowledge and understanding of engineering and management principles and apply these to one's work as a team member or a leader to manage projects in multidisciplinary environments.  |
| PO-12 | <b>Life-long learning:</b> Recognize the need for and have the preparation and ability to engage in independent, life-long learning in the broadest context of technological change.  |



# OUTCOME BASED EDUCATION (OBE)



## Exam Result is Not the Most Important Consideration by Employer

Communication (verbal & written)

Honesty/Integrity

Teamwork skills

Interpersonal skills

Strong work ethics

Motivation & initiative

Flexibility/adaptability

Analytical skills

Computer skills

Creativity

Organizational skills

Detail oriented

Leadership skills

Self confidence

Friendly/outgoing personality

Well mannered / polite

Tactfulness

CGPA (3.0 or better)

Sense of humor

Entrepreneurial skills/risk taker

# LECTURE PLAN



| Weeks | Topics   |
|-------|--|
| 1     | Introduction to project and software project management.   |
| 2     | Environment in which projects operate, Organizations, Project management styles, role of PM  |
| 3     | Project management processes   |
| 4     | develop project charter, project plan, Collect Requirements, Define Scope, project Scope Management                                      |
| 5     | Create WBS, Validate Scope, Control Scope, Plan Schedule Management, Define Activities, Sequence Activities, Estimate Activity Durations |
| 6     | Develop Schedule, Control Schedule, Plan Cost Management, Estimate Costs, Determine Budget, Control Costs                                |
| 7     | Plan Quality Management, Control Quality   |
| 8     | Plan Resource Management, Acquire Resources, Develop Team, Manage Team, Control Resources  |
| 9     | Plan Communications Management, Monitor Communications   |
| 10    | Plan Risk Management, Identify Risks, Perform Qualitative Risk Analysis, Perform Quantitative Risk Analysis,                             |
| 11    | Plan Risk Responses, Implement Risk Responses, Monitor Risks   |
| 12    | Plan Procurement Management, Conduct Procurements, Control Procurements  |
| 13    | Identify Stakeholders, Plan Stakeholder Engagement, Manage Stakeholder Engagement, Monitor Stakeholder Engagement                        |
| 14    | Review class   |

# PROJECT



Pyramids



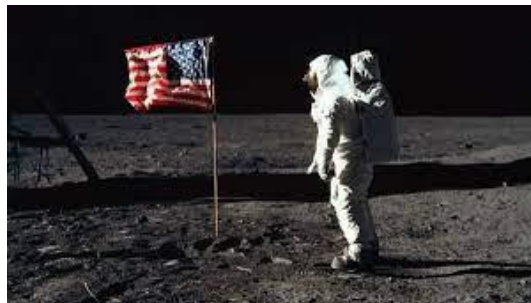
Taj Mahal



Great Wall of China



Padma  
Bridge



Human landing on moon



Samsung Gear 360



BB1 satellite launching

- ✓ Outcomes of these projects were the result of leaders and managers applying **project management practices, principles, processes, tools, and techniques** to their work.
- ✓ The managers of these projects used a set of **key skills** and **applied knowledge** to satisfy their **customers** and **other people involved in** and **affected by** the project.

# PROJECT



A project is a **temporary endeavor** undertaken to create a **unique product, service, or result**.

## ✓ **Temporary endeavor:**

- indicates that a project has a **definite beginning** and **end**.
- does not necessarily mean a project has a short duration.
- Projects are temporary, but their deliverables may exist beyond the end of the project.

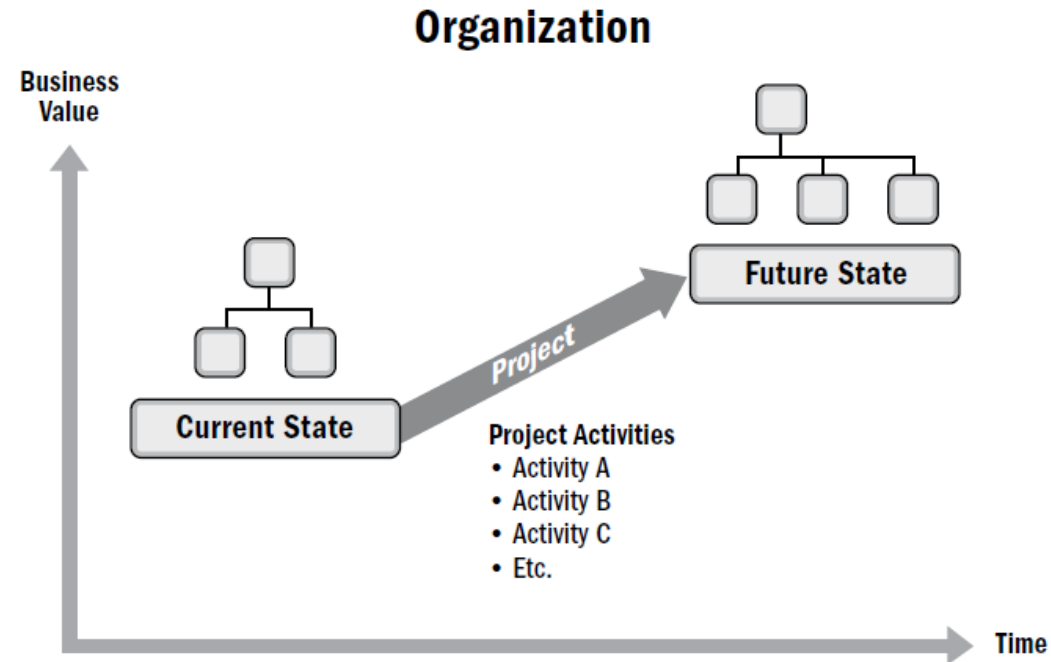
## ✓ **Unique product, service, or result.:**

- Projects are undertaken to fulfill objectives by producing deliverables.
- Fulfillment of project objectives may produce one or more of the following deliverables:
  - A unique product that can be either a component of another item
  - A unique service (e.g., a **business function** that supports production or distribution);
  - A unique result, such as an outcome or document (e.g., a **research project** that develops knowledge that can be used to determine whether a trend exists or a new process will benefit society);
  - A unique combination of one or more products, services, or results (e.g., a software application, its associated documentation, and help desk services).

# PROJECT



- ✓ Projects drive change



- ✓ Projects enable **business value** creation

- Business value in projects refers to the benefit that the results of a specific project provide to its stakeholders.
- The **benefit** from projects may be **tangible, intangible.**

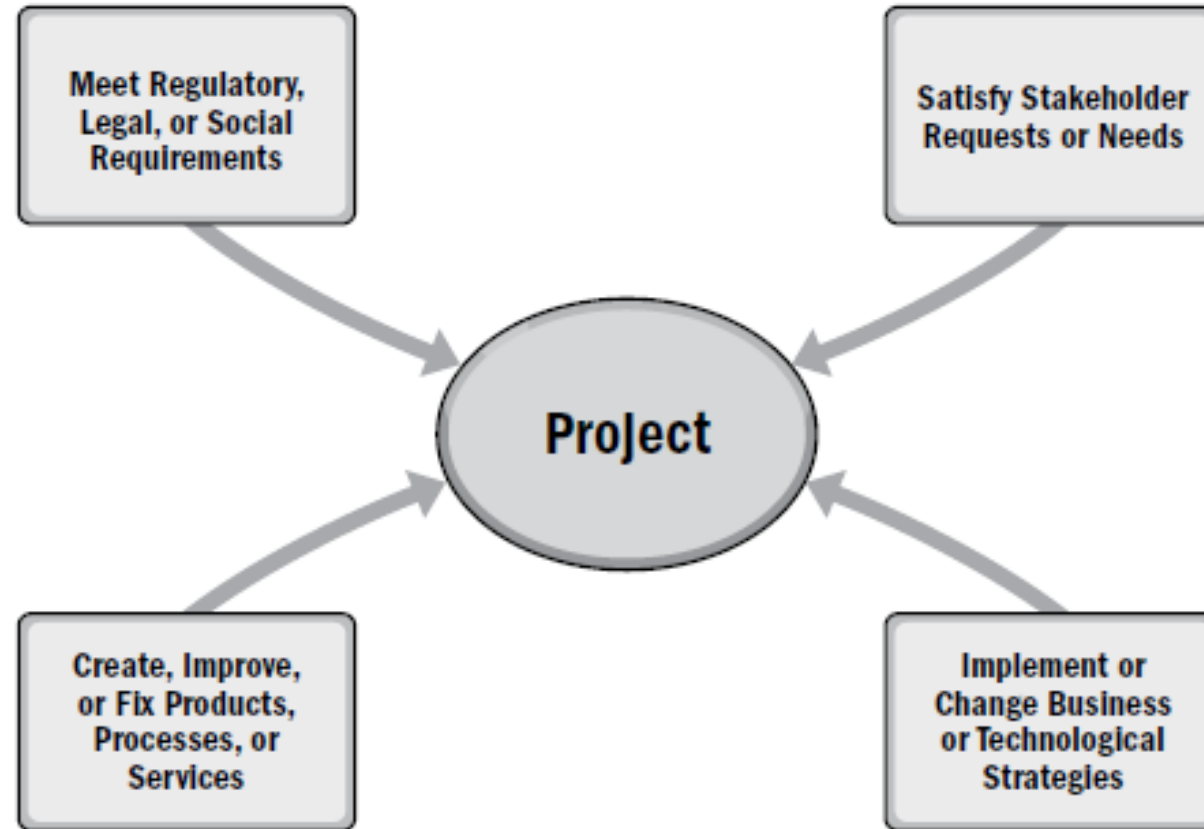
Monetary asset, tools,  
market share, etc..

Goodwill, Brand recognition,  
Reputation, etc..

# PROJECT



## ✓ Why we initiate project



- ✓ Leaders respond to these factors in order to keep the organization viable.
- ✓ Projects provide the means for organizations to successfully make the changes necessary to deal with these factors.

# PROJECT

## ✓ Specific Factors that Lead to the Creation of a Project

| Specific Factor                        | Example   | Meet Regulatory, Legal, or Social Requirements | Satisfy Stakeholder Requests or Needs | Create, Improve, or Fix Products, Processes, or Services | Implement or Change Business or Technological Strategies |
|--|---|--|---------------------------------------|--|--|
| New technology                         | An electronics firm authorizes a new project to develop a faster, cheaper, and smaller laptop based on advances in computer memory and electronics technology |  |                                       | ✓  | ✓  |
| Competitive forces                     | Lower pricing on products by a competitor results in the need to lower production costs to remain competitive   |  |                                       |  | ✓  |
| Market demand                          | A car company authorizes a project to build more fuel-efficient cars in response to gasoline shortages  |  | ✓                                     | ✓  | ✓  |
| Customer request                       | An electric utility authorizes a project to build a substation to serve a new industrial park   |  | ✓                                     | ✓  |  |
| Legal requirement                      | A chemical manufacturer authorizes a project to establish guidelines for the proper handling of a new toxic material  | ✓  |                                       |  |  |
| Strategic opportunity or business need | A training company authorizes a project to create a new course to increase its revenues   |  |                                       | ✓  | ✓  |
| Social need                            | A nongovernmental organization in a developing country authorizes a project to develop an app to trace Covid patients..                                       | ✓  |                                       |  |  |
| Environmental considerations           | A public company authorizes a project to create a new service for electric car sharing to reduce pollution  |  |                                       | ✓  | ✓  |

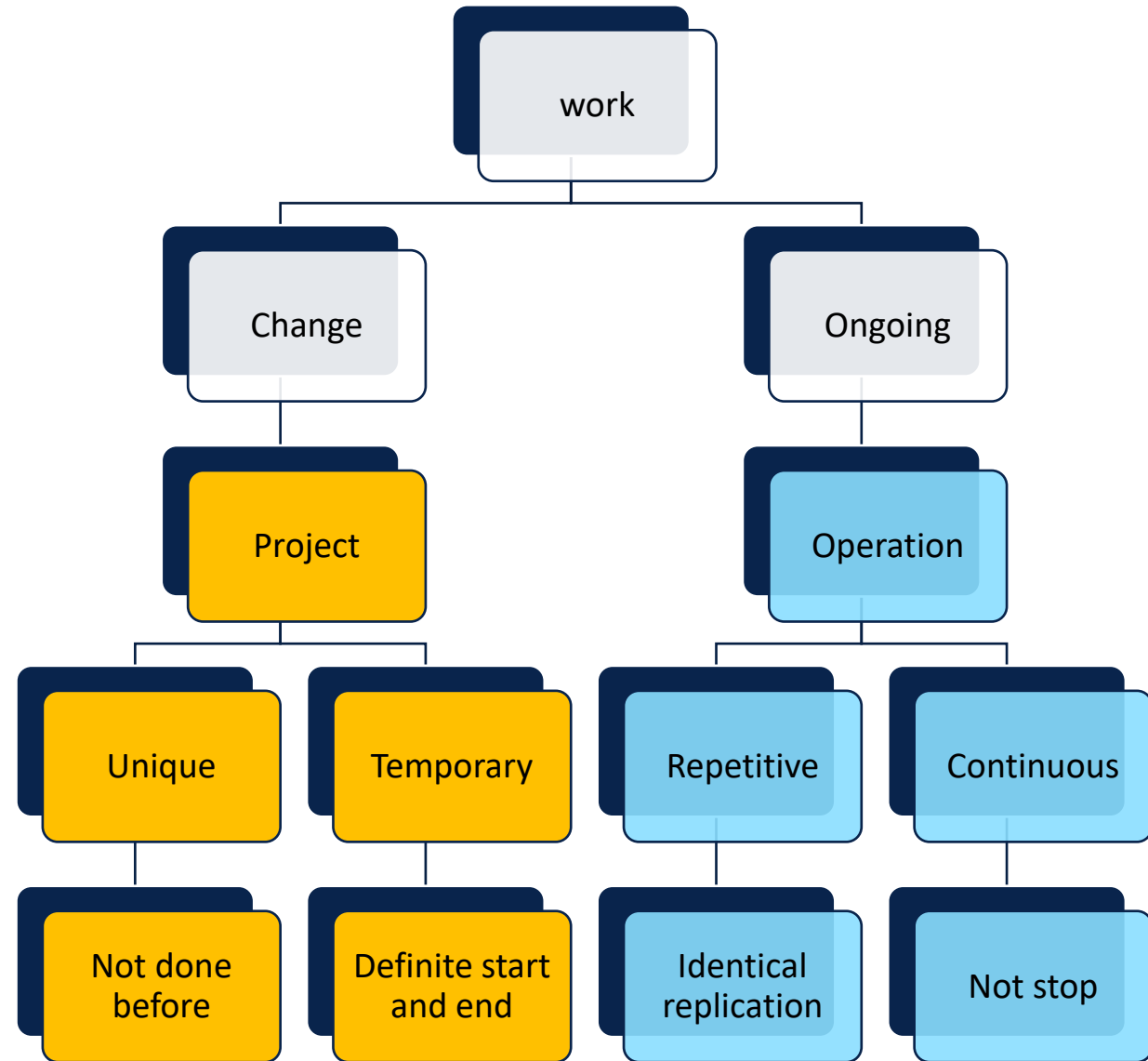




# PROJECT VS OPERATION



- ✓ Operations are the day-to-day activities of the organization.
- ✓ These are activities that are repetitive to the business.
- ✓ They help in attaining the long-term goals of the business through repetitive output.



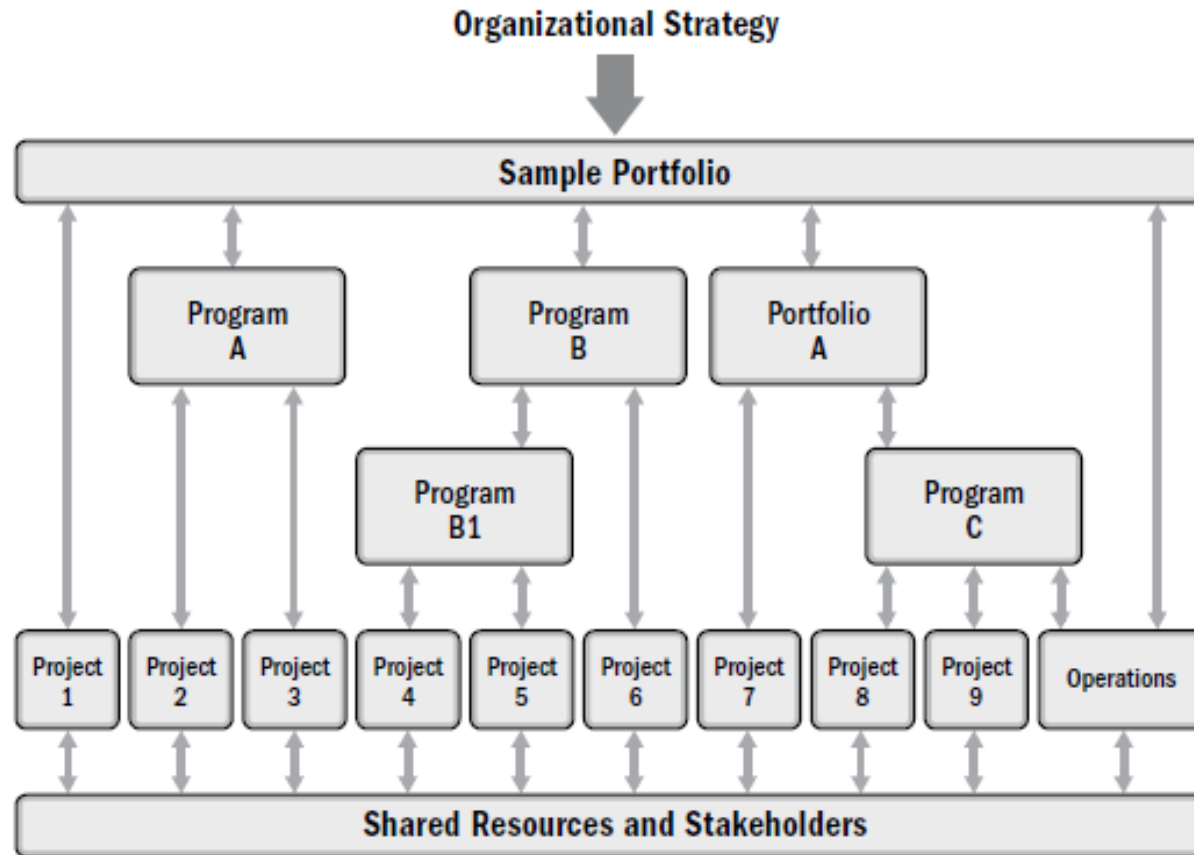


# PROJECT – PROGRAM - PORTFOLIO



A **program** is a group of related projects, subsidiary programs, and program activities that are managed in a coordinated manner to obtain benefits not available from managing them individually.

A **portfolio** is a collection of projects, programs, subsidiary portfolios, and operations managed as a group to achieve strategic objectives.



- ✓ Program and project management focus on **doing programs** and **projects** the “right” way;
- ✓ Portfolio management focuses on doing the “right” **programs** and **projects**.

# PROJECT – PROGRAM - PORTFOLIO



## ABC Company Portfolio

Electrical projects  
(Program X)

Construction  
(Project A)

Sub Portfolio Z

Telecom  
(Project D)

Electrical distribution  
(Project B)

Electrical distribution  
(Project C)

IT projects  
(Program Y)

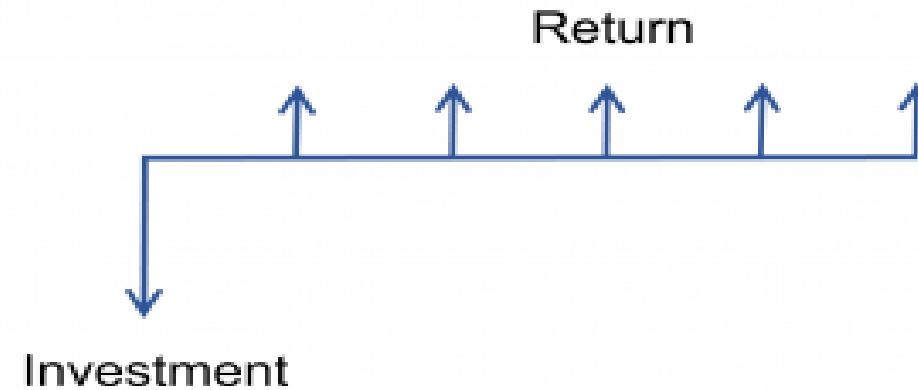
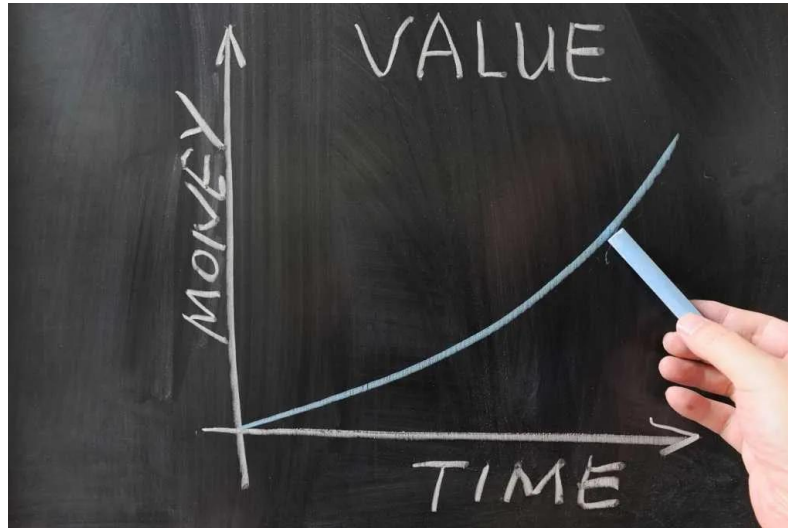
App  
development  
(Project E)

SW  
Maintenance  
(Project F)

# PROJECT SELECTION



- ✓ is this project on target to achieve the business benefits?
- ✓ **cost benefit analysis** is a project selection method
- ✓ compare a project's costs and the benefits it provides
- ✓ investment is made with an expectation of a return



Assume that someone offers to pay you one of two ways for some work you are doing for them: They will either pay you \$1,000 now or \$1,100 one year from now.

Which pay option should you take?

# PROJECT SELECTION



## Time Value of Money Formula

### Present Value:

$$PV = FV / (1+r)^n \quad r \text{ is the interest rate \& n is duration}$$

Suppose you have been promised by someone that he will give you 10,000.00 \$, 5 year from today and interest rate is 8%. we want to know what the present value of 10,000.00 \$ which you will receive in future

$$PV = 10,000 / (1+0.08)^5$$

$$PV = 6805.83 \text{ (To the nearest Decimal)}$$

So present-day value of \$10,000.00 is \$6805.83

### Future Value:

$$FV = PV * (1+r)^n$$

# PROJECT SELECTION



## Present Value

- ✓ It is the current value of future cash flow or future value
- ✓ What amount should we invest today to get a specific amount in future?
- ✓ Investor can make decision whether to invest or reject the proposal with the help of PV

## Future Value

- ✓ It is the amount of money which will grow over period of time with simple or compound interest
- ✓ If we invest some money today what will be the amount we get at future date
- ✓ FV shows only future gain of total investment so the importance for investment decisions making is less

# PROJECT SELECTION



## Return on investment (ROI)

- ✓ ROI determines the potential profitability of an investment by calculating the benefits received in relation to the cost

$$\text{Return on Investment Ratio} = (\text{Net Return} / \text{Cost of Investment}) * 100$$

- ✓ ROI measure is used for knowing the potential earnings of an investment.
- ✓ ROI is always expressed in a percentage form

### Example

A person wants to invest in the shares of a company. He purchased 100 shares at the price of \$500 each and after sometime purchased 100 shares again of the same company at the price of \$550 per share. After a few years, it sold all the 200 shares at the price of \$600 per share. Calculate the return on investment ratio of the person.

$$\text{Cost of Investment} = \text{Purchase Price} * \text{Quantity Purchased} = \$500 * 100 + \$550 * 100 = \$105,000$$

$$\text{Net Return} = \text{Sales Value of Investment} - \text{Cost of Investment} = (200 * 600) - \$105,000 = \$15,000$$

$$\text{Return on Investment Ratio} = (\text{Net Return} / \text{Cost of Investment}) * 100 = (\$15,000 / \$105,000) * 100 = 14.29 \%$$

# PROJECT SELECTION



## Net Present Value (NPV):

- ✓ Net present value is the present value of the cash flows at the required rate of return of your project compared to your initial investment,
- ✓ NPV considers the time value of money, translating future cash flows into today's currency.
- ✓ Formula For the Net Present Value is as below:

$$\text{NPV} = \sum (\text{CF}_n / (1 + i)^n) - \text{Initial Investment}$$

Where,

$n$  = Period which takes values from 0 to the  $n$ th period till the cash flows ends

$\text{CF}_n$  = Cash flow in the  $n^{\text{th}}$  period

$i$  = Discounting rate/interest rate

- ✓ In practical, NPV a method of calculating your return on investment for a project or expenditure.
- ✓ Based on the results of the Net Present Value, a company may decide on investing in one project and rejecting another.

# PROJECT SELECTION



## Net Present Value (NPV):

Assuming the initial investment is \$10,000 invested for a project and subsequent cash flows for each year for 5 years is \$3,000. The discount rate is assumed to be 10%. Calculate Net Present Value.

$$NPV = \sum (CF_n / (1 + i)^n) - \text{Initial Investment}$$

PV

$$PV_1 = FV_1 / (1+r)^n = 3000 / (1+0.1)^1 = 2727.27$$

$$PV_2 = FV_2 / (1+r)^n = 3000 / (1+0.1)^2 = 2479.34$$

$$PV_3 = FV_3 / (1+r)^n = 3000 / (1+0.1)^3 = 2253.94$$

$$PV_4 = FV_4 / (1+r)^n = 3000 / (1+0.1)^4 = 2049.04$$

$$PV_5 = FV_5 / (1+r)^n = 3000 / (1+0.1)^5 = 1862.76$$

$$NPV = \sum (CF_n / (1 + i)^n) - \text{Initial Investment} = (\$2,727.27 + \$2,479.34 + \$2,253.94 + \$2,049.04 + \$1,862.76) - \$10,000$$
$$= \mathbf{\$1372.36}$$



# PROJECT SELECTION



Let's assume you have a software project that requires an initial investment of \$10,000, and it is expected to generate cash flows of \$3,000 at the end of each year for three years. The discount rate is assumed to be 10%.

$$NPV = \sum (CF_n / (1 + i)^n) - \text{Initial Investment}$$

PV

$$PV_1 = FV_1 / (1+r)^n = 3000 / (1+0.1)^1 = 2727.27$$

$$PV_2 = FV_2 / (1+r)^n = 3000 / (1+0.1)^2 = 2479.34$$

$$PV_3 = FV_3 / (1+r)^n = 3000 / (1+0.1)^3 = 2253.94$$

$$\begin{aligned} NPV &= \sum (CF_n / (1 + i)^n) - \text{Initial Investment} = (\$2,727.27 + \$2,479.34 + \$2,253.94) - \$10,000 \\ &= - \$1539.45 \end{aligned}$$

the present value of the expected cash flows does not cover the initial investment

# PROJECT SELECTION



## Net Present Value (NPV):

General Electric has the opportunity to invest in 2 projects. Project A requires an investment of \$1000000 which will give a return of \$300000 each year for 5 years. Project B requires an investment of \$750000 which will give a return of \$100000, \$150000, \$200000, \$250000 and \$ 250000 for the next 5 years. Then Calculate the Net Present Value which can be used to decide which opportunity is better and should be invested in.

Calculate the NPV for Project A  
Calculate the NPV for Project B  
Chose the project with bigger NPV

# PROJECT SELECTION



## Internal rate of return(IRR):

- ✓ Internal Rate of Return is the discount rate that makes the Net Present Value zero.

$$0 = -C_0 + \frac{C_1}{(1+r)^1} + \frac{C_2}{(1+r)^2} + \cdots + \frac{C_n}{(1+r)^n}$$

$C_0$  : initial investment (a negative value)

$C_1, C_2, \dots, C_n$ : cash inflows for each year

$r$ : IRR (the rate to solve for)

- ✓ A startup is considering investing in a small project that costs \$10,000 upfront. The project is expected to generate cash flows of \$3,000 annually for the next 4 years. company wants to know the Internal Rate of Return (IRR).

$$0 = -10000 + \frac{3000}{(1+r)^1} + \frac{3000}{(1+r)^2} + \frac{3000}{(1+r)^3} + \frac{3000}{(1+r)^4}$$

# PROJECT SELECTION



## Internal rate of return(IRR):

- ✓ is usually used to calculate the **profitability of investments** made in a financial product or projects
- ✓ For project selection go with **larger IRR**

## Relation between the discount rate and IRR :

### 1.If Discount Rate < IRR:

1. The project is expected to be **more profitable** than the cost of capital. It implies that the project is considered financially attractive.

### 2.If Discount Rate > IRR:

1. The project is expected to be **less profitable** than the cost of capital. This suggests that the project might not be financially viable.

### 3.If Discount Rate = IRR:

1. The project breaks even; the present value of cash inflows equals the present value of cash outflows. This is the point **where NPV is zero**.

# PROJECT SELECTION



## Payback Period:

- ✓ The payback period is the **time required to recover** the **cost** of total **investment** into a business.
- ✓ is used for taking decisions whether a particular project will be taken by the organization or not.
- ✓ In simple terms, management looks for a lower payback period.

$$\text{Payback Period} = \frac{\text{Initial Investment or Original Cost of the Asset}}{\text{Cash Inflows}}$$

payback period ignores the time value of money.

# PROJECT SELECTION



## Payback Period:

- ✓ A particular Project Cost USD 1 million, and the profitability of the project would be USD 2.5 Lakhs per year. Calculate the Payback Period in years.

$$\text{Payback Period} = \frac{\text{Initial Investment or Original Cost of the Asset}}{\text{Cash Inflows}}$$

$$= 1 \text{ million} / 2.5 \text{ lakh}$$

$$= 4 \text{ years}$$

# PROJECT SELECTION



## Payback Period:

Suppose that we are trying to justify a project to install a new computer system that will eliminate some clerical jobs. The basic facts are these:

- ✓ The hardware will cost £500,000.
- ✓ Hardware maintenance will cost £50,000 per annum.
- ✓ The software will cost £180,000 initially.
- ✓ Software support will cost £20,000 per annum.
- ✓ We expect to save 11 junior clerical posts which, with overhead costs included, are worth £20,000 each per annum (£220,000 per annum overall).

**Table 3.1** Payback projection

| <i>Item</i>                   | <i>Year 1</i> | <i>Year 2</i> | <i>Year 3</i> | <i>Year 4</i> | <i>Year 5</i> |
|-------------------------------|---------------|---------------|---------------|---------------|---------------|
| Hardware purchase             | 500,000       |               |               |               |               |
| Hardware maintenance          | 50,000        | 50,000        | 50,000        | 50,000        | 50,000        |
| Software purchase             | 180,000       |               |               |               |               |
| Software support              | 20,000        | 20,000        | 20,000        | 20,000        | 20,000        |
| Cumulative total costs        | 750,000       | 820,000       | 890,000       | 960,000       | 1,030,000     |
| Staff savings per year        | 220,000       | 220,000       | 220,000       | 220,000       | 220,000       |
| Cumulative savings            | 220,000       | 440,000       | 660,000       | 880,000       | 1,100,000     |
| Cumulative savings less costs | -530,000      | -380,000      | -230,000      | -80,000       | +70,000       |

# PROJECT SELECTION



## Benefit-Cost Ratio (BCR):

- ✓ “Benefit-Cost Ratio” refers to the financial metric that helps in assessing the **viability** of an upcoming **project** based on its expected costs and benefits.

$$\text{Benefit-Cost Ratio} = \text{PV of Expected Benefits} / \text{PV of Expected Costs}$$

a company recently invested \$10,000 for the purpose of replacing some of its production server with high performance. This is expected to result in incremental benefits of \$5,000 in 1st year, \$3,000 in 2nd year and \$4,000 in 3rd year. Calculate the benefit-cost ratio of the replacement project if the applicable discounting rate is 5%.

$$\text{PV of benefit in 1st year} = \$5,000 / (1 + 5\%)^1 = \$4,761.90$$

$$\text{PV of benefit in 2nd year} = \$3,000 / (1 + 5\%)^2 = \$2,721.09$$

$$\text{PV of benefit in 3rd year} = \$4,000 / (1 + 5\%)^3 = \$3,455.35$$

$$\text{PV of Expected Benefits} = \$4,761.90 + \$2,721.09 + \$3,455.35 = \$10,938.34$$

$$\text{Benefit-Cost Ratio} = \text{PV of Expected Benefits} / \text{PV of Expected Costs} = \$10,938.34 / \$10,000 = \mathbf{1.09}$$

the benefit-cost ratio of the project is 1.09 which indicates that it will create additional value and it should be considered positively.

**BCR < 1 is bad. Project with bigger BCR is better.**



# PROJECT SELECTION



Let's do some simple exercise:

|                | Project A | Project B | Which project to select |
|----------------|-----------|-----------|-------------------------|
| NPV            | \$95000   | \$75000   | A                       |
| IRR            | 13%       | 17%       | B                       |
| Payback Period | 16 months | 21 months | A                       |
| BCR            | 2.76      | 1.3       | A                       |

# IS PROJECTS (INFORMATION SYSTEM PROJECTS)

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- ✓ Software development
- ✓ Package implementation
- ✓ System enhancement
- ✓ Consultancy and business analysis assignments
- ✓ Systems migration
- ✓ Infrastructure implementation
- ✓ Outsourcing (and in-sourcing)
- ✓ Disaster recovery
- ✓ Smaller IS projects

# SW DEVELOPMENT PROJECT VS OTHER PROJECT



- ✓ The product of software project have certain characteristics which make them different.

**Invisibility:** When a physical artifact such a bridge or road is being constructed the progress being made can actually be seen. **With software, progress may not be immediately visible.**

**Complexity:** **software products contain more complexity** than other engineered artifacts.

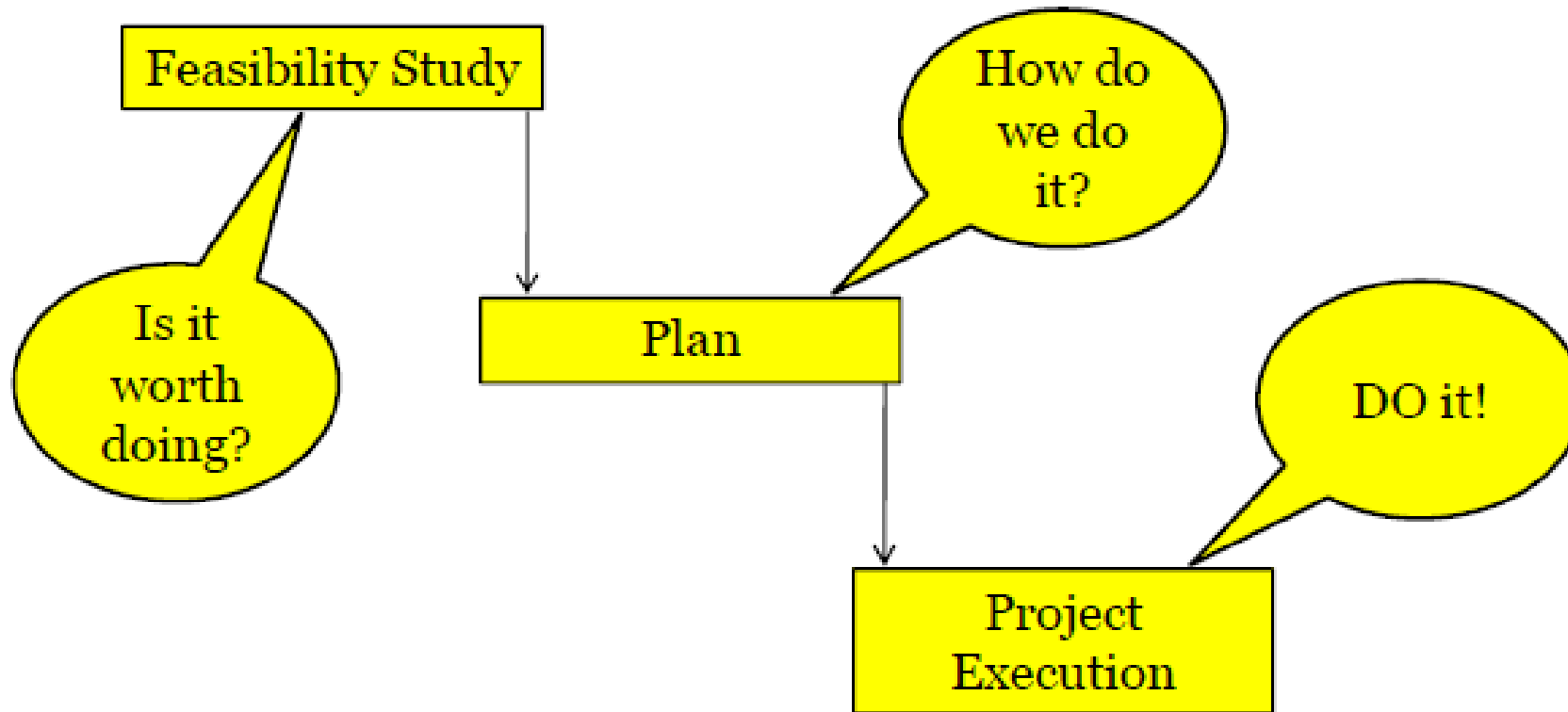
**Conformity:** The traditional engineer is usually working **with physical systems and physical materials like cement and steel**. These systems can have some complexity but are governed by consistent physical laws. Software developers have to conform to the requirements of human clients **that certainly keep on fluctuating**.

**Flexibility:** The ease with which **software can be changed** is usually seen as one of its strengths. Software systems are subject to a high degree of change.

# MAJOR ACTIVITIES OF SW PROJECT



- ✓ A software project is not only concerned with the actual writing of code..
- ✓ Three successive processes bring a new system



# PROBLEMS WITH SOFTWARE PROJECT

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## Commonly experienced problems

- Inadequate specification of work
- Management ignorance of IT
- Lack of knowledge of application area
- Lack of standard
- Lack of up-to-date documentation
- Narrow scope of technical expertise
- Changing software environment
- Deadline pressure
- Lack of quality control
- Remote management
- Lack of training
- Lack of communication between users and technicians
- Lack of commitment

There are many more.....

# PROJECT SUCCESS AND FAILURE



- ✓ **Project success** can be defined as the achievement of something desired, planned, or attempted. success is an event that accomplishes its **intended purpose**.
- ✓ Anything short of the intended purpose is **failure**.

## CAUSES OF PROJECT FAILURES

- ✓ Lack of Senior management support
- ✓ Poor communication
- ✓ Inadequate resources
- ✓ No one is in control
- ✓ Poor definition of Scope
- ✓ Project lacks structure
- ✓ Inaccurate estimates
- ✓ Poor risk management
- ✓ Unrealistic Milestones
- ✓ Incompetent project management skill

# PROJECT SUCCESS AND FAILURE



## How to define success criteria ?

Project success **criteria** are the **standards** by which the project will be **judged** at the end to decide whether or not it has been successful in the eyes of the stakeholders.

## Success criteria for a successful project

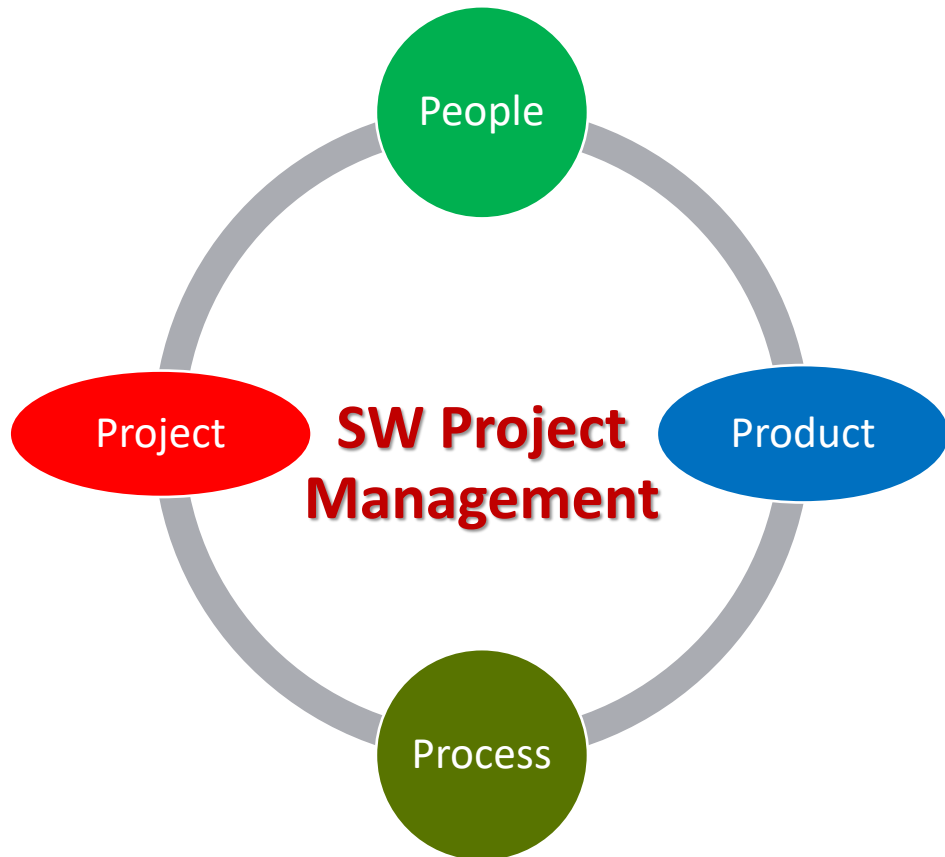
- ✓ Within the allocated time period
- ✓ Within the budgeted cost
- ✓ At the proper performance or specification level
- ✓ With acceptance by the customer/user
- ✓ With minimum or mutually agreed upon scope changes
- ✓ Without disturbing the main work flow of the organization
- ✓ Without changing the corporate culture

80% percent of successful projects have an **experienced project manager**

# SW PROJECT MANAGEMENT



- ✓ Is the art and science of planning and leading the SW projects
- ✓ Effective SW Project management focuses on four P's:



## People:

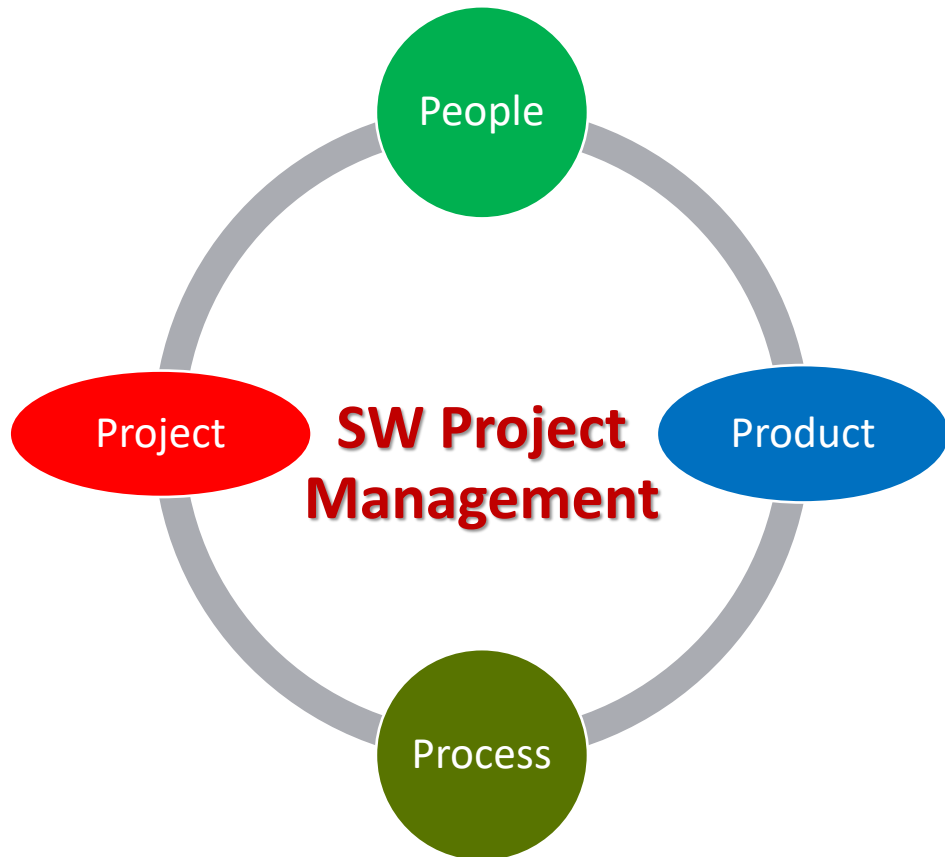
- ✓ The most important element of a successful project
- ✓ Software Engineering Institute has developed a People Management Capability Maturity Model (PM-CMM), *“to enhance the readiness of software organizations to undertake increasingly complex applications by helping to attract, grow, motivate, deploy, and retain the talent needed to improve their software development capability”*.



# SW PROJECT MANAGEMENT

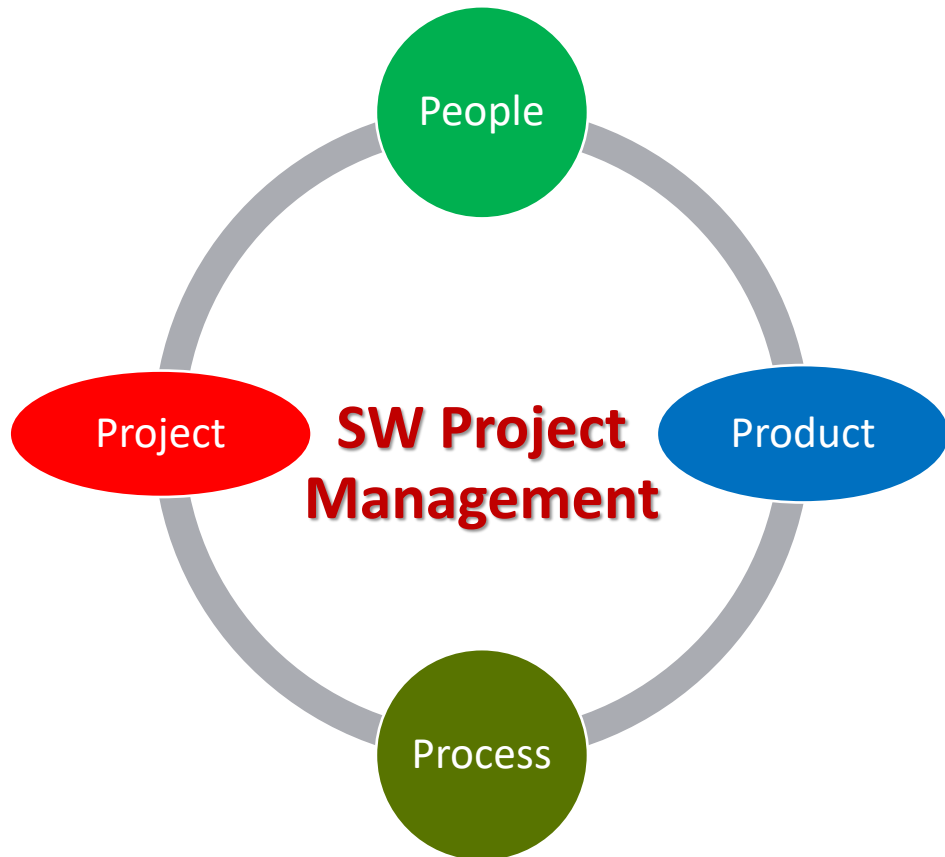


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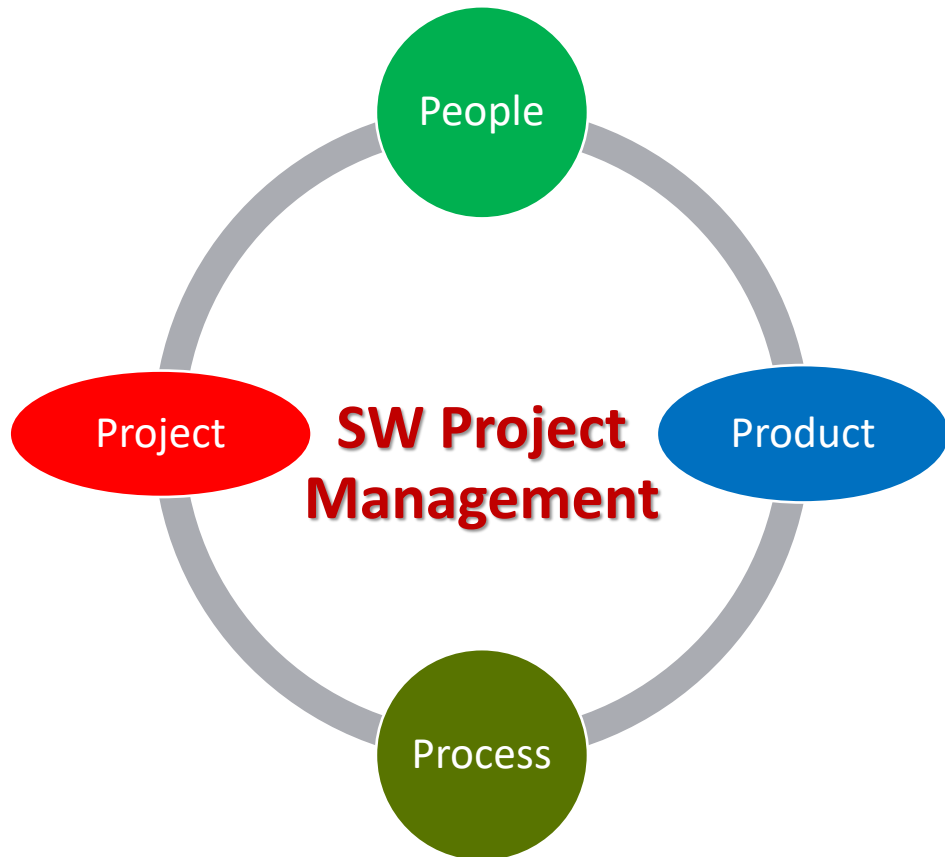
## People:

- ✓ PM-CMM focuses on :
  - Recruiting
  - Performance
  - Training
  - Compensation
  - Career development
  - Team and work culture development
- ✓ And the people consist of
  - Stakeholders
  - Team lead
  - SW team



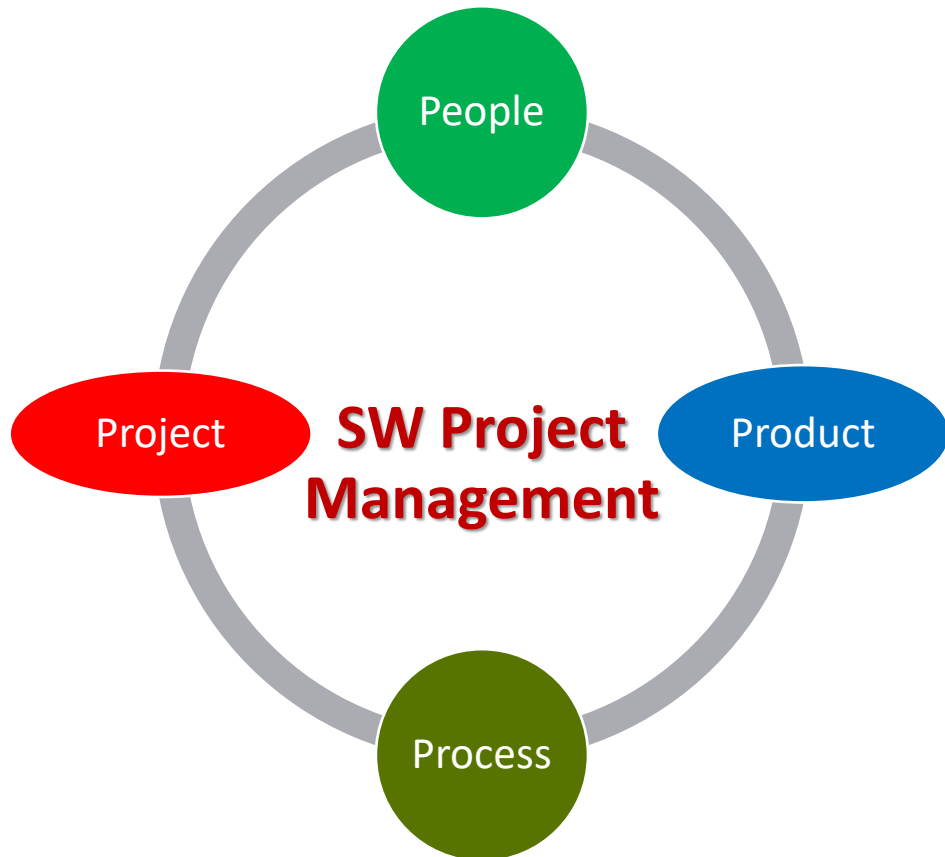
## Product:

- ✓ result of the project
- ✓ product scope need to be clearly defined so that every stakeholder is clear on the end results.
- ✓ The product refers to be both tangible and intangible.
- ✓ For example, it could mean relocating the office or factory to a new premise or migrating to a new software/tool.



## Process:

- ✓ A clearly defined process is the key to the success of any project.
- ✓ Each stage of the process in the project needs to be mapped so that everyone knows **what to do** and **how to do** it.
- ✓ The correct process strategy leads to the proper execution of the project



## Project:

- ✓ The fourth but not the least component is the project.
- ✓ This is where the big role and responsibility of the project manager are under the spotlight.
- ✓ The manager is also known as PM informally, has the task of overseeing the project, delegating tasks, guiding and assisting team members with issues, checking on budget, and trying to ensure the project stays on track with the well-defined deadlines.

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## Project:

- ✓ **5W2H** Principle
- ✓ A series of question that lead to a definition of key project characteristic and the resultant project plan
  - ✓ **Why** is the system being developed?
    - Business viability
  - ✓ **What** will be done?
    - Product backlog
  - ✓ **When** will be done?
    - Schedule
  - ✓ **Where** are they organizationally located?
    - Location of team and other stakeholders
  - ✓ **Who** is responsible?
    - define role and responsibility
  - ✓ **How** will the job be done technically and managerially?
    - Technical and management strategy
  - ✓ **How** much of each resource is required?
    - Estimates based on the answers of the previous questions

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