# Lecture #1-2
# Software Project Management

## Lecture Content

- Classroom Discipline/ Class Response / Assignment & Quiz Rules
- Course Objectives
- Grading criteria

Brief Introduction of:

- ❖ Software Project Management
- ❖ How software Project Management is different
- ❖ SPM Activities, Challenges in SPM
- ❖ Role of Software Project Manager

# Classroom Discipline

- Please try to come on time
- Do be prepared for class surprise quiz can be from previous lecture
- Do stay in contact with Class Representative (CR).
- Do put cell phones on silent.
- **Do bring pen, notebook etc. in lecture**

| During Tests | During Presentation |
|---|---|
| Remain quiet until everyone is finished | Don't try to distract the speaker. |
| Do discussion out of the class room after quizzes, sessional papers etc. | Don't make rude comments. |
| | Try to ask questions |

# Grading

- **Quizzes + Assignment + Class participation + Presentations =**
- **Mid Term                                    %**
- **Final Exam                          %**

**Note:**

- Always Do assignments, Quizzes, presentations etc. on time
- Always submit assignments (-10% per day in case of late submission)
- **Copied assignments will be marked zero.**
- **Do not wait until the last minute** to do your assignments. You can discuss work with your peers but you must do your assignment completely by yourself.
- Quizzes will be announced the day before.

# Typical Lecture Format

Attention

1:30 min.     Break     End of lecture
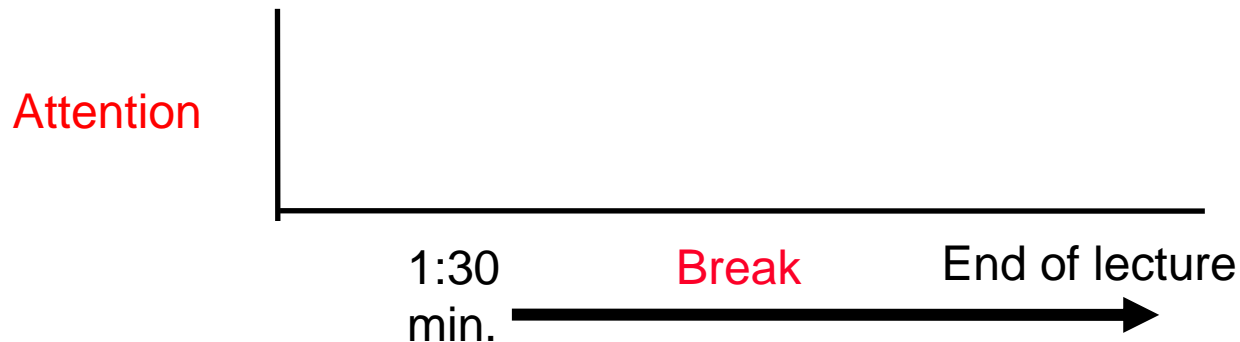
1:30 -Minute Lecture

Break ≤ 5 Minute  * try to come before/on time

End of lecture

# Course description and objectives

Software Project Management is an essential part of software engineering, Good Management cannot guarantee project success, but bad management usually results in project failure

Objectives:

- Give an overview of Software Project Management
- Know the Principle task of Project Management
- Understand why the nature of software makes software project management more difficult than other engineering projects
- Understand the need of project planning in all software projects
- To introduce to the notion of risk management & some of the risk that can arise in software projects

# Some Questions Related to Course

**Software Project Management**

Project Management ?

Why Software Project Management ?

How software project management is different ?

Role of a software project manager?

Risk Factor?

# Why Software Project Fail?

**Management problems were more frequently   dominant cause than technical problems**

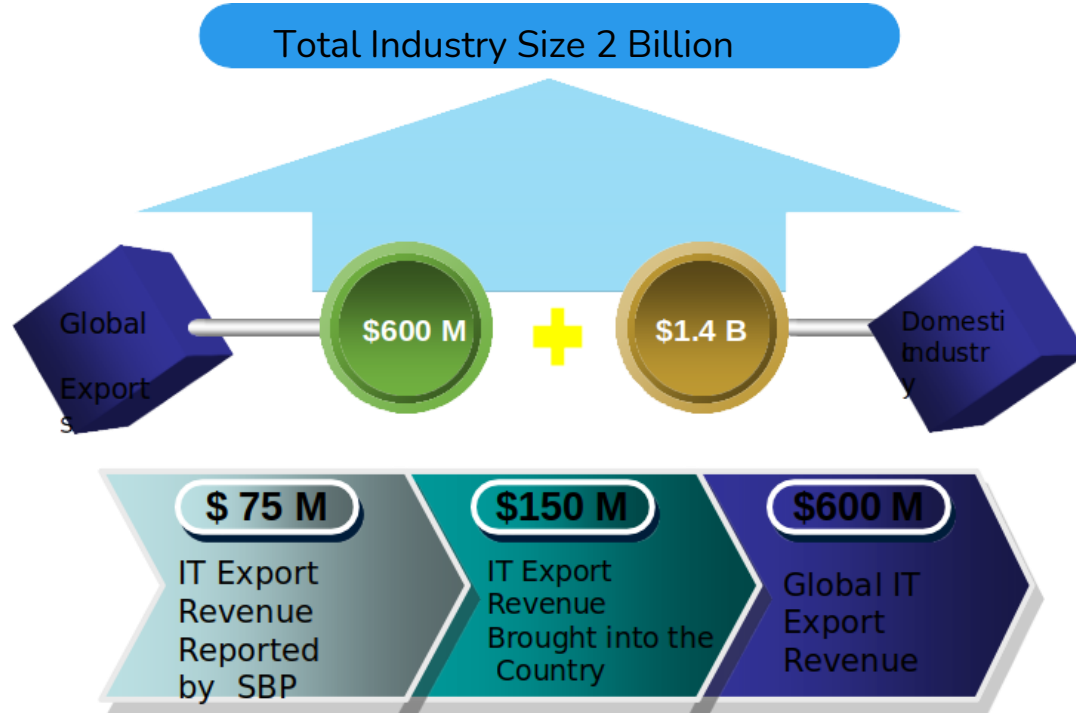**Schedule overruns were more common (89%) than  cost overruns (62%)**

KPGM's Survey in UK

# Software & Economies

- The worldwide software industry in 2000 was $300 billion
- The worldwide packaged software industry for all platforms was $220 billion in 2005
- $600 million worth of software is designed for schools.

# Pakistan : Software & Economies

2000: Pakistan's share in the global software market is $60 million

(Business Recorder: Dec 13, 2000)
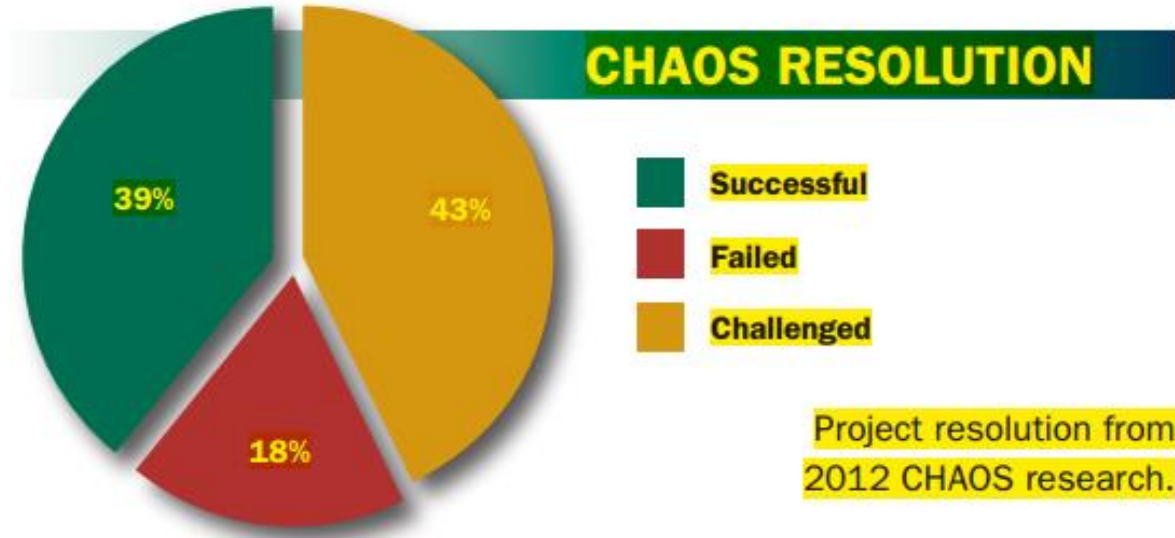
**Total Industry Size 2 Billion**

Global Export s

$600 M + $1.4 B

Domesti Industr y

| $ 75 M | $150 M | $600 M |
|---|---|---|
| IT Export Revenue Reported by SBP | IT Export Revenue Brought into the Country | Global IT Export Revenue |

# Facts and Figures

- Some Disturbing Facts:

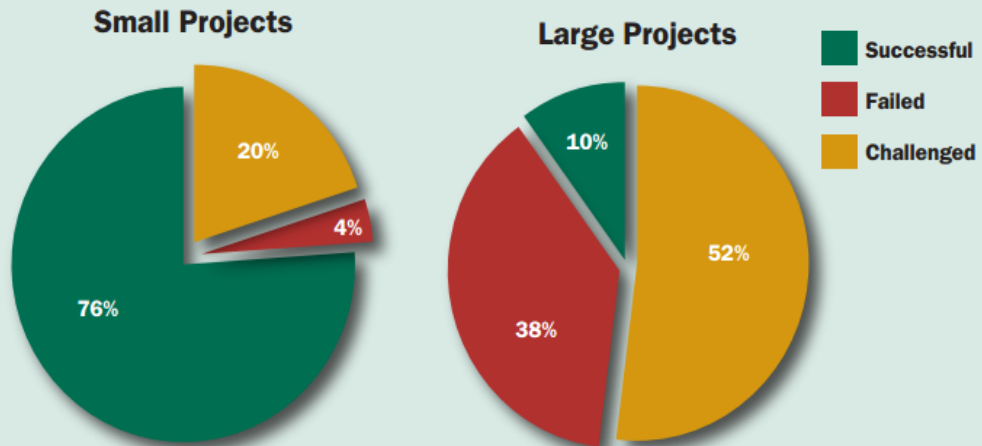| year | Type of survey | Facts | Source |
|---|---|---|---|
| 2012 | Study on 5,400 large scale IT Projects | 45 percent over budget and 7 percent over time, while delivering 56 percent less value than predicted | Oxford University |
| 2011 | Interview based study of software projects | A truly stunning 78% of respondents reported that the "Business is usually or always out of sync with project requirements" | Geneca |
| 2010 | Survey of 100 businesses | 50% of respondents also indicated that their project failed to consistently achieve what they set out to achieve | KPMG (New Zealand) |
| 2009 | Survey of 1,500 change management executives | Only 40% of projects met schedule, budget and quality goals | IBM |

# CHAOS

- The 2012 CHAOS results show another increase in project success rates,
    - 39% of all projects succeeding (delivered on time, on budget, with required features and functions);
    - 43% were challenged (late, over budget, and/or with less than the required features and functions);
    - 18% failed (cancelled prior to completion or delivered and never used).

**CHAOS RESOLUTION**

39%

43%

18%

- Successful
- Failed
- Challenged

Project resolution from 2012 CHAOS research.

# CHAOS RESOLUTION BY LARGE AND SMALL PROJECTS

Project resolution for the calendar year 2012 in the new CHAOS database. Small projects are defined as projects with less than $1 million in labor content and large projects are considered projects with more than $10 million in labor content.

## Small Projects

- Successful: 76%
- Challenged: 20%
- Failed: 4%

## Large Projects

- Successful: 10%
- Challenged: 52%
- Failed: 38%

**Legend:**
- Successful
- Failed
- Challenged

## RESOLUTION

|            | 2004 | 2006 | 2008 | 2010 | 2012 |
|------------|------|------|------|------|------|
| Successful | 29%  | 35%  | 32%  | 37%  | 39%  |
| Failed     | 18%  | 19%  | 24%  | 21%  | 18%  |
| Challenged | 53%  | 46%  | 44%  | 42%  | 43%  |

Project resolution results from CHAOS research for years 2004 to 2012.

# Chaos Report

| Project Success Factors | % of Responses |
|---|---|
| 1. User Involvement | 15.9% |
| 2. Executive Management Support | 13.9% |
| 3. Clear Statement of Requirements | 13.0% |
| 4. Proper Planning | 9.6% |
| 5. Realistic Expectations | 8.2% |
| 6. Smaller Project Milestones | 7.7% |
| 7. Competent Staff | 7.2% |
| 8. Ownership | 5.3% |
| 9. Clear Vision & Objectives | 2.9% |
| 10. Hard-Working, Focused Staff | 2.4% |
| Other | 13.9% |

## Software Project Management

- Software project management comprises of a number of activities, which contains **planning** of **project**, deciding **scope** of **software product**, **estimation of cost** in various terms, **scheduling of tasks and events**, and **resource management**

# Main Goal of SPM

To enable a group of developers to work effectively towards success of a project
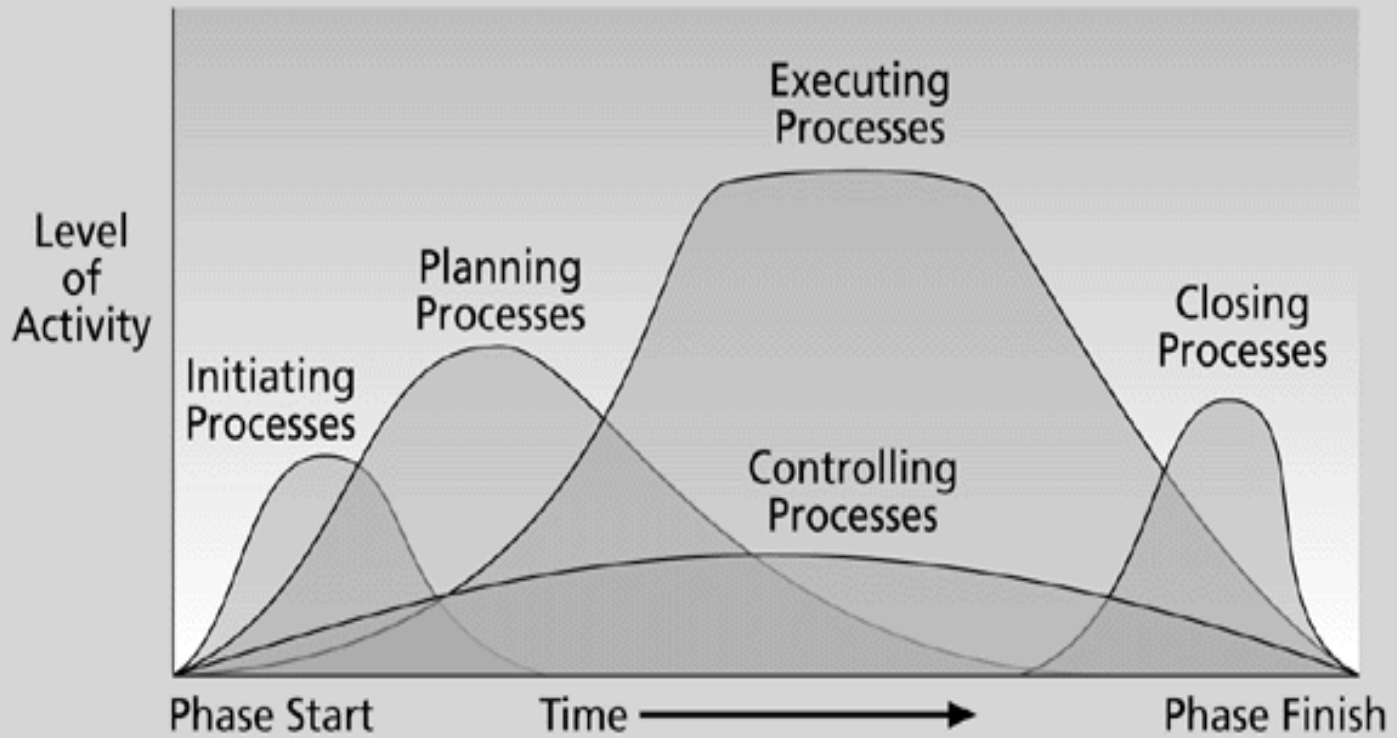
# Why Software Project Management is different?

- The Product is intangible
- There are no standards software Processes
- Changeability

# Challenges In SPM:

Various factors make the job complex:

- **Changeability**
- **Uniqueness**
- **Complexity**
- **Possibility of multiple solution ( they might be others working on the same project)**

## Software Project Manager:

Software Manager is responsible for **planning scheduling project development**, they **supervise** the work to ensure that it is carried out to the required standards & **monitor** work progress to check that the development is on **time** & within **budget**

Software project manager do same kind of job as other engineers, however software engineering is different from other types of engineering

# Job Responsibilities of Software Project Manager

- Planning
- Organizing (staff, resources)
- Staffing (technical, non-technical)
- Directions (Define)
- Monitoring (Monitor Progress)
- Innovating (Bring something new)
- Representing

## Software Project Manager Activities:

The Job of software project manager varies tremendously from organization to organization, & the software product being developed. However the manager takes responsibility at some stage for some or all of the following activities:

- **Proposal writing**
- **Project Planning & scheduling**
- **Project Cost**
- **Project Monitoring & reviews**
- **Personnel selection & evaluation**
- **Report writing & presentation**

# Organizational Project Management(OPM)

**OPM:** A strategy execution framework that utilizes portfolio, program, and project management as well as organizational-enabling practices to consistently and predictably deliver organizational strategy to produce better performance, better results

- **Portfolio Management**

- **Program Management**
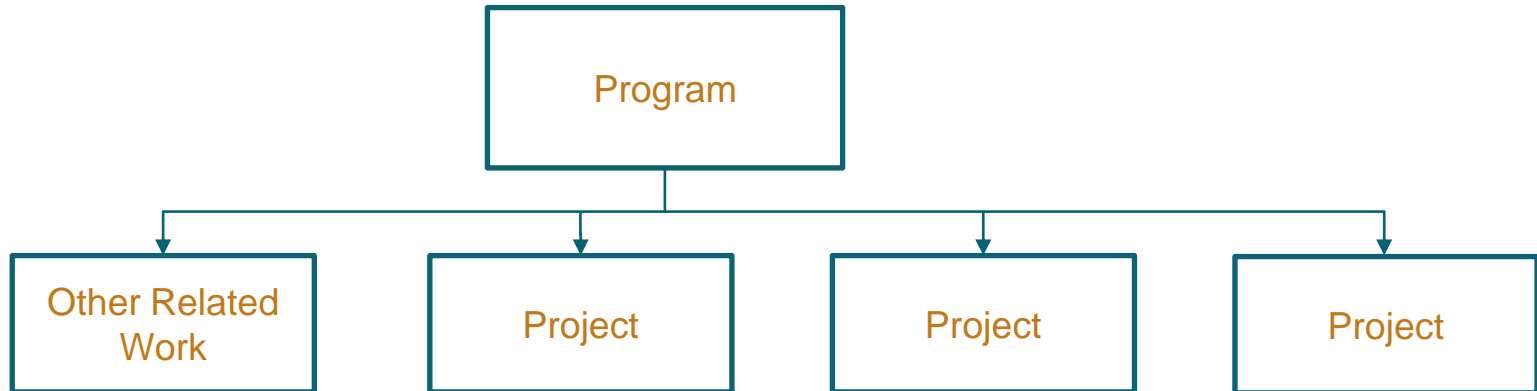
- **Project Management**

# Portfolio Management

Definition: A collection **of projects or programs & other work** that are grouped together to facilitate effective Management of that work to meet **Strategic Business Objectives**

1. A portfolio includes a group of programs, individual projects, and other related operational work that are prioritized and implemented to achieve a specific **strategic business goal**.

2. The Program and projects that make up the portfolio may not be related, other than fact that they are helping to achieve a common strategic goal.



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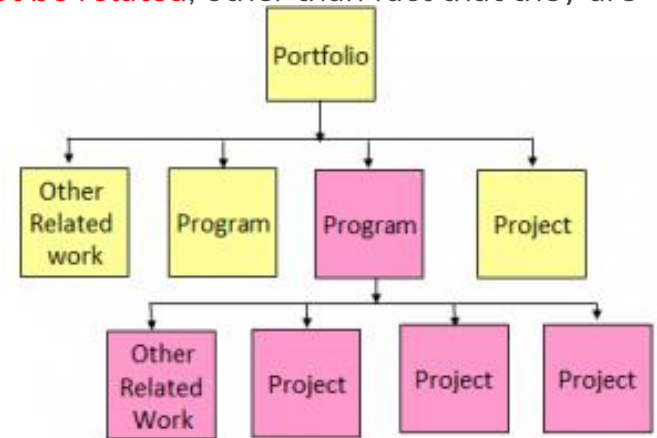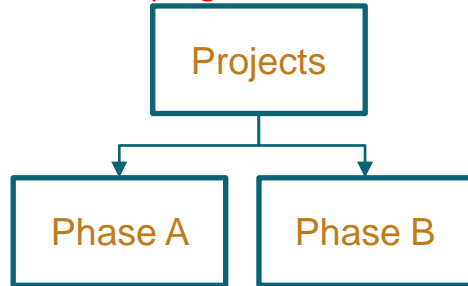
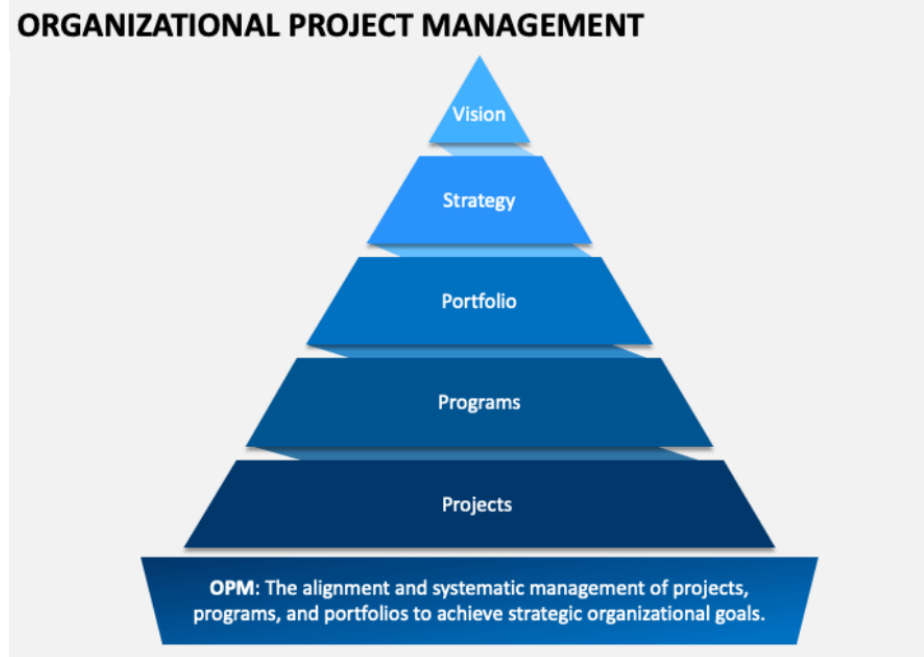- A program is a group of <span style="color:red">related</span> **<span style="color:red">projects</span>**, with the idea of improving organization performance

- By **grouping** related projects into a program, <span style="color:red">managing interdependencies</span> between projects.

- By grouping related projects into a program, an organization can <span style="color:red">coordinate the management of those projects</span>.

```
                        ┌─────────────────┐
                        │     Program     │
                        └────────┬────────┘
      ┌──────────────┬───────────┼───────────────┬──────────────┐
┌───────────┐  ┌───────────┐          ┌───────────┐       ┌───────────┐
│Other Related│  │  Project  │          │  Project  │       │  Project  │
│   Work     │  │           │          │           │       │           │
└───────────┘  └───────────┘          └───────────┘       └───────────┘
```

- Provides a strategic framework to use and guide portfolio, program and project management to deliver organizational strategy.



ORGANIZATIONAL PROJECT MANAGEMENT

Vision

Strategy

Portfolio

Programs

Projects

**OPM:** The alignment and systematic management of projects, programs, and portfolios to achieve strategic organizational goals.

# Relationship Among Portfolio, Program and Project Management

**Portfolio Management** – A suite of business programmes managed to optimize **overall enterprise value, Portfolio is a collection of Programs & Projects**

**Program Management** – A set of related projects designed to produce **clearly identified Business value/ Benefits. To improve organization performance. (only interested in outcomes)**

**Project Management** – Unique activity, balance time cost. A structural set of activities, involved in reaching/ completing the **Scope** of a Project, which is based on an agreed schedule and budget
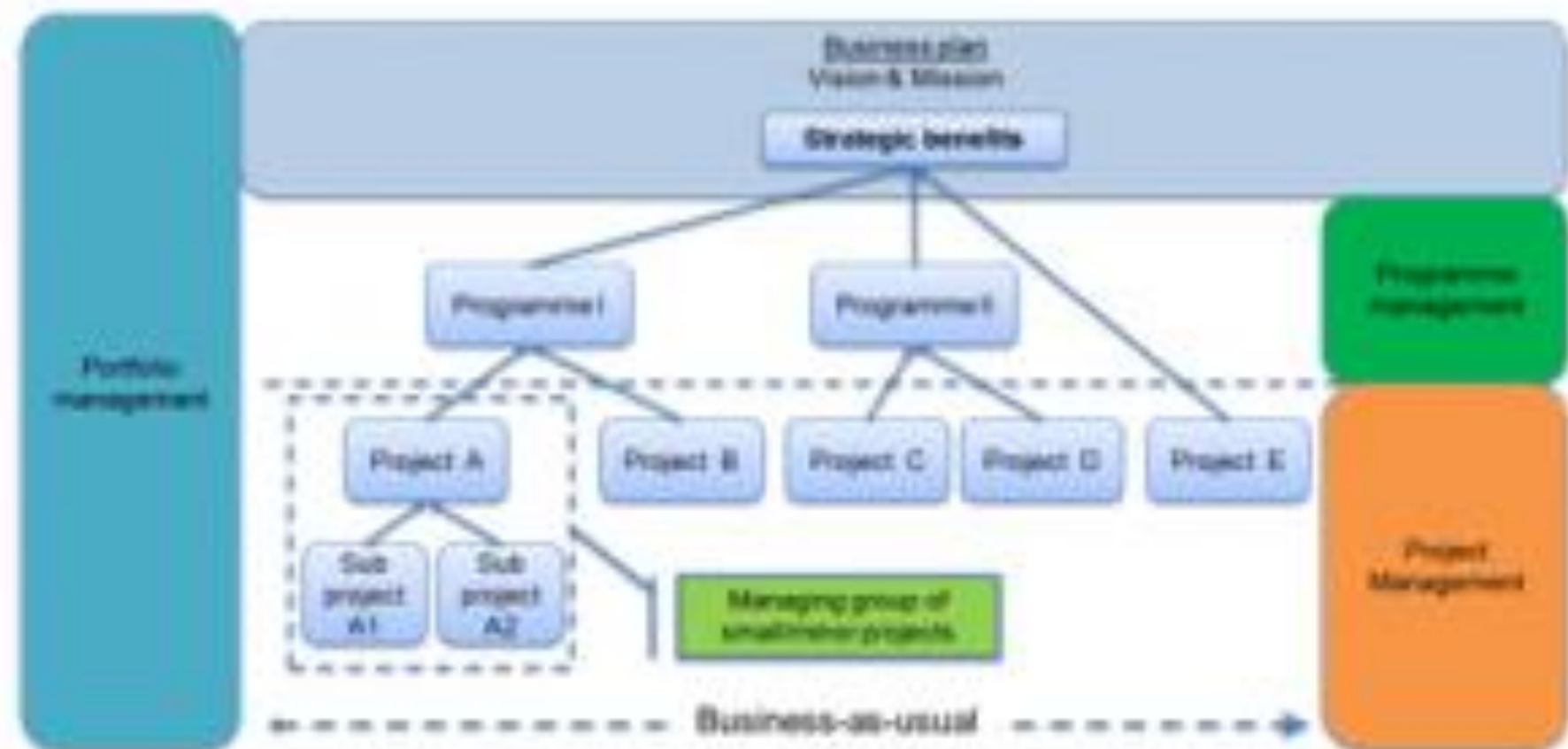
**Example:**

A **project manager** works to deliver a project efficiently and reliably. They are responsible for the **day-to-day** management that brings a project to fruition.

**Program managers** are more concerned with strategic alignment: Understanding what individual project managers are doing and enabling effective communication between them in order to understand where **projects are and in order to provide support where necessary**.

**Portfolio managers**, meanwhile, coordinate between various programs in order to **ensure that things stay on track and that the organization is meeting its overarching strategic initiatives.**

# Project Management Body of Knowledge(PMBOK)

Is recognized standard of project management knowledge.

- **Provides guidelines, rules and characteristics for project management**.

- This standard is widely accepted and when consistently applied help you, your global peers and your organization to achieve professional excellence.

# Reference:

**Book Software engineering Eighth Edition Ian Sommerville**