ICTEW365 -TECHNOLOGY PROJECT MANAGEMENT & EVALUATION

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Lesson 1

Introduction to Project Management

Today's Lesson

After completing this lesson, you will be able to:

- Understand the growing need for better project management, especially for information technology projects
- Explain what a project is, provide examples of information technology projects, list various attributes of projects, and describe the triple constraint of projects.
- What IT project management is
- The role of the project manager and stakeholders in a project

Background

- Many organizations today have a new or renewed interest in project management.
- Computer hardware, software, networks, and the use of interdisciplinary and global work teams have radically changed the work environment.
- The world as a whole spends nearly $10 trillion of its $40.7 trillion GDP on projects of all kinds
- More than 16 million people regard project management as their profession

PM Statistics

- Total global spending on technology goods, services, and staff was projected to reach $4.7 trillion in 2023
- In the U.S. the size of the IT workforce topped 55 million worldwide
- In 2007 the total compensation for the average senior project manager in U.S. dollars was $120,000 per year

- 100,000 people earn the PMP (Project Management Professional) certification each year.

Motivation for Studying IT PM

- IT Projects have a terrible track record
- According to Gartner Research 20–25% of IT projects fail outright.
  - Many projects suffer from scope creep and lack of business alignment.
  - Source: Gartner IT Project Performance Insights, 2021

What is a Project?

- "Unique process consisting of a set of coordinated and controlled activities with start and finish dates, undertaken to achieve an objective conforming to specific requirements, including constraints of time, cost, quality and resources"
- A project is a "temporary endeavour undertaken to create a unique product, service, or result".
  - This means that a project is done only once.
  - If it is repetitive or continuous, it's not a project.

What is a Project?

- A project should have
  - definite starting and ending points (time),
  - a budget (cost),
  - a clearly defined scope or magnitude of work to be done,
  - specific performance requirements that must be met

CONT.

- Projects are initiated by organizations for a variety of reasons, such as to
  - meet a business need,
  - attain a strategic objective or meet a market demand.
- It ends when the
  - Project's objectives have been achieved or
  - When the project is terminated because its objectives will not or cannot be met, or
  - When the need for the project no longer exists.

Cont.

- Business usual activities can often be mistaken for projects.
- Generally, it is the uniqueness of the activity that is the deciding factor – do we do this every year? If so, then it is not truly a project – although you can use project methods to get it done.

Scan Me

Are these projects?

- Building a deck: **Yes/No**
- Implementing a new information system: **Yes/No**
- Mowing the lawn: **Yes/No**
- Planning a wedding: **Yes/No**
- Planning a fundraiser: **Yes/No**
- Planning a student graduation: **Yes/No**

Examples of projects include, but are not limited to:

- Developing a new product or service,
- Effecting a change in the structure, staffing, or style of an organization,
- Developing or acquiring a new or modified information system,
- Constructing a building or infrastructure, or
- Implementing a new business process or procedure.

Operation vs Project

- Operations, on the other hand, is work done in organisations to sustain the business. Projects differ from operations in that they typically end when their objectives have been achieved or the project has been terminated.
- Projects are unique and temporary, while operations are ongoing and permanent with a repetitive output.
- Projects have a fixed budget, while operations have to earn a profit to run the business
- Projects can be large or small and involve one person or thousands of people. They can be done in one day or take years to complete.

IT Project Management

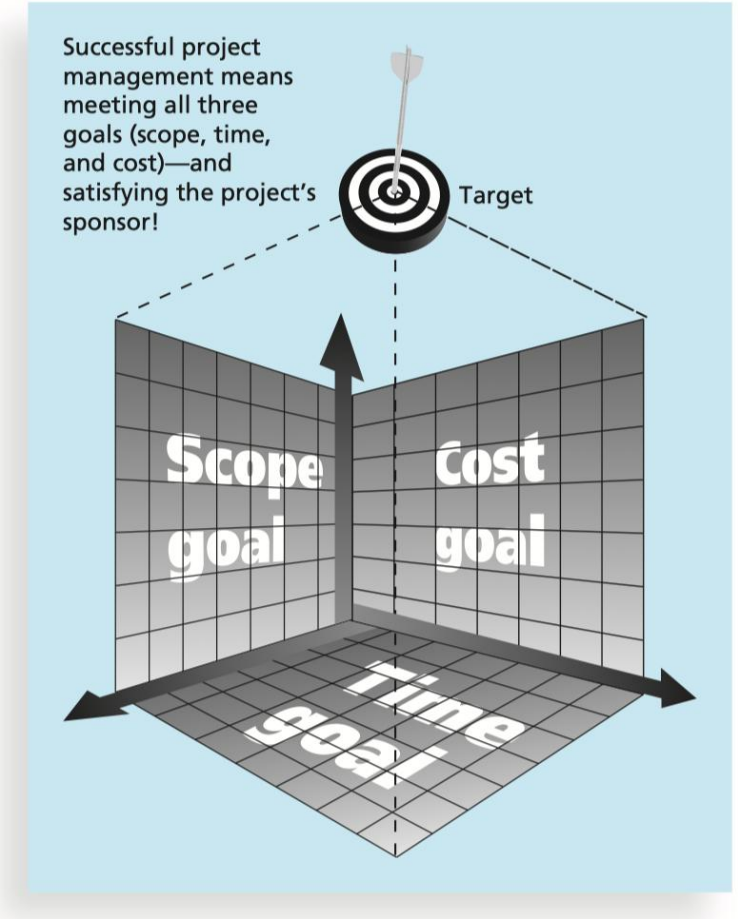
- **IT projects** involve using hardware, software, and networks to create a product, service, or result. Examples of IT projects include the following:
  - A government group develops a system to track child immunisations.
  - A company develops a driverless car.
  - A college upgrades its technology infrastructure to provide wireless Internet access across the whole campus as well as online access to all academic and student service information.

IT Project Characteristics/Attributes

- IT Project need a well-defined objective.
- A project has a unique purpose
- A project is temporary
  - The temporary nature of projects indicates a definite beginning and end
  - Temporary does not necessarily mean short in duration
- A project is developed using progressive elaboration
- A project requires resources, often from various areas
- A project should have a primary customer or sponsor
  - The project sponsor usually provides the direction and funding for the project
- A project involves uncertainty

IT Project Constraints

- Traditionally, every project is constrained in different ways, often by its scope, time, and cost goals. These limitations are sometimes referred to in project management as the **triple constraint**
  - Scope
  - Time
  - cost



Extended Constraints with Six-Points

- In addition to the traditional three, modern project management often includes:
- **Quality** – The standards and specifications the project must meet.
- **Resources** – The people, tools, and materials needed.
- **Risk** – Potential threats or uncertainties that may affect project success.

Cont.

- Managing the triple constraint involves making trade-offs between scope, time, and cost goals for a project.
  - For example, you might need to increase the budget for a project to meet scope and time goals. Alternatively, you might have to reduce the scope of a project to meet time and cost goals.

Cont.

- Experienced project managers know that you must decide which aspect of the triple constraint is most important.
  - If time is most important, you must often change the initial scope and cost goals to meet the schedule.
  - If scope goals are most important, you may need to adjust time and cost goals

Effective project management encompasses more than just managing project constraints.

Measurement of Success

- On Time
- On Budget
- To Specification
- At agreed level of Quality **

Project Manager/Management

- A project manager is a person who causes things to happen.
- A project manager is a professional responsible for planning, executing, and closing projects
  - He/she ensures that goals are met **on time, within budget**, and according **to scope and quality standards**
- **Project management** is, therefore, causing a planned undertaking to happen.

What is Project Management?

- The art of organising, leading, reporting and completing a project through people
- The application of knowledge, skills, tools, and techniques to project activities to meet project requirements.

Cont.

- Project managers also facilitate the entire process to meet the needs and expectations of people involved in project activities or affected by them.
- Project management techniques provide advantages such as:
  - *Better control of financial, physical, and human resources*
  - *Improved customer relations*
  - *Shorter development times*
  - *Lower costs and improved productivity*
  - *Higher quality and increased reliability*
  - *Higher profit margins*
  - *Better internal coordination*
  - *Positive impact on meeting strategic goals*
  - *Higher worker morale*

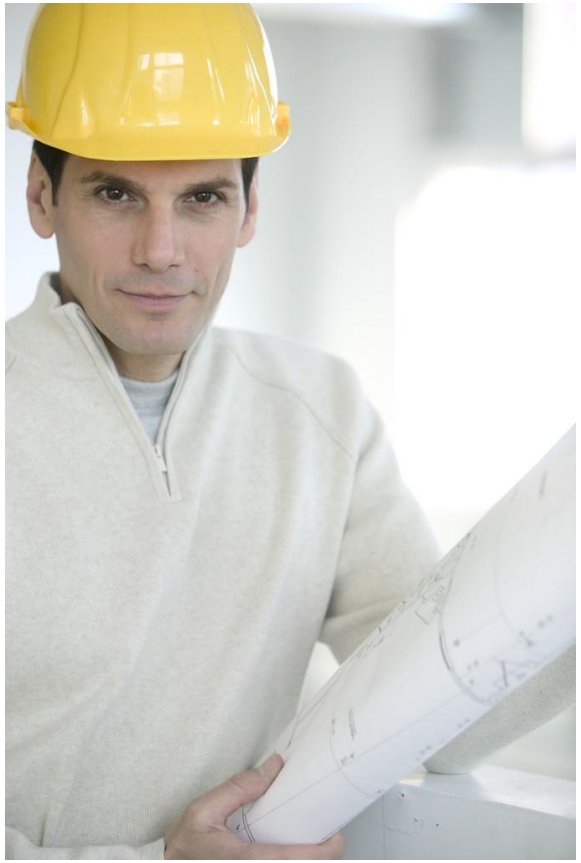
Exercise 1

- In that case who can manage projects successfully:
- **Write down three attributes of a good Project Manager**
-

Attribute	Description
Leadership	Inspires, guides, and motivates team members toward achieving project goals.
Communication Skills	Communicates clearly with stakeholders, team members, and clients.
Organizational Skills	Plans, prioritizes, and manages time and resources efficiently.
Problem-Solving	Quickly identifies issues and implements effective solutions.
Decision-Making	Makes informed and timely decisions under pressure.
Negotiation Skills	Balances stakeholder needs, resolves conflicts, and manages expectations.
Adaptability	Responds well to change and adjusts plans as needed.
Risk Management	Identifies, assesses, and mitigates potential risks.
Technical Competence	Understands project-specific tools, technologies, or methodologies.
Integrity	Demonstrates honesty, accountability, and ethical behavior.

Project Manager Role

- A Good Project Manager
  - Takes ownership of the whole project
  - Is proactive not reactive
  - Adequately plans the project
  - Is Authoritative (**NOT** Authoritarian)
  - Is Decisive



Cont.

- **Good project manager cont…..**
  - Is a Good Communicator
  - Manages by data and facts not uniformed optimism
  - Leads by example
  - Has sound Judgement
  - Is a Motivator
  - Is Diplomatic
  - Can Delegate

The Project Manager

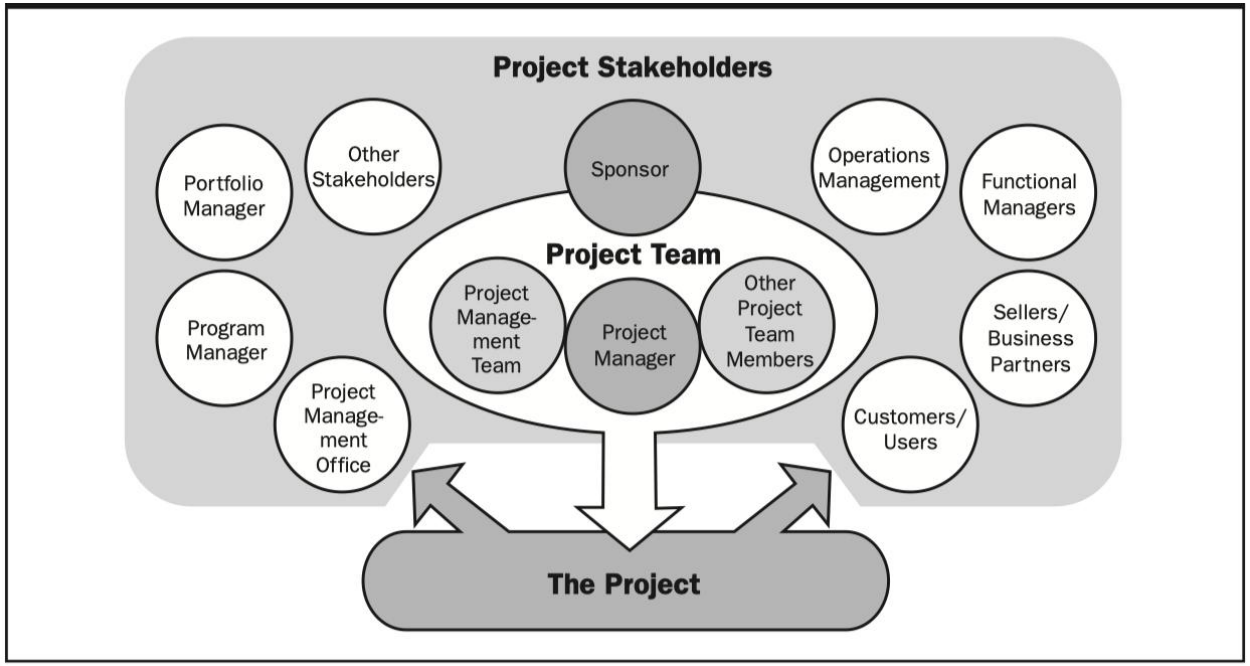
- Responsible for successful delivery
- Not a business expert
- Project Management knowledge
- Project Management performance
- Project Management style

Project Stakeholders

- A project is successful when it achieves its objectives and meets or exceeds the expectations of the stakeholders. But who are the stakeholders?
- “A person or group of people who have a vested interest in the success of an organization and the environment in which the organization operates”
- They are individuals who either care about or have a vested interest in your project. They are the people who are actively involved with the work of the project or have something to either gain or lose as a result of the project.

Typical Stakeholders

- Sponsor
- Funding Body
- Customer
- Suppliers
- End User



Stakeholders cont.

- HSE/Environmental Agency
- Maintenance Team
- Neighbours/Community/Shareholders
- Fusion Community
- Interfaces

Project Stakeholders and Analysis

- The project manager, project team members, and the managers from other departments in the organization are stakeholders as well.
  - It's important to identify all the stakeholders in your project upfront.
  - Leaving out important stakeholders or their department's function and not discovering the error until well into the project could be a project killer

Project Stakeholders and Analysis

- Take the time to identify all stakeholders before starting a new project.
  - Include those who are impacted by the project, as well as groups with the ability to impact the project.
  - Begin the process of building strong relationships with each one using the following method.

Analyze stakeholders

- Conduct a stakeholder analysis, or an assessment of a project's key participants, and how the project will affect their problems and needs.
  - Identify their individual characteristics and interests.
  - Find out what motivates them, as well as what provokes them.
  - Define roles and level of participation, and determine if there are conflicts of interest among groups of stakeholders

Assess influence

- Measure the degree to which stakeholders can influence the project. The more influential a stakeholder is, the more a project manager will need their support.
- Think about the question, “What’s in it for them?” when considering stakeholders.
- Knowing what each stakeholder needs or wants from the project will enable the project manager to gauge his or her level of support

Understand their expectations

- Nail down stakeholders' specific expectations.
  - Ask for clarification when needed to be sure they are completely understood
- Define what "success" means for every stakeholder, as they may have a different idea of what project success looks like.
- Discovering this at the end of the project is a formula for failure.
- Gather definitions upfront and include them in the objectives to help ensure that all stakeholders will be supportive of the final outcomes.

Keep stakeholders involved & informed

- Don't just report to stakeholders.
  - Ask for their input.
  - Get to know them better by scheduling time for coffee, lunch, or quick meetings.
  - Measure each stakeholder's capacity to participate and honour time constraints.
- Send regular status updates.
  - Daily may be too much; monthly is not enough.
  - One update per week is usually about right.
  - Hold project meetings as required, but don't let too much time pass between meetings

Organizational Influences on Project Management

- Organisational Cultures and Styles
  - Cultures and styles may have a strong influence on a project's ability to meet its objectives
  - An organization's culture is its DNA—its core identity
  - ***"Culture eats strategy for breakfast"*** —Peter Drucker

- Most organizations have developed unique cultures that manifest in numerous ways, including, but not limited to:
  - Shared visions, values, norms, beliefs, and expectations,
  - Policies, methods, and procedures,
  - View of authority relationships, and
  - Work ethic and work hours.

Organizational Influences on Project Management

- Organisational structure
  - It is an enterprise environmental factor which can affect the availability of resources and influence how projects are conducted.

- Classification of organizational structures
  - functional organizational structure
  - project organizational structure
  - matrix organizational structure

Functional/Project/Matrix

Feature	Functional Organizational Structure	Project Organizational Structure	Matrix Organizational Structure
Employee grouping	By skills and expertise	By projects	By both projects and functional departments
Manager responsibility	For the work of individual employees	For the success of the project	For both the success of the project and the employee's work in the functional department
Employee specialization	Deep expertise in a particular area	Broad range of skills	Broad range of skills
Flexibility	Low	High	Medium

Class discussion

- Some people insist that new organisational structures be installed before any cultural shift can begin.
- Others maintain. the opposite

Importance Of Project Management

Effective project management helps individuals, groups, and public and private organizations to:

- Meet business objectives
- Satisfy stakeholder expectations
- Be more predictable
- Increase chances of success
- Deliver the right products at the right time
- Resolve problems and issues
- Respond to risks in a timely manner
- Optimize the use of organizational resources
- Identify, recover, or terminate failing projects
- Manage constraints (e.g., scope, quality, schedule, costs, resources

- Factors that Lead to the Creation of a Project

Specific Factor	Examples of Specific Factors	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			X	X
Competitive forces	Lower pricing on products by a competitor results in the need to lower production costs to remain competitive				X
Material issues	A municipal bridge developed cracks in some support members resulting in a project to fix the problems	X		X	
Political changes	A newly elected official instigating project funding changes to a current project				X
Market demand	A car company authorizes a project to build more fuel-efficient cars in response to gasoline shortages		X	X	X
Economic changes	An economic downturn results in a change in the priorities for a current project				X
Customer request	An electric utility authorizes a project to build a substation to serve a new industrial park		X	X	
Stakeholder demands	A stakeholder requires that a new output be produced by the organization		X		
Legal requirement	A chemical manufacturer authorizes a project to establish guidelines for the proper handling of a new toxic material	X			
Business process improvements	An organization implements a project resulting from a Lean Six Sigma value stream mapping exercise			X	
Strategic opportunity or business need	A training company authorizes a project to create a new course to increase its revenues			X	X
Social need	A nongovernmental organization in a developing country authorizes a project to provide potable water systems, latrines, and sanitation education to communities suffering from high rates of infectious diseases		X		
Environmental considerations	A public company authorizes a project to create a new service for electric car sharing to reduce pollution			X	X

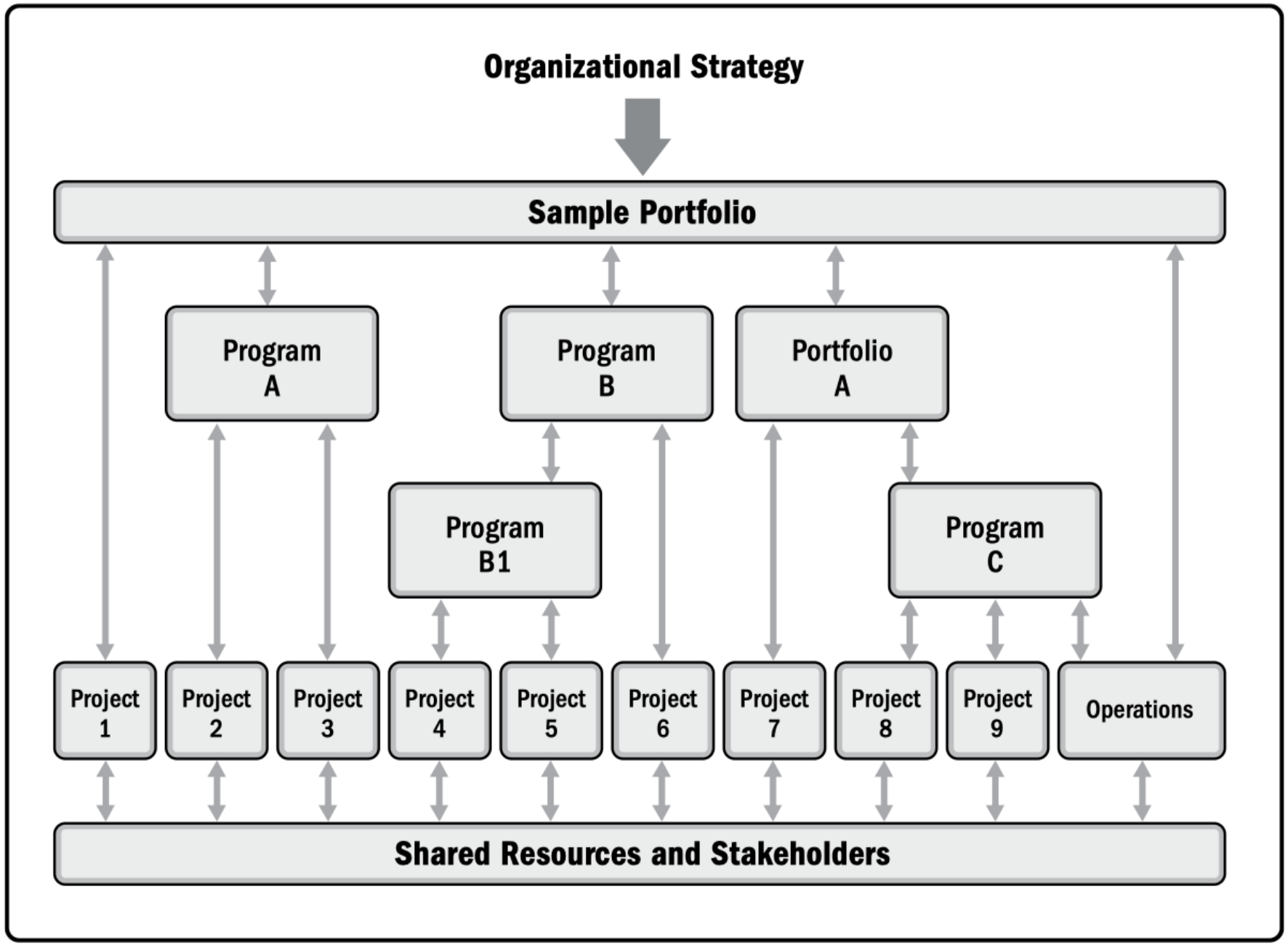
Relationship Among Project, Program and Portfolio

- Program: A program is defined as a group of related projects managed in a coordinated way to obtain benefits and control not available from managing them individually.

- A portfolio is defined as projects, programs, subsidiary portfolios, and operations managed as a group to achieve strategic objectives.

Comparative analysis of Project, Program and Portfolio management

	PROJECTS	PROGRAMS	PORTFOLIOS
Scope	Projects have defined objectives. Scope is progressively elaborated throughout the project life cycle.	Programs have a larger scope and provide more significant benefits.	Portfolios have a business scope that changes with the strategic goals of the organization.
Change	Project managers expect change and implement processes to keep change managed and controlled.	The program manager must expect change from both inside and outside the program and be prepared to manage it.	Portfolio managers continually monitor changes in the broad environment.
Planning	Project managers progressively elaborate high-level information into detailed plans throughout the project life cycle.	Program managers develop the overall program plan and create high-level plans to guide detailed planning at the component level.	Portfolio managers create and maintain necessary processes and communication relative to the aggregate portfolio.
Management	Project managers manage the project team to meet the project objectives.	Program managers manage the program staff and the project managers; they provide vision and overall leadership.	Portfolio managers may manage or coordinate portfolio management staff.
Success	Success is measured by product and project quality, timeliness, budget compliance, and degree of customer satisfaction.	Success is measured by the degree to which the program satisfies the needs and benefits for which it was undertaken.	Success is measured in terms of aggregate performance of portfolio components.
Monitoring	Project managers monitor and control the work of producing the products, services or results that the project was undertaken to produce.	Program managers monitor the progress of program components to ensure the overall goals, schedules, budget, and benefits of the program will be met.	Portfolio managers monitor aggregate performance and value indicators.


Organizational Strategy
Sample Portfolio
Program A
Program B
Portfolio A
Program B1
Program C
Project 1
Project 2
Project 3
Project 4
Project 5
Project 6
Project 7
Project 8
Project 9
Operations
Shared Resources and Stakeholders

Common Project terms

- **Deliverables:** Tangible 'things' that the project produces
- **Milestones:** Dates by which major activities are performed.
- **Tasks:** Also called Actions. Activities undertaken during the project
- **Risks:** Potential problems that may arise
- **Issues:** Risks that have happened
- **Gantt Chart:** A specific type of chart showing time and tasks. Usually created by a Project Management program like MS Project.
- **Stakeholder:** Any person or group of people who may be affected by your project

CASE STUDY OVERVIEW

Background: Developing a University Smart Campus

CampusSmart is a digital transformation initiative by the University of Central Technology (UCT), a mid-sized institution that has decided to transition from manual academic administration and in-person-only lectures to a blended learning model. The university leadership has initiated a project to implement a Learning Management System (LMS) that will support online courses, assignments, quizzes, and grading. Additionally, it aims to develop a Smart Campus mobile and web application. The platform will integrate key student services, such as course registration, timetable scheduling, digital ID, academic records access, and event alerts.

The project aimed to deploy the systems across all departments within six months. The initiative was sponsored by the university's IT Manager and supported by a cross-functional team comprising IT staff, academic department heads, and external consultants.

Project Objectives:

- Select and customise an open-source LMS and a mobile and web development platform to fit UCT's academic structure.
- Migrate existing course content from various departments to the LMS.
- Train academic and administrative staff in the use of the LMS.
- Go live within six months with full functionality for at least five pilot departments.

Challenges

- Diverse departmental requirements led to scope changes.
- Resistance from some faculty members who preferred traditional teaching methods.
- Budget constraints due to unforeseen training costs.
- Inadequate technology infrastructure and poor internet connectivity
- Coordination issues with an overseas development consultant who provided customisation services remotely.

Project Management Notes

- The project followed a hybrid project management approach, combining waterfall for planning and agile for iterative development and customisation.
- Weekly progress reports and stakeholder meetings were used to ensure alignment.
- A mid-project review revealed scope creep due to continuous feature requests from faculty.

Exercise From Term Case Study

- Analyse and classify CampusSmart as a technology project.
- What are the expected benefits and challenges?
- Identify the roles a project manager would play in this context.
- Write down three typical project stakeholders

Next week

Read chapters one and two of

- Schwalbe K. (2014) *Information Technology Project Management* (7th ed). Boston MA: Cengage Learning