Lecture 4
4. Project Management in ICT

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Outline

- Advantages of Project Management
- Project Management context as per PMI
- Characteristics of Project Life Cycles
  - Representative Project Life Cycles
  - IT Product Development Life Cycle
  - Product Life Cycle and Project Life Cycle
- System Development Methodologies
- Roles and Responsibilities of Key Project Members

Advantages of Project Management

1. Increased control of financial, physical and human resources
2. Improved customer relations
3. Higher quality outcome
4. Enhanced Reliability on solutions
5. Increased profit margins
6. Improved productivity at work
7. Better internal coordination
8. Higher Work Morale
9. Shorter Development Time
10. Lower Costs

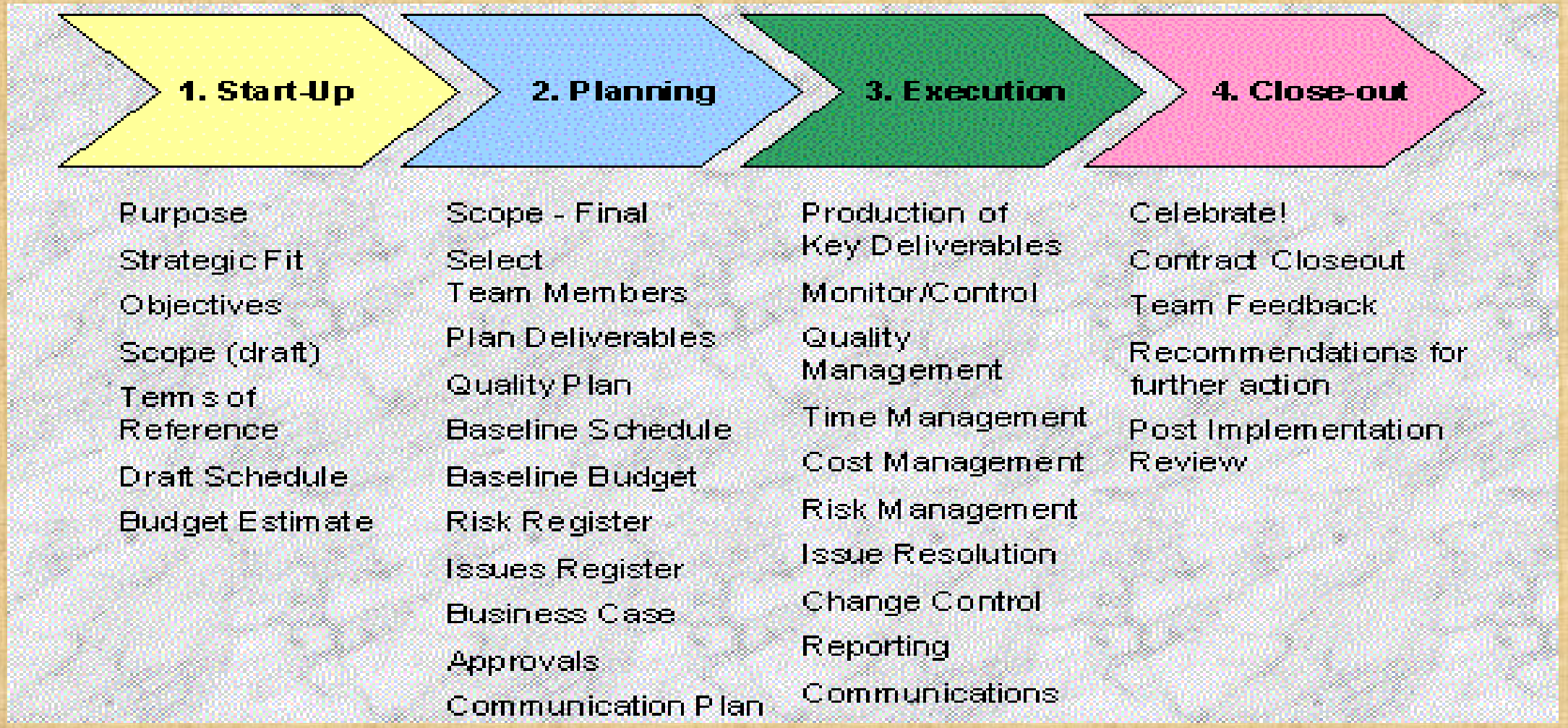
Project Management in Context of PMI

- When project is subdivided into different phases it decreases uncertainty
- Each project phase is marked by completion of one or more deliverables
- Deliverables
  - Tangible or Visible
  - Verifiable work product
  - Eg: Proposal Document, SRS Document, Prototype Completion

Project Life Cycle

- A rational Collection of Project Phases
- Marked with certain “beginning” and “ending”
- Used to link the project to the on-going operations of the performing organization

Project Life Cycle

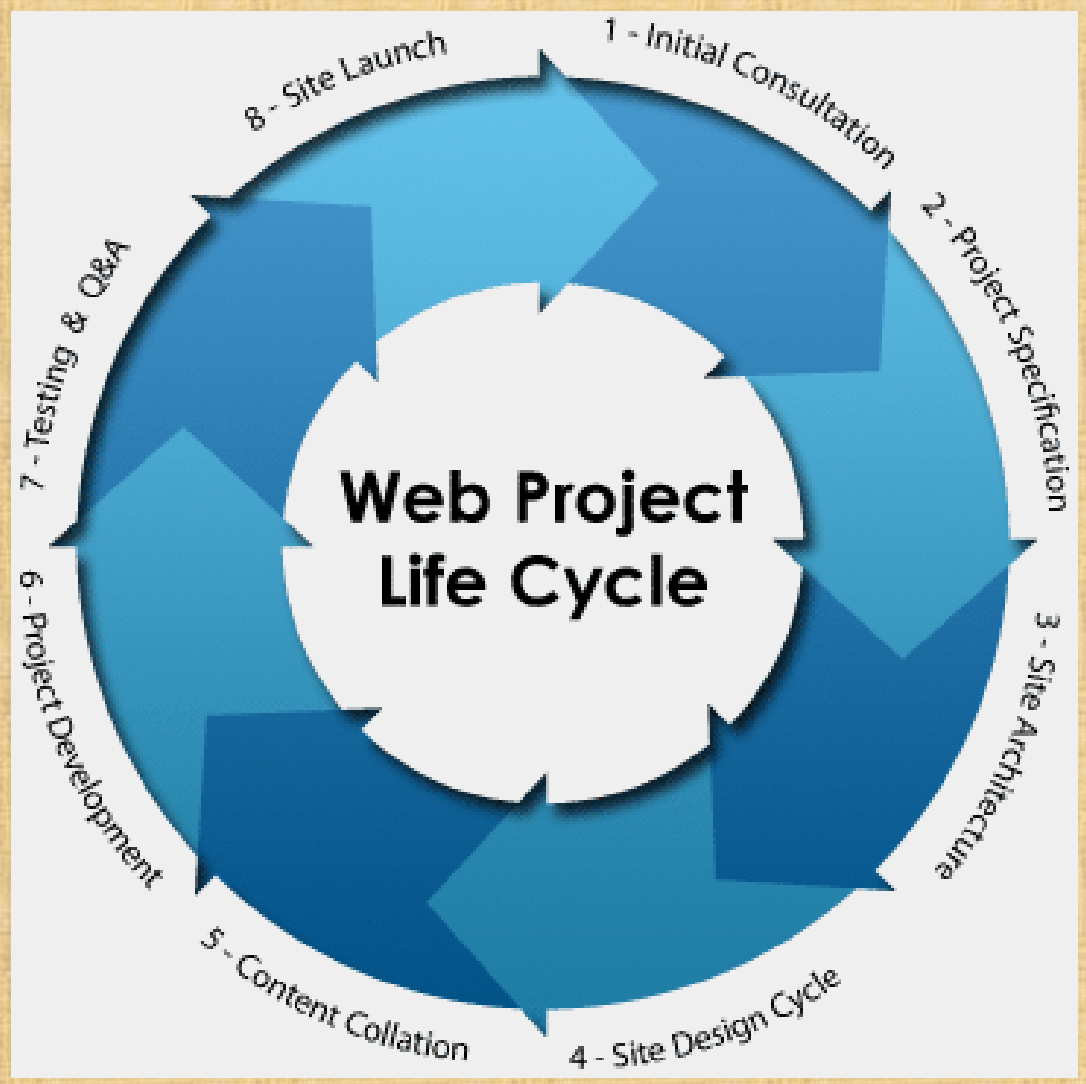


Project Life Cycle

Edinburgh Napier University Project Lifecycle

Pipeline	Initiation	Planning	Implement	Handover	Close
• High Level Requirements • **Approval to Proceed**	• Business Case • Scope • Schedule (Draft) • Project Board - identified • Project Team –identified • Baseline/KPIs • Resources both people and physical – identified • **Approval to Proceed**	• Objectives/Deliverables • Baseline/KPIs • Options • Design • Schedule and Work Packages • Communications • Testing • Resource implications • Impact on Business as usual • Training • Support • Budget • Organisation • Risks/Issues/Changes • Resilience/Business Continuity • **Approval to Proceed**	• Build & Develop • Testing • Reporting • Ongoing Planning • Meetings • Risk &Issue Management • Communications • Key Deliverables • Change Control • Training • End User Documentation • Handover • Resilience/Business Continuity • **Approval to Proceed**	• Handover to Central Desk/Campus • Lessons Learned • Project Implementation Review (PIR) • **Approval to Proceed**	• **Approval to Close**
Documentation to be produced					
	• Project Mandate	• Project Plan • Requirements Document • Test Plan • Handover Plan • Schedule (MSP)	• Project Plan (update) • Status Reports • Risk & Issue Log • Change Log • Test Log • Lesson Learned Log • Schedule (MSP update) • End User Documentation	• Lessons Learned • PIR	

Web Based Project Life Cycle



Characteristic Of Project Life Cycle

- Project should pass through each of the project phases
- Conclusion of a project phase is marked by a review on key deliverables and project performance
- Cost and staffing levels are low at start, higher toward the end and drop rapidly as the project close
- Risk and Uncertainty are highest at the start and less at the end
- Ability of the stakeholders to influence the “final characteristics of the projects product” and “final cost” is highest at the start and gets progressively lower as the project continues

Representative Project Life Cycle

- **Defense Acquisition**
  - Strategic Planning
  - Concept and Technology Development
  - System Development and Demonstration
  - Production and Deployment
  - Support
- **Construction**
  - Feasibility Study
  - Planning and Design
  - Construction
  - Turnover and Startup

Representative Project Life Cycle

- **Government Office**
  - Feasibility Study
  - Concept and Technology Development
  - System Development and Demonstration
  - Production and Deployment
  - Support
- **Pharmaceuticals**
  - Discovery and Screening
  - Preclinical Development
  - Registration workup
  - Post-submission Activity

Representative Project Life Cycle

- **Software Development (Spiral)**
  - Proof-of-concept cycle
  - First-build cycle
  - Second-build cycle
  - Final Cycle
- **Software Development (Waterfall)**
  - Concept
  - Analysis
  - Requirements
  - Design and Development
  - Programming
  - Testing
  - Verification
  - Maintenance

IT Product Development Life Cycle

- Products also have life cycles and most IT systems are developed as a series of projects
- The Software Development Life Cycle(SDLC) is a product development framework for describing the phases involved in developing and maintaining information systems

IT Product Development Life Cycle

System Development Projects can follow:

- Predictive Models
  - The scope of the product can be clearly articulated at start and the schedule and cost can be predicted.
  - E.g.: Waterfall, Spiral, RAD etc.
- Adaptive Models
  - Products are mission driven and component based, using time-based cycles to meet target dates
  - E.g.: Extreme Programming (XP), Scram, Agile etc.
- Assignments
  - Write an article on : RAD, Extreme Programming (XP), Scram, Agile

Product Life Cycle vs. Project Life Cycle

- Project life cycles is applied to all projects, regardless of the products being produced
- Product Life Cycle models vary considerably based on the nature of the product
- Most IT Systems are developed as a series of projects
- Project Management is performed in all of the product life cycle phases

System Development Methodology

- SDLC Examples
  - Waterfall
  - Spiral
  - Incremental
  - Prototype
  - Iterative
  - Test Driven Development
  - Scrum
  - Rational Unified Process
  - Rapid Application Development
  - Feature Driven Development
  - Aspect Oriented Programming
  - Agile
  - Microsoft Solution Framework
  - Lean Model

Choosing a Development Methodology

- Based on requirements and technology considerations classify the projects using following table:

		Requirements	
		Stable	Unstable
Technology	Novel	Agile & Plan Based Iterative Model	Agile & Lean Based Iterative Model
	Well-Known	Plan Based Iterative Model	Lean & Plan Based Iterative Model

System Development Methodology

General Suggestion for all Project types:

- Adopt and develop reusable framework
- Iterate as frequently as possible without incurring too much overhead in terms of delivery and deployment efforts
- Do not underestimate in house QA efforts
- In case of distributed teams, practice common integration
- Measure quality and progress using purposeful metrics
- Practice frequent “meaningful hi-fidelity communication”

Roles and Responsibilities of Key Project Members

Project Sponsor

- Rally Support from Stakeholders & Executive Management for the Team
- Has Power and Authorities to make Decisions & Settle Disputes/Conflicts
- High Involvement during Initiation and Planning
- Possible Candidates:
  - Executive Director
  - Director Finance

Project Manager

- Overall responsibilities for Project Success
- Keeping Perspective
- Project Planning, Executing & Managing
- Setting & Maintaining Standards & Policies
- Resource Utilization & Performance Management
- Ensuring Win-Win Situation
- Possible Candidates:
  - Senior Manager
  - General Manager

Roles and Responsibilities of Key Project Members

Project Champion

- Helps focus attention on the project from technical perspective
- Usually someone with a great deal of technical expertise and industrial knowledge
- Possible Candidate:
  - Manager Technical
  - CTO
  - Technical Lead

Functional Manager

- Provide all necessary support services to the project including purchases
- Managing HR and Administration of the performing organization
- In case of IT Projects, Finance Manager performs duties of Functional Manager

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- Project Management: A Systems Approach to Planning, Scheduling and Controlling, Harold Kerzner, 1987, CBS Publishers, New Delhi.
- Lecture Notes of MSTIM, Pulchowk Campus by Dr. Rajendra Prasad Adhikari.
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Thank You

Have a nice day!