Information Technology Project Management – Fifth Edition

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Project Methodologies and Processes

Chapter 2

Learning Objectives

- Define what a methodology is and describe the role it serves in IT projects.
- Describe the project life cycle (PLC).
- Describe the Project Management Body of Knowledge (PMBOK®) and be familiar with its knowledge areas and process groups.
- Describe PRINCE2® and be familiar with its core principles, processes, and themes.
- Describe the Systems Development Life Cycle (SDLC).
- Describe the Waterfall method for developing the project's product or system.
- Describe the Agile approach for developing the project's product or system as well as two commonly used approaches called eXtreme Programming (XP) and Scrum..
- Describe and apply the concept of Leaning Cycles and lessons learned.

Introduction

- Project Methodology
  - A strategic-level plan for managing and controlling the project
  - Game plan for implementing project and product lifecycles
  - Recommends phases, processes, tools, and techniques for supporting an IT project
  - Must be flexible and include “best practices” learned from experiences over time.
- Can be
  - Traditional (e.g., Waterfall)
  - Agile (e.g., XPM, SCRUM)

The Project Life Cycle

Collection of logical stages or phases that

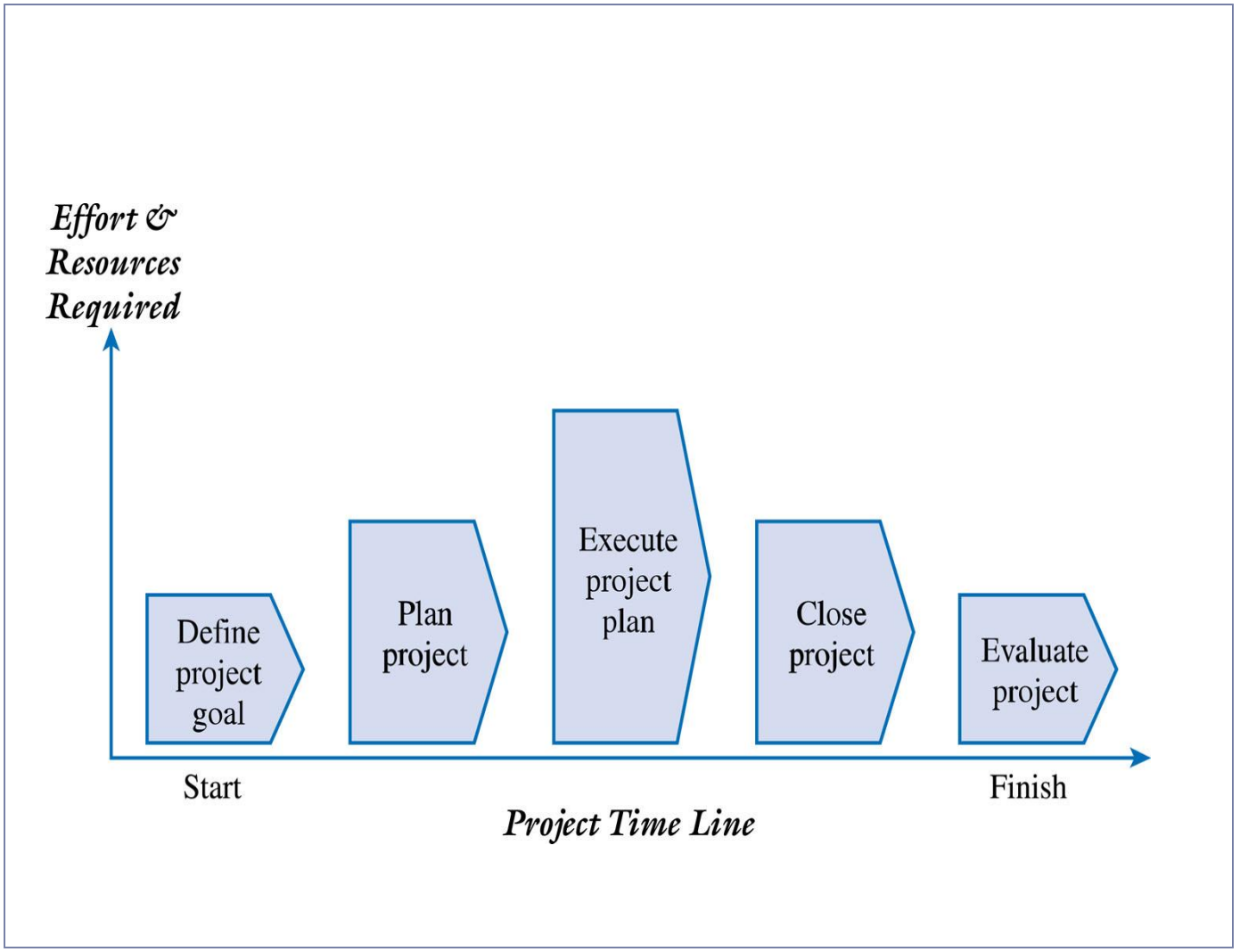
- maps the life of a project
- from its beginning, through its middle, to its end,
- to define, build, and deliver the product.

Project Phases

- Phase Exits, Stage Gates, Kill Points
  - These are the phase-end review of key deliverables
  - Allows the organization to evaluate project performance and take immediate action to correct errors or problems

- Fast Tracking
  - Starting the next phase of a project before approval is obtained for the current phase
  - Can be used to reduce the project schedule
  - Can be risky and should only be done when the risk is acceptable

Figure 2.1 – A Generic Project Life Cycle



Project Life Cycle – Define and Plan

- Define Project Goal
  - The project goal should be focused on providing business value to the organization
  - Provides a clear focus and drives the other phases of the project
  - How will we know if this project is successful given the time, money, and resources invested?

- Plan Project
  - Project Objectives
  - Resources
  - Controls

Project Life Cycle – Execute, Close, and Evaluate

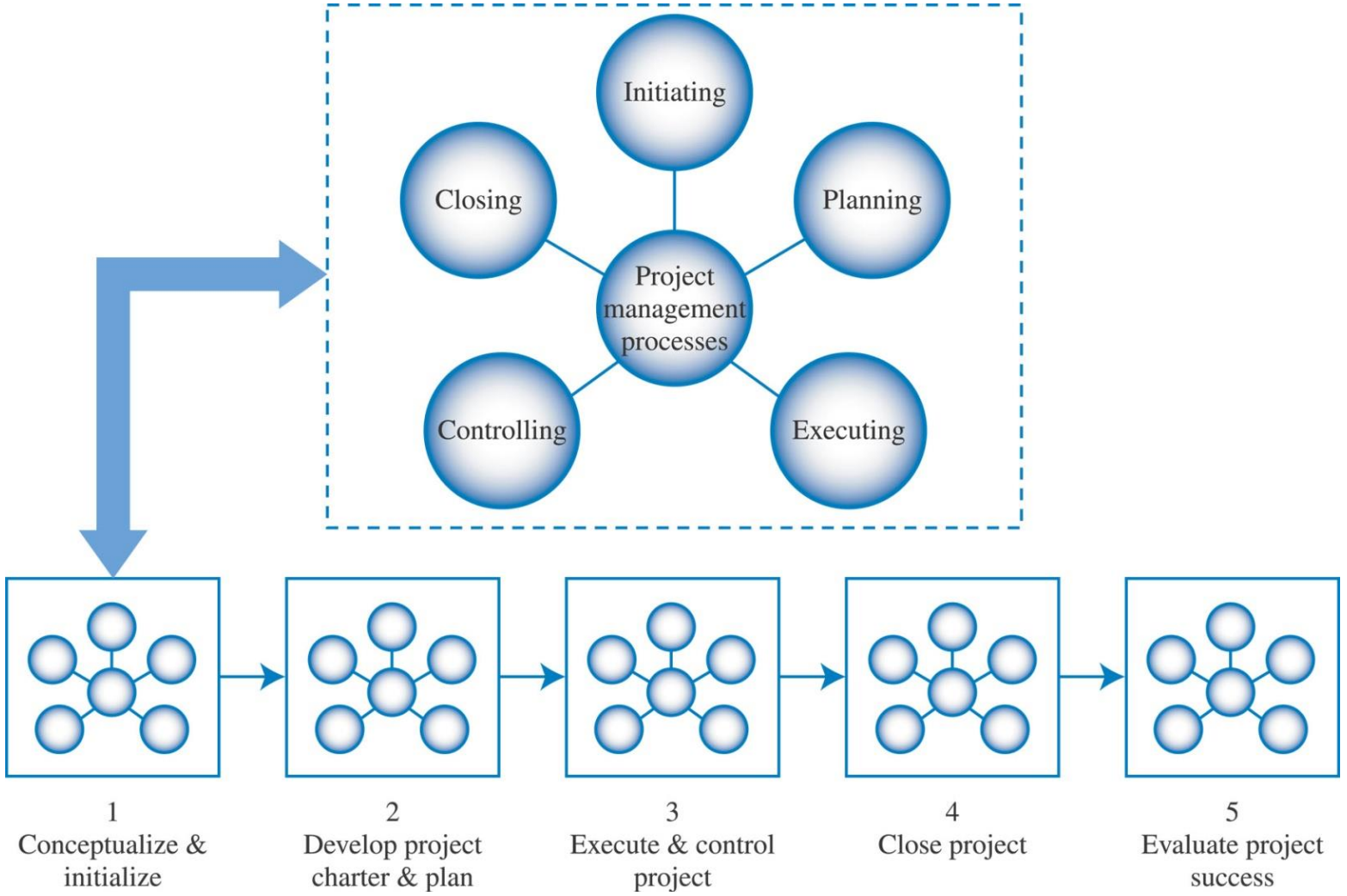
- Execute Project Plan
  - Manage the project scope, schedule, budget, and people to ensure the project achieves its goal
  - Progress must be documented and compared to the baseline plan
  - Project performance must be communicated to all of the stakeholders
- Close and Evaluate Project
  - Ensures that all of the work is completed as planned
  - Final project report and presentation to the client
  - Postmortem review
  - Lessons learned and best practices documented and shared

Figure 2.2 – The PMBOK® Guide – The 10 Project Management Knowledge Areas

PMBOK® Guide – The 10 Project Management Knowledge Areas

1. Project integration management
2. Project scope management
3. Project time management
4. Project cost management
5. Project quality management
6. Project human resource management
7. Project communications management
8. Project risk management
9. Project procurement management
10. Project stakeholder management

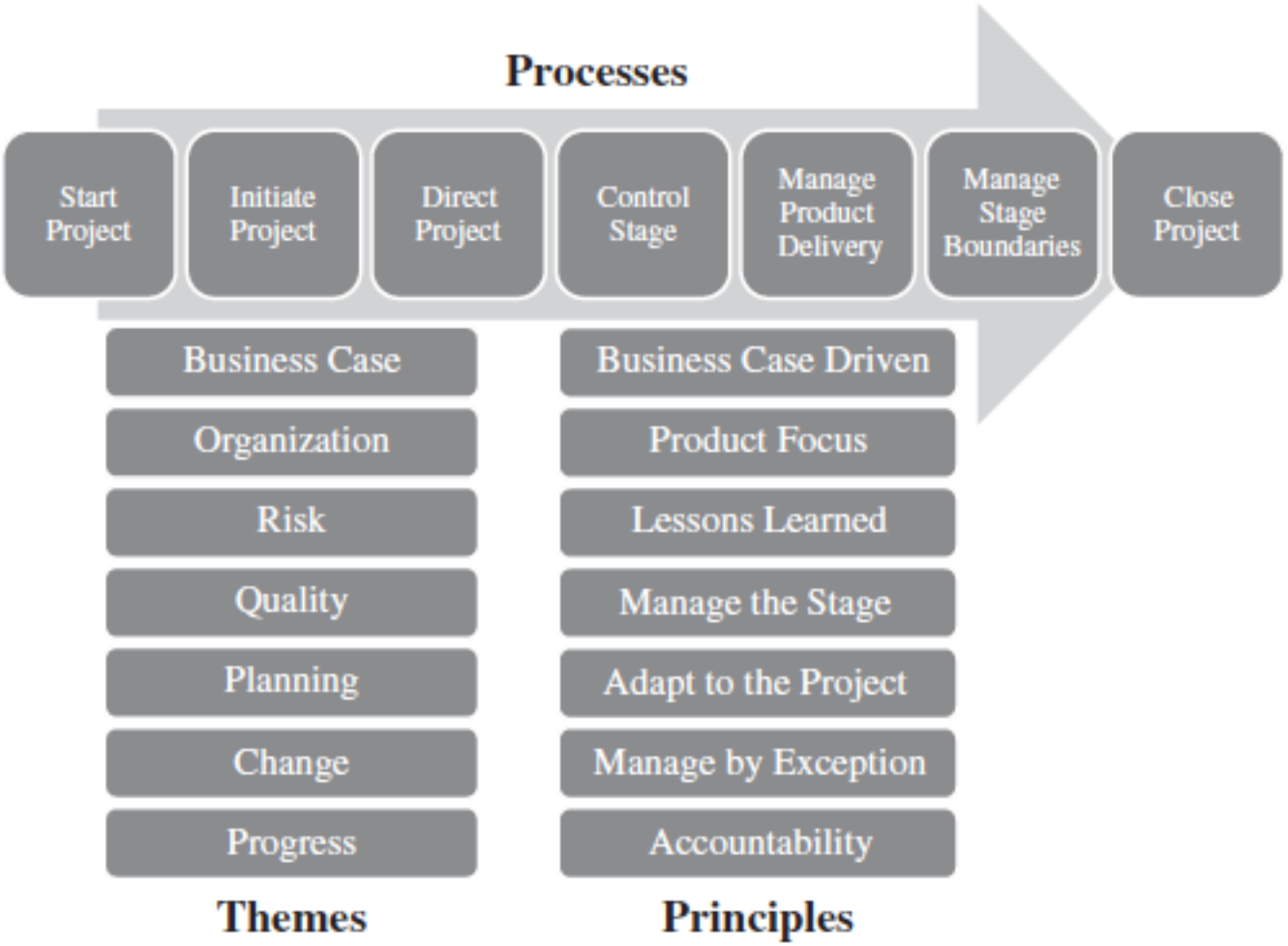
Figure 2.3 – PMBOK® Project Management Process Groups



The Five (5) PMBOK® Project Management Process Groups

1. Initiating
2. Planning
3. Executing
4. Monitoring and Controlling
5. Closing

Figure 2-4 – PRINCE2® – The Seven (7) Processes



The PRINCE2® – Seven (7) Processes

PRINCE2® = **P**rojects **IN** **C**ontrolled **E**nvironments

1. Start Project
2. Initiate Project
3. Direct Project
4. Control Stage
5. Manage Product Delivery
6. Manage Stage Boundaries
7. Close Project

The PRINCE2® – Themes (guidelines to aid project goal achievement)

PRINCE2® = **P**rojects **IN** **C**ontrolled **E**nvironments

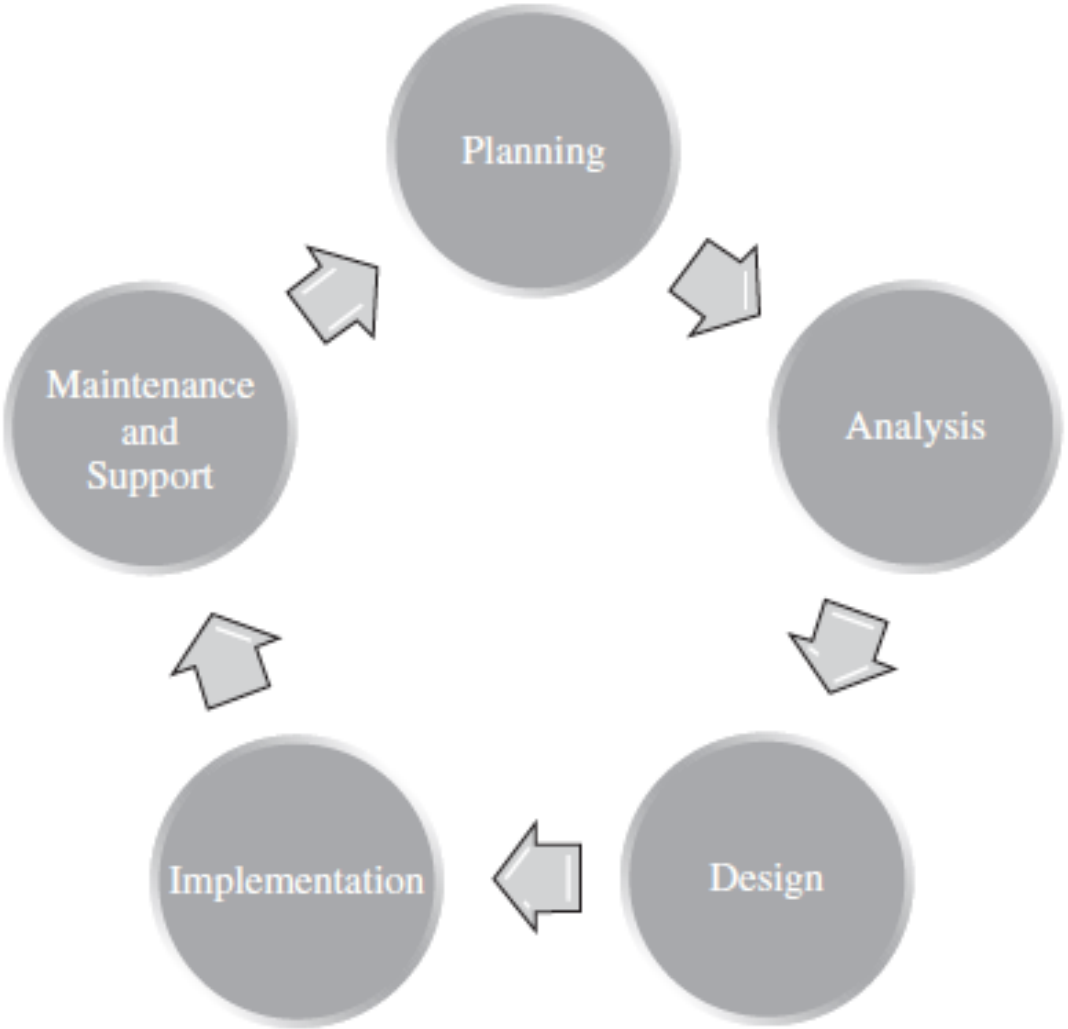
1. Business Case
2. Organization
3. Risk
4. Quality
5. Planning
6. Change
7. Progress

The PRINCE2® – Principles (Universal guidance for all projects)

PRINCE2® = **P**rojects **IN** **C**ontrolled **E**nvironments

1. Business Case Driven
2. Product Focus
3. Lessons Learned
4. Manage the Stage
5. Adapt to the Project
6. Manage by Exception
7. Accountability

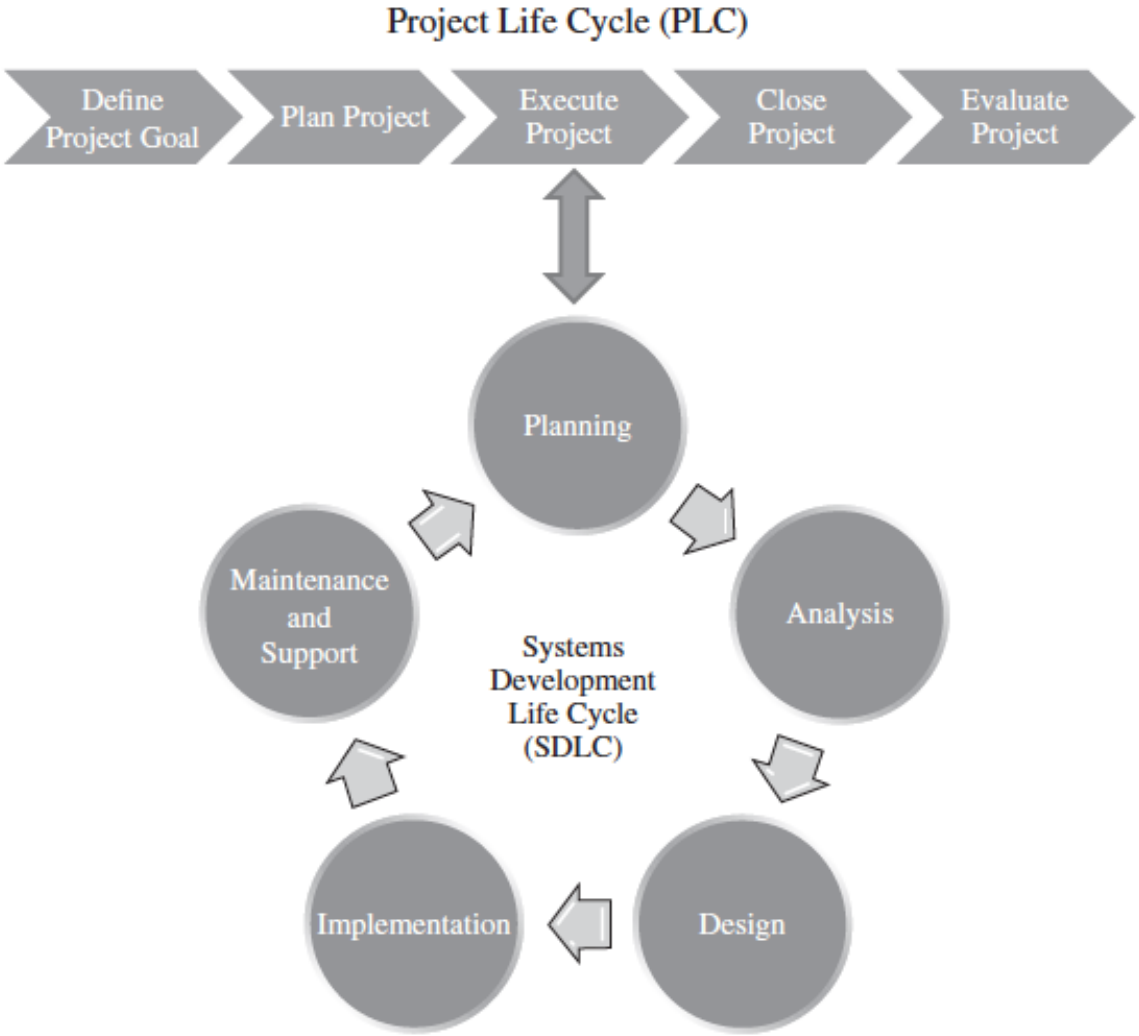
Figure 2.5 The Systems Development Life Cycle



Systems Development Life Cycle (SDLC)

- Planning
- Analysis
- Design
- Implementation
- Maintenance and Support

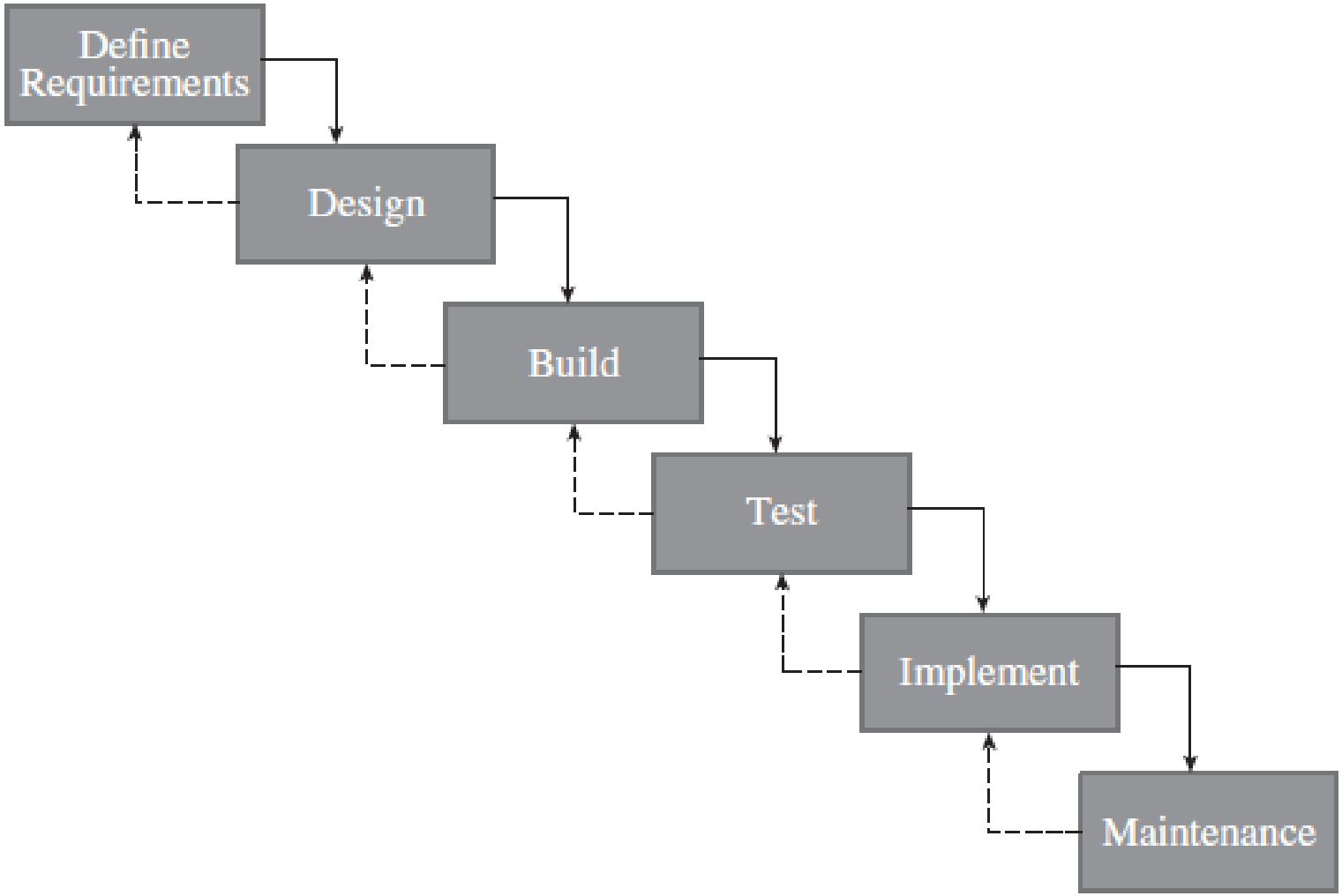
Figure 2.6 – The Project Life Cycle (PLC) and the Systems Development Life Cycle (SDLC)



Implementing the SDLC

- Defines all of the subphases and deliverables associated with the Execute and Control Project Management Life Cycle phase.
- Number of Ways to implement the SDLC
  - Waterfall
  - Agile

Figure 2.7 – The Waterfall Model



Agile Systems Development – What is Agile?

- Condenses the SDLC into an iteration or sprint
- Users and developers work closely together to define and prioritize important (“must have”) features
- Emphasize working software to measure progress and rely heavily on face-to-face communication
- Umbrella term that includes a number of approaches or methods

Figure 2.8 – The Agile Manifesto

Manifesto for Agile Software Development

We are uncovering better ways of developing
software by doing it and helping others do it.
Through this work we have come to value:

Individuals and interactions over processes and tools
Working software over comprehensive documentation
Customer collaboration over contract negotiation
Responding to change over following a plan

That is, while there is value in the items on
the right, we value the items on the left more.

Kent Beck
Mike Beedle
Arie van Bennekum
Alistair Cockburn
Ward Cunningham
Martin Fowler

James Grenning
Jim Highsmith
Andrew Hunt
Ron Jeffries
Jon Kern
Brian Marick

Robert C. Martin
Steve Mellor
Ken Schwaber
Jeff Sutherland
Dave Thomas

Agile Systems Development – Four (4) Themes or Categories

- Customer
- Product
- Project Team
- Performance

Agile Methods: Extreme Programming (XP) and Scrum

- Methods for project management that are becoming increasingly popular
- Characterize many of today's projects that exemplify speed, uncertainty, changing requirements, and high risks
- XP
  - User requirements first documented as user stories
  - Document user stories in an object oriented model called a class diagram
  - Transfers the system in a series of versions called releases
- Scrum
  - Three important roles:
    - Scrum master – similar to project manager
    - Product owner – represents the business side, ensures the most important features are included
    - Development team – responsible for delivering a quality product or system
  - Product backlog – team prioritizes features that need to be developed/delivered
  - Sprint – iterations lasting a few weeks (usually) and delivers a complete product
  - Daily scrum – short stand-up meeting

Figure 2.10 – A Learning Cycle

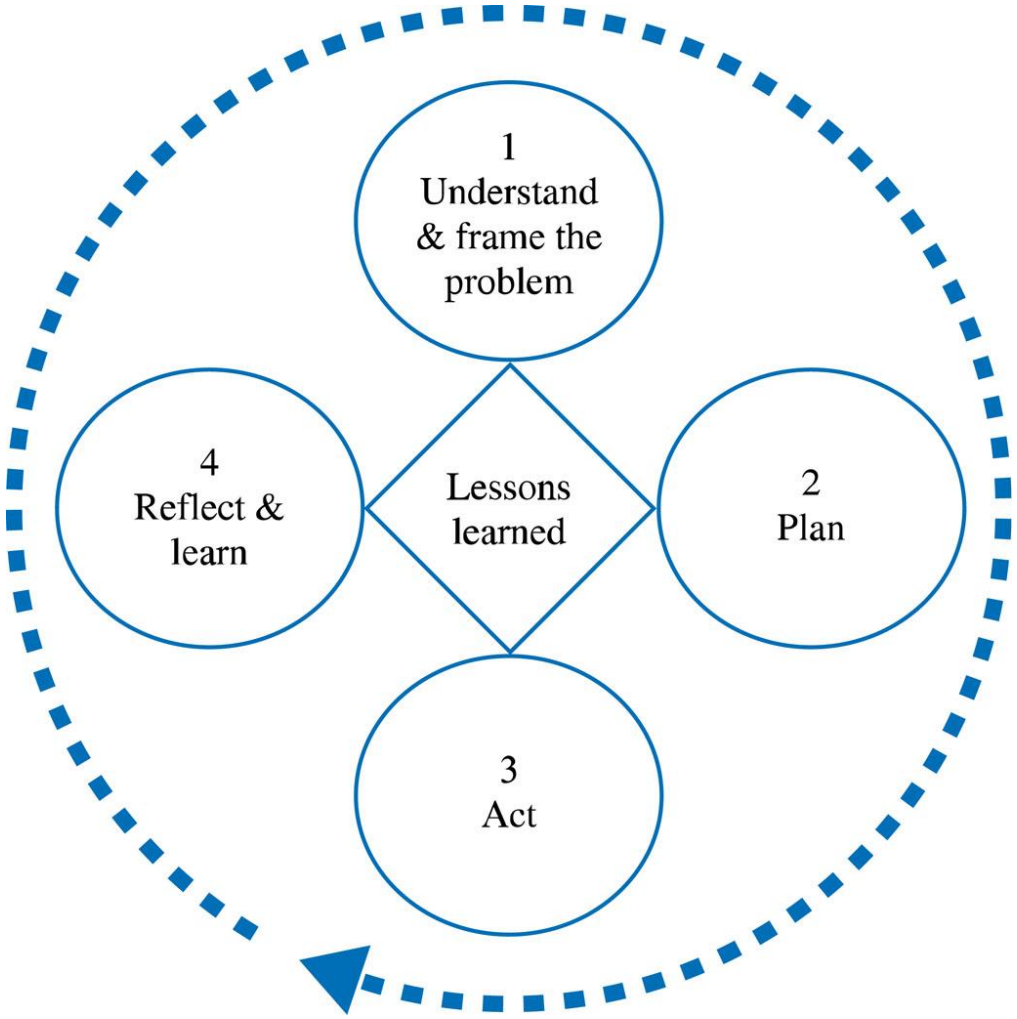


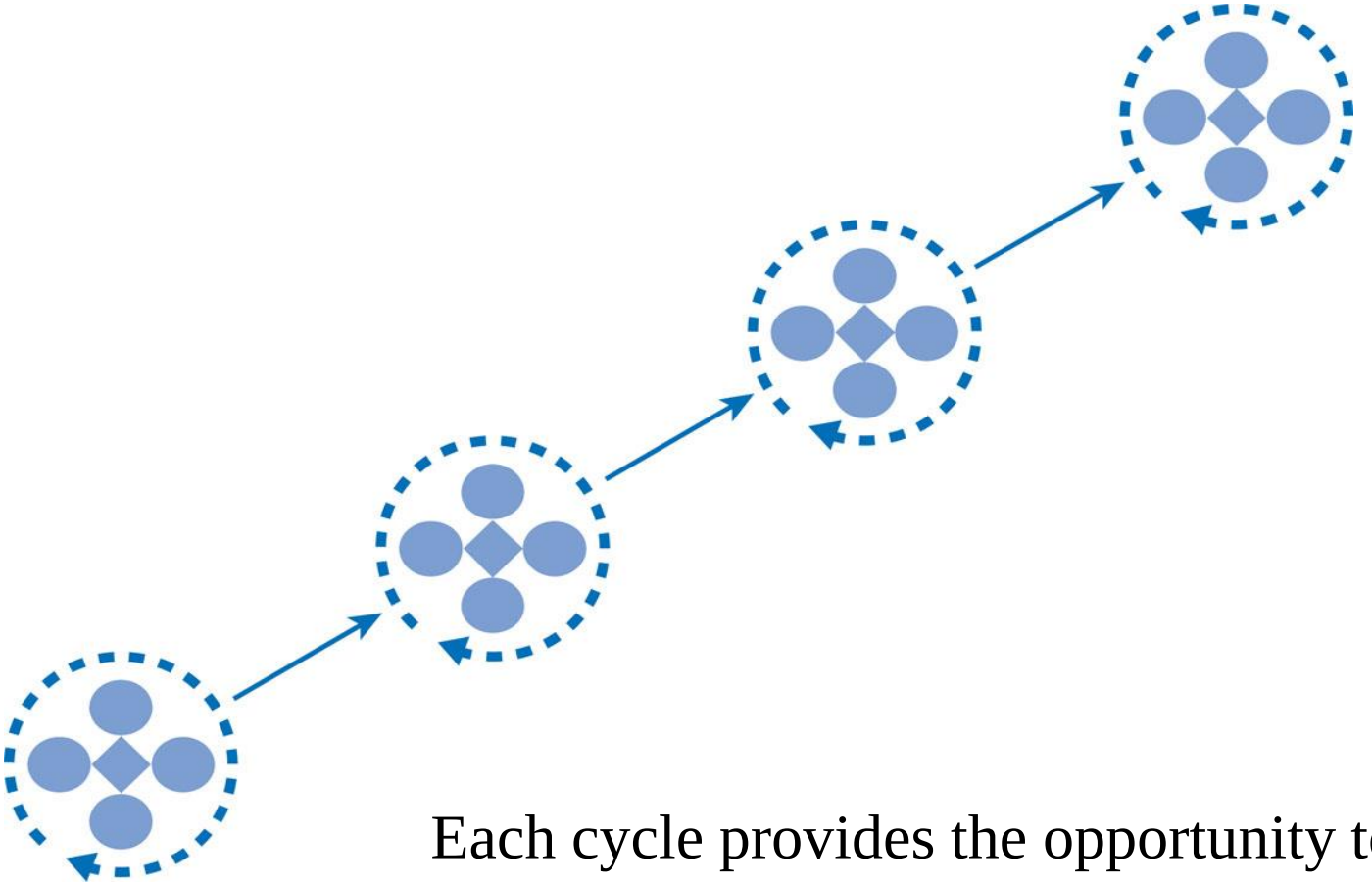
Figure 2.11 – An Example of a Team Learning Record

What we know (Facts)	What we think we know (Assumptions)	What we don't know (Questions to be Answered)
Company has too much inventory on hand	It may be an efficiency problem	Why are inventory levels so high?
Cost of maintaining current inventory is becoming prohibitive	Management believes a new information system will improve efficiency and therefore lower inventory levels	What are the current levels of inventory?
Inventory turnover needs to be increased		What is the desired level of inventory?

Figure 2.12 – An Example of an Action Plan

Who?	Does What?	By When?
Shedelle and Steve	Interview sales team to understand past, current, and future trends for the company's product.	Tuesday
Myra	Provide a detailed count of the current physical inventory on hand.	Thursday
Corean	Research potential inventory management system commercial packages	Thursday
Steve	Research average inventory levels for the industry	Wednesday

Figure 2.13 – Team Learning Cycles over the Project Life Cycle



Each cycle provides the opportunity to challenge framing assumptions, create new understanding & find radical solutions

Team Learning