Chapter 3: Managing the Object-Oriented Information Systems Project

- *Managing an OOSAD Project*
- *Representing and Scheduling Project Plans*
- *Constructing a Gantt Chart and Network Diagram for an OOSAD Project in Microsoft Project*

Chapter Objectives

- After studying this chapter you should be able to:
  - Describe the skills required to be an effective project manager.
  - Describe the unique characteristics of an OOSAD project.

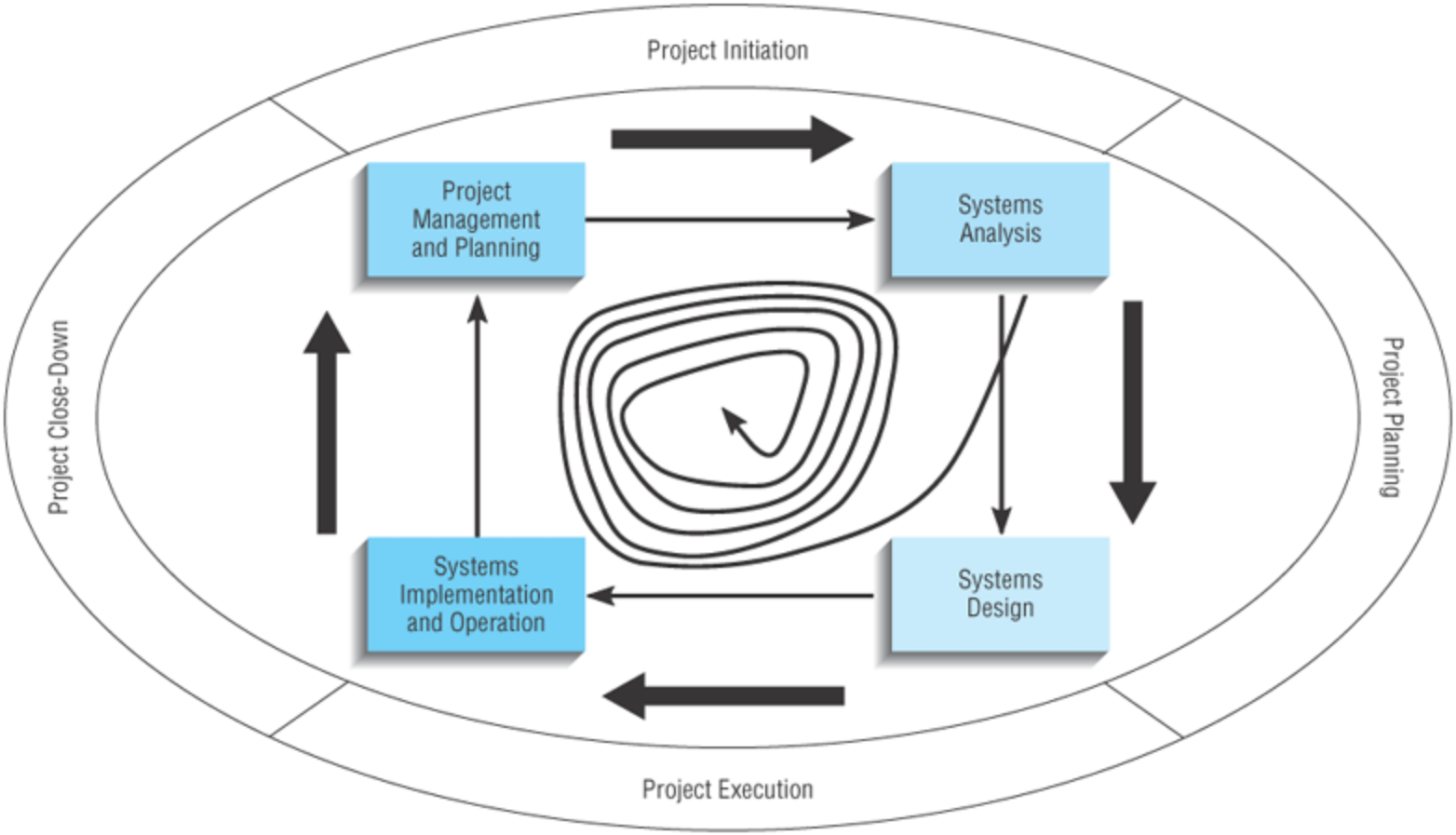
Chapter Objectives (Continued)

- After studying this chapter you should be able to:
  - List and describe the skills and activities of a project manager through:
    - Initiation
    - Planning
    - Execution
    - Close-down

Chapter Objectives (Continued)

- After studying this chapter you should be able to:
  - Explain critical path scheduling, Gantt charts, Network diagrams.
  - Explain how commercial software packages can help with project management tasks.

Figure 3.1 Project Management Occurs Throughout the Systems Development Cycle (SDC)



Managing an OOSAD project

- Project Management is an important aspect of the development of IS tems and an important skill for a SA
- FOCUS : To ensure that systems development projects meet customer expectations and are delivered within budget and time constraints.
- PROJECT MANAGER - a SA with a diverse set of skills – management, leadership, technical, conflict management and customer relations – who is responsible for initiating, planning, executing and closing down a project.

Managing an OOSAD project (cont.)

- PROJECT – a planned undertaking of series of related activities to reach an objective that has a beginning and an end.
- Project manager must determine which projects to address.
- Typically, a request is made to a project review board (or some other decision-making authority) that selects and prioritizes projects.
- Most organizations use a formal report, called a Systems Service Request (SSR), to make project request. (Figure 3.2)

Managing an OOSAD project (cont.)

- The review board is used to evaluate all project request in relation to the business problems or opportunities the system will solve or create.
- The review board selects those projects that best meet overall organizational goals.
- Once selected, the PM examines the project more carefully to see if it makes sense for the organization fro an economic and operational standpoint – FEASIBILITY STUDY.

Managing an OOSAD project (cont.)

- Systems development project are undertaken fro 2 primary reasons :
  1. To take advantage of business opportunities
  2. To solve business problems.

Activities and Skills of a Project Manager

- Leadership
- Management
- Customer relations
- Technical problem solving
- Conflict management
- Team management
- Risk and change management

LEADERSHIP

- Influencing the activities of others towards the attainment of a common goal through the use of intelligence, personality and abilities

- SKILLS – communication, liasion between management, users and developers, assigning activities, monitoring progress.

MANAGEMENT

- Getting projects complete through the effective utilization of resources

- SKILL – delining and sequencing activities, communicating expectations, assigning resources to activities, monitoring outcomes.

CUSTOMER RELATIONS

- Working closely with customers to assure project deliverables meet expectations.
- SKILLS – interpreting systems requests and specifications, site preparation and user training, contact point for customers.

TECHNICAL PROBLEM SOLVING

- Designing and sequencing activities to attain project goals.

- SKILL – interpreting system requests and specifications, defining activities and their sequence, making trade-offs between alternative solutions, designing solutions to problems.

CONFLICT MANAGEMENT

- Managing conflict within a project team to assure that conflict is not too high or too low.

- SKILL – problem solving, smoothing out personality differences, compromising, goal setting.

LEARN MANAGEMENT

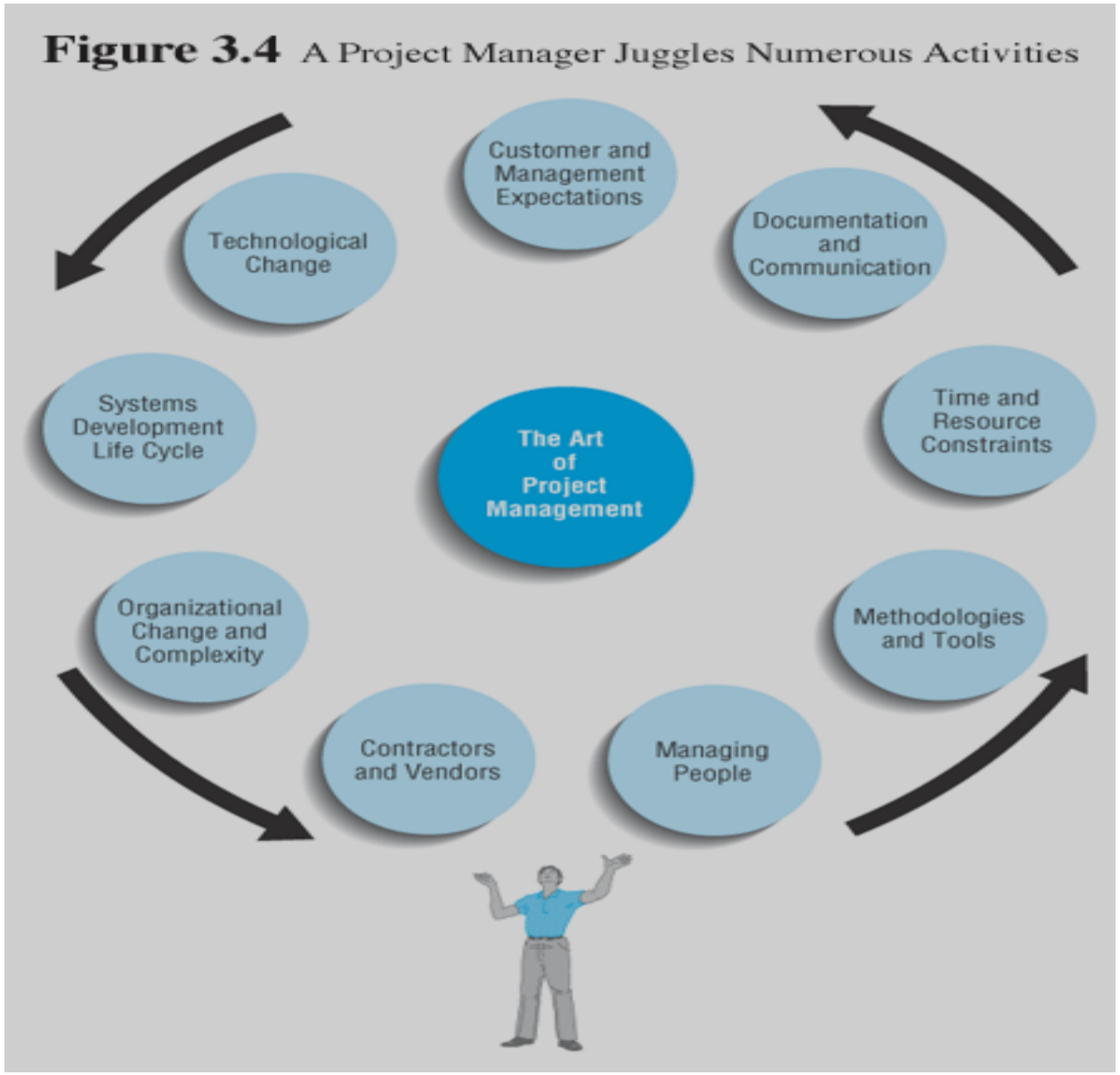
- Managing the project team for effective team performance.

- SKILL – communication within and between teams, peer evaluations, conflict resolution, team building, self-management.

RISK AND CHANGE MANAGEMENT

- Identifying, assessing, and managing the risks and day-to-day changes that occur during a project.

- SKILL – environmental scanning, risk and opportunity identification and assessment, forecasting, resource redeployment.



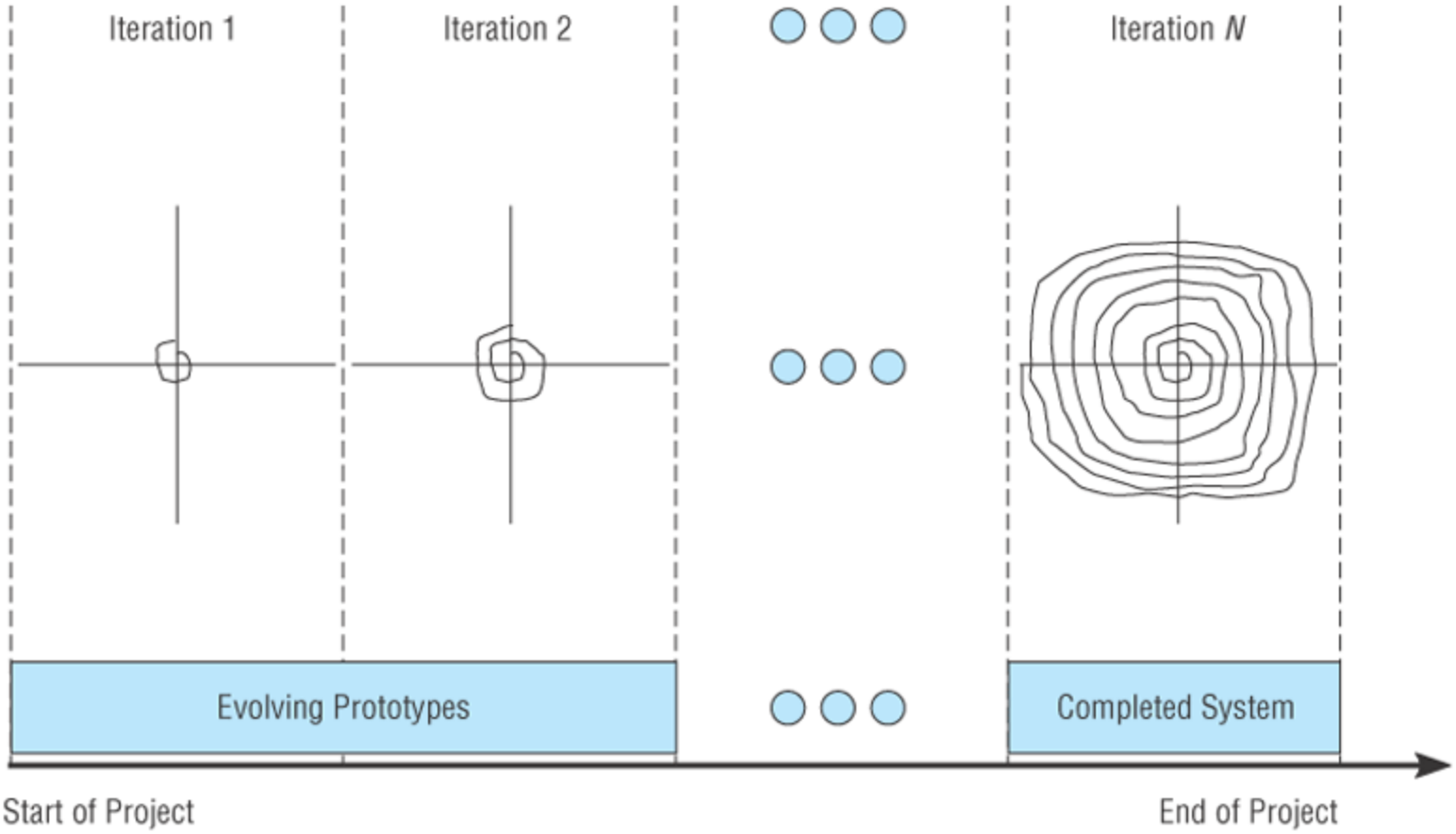
Project management is as much an art as a science

- Project Manager often is referred to as a juggler keeping many balls aloft, the bal reflect the various aspect of a project's development.

The OOSAD System Development Process

- In OOSAD, the entire SDC repeats itself over several iterations.
- Each iteration distributes the focus on its own set of SDC phases, but in each iteration all SDC phases are addressed to some extent.
- In this way, the system evolves incrementally so that by the last iteration of the project, the entire system is completed.
- In order for the system to evolve in this manner, the project manager must understand several unique characteristics of an OOSAD project.

Figure 3.5 During the OOSAD Process, the System Evolves Incrementally over the Life of the Project



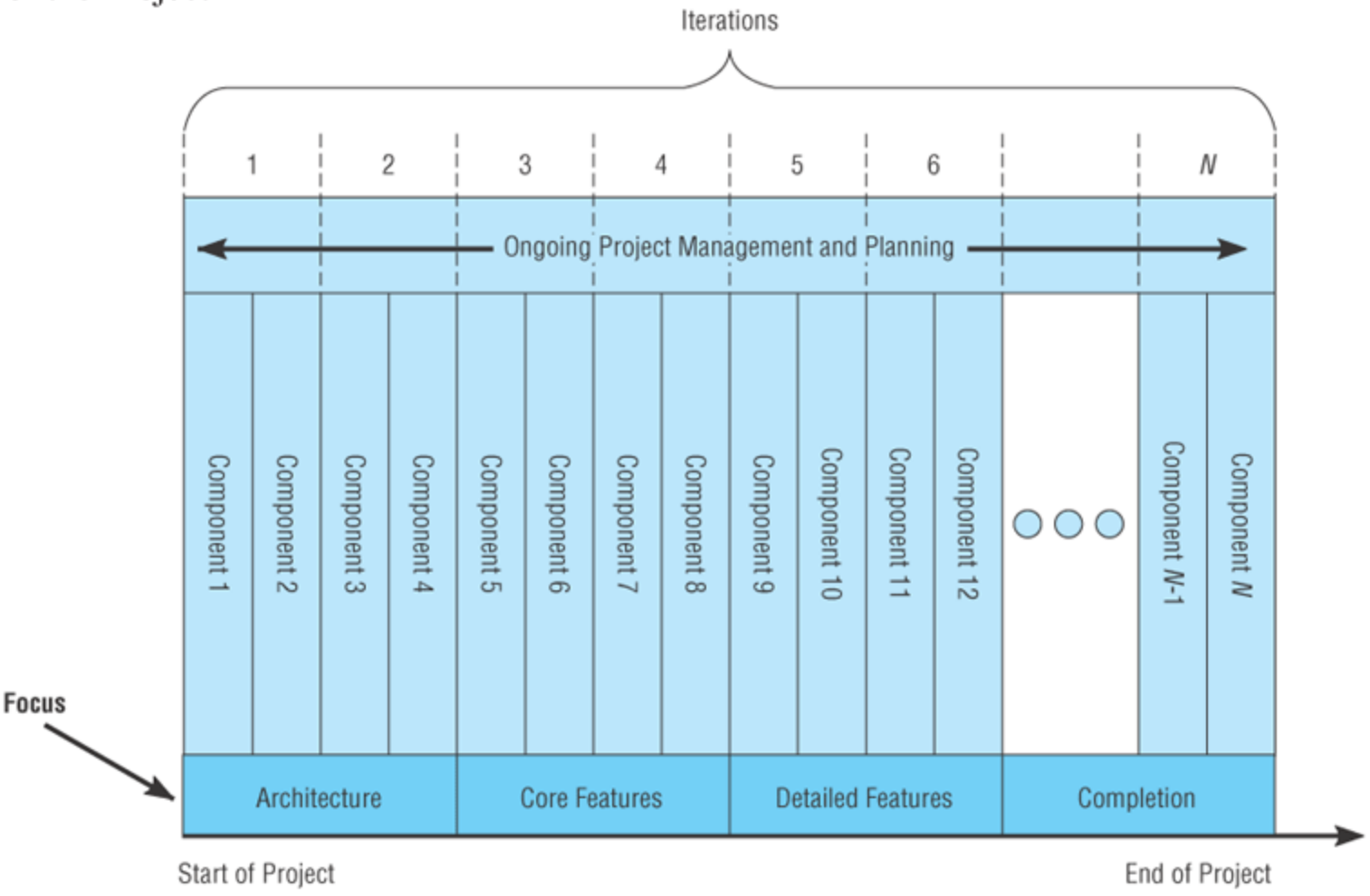
Define the system as a set of components

- In order to manage the project as a series of iterations, the project manager must subdivide the overall system into a set of components.
- Each of these separate system components often is referred to as a "vertical slice" of the overall system.
- Each vertical slice represents a use case of the system.
- Project management and planning is an activity that continues throughout the life of the project.
- The components constructed earlier in the project will require greater rework than those developed later in the project.

Complete hard system first

- Another characteristics of the OOSAD approach is that it tackles the hard problems first.
- Addressing hard problems as early as possible allows the difficult problems to be examined before substantial resources have been expended.
- This mitigates project risk.
- During the final iteration phases, the primary focus is on activities that bring the project to a close. (Figure 3.7)

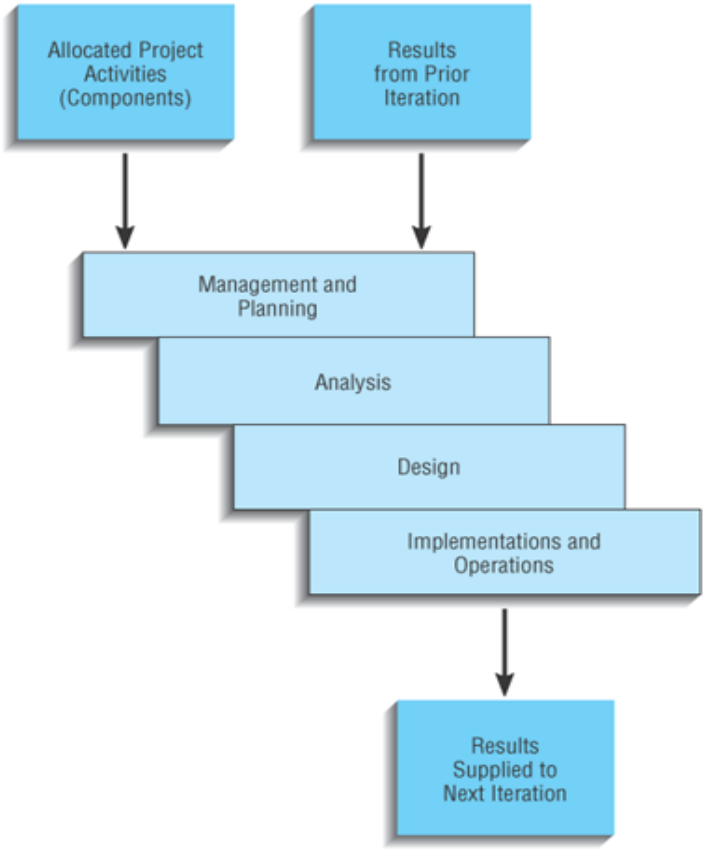
Figure 3.7 The Focus and Ordering of System Components Change over the Life of the Project



USING ITERATIONS TO MANAGE THE PROJECT

- During each project iteration, all systems development cycle activities are performed.
- Each project iteration has management and planning, analysis, design and implementation and operation activities.
- The inputs to the process are the allocated project components – vertical slices or use cases – to perform during this iteration and the results from the prior iteration. (Figure 3.8)

Figure 3.8 The Workflow of an Iteration



Source: Adapted from Royce, 1998.

Each iteration involves a workflow, consisting of SDC steps.

Figure 3.7 The Focus and Ordering of System Components Change over the Life of the Project

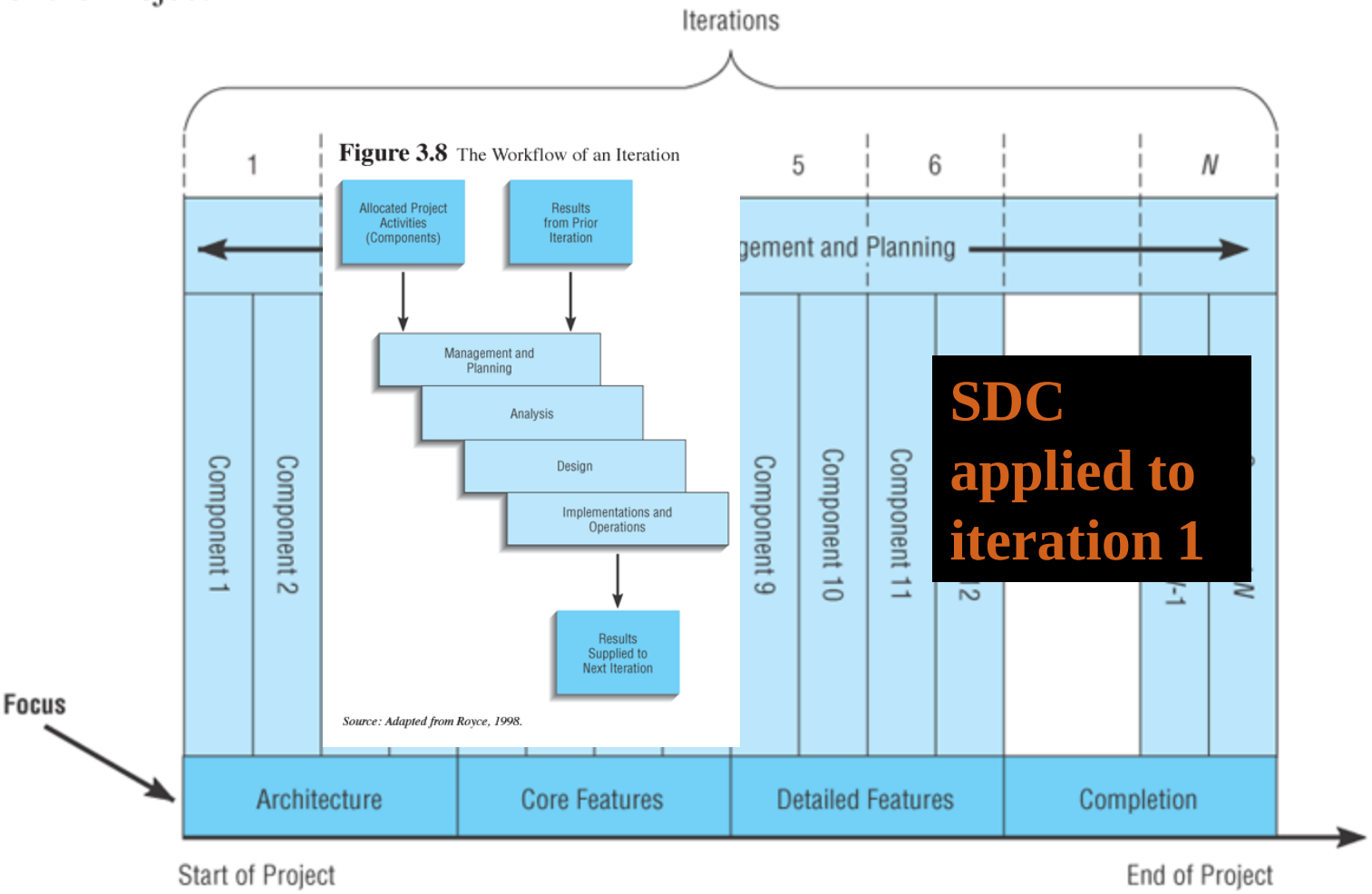
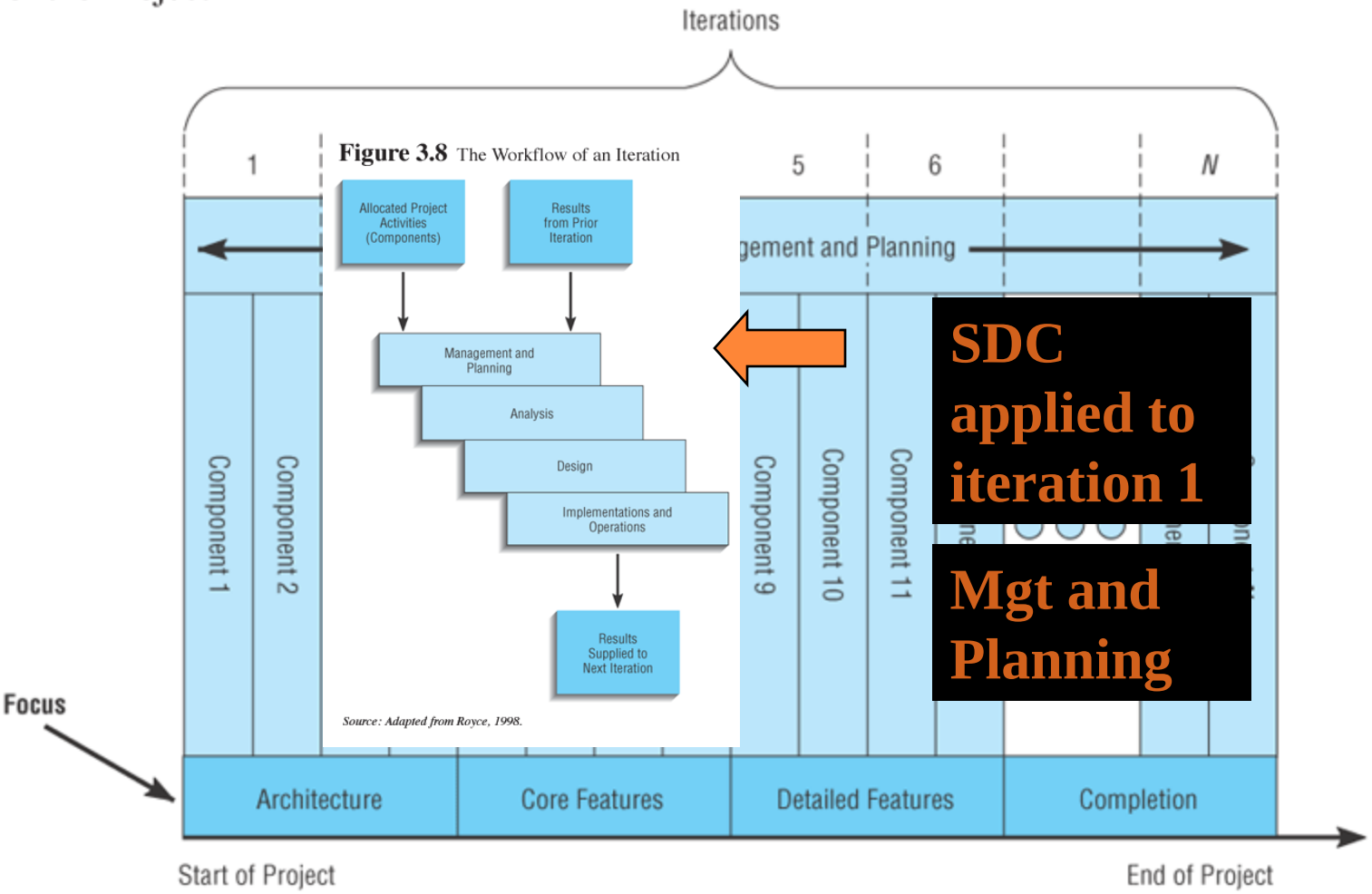


Figure 3.8 The Workflow of an Iteration

Source: Adapted from Royce, 1998.

SDC applied to iteration 1

Figure 3.7 The Focus and Ordering of System Components Change over the Life of the Project



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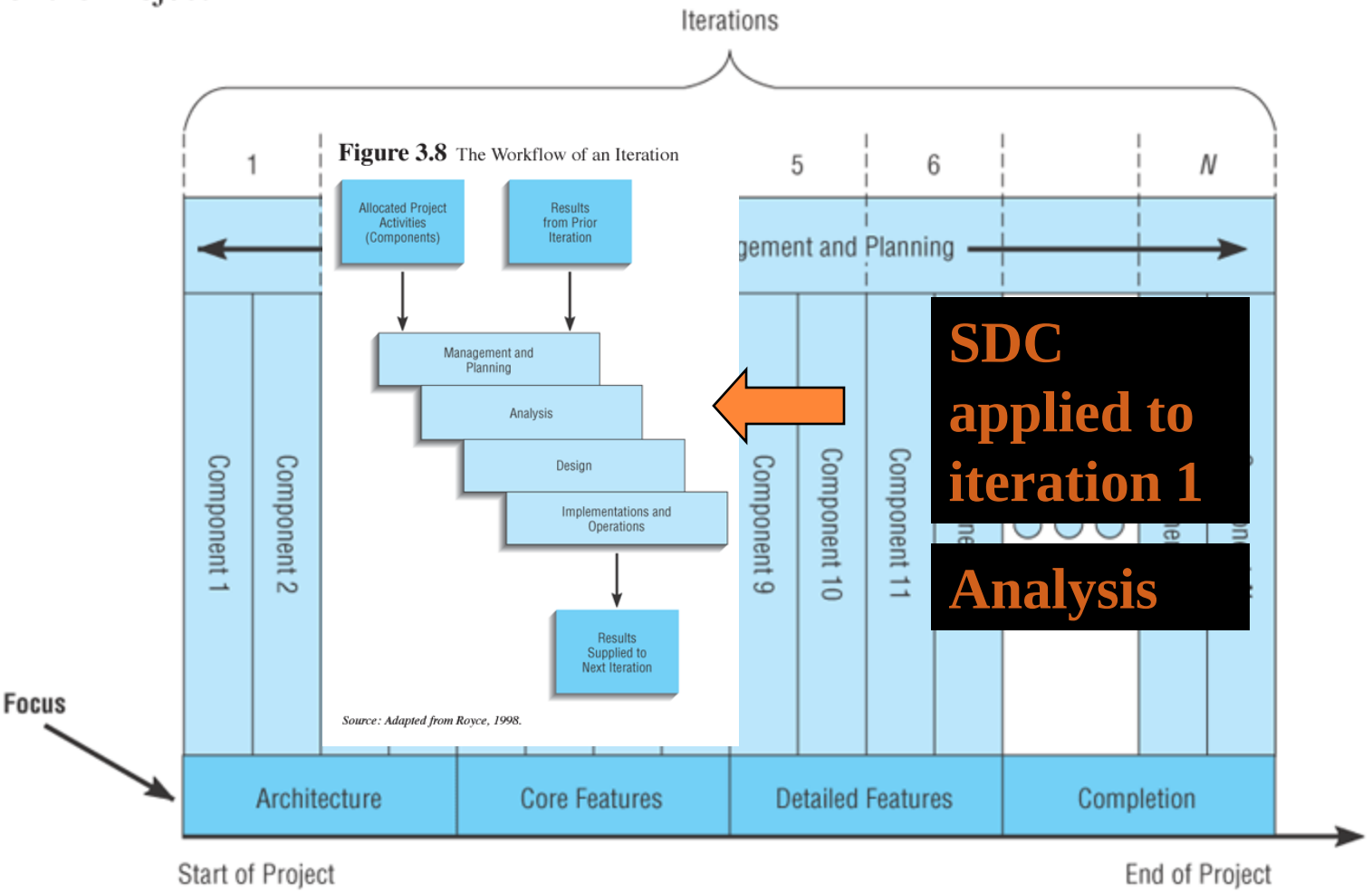

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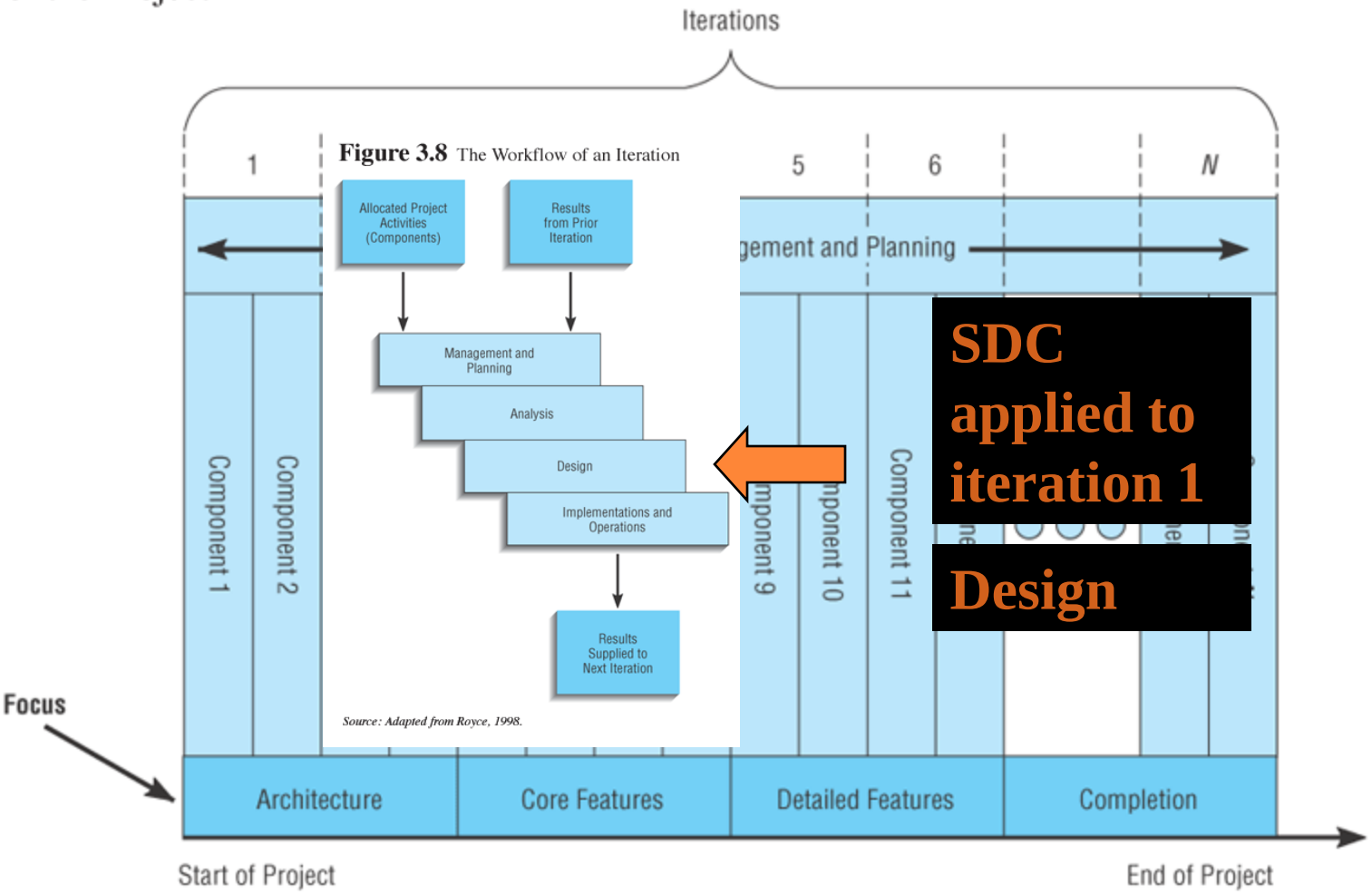

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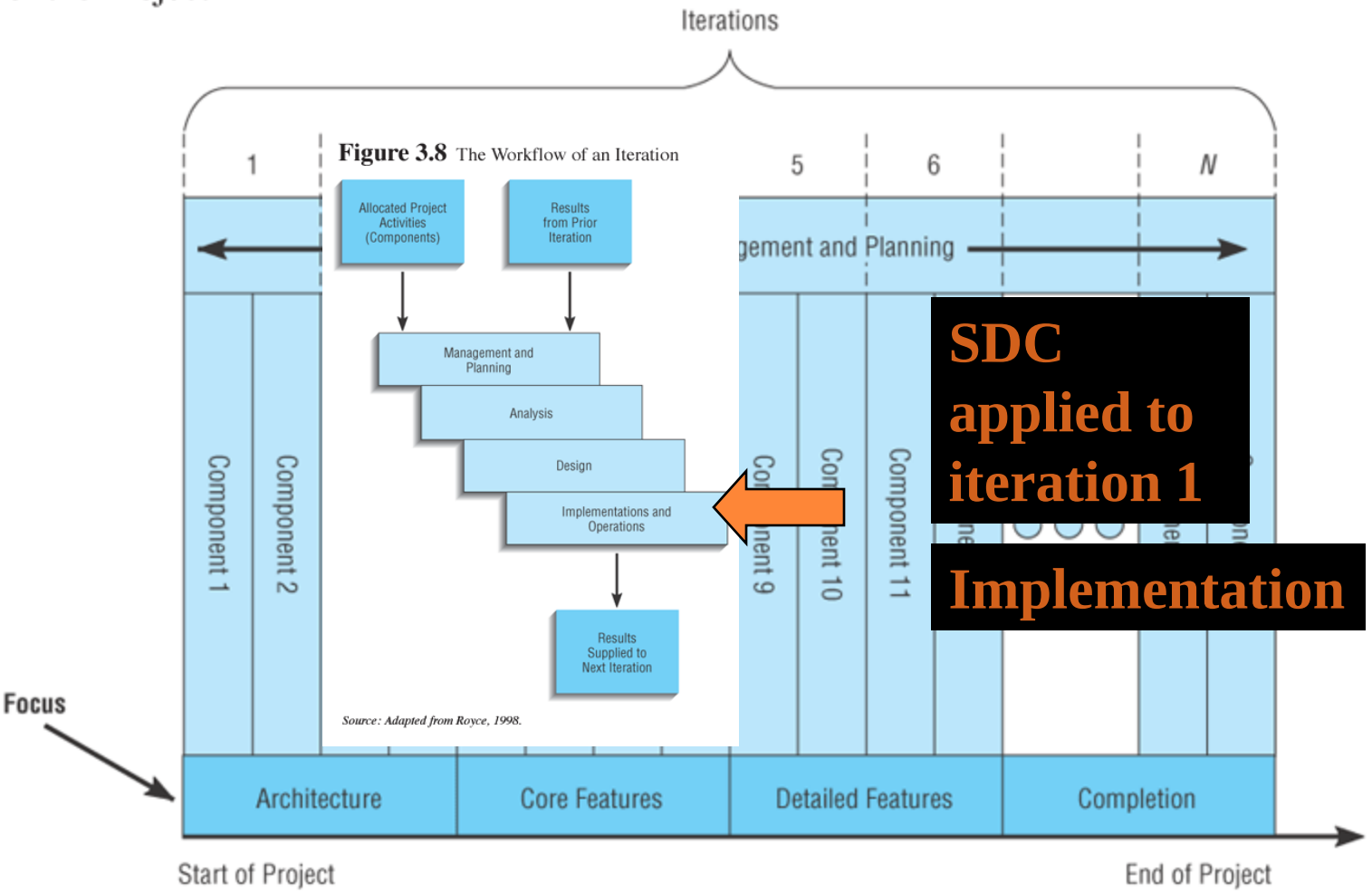


Figure 3.8 The Workflow of an Iteration

Source: Adapted from Royce, 1998.

SDC applied to iteration 1

Implementation

Figure 3.7 The Focus and Ordering of System Components Change over the Life of the Project

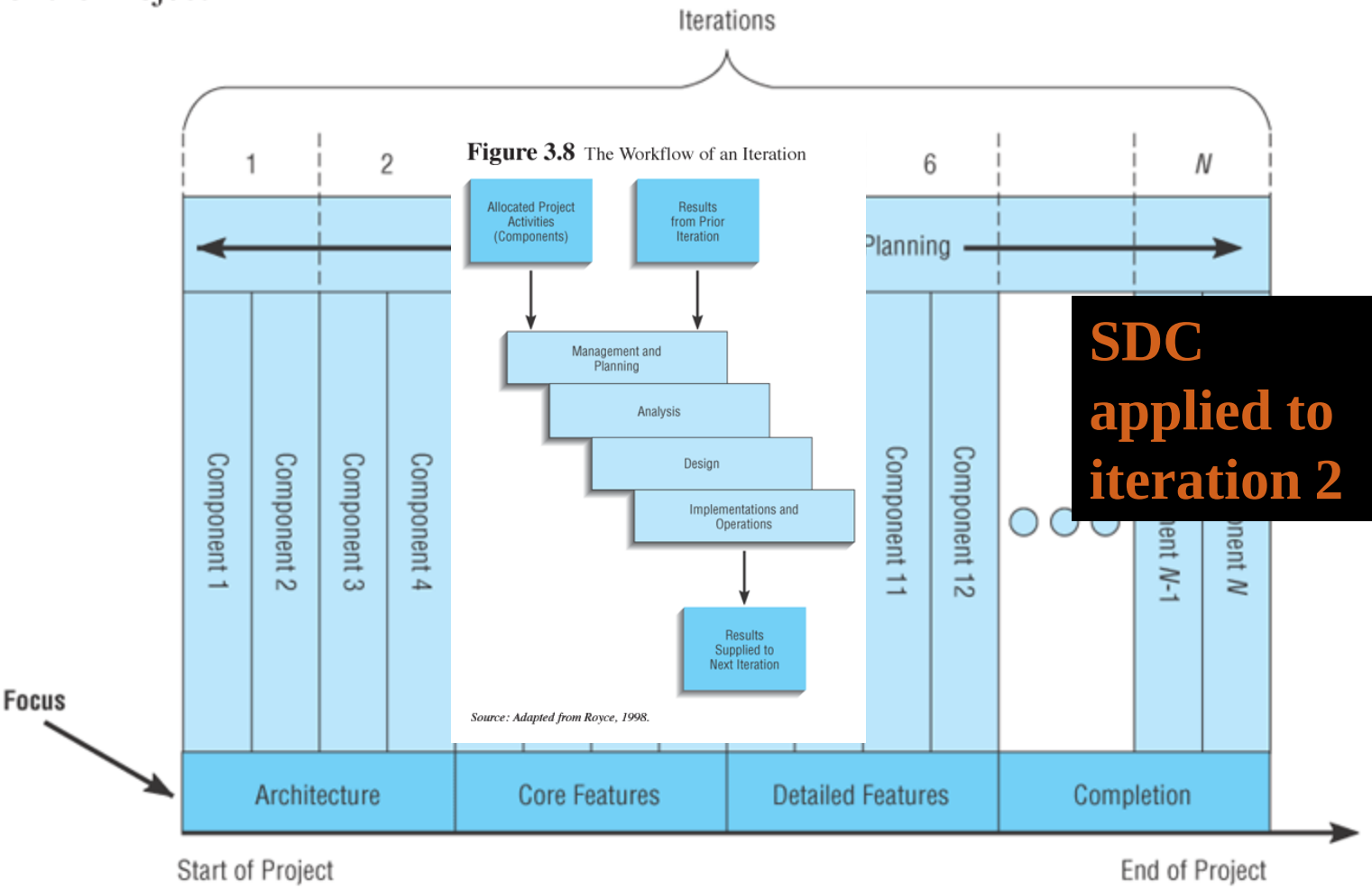
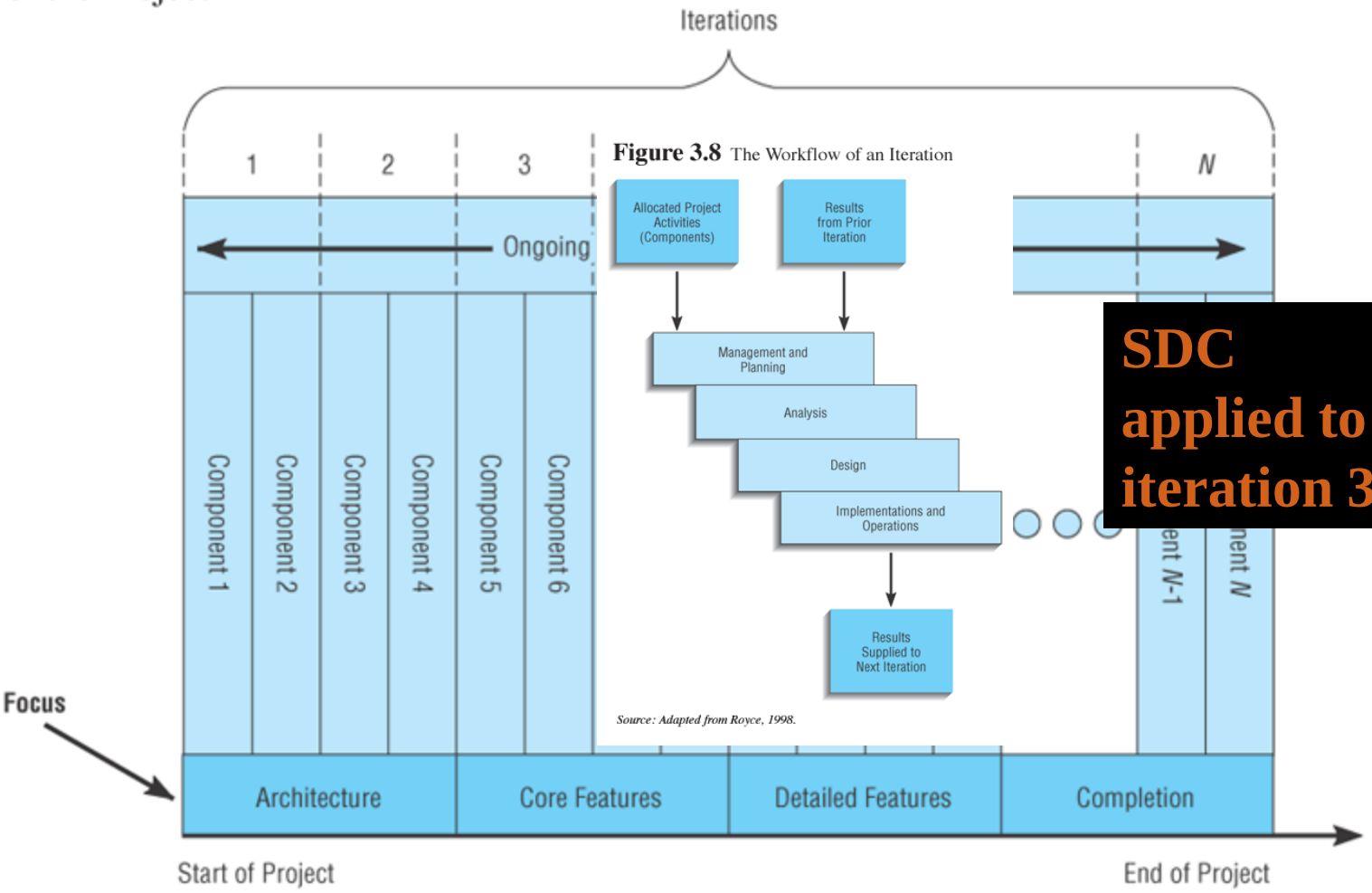


Figure 3.8 The Workflow of an Iteration

Source: Adapted from Royce, 1998.

SDC applied to iteration 2

Figure 3.7 The Focus and Ordering of System Components Change over the Life of the Project



SDC applied to iteration 3

Figure 3.7 The Focus and Ordering of System Components Change over the Life of the Project

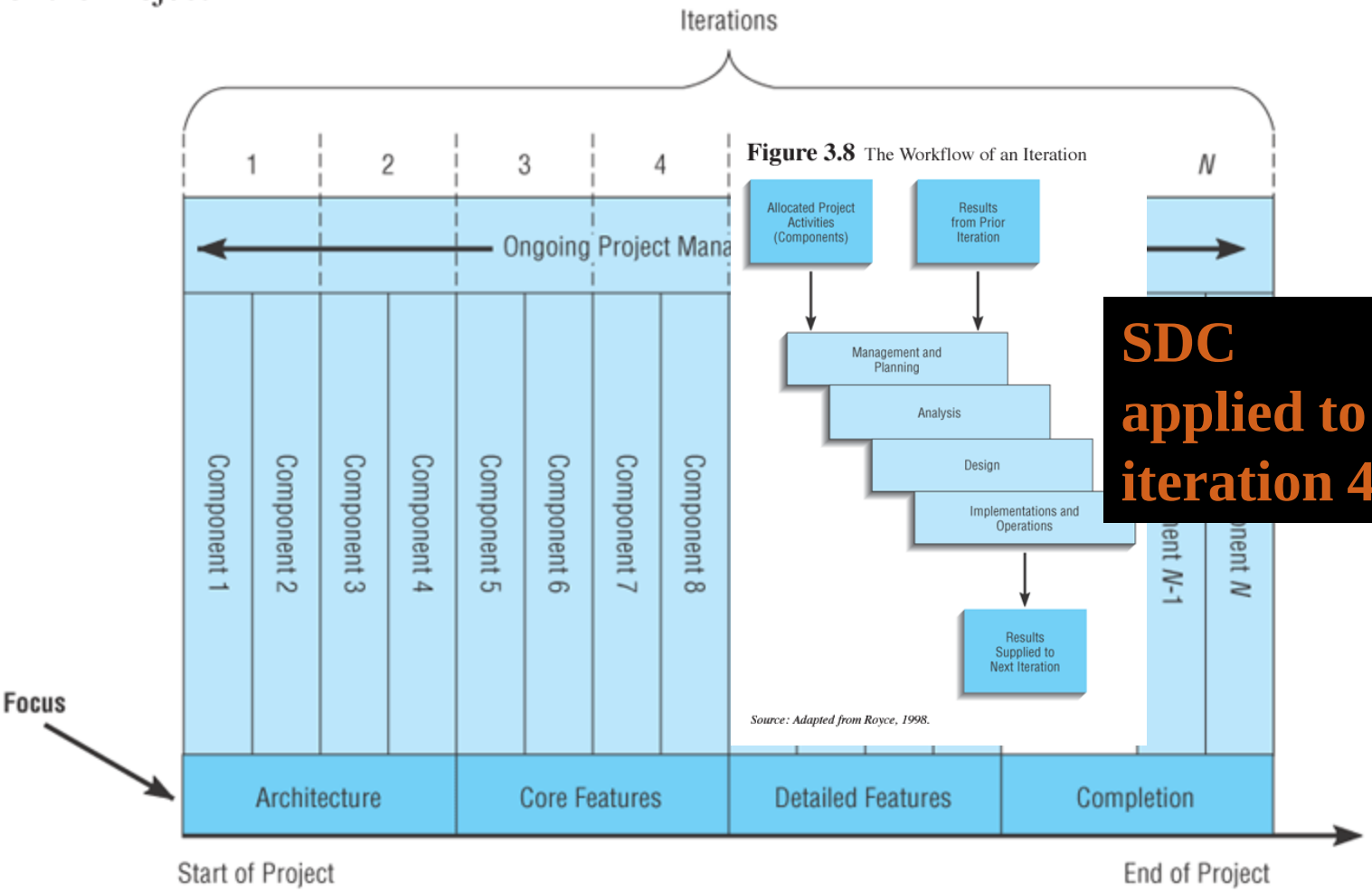


Figure 3.8 The Workflow of an Iteration

Source: Adapted from Royce, 1998.

SDC applied to iteration 4

Figure 3.7 The Focus and Ordering of System Components Change over the Life of the Project

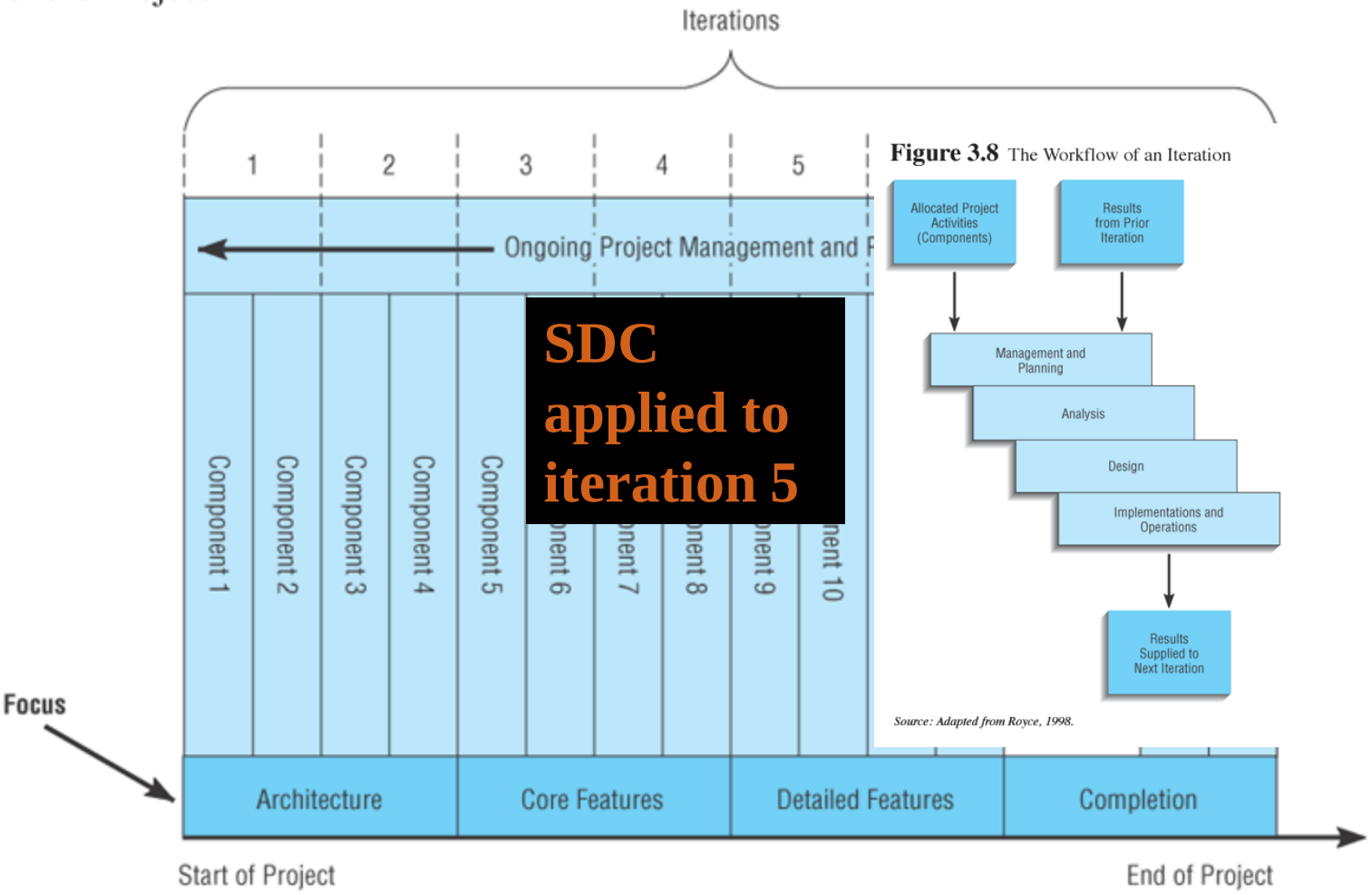


Figure 3.8 The Workflow of an Iteration

Source: Adapted from Royce, 1998.

DON'T PLAN TOO MUCH UP FRONT

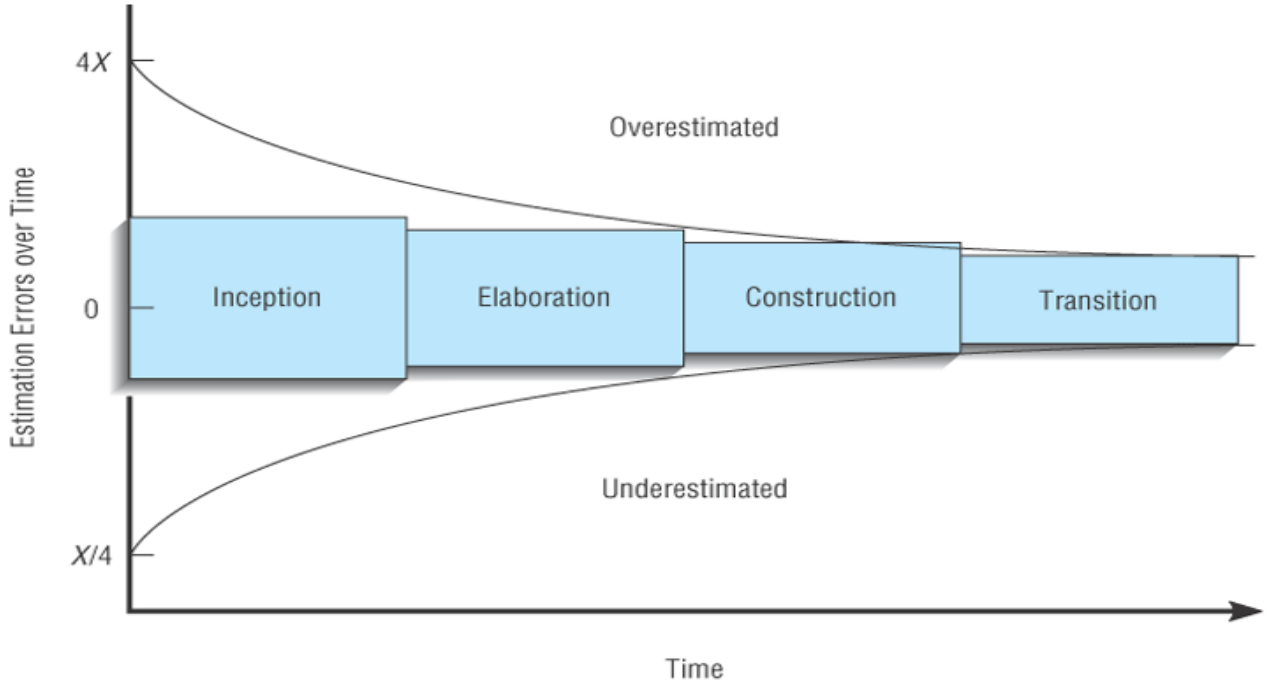
- In OOSAD, as each iteration is completed, the goal is to learn more about the system being constructed, the capabilities of the development team, the complexity of the development environment, an so on.

- As a result, making highly detailed plans for all project iterations is likely to result in a big waste of time.

- As the project manager learns over the course of the project, he or she will be able to continually refine schedules, time estimates and resource requirements with better and better estimates. (Figure 3.9)

Plans improve over the course of the project

Figure 3.9 Planning Estimation Improves Over Time



Source: Adapted from Royce, 1998.

Moral: don't over-plan early in the project. Continue planning activities throughout entire project.

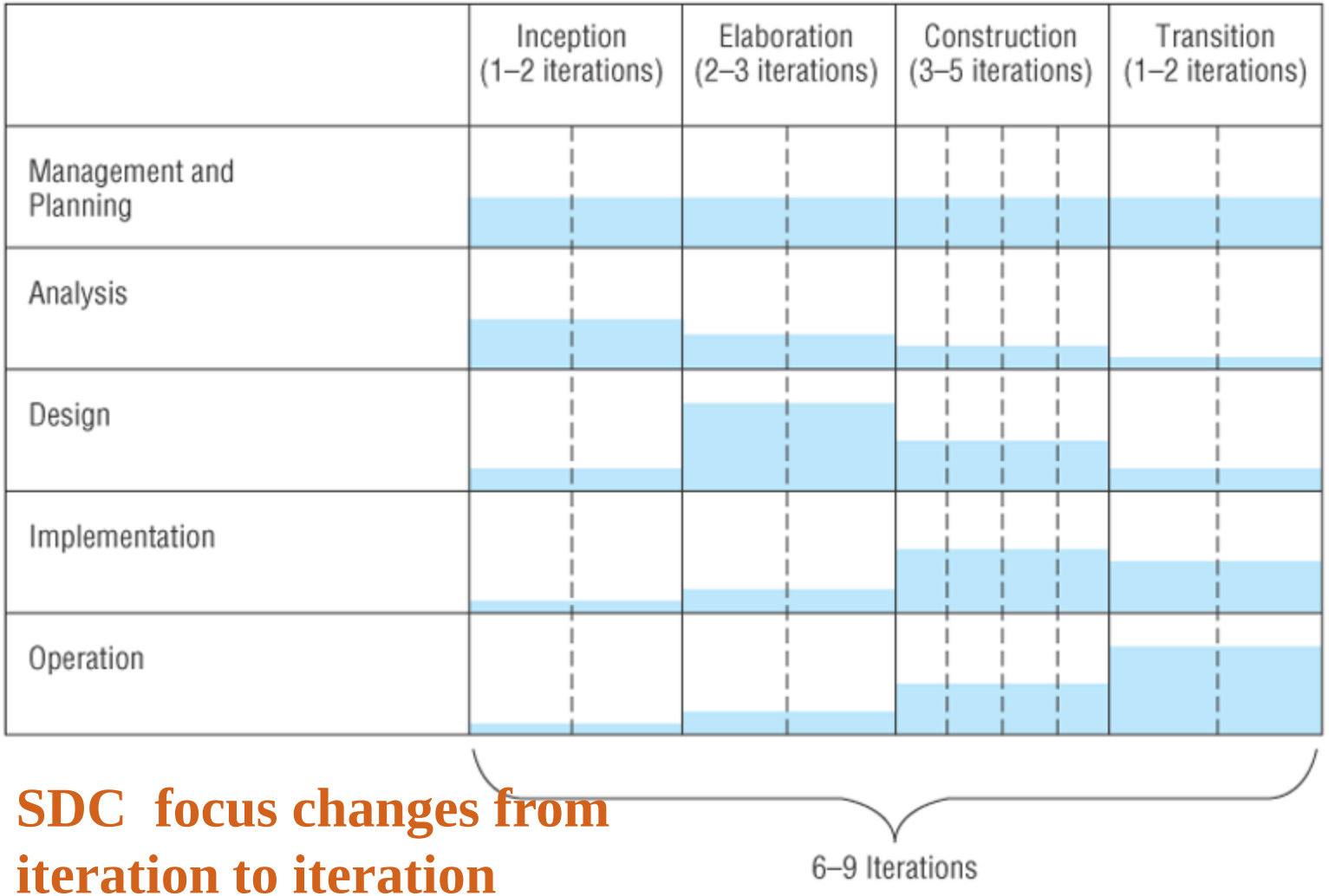
How many and how long are iterations?

- Iterations are designed to be a fixed length of time, typically from two to eight weeks, but they can be as short as one week (especially for smaller project).
- During a single iteration, multiple components (use cases) can be completed.
- The inception phase generally will entail one iteration, but it is not uncommon for this require two or more iterations in large, complex projects.

- Elaboration often is completed in one or two iterations, but again system complexity and size can influence the time.

- Experienced OOSAD project managers typically use from six to nine iterations when designing and constructing a system. (Figure 3.10)

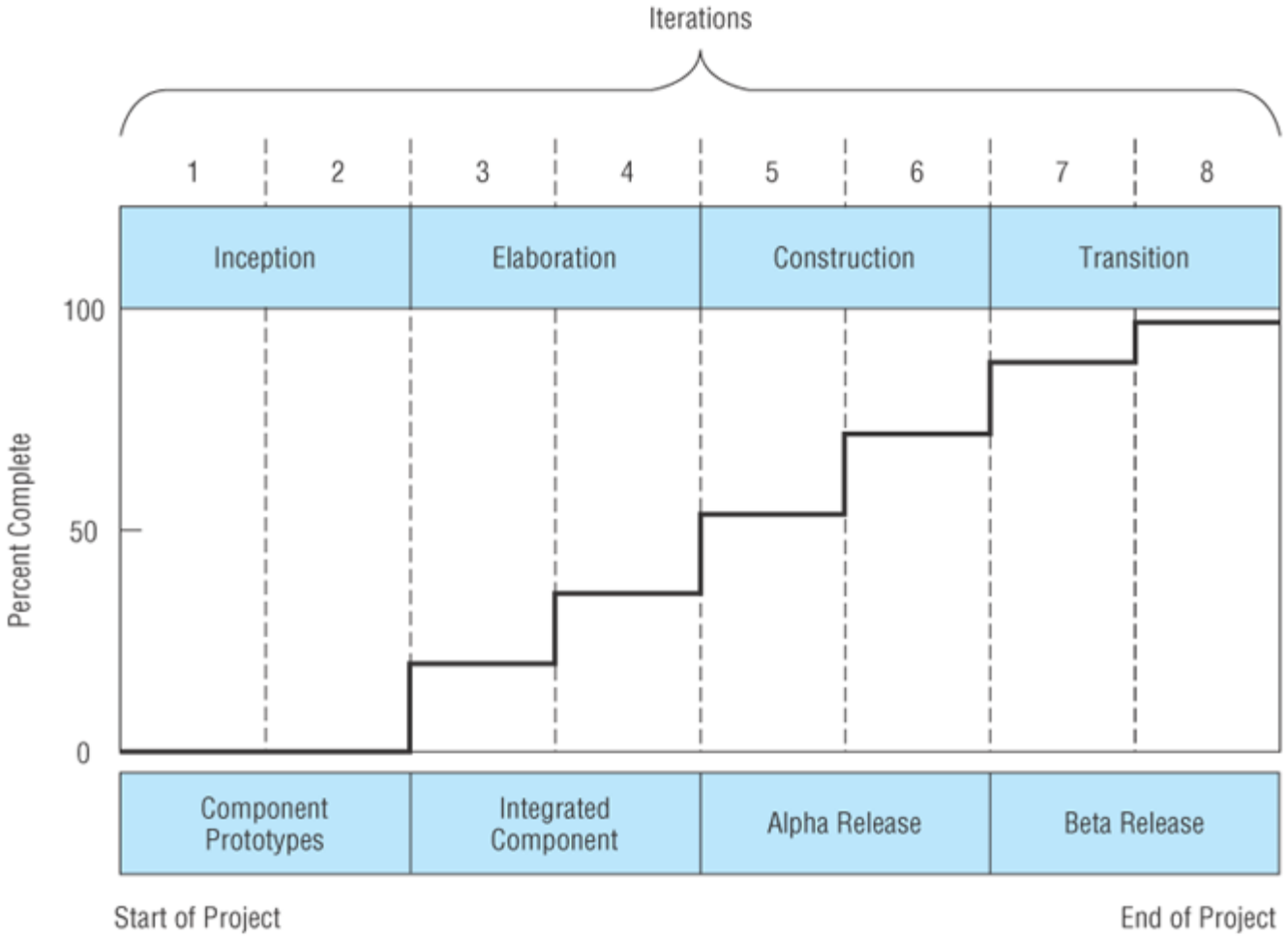
Figure 3.10 An OOSAD Project Typically Has 6 to 9 Iterations



SDC focus changes from iteration to iteration

- As the project progresses, the prototypes become increasingly sophisticated until the entire system is completed. (Figure 3.11)

Figure 3.11 As the Project Evolves, System Functionality Evolves



Source: Adapted from Royce, 1998.

PROJECT ACTIVITY FOCUS CHANGES OVER THE LIFE OF A PROJECT

- During all project iterations the manager engages in all phases of the systems development cycle.
- The level of activity in each phase changes over the life of the project.
- Summary, although all project life cycle activities are employed during every project iteration, the mix and focus of these activities change over time.

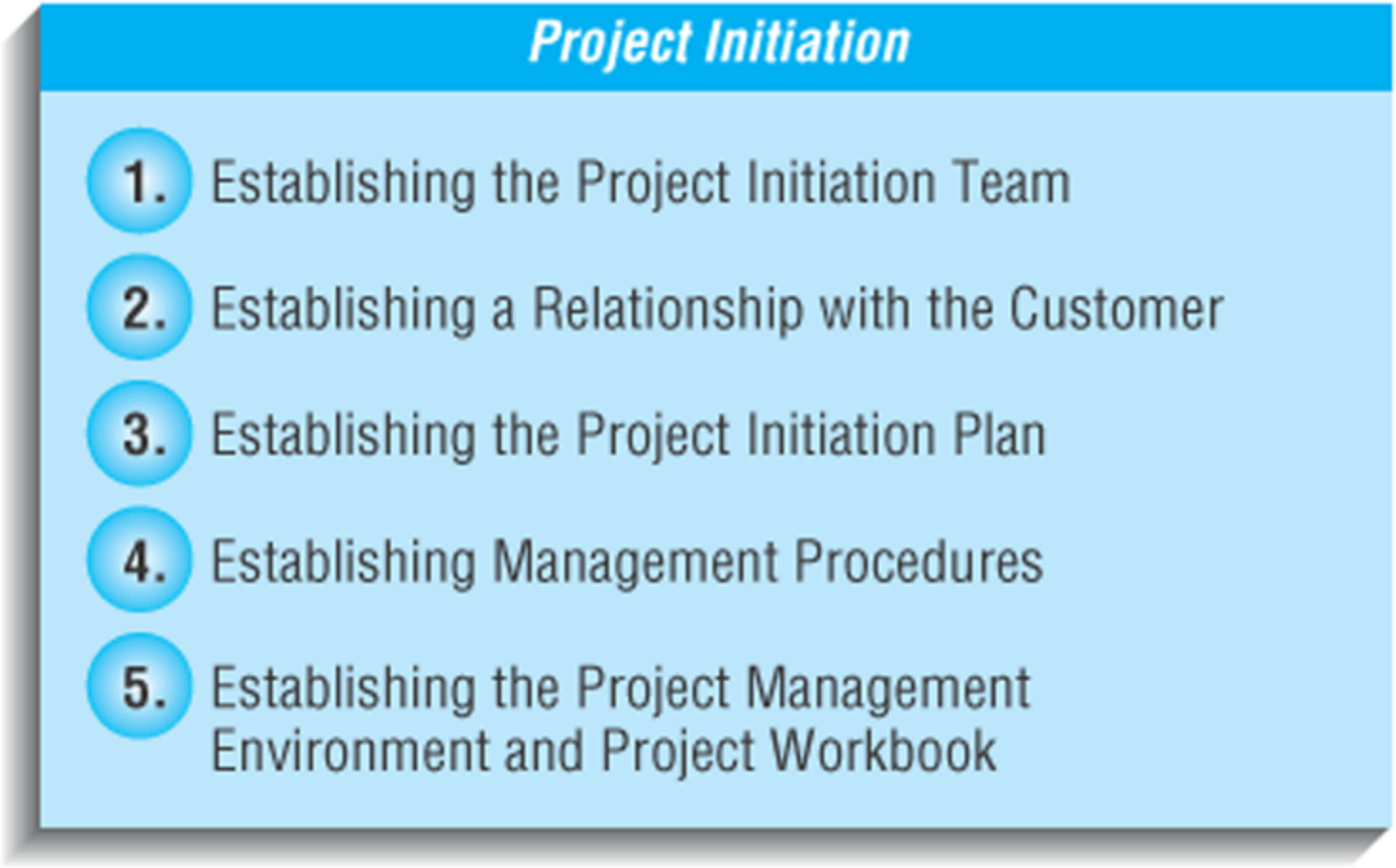
Project Management Tasks and Activities

- Project Phases
  - Project Initiation
  - Project Planning
  - Project Execution
  - Project Closedown

Project Initiation

- First phase of project management, involves assessment of project scope, size, and complexity and establishment of project procedures.
- Depending on the project, some initiation activities might be unnecessary and some might be very involved.

Figure 3.13 Five Project Initiation Activities



(1) Establishing the Project

- Involves organizing an initial core of project team members to assist in accomplishing the project initiation activities.
- Typically, initiation teams consist of at least one user representative and one member of the IS development group.

(2) Establishing a Relationship with the Customer

- A through understanding of the customer builds stronger partnerships and higher levels of trust.

- Organizations try to foster strong working relationships between business units and the IS development group by assigning a specific individual to work as a liaison between both groups.

(3) Establishing the Project Initiation Plan

- Defines the activities required to organize the initiation team while it is working to define the scope of the project.
- This typically requires the collection, analysis, organization and transformation of a lot of information.
- These steps eventually lead to the creation of a Systems Service Request (SSR).

(4) Establishing Management Procedures

- Successful projects require the development of effective management procedures.

- When establishing procedures, the project manager is concerned with developing team communication and reporting procedures, job assignments and roles, project change procedures and determining how project funding and billing will be handled.

(5) Establishing the Project Management Environment and Project Workbook.

- To collect and organize the tools that will be used while managing the project and to construct the project workbook.

(6) Developing the Project Charter

- Project Chart is a short (typically one-page) high-level document prepared for both internal and external stakeholders to formally announce the establishment of the project and to briefly describe its objectives, keys assumptions and stakeholders.
- Ensures that both you and your customer gain a common understanding of the project.
- Very useful communication tool.
- Helps to announce to the organization that a particular project has been chosen for development.

The Project Workbook

- An online or hardcopy repository of all project correspondence, inputs, outputs, deliverables, procedures, and standards
- Used as a primary communications medium for the project team
- Can be stored as an online electronic document or in a large, three-ring binder.

- The Project Workbook is used by all team members and is useful for project audits, orientation of new team members, communication with management and customers, identifying future project and performing post-project reviews.

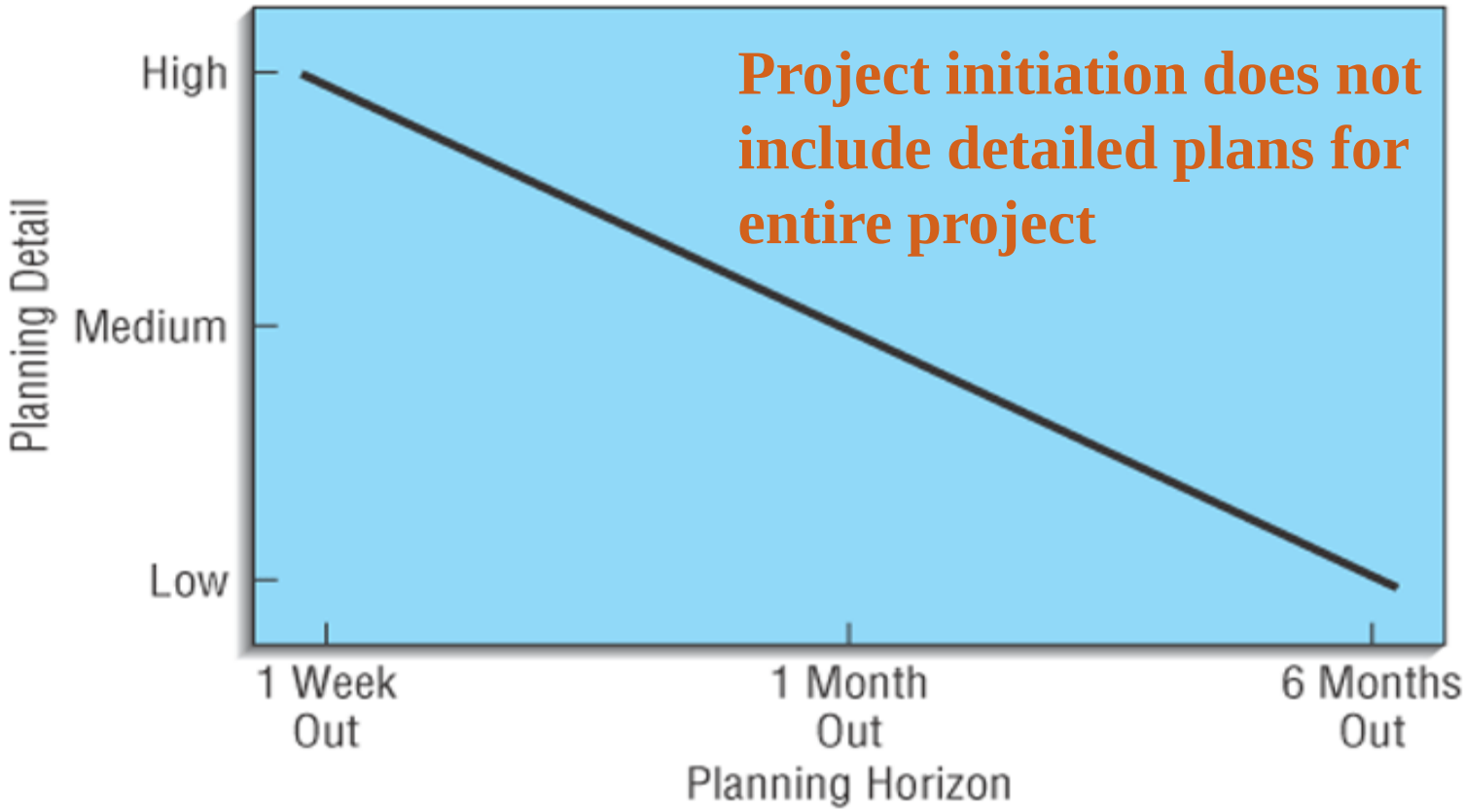
- Many project teams keep their project workbooks on the Web, so that all project members can access all project documents easily.

Figure 3.14 The Project Workbook Can Be a Hard-Copy or an Electronic Document

1. Project Overview
2. Initiation Plan and SSR
3. Project Scope and Risks
4. Management Procedures
5. Data Descriptions
6. Process Descriptions
7. Team Correspondence
8. Statement of Work
9. Project Schedule

Project workbook grows and evolves during project activities

Figure 3.15 The Level of Project Planning Detail Should Be High in the Short Term, with Less Detail for Activities That Are Taking Place in the Longer Term



Project Planning

- Second phase of project management, focusing on defining clear, discrete activities and the work needed to complete each activity within a single project.

Figure 3.16 Ten Project Planning Activities

Describing project scope, alternatives and feasibility

Dividing the project into manageable tasks

Estimating resources and creating a resource plan

Developing a preliminary schedule

Developing a communication plan

Determining project standards and procedures

Identifying and assessing risk

Creating a preliminary budget

Developing a project scope statement

Setting a baseline project plan

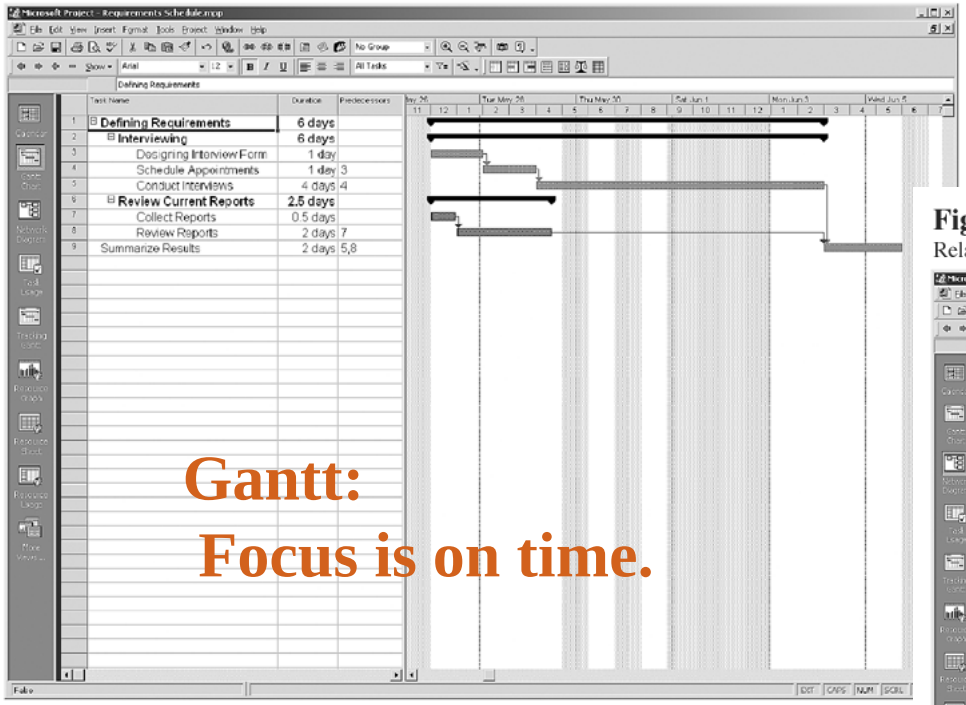
The Baseline Project Plan (BPP)

- The major deliverable from the project initiation and planning phases, this document contains estimates of scope, benefits, schedules, costs, risks, and resource requirements

- BPP is updated throughout project execution and closedown

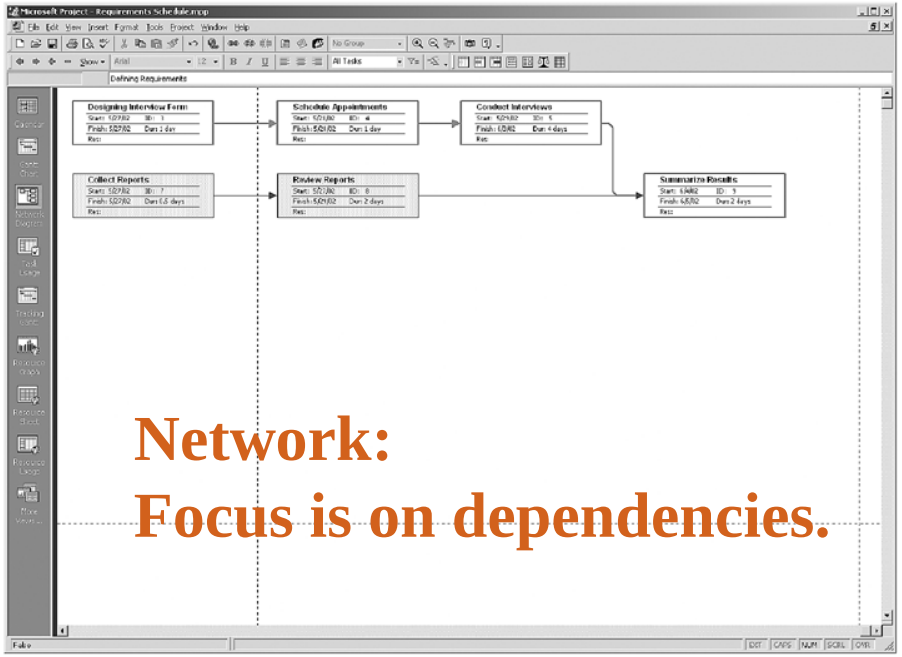
Two Project Scheduling Diagrams in Microsoft Project

Figure 3.17 Gantt Chart Showing Project Tasks, Duration Times for Those Tasks (d = days), and Predecessors



Gantt:
Focus is on time.

Figure 3.18 A Network Diagram Illustrates Tasks with Rectangles (or Ovals) and the Relationships and Sequences of Those Activities



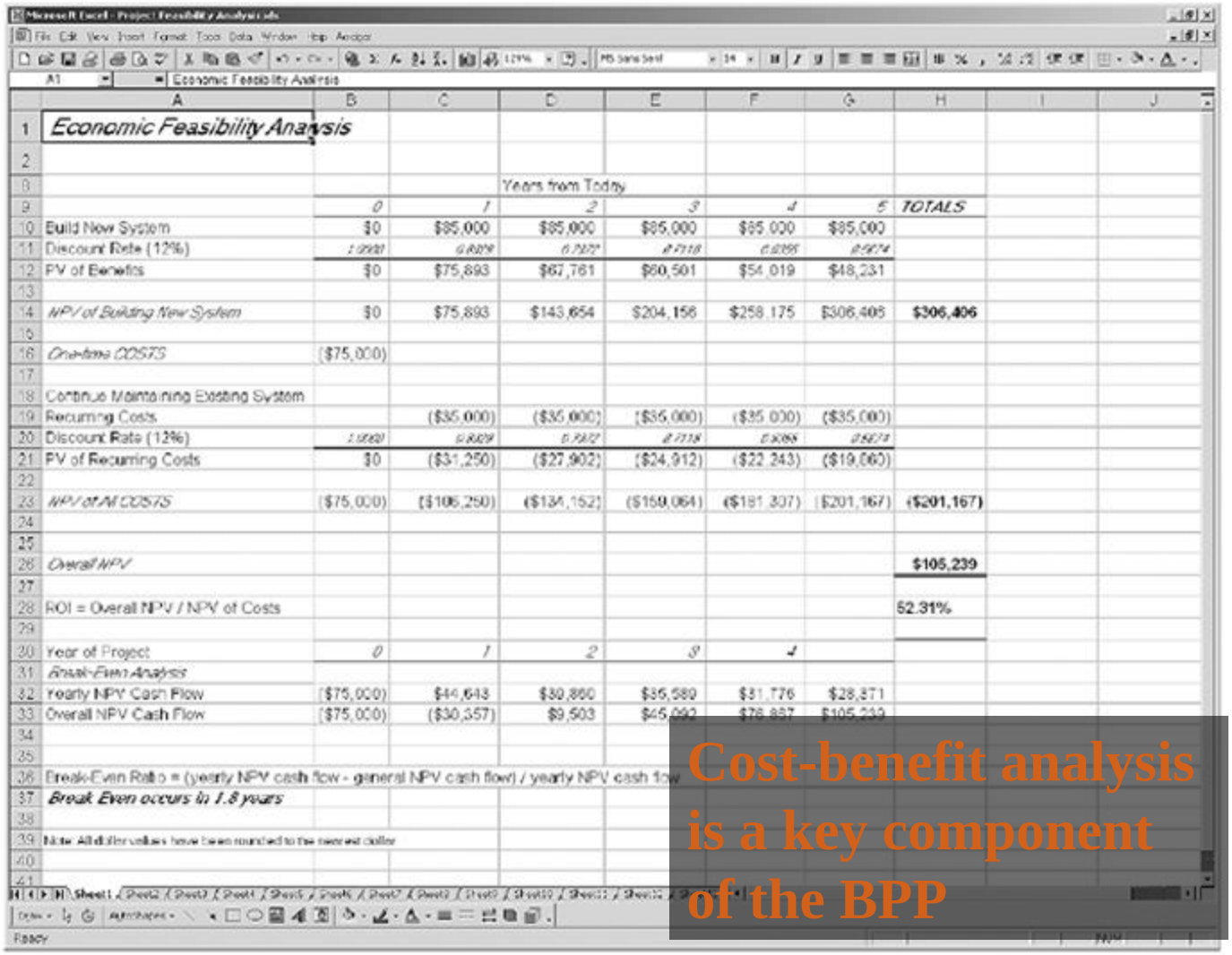
Network:
Focus is on dependencies.

These diagrams are important components of the BPP.

FIGURE 3.17

- As tasks are completed during a project, they can be marked as completed on the project schedule.
- Task 3 and 7 are marked as completed by showing 100% in the "% Complete" column.
- Members of the project team will come and go.
- The PM is responsible for initiating new team members by providing them with the resources they need and helping the assimilate into team.

Figure 3.20 A Financial Cost-Benefit Analysis for a Systems Development Project



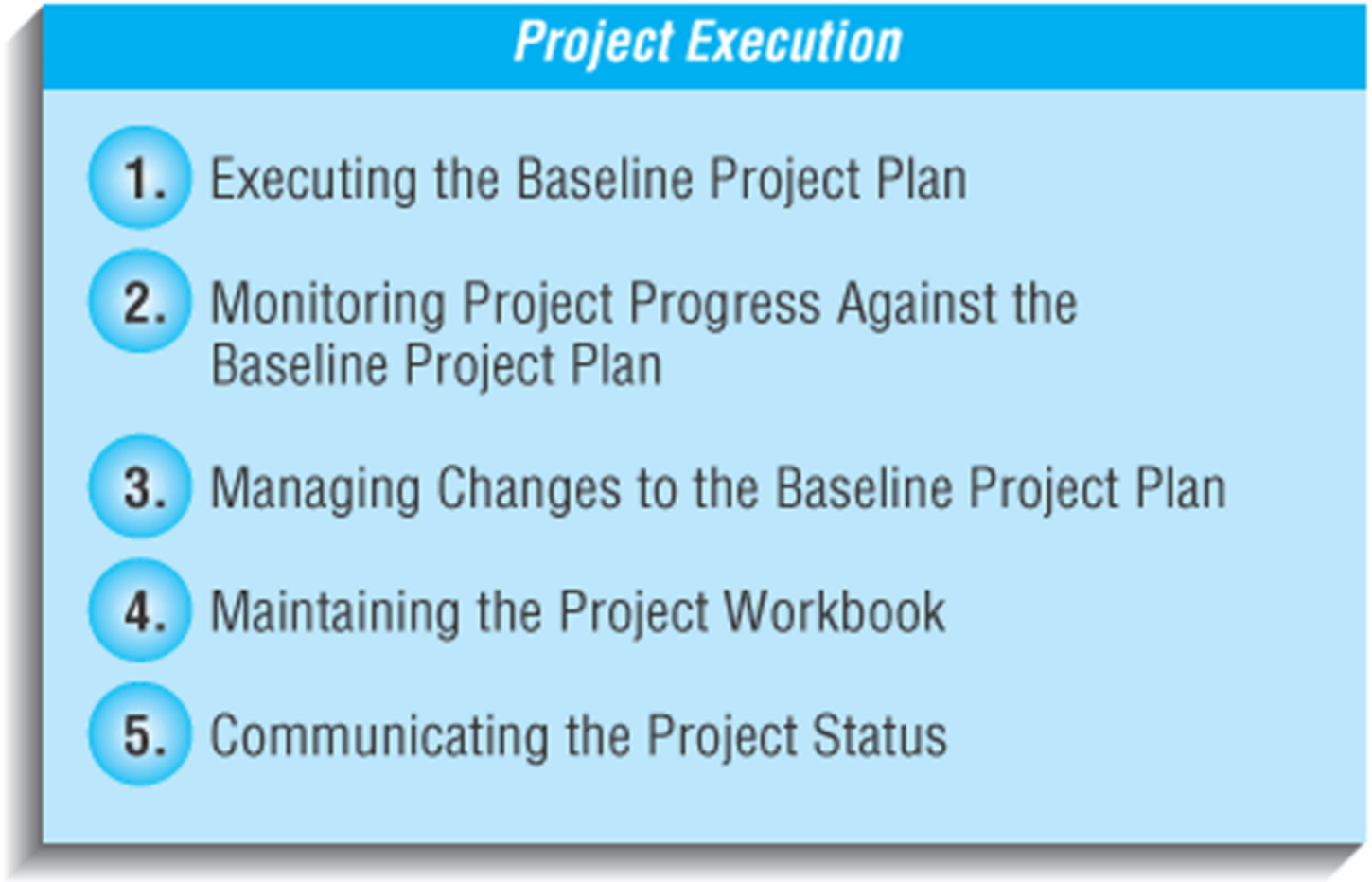
	A	B	C	D	E	F	G	H
1	*Economic Feasibility Analysis*							
2								
3				Years from Today				
9		*0*	*1*	*2*	*3*	*4*	*5*	*TOTALS*
10	Build New System	$0	$85,000	$85,000	$85,000	$85,000	$85,000	
11	Discount Rate (12%)	*1.0000*	*0.8929*	*0.7972*	*0.7118*	*0.6355*	*0.5674*	
12	PV of Benefits	$0	$75,893	$67,761	$60,501	$54,019	$48,231	
13								
14	*NPV of Building New System*	$0	$75,893	$143,654	$204,156	$258,175	$306,406	**$306,406**
15								
16	*One-time COSTS*	($75,000)						
17								
18	Continue Maintaining Existing System							
19	Recurring Costs		($35,000)	($35,000)	($35,000)	($35,000)	($35,000)	
20	Discount Rate (12%)	*1.0000*	*0.8929*	*0.7972*	*0.7118*	*0.6355*	*0.5674*	
21	PV of Recurring Costs	$0	($31,250)	($27,902)	($24,912)	($22,243)	($19,860)	
22								
23	*NPV of All COSTS*	($75,000)	($106,250)	($134,152)	($159,064)	($181,307)	($201,167)	**($201,167)**
24								
25								
26	*Overall NPV*							**$105,239**
27								
28	ROI = Overall NPV / NPV of Costs							**52.31%**
29								
30	Year of Project	*0*	*1*	*2*	*3*	*4*		
31	*Break-Even Analysis*							
32	Yearly NPV Cash Flow	($75,000)	$44,643	$39,860	$35,589	$31,776	$28,371	
33	Overall NPV Cash Flow	($75,000)	($30,357)	$9,503	$45,092	$76,867	$105,239	
34								
35								
36	Break-Even Ratio = (yearly NPV cash flow - general NPV cash flow) / yearly NPV cash flow							
37	***Break Even occurs in 1.8 years***							
38								
39	Note: All dollar values have been rounded to the nearest dollar							
40								
41								

Cost-benefit analysis is a key component of the BPP

Project Execution

- Third phase of project management, involving putting the plans created in the previous phases into action, and monitoring actual progress against the BPP

Figure 3.21 Five Project Execution Activities



1. EXECUTING THE BASELINE PROJECT PLAN

- The PM oversees the execution of the baseline plan.
- Means initiating the execution of project activities, acquiring and assigning resources, orienting and training new team members, keeping the project on schedule and assuring the quality of project deliverables.
- This is formidable task, but a task made easier through the use of sound project management techniques.

2. MONITORING PROJECT AGAINST THE PASELINE PROJECT PLAN

- While executing the BPL, the PM should monitor progress.
- If the project gets ahead of (or behind) schedule, resources, activities and budgets might have to be adjusted.
- Monitoring project activities can result in modifications to the current plan.

- Project schedule charts :
  - Gantt Chart – show progress against a plan
  - Network Diagram – to understand the ramifications of delays in an activity

- Monitoring progress also means that the team leader must evaluate and appraise each team member, occasionally change work assignments or request changes in personnel and provide feedback to the employee's supervisor.

3. MANAGING SHANGES TO THE BASELINE PROJECT PLAN

- The PM will encounter pressure to make changes to the baseline plan.
- At many organization, policies dictate that only approved changes to the project specification can be made and all changes must reflected in the baseline plan and project workbook, including all charts and design diagrams.
- Changes also can be needed because of events outside the PM's control.

- Often the activities will have to be rearranged somehow because the ultimate project completion date might be rather fixed.

- A penalty to the organization (or even legal action) might result if the expected completion date is not met.

4. MAINTAINING THE PROJECT WORKBOOK

- The workbook provides the documentation new team members require to assimilate project tasks quickly.

- It explains why design decision were made and is primary source of information for producing all project report.

5. COMMUNICATING THE PROJECT STATUS

- The PM is responsible for keeping all stakeholders abreast of the project status.

- Communicating the project status focuses on the execution of the project communication plan and the response to any ad hoc information requests by stakeholders.

- 2 types of information are routinely exchanged throughout the project :

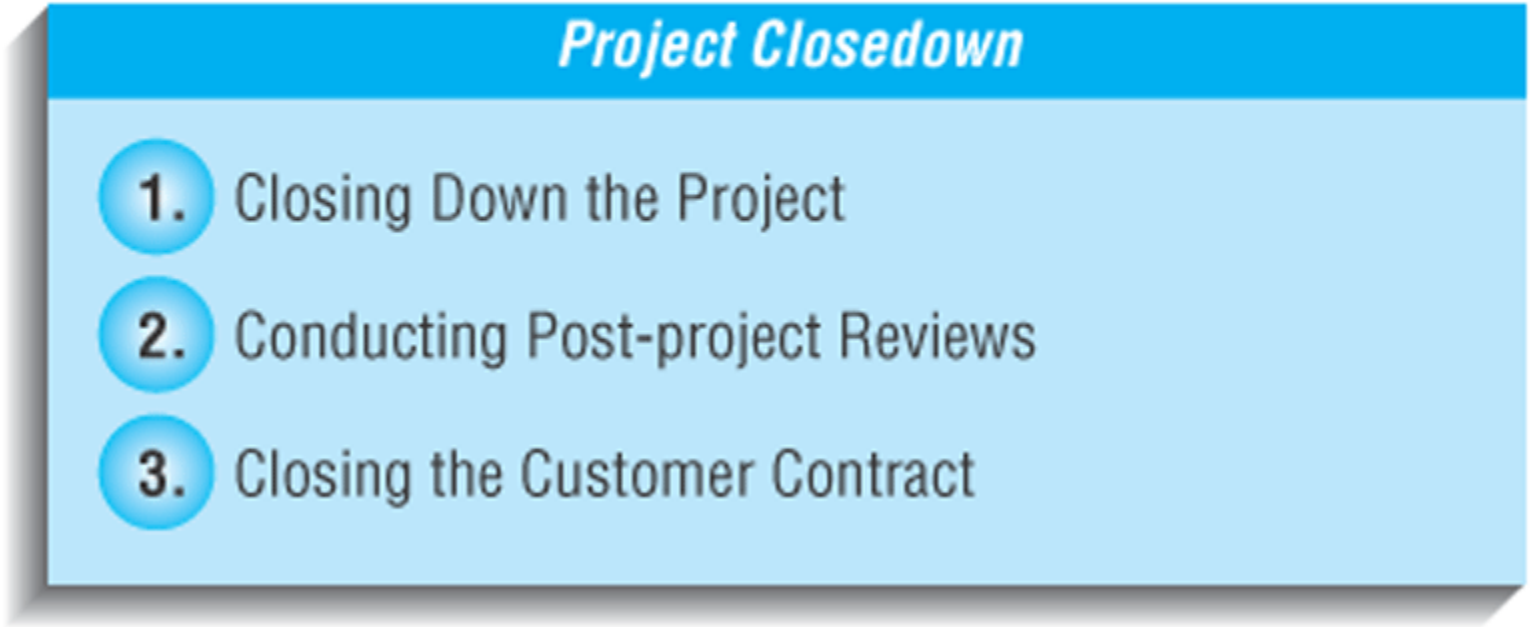
1. Work result – the outcomes of the various tasks and activities that are performed to complete the project.

2. Project plan – the formal comprehensive document that is used to execute the project.

Project Closedown

- Final phase of the project management process, focusing on bringing the project to an end.
- Projects can conclude with a natural or an unnatural termination
- A natural – occur when the requirements of the project have been meet, the project has been completed and is a success.
- Unnatural – occurs when the project is stopped before completion because of a project relate to running out of time, money or both.

Figure 3.23 Three Project Closedown Activities



1. CLOSING DOWN THE PROJECT

- Several diverse activities are performed by PM:
  - Required to assess each team member and provide an appraisal for personnel files and salary determination.
  - Providing career advice to team members.
  - Writing letters to superiors praising special accomplishments of team members.
  - Sending thank-you letters to those who helped but were not team members.

- Important to notify all interested parties that the project has been completed and to finalize all project documentation and financial records so that a final review of the project can be conducted.

2. CONDUCTING POST-PROJECT REVIEWS

- Once the project is closed down, final reviews of the project should be conducted with management and customers.

- OBJECTIVE : to determine the strengths and weaknesses of project deliverables, the processes used to create them and the project management process.

3. CLOSING THE CUSTOMER CONTRACT

- FOCUS : ensure that all contractual terms of the project have been meet.

- A project governed by a contractual agreement typically is not completed until agreed to by both parties, often in writing.

Project Management Tools

- Critical path scheduling
- Network diagrams
- Gantt diagrams
- Work breakdown structures (WBS)
- Software tools

Critical Path Scheduling

- A scheduling technique whose order and duration of a sequence of task activities directly affects the completion date of a project

- *Critical path* – the shortest time in which a project can be completed
- *Slack time* – the amount of time an activity can be delayed without delaying the project

Network diagram

- Is a critical path scheduling technique used for controlling resources.
- Is one of the most widely used and best-known scheduling methods.
- STRENGTH – its ability to show changes to completion times impact the overall schedule.

- Would be used when tasks :
  - Are well-defined and have a clear beginning and end point.
  - Can be worked on independently of other tasks
  - Are ordered
  - Serve the purpose of the project.

Critical path example

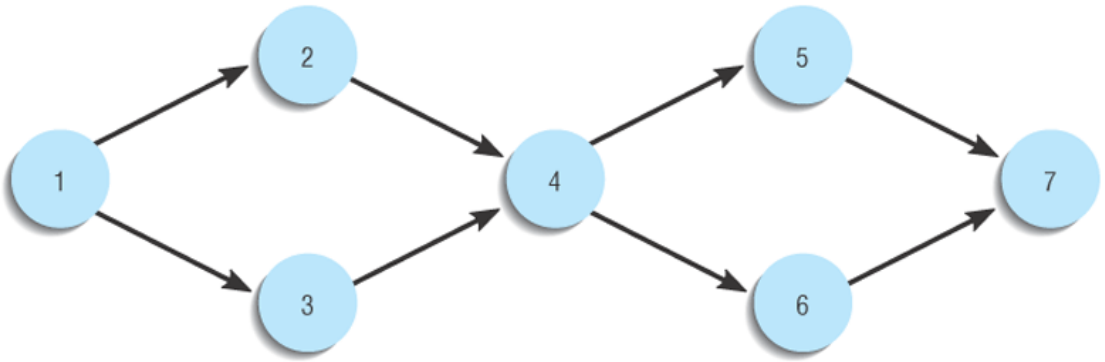
Activity	Time Estimate (in days)	Preceding Activity
1. Collect requirements	1	–
2. Design screens	2	1
3. Design database	2	1
4. Coding	3	2, 3
5. Documentation	2	4
6. Testing	3	4
7. Integration	1	5, 6

Note the durations and precedents (dependencies)

Determining the Critical Path

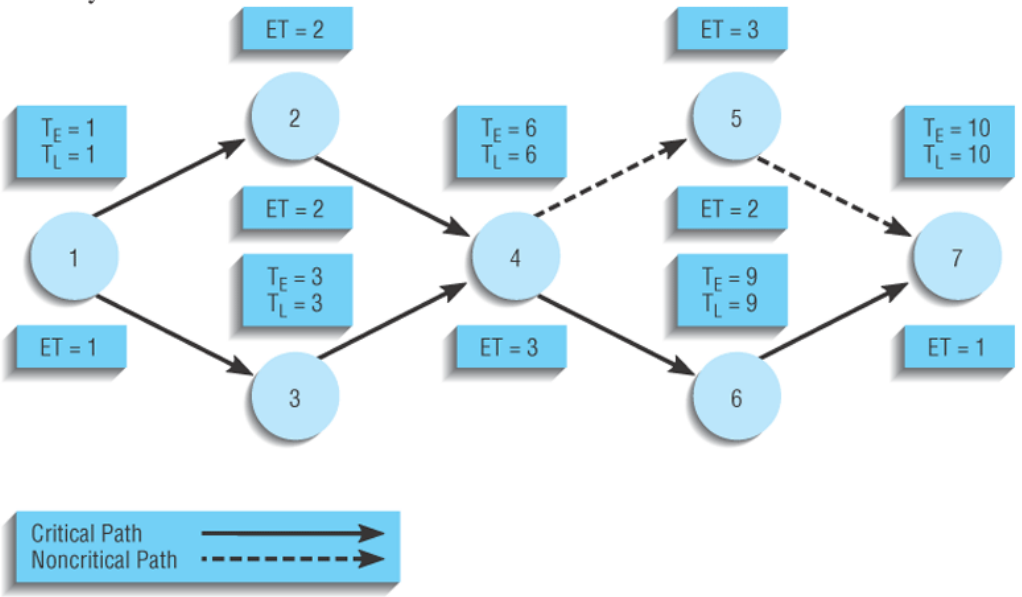
- Calculate the earliest possible completion time for each activity by summing the activity times in the longest path to the activity. This gives total expected project time.
- Calculate the latest possible completion time for each activity by subtracting the activity times in the path following the activity from the total expected time. This gives slack time for activities.
- Critical path – contains no activities with slack time

Figure 3.26 A Network Diagram for the *Key Feature Project* Showing Activities (represented by circles) and Sequences of Those Activities (represented by arrows)



Network diagram shows dependencies.

Figure 3.27 A Nework Diagram for the *Key Feature Project* Showing Estimated Times for Each Activity and the Earliest and Latest Expected Completion Time for Each Activity



Network diagram with early and late times calculated and critical path determined

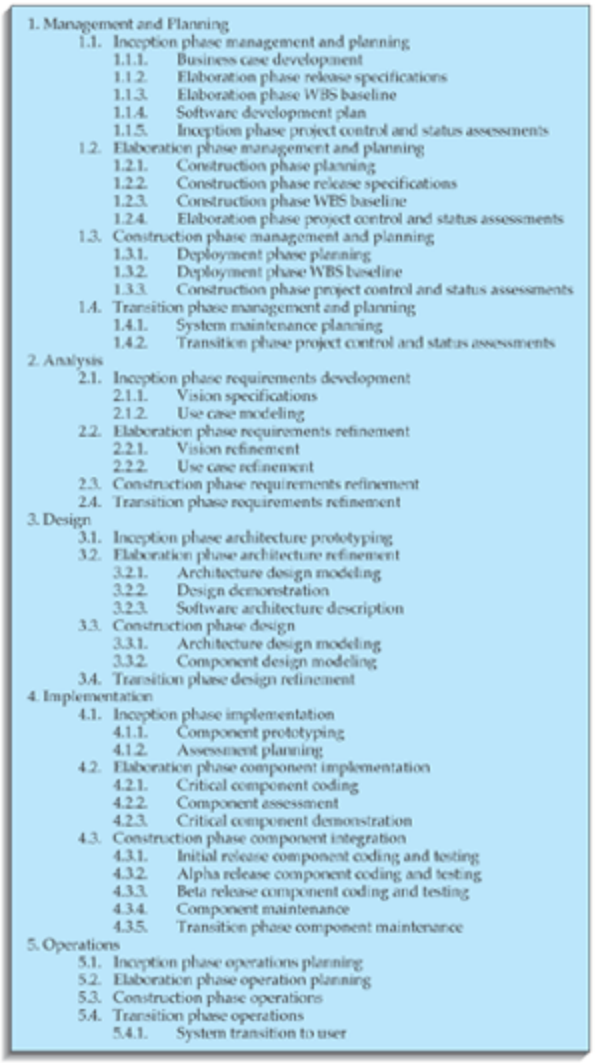
- T_E - the earliest expected completion time.
- ET – estimate time fro each activity
- T_L – latest expected completion time

THE SLACK TIME :

Activity	T_E	T_L	Slack $T_L - T_E$	On Critical Path
1	1	1	1	Yes
2	3	3	0	Yes
3	3	3	0	Yes
4	6	6	0	Yes
5	8	9	1	No
6	9	9	0	Yes
7	10	10	0	Yes

- Note that all activities with a slack time equal to zero are on the critical path.
- In additional to the possibility of having multiple critical paths, two types of slack are possible.
- Free slack refers to the amount of time a task can be delayed without delaying the early start of any immediately following task.
- Total slack refers to the amount of time a task can be delayed without delaying the completion of the project and it is what we have calculated in the Key Feature Project.

Figure 3.28 Default Work Breakdown Structure for an OOSAD Project



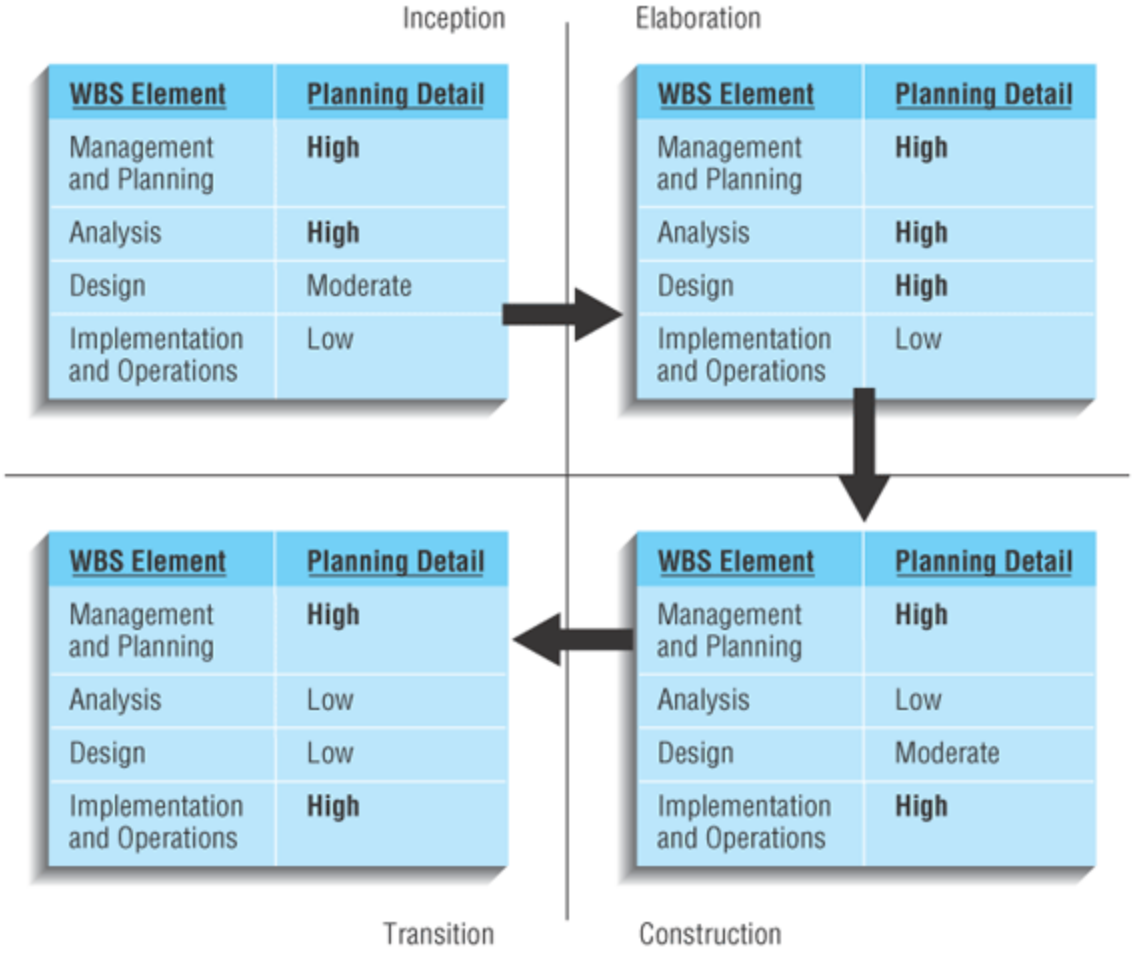
1. Management and Planning
   - 1.1. Inception phase management and planning
     - 1.1.1. Business case development
     - 1.1.2. Elaboration phase release specifications
     - 1.1.3. Elaboration phase WBS baseline
     - 1.1.4. Software development plan
     - 1.1.5. Inception phase project control and status assessments
   - 1.2. Elaboration phase management and planning
     - 1.2.1. Construction phase planning
     - 1.2.2. Construction phase release specifications
     - 1.2.3. Construction phase WBS baseline
     - 1.2.4. Elaboration phase project control and status assessments
   - 1.3. Construction phase management and planning
     - 1.3.1. Deployment phase planning
     - 1.3.2. Deployment phase WBS baseline
     - 1.3.3. Construction phase project control and status assessments
   - 1.4. Transition phase management and planning
     - 1.4.1. System maintenance planning
     - 1.4.2. Transition phase project control and status assessments
2. Analysis
   - 2.1. Inception phase requirements development
     - 2.1.1. Vision specifications
     - 2.1.2. Use case modeling
   - 2.2. Elaboration phase requirements refinement
     - 2.2.1. Vision refinement
     - 2.2.2. Use case refinement
   - 2.3. Construction phase requirements refinement
   - 2.4. Transition phase requirements refinement
3. Design
   - 3.1. Inception phase architecture prototyping
   - 3.2. Elaboration phase architecture refinement
     - 3.2.1. Architecture design modeling
     - 3.2.2. Design demonstration
     - 3.2.3. Software architecture description
   - 3.3. Construction phase design
     - 3.3.1. Architecture design modeling
     - 3.3.2. Component design modeling
   - 3.4. Transition phase design refinement
4. Implementation
   - 4.1. Inception phase implementation
     - 4.1.1. Component prototyping
     - 4.1.2. Assessment planning
   - 4.2. Elaboration phase component implementation
     - 4.2.1. Critical component coding
     - 4.2.2. Component assessment
     - 4.2.3. Critical component demonstration
   - 4.3. Construction phase component integration
     - 4.3.1. Initial release component coding and testing
     - 4.3.2. Alpha release component coding and testing
     - 4.3.3. Beta release component coding and testing
     - 4.3.4. Component maintenance
     - 4.3.5. Transition phase component maintenance
5. Operations
   - 5.1. Inception phase operations planning
   - 5.2. Elaboration phase operation planning
   - 5.3. Construction phase operations
   - 5.4. Transition phase operations
     - 5.4.1. System transition to user

Source: Adapted from Royce, 1998.

Work Breakdown Structure (WBS) is a hierarchy of tasks and subtasks.

Note: numbering in WBS does not imply chronological order. It is not necessary for all subtasks in 1 to precede all subtasks in 2.

Figure 3.29 Level of Planning Detail in the Work Breakdown Structure Throughout the Systems Development Process



Source: Adapted from Royce, 1998.

Planning detail evolves over time.

GANTT CHART

Iteration	Component	Duration (days)	Total Days
1	Employee Benefit Inquiry or Change	10	10
2	Employee Training Inquiry or Registration	10	20
3	Employee Retirement Planning Inquiry	6	26
	Employee Job Inquiry or Application	4	30
4	Corporate Policy Inquiry	4	34
	Corporate News Inquiry	3	37
	Corporate Performance Inquiry	3	40
5	Management benefit Posting	3	43
	Management Training Posting	3	46
	Management Job Posting	2	48
	Management Corporate Policy Posting	2	50
6	Management Corporate News Posting	2	52
	Management Corporate Performance Posting	2	51

- Create a Gantt Chart :
  1. Using Microsoft Project
  2. Hand Drawing

Recap

- After studying this chapter we learned to:
  - Describe effective project management skills through all phases of the systems development process.
  - Describe OOSAD.
  - Understand critical path scheduling, Gantt charts, and Network diagrams.
  - Work with commercial project management software products.