



ĐẠI HỌC ĐÀ NẴNG
TRƯỜNG ĐẠI HỌC CÔNG NGHỆ THÔNG TIN VÀ TRUYỀN THÔNG VIỆT - HÀN
Vietnam - Korea University of Information and Communication Technology

Software Project Management

Seeing the Big Picture

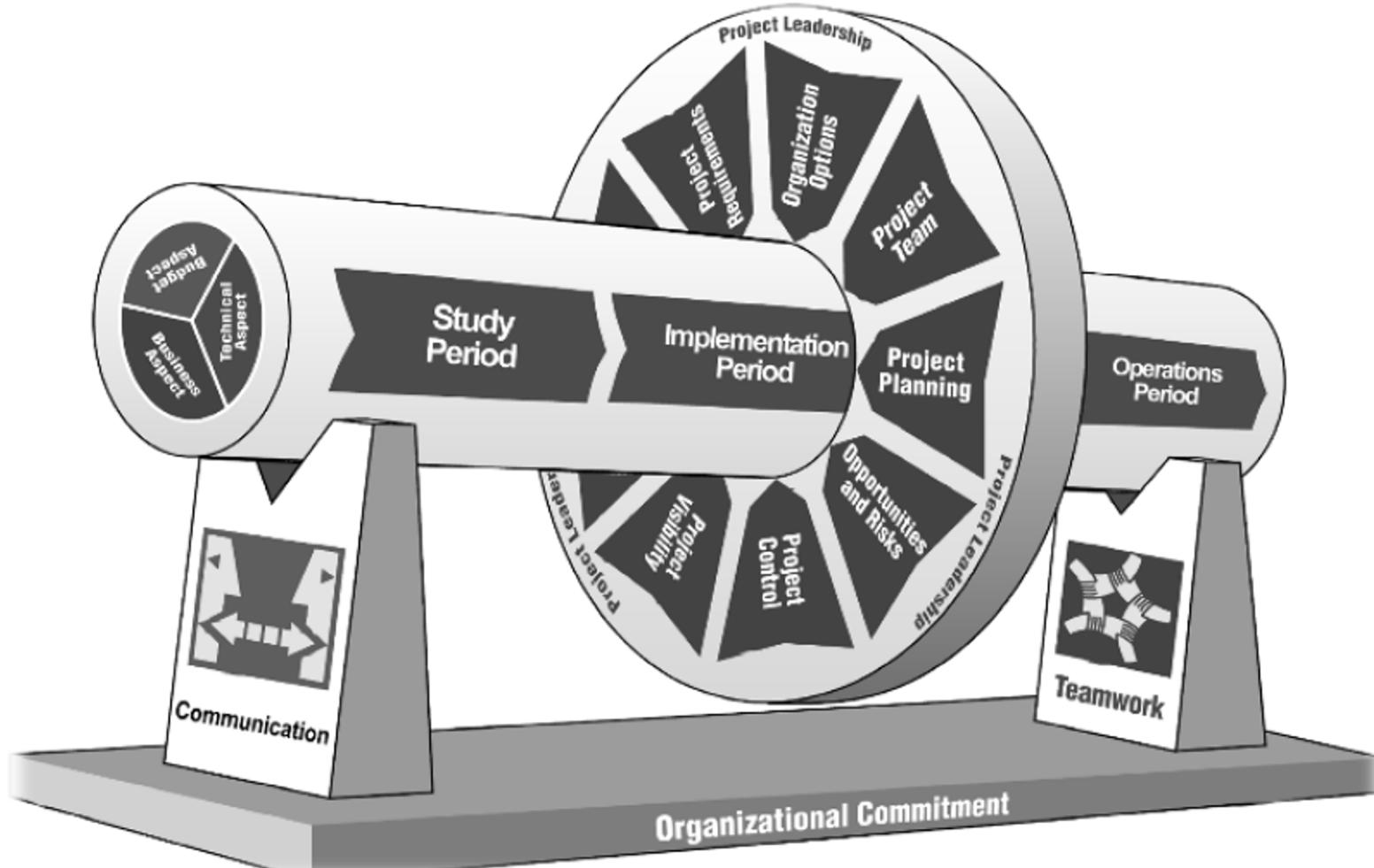


Lecture Objectives

- Seeing the Big Picture
 - Set up your “Foundation”
 - Manage the “Aspects” of your project
 - Work through the “Lifecycle”
 - Planning Ahead



Seeing the Big Picture*





The Wheel





The Wheel

- ? Spokes on the Wheel (Situational)

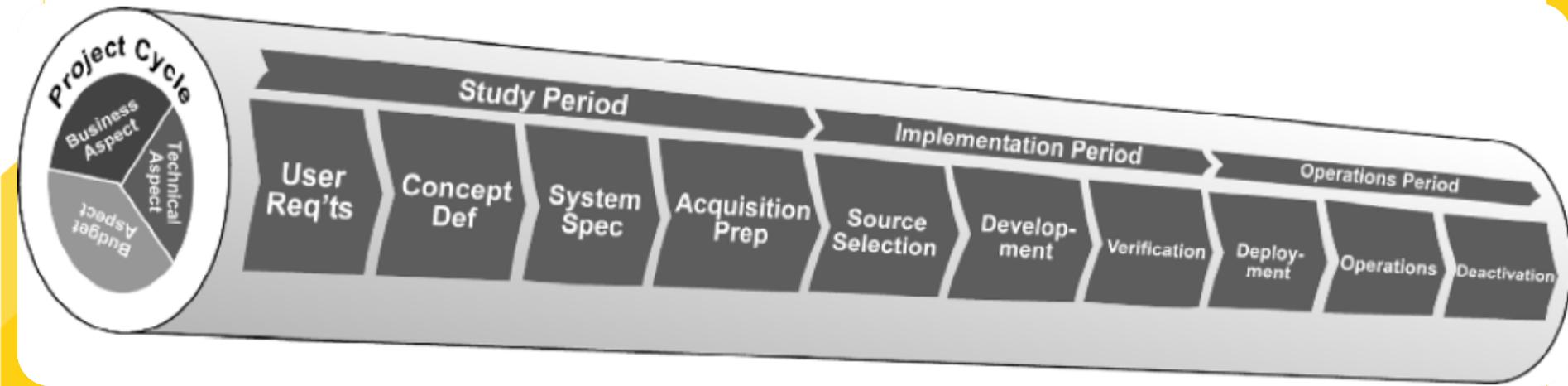
- Project Requirements
- Organizational Options
- Project Team
- Project Planning
- Opportunities and Risks
- Project Control
- Project Visibility
- Project Status
- Corrective Action

- ? Rim

- Project Leadership



The Axe

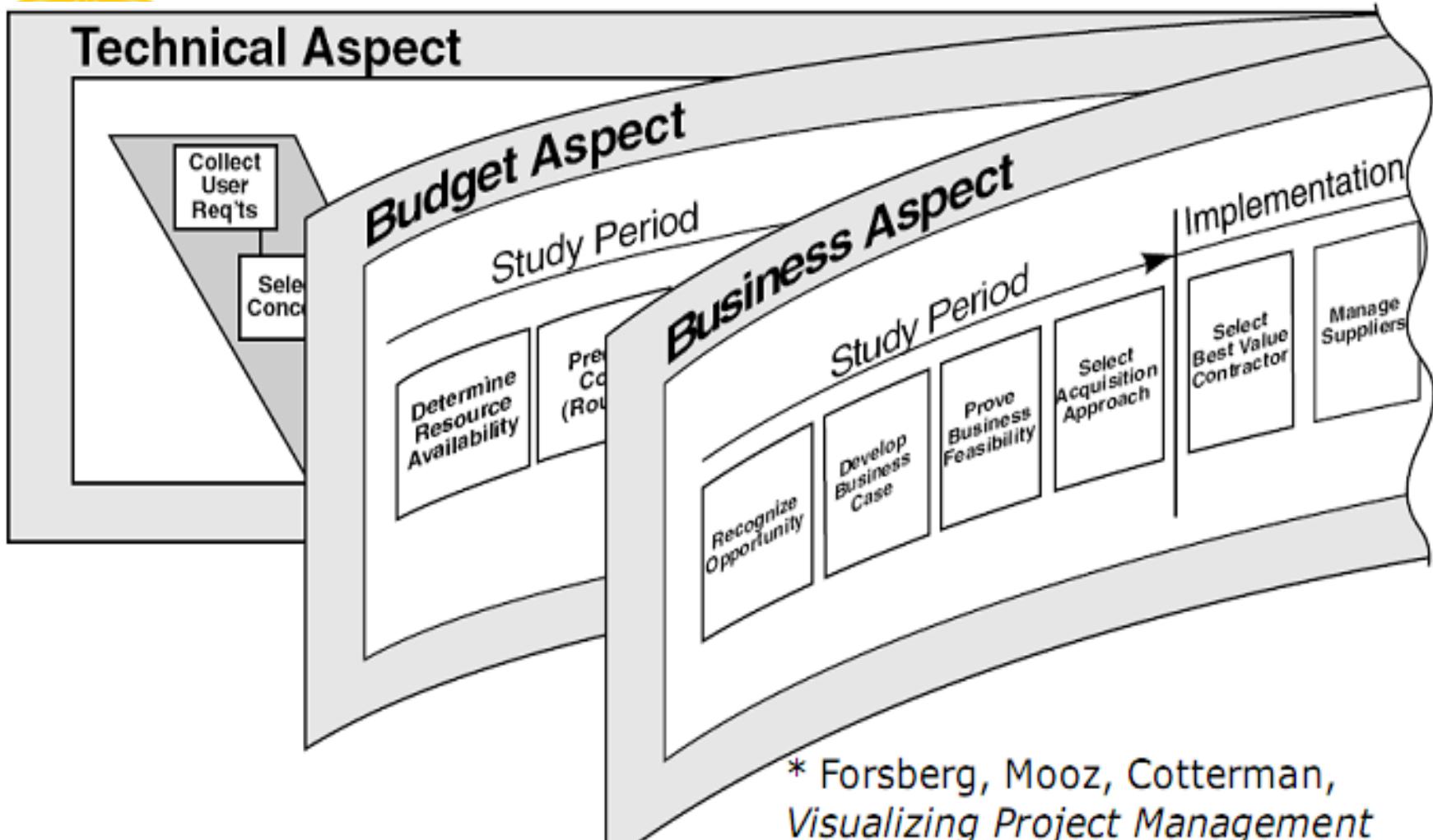




The Axe: Aspects*

- Inside (Sequential)
 - Business Aspects
 - Budget Aspects
 - Technical Aspects

The Axe: Aspects - 2*





The Axe: Lifecycle*

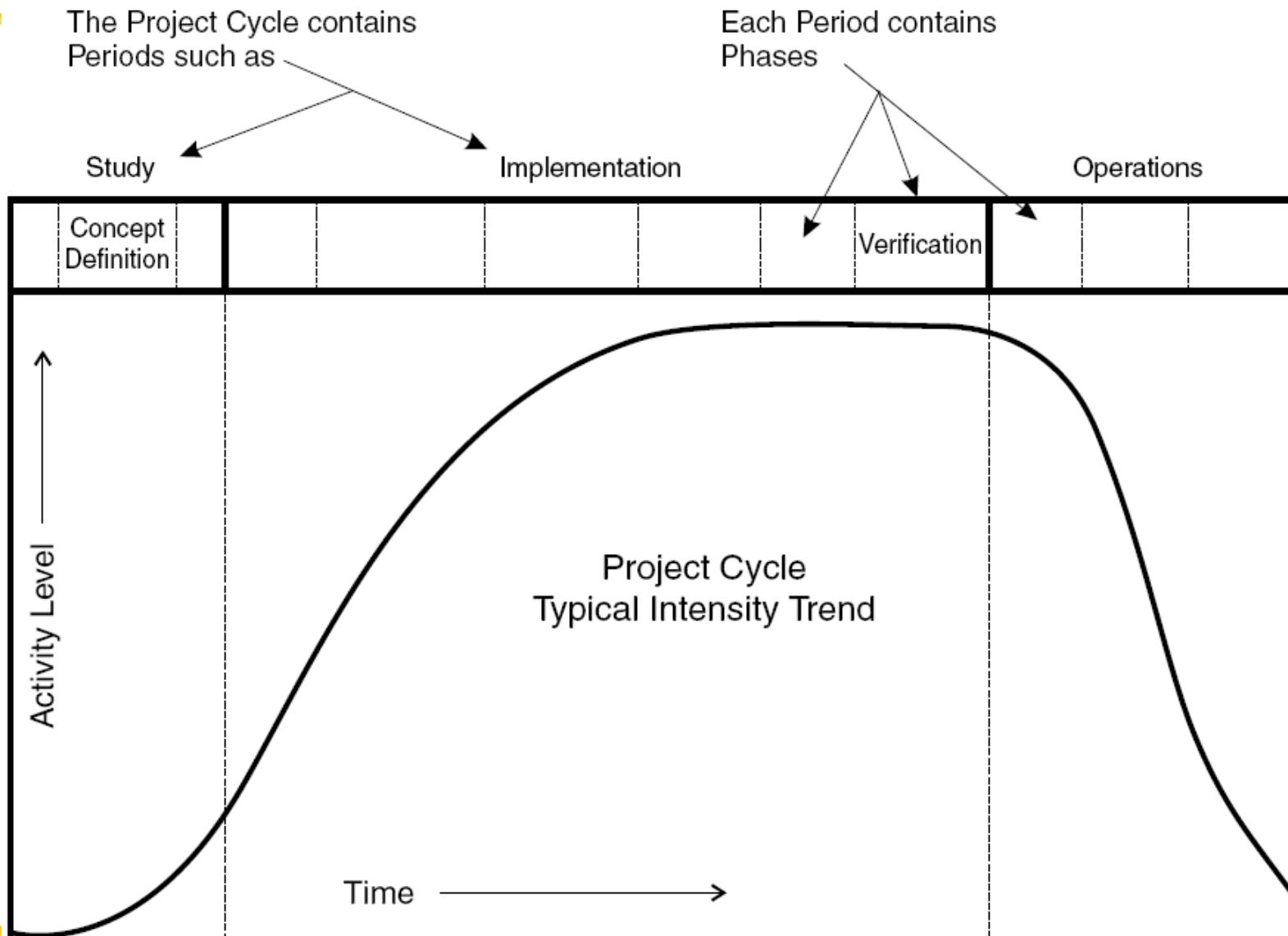
- ⓘ All projects have a lifecycle. The only question is whether the lifecycle has been carefully analyzed and selected.
- ⓘ Outside – Generic Lifecycle Example (Sequential)
 - Study Period
 - User Requirements
 - Concept Definition
 - System Specification



The Axe: Lifecycle* (2)

- **Outside (Sequential)**
 - Study Period (continued)
 - Acquisition Preparation
 - Implementation Period
 - Source Selection
 - Development
 - Verification
- **Operations Period**
 - Deployment
 - Operations
 - Deactivation
 - Visualizing Project Management

The Axe: Lifecycle* (3)





The Base*

- Communication (Perpetual)
 - Language & techniques used to achieve understanding
 - Without rapport there is no communication
 - Without honesty there can be no quality
 - Cultural differences



The Base* (2)

- ☐ Teamwork (Perpetual)
 - ☐ Common goals
 - ☐ Acknowledged interdependency, trust, and mutual respect
 - ☐ A common code of conduct
 - ☐ Shared rewards; and
 - ☐ Team spirit and energy



The Base* (3)

- ☐ Organizational Commitment (Perpetual)
 - ☐ Culture responsive to the project manager
 - ☐ Project team's charter to do the job
 - ☐ Financial and other necessary resources
 - ☐ Tools & training for effective & efficient execution



Lifecycle: Concept Definition

- ❓ Provides Project Justification (Go or No Go)
 - ❓ Scope
 - ❓ Business and Technical Feasibility
 - ❓ Return on Investment
 - ❓ Cost-Benefit Analysis
 - ❓ Portfolio Fit
- ❓ Is often circumvented in the rush to implement
- ❓ Initial identification of project risks



Lifecycle: Concept Definition (2)

- Identify the project sponsor and stakeholders.
- Make sure project is aligned with business goals.
- Define Done, Quality and Acceptance.
- Establish initial team.
- May include Procurement Management.
 - Potential Outputs:
 - Product Vision
 - Request for Proposal (RFP) & Statement of Work (SOW)
 - Project Charter
 - Business Case
 - Preliminary Schedule and Budget



Lifecycle: Requirements

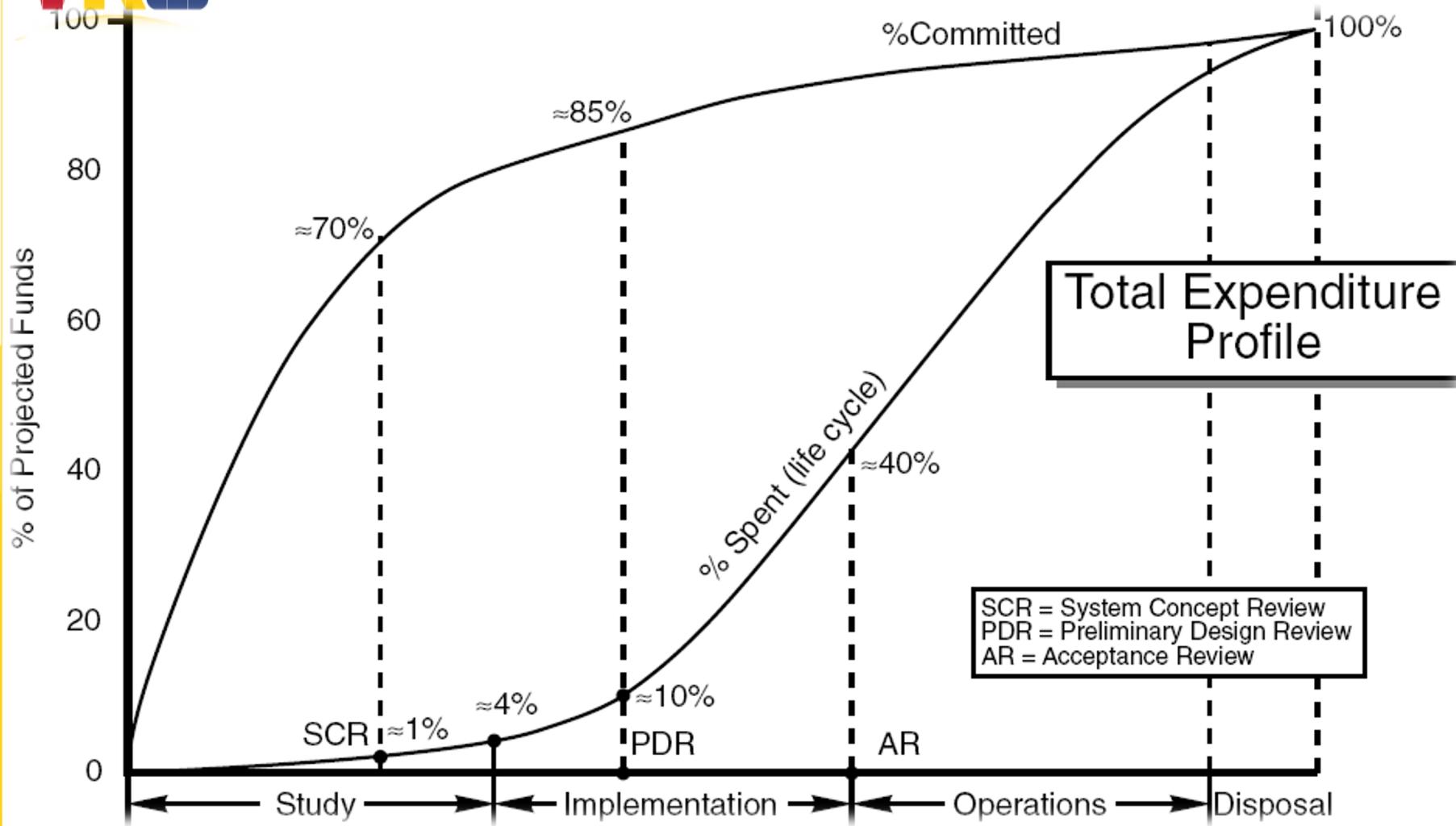
- ☐ Describes “What” the product will do
 - ☐ Functional and Non-functional
 - ☐ “Complete”
 - ☐ Must be prioritized
- ☐ Inputs:
 - ☐ From Concept phase
- ☐ Potential Outputs:
- ☐ Requirements Document (RD). For example:
 - ☐ User Requirements Document (URD)
 - ☐ Software Requirements Specification (SRS)
- ☐ Software Project Management Plan (SPMP)
 - ☐ Updated Schedule, Budget and Risks



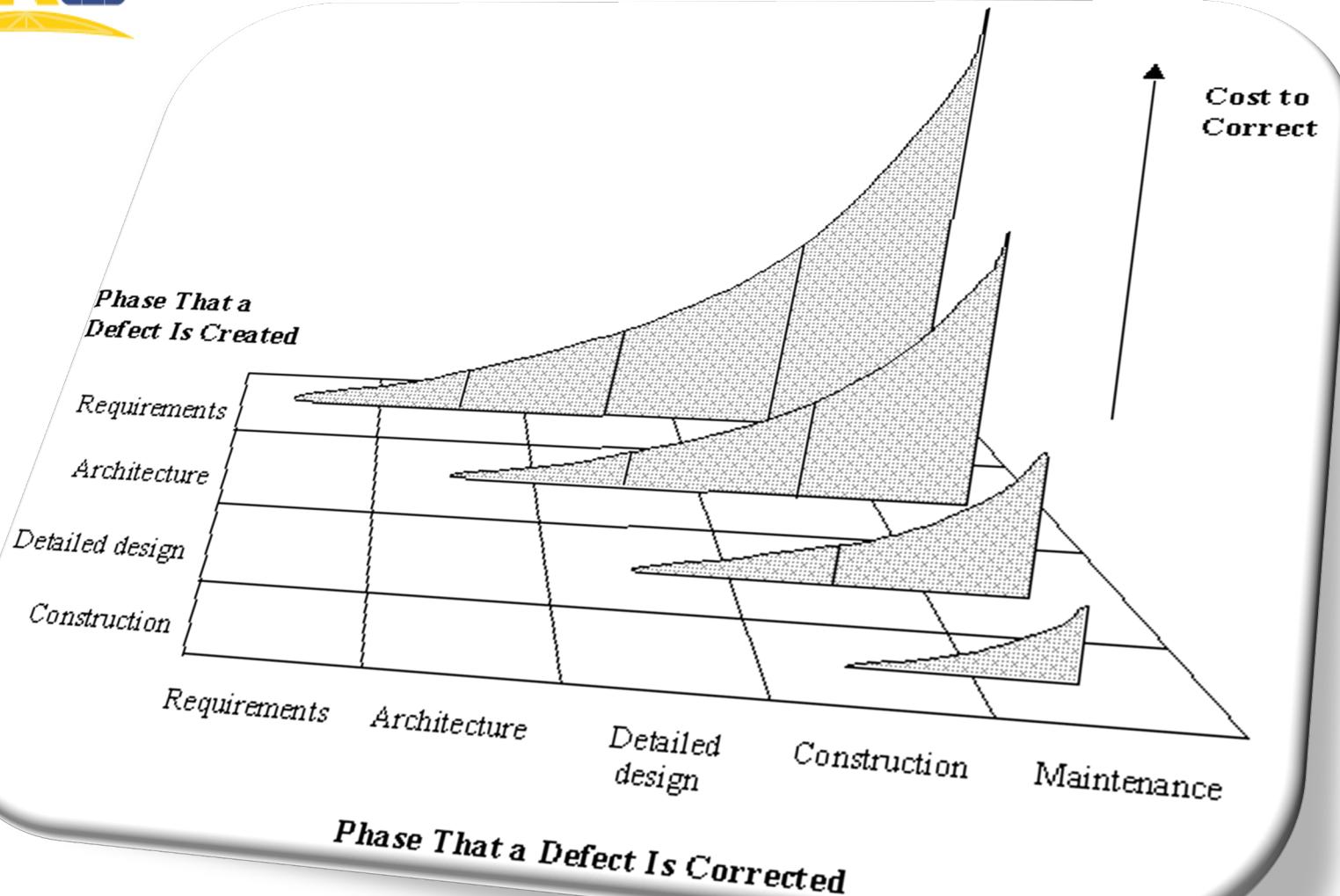
Lifecycle: Requirements (2)

- **?** Conflicts:
 - **?** Customer:
 - **?** Wants more features faster and cheaper
 - **?** Development:
 - **?** Wants reasonable schedule & budget
 - **?** Management:
 - **?** Wants to be profitable
 - **?** Getting approval & sign-off
 - **?** Frequent changes and/or additions
- **?** Detailed project planning occurs in parallel
 - **?** Difficult to estimate without knowing “What”

Why are Requirements so Important?*



Why are Requirements so Important?* (2)





Lifecycle: Analysis & Design

- **Describes “How” the product will be built**
- **Inputs: Requirements Document**
- **Potential Outputs:**
 - Functional Specification
 - Architecture Specification
 - Detailed Design Document
 - User Interface Specification
 - Data Model
 - Prototype (can also be done with requirements)
 - Updated Plans, Schedule and Budget
 - Updated Risks



Lifecycle: Analysis & Design (2)

- ? Delays may occur due to:
 - ? Requirements changes
 - ? New information
 - ? Late ideas
- ? May have issues with:
 - ? Using or implementing new or unfamiliar technology
 - ? Lack of specific expertise
 - ? Lack of standards
 - ? Limited or no use of human factors engineering
 - ? Poor communication



Lifecycle: Development

- ☐ Consists of Coding & Unit testing
- ☐ Potential concurrent activities & outputs
 - ☐ End of design & beginning of development
 - ☐ Beginning of integration & end of development
 - ☐ Unit testing
 - ☐ System test setup (environment and tools)
 - ☐ Project plans, schedules and budgets updated
 - ☐ Project risks updated
- ☐ Schedule and budget pressure usually increases here
- ☐ Last-minute changes
- ☐ Management of sub-contractors



Lifecycle: Integration

- ④ Putting all the product pieces together
- ④ Best Practices:
 - ④ Do this as development progresses (instead of waiting until the end)
 - ④ Automate product integration
 - ④ Use automated testing



Lifecycle: Testing

- ⓘ Which tests will your product go through?
 - ⓘ Integration testing
 - ⓘ Black & White-box testing
 - ⓘ Load & Stress testing
 - ⓘ Alpha & Beta testing
 - ⓘ Acceptance testing
- ⓘ Other activities
 - ⓘ Update plans, schedule, budget & risks
 - ⓘ Prepare for deployment



Lifecycle: Integration & Test Issues

- ☺Increased schedule and budget pressure
- ☺Customer conflicts over new or changed features
- ☺Testing finds last-minute failures
- ☺Schedule and/or budget overruns
- ☺Motivation problems (such as burnout)
- ☺Difficulty getting to “done”
 - ☺ Customer wants perfection
 - ☺ Developers want to be done
 - ☺ Management wants to be profitable



Lifecycle: Deployment

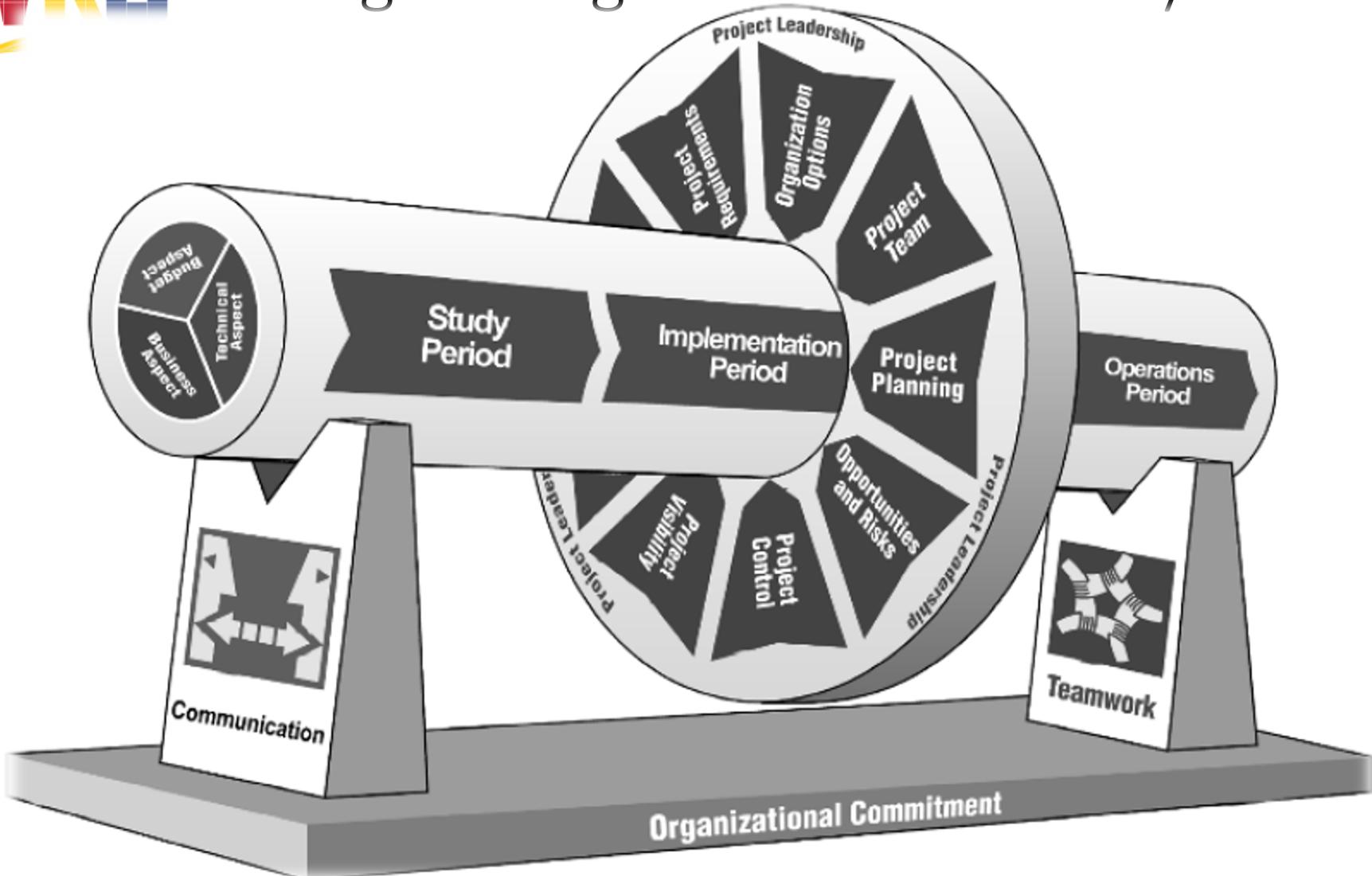
- ☐ Migration strategy (should have been one of the project plans):
 - ☐ User preparation
 - ☐ Installation
 - ☐ Training
 - ☐ Parallel operation
 - ☐ Full deployment



Lifecycle: Support & Maintenance

- **Support**
 - Who user contacts when they have a problem
- **Maintenance**
 - Fixes defects
 - Adds new features
 - Improves performance
- **Change and configuration management are critical**
 - Product source code
 - Documents
 - Automate your processes

Seeing the Big Picture: Summary*





Seeing the Big Picture: Summary (2)

- Set up your “Foundation”
 - ? Communication
 - ? Teamwork
 - ? Organizational Commitment
- Manage the “Aspects” of your project
 - ? Business
 - ? Technical
 - ? Budget
- Work through the “Lifecycle”
 - ? Anticipate what is coming up



Project Manager Anticipation

- **?** How will your team get work done to meet the project's objectives in your project's lifecycle?
 - **?** Processes & Measurement
 - **?** Artifacts
 - **?** Resources
 - **?** Knowledge (and/or training)
 - **?** Experience
 - **?** Systems and Tools
 - **?** Vendors
 - **?** Commercial Off-The-Shelf (COTS) Products



Planning Ahead (2)

- ☰ Know at the beginning how you will implement:

- ☰ Project Planning
- ☰ Estimation
- ☰ Project Tracking
- ☰ Project Controls
- ☰ Project Reporting
- ☰ Change Management
- ☰ Risk Management
- ☰ Etc.



Planning Ahead (3)

- **Once you know:**
 - What processes you are going to implement
 - What they look like
 - What artifacts they produce
 - The resources needed
 - What tools and/or systems you need
 - What training is needed
- Be sure to define the impact if these items are not available.
- Be sure to include the effort and \$ for these items in the project's schedule & budget.



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Questions & Answers

Seeing the Big Picture