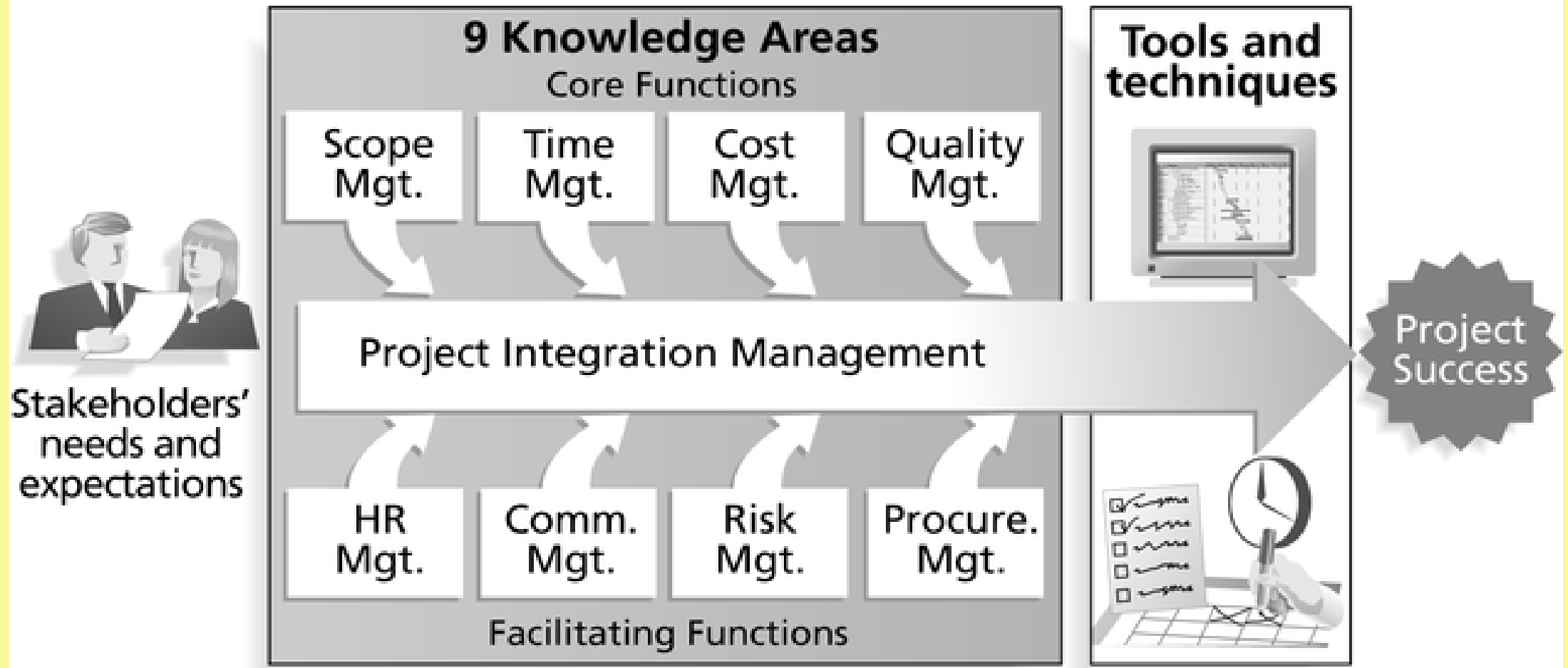




Software Project Management

Target Group: SE 3rd year

Instructor: Hailu Beshada (MSc)



The background is a solid dark blue. On the left side, there is a large, glowing blue gear with concentric circles around it. Several smaller gears of different sizes are scattered around the main gear. White and light blue circuit lines with glowing nodes at the intersections and endpoints are drawn across the image, some connecting the gears. There are also some white double arrow symbols (» and «) pointing in different directions. The overall aesthetic is high-tech and digital.

Project Integration Management

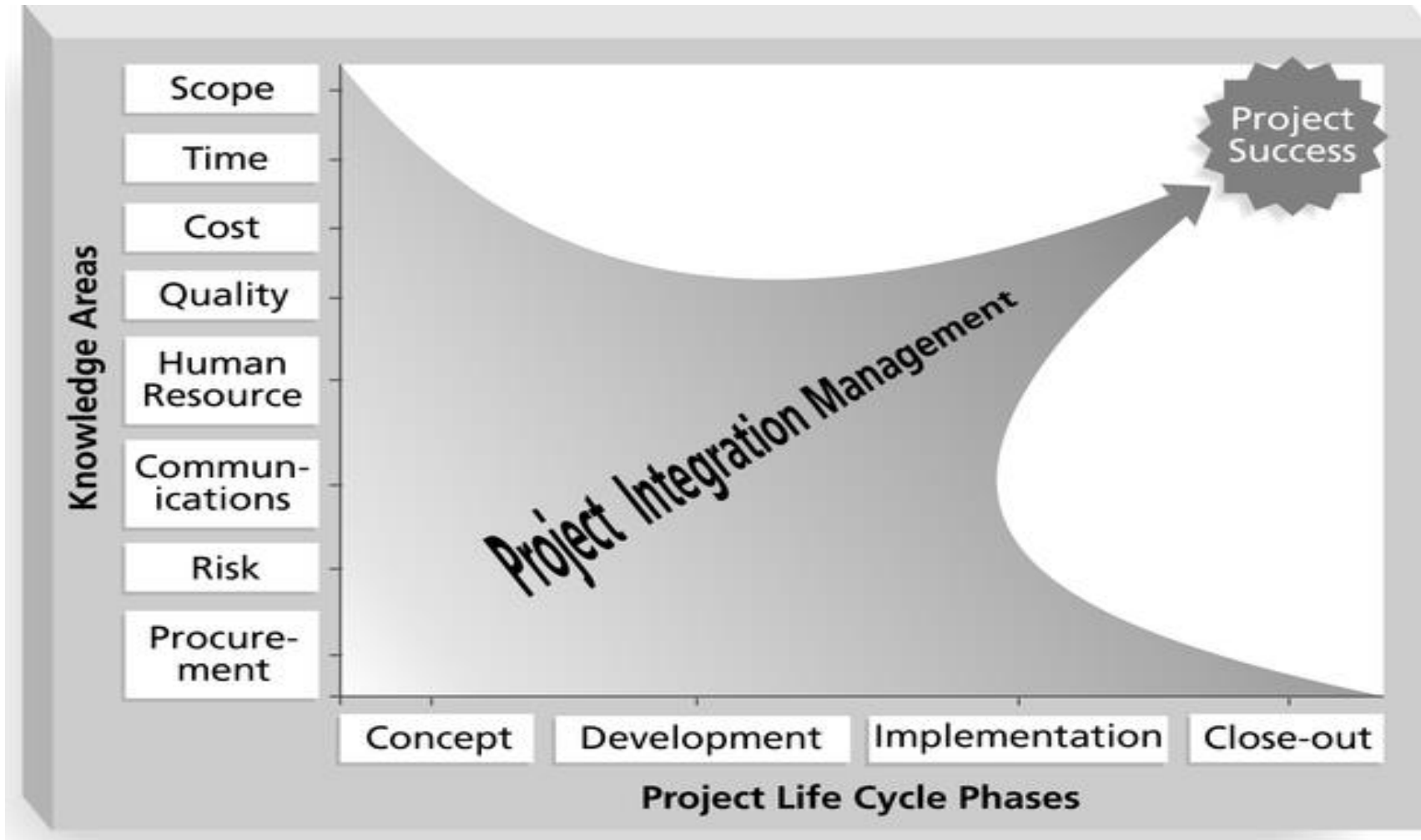
What is Integration Management?

- It is a **project management knowledge area** that helps teams work together more **seamlessly**.
- It brings together various:
 - ✓ Processes
 - ✓ Systems and
 - ✓ Methodologies to form a cohesive strategy.
- The Key to Overall Project Success is:
 - ✓ Good Project Integration Management

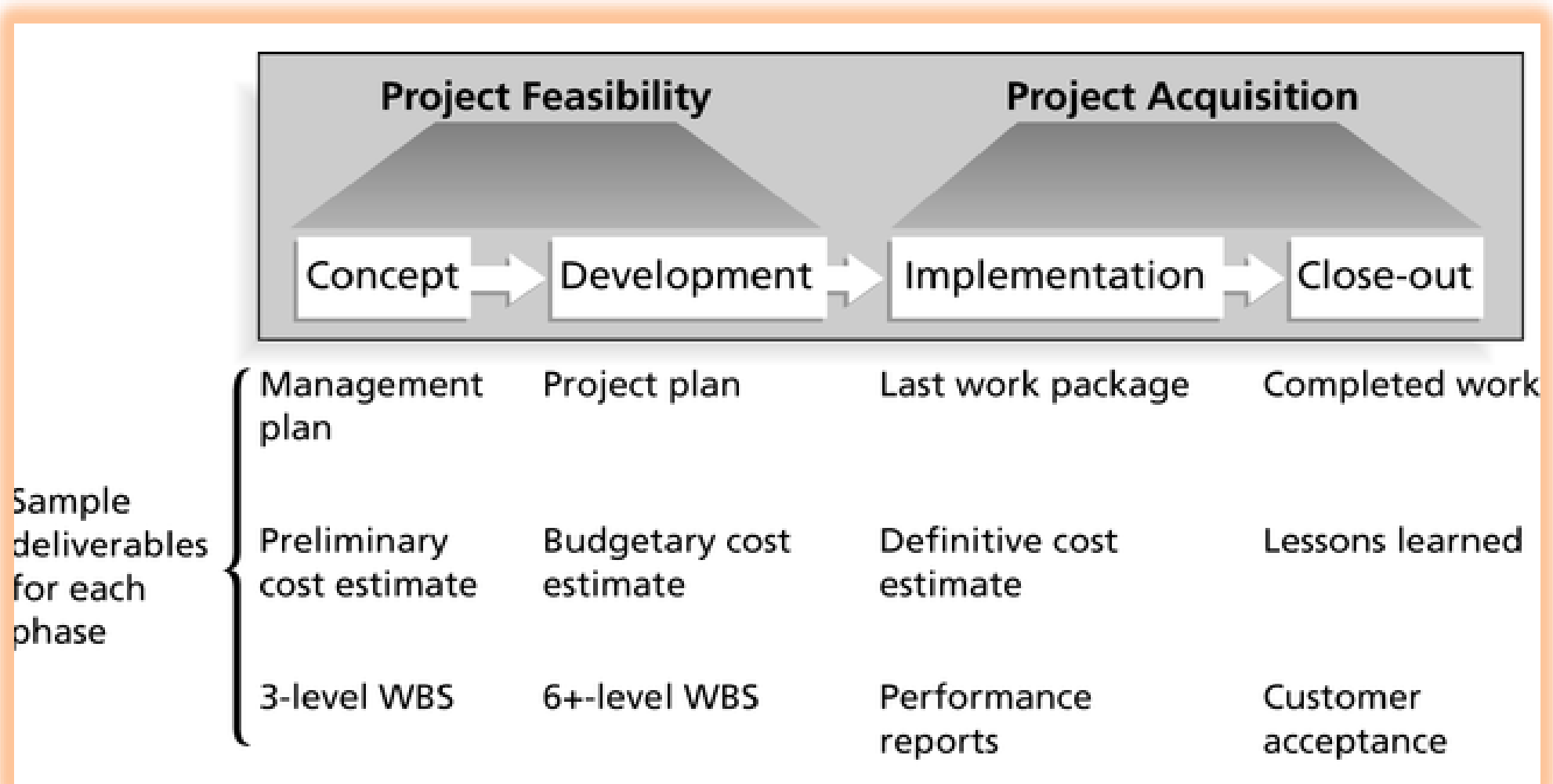
What is Integration Management?

- Project managers must **coordinate all** of the other knowledge areas throughout a project's life cycle
- Many new project managers have trouble looking at the “big picture” and want to focus on too many details
- Project integration management is not the same thing as software integration.

Framework for Project Integration Management



Project Life Cycle



PROJECT INTEGRATION MANAGEMENT

4.1 Project Plan Development

.1 Inputs

- .1 Other planning outputs
- .2 Historical information
- .3 Organizational policies
- .4 Constraints
- .5 Assumptions

.2 Tools and Techniques

- .1 Project planning methodology
- .2 Stakeholder skills and knowledge
- .3 Project management information system (PMIS)
- .4 Earned value management (EVM)

.3 Outputs

- .1 Project plan
- .2 Supporting detail

4.2 Project Plan Execution

.1 Inputs

- .1 Project plan
- .2 Supporting detail
- .3 Organizational policies
- .4 Preventive action
- .5 Corrective action

.2 Tools and Techniques

- .1 General management skills
- .2 Product skills and knowledge
- .3 Work authorization system
- .4 Status review meetings
- .5 Project management information system
- .6 Organizational procedures

.3 Outputs

- .1 Work results
- .2 Change requests

4.3 Integrated Change Control

.1 Inputs

- .1 Project plan
- .2 Performance reports
- .3 Change requests

.2 Tools and Techniques

- .1 Change control system
- .2 Configuration management
- .3 Performance measurement
- .4 Additional planning
- .5 Project management information system

.3 Outputs

- .1 Project plan updates
- .2 Corrective action
- .3 Lessons learned

Project Plan Development

Project Plan Development

- A project plan is a document used to coordinate all project planning documents.
- Its main purpose is to guide project execution
- Project plans assist the project manager in leading the project team and assessing project status
- Project performance should be measured against a baseline project plan

Attributes of Project Plans

- Just as projects are unique, so are project plans
 - ✓ Plans should be dynamic
 - ✓ Plans should be flexible
 - ✓ Plans should be updated as changes occur
 - ✓ Plans should first and foremost guide project execution

Common Elements of a Project Plan

- Introduction or overview of the project
- Description of how the project is organized
- Management and technical processes used on the project
- Work to be done, schedule, and budget information

Sample Outline for a Software Project Management Plan (SPMP)

Project Management Plan Sections					
	Introduction	Project Organization	Managerial Process	Technical Process	Work Packages, Schedule, and Budget
Section of Topics	Project overview; project deliverables; evolution of the SPMP; reference materials; definitions and acronyms	Process model; organizational structure; organizational boundaries and interfaces; project responsibilities	Management objectives and priorities; assumptions, dependencies, and constraints; risk management; monitoring and controlling mechanisms; and staffing plan	Methods, tools, and techniques; software documentation; and project support functions	Work packages; Dependencies; resource requirements; budget and resource allocation; and schedule

Stakeholder Analysis

- A stakeholder analysis documents important (often sensitive) information about stakeholders such as
 - ✓ stakeholders' names and organizations
 - ✓ roles on the project
 - ✓ unique facts about stakeholders
 - ✓ level of influence and interest in the project
 - ✓ suggestions for managing relationships

Sample Stakeholder Analysis

Key Stakeholders					
	Ahmed	Susan	Erik	Mark	David
Organization	Internal senior management	Project team	Project team	Hardware vendor	Project manager for other internal project
Role on project	Sponsor of project and one of the company's founders	DNA sequencing expert	Lead programmer	Supplies some instrument hardware	Competing for company resources
Unique facts	Demanding, likes details, business focus, Stanford MBA	Very smart, Ph.D. in biology, easy to work with, has a toddler	Best programmer I know, weird sense of humor	Start-up company, he knows we can make him rich if this works	Nice guy, one of oldest people at company, has 3 kids in college
Level of interest	Very high	Very high	High	Very high	Low to medium
Level of influence	Very high; can call the shots	Subject matter expert; critical to success	High; hard to replace	Low; other vendors available	Low to medium
Suggestions on managing relationship	Keep informed, let him lead conversations, do as he says and quickly	Make sure she reviews specifications and leads testing; can do some work from home	Keep him happy so he stays; emphasize stock options; likes Mexican food	Give him enough lead time to deliver hardware	He knows his project takes a back seat to this one, but I can learn from him

Project Plan Execution

Project Plan Execution

- Project plan execution involves managing and performing the work described in the project plan
- The majority of time and money is usually spent on execution
- The application area or the project directly affects project execution because the products of the project are produced during execution

Important Skills for Project Execution

- General management skills like leadership, communication, and political skills
- Product skills and knowledge
- Use of specialized tools and techniques

Tools and Techniques for Project Execution

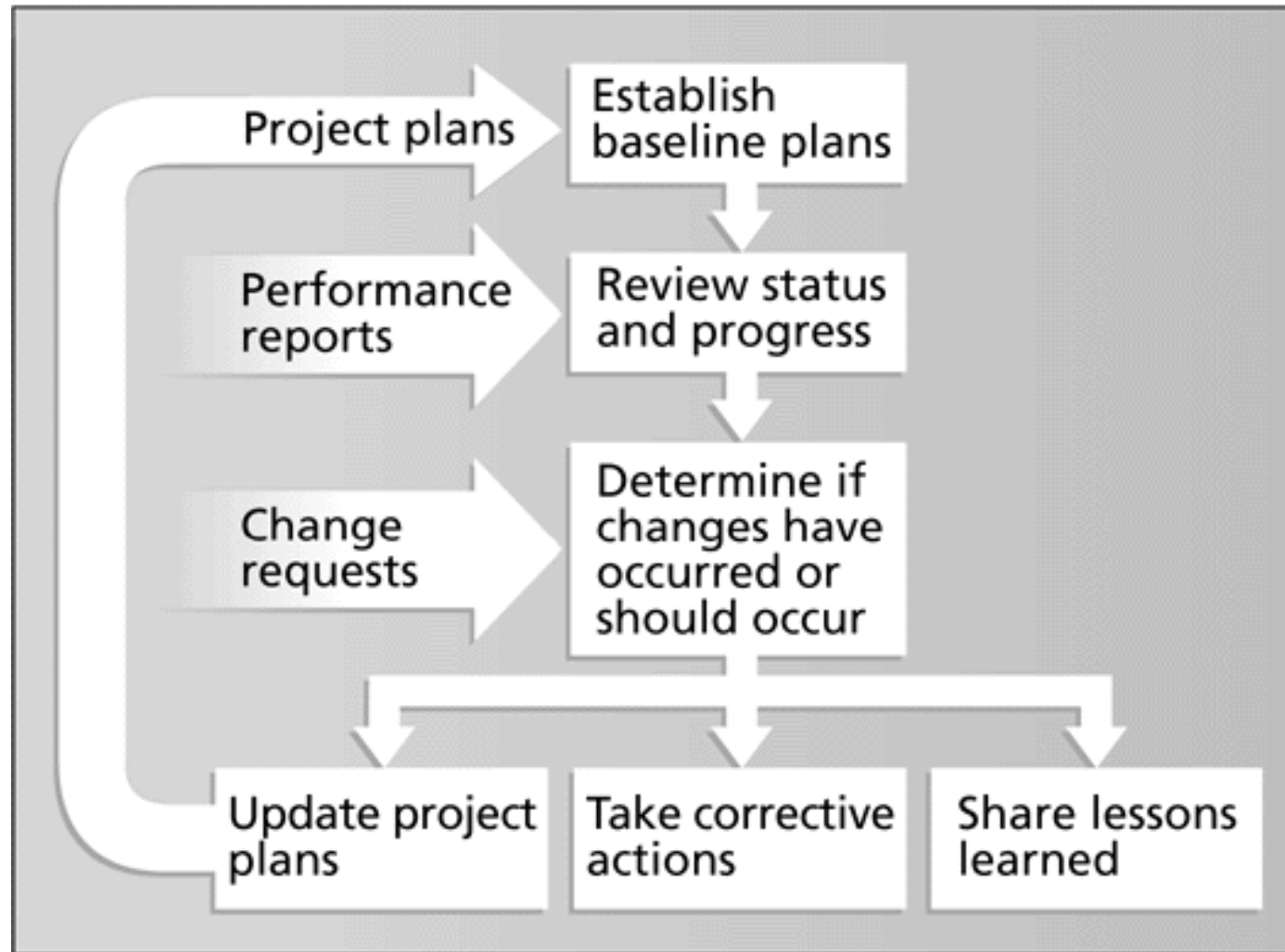
- **Work Authorization System:** a method for ensuring that qualified people do work at the right time and in the proper sequence
- **Status Review Meetings:** regularly scheduled meetings used to exchange project information
- **Project Management Software:** special software to assist in managing projects

Integrated Change Control

Integrated Change Control

- Integrated change control involves identifying, evaluating, and managing changes throughout the project life cycle (Note: 1996 PMBOK called this process “overall change control”)
- Three main objectives of change control:
 - ✓ Determine that a change has occurred
 - ✓ Influence the factors that create changes to ensure they are beneficial
 - ✓ Manage actual changes when and as they occur

Integrated Change Control Process



Change Control on Software Projects

- **Former view:** The project team should strive to do exactly what was planned on time and within budget
- **Problem:** Stakeholders rarely agreed up-front on the project scope, and time and cost estimates were inaccurate
- **Modern view:** Project management is a process of constant communication and negotiation
- **Solution:** Changes are often beneficial, and the project team should plan for them

Change Control System

- A formal, documented process that describes when and how official project documents and work may be changed
- Describes who is authorized to make changes and how to make them
- Often includes a Change Control Board (CCB), configuration management, and a process for communicating changes

Change Control Boards (CCBs)

- A formal group of people responsible for approving or rejecting changes on a project
- Provides guidelines for preparing change requests, evaluates them, and manages the implementation of approved changes
- Includes stakeholders from the entire organization

Making Timely Changes

- Some CCBs only meet occasionally, so it may take too long for changes to occur
- Some organizations have policies in place for time-sensitive changes
 - ✓ “**48 hour policy**” allowed project team members to make decisions, then they had 48 hours reverse the decision pending senior management approval
 - ✓ Delegate changes to the lowest level possible, but keep everyone informed of changes

Configuration Management

- Ensures that the products and their descriptions are correct and complete
- Concentrates on the management of technology by identifying and controlling the functional and physical design characteristics of products
- Configuration management specialists identify and document configuration requirements, control changes, record and report changes, and audit the products to verify conformance to requirements

Suggestions for Managing Integrated Change Control

- View project management as a process of constant communications and negotiations
- Plan for change
- Establish a formal change control system, including a Change Control Board (CCB)
- Use good configuration management
- Define procedures for making timely decisions on smaller changes
- Use written and oral performance reports to help identify and manage change
- Use project management and other software to help manage and communicate changes

THANK YOU!!!