Project Integration Management

Learning Objectives

- Describe an overall framework for project integration management as it relates to the other project management knowledge areas and the project life cycle

- Describe project plan development, including project plan content, using guidelines and templates for developing plans, and performing a stakeholder analysis to help manage relationships

- Explain project plan execution, its relationship to project planning, the factors related to successful results, and tools and techniques to assist in project plan execution

- Understand the integrated change control process, planning for and managing changes on information technology projects, and developing and using a change control system

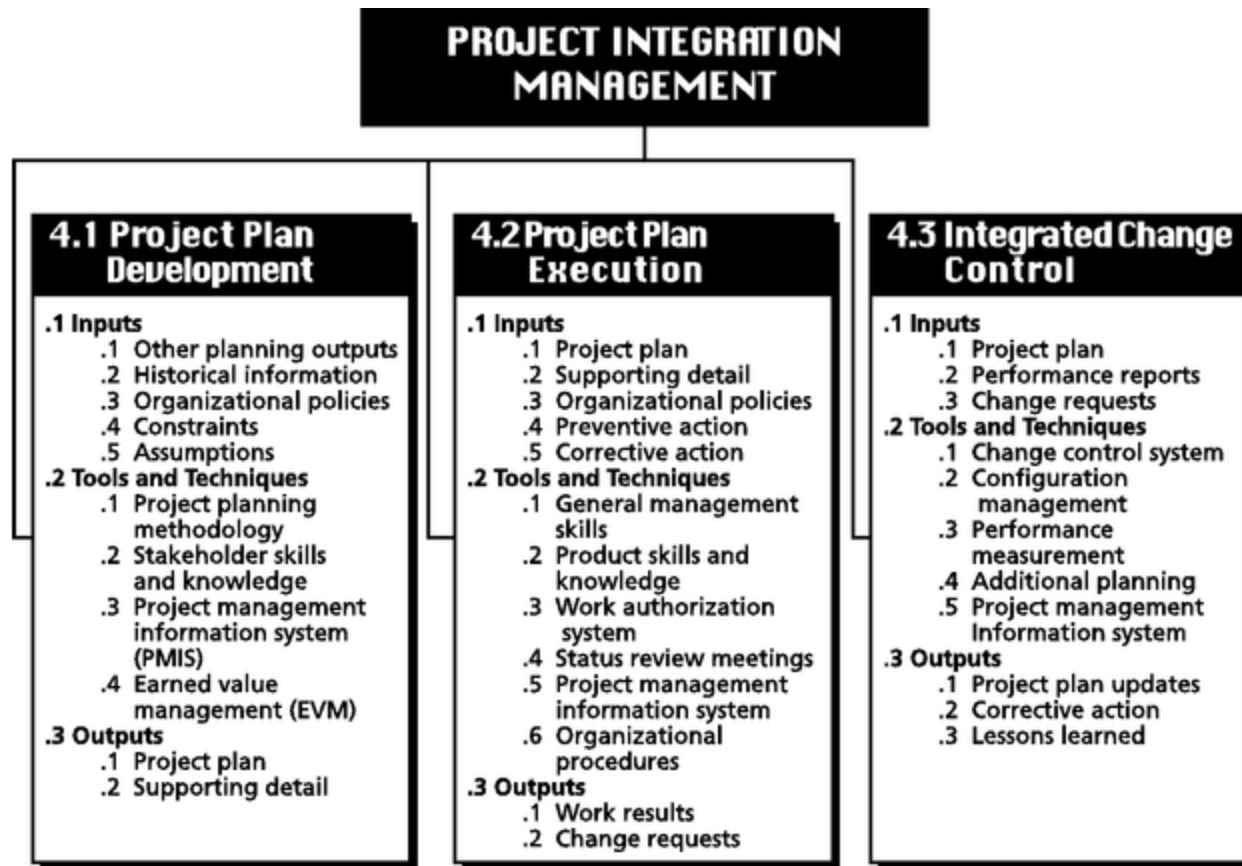- Describe how software can assist in project integration management

The Key to Overall Project Success: Good Project 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 (See opening case for a real example)

- Project integration management is not the same thing as software integration

Project Integration Management Processes

- Project Plan Development: taking the results of other planning processes and putting them into a consistent, coherent document—the project plan

- Project Plan Execution: carrying out the project plan

- Integrated Change Control: coordinating changes across the entire project

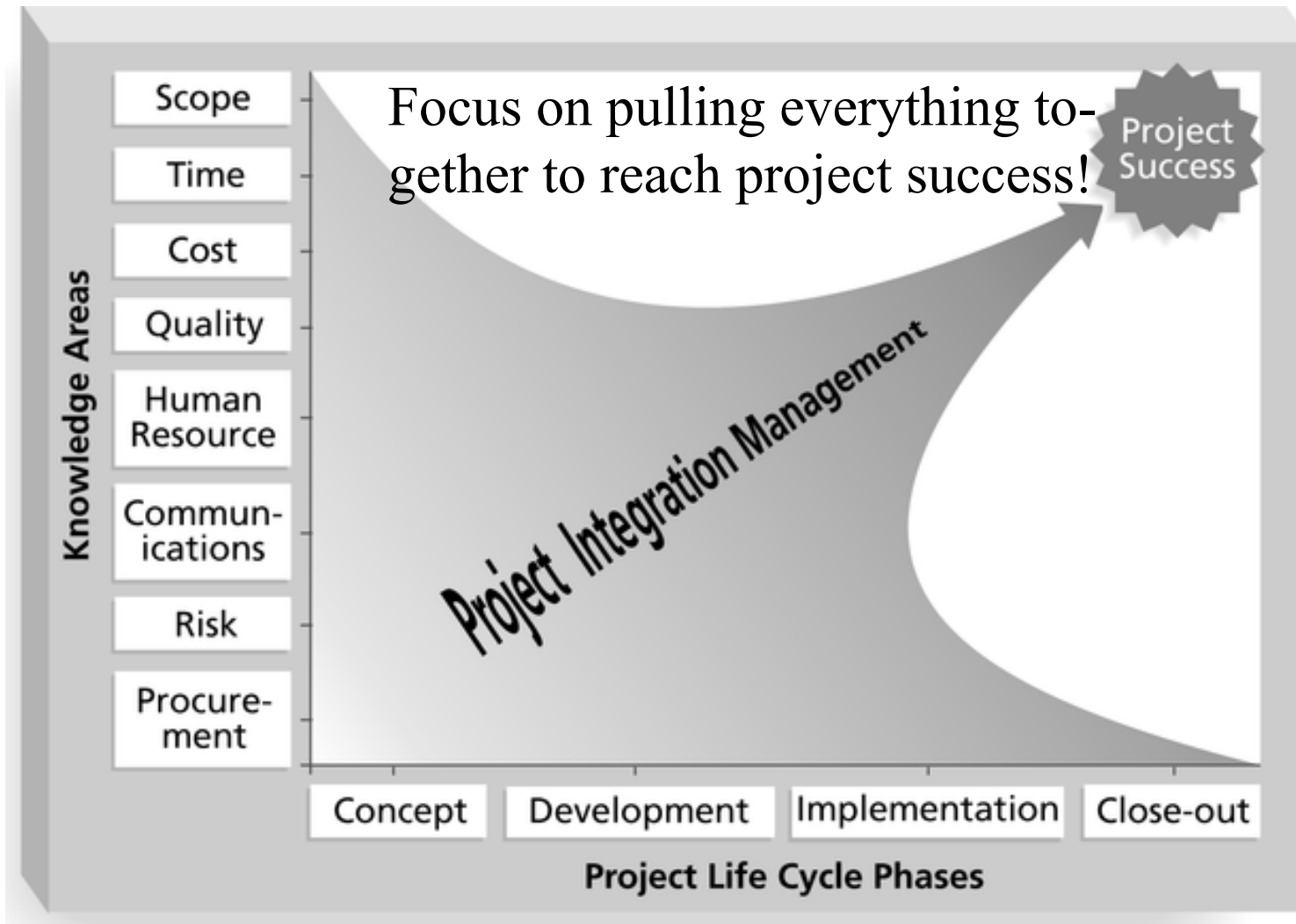# Figure 4-1. Project Integration Management Overview

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

PMBOK® Guide 2000, 42.

Figure 4-1. Project Integration Management Overview

Note: The PMBOK® Guide 2000 includes similar charts for each knowledge area.

Figure 4-2. Framework for Project Integration Management

Focus on pulling everything together to reach project success!

Knowledge Areas: Scope, Time, Cost, Quality, Human Resource, Communications, Risk, Procurement

Project Integration Management

Project Success

Project Life Cycle Phases: Concept, Development, Implementation, Close-out

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 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

Table 4-1. Sample Outline for a Software Project Management Plan (SPMP)

	Introduction	Project Organization	Managerial Process	Technical Process	Work Packages, Schedule, and Budget
Project Management Plan Sections					
Section 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

IEEE Std 10581-1987

What the Winners Do

"The winners clearly spell out what needs to be done in a project, by whom, when, and how. For this they use an integrated toolbox, including PM tools, methods, and techniques…If a scheduling template is developed and used over and over, it becomes a repeatable action that leads to higher productivity and lower uncertainty. Sure, using scheduling templates is neither a breakthrough nor a feat. But laggards exhibited almost no use of the templates. Rather, in constructing schedules their project managers started with a clean sheet, a clear waste of time." *

Milosevic, Dragan and And Ozbay. "Delivering Projects: What the Winners Do." Proceedings of the Project Management Institute Annual Seminars & Symposium (November 2001)

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

Table 4-2. 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 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 of the project directly affects project execution because the products of the project are produced during execution

What Went Wrong?

- Many people have a poor view of plans based on past experiences. Senior managers often require a plan, but then no one follows up on whether the plan was followed.

- For example, one project manager said he would meet with each project team leader within two months to review their plans. The project manager created a detailed schedule for these reviews. He cancelled the first meeting due to another business commitment. He rescheduled the next meeting for unexplained personal reasons. Two months later, the project manager had still not met with over half of the project team leaders.

- Why should project members feel obligated to follow their own plans when the project manager obviously did not follow his?

Important Skills for Project Execution

- General management skills like leadership, communication, and political skills

- Product skills and knowledge (see example of "What Went Right?" on p. 120)

- 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 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:
  – Influence the factors that create changes to ensure they are beneficial
  – Determine that a change has occurred
  – Manage actual changes when and as they occur

Figure 4-3. Integrated Change Control Process
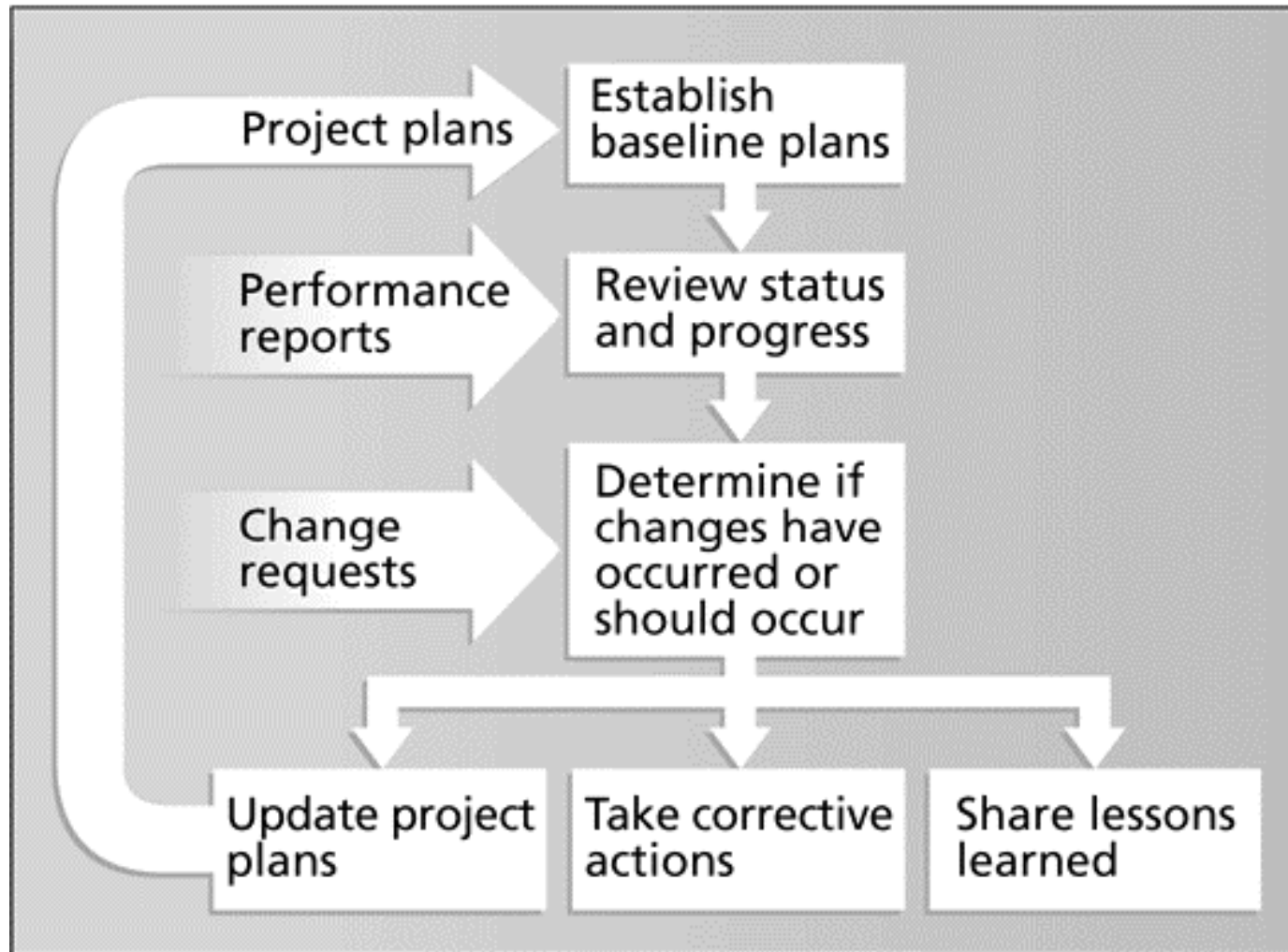
Change Control on Information Technology Projects

- 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

- CCBs provide guidelines for preparing change requests, evaluate change requests, and manage 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" allows project team members to make decisions, then they have 48 hours to 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

Table 4-3. 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

Using Software to Assist in Project Integration Management

- Several types of software can be used to assist in project integration management
  - Documents can be created with word processing software
  - Presentations are created with presentation software
  - Tracking can be done with spreadsheets or databases
  - Communication software like e-mail and Web authoring tools facilitate communications
  - Project management software can pull everything together and show detailed and summarized information (see Appendix A for details)
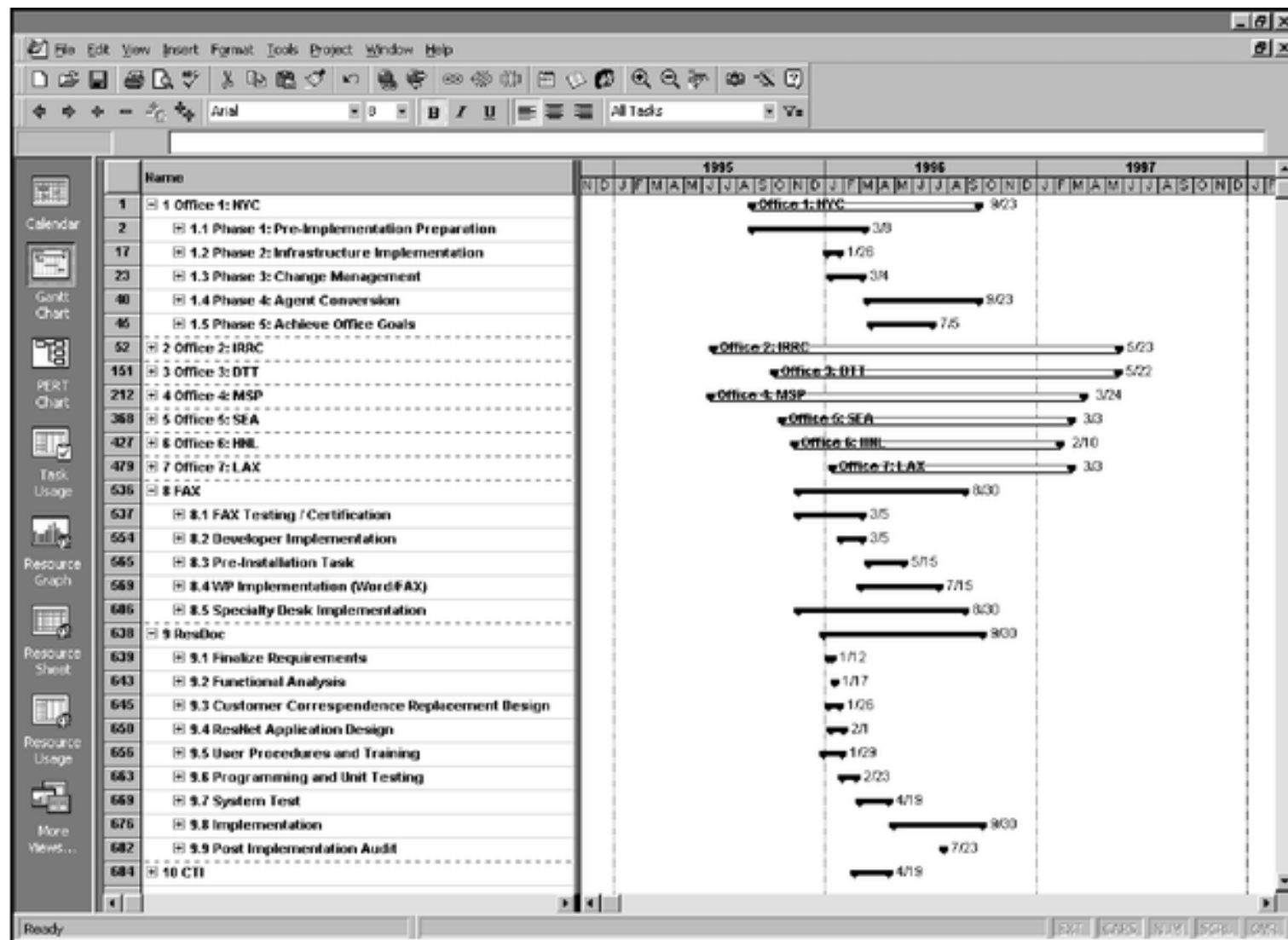
ResNet Summary Gantt Chart

Figure 4-4. Summary Gantt Chart for ResNet 1996 Office Implementation