



PROJECT MANAGEMENT AND S/W QUALITY ASSURANCE



TOPICS

- INTRODUCING PROJECT MANAGEMENT
- MATCHING SQA TO THE PMBOK
- CONCLUSION



INTRODUCTION



WHY PROJECT MANAGEMENT?

- PROJECTS NEED LEADERSHIP
- WITHOUT IT PROJECTS USUALLY FAIL
- WITH IT PROJECTS OFTEN FAIL



DEFINITIONS

- **PROJECT MANAGEMENT:**
THE PLANNING, ORGANIZING, AND CONTROLLING OF A SYSTEM DEVELOPMENT EFFORT
- **PROJECT:**
THE GROUP OF ACTIVITIES INTENDED TO PRODUCE A DEFINED RESULT
- **MANAGEMENT:**
THE ACTIVITIES & TASKS OF PLANNING, ORGANIZING, & CONTROLLING PROJECTS



MORE DEFINITIONS

- **PLANNING**
THE LAYING OUT OF AN ANTICIPATED OR EXPECTED APPROACH TO A PROJECT
- **ORGANIZING**
THE COMBINING OF THE PLAN WITH RESOURCES (TIME, BUDGET, PERSONNEL)
- **CONTROLLING**
THE MEASURING OF ACTUAL PERFORMANCE AGAINST THE PLAN AND MAKING APPROPRIATE ADJUSTMENTS



AND MORE DEFINITIONS

- SYSTEM
SOFTWARE or SOFTWARE WITH HARDWARE
- QUALITY
CONFORMANCE WITH REQUIREMENTS
- SCHEDULE
THE TIME ORDERED SEQUENCE OF EVENTS
AND RESOURCES



PROJECT FAILURE CONTRIBUTORS

- UN-INVOLVED USERS
 - VAGUE REQUIREMENTS
 - ILL-DEFINED END PRODUCTS
 - FREQUENT CHANGES

- LACK OF PROJECT DISCIPLINE
 - POOR COMMUNICATION
 - UNFOCUSED APPLICATION OF TECHNOLOGY
 - UNCONTROLLED CHANGE



PROJECT SUCCESS CONTRIBUTORS

- CONTROLLED PROCESS
 - UNDERSTOOD REQUIREMENTS
 - DEFINED END PRODUCTS
 - FREQUENT REVIEW

- DISCIPLINED PROJECT APPROACH
 - PLANNING RULES
 - PROGRESS TRACKING
 - CHANGE CONTROL
 - RISK EVALUATION
 - QUALITY PROGRAM



PROCESS APPLICATION

- MOST MANAGEMENT PROCESSES ARE SIMILAR
- MOST PROJECTS ARE DIFFERENT
- CHOOSING APPROPRIATE ACTIONS AND TASKS FOR EACH PROCESS ELEMENT IS THE PROJECT MANAGER'S ASSIGNMENT



PROJECT MANAGER'S ROLE

COMBINE

- REQUIREMENTS
- CONSTRAINTS
- RESOURCES
- SUPPORT
- BUDGET
- TIME
- ORGANIZATION
- RISK
- TECHNOLOGY



PROJECT MANAGER'S CHALLENGE

SATISFY

- CUSTOMER
- USER
- OPERATIONS
- DATA ADMINISTRATION
- FINANCE
- PERSONNEL
- AUDIT
- LEGAL



SUMMARY

- THE TERMS "PROJECT" AND "SYSTEM" CAN BE APPLIED AT ANY LEVEL.
- SORTING THEM OUT IS EACH MANAGER'S MAJOR, AND PRIMARY, JOB



PLANNING THE PROJECT



THE PLAN

- IS THE OUTPUT FROM THE ACTIVITY
- DOCUMENTS INTENTIONS
- PROVIDES BASIS FOR EVOLUTION
- IS NEVER CAST IN STONE



PLANNING LEVELS

- GOALS
[END RESULTS]
- OBJECTIVES
[MILE (KILOMETRE) STONES]
- TASKS
[YARD (METRE) STONES]



WHAT THE PROJECT WILL PRODUCE

- INTEGRATED, WORKING SYSTEM
- USEFUL DOCUMENTATION
- SCHEDULE & BUDGET COMPLIANCE



BASIC QUESTIONS

- HOW BIG IS IT
- HOW MUCH WILL IT COST
- HOW LONG WILL IT TAKE
- HOW MANY PEOPLE DO WE NEED
- WHEN DO WE NEED WHICH PEOPLE
- HOW FAST DO OUR DEVELOPERS
WORK - - - CORRECTLY



A LINGERING RISK QUESTION

SHOULD WE UNDERTAKE TO DO IT?

- RISK OF NOT DOING IT AT ALL
- RISK OF DOING RIGHT, BUT:
 - + OVER BUDGET
 - + LATE
- RISK OF DOING WRONG OR INCOMPLETE, BUT:
 - + WITHIN BUDGET
 - + ON TIME



PLAN OUTLINE SAMPLE

1. INTRODUCTORY MATERIAL
 - OVERVIEW
 - WORK BREAKDOWN STRUCTURE
 - DELIVERABLES
 - REFERENCES, DEFINITIONS, ETC
2. MANAGEMENT APPROACH
 - ASSUMPTIONS, CONSTRAINTS
 - RISK CONTROL
 - MANAGERIAL REVIEWS & REPORTING
3. ORGANIZATION
 - TYPE & STRUCTURE
 - BOUNDARIES
 - ASSIGNED RESPONSIBILITIES
 - STAFFING



PLAN OUTLINE SAMPLE (Continued)

4. PROJECT ENVIRONMENT

- STANDARDS
- PROCEDURES
- TOOLS
- SUPPORT

5. TECHNICAL APPROACH

- BUDGET
- SCHEDULE
- TASKS
- INTERDEPENDENCIES

BACK MATTER



SUMMARY

PROJECT PLANNING IS:

- THE BASIS OF PROJECT MANAGEMENT
- DEPENDENT ON ESTIMATES:
 - + SIZE
 - + COST
 - + EFFORT
 - + COMPLEXITY
- SUPPORTED BY SEVERAL AIDES:
 - + SIZE ESTIMATION TECHNIQUES
 - + COST MODELS
 - + SCHEDULE MODELS
- TO BE DOCUMENTED
- STILL AN ART



MATCHING SQA TO THE PROJECT MANAGEMENT BODY OF KNOWLEDGE



THE PMBOK CONTENTS

4.1 Project Plan Development

- Project Plan Development (4.1)—taking the results of other planning processes and putting them into a consistent, coherent document.

4.2 Project Plan Execution

- Project Plan Execution (4.2)—carrying out the project plan by performing the activities included therein.

4.3 Overall Change Control

- Overall Change Control (4.3)—coordinating changes across the entire project.



PMBOK CONTENTS

5.1 Initiation

- Initiation (5.1)—committing the organization to begin the next phase of the project.

5.2 Scope Planning

- Scope Planning (5.2)—developing a written scope statement as the basis for future project decisions.

5.3 Scope Definition

- Scope Definition (5.3)—subdividing the major project deliverables into smaller, more manageable components.

5.4 Scope Verification

- Scope Verification (5.4)—formalizing acceptance of the project scope.

5.5 Scope Change Control

- Scope Change Control (5.5)—controlling changes to project scope.



PMBOK CONTENTS

6.1 Activity Definition

- Activity Definition (6.1)—identifying the specific activities that must be performed to produce the various project deliverables.

6.2 Activity Sequencing

- Activity Sequencing (6.2)—identifying and documenting interactivity dependencies.

6.3 Activity Duration Estimating

- Activity Duration Estimating (6.3)—estimating the number of work periods which will be needed to complete individual activities.

6.4 Schedule Development

- Schedule Development (6.4)—analyzing activity sequences, activity durations, and resource requirements to create the project schedule.

6.5 Schedule Control

- Schedule Control (6.5)—controlling changes to the project schedule.



PMBOK CONTENTS

7.1 Resource Planning

- Resource Planning (7.1)—determining what resources (people, equipment, materials) and what quantities of each should be used to perform project activities.

7.2 Cost Estimating

- Cost Estimating (7.2)—developing an approximation (estimate) of the costs of the resources needed to complete project activities.

7.3 Cost Budgeting

- Cost Budgeting (7.3)—allocating the overall cost estimate to individual work items.

7.4 Cost Control

- Cost Control (7.4)—controlling changes to the project budget.



PMBOK CONTENTS

8.1 Quality Planning

- Quality Planning (8.1)—identifying which quality standards are relevant to the project and determining how to satisfy them.

8.2 Quality Assurance

- Quality Assurance (8.2)—evaluating overall project performance on a regular basis to provide confidence that the project will satisfy the relevant quality standards.

8.3 Quality Control

- Quality Control (8.3)—monitoring specific project results to determine if they comply with relevant quality standards and identifying ways to eliminate causes of unsatisfactory performance.



PMBOK CONTENTS

9.1 Organizational Planning

- Organizational Planning (9.1)—identifying, documenting, and assigning project roles, responsibilities, and reporting relationships.

9.2 Staff Acquisition

- Staff Acquisition (9.2)—getting the human resources needed assigned to and working on the project.

9.3 Team Development

- Team Development (9.3)—developing individual and group skills to enhance project performance.



PMBOK CONTENTS

10.1 Communications Planning

- Communications Planning (10.1)—determining the information and communications needs of the stakeholders: who needs what information, when will they need it, and how will it be given to them.

10.2 Information Distribution

- Information Distribution (10.2)—making needed information available to project stakeholders in a timely manner.

10.3 Performance Reporting

- Performance Reporting (10.3)—collecting and disseminating performance information. This includes status reporting, progress measurement, and forecasting.

10.4 Administrative Closure

- Administrative Closure (10.4)—generating, gathering, and disseminating information to formalize phase or project completion.



PMBOK CONTENTS

11.1 Risk Identification

- Risk Identification (11.1)—determining which risks are likely to affect the project and documenting the characteristics of each.

11.2 Risk Quantification

- Risk Quantification (11.2)—evaluating risks and risk interactions to assess the range of possible project outcomes.

11.3 Risk Response Development

- Risk Response Development (11.3)—defining enhancement steps for opportunities and responses to threats.

11.4 Risk Response Control

- Risk Response Control (11.4)—responding to changes in risk over the course of the project.



PMBOK CONTENTS

12.1 Procurement Planning

- Procurement Planning (12.1)—determining what to procure and when.

12.2 Solicitation Planning

- Solicitation Planning (12.2)—documenting product requirements and identifying potential sources.

12.3 Solicitation

- Solicitation (12.3)—obtaining quotations, bids, offers, or proposals as appropriate.

12.4 Source Selection

- Source Selection (12.4)—choosing from among potential sellers.

12.5 Contract Administration

- Contract Administration (12.5)—managing the relationship with the seller.

12.6 Contract Close-out

- Contract Close-out (12.6)—completion and settlement of the contract, including resolution of any open items.



Project Plan Development

- Project Plan Development (4.1)
taking the results of other planning processes and putting them into a consistent, coherent document.

SQA planning is one of the constituent planning processes. SQA may assist in developing the Project Plan format and content standards.



Scope Planning

- **Scope Planning (5.2)**
developing a written scope statement as the basis for future project decisions.

SQA may assist in the determination of the project scope, but only as an advisor.



Scope Definition

- **Scope Definition (5.3)**
subdividing the major project deliverables into smaller, more manageable components.

SQA may also assist in this activity as an advisor.



Activity Definition

- Activity Definition (6.1)
identifying the specific activities that must be performed to produce the various project deliverables.

SQA will identify the necessary quality activities to be performed.

SQA may help define project interim and final deliverables, and their format and content.



Activity Sequencing

- Activity Sequencing (6.2)
identifying and documenting interactivity dependencies.

SQA will assure that the quality activities are properly sequenced, budgeted, and scheduled.

SQA may assist in analyzing dependencies.



Activity Duration Estimating

- Activity Duration Estimating (6.3)
estimating the number of work periods which will be needed to complete individual activities.

SQA will provide estimates of its own work load.

SQA may assist in evaluating the appropriateness of other work periods and activities.



Schedule Development

- Schedule Development (6.4)
analyzing activity sequences, activity durations, and resource requirements to create the project schedule.

SQA will assure that quality activities are appropriately scheduled.



Resource Planning

- Resource Planning (7.1)
determining what resources (people, equipment, materials) and what quantities of each should be used to perform project activities.

SQA will determine the necessary resources it requires to accomplish its objectives and tasks.



Cost Estimating

- Cost Estimating (7.2)
developing an approximation (estimate) of the costs of the resources needed to complete project activities.

SQA will appropriately cost its requirements.



Quality Planning.

- Quality Planning (8.1)
identifying which quality standards are relevant to the project and determining how to satisfy them.

SQA will perform all of its own planning, including identification of standards, regulations, and guidelines that apply to the project.



Organizational Planning

- Organizational Planning (9.1)
identifying, documenting, and assigning project roles, responsibilities, and reporting relationships.

SQA will identify its own staff needs, roles, and assignments.

SQA may suggest other project staff responsibilities with respect to quality activities.

SQA will assure that, while working as a project team member, its direct administrative reporting chain is not through the project management chain.



Staff Acquisition

- Staff Acquisition (9.2)
getting the human resources needed assigned to and working on the project.

SQA will assure that it has the appropriate and sufficient trained staff to support the project.



Communications Planning

- Communications Planning (10.1)
determining the information and communications needs of the stakeholders: who needs what information, when will they need it, and how will it be given to them.

SQA will identify the quality information and reporting needs of the project stakeholders, and will identify the sources, recipients and timing.



Risk Identification

- Risk Identification (11.1)
determining which risks are likely to affect the project and documenting the characteristics of each.

SQA will assure that risks to and from the project are identified and documented.



Risk Quantification

- Risk Quantification (11.2)
evaluating risks and risk interactions to assess the range of possible project outcomes.

SQA will assure that risks are evaluated and assessed.



Risk Response Development

- Risk Response Development (11.3)
defining enhancement steps for opportunities and responses to threats.

SQA will assure that risk mitigation actions are being taken.



Procurement Planning

- Procurement Planning (12.1)
determining what to procure and when.

SQA will identify any quality tools or training needed to appropriately support the project.



SUMMARY

The PMBOK does not address SQA except by inclusion in section 8.

SQA will specifically address, either entirely or in part, several project management activities.

SQA will be involved in all aspects of the project, evaluating interim and deliverable products.



CONCLUSIONS

- THE KEY TO PROJECT FAILURE IS FAILURE OF MANAGEMENT
- THE KEY TO MANAGEMENT SUCCESS IS A CONTROLLED PROCESS
- THE KEY TO A CONTROLLED PROCESS IS RIGOROUS PROJECT APPROACH
- THE KEY TO A RIGOROUS PROJECT APPROACH IS EFFECTIVE PROJECT DEFINITION