

Chapter 1 Overview

A: concept & Characteristics of project

- ① concept: A temporary endeavor undertaken to create a unique product, service, or result
- ② Characteristics:
 - Temporary: Specific start & end date (有始有终)
 - Unique: Every project has unique output, process, stakeholder

B: Concept of PM; Steps of create PM plan

- ① PM involves the application of knowledge, skill, tools & techniques to project activities to meet project requirements. It ensure that the project is completed successfully within constraints such as time, cost, and scope
- ② SPM: A critical document outlines how the project will be executed, monitored & closed
 - Initiating
 - Planning
 - Executing
 - Monitoring & ~~closing~~ controlling
 - Closing

C: Role & Importance of SPM

- ① A method for planning organizing & controlling the process involved in software project execution to achieve defined objects
- ② Importance are highlighted by
 - Complexity: 大 team, 多 tasks. 累 DDL.
 - Adaptability: 好改, 但不好控制 (Scope)
 - Risk & Challenges: 风险大: 延期, 技术问是及

D: Content of SPM (ISO 12207)

- ① Requirements Analysis ② Architecture Design ③ Detailed Design ④ Code & Test
- ⑤ Integration ⑥ Qualification Testing ⑦ Installation ⑧ Acceptance Support

Chapter 2 Integration Management

A: **Concept of IM**: Includes the processes and activities to identify, define, combine, unify and coordinate the various processes and project management activities within the Project Management Process group.

B: **Process**

1. Develop Project Charter: 写文档, 赋予经理权力
2. Develop Project Management Plan: 项目如何执行, 监控, 控制
3. Direct & Manage Project work: 执行 Plan
4. Monitor & Control Project work: 跟踪项目进展, 识别差异.
5. Perform Integrated Change control: 管理项目范围, 进度, 成本等变更
6. Close Project or Phase 结束项目

C: **Process of develop Project Manage Plan**

Input: Project Charter

Output from other process

Enterprise Environmental Factors

Organizational Process Assets

T&T: Expert Judgement:

Facilitation Techniques:

Output: Project Manage Plan: How Project will be executed monitored & controlled.

D: **ITTO/output for each Process**

太多不赘述, 自己看 slide.

Chapter 3 Scope Management

A: **Concept of SM** - Process required to ensure that the project include all the work required, and only the work required to complete the project

B: **T&T to collect Requirement**

- ① Interviews
- ② Focus Group
- ③ Facilitated Workshops
- ④ Group creativity techniques
- ⑤ Observation
- ⑥ Prototypes

C: **Role of Work Breakdown Structure**

Def: A hierarchical decomposition of the total scope of work to be carried out by the project team to accomplish the project objectives & created the required deliverables

Key of WBS: ① Work Package: lowest level

② Decomposition

③ WBS dictionary: Doc provide detailed descriptions of WPs, deliverables, activities & schedule Info.

D: **Scope Baseline = SB**

DEF: Approved Version of project Manage Plan, WBS, WBS dictionary. that can be changed ONLY through formal change control procedures & is used as a basis for comparison

Chapter 4: Time Management

A = Concept of TM

Def: Include the processes required to manage the timely completion of the project

Processes: ① Plan Schedule Management

Planning { ② Define activities
③ Sequence Activities
④ Estimate Activity Durations
⑤ Develop Schedule

M&C { ⑥ Control Schedule

B = Difference Between Activity Definition and WBS

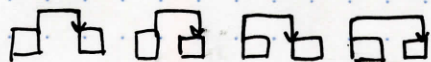
Def = Activity Definition = Required to completed the WPs. It involved breaking WPs into activities that will be used for scheduling estimation & execution

WBS: break down project scope into deliverables & WPs

AD: focus on breaking down WPs into specific tasks or activities

C = PDM, PERT, CPM

PDM = FS FF SS SF



$$\text{PERT: } t_E = \frac{t_O + 4t_M + t_P}{6}$$

Beta Distribution

O = Optimistic
M = Most-likely
P = Pessimistic

CPM = Critical Path (最大題)

D = Schedule Baseline

Def: the approved version of a Schedule Model that can be - - -

Schedule Model { Bar chart = Gantt chart.
Milestone Chart
Project schedule network diagrams

Chapter 5 Cost Management

A: Concept of Cost Management & Plan cost Management

Def=CM: The process involved in planning, estimating, budgeting, financing, funding, managing & controlling cost so that the project can be completed within the approved budget.

Def=PCM: The process that establishes the policies, procedures and documentation for planning, managing, expending & controlling project cost.

B: Estimation method used for estimating Cost & S-Curve

- ① Expert-Judgement
- ② Analogous estimating
- ③ Parametric estimating
- ④ Three-point, estimating (PERT)
- ⑤ Group decision-making techniques
- ⑥ Reserve Analysis
- ⑦ Bottom-Up estimating

(大題) COST

C: EVM, Forecasting, TCPI (自己看)

① EVM (大題) SV, CV, CPI, SPI ...

② EAC & ETC (大題)

③ TCPI: $(BAC - EV) / (BAC - AC)$ (?大題) 沒画, 但可能考

D: Cost Baseline

Def: the approved version of the time-phased project budget, excluding any management reserves, which can only be changed ... / & used as a basis for comparison to actual result

S-Curve

Chapter 6 Quality Management

A. **Concept of Quality**: The measurement of how closely your product meets its requirement.

Cost of Quality :

- Conformance $\left\{ \begin{array}{l} \text{Prevention Costs} \\ \text{Appraisal Costs} \end{array} \right.$ Money spend during project
- Non conformance $\left\{ \begin{array}{l} \text{Internal failure costs} \\ \text{External failure costs} \end{array} \right.$ during & after project

B. **7 tools**

- Fish bone/ Ishikawa Diagram : 表示问题原因
- Flowchart : 过程的步骤和决策点
- Checksheet : 收集数据
- Histogram : 描述数据的集中趋势和分布
- Pareto Diagram : 帮助识别最重要的少数问题
- Control chart : 判断过程是否稳定
- Scatter Diagram : 识别趋势相关性

C. **QA & QC**

Quality Assurance : 计划阶段和执行阶段, 预防缺陷, 注重做事方法

Quality Control : 执行过程中检查质量, 注重结果

D. **Software Quality**

Focus on = FRU-EMP ; ISO 9126

Chapter 7 Human Resources Management

A: **concept of HR Management**: Process that organize manage, and lead the project team

B: **Organizational Structure**: Hierarchical-type charts

1. Functional

2. Projectized

3. Matrix: blend of 1, 2

{ Weak
Strong
Balanced

• Matrix based charts: RACI chart

• Text-oriented formats:

C: **Motivating and Developing team**

1. Recognition & rewards

2. Training

3. Ground rules

4. Co-location

5. Interpersonal skills

6. Team-building activities

1. Forming: 形成 → 了解

2. Storming: 风暴 → 分歧

D: 3. Norming: 规范 → 协作, 调整

4. Performing: 高效 → 有效协作

5. Adjourning: 完成 → 解散

D: **Dealing with conflict**

1) Withdraw/Avoid: 回避

2) Smoothing/Accommodate: 强调共同点,

3) Compromise/Reconcile: 让步, 妥协

4) Force/Direct: 权威

5) Collaborate/Problem Solve: 对话, 合作.

Chapter 8 Risk Management

A: **Concept of risk**: An uncertain event or condition that, if it occurs, has a positive or negative effect on one or more project objectives such as scope, schedule, cost & quality
concept of risk management: Process of conducting risk management planning, identification, analysis, response planning and controlling risk on a project.

B: **Six Process**

1. Plan risk management: 计划
2. Identify risks: 识别并记录
3. Perform Qualitative risk analysis: 对风险进行优先级排序
4. Perform Quantitative risk analysis: 对风险进行定量分析, 评估影响
5. Plan risk Response: 制定措施
6. Control Risk: 执行

C: **Tools & Techniques for plan risk response**

- | | |
|-----------------|----------------|
| 1. Avoid: 避免 | 1. Exploit: 利用 |
| 2. Mitigate: 缓解 | 2. Enhance: 增强 |
| 3. Transfer: 转移 | 3. Share: 共享 |
| 4. Accept: 接受 | 4. Accept: 接受 |

D: **T&T to control risks**

1. Risk reassessment: 重新评估风险
2. Risk audits: 审查策略有效性
3. Variance & trend analysis: 比较项目表现与计划
4. Technical performance measurement: 2
5. Reserve analysis: 分析风险储备(钱)
6. Meetings: 定期项目会议

Chapter 9 ^(采购) Procurement Management

A: Concept of PM: the process necessary to purchase or acquire product, services or result needed from outside the project team

B: Types of Contract (合同)

1. Fixed-price contracts

- Firm Fixed Price Contracts (FFP) 总价固定
- Fixed Price Incentive Fee Contracts (FPIF) 卖方根据绩效奖励
- Fixed Price with Economic Price Adjustment Contracts (FP-EPA) 长期合同, 价格随市场

2. Cost-reimbursable contract: 成本补偿合同

- Cost Plus Fixed Fee (CPFF): 成本加固定费用, for 卖方
- Cost Plus Incentive Fee (CPIF) 成本 + 激励 (根据 ~~绩效~~ 完成度)
- Cost Plus Award Fee (CPAF) 成本 + 激励 (根据特定绩效)

3. Time & Material Contracts (T&M) 物料成本 + 小时计价费用

Chapter 10 Stakeholder Management

def: Stakeholders

A: Concept of SM: Process required to identify the people, groups or organizations that could impact or be impacted by the project, to analyze stakeholder expectations & their impact on the project, and to develop appropriate management strategies for effectively engaging stakeholders in project decision & execution

B: Process

1. Identify Stakeholders
2. Plan SM
3. Manage Stakeholder engagement
4. Control Stakeholder engagement

T&T ^C

- Power/interest grid
- Power/influence grid
- Influence/impact grid
- Salience model
(Power, Legitimacy, urgency)
(权力, 合法性, 紧迫性)