

## ESSENCE OF PMBOK & PMP EXAM PMBOK 及 PMP 考试精要(考试串讲教材)

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**PROJECT MANAGEMENT KNOWLEDGE AREAS 项目管理知识体系**

Knowledge Areas 知识体系	Primary Inputs 输入	Tools & Techniques 工具及技术	Primary Outputs 输出
INTEGRATION 整体			
制定项目章程 Develop Project Charter	1.合同(如果适用) Contract(When applicable) 2.项目工作说明书 Project statement of work 3.事业环境因素 Enterprise environmental factors 4.组织过程资产 Organizational process assets	1.项目选择方法 Project selection methods 2.项目管理方法论 Project management methodology 3.项目管理信息系统 Project management information system 4.专家判断 Expert judgment	1.项目章程 Project charter
制定项目初步范围说明书	1.项目章程 Project charter 2.项目工作说明书 Project statement of work 3.事业环境因素 Enterprise environmental factors 4.组织过程资产 Organizational process assets	1.项目管理方法系 Project management methodology 2.项目管理信息系统 Project management information system 3.专家判断 Expert judgment	1.项目初步范围说明书 Preliminary project scope statement
制定项目管理计划 Develop Project management Plan	1.项目初步范围说明书 Preliminary project scope statement 2.项目管理各过程 Project management processes 3.事业环境因素 Enterprise environmental factors 4.组织过程资产 Organizational process assets	1.项目管理方法系 Project management methodology 2.项目管理信息系统 Project management information system 3.专家判断 Expert judgment	1.项目管理计划 Progece management plan
指导与管理项目执行 Direct and Manage Project Execution	1.项目管理计划 Progece management plan 2.批准的纠正措施 Approved corrective actions 3.批准的预防措施 Approved preventive actions 4.批准的变更申请 Approved change requests 5.批准的缺陷补救 Approved defect repair 6.确认的缺陷补救 Validated defect repair 7.行政收尾程序 Administrative closure procedure	1.项目管理方法系 Project management methodology 2.项目管理信息系统 Project management information system	1.可交付成果 Deliverables 2.请求的变更 Requested changes 3.实施的变更请求 Implementde change requests 4.实施的纠正措施 Implementde corrective actions 5.实施的预防措施 Implementde preventive actions 6.实施的缺陷补救 Implementde defect repair 7.工作绩效信息 Work performance information
监控项目工作 Monitor and Control Project Work	1.项目管理计划 Progece management plan 2.工作绩效信息 Work performance information 3.否决的变更请求 Rejected change requests	1.项目管理方法系 Project management methodology 2.项目管理信息系统 Project management information system 3.实现价值技术 Eamed value technique(EVT) 4.专家判断 Expert judgment	1.推荐的纠正措施 Recommended corrective action 2.推荐的预防措施 Recommended preventive action 3.预测 Forecasts 4.推荐的缺陷补救 Recommended defect repair 5.请求的变更 Requested changes
整体变更控制 Integrated Change Control	1.项目管理计划 Progece management plan 2.请求的变更 Requested changes 3.工作绩效信息 Work performance information 4.推荐的纠正措施 Recommended corrective action 5.推荐的预防措施 Recommended preventive action 6.推荐的缺陷补救 Recommended defect repair 7.可交付成果 Deliverables	1.项目管理方法系 Project management methodology 2.项目管理信息系统 Project management information system 3.专家判断 Expert judgment	1.批准的变更申请 Approved change requests 2.否决的变更请求 Rejected change requests 3.项目管理计划(更新) Project management plan(updates) 4.项目范围说明书(更新) Project scope statement(updates) 5.批准的纠正措施 Approved corrective actions 6.批准的预防措施 Approved preventive actions 7.批准的缺陷补救 Approved defect repair 8.确认的缺陷补救 Validated defect repair 9.可交付成果 Deliverables
项目收尾 Close Project	1.项目管理计划 Progece management plan 2.合同文件 Contract documentation 3.事业环境因素 Enterprise environmental factors 4.组织过程资产 Organizational process assets 5.工作绩效信息 Work performance	1.项目管理方法系 Project management methodology 2.项目管理信息系统 Project management information system 3.专家判断 Expert judgment	1.行政收尾程序 Administrative closure procedure 2.合同收尾程序 Contract closure procedure 3.最终产品,服务或成果 Final product,service or result 4.组织过程资产(更新)

	information 6.可交付成果 Deliverables		Organizational process assets(updates)
<b>SCOPE 范围</b>			
范围规划	1.事业环境因素 Enterprise environmental factors 2.组织过程资产 Organizational process assets 3.项目章程 Project charter 4.项目初步范围说明书 Preliminary project scope statement 5.项目管理计划 Project management plan	1.专家判断 Expert judgment 2.样板,表格与标准 Templates,forms,standards	1.项目范围管理计划 Project scope management plan
范围定义	1.组织过程资产 Organizational process assets 2.项目章程 Project charter 3.项目初步范围说明书 Preliminary project scope statement 4.项目范围管理计划 Project scope management plan 5.批准的变更申请 Approved change requests	1.产品分析 Product analysis 2.其他方案识别 Alternatives identification 3.专家判断 Expert judgment 4.利害关系者分析 Stakeholder analysis	1.项目范围说明书 Project scope statement 2.请求的变更 Requested changes 3.项目范围管理计划 Project scope management plan
制作工作分解结构 Create WBS	1.组织过程资产 Organizational process assets 2.项目范围说明书 Project scope statement 3.项目范围管理计划 Project scope management plan 4.批准的变更申请 Approved change requests	1.工作分解结构模板 Work breakdown structure templates 2.分解 Decomposition	1.项目范围说明书(更新) Project scope statement(updates) 2.工作分解结构 Work breakdown structure 3.工作分解结构词汇表 WBS dictionary 4.范围基准 Scope baseline 5.项目范围管理计划(更新) Project scope management plan(updates) 6.请求的变更 Requested changes
Scope Verification 范围核实	1.项目范围说明书Project scope statement 2.工作分解结构词汇表 WBS dictionary 3.项目范围管理计划 Project scope management plan 4.可交付成果 Deliverables	1.检查 Inspection	1.验收的可交付成果 Accepted deliverables 2.请求的变更 Requested changes 3.推荐的纠正措施 Recommended corrective actions
范围控制 Scope Control	1.项目范围说明书Project scope statement 2.工作分解结构 Work breakdown structure 3.工作分解结构词汇表 WBS dictionary 4.项目范围管理计划 Project scope management plan 5.绩效报告 Performance reports 6.批准的变更申请 Approved change requests 7.工作绩效信息 Work performance information	1.变更控制系统 Change control system 2.偏差分析 Variance analysis 3.补充规划 Replanning 4.配置管理系统 Configuration management system	1.项目范围说明书(更新) Project scope statement(updates) 2.工作分解结构(更新) Work breakdown structure(updates) 3.工作分解结构词汇表(更新) WBS dictionary(updates) 4.范围基准(更新) Scope baseline(updates) 5.请求的变更 Requested changes 6.推荐的纠正措施 Recommended corrective action 7.组织过程资产(更新) Organizational process assets(updates) 8.项目管理计划(更新) Project management plan(updates)
<b>TIME 进度</b>			
活动定义 Activity Definition	1.事业环境因素 Enterprise environmental factors 2.组织过程资产 Organizational process assets 3.项目范围说明书 Project scope statement 4.工作分解结构 Work breakdown structure 5.工作分解结构词汇表 WBS dictionary 6.项目管理计划 Project management plan	1.分解 Decomposition 2.样板 Templates 3.滚动式规划 Rolling wave planning 4.专家判断 Expert judgment 5.规划组成成分 Planning component	1.活动清单 Activity list 2.活动属性 Activity attributes 3.里程碑清单 Milestone list 4.请求的变更 Requested changes
活动排序 Activity Sequencing	1.项目范围说明书 Project scope statement 2.活动清单 Activity list 3.活动属性 Activity attributes 4.里程碑清单 Milestones list	1.紧前关系绘图法(PDM) Precedence Diagramming Method(PDM) 2.箭线绘图法(ADM) Arrow Diagramming Method(ADM)	1.项目进度网络图 Project schedule network diagrams 2.活动清单(更新) Activity list(updates)

	5.批准的变更请求 Approved change requesta	3.进度网络样板 Schedule network templates 4.确定依赖关系 Dependency determination 5.利用时间提前量与滞后量 Applying leads and lags	3.活动属性(更新) Activity attributes(updates) 4.请求的变更 Requestaed changes
活动资源估算 Activity Resource Estimating	1.事业环境因素 Enterprise environmental factors 2.组织过程资产 Organizational process assets 3.活动清单 Activity list 4.活动属性 Activity attributes 5.资源可利用情况 Resouce availability 6.项目管理计划 Project management l	1.专家判断 Expert judgment 2.多方案分析 Alternatives analysis 3.出版的估算数据 Published estimating data 4.项目管理软件 Project management software 5.自上而下的估算 Bottom estimating	1.活动资源要求 Activity resource requirements 2.活动属性(更新) Activity attributes(updates) 3.资源分解结构 Resource breakdown structure 4.资源日历(更新)Resource calendars 5.请求的变更 Requested changes
活动持续时间估算 Activity Duration Estimating	1.事业环境因素 Enterprise environmental factors 2.组织过程资产 Organizational process assets 3.项目范围说明书 Project scops statement 4.活动清单 Activity list 5.活动属性 Activity attributes 6.活动资源要求 Activity resource requirements 7.资源日历 Resource calendars 8.项目管理计划 Project management plan ●风险登记册 Risk register ●活动费用估算 Activity cost estimates	1.专家判断 Expert judgment 2.类比估算 Analogous estimating 3.参数估算 Parametric estimating 4.三点估算 Three-point estimates 5.后备分析 Reserve analysis	1.活动持续时间估算 Activity duration estimates 2.活动属性 Activity attributes(updates)
制定进度表 Schedule Development	1.组织过程资产 Organizational process assets 2.项目范围说明书 Project scope statement 3.活动清单 Activity list 4.活动属性 Activity attributes 5.项目进度网络图 Project schedule network diagrams 6.活动资源要求 Activity resource requirements 7.资源日历 Resource calendars 8.活动持续时间估算 Activity duration estimates 9.项目管理计划 Project management plan ●风险登记册 Risk register	1.进度网络分析 Schedule network analysisi 2.关键路线法 Critical path method 3.进度压缩 Schsdule compression 4.假设情景分析 What-if scenario analysis 5.资源平衡 Resource leveling 6.关键链法 Critical chain method 7.项目管理软件 Project management software 8.应用日历 Applying calendars 9.调整时间提前滞后量 Adjusting leads and lags 10.进度模型 Schedule model	1.项目进度表 Project schedule 2.进度模型数据 Schedule model data 3.进度基准 Schedule baseline 4.资源要求 Resource requirements(updates) 5.活动属性(更新) Activity attributes(updates) 6.项目日历(更新)Project calendar 7.请求的变更 Requestaed changes 8.项目管理计划(更新) Project management plan(updates) ●进度管理计划(更新) Schedule management plan(updates)
进度控制 Schedule Control	1.进度管理计划 schedule management plan 2.进度基准 Schedule baseline 3.绩效报告 Performance reports 4.批准的变更要求 Approved change requests	1.进度报告 Progress reporting 2.进度变更控制系统 Schedule change control system 3.绩效衡量 Performance measurement 4.项目管理软件 Project management software 5.偏差分析 Variance analysisi 6.进度比较横道图 Schedule comparison bar chars	1. 进度模型数据(更新) Schedule model data(updates) 2. 进度基准(更新) Schedule baseline(updates) 3. 绩效衡量 Performance measurements 4. 请求的变更 Requestaed changes 5.推荐的纠正措施 Recommended corrective action 6.组织过程资产(更新) Organizational process assets(updates) 7.活动清单(更新) Activity list(updates) 8.活动属性(更新) Activity attributes(updates) 9.项目管理计划(更新) Project management plan(updates)
<b>COST 费用</b>			
费用估算 Cost Estimating	1.事业环境因素 Enterprise environmental factors 2.组织过程资产 Organizational process assets 3.项目范围说明书 Project scope statement 4.工作分解结构 Work breakdown structure	1.类比估算 Analogous estimating 2.确定资源费率 Determine resource cost rates 3.自上而下估算 Bottom-up estimating 4.参数估算 Parametric estimating 5.项目管理软件 Project management	1.活动费用估算 Activity cost estimates 2.活动费用估算支持细节 Activity cost estimate supporting detail 3.请求的变更 Requested

	5.工作分解结构词汇表 WBS dictionary 6.项目管理计划 Progece management plan ●进度管理计划 Schedule management plan ●人员配备管理计划 Staffing management plan ●风险登记册 Risk register	software 6.供货商投标分析 Vendor bid analysis 7.准备金分析 Reserve analysis 8.质量成本 Cost of quality	changes 4.费用管理计划(更新) Cost management plan(updates)
费用预算 Cost Budgeting	1.项目范围说明书Project scope statement 2.工作分解结构 Work breakdown structure 3.工作分解结构词汇表 WBS dictionary 4.活动费用估算 Activity cost estimates 5.活动费用估算支持细节 Activity cost estimate supporting detail 6.项目进度 Project schedule 7.资源日历 Resource calendars 8.合同 Contract 9.费用管理计划 Cost management plan	1.费用汇总 Cost aggregation 2.储备基金分析 Reserve analysis 3.参数估算 Parametric esimating 4.资金限制平衡 Funding limit reconciliation	1.费用基准 Cost baseline 2.项目资金要求 Project funding requirements 3.项目管理计划(更新) Project management plan(updates) 4.请求的变更 Requested changes
费用控制 Cost Control	1.费用基准 Cost baseline 2.项目资金要求 Project funding requirements 3.绩效报告 Performance reports 4.工作绩效信息 Work performance information 5.批准的变更申请 Approved change requests 6.项目管理计划 Project management plan	1.费用变更控制系统 Cost change control system 2.绩效衡量分析 Performance measurements analysis 3.预测 Forecasting 4.项目绩效审核 Project performance reviews 5.项目管理软件 Project management software 6.偏差管理 Variance management	1.费用估算(更新) Cost estimates(update) 2.费用基准(更新) Cost baseline(update) 3.绩效衡量 Performance measurements 4.预测完工 5.请求的变更 Requested changes 6.推荐的纠正措施 Recommended corrective action 7.组织过程资产(更新) Organizational process assets(updates) 8.项目管理计划(更新) Project management plan(updates)
<b>RISK 风险</b>			
风险管理规划 Risk Management Planning	1.事业环境因素 Enterprise environmental factors 2.组织过程资产 Organizational process assets 3.项目范围说明书 Project scope statement 4.项目管理计划 Progece management plan	1.规则会议和分析 Planning meeting and analysis	1.风险管理计划 Risk Management Plan
风险识别 Risk Identification	1.事业环境因素 Enterprise environmental factors 2.组织过程生产 Organizational process assets 3.项目范围说明书 Project scope statement 4. 风险管理计划 Risk Management Plan 5. 项目管理计划 Project management plan	1.文件审查 Documentation reviews 2.信息搜索技术 Information gathering techniques 3.核对表分析 Checklist analysis 4.假设分析 Assumptions analysis 5.图解技术 Diagamming techniques	1.风险登记册 Risk register
Qualitative Risk Analysis 风险定性分析	1.组织过程生产 Organizational process assets 2.项目范围说明书 Project scope statement 3. 风险管理计划 Risk Management Plan 4. 风险登记册 Risk register	1.风险概率与影响评估 Risk probability and impact assessment 2.概率和影响矩阵 Probablity and impact matrix 3.风险数据质量评估 Risk data quality assessment 4.风险分类 Risk categorization 5.风险紧迫性评估 Risk urgency assessment	1.风险登记册(更新) Risk register(updates)
定量风险分析 Quantitative Risk Analysis	1.组织过程生产 Organizational process assets 2.项目范围说明书 Project scope statement 3. 风险管理计划 Risk Management Plan 4. 风险登记册 Risk register 5. 项目管理计划 Project management plan ●项目进度管理计划 Project schedule management plan ●项目费用管理计划 Project cost management plan	1.数据收集和表示技术 Data gathering and representation techniques 2.定量风险分析和模型技术 Quantitative risk analysis and modeling techniques	1.风险登记册(更新) Risk register(updates)
风险应对规划 Risk Response Planning	1.风险管理计划 Risk Management Plan 2.风险登记册 Risk register	1.消极风险或威胁的应对策略 Strategies for negative risk or threats 2.积极风险或机会的应对策略 Strategies for	1.风险登记册(更新) Risk register(updates) 2.项目管理计划(更新) Project



		positive risk or opportunities 3.威胁或机会的应对策略 Strategies for both threats and opportunities 4.应急应对策略 Contingent response strategy	management plan(updates) 3.与风险有关的合同协议 Risk-related contractual agreements
风险监控 Risk Monitoring and Control	1.风险管理计划 Risk Management Plan 2.风险登记册 Risk register 3.批准的变更申请 Approved change requests 4.工作绩效信息 Work performance information 5.绩效报告 Performance reports	1.风险再评估 Risk reassessment 2.风险审计 Risk audits 3.变差和趋势分析 Variance and trend analysis 4.技术绩效分析 Technical performance measurement 5.储备金分析 Reserve analysis 6.状态审查会 Status meetings	1.风险登记册(更新) Risk register(updates) 2.请求的变更 Requested changes 3.推荐的纠正措施 Recommended corrective action 4.推荐的预防措施 Recommended preventive action 5.组织过程资产(更新) Organizational process assets(updates) 6.项目管理计划(更新) Project management plan(updates)
<b>QUALITY 质量</b>			
质量规划 Quality Planning	1.事业环境因素 Enterprise environmental factors 2.组织过程资产 Organizational process assets 3.项目范围说明书 Project scope statement 4.项目管理计划 Project management plan	1.成本效益分析 Cost-benefit analysis 2.基准对照 Benchmarking 3.试验设计 Design of experiments 5.质量成本(COQ) Cost of quality (COQ) 6.其他质量规划工具 Additional quality planning tools	1.质量管理计划 Quality management plan 2.质量测量指标 Quality metrics 3.质量核对表 Quality checklists 4.过程改进计划 Process improvement plan 5.质量基准 Quality baseline 6.项目管理计划(更新) Project management plan(updates)
实施质量保证 Perform Quality Assurance	1.质量管理计划 Quality management plan 2.质量测量指标 Quality metrics 3.过程改进计划 Process improvement plan 4.工作绩效信息 Work performance information 5.批准的变更申请 Approved change requests 6.质量控制衡量 Quality control measurements 7.实施的变更请求 Implement change requests 8.实施的纠正措施 Implement corrective actions 9.实施的缺陷补救 Implement defect repair 10.实施的预防措施 Implement preventive actions	1.质量规划工具与技术 Quality planning tools and techniques 2.质量审计 Quality audits 3.过程分析 Process analysis 4.质量控制工具与技术 Quality control tools and techniques	1.请求的变更 Requested changes 2.推荐的纠正措施 Recommended corrective action 3.组织过程资产(更新) Organizational process assets(updates) 4.项目管理计划(更新) Project management plan(updates)
实施质量监控 Perform Quality Control	1.质量管理计划 Quality management plan 2.质量测量指标 Quality metrics 3.质量核对表 Quality checklists 4.组织过程资产 Organizational process assets 5.工作绩效信息 Work performance information 6.批准的变更请求 Approved change requests 7.可交付成果 Deliverables	1.因果图 Cause and effect diagram 2.控制图 Control charts 3.流程图 Flowcharting 4.直方图 Histogram 5.帕雷托图 Pareto chart 6.趋势图 Run chart 7.散点图 Scatter diagram 8.统计抽样 Statistical sampling 9.检查 Inspection 10.缺陷补救审查 Defect repair review	1.质量控制衡量 Quality control measurements 2.确认的缺陷补救 Validated defect repair 3.质量基准(更新) Quality baseline(updates) 4.推荐的纠正措施 Recommended corrective action 5.推荐的预防措施 Recommended preventive action 6.请求的变更 Requested changes 7.推荐的缺陷补救 Recommended defect repair 8.组织过程资产 Organizational process assets 9.确认的可交付成果 Validated deliverables 10.项目管理计划(更新) Project management plan(updates)
<b>HUMAN RESOURCE 人力资源</b>			
人力资源规划	1.事业环境因素 Enterprise environmental factors 2.组织过程资产 Organizational process assets	1.组织机构图和岗位描述 Organization charts and position descriptions 2.交际 Networking	1.角色与职责 roles and responsibilities 2.项目组织图 Project organization chart

	3.项目管理计划 Progece management plan ●活动资源需求 Activity resource requirements	3.组织理论 Organization theory	3.人员配备管理计划 Staffinf management plan
项目团队组建 Acquire Project Team	1.事业环境因素 Enterprise environmental factors 2.组织过程资产 Organizational process assets 3.角色与职责 roles and responsibilities 4.项目组织图 Projece organization chares 5.人员配备管理计划 Staffinf management plan 招聘惯例	1.预分派 Pre-assignment 2.谈判 Negotiation 3.招募 Acquisition 4.虚拟团队Virtual teams	1.项目人员分派到位 Project staff assignments 2.资源可利用情况 Resource availability 3.人员配备管理计划(更新) Staffinf management plan(updates)
项目团队建设 Develop Project Team	1.项目人员分派 Project staff assignments 2.人员配备管理计划 Staffinf management plan 3.资源可利用情况 Resource availability	1.通用管理技能 General management skills 2.培训 Training 3.团队建设活动 Team-building activities 4.规则 Ground rules 5.集中办公 Co-location 6.奖励与表彰 Recognition and rewards	1.团队绩效评估 Team performance assessment
项目团队管理 Manage Project Team	1.组织过程资产 Organizational process assets 2.项目人员分派 Project staff assignments 3.角色与职责 roles and responsibilities 4.项目组织图 Projece organization chares 5.人员配备管理计划 Staffinf management plan 6.团队绩效考核 Team performance assessment 7.工作绩效信息 Work performance information 8.绩效报告 Performance reports	1.观察与交谈 Observation and conversation 2.项目绩效评估 Project performance appraisals 3.冲突管理 Conflict management 4.问题登记簿 Lssue log	1.请求的变更 Requested changes 2.推荐的纠正措施 Recommended corrective action 3.推荐的预防措施 Recommended preventive action 4.组织过程资产(更新) Organizational process assets(updates) 5.项目管理计划(更新) Project management plan(updates)
<b>COMMUNICATIONS 沟通</b>			
Communications Planning 沟通规划	1.事业环境因素 Enterprise environmental factors 2.组织过程生产 Organizational process assets 3.项目范围说明书 Project scope statement 4.项目管理计划 Progece management plan ● 制约因素 Constraints ● 假设 Assumptions	1.沟通需求分析 Communications requirements analysis 2.沟通技术 Communications technology	1.沟通管理计划 Communications management plan
Information Distribution 信息发	1. 沟通管理计划 Communications management plan	1.沟通技能 Communications skills 2.信息收集和检索系统 Information gathering and retrieval system 3.信息发布系统 Information distribution methods 4.经验教训总结过程 Lessons learned process	1. 组织过程生产(更新) Organizational process assets(updates) 2. 请求的变更 Requested changes
Performance Reporting 绩效报告	1.工作绩效信息 Work performance information 2.绩效衡量 Performance measurements 3.完工预测 Forecasted completion 4.质量控制衡量 Quality control measurmments 5.项目管理计划 Project management plan ● 绩效衡量分析 Performance measurements baseline 6.批准的变更申请 Approved change requests 7.可交付成果 Deliverables	1.信息演示工具 Information presentation tools 2.绩效信息收集和汇总 Performance information gathering and compilation 3.状态审查会 Status review meetings 4.工时汇报系统 Time reporting systems 5.费用汇报系统 Cost reporting systems	1.绩效报告 Performance reports 2.预测 Forecasts 3.请求的变更 Requested changes 4.推荐的纠正措施 Recommended corrective action 5.组织过程资产(更新) Organizational process assets(updates)
利害关系者管理 Manage Stakeholders	1.沟通管理计划 Communications management plan 2. 组织过程资产 Organizational process assets	1.沟通方法 Communications methods 2.问题登记簿 Issue logs	1.问题得以解决 Resolved issues 2.批准的变更申请 Approved change requests 3.批准的纠正措施 Approved corrective action 4.组织过程资产(更新) Organizational process assets(updates) 5.项目管理计划(更新) Project management plan(updates)

PROCUREMENT 采购			
采购规划 Plan Purchases and Acquisitions	1.事业环境因素 Enterprise environmental factors 2.组织过程资产 Organizational process assets 3.项目范围说明书 Project scope statement 4.工作分解结构 Work breakdown structure 5.工作分解结构词汇表 WBS dictionary 6.项目管理计划 Project management plan <ul style="list-style-type: none"> <li>● 风险登记册 Risk register</li> <li>● 与风险有关的合同协议 Risk-related contractual agreements</li> <li>● 资源要求 Resource requirements</li> <li>● 项目进度计划 Project schedule</li> <li>● 活动费用估算 Activity cost estimate</li> <li>● 费用基准 Cost baseline</li> </ul>	1.自制或外购分析 Make-or-buy analysis 2.专家判断 Expert judgment 3.合同类型 Contract types	1.采购管理计划 Procurement management plan 2.合同工作说明书 Contract statement of work 3.自制或外购决策 Make-or-buy changes 4.请求的变更 Requested changes
发包规划 Plan Contracting	1.采购管理计划 Procurement management plan 2.合同工作说明书 Contract statement of work 3.自制或外购决策 Make-or-buy changes 4.项目管理计划 Project management plan <ul style="list-style-type: none"> <li>● 风险登记册 Risk register</li> <li>● 与风险有关的合同协议 Risk-related contractual agreements</li> <li>● 资源要求 Resource requirements</li> <li>● 项目进度计划 Project schedule</li> <li>● 活动费用估算 Activity cost estimate</li> <li>● 费用基准 Cost baseline</li> </ul>	1.标准表格 Standard forms 2.专家判断 Expert Judgment	1.采购文件 Procurement documents 2.评估标准 Evaluation criteria 3.合同工作说明书(更新) Contract statement of work(updates)
询价 Request Seller Responses	1.组织过程资产 Organizational process assets 2.采购管理计划 Procurement management plan 3.采购文件 Procurement documents	1.招标人会议 Bidder conferences 2.刊登广告 Advertising 3.制定合格卖方清单 Develop qualified sellers list	1.合格卖方清单 Qualified sellers list 2.采购文件包 Procurement document package 3.建议书 Proposals
卖方选择 Select Sellers	1.组织过程资产 Organizational process assets 2.采购管理计划 Procurement management plan 3.评估标准 Evaluation criteria 4.采购文件包 Procurement document package 5.建议书 Proposals 6.合格卖方清单 Qualified sellers list 7.项目管理计划 Project management plan <ul style="list-style-type: none"> <li>● 风险登记册 Risk register</li> <li>● 与风险有关的合同协议 Risk-related contractual agreements</li> </ul>	1.加权系统 Weighting system 2.独立估算 Independent estimates 3.筛选系统 Screening system 4.合同谈判 negotiation 5.卖方评级系统 Seller rating systems 6.专家判断 Expert judgment 7.建议书评估技术 Proposal evaluation techniques	1.选中的卖方 Selected sellers 2.合同 Contract 3.合同管理计划 Contract management plan 4.资源可利用情况 Resource availability 5.采购管理计划(更新) Procurement management plan(updates) 6.请求的变更 Requested changes
合同管理 Contract Administration	1.合同 Contract 2.合同管理计划 Contract management plan 3.选中的卖方 Selected sellers 4.绩效报告 Performance reports 5.批准的变更申请 Approved change requests 6.工作绩效信息 Work performance information	1.合同变更控制系统 Contract change control system 2.买方进行的绩效审核 Buyer-conducted performance review 3.检验和审计 Inspections and audits 4.绩效报告 Performance reporting 5.支付系统 Payment system 6.索赔管理 Claims administration 7.合同档案管理系统 Records management system 8.信息技术 Information technology	1.合同文件 Contract documentation 2.请求的变更 Requested changes 3.推荐的纠正措施 Recommended corrective action 4.组织过程资产(更新) Organizational process assets(updates) 5.项目管理计划(更新) Project management plan(updates) <ul style="list-style-type: none"> <li>● 采购管理计划 Procurement management plan</li> <li>● 合同管理计划 Contract management plan</li> </ul>
合同收尾 Contract Closure	1.采购管理计划 Procurement management plan 2.合同管理计划 Contract management plan 3.合同文件 Contract documentation 4.合同收尾程序 Contract closure procedure	1.采购审计 Procurement audits 2.合同档案管理系统 Records management system	1.合同收尾 Contract closures 2.组织过程资产(更新) Organizational process assets(updates)



**PROJECT LIFE CYCLE / PROJECT MANAGEMENT PROCESS GROUPS 项目生命周期和项目管理过程组**

<b>INITIATION 启动 (Concept)</b>		<b>PLANNING 计划 (Development)</b>		<b>EXECUTION 执行 (Implementation)</b>		<b>CONTROL 控制</b>		<b>CLOSE-OUT 结束 (Termination) (Finishing)</b>
Select project 选择项目		Create Scope Statement & scope management plan 创建范围说明和范围管理计划		Execute the project plan 执行项目计划		Integrated change control 综合变更控制		Procurement audits 采购审计
Determine project objectives 确定项目目标		Determine project team 组织计划编制		Manage project progress 管理项目进程		Project performance reporting 项目绩效报告		Product verification 产品确认
Determine high level deliverables, time & cost estimates 确定主要可交付物、时间及成本估计		Create WBS 创建工作分解结构		Complete work packages or tasks 完成工作包或任务		Performance reporting 绩效报告		Formal acceptance 正式接收
Determine high level constraints & assumptions 高级别的限制和约束		Finalize the team & create resource management plan 人员获取及创建资源管理计划		Distribute information 信息发布		Scope change control 范围变更控制		Lessons learned 经验教训
Determine business need 确定业务需求		Create WBS dictionary 创建工作分解结构字典		Quality assurance 质量保证		Quality control 质量控制		Update records 更新记录
Develop product description								
Define responsibilities of the project manager 确定项目管理者责任		Create Network Diagram 创建网络图		Team development 团队发展		Risk monitoring & control 风险监控		Archive records 文档记录
Determine high-level resource requirements 制定高水平资源需求		Estimate time & costs 估算时间及成本		Progress meetings 状态评审		Schedule control 计划控制		Release resources 人员遣散
Finalize project charter 制订项目章程		Determine Critical path 确定关键路径				Cost control 成本控制		
		Develop Schedule & schedule management plan 制定进度及进度管理计划				Scope verification 范围确认		
		Develop Budget 制定预算				Manage by exception to the project plan 对项目进行中的突发事件进行管理		
		Create Communications Management Plan 创建沟通管理计划				Ensure compliance with plans 确保按计划进行		
		Create Quality Management Plan 创建质量管理计划				Reassess plans 补充计划		
		Risk management planning, identification, qualification, quantification & response planning 风险管理计划, 识别、定性、定量分析及应对计划编制				Take corrective action 纠正措施		
		Create procurement management plan 创建采购管理计划						
		Create stakeholder management plan 创建对发起人或干系人的管理计划						
		Create project control plan 创建项目控制计划						
		Develop formal project plan 制定正式项目计划						
		Gain formal project plan approval 获取对项目计划的正式许可						
		Hold kickoff meeting 项目动员大会						
<b>Overall 整体</b>	Influencing the organization 组织机构的影响	Leading 领导	Solving problems 解决问题	Negotiating 谈判	Communicating 沟通	Holding meetings 召开会议	Stakeholder management 干系人管理	

## SCOPE 范围

**Project Scope Management 项目范围管理**- processes required to ensure that the project includes only the work required to complete the project successfully.此过程必须确保项目只包括能保证项目成功完成的工作

**Management by Objective (MBO)基于目标的管理** – determining company's objective and how the project fits into them. MBO focuses on the goals of an activity rather than the activity itself (manager is responsible for results rather than performing certain activities)决定公司目标及项目如何满足该目标。MBO 关注于活动的目标而不仅仅是活动本身（管理者对绩效结果而不仅仅是某项活动负责）

**Project Scope 项目范围**- the work that must be done in order to deliver a product; completion is measured against the project *plan*.为交付产品而必须完成的工作，**通过计划来评价**。

**Product Scope 产品范围** - features and functions that are to be included in a product; completion is measured against the *requirements*.产品或服务所包含的特征或性能，**通过需求来评价**。

**Design Scope 范围计划编制** – contain the detailed project requirements (used for FP contract) **包含详细的项目要求（用于固定价合同）**

**Scope Definition 范围定义** – subdividing major project deliverables.细分主要项目可交付成果

**Decomposing 分解** – subdividing project work packages into smaller, more manageable components (activities/action steps). The heuristic (rule of thumb) used in project decomposition is 80 hours. 将项目分解为更小的更易管理的工作包（活动或工作步骤）。首选的项目分解原则（大拇指原则）为 80 小时

**Scope Management Plan 范围管理计划** - describes how scope will be managed and how changes will be integrated into project; also includes assessment of expected stability of project scope. (e.g. project manager would refer to the Scope Management Plan to make a change)描述项目范围如何被管理及项目范围变更如何被集成到项目中去，也包括对项目范围预测稳定性的评估。（例如，项目管理者应依据范围管理计划去进行变更）

**Stakeholder Management 干系人管理** – the project manager must identify the stakeholders, determine their needs and expectations, then manage and influence expectations to ensure project success.项目管理者必须识别干系人，确定他们的需求及期望，管理并影响这些期望以确保项目成功。

**Configuration Management 配置管理** - a means of monitoring and controlling emerging project scope against the scope baseline; its purpose is to control change throughout the project. It is any documented procedures used to apply technical and administrative direction and surveillance to audit the items and system to verify conformance requirements. . It documents the physical characteristics of formal project documents and steps required to control changes to them (e.g. would be used by a customer who wishes to expand the project scope after the performance measurement baseline has been established). **When more than one individual has sign a Charter, you have to be concerned with competing needs and requirements impacting your efforts on configuration management** 一种对基于范围基线所形成项目范围的监控方法；它的用途是控制项目的全部变更。配置管理是任何成文的程序，这些程序对工作项和系统进行技术和行政的指挥与监督，通过审计证实其与要求相一致。识别一个工作项或系统的物理特性和功能特性并形成文档，控制对这些特性所做的任何变更（例如：应用于那些希望在绩效测量基线被建立之后扩大项目范围的客户）**当多于一个个体签署协议，你必须关注于与配置管理**

**WBS 工作分解结构** - subdividing project deliverables into smaller, more manageable components. It is a deliverable-oriented grouping of project elements that organizes and defines the total scope of the project. It is a communication tool and it describes what needs to be done and what skills are required. Anything missing in the WBS should be added. The 1<sup>st</sup> level should be the *project* life-cycle (not *product*). The WBS is created by the team (helps to get buy-in) and it is used to make certain that all the work is covered. It provides a basis for estimating the project and helps to organize the work. Its purpose is to include the total project scope of all the work that must be done to complete the project. Defines the project's scope baseline. 将项目可交付成果分解为更小的更易管理的单元。以可交付成果为导向对项目元素的分组。它是一个沟通工具，描述什么必须去做什么技术是必须具备的。任何在工作分解结构中被遗漏的需要被添加进来。第一层是项目生命周期（不是产品生命周期）。工作分解结构由项目团队产生，它用于确定所有工作都被覆盖到。它提供对于项目估算的基础并帮助组织工作。它组织并定义整个项目范围。定义项目的范围基线。The 3 most common types of WBS are system/sub systems, life-cycle phasing and organizational 工作分解结构最常见的三种形式是系统/子系统，生命周期方式，组织的分解结构

**WBS Dictionary 工作分解结构字典**– Defines each item in the WBS, including description of the work packages and other planning info such as schedule dates, cost budgets and staff assignments..定义工作分解结构中的所有元素，包括工作包描述和其他计划编制信息如进度计划日期，成本预算和人员安排。

**Scope Statement 范围说明** - a documented description of the objectives, work content, deliverables, and end product; it includes a description of project assumptions and constraints. Provides stakeholders with a common understanding of the scope of the project and is a source of reference for making future project decisions.目标，工作内容，可交付成果，最终产品的备有证明文件的描述；它包括对项目的约束和假设的描述。为干系人提供一个了解项目范围的一般共识及对未来项目决策的基础

**Statement of Work 工作说明** - a narrative description of products or services to be supplied under contract.合同之下的关于产品和服务的叙述性说明。

**Project Charter 项目章程** - formal document used and approved by senior management that explains purpose of the project including business needs addressed and the resulting product (deliverables and objectives). It describes responsibilities and authority of the project manager to apply organizational resources to project activities. Clarification to the Project Charter must be addressed to the sponsor(s) who approved the charter. Resources cannot be committed without the Charter. The Charter is an input to ALL the project management processes.一个正式批准的项目文件包括商业需求，产品描述，需要由项目以外的高级管理层发布。授予项目经理执行项目活动而使用组织资源的权利。项目发起人发布项目章程。资源必须依照章程规定使用。章程贯穿于整个项目管理过程。

**Code of Accounts 账目编码**- any numbering system used to uniquely identify each element of the WBS.用于区分工作分解结构的所有元素唯一标识的编码系统

**Project Selection Method 项目选择方法** - *Benefit Measurement* (comparative approach) and *Constrained Optimization* (mathematical approach).收益测量法（比较方法，经济模型）和约束优化（数学模型）

**Work Package 工作包**- deliverable at the lowest level of WBS. They are control points in the WBS and are used for assignments to work centers. They are used to pass a group of work for further breakdown in the executive organization. 工作分解结构的最低层次的可交付成果。他们控制工作分解结构的要点并用于工作中心的分配。他们用于审查职能机构进一步细分的工作。

**Scope Verification 范围确认** – to verify that the work done satisfies the scope of the project. It must be done at the end of each phase. A similar activity during closure is **Product Verification**. Focus on customer acceptance /performance measurement, *not* change to project scope. Scope Verification is normally done in parallel with quality control (which checks for product correctness). Occur during the control phase of the project, not at the end. The review at the end of the project phase is called phase exit, stage gate, or kill point. 证实所做的工作和项目范围。在每一个阶段都要做这个范围确认工作。在收尾阶段的一个类似活动是产品确认。关注于客户满意/绩效测量, 而不是变更项目范围。范围确认与质量控制(检验产品正确性)同步进行。发生于项目的控制阶段而非收尾阶段。项目阶段末的检查通常被称为阶段出口, 阶段门或终止点。

**Cost Account 成本账号** – one level above the Work Package. 工作包的上一层

**Cost/Benefit analysis 成本/利益分析**– (part of scope planning) technique used to validate that the project can meet the technical/business objectives set forth by Sr. Management (范围计划编制的一部分) 技术用于证实项目可以达到由高级管理所确定的技术/商业目标

Project success depends primarily on **customer satisfaction**. 项目成功主要依赖于客户的满意度。

**Assumptions 假设** – factors that, for planning purposes, are considered to be true, real or certain 在计划编制过程中被认为真的、对的、确定的因素  
The principal **sources of project failure** are organizational factors, poorly identified customer needs, inadequate specified project requirements, and poor planning and control. 主要的项目失败原因是组织因素, 差的客户需求定义, 不充分的项目需求说明和缺少计划编制和控制

**Constrained optimization 约束优化** – includes analytic hierarchy process, logical framework analysis and multi-objective programming. 包括层次分析法, 逻辑框图分析法和多目标编程

Most <b>Change Requests</b> are the result of:	多数变更请求的原因
An external event	一个外部事件
An error or omission in defining the scope of the product	产品范围定义中的错误或冗长
An error or omission in defining the scope of the project	项目范围定义中的错误或冗长
A value-adding change	一个增值变更

A **Change Request** is the most effective way of handling the disconnect between what users actually want and what management thinks they want. The project manager's role related to project change is to influence the factors that affect change. He should ask for a change order and look for impacts to the triple constraint. **Scope Changes** on project can be minimized by spending more time developing the **scope baseline**. 一个变更请求是处理客户真正需求和管理所认为其需求之间差异的最有效的方法。项目经理在项目变更中的相关角色是对变更的因素施加影响。他决定提交一个变更申请并平衡三重约束之间的矛盾。花更多的时间制订范围基线可以使项目范围变更的可能性降至最低。

If there is enough **reserve** to accommodate a change, the Project Manager can approve the change (we are paid to manage the scope completion within our budget and reserves) 在可以允许的范围之内, 项目经理可以批准变更(用预算和应急储备支付)

## HUMAN RESOURCE 人力资源

**Project Human Resource Management 项目人力资源管理** - process required to make the most effective use of the people involved with the project 保证参加项目的人员能够被最有效使用所需要的过程

**Responsibility Assignment Matrix (RAM) 责任分配矩阵**– Show who does what (x=person, y=phase). The most important feature of the RAM is the participatory development process involving all stakeholders. Show who is participant, who is accountable, who handles reviews, who provides input and who must sign off on specific work packages or project phases. 谁做什么(x轴代表人, y轴代表阶段) 大多数角色和责任分配给积极参与项目工作的主要项目工作人。在特殊的工作包和项目阶段中说明谁是参与人, 谁是负责人, 谁进行审查, 谁提供输入, 谁进行签收。

**Linear Responsibility Chart (LRC) 线性责任图** – identifying responsibility, assignments by work packages and action required. Also referred to as RAM. 确认责任, 分配必须完成的活动和工作包。也被看作是责任分配矩阵

**Organizational Breakdown Structure (OBS) 组织分解结构** - A depiction of the project organization arranged so as to relate work packages to organization units. 反映不同组织单位各自负责的工作包

**Resources Histogram 资源柱状图**– often part of Staffing Management Plan; shows resource usage (eg staff hours) per time period (eg wk, mth) of a specific job function. 经常作为人员配备管理计划的一部分, 用时间段(如周、月)表示人力资源消耗(如人时)情况的详细工作函数

**Rewards and Recognition Systems 奖励和表扬体系** -- to be effective, must make the link between performance and reward clear, explicit and achievable. 为达到效果, 必须在业绩和奖励之间建立清晰并可实施的联系

Types of Power 权力类型	
Legitimate 合法 (Formal) 正式	Derived from formal position 来自于正式职位
Coercive 惩罚	Predicated on fear 源于对某种后果的惧怕
Reward 奖励	Involves positive reinforcement and ability to award something of value 包括对有贡献的进行物质奖励 Project often needs their own rewards system to affect employee performance. Used correctly, bring the team's goals and objectives in line with each other and with the project. 项目经常需要带有奖励机制来影响成员的绩效。正确的行使激励, 将使团队的目标和项目的目标取得一致。
Expert 专家	Held in esteem because of special knowledge or skill (requires time) 由于专门知识和技能带来的影响力(源自自身的威望)

Referent 暗示	Ability to influence others through charisma, personality, etc. 借用一个权力更大的人的职权来增强自己的权力
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The best forms of power are generally Reward and Expert 最好的权力形式一般是奖励和专家

<b>Conflict Management 冲突管理</b>	
Problem Solving / Confrontation 解决/面对问题	address conflict directly in problem solving mode 在问题解决中直接面对问题的方法 [win/win]
Compromising 妥协	bargaining and searching for solutions; neither party wins but each gain some satisfaction [lose/lose] this is very rarely a good way to resolve technical issues. 通过讨价还价寻找一定程度上使双方满意的解决办法, 这是一个解决技术问题的好办法。
Smoothing 缓和	de-emphasize differences and emphasize commonalities; friendly but avoids solving root causes; delaying (eg. Manager says an issue is valid but doesn't think it will be a big problem later) 淡化分歧强调一致性, 努力保持友好的氛围是求同存异的解决办法; 这种方法暂时有效, 缓和不能解决根本问题 (例如, 经理说一个事情是有效的但不认为它随后会成为一个大问题)
Withdrawal (Ignoring) 撤退 (忽略)	retreating from actual or potential disagreement; delaying (e.g. "Just document the problem") 从实际的或潜在的争吵中退出, 不解决问题 (例如, 只是记录问题)
Forcing 强制	exerting one's viewpoint; a last resort [win/lose] (e.g. "Call the customer and demand that you receive the approval today." 强调一方观点, 最后的手段 (例如, 通知客户你今天需要一个正式批准)
Collaborating 合作	Involves incorporating multiple ideas and viewpoints from people with different perspectives and offers a good opportunity to learn from others (good when project is too important to be compromised) 统一大家的意见, 提供一个彼此学习的好机会 (项目很重要必须折中时)

<b>Sources of Conflict</b> 冲突的原因	<b>INITIATION</b> 启动	<b>PLANNING</b> 计划编制	<b>EXECUTION &amp; CONTROL</b> 执行控制	<b>CLOSE-OUT</b> 收尾	<b>Most Tension</b> 最主要压力
Priorities 项目优先级	1	1			+
Admin Procedures 行政管理程序	2	3			
Schedules 进度	3	2	1	1	+
Technical Issues 技术规范			2		+
Personnel Resources 人力资源			3	3	+
Personality Conflict 个性冲突				2	

### 3 steps of problem solving: 解决问题的三个步骤

1. Analyze the situation / Document the situation 分析/证实情况
2. Develop alternatives with the team 团队开发替代方案
3. Go to management 执行管理

### Motivational Theory: Content & Process Theories 动机理论: 满足/过程理论

Content: "What" energizes, directs behavior –满足: “什么” 激发, 导致行为

1. Maslow's Hierarchy of Needs Theory (Physiological, Safety, Social/Belonging, Esteem, Self-Actualization) 马斯洛需求层次理论 (生理需求, 安全需求, 社会/归属需求, 尊重, 自我实现)
2. Herzberg's Motivator/Hygiene Theories (Motivator: Self-Actualization, Esteem ; Hygiene: Social, Safety, Physiological) 赫兹博戈卫生与动机理论 (动机: 自我实现, 尊重; 卫生: 社会, 安全, 生理)

Process: "How" personal factors influence behavior 作用: 个人因素 “如何” 影响行为

1. McGregor's Theory X and Theory Y (X: Assumes people lack ambition, dislike responsibility, are inherently self-centered and are not very bright; motivate by reward and punishment. Y: Assumes people become lazy w/o recognition, will accept responsibility, can become self-motivated and exercise self-control; motivate by removing obstacles and providing self-directed environment.) 麦克雷戈德 X 理论和 Y 理论 (X: 人缺乏责任感, 自私, 需要被人监管, 不聪明, 受制于奖惩。Y: 假设人有创造力, 能自我管理, 能实现自我激发, 能主动扫清障碍, 创造以自我为中心的环境)
2. Ouchi's Theory Z/Japanese Theory (focus on team, company; usually lifetime employment, collective decisionmaking) 奥奇 Z 理论和日本理论 (关注于团队, 公司; 一般是终身雇佣, 集体决策)

### Other Motivational Theories: 其他动机理论

**Behaviorism** 行为主义 – people behavior can be modified through manipulation of rewards and punishments 人们的行为会因为奖惩而改变



**Expectancy Theory 期望理论** – Motivation is explained in terms of expectations that people have about (1) their ability to perform effectively on the job, (2) the rewards they might obtain if they do perform effectively and (3) the value or degree of satisfaction they anticipate from those rewards 动机被解释为人们所具有的期望 (1) 通过努力极有可能完成工作 (2) 完成工作后会获得奖励 (3) 奖励带来满足

**MBO – More support to team, not more power (remain to PM)** 对团队给与更多的支持而非更多的权力

#### Leadership Theories: 领导者理论

**McGregor 麦克雷戈** – Theory X (employee lack ambition) and Theory Y (org structure are responsible for motivation) X 理论 (员工缺乏雄心) Y 理论 (组织可以以赖于来源于员工的自信的动力)

**Tannenbaum-Schmidt model** – Continuum of leadership styles between the autocratic and participative styles 是独裁领导风格和参与性风格的统一体

**Blake and Mouton – ref to managerial grid (Concern for People Vs Concern for Production), whereas 1,1 is laissez faire mgmnt, 1,9 is Country Club mgmnt, 9,1 is Task oriented mgmnt, 5,5 is Compromise mgmnt and 9,9 is team mgmnt.**

Forms of Organization 组织形式	
Functional 职能	Groups people by specialization. Project manager has no formal authority of resources and must rely on informal power structure and his own interpersonal skills to obtain resource commitments from functional managers. 专业化分组。项目管理者没有对资源的控制权力, 必须依靠非正式权利及自身的沟通能力从职能经理处获取资源
Project Expeditor 项目联络员	Retains functional but adds a Project Expeditor who serves as a communications link and coordinator for the project across functional units 保留职能, 添加一个能在项目各职能部门起联络作用的项目联系人
Project Coordinator 项目协调员	Similar to Project Expeditor except the Coordinator reports to a higher level manager and has some authority to assign work 与项目联系人相似, 不同的是, 项目协调员需要向更高层管理层汇报并有一些权利直接布置工作
Weak Matrix 弱矩阵	<b>Vertical functional lines of authority maintained with a relatively permanent horizontal structure containing managers for various projects.</b> Balance of power leans toward the Functional Manager. Can cause a project to fall behind because functional managers are pulling resources away to perform non-project related tasks. The Project Manager may be able to make resource decision on his own but not technical decision. 权力倾向于职能经理。由于职能经理将资源移到非项目工作中去, 有可能导致项目落后。项目经理有可能依据自身而不是技术决策来决定资源决策
Strong Matrix 强矩阵	Same as Weak except that the balance of power leans towards the Project Manager 类似于弱矩阵, 所不同的是, 权力倾向于项目经理
Projectized 项目性	A separate, vertical structure is established for each project. All the project team members report directly and solely to the project manager. 为每一个项目所建立的单独的垂直的结构。所有项目团队成员直接地单独地向项目经理汇报
<b>**Memorize PMBOK “Organizational Structure Influence on Projects” 组织结构对项目的影响</b>  <b>Team building</b> is most difficult in a matrix organization. Its main purpose is to improve team performance. 团队建设在矩阵组织中最困难的。它的主要目的是为了团队绩效  <b>Team development</b> is based on the <b>individual development</b> of each member. 团队发展基于团队中每个成员的个人发展	
<b>Leadership Styles</b>	领导风格
<b>Autocratic 专制</b>	PM makes decision without soliciting information from team 项目经理个人作出决定而不用考虑员工的意见, 适用于紧急情况
<b>Consultative 咨询式管理</b>	Intensive information solicited; PM makes decision 最大程度的收集信息, 项目经理制定决策
<b>Consensus 协商式管理</b>	Team makes decision; open discussion and information gathering by team 团队做决策, 开放式讨论并从团队收集信息, 主要决策由高层决定
<b>Shareholder 参与</b>	<b>Little or no information exchange;</b> team has ultimate authority for final decision; 团队有最终决定权

<b>Roles of the Project Manager 项目经理角色</b>	<b>Functions of the Project Manager 项目经理的职能</b>
Integrator 集成者	Planning 计划编制
Communicator 沟通者	Organizing 组织
Team Leader 团队领导	Leading 领导
Decision Maker 决策者	Controlling 控制
Climate Creator/Builder 氛围营造者	

#### Documentation 文件

- Staffing Management Plan 人员配备管理计划** – describes when resources will be brought into and taken off the project. 描述何时及如何把人力资源投入或撤出项目团队



- **Employee Record Update 员工记录更新** – as part of closure, the project manager should update employee's record with the new skills acquired. 作为收尾的一部分, 项目团队需要更新员工对新的技能掌握程度的纪录
- **Resource calendar 资源日历** – identifies period when work is allowed. 确定资源可用时间段

## COMMUNICATIONS 沟通

**Project Communications Management 项目沟通管理** - process required to ensure proper collection and dissemination of project information. 保证正确收集或发布项目信息的过程

**Team Meetings 团队例会** – periodic team meetings is the most effective way to accelerate the project integration process. 定期的团队会议是加速项目综合进程的最有效的方法

**Performance Reviews 绩效审查** – meetings held to assess status and/or progress. 评估项目状态和进度的会议

<b>Communications Model 沟通模型</b>	
Communicator 发报者	The originator of the message 消息的产生者 (确保信息清楚、无歧意并且完整)
Message 消息	Thoughts, feelings, or ideas reduced to "code" that is understood by both sender and receiver 以编码输出的发报者与收报者都能理解的思想、意见、感觉
Medium 媒介	The vehicle or method used to convey the message 用来传达消息的工作或方法
Receiver 收报者	The person for whom the message is intended 完成或打断通信过程的参与者
[Sender] -- Encoding → Transmission → Decoding -- [Receiver] → Feedback 发送者---编码----> 发送-----> 解码-----> 接收-----> 反馈	

**Communications Channels 沟通渠道** =  $(n^2 - n)/2$  or  $n(n-1)/2$

...the fact that two team members are working "directly" together does not reduce the number of communication channels. 事实就是即使两个团队成员直接地工作也不能减少沟通渠道的数目

**Tight Matrix 紧密矩阵** - all team members allocated in a single office space 所有团队成员集中在一个办公区域

A variance is considered to be significant if it jeopardizes project objectives. 一个分歧如果可能危及到项目目标就应该得到重视

The purpose of **project plan development** is to create a document to guide project execution and control. 项目计划编制的目的是制定一个指导项目执行和控制的文件

The output of **project plan execution** consists of work results and change requests. 项目计划执行的输出由工作结果和变更请求组成

<b>Types of Communications 沟通方法</b>	
Formal Written 正式书面	Project Charter, Management Plan (this is the best type of communication method to use when there are cultural differences and distance between team members) 项目章程、管理计划 (这是跨文化和远程团队交流所需要的最好的沟通方法)
Informal Written 非正式书面	Notes, memos 笔记, 备忘录
Formal Verbal 正式口头	Presentations 介绍、讲演
Informal Verbal 非正式口头	Conversations 交谈
Note: 55% of communications is non-verbal (it is the most important aspect of a conversation) 55%的沟通是非语言的 (这是交流最重要的组成部分)	
90% of Project Manager's time is spent acquiring and communicating information 项目经理 90%的时间用于传递和获取信息	

### **Objectives of a Kickoff Meeting 项目启动会的目标**

Get to know each other 相互了解
Set team goals and objectives 设置团队目标
Review project status 审查项目状态
Review project plans 审查项目计划
Identify problem areas 确定问题领域
Establish responsibilities and accountabilities 确立责任和义务
Obtain commitments 得到承诺

### **Barriers to Communications (which lead to conflict) 沟通的障碍**

**障碍 (导致分歧的因素)**

Lack of clear communication channels 缺乏清晰的沟通渠道
Physical or temporal distance 物理或时间距离
Difficulties with technical language 不懂技术术语
Distracting environmental factors 分散注意力 (噪声)
Detrimental attitudes 有害的态度 (敌对、不信任)

The most likely results of communication blocker and miscommunication as a whole is conflict. 沟通障碍或错误信息导致冲突升级

**Building Effective Team Communications 营造有效的团队沟通**

Be an effective communicator 成为一个有效的沟通者
Be a communications expeditor 成为一个沟通联络员
Avoid communication blockers 避免沟通障碍
Use a "tight matrix" (single office space) 使用紧密矩阵 (作战室)
Make meetings effective (meeting during execution is the best format to communicate) 有效会议 (实施期间最好的沟通方法是开会)

**Management Styles**

管理风格

Authoritarian 独裁	Lets individuals know what is expected of them 进行具体指导, 并希望遵守规则与标准
Combative 好斗	Eager to fight or be disagreeable over any situation 喜欢对任何情况都进行挑战或持不同态度
Conciliatory 调和	Friendly and agreeable 友好的、容易相处的
Disruptive 分裂	Tends to disrupt unity and cause disorder 倾向于破坏团结造成混乱
Ethical 伦理	Honest and sincere 诚实真诚 (强调公平解决)
Facilitating 提供方便	Does not interfere with day-to-day tasks, but is available for help and guidance when needed 不干扰日常任务, 但在需要时提供帮助和干扰
Intimidating 威胁	Reprimands employees for the sake of a "tough guy" image 申斥那些制造麻烦的人
Judicial 公正	Applies sound judgment 应用合理判断
Promotional 促进	Cultivates team spirit; rewards good work; encourages subordinates to realize their full potential 培养团队精神; 奖励出色的工作; 鼓励下属了解他们所有的潜能
Secretive 不公开的	Not open or outgoing in speech, activity, or purpose 不公开介绍, 活动, 意图

**Management Skills 管理技能**

Leading 领导	Establishing direction, aligning people, and motivating and inspiring 确定方向, 协调思想, 激励与鼓舞
Communicating 沟通	The exchange of information in a variety of dimensions 在不同层面进行信息交流
Negotiating 谈判	Conferring with others in order to come to terms or reach an agreement 与他人协商达成某种协议
Problem Solving 问题解决	A combination of problem definition and decision making 问题的定义与决策制定的结合
Influencing the Organization 对组织施加影响	The ability to get things done based on an understanding or the formal and informal structures of the organization 基于对所有组织的正式或非正式结构的明确理解的“把事情办妥”的能力

**Documentation 项目文件**

...the prevailing measurement of what information to accumulate and communicate on a project is that it contributes to its success. 一个项目中知识的积累和传递的最有效测量方法是看它是否对项目的成功有利

<ul style="list-style-type: none"> <li><b>Progress Report 进度报告</b> - summarize project status. Preferred report to quickly review where a project now stands. 总结项目状态。审查项目现状的首选报告方式</li> <li><b>Trend Report 趋势分析报告</b> - show performance over time (shows if it is improving or deteriorating) 检查项目结果 (以确定绩效是提高了还是降低了)</li> <li><b>Variance Report 偏差分析报告</b> - compare project results, looks at specific project items or tasks 比较项目结果, 关注特殊的项目条款或任务</li> <li><b>Forecasting Report 预测报告</b> - only looks into the future 对未来项目状况和进展作出预测</li> <li><b>Status Report 状态报告</b> - relating a moment in time (static) 描述当前状况</li> </ul>	<p>Reports are a method to distribute information, not just to report on progress 报告是发布信息的一个方法, 而不仅仅是报告进展情况</p>
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• <b>Project Plan</b> 项目计划
• <b>Staffing Management Plan</b> 人员配置管理计划
• <b>Communications Management Plan</b> 沟通管理计划 - should cover all phases of the project 应该包括项目的所有阶段
• <b>Performance reports</b> 绩效报告- provide info on schedule performance, thereby alerting the team to problems that may arise in the future. 提供进度绩效信息, 提醒团队那些可能在未来引起问题的事项

## TIME 时间

**Project Time Management** 项目时间管理 - processes required to ensure timely completion of the project 确保项目按时完成

**Activity Definition** 活动定义 - defines activities that must take place to produce project deliverables 定义完成项目可交付产品必须进行的具体活动

**Activity** 活动 - consumes time (eg *testing*) 消耗时间 (如: 进行测试)

**Events** 事件 - specified accomplishment / does not consume time (eg *tested*) 指定要完成的任务/不消耗时间 (如: 测试工作)

**PERT** 计划评审技术 **Weighted Average** =  $(O + 4M + P)/6$  standard deviation =  $(P - O)/6$  variance = standard deviation<sup>2</sup> (To add standard deviations: convert to variance then add; take the square root of the sum). Best method when you have no historical data for a similar task. Results is the 50% point (mean). 均值 =  $(O + 4M + P)/6$ , 标准差 =  $(P - O)/6$ , 方差 = 标准差<sup>2</sup> (累加标准差: 转换成活动方差再累加; 取和的平方根) 类似任务中没有原始数据时的最好估算方法。结果是中值 (平均数)

**Monte Carlo Analysis** 蒙特卡洛分析 - computer simulation of project outcomes using PERT estimates; result represented in S curve. Provides the ability to compute the probability of completing a project on a specific day. Can also be used to assess feasibility of schedule under adverse conditions (eg when a schedule constraint is identified) 使用 PERT 估算的计算机模拟项目输出方式; 结果描述成 S 曲线。提供在某一天项目能够完成的概率。同样可以被用于估计相反概率的可能性 (当时间进度一定时)

**Heuristics** 启发式 - rules of thumb 拇指原则

**Critical Path** 关键路径 - longest path (almost always have no float) 最长路径 (通常没有时差时间)

**Variance** 偏差 - Plan minus Actual 计划与实际的差距

**Float / Slack** 时差/松弛时间 - Time an activity may be delayed from its early start without delaying the project finish date. Difference between the required end date and the expected project completion date. A negative slack on the critical path means that the project is behind schedule. 在不延误项目完成日期的情况下, 活动自其最早开始的日期起可以推迟的时间量。项目要求结束时间和项目预期结束时间之间有差别。在关键路径上存在一个负时差说明项目落后于进度计划。

**Free Float** 自由浮动时间 - Amount of time a task can be delayed without delaying the early start of its successor 自由浮动时间是在不延误任何紧后活动的最早开始时间的情况下, 活动可以推迟的时间量。

**Total Float** 总时差 - amount of time that an activity may be delayed from early start without delaying the project finish date 在不延误项目完成日期的情况下, 活动自其最早开始的日期起可以推迟的总时间量

**Lag** 滞后 - waiting time between two tasks (negative lead) 两个任务之间的等待时间 (负超前)

**Schedule Baseline** 进度基线 - the original, approved project schedule; should never be changed without proper review and approval. Any approved change should be documented in writing. Should be created at the beginning of the project and used during the project to gauge (measure) overall project performance, not just schedule. The project **Performance Measurement Baseline** should generally change only in response to a scope or deliverable change. 原始的, 被核准的项目进程; 未经恰当的评估和正式批准永远不能改变。被核准的变化必须以文档纪录。在项目启动时制定, 贯穿于整个项目进程以评估项目执行, 而不仅仅是在计划阶段完成。项目绩效测量基线仅在范围变更时候或可交付成果发生变化时变更。

**Corrective action** 纠正措施 - in project time management primarily concerns expediting to ensure that activities remain on schedule. Is anything done to bring expected future schedule performance in line with the project plan. 项目时间管理主要关注确保进度表中的活动按时完成。使预期的未来项目绩效与计划保持一致所做的任何事情。

**Revisions** 修订 are changes to the scheduled start and finish dates in the approved project schedule; generally revised only in response to scope changes. **Rebaselining** may be needed to provide realistic data to measure performance. 对已批准的项目进度计划的开始和结束时间的修改; 只反映相应的项目范围变化时才进行修订。重新确定基准计划能提供测量进度绩效的真实数据。

Scheduling and allocating resources to **multiple projects** may affect schedule slippage and in-process inventory. 多项目管理的进度计划和资源分配可能会影响进度滑动和存货清单。

The most important element necessary for project control is clear requirements. 项目控制中最重要的因素就是清晰的需求。

**Duration Compression Methods** 历时压缩方法 - occurs after activity duration estimating and before finalizing the schedule. Include **crashing**, **fast track**, 在活动历时评估之后, 进度最终敲定之前发生。包括赶工和快速跟进。

**Crashing** 赶工 - when you are worried about time, not so much about costs. 通过加大成本缩短历时。

**Fast Track** 快速跟进 - resources in parallel, involve increase rework. Fast track tasks should on the critical path (float = 0) in order to save time. 串行改并行, 会带来返工。快速跟进一般在关键路径上进行以节省时间。

**Resource Leveling** 资源平衡 - often results in a project duration that is longer than the preliminary schedule. **Resource reallocation** from non-critical to critical path activities is a common way to bring the schedule back, or as close as possible, to the originally intended overall duration. 经常导致活动历时超过最初的进度计划。资源分配从非关键路径到关键路径的活动是导致进度落后于最初拟定的完成时间的一般原因或最接近的原因,

**Finish to Finish** 结束结束关系 - activities must finish on a specific sequence 活动必须按照一定的次序结束

“Start no earlier than” & “Finish no later than” 不早于和不晚于– Respectively #1 and #2 most popular date constraint in project management software.在项目管理软件中排名第一和第二的常见日期约束。

**Root Cause Analysis 根源分析**– used to identify the cause of the variation 用于定义偏差的产生原因

**Variance analysis 偏差分析** – key element to time control. **Float variance** is an essential planning component for evaluating project time performance. 时间控制的关键部分。时差偏差是评估项目绩效的核心计划编制成分。

**Revision 修订** – category of schedule update that result in change to the project's scheduled start or finish dates. New target schedule should be the usual mode of schedule revision.导致项目拟定的开始或结束时间的变化的项目进度表更新。新的目标进度计划应该是项目进度修改的标准模式。

**Schedule Management Plan 进度管理计划**– defines how schedule changes will be managed; may be formal or informal.定义进度变更如何管理，可能是正式的或非正式的

**Schedule Change Control System 进度变化控制系统**– defines procedures for changing the project schedule and includes the documentation, tracking systems, and approval levels required for authorizing schedule changes.定义项目进度的变更程序包括文档工作，跟踪系统和对变更的审批批准层次

<b>Project Time Management 项目时间管理</b>	
Arrow Diagramming Method (ADM): 箭线图	PERT and CPM focuses on float duration, to determine which activities have the least scheduling flexibility.
PERT 计划评审技术	Program Evaluation and Review Technique 程序评估和回顾技术 Emphasis on meeting schedules with flexibility on cost 重点在于成本的计划与弹性相协调 Three time estimates per activity: pessimistic, most likely, and optimistic 每项活动评估三次: 悲观的, 一般的, 乐观的 The probability of completing a project at or later than its expected time is 50% 按预计或晚于预计时间完成项目的概率为 50% Event oriented; uses dummy; activity on arrow (AOA) 事件为导向的; 使用标志符; 活动箭头 Finish-to-Start logical relationship 结束即开始的逻辑关系 Time estimates appear on arrow 时间评估出现在箭头上
Critical Path Method 关键路径方法 (CPM)	Emphasis on controlling cost and leaving the schedule flexible 重点在控制成本上, 让计划保持灵活性 One time estimate per activity 每项活动评估一次 Activity oriented; uses dummy; activity on arrow 活动为导向; 使用标志符; 活动箭头 Time estimates appear on arrow 时间评估出现在箭头上
Precedence Diagram Method 优先图方法 (PDM)	Represents improvement to PERT and CPM by adding lag relationships to activities [Start to Start; Start to Finish; Finish to Start; Finish to Finish] 开始对开始; 开始对结束; 结束对开始; 结束对结束 Work is done during activity. Arrow indicates dependency 在活动中完成工作。箭头指示依赖性 Activity on node; no dummy 节点上的活动; 没有标志符
GERT	A network diagram drawing method that allows loops between tasks. It is a method of sequencing (e.g. a project requires redesign after completion of testing) 允许任务之间发生循环的网络图表制图方法。有先后次序的方法 (例如: 测试完成之后, 项目需要重新设计)
<b>Dependencies 依赖关系</b>	
Mandatory or Hard 强制	Often involve physical or technological limitations (based on the nature of work being done) 常常包括了物理及技术上的局限性 (基于被完成任务的属性)
Discretionary 自由	Soft: desirable and customary (based on experience) 软件: 需要的, 习惯性的 (在经验基础之上) Preferential: preferred or mandated by a customer (also, need of the project sponsor) 优先:
External 外部	Input needed from another project or source 从其他项目或资源输入所需

<b>Resource Planning Tools 资源分配工具</b>	
Responsibility Matrix 责任矩阵	Identify who does what at what time/phase of the project 定义谁在项目的什么时间/阶段做什么
Resource Spreadsheet 资源表	Quantifies how much work is needed from each resource during each time period 量化每段时间从各个资源所需的任务量
Resource Gantt Chart 资源甘特图	Identify the periods of time (e.g. calendar date) when a particular resource is working on a particular task 在一个特定的资源用于一个特定任务时, 定义时间段 (如: 日历)
Resource Histogram 资源柱状图 (Resource Loading Chart) (资源复合图)	Vertical bar chart showing the total number of resources needed during each time period 显示在每一个时间段所需资源总量的垂直条状图

<b>Scheduling Tools 进度计划编制工具</b>	
Networks (PERT, CPM, PDM) 网络	Interdependencies; how related 相互依赖; 相互关系的
Barchart (Gantt) 甘特图	Effective progress reporting tool; no logical relationships shown between activities 有效的发展报告工具;



	在活动中不现实逻辑关系
Milestone Chart 里程碑图	Significant events; good for communicating status (used to track success) 重要事件; 对沟通情况有利 (用于跟踪成功事件)

## COST

<b>Project Cost Management</b> 项目成本管理	Processes required to ensure that the project is completed within the approved budget. 保证在批准的预算内完成项目的过程
<b>Benefit Cost Ratio</b> 收益成本比率	Expected Revenues / Expected Costs. Measure benefits (payback) to costs; not just profits. The higher the better (if rating over 1, the benefits are greater than the costs) 期望收入/期望成本。测量相对于成本的收益 (回报), 不仅仅是利润。该比率越高越好 (如果比率超过 1, 收益大于成本)
<b>Internal Rate of Return</b> 内部收益率	Interest Rate which makes the PV of costs equal to PV of benefits 使得成本的计划值等于收益的计划值的利率
<b>Payback Period</b> 回收期	Number of time periods up to the point where cumulative revenues exceeds cumulative costs. Weakness in this approach is the lack of emphasis on the magnitude of the profitability. Does not account for time value of money nor consider value benefits after payback. 累计收入超过累计成本时的周期数。这种方法的弱点是缺乏对收益数量的强调。既没有计算金钱的时间价值, 也没有考虑回报后的收益价值。
<b>Opportunity Cost</b> 机会成本	Cost of choosing one alternative and therefore giving up the potential benefits of another alternative: it is the value of the project not selected (lost opportunity). 选择了可选方案的一种因此放弃了另一个可选方案的潜在收益的成本: 它是没有被选择的项目的价值 (失去机会)。
<b>Sunk Cost</b> 沉淀成本	Expended costs which should be ignored when making decisions about whether to continue investing in a project 已经花费的成本, 并且该成本在做出是否继续投资一个项目的决策时不再考虑。
<b>Law of Diminishing Returns</b> 收益递减率	The point beyond which the marginal addition of resources does not provide a proportional amount of utility. 资源边际增加不能提供成比率的效用数量。
<b>Straight Line Depreciation</b> 直线折旧法	Same amount each time period (e.g. 10 - 10 - 10) 每一时间段折旧相同数量 (例如: 10 - 10 - 10)
<b>Contingency Reserve</b> 应急储备	Separate quantity of time/money for <u>known</u> unknowns. Designed to cover specific risk events previously identified and measured in the Risk Management Process. 为已知的未知单独准备时间/金钱的数量。目的是为了应对之前在风险管理过程中已经确定和测量的特殊的风险事件。
<b>Management Reserve</b> 管理储备	Separate quantity of time/money for <u>unknown</u> unknowns 为应对未知的未知风险而准备的单独的时间/金钱的数量。
<b>Working Capital</b> 运营资本	Current Assets - Current Liabilities 当前的资产-当前的债务
<b>Value Analysis</b> 价值分析	Cost reduction tool that considers whether function is really necessary and whether it can be provided at a lower cost without degrading performance or quality. Finding the least expensive way to do the scope of work. 成本降低工具, 它考虑了功能是否真正需要以及它是否能在不降低性能或质量的前提下适用较低的成本来实现。寻找到较少的花费来实现工作的范围。
<b>Value Estimating</b> 价值估算	Part of Cost Control 成本控制的一部分
<b>Value Engineering Tool</b> 价值工程工具	Tool for analyzing a design, determining its function, and assessing how to provide those functions cost effectively. 分析设计, 确定它的功能并评估如何使用有效的成本提供这些功能的工具。
<b>50-50 Rule</b> 50-50 规则	At beginning, charge 50% of its BCWS to the account. Charge remaining at completion. 在开始时, 按计划值的 50%, 结束时计剩下部分。
<b>Analogous Estimating</b> 类比估算	Top down; based on similar projects. Represents a form of expert judgment. Gives project team an understanding of management's expectations (part of cost budgeting and cost estimating) 从上自下的估算, 基于简单的项目。代表专家判断的一种形式。给管理团队一个管理预期的理解 (成本预算和成本估算的一部分)。
<b>Bottom-up Estimating</b> 自下而上的估算	Detailed cost estimates of work packages are aggregated. Would provide best overall quality of the estimate. 工作包详细成本估算的总合。将提供最好的全局的估算质量。



<b>Parametric Estimating</b> 参数估算	Relies on knowledge of mathematical relationships; measured in \$/unit (scalable, quantifiable). It does <i>not</i> make use of team estimate. (part of cost budgeting and cost estimating). Using a mathematical model to predict the duration of a task (e.g. taking the average duration of all past tasks) 依赖于数学关系的知识, 测量每单位所花的金钱数\$/单位 (可测量的, 可计量的)。它不能使用团队估算 (是成本估算和成本预算的一部分)。使用数学模型预测任务的历时 (例如: 所有以前任务的平均历时)。
<b>Regression Analysis</b> 回归分析	Statistical technique graphically represented on scatter diagram 在分散图表中的图形描绘的统计学工具
<b>Learning Curve</b> 学习曲线	Mathematically models the intuitive notion that the more times we do something, the faster we will be able to perform 数学模型, 直觉概念是我们作某事的时间越长, 我们将能够执行的更快。
<b>Variable Costs</b> 可变成本	Costs rise directly with the size and scope of the project 随着项目规模和范围的增加, 成本直接上升
<b>Fixed Costs</b> 固定成本	Costs do not change; non-recurring (e.g. project setup costs) 成本不会变化, 不再发生 (如: 项目设置成本)
<b>Direct Costs</b> 直接成本	Incurred directly by a specific project. The PMI want the team to participate in the cost estimates to get their buy-in. 由一个特定项目引起的成本。PMI 想让团队参与成本估算并达成共识。
<b>Indirect Costs</b> 间接成本	Part of the overall organization's cost of doing business and are shared by all projects. Usually computed as a percentage of the direct costs. 整个组织运营成本的一部分, 是共享与所有项目的。通常用直接成本的百分比计算。
<b>Cost accounts</b> 控制帐户	Represent the basic level at which project performance is measured and reported. The purpose of cost accounts is to monitor and report on project performance. 代表着测量和报告项目绩效的基本层次。控制帐户的目的是监控和报告项目绩效。
<b>Cost Change Control Systems</b> 成本变更控制系统	Includes the documentation, tracking systems, and approval levels needed to authorize a change. 包括文档工作, 跟踪系统, 和批准变更必须的批准层次。
<b>Budget updates</b> 预算更新	Should be the next steps after an approved cost baseline has changed because of a major change on a project. 将是在已被批准的成本基线由于项目的重大变更而发生变更的下一步骤。
<b>Operating profit</b> 运营利润	Amount of money earned: Revenue – (direct + indirect costs) 赚得的钱数: 收入 - (直接成本 + 间接成本)
<b>Discounted cash-flow approach</b> 现金流量折现法	Present value method determines the net present value of all cash flow by discounting it by the required rate of return. 现值法通过使用必须的回报率折现来计算所有现金流量的净现值
<b>Parametric modeling</b> 参数模型	Involves using project characteristics (parameters) in a mathematical model to predict project costs. 包括在数学模型中使用项目特征 (参数) 来预测项目成本。
<b>Life-Cycle Cost</b> 生命周期成本	Provide a picture of the total cost for the product (project, operations and maintenance). 描绘项目全部成本 (项目, 运营和维护)
<b>Project Closeout</b> 项目收尾	(output to cost control) Process and procedures developed for the closing or canceling of projects (成本控制的输出) 确定结束或撤销项目的过程和程序。

Formulas	
<b>Expected Value</b> 预期价值	Probability * Impact 概率 * 影响
<b>Present Value</b> 现值	$FV / (1 + r)^t$
<b>Cost Variance</b> 成本偏差	EV – AC [BCWP – ACWP] <i>Variance = planned – actual</i> EV – AC [BCWP – ACWP]    偏差 = 计划 - 实际
<b>Schedule Variance</b> 进度偏差	EV – PV [BCWP – BCWS] (if <0; work completed is less than what was planned) EV – PV [BCWP – BCWS] (如果小于 0, 完成的比计划的少)
<b>Cost Performance Index</b> 成本绩效指数	EV/AC [BCWP / ACWP] <i>I am getting ____ out of each dollar. (&gt;1 good; &lt;1 bad)</i>
<b>Schedule Performance Index</b> 进度绩效指数	EV/PV [BCWP / BCWS] <i>I am progressing at ____ % of the rate originally planned</i>

Formulas	
<b>Estimate at Completion (EAC)</b> 完工估算	BAC / CPI AC+ETC (when original estimates are considered flawed) (当原始估算被认为是错误的) AC+BAC-EV (when everything is OK and variance will not occur in the future) (当一切都好并且偏差将不会在将来发生) AC+((BAC-EV)/CPI) (when everything is OK and variance will occur in the future) (当一切都好且偏差将会在以后发生)
<b>Estimate to Completion (ETC)</b> 完工估算	EAC - AC or (BAC - EV) / CPI
<b>Variance at Completion (VAR)</b> 完工时的偏差	BAC - EAC
<b>% Spent</b> %花费	AC/BAC
<b>Cost Variance in %</b> 成本偏差的%	CV/EV
<b>Schedule Variance in %</b> 进度偏差的%	SV/PV
<b>BCWS (PV)</b> 计划值	How much should be done? This is the <u>performance measurement baseline</u> . 多少需要完成的工作? 这是绩效测量基线
<b>BCWP (EV)</b> 挣值	How much work is done? (Progress) Budgeted cost of work performed. Value of the work completed in terms of what you budgeted (your baseline) 多少工作应该完成? (发展) 完成工作预算成本。工作完成的价值依据你的预算 (你的基线) 确定。
<b>ACWP (AC)</b> 实际成本	How much did the "is done" work cost? 完成工作的成本是多少?
<b>BAC</b> 完工时的预算	Budget at Completion - How much is budgeted for the total job? BAC would change every time there is a funded scope change approved for activity to be performed in the future. 完成时的预算——全部工作的预算是多少? 每当固定范围变更时, 完工预算将为以后活动的执行改变。
<b>EAC</b> 完工时的估算	Based on project performance and risk quantification 基于项目绩效和风险量化
<b>ETC</b> 完工时的估算	Estimate to Completion 到完成时的估算
<b>CPI</b> 成本绩效指数	Cumulative CPI does not change by more than 10% once a project is approximately 20% complete. The CPI provides a quick statistical forecast of final project costs. 一旦项目完成了大约 20% 时, 累积的 CPI 不能超过 10%。CPI 提供了一个最终项目成本的快速的统计预测。
<b>EV=PV [BCWP=BCWS]</b>	EV equals PV when the project is completed. EV 等于 PV 时项目完成。
<b>AD</b>	Work Quantity(scope of the activity) / Production rate 工作数量 (活动的范围) / 生产率
<b>Slope</b>	(crash cost - normal cost) / (crash time - normal time) ; if <0, as the time required for a project/task decrease, the cost increase (压缩成本-正常成本) / (压缩时间-正常时间) ; 如果小于 0。随着项目/任务计划时间的减少, 成本上升。

#### Documentation

- Cost Management Plan** – (from Cost Estimating) The action taken by the project manager for all variances are described in the Cost Management Plan. 成本管理计划- (来自成本估算) 在成本管理计划中描述了所有项目经理为偏差所采取的行动。

#### RISK 风险

**Project Risk Management** 项目风险管理– processes concerned with identifying, analyzing, and responding to uncertainty. The most likely cause of poor risk management is lack of prioritized list of risks 对风险进行识别、分析、应对的系统化过程。差的风险管理源于没有对风险进行分类排序

Types of Risk 风险类型	
<b>Business 商业风险</b>	Normal risks that offer gain and loss 正常的风险可能会带来盈利或损失
<b>Pure / Insurable 纯风险/可保险</b>	Only loss: property damage, indirect consequential loss, legal liability, personnel. For risk we can outsource, we have contract. For pure risks, we obtain insurance. 只带来损失: 财产损害、间接损失、法律责任、人员损失。可通过购买保险、签订合同等手段将风险转移出去。

<b>Risk Factors 风险因素</b>		<b>来源, 事件, 征兆</b>	
Risk event 风险事件			
Risk probability 风险概率			
Amount at Stake 得失量			
<b>Statistical Independence 统计独立</b>		Occurrence of one event is not related to occurrence of the other 一件事情的发生与其他事情的发生无关（期望值分析和决策数分析的必要条件）	
<b>Data Precision Ranking 数据精确度等级</b>		Purpose is to test the value of data (input to Qualitative Analysis)数值测量（质量分析的输入）	
<b>Secondary Risk 二次风险</b>		(part of Risk Response Planning)（风险应对计划的一部分）	
<b>Path Convergence 路径汇聚</b>		Tendency of parallel paths of equal duration to delay the completion of the milestone where they meet 所有在此处的延迟会导致汇合于此处的任何路径的延迟	
<b>Contingency Plan 应急计划</b>		Planned action steps to be taken if an identified risk occurs. (e.g. developing alternative activity sequences) 如果风险发生，应该采取计划措施的步骤（如：制定备选方案）	
<b>Uncertainty 不确定性</b>		An uncommon state of nature, characterized by the absence of any information related to a desired outcome. 一个偶然事件，对未来事件缺乏认知	
<b>Workaround 权变措施</b>		Unplanned response to negative risk events (requires to be impacted by the risk first) 对不利的风险事件的未经计划的应对措施（首先要压缩风险）	
<b>Expected Monetary Value 期望值</b>		= Probability * Monetary Impact (used in Decision Tree Analysis) 概率*得失量（用于决策树分析）	
<b>Risk Event 风险事件</b>		A discrete occurrence that may affect the project for better or worse. After a risk event, the project manager's role is to reassess the risk ranking. The risk owner is responsible to take action when an identified risk occurs. 可能导致项目变好或者变坏的不连续事件。风险事件过后，项目管理者的任务是重新评估风险等级。当风险发生时，风险所有者有责任采取行动	
<b>Risk Trigger 风险触发器</b>		A symptom of risk; indirect manifestation of actual risk event; output of risk identification; example is poor morale 一种风险征兆；间接的表现出风险事件；风险鉴别的输出；	
<b>Risk Portfolio</b>		Risk data assembled for the management of the project 项目管理中的风险数据组合	
<b>Utility Theory 效用理论</b>		Technique that characterizes an individual's willingness to take risk 描述个体承担风险意愿的方法	
<b>Sensitivity Analysis 敏感性分析</b>		Places a value on the impact to the project plan by adjusting a single project variable; simplest form of analysis 最简单最经济的定量分析方法（没考虑风险要素间关系及概率）	
<b>Risk Auditor 风险核对</b>		Role is to investigate the effectiveness of the risk owner (which can cause potential conflict with risk owner) 任务就是调查风险所有者可能的影响力（可能引起潜在风险的风险所有者）	
<b>Risk Tolerance 风险容忍度</b>		Risk Taker, Risk Adverse, Risk Neutral; if you know the tolerance of the stakeholders, you can determine how they might react to different situation and risk events. You use this information to help assign levels of risk on each work package. 风险承担者，风险转变者，风险中立者；如果你知道干系人的承受度，你就能判定他们在不同的情况和风险事件中在多大程度上给与反应。用这种方法帮助你确定每一个工作包中风险的等级	
<b>Responses to Risk 风险应对措施</b>			
<b>Avoidance (elimination/abatement) 规避（消除/排除）</b>	Eliminating cause eliminates risk. Can be done by changing the Project Plan or protecting project objectives from its impact. 消除风险产生原因。通过修改项目计划来消除某些风险或使项目目标免受风险的影响（在项目早期风险可通过澄清要求获取信息，加强沟通，听专家的，来规避）		
<b>Mitigation (reduction) 缓解（减轻）</b>	<b>Reduce the Expected Monetary Value. Float can be use to mitigate potential risks 设法将负面风险事件的概率或带来的不利后果减小到可接受范围内</b>		
<b>Transfer 转移</b>	Deflect or share (eg. Insurance, warranties) 转移或分担（保险，担保）		
<b>Acceptance 接受</b>	Accept or retain consequences. 2 types: <i>Active</i> Acceptance (develop a contingency plan) or <i>Passive</i> Acceptance (no action) 接受或保留结果。2 种形式：主动接受（开发一个应急计划）或被动接受（不采取任何行动）		
<b>Numbers to Know 需要知道的数字</b>	The range of an estimate with the smallest range is the least risky. 估算的范围越小引发的风险越小		
<b>Cost Estimates:成本估算</b> Order of Magnitude (ballpark estimate) 量级（棒球场估算）	-25%	+75%	
Budget 预算	-10%	+25%	
Definitive 确定	-5%	+10%	
1 sigma	68.3%		
2 sigma	95.5%		

3 sigma	99.7%	
6 sigma	99.99%	

## Documentation 文档

**Risk Management Plan 风险管理计划**— would most likely be developed during scope planning phase of the scope management process. 大多数情况下, 风险管理计划是在范围管理进程的范围计划编制过程中开发出来的

## QUALITY

**Project Quality Management** – processes required to ensure that the project will satisfy the needs for which it was undertaken.

项目质量管理-保证项目满足其承担需求所需要的过程。

**Quality** is the conformance to requirements/specifications and to fitness of use.

质量是与需求/规范的一致性, 以及使用的适当性。

**Quality function deployment** – provide better product definition and product development. Its main feature are to capture the customer's requirements, ensure cross functional teamwork, and link the main phases of product development.

**质量功能展开**- 提供更好的产品定义和产品发展。它主要特征是捕捉客户需求, 保证交叉功能的联合作业, 并连接产品开发的主要阶段。

**Rework** – action taken to bring a non-conforming item into compliance. Rework is a frequent cause of project overruns.

**返工**- 为了使不一致的项达到一致而采取的行动。返工是项目超限的常见原因。

<b>Quality Variable</b> 质量变量	A quality characteristic that is measurable 可以测量的质量特征
<b>Quality Attribute</b> 质量品质 (属性)	A quality characteristic that is classified as either conforming or nonconforming 被分类为一致或不一致的质量特征
<b>Benchmarking</b> 基准比较分析 (标杆)	Comparing practices of other projects. Provides a standard to measure performance (time consuming). (e.g. investigating quality standards that other companies are using) 与其它项目的实践进行对比。提供测量绩效 (时间消耗) 的标准。(如: 调查其他公司正在使用的质量标准)
<b>Statistical Analysis</b> 统计分析	Involves determining the probability of an occurrence 包括确定一个事件发生的概率
<b>Trend Analysis</b> 趋势分析	Uses mathematical techniques to forecast future outcomes based on historical results; used to measure technical, cost, and schedule performance 使用数学工具基于历史结果来预测将来的结果; 用于测量技术、成本和时间进度绩效
<b>Quality Audit</b> 质量审计	Structured review of other quality management activities performed to identify lessons learned (used for process improvement) Part of Quality Assurance. Provide management confidence that the project will satisfy relevant quality standards. 对其它质量管理活动结构化的审查, 目的是识别质量保证部分的经验教训 (用于过程改进)。提供项目将完成相关质量标准的管理信心。
<b>Inspection</b> 检查	Prevent errors from reaching the customer before delivery to the customer. Can be done throughout product development. 在产品交付到客户之前, 阻止错误到达客户。可以在产品发展的整个过程实施检查
<b>Design of Experiments</b> 试验设计	A technique to identify which variables have the most influence on overall outcomes (part of Quality Planning) (e.g. analyze the color/size combination that will contribute most to the functionality of the new product). Can be applied to cost and schedule tradeoffs. 一种帮助识别对全部结果产生最大影响的变量因素的技术 (质量计划编制的一部分) (如: 分析不同的颜色/尺寸组合将是新产品功能的最大贡献)。可以被用于对成本和时间进度的权衡。
<b>Flow chart</b> 流程图	Help analyze how problems occurs 帮助分析问题如何产生
<b>Attribute Sampling</b> 属性 (品质) 抽样	Measures whether or not the results conforms to specifications 测量结果是否符合规格。
<b>Variable Sampling</b> 变量抽样	Are characteristic you want to measure (size, shape, weight, etc...). An attribute is what you are measuring. The result is rated on a continuous scale that measures the degree of conformity. 你想测量的特征 (尺寸, 外型, 重量等)。一个属性是你测量的对象。结果是在测量符合程度的连续坐标上排列表示。
<b>Assignable Causes</b> 非机遇原因	Data point on a control chart that requires investigation 在控制图上需要调查研究的数据点
<b>Specification Limit</b> 规范界限	Shows customer's expectations for quality (on a control chart) 表示客户对质量的期望 (在控制图中)
<b>Control Chart</b>	...help newly assigned project manager determine whether the project is out of control (in order to verify quality level).



控制图	Can be used to monitor project management processes such as coscard, schedule variance, volume and frequency of scope changes, and errors in project documents. 帮助新指派的项目经理确定项目是否失去控制（为了核实质量层次）。可以监控项目管理过程，比如，coscard，进度偏差，范围变更的幅度和频率，以及在项目文件中的错误。
Statistical Control Chart 统计控制图	Are used to monitor process variations overtime. Help people understand and control their process work. 用于监控超时的过程变化。帮助人们了解和控制他们的过程工作。
“Out of Control” 失去控制	Non-random points that are still within the upper and lower control limit 仍然在上下控制线内的非随机点。
Upper and Lower Control Limit on a Control Chart 控制图的上下控制线	Acceptable range of variation of a process. [These limits are set based on the company's quality standards. The control limits are determined from data obtained from the process itself.] 过程变化可接受的范围。[这些限制的设立是基于公司的质量标准的。控制限决定于包含在过程本身的数据。]
Specification Limit 规范界限	Fixed by the customer 客户确定
Pareto Diagram 帕累托图	Used to show how results were generated, by type or category of identified cause 用于显示被识别原因的类别或种类是如何产生结果的。
Ishikawa Ishikawa 逻辑图	Made popular Pareto Chart, Cause-and-Effect Diagram and Control Chart 通俗化的帕累托图，因果分析图，控制图
Taguchi Method Taguchi 方法	Is used to estimate the loss associated with controlling or failing to control process variability. If you select good design parameters, you can produce products that are more forgiving and tolerant. The tool helps determine the value or break-even point of improving a process to reduce variability. 用于估算对过程变量的成功控制或失败控制与损失的关系。如果你选择了好的设计参数，你可以生产客户对其有更多宽容和忍耐的产品。这个工具帮助确定为减少可变性而改进过程所得到的价值或平衡点。
ISO 9000 ISO 9000	Provides a basic set of requirements for a quality system, without specifying the particulars for implementation. 为质量系统提供了一套基本要求。对执行没有特殊的说明。
Checklists 检查表	Used to verify that a set of required steps has been performed in quality control process 用于核实一系列要求的步骤在质量控制过程中是否已经实施
“Statistically Independent” 统计独立	Determine if problems are related before planning what to do about them 在计划去做之前确定问题之间是否有关联。
Mutually Exclusive 相互排斥	If two events cannot both occur in a single trial (?) 在同一个试验中两个事件是否不能同时发生（？）
Special Cause 特殊因素	Unusual event 特殊事件
Random Cause 随机因素	Normal process variation 正常过程变动
Cause and Effect Diagram (Fishbone) 因果关系图 (鱼骨图)	(1) Creative way to look at actual causes and potential causes of a problem (1) 查找问题的实际原因和潜在原因的创造性的方法 (2) Process of constructing helps stimulate thinking about an issue; helps to organize thoughts; generates discussion (2) 刺激关于问题的思考；帮助组织思路；产生讨论 (3) Used to explore a wide variety of topics (3) 用于探索主题的广泛多样性 (4) Also known as Ishikawa or Fishbone diagram (4) 也被称为 Ishikawa 或鱼骨图
Quality Planning 质量计划编制	Refers to potential problems. Although it usually occur during planning phase, it can occur during execution if there is a change. 涉及潜在的问题。尽管它通常发生在计划阶段，但是它可以发生在实施过程，如果产生变更的话。
Quality Control 质量控制	Refers to specific performance of a task (measuring quality and comparing results to the quality plan) 涉及任务的特殊绩效（测量质量并比较质量结果和质量计划）
Quality Assurance 质量保证	Refers to overall quality requirements (standards) (e.g. evaluating overall project performance regularly) 涉及全部质量要求（标准）（如：有规律的评估全部项目绩效）
Cost of Quality	



质量成本	
<b>Conformance 一致成本</b>	<b>Non-Conformance (most accurate) 不一致成本 (非常精确)</b>
Planning 计划编制	Scrap 废料
Training 培训	Rework and repair 返工和修理
Process Control 过程控制	Additional Material 额外材料
Design and process validation 设计和过程确认	Repairs and service 修理和服务
Test and evaluation 测试和评估	Complaints 抱怨
Quality audits 质量审计	Liability 责任
Maintenance and calibration 维护和校准	Product recalls 产品召回
Inspection 审查	Field service 现场服务
Field testing 实地测试	Expediting 加速处理
<b>Impact of Poor Quality 质量差的影响</b>	
Increased cost 增加成本	
Decreased productivity 降低生产率	
Increased risk and uncertainty 增加风险和不确定性	
Increased costs in monitoring 增加监控成本	

Goal of the cost of **quality program** should be **3 - 5%** of total value.质量程序的目标成本占总成本的 3-5%

Cost of **non-quality** is estimated to be **12 - 20%** of sales.非质量成本接近于销售的 12-20%

**Cost of Quality** Includes Prevention Costs (training), Appraisals Costs (inspection/testing) and Internal (scrap, rework)/External (warranty) Failure costs  
质量成本包括预防成本(培训), 评估成本(检查/测试)和内(废料, 返工)外(担保)部缺陷成本

Management is **85%** responsible for quality. The team member is *ultimately* responsible for quality management. The project manager is *primarily* responsible for quality management.管理层负责 85% 的质量成本。团队成员对质量管理负有最终责任。项目管理者对质量管理负有主要责任。

Two components of **product availability** are reliability and maintainability.构成产品有效性的两个成分是可靠性和可维护性

To effectively use **statistical quality control**, the project team should know the differences between special causes and random causes.

为了有效地使用统计质量控制, 项目团队应该知道特殊因素和随机因素的区别。

Sampling and probability are the most important topics to understand in **statistical process control**.

样本和概率是了解统计过程控制最重要的概念。

Top management should direct **continuous improvement**.

高层管理应该指导持续改进。

**Quality control measurement** are records of quality control testing and measurement in a format for comparison and analysis (input to quality assurance).

质量控制测量是用某一格式所做的记录, 目的是为对比和分析所作的质量控制测试和测量。

#### **Documentation 文件**

- Quality Management Plan – describes method for implementing quality policy project quality system and organizational structures, responsibilities, procedures, processes and resources needed to implement project quality management.
- 质量管理计划 – 描述了应用质量政策、项目质量系统的方法和运用组织结构、责任、程序、过程和所需资源来实现项目质量管理

## **PROCUREMENT 采购**

**Project Procurement Management** 项目获取管理- the processes required to acquire goods and services from outside the performing organization.此过程需要从外部执行组织获取货物和服务。

**Make or Buy Decision 做出/购买决定** – it is generally better to do the work yourself if using an outside company means you have to turn over highly confidential proprietary data to other company.如果你用外部公司有可能泄漏机密数据, 那最好亲自执行此工作。

<b>Contract Types and Risk 合同类型和风险</b>	
<b>Cost Plus Percentage of Cost 成本加成本百分比(CPPC)</b>	No valid for federal contracts 对政府合同无效?
<b>Cost Plus Fixed Fee (CPFF)成本加固定费用</b>	Used for research and development contracts (which generally have low level of detail in the scope); fixed fee can change if there is a change to the contract (usually through change orders). The risk rests with the

	buyer.用于研究和发展合同（通常在范围细节上处于较低水平）；如果合同有变化，固定费用可以变更（通常是贯穿变更订单始终）风险取决于购买者。
<b>Cost Plus Incentive Fee (CPIF) 成本加激励费用</b>	Buyer and seller share in savings based on predetermined %s; long performance periods and substantial development and test requirements (incentive to the vendor to perform on or ahead of time)购买者和销售者根据预先制定的百分比分担储蓄；长时执行周期，实质发展和测试要求（激励卖主及时或提前完成任务）
	• <i>In Cost plus contract, the only firm figure is the fee 在成本加合同中，唯一的硬性指标是费用</i>
<b>Fixed Price Plus Incentive Fee (FPI) 固定价格加激励费用</b>	High-value projects involving long performance periods 高价值的项目包括长时执行周期
<b>Firm Fixed Price (FFP) 稳定的固定价格</b>	Reasonably definite specifications (e.g. SOW). Shift risk to seller. Good when deliverable is not a core competency.适度的明确说明书。将风险转嫁给销售者。可交付使用不是核心竞争力时很好。
<b>Time &amp; Material (T&amp;M) 时间和原料</b>	Good if the buyer wants to be in full control and/or the scope is unclear/not detailed or work has to start quickly. Profit factor into the hourly rate. 购买者希望被完全控制，或范围划分不明确，或任务快速启动都很好。利润要素进入每小时速率。
<b>Fixed Price Award Fee 固定价格授予费用</b>	"bonus" to the seller based on performance (e.g. 100K + 10K for every designated incremental quality level reached).
<b>Purchase Order 买卖订单</b>	A form of contract that is normally unilateral and used for simple commodity purchases. 用于一般消费品购买的单方面的合同形式
<b>Contract type Vs Risk 和同类型和风险</b>	FFP – FPI – CPIF – CPFF – CPPC Fixed Price – Cost Reimbursable – T&M Buyer's risk from low to high 购买者的风险从低到高 Seller's risk from high to low 销售者的风险从高到低

<b>Elements of a Contract 合同基础</b>	
Offer 提议	Assent to certain terms by both parties 双方一致同意一些条件
Acceptance 接受	Agreement, written or spoken 协议，书面的或口头的
Consideration 报酬	Something of value 有价值的东西
Legal Capacity 法律能力	Able to contract 有合同效力
Legal Purpose 法律目的	No violation of public policy 不违反公众政策

<b>Stages of Contract Negotiation 合同谈判进程</b>	
Protocol 草案	Introductions 导言
Probing 探通术	Identify concerns, strengths, weaknesses 识别利害关系，强势，劣势
Scratch bargaining 商讨	Actual bargaining 实质性商讨
Closure 收尾	Positions summed up 决定合计
Agreement 协议	Documenting 文档

**Specification** 说明书- precise description of a physical item, procedure, or service. The SOW supplements the specification in describing what must be done to complete the project.关于物体、进程或服务的详细说明。SOW 是描述项目完成所需工作的补充说明。

**Privity 默契**- legal relationship that exists between any contracting parties (e.g. if company "A" hires "B" and "B" subcontract to "C", "C" is not legally bound by anything "A" can say; the *privity* is with "B")存在于任何直接联系者之间的合法关系（例如：公司 A 雇用 B，B 转包给 C，C 对于 A 所说的任何事情不负有法律责任，C 的默契人是 B）

**Waiver 弃权** - a party can relinquish rights that it otherwise has under the contract. Forebearance can mature into waiver.

**Retainage** – withholding of funds under contract. 依照合同扣除资金

**Warranty 担保**- assurance of the level of quality to be provided 对所承诺质量水平的保证

A contract <b>ends</b> by: 合同终止于	
Successful performance 成功的业绩	
Mutual agreement 相互协商	Last two are <i>Termination</i> 最后两个是终止
Breach of contract 违约	

**Terms and Conditions 期限和条件** – the project manager must uphold the Terms and Conditions of the contract, even if it meets the needs of the project, it has to also meet the requirement of the contract. 项目管理者必须支持合同的期限和条件，即便要符合项目需求，也必须符合合同要求

**Liquidated damages** – 清算赔偿金

**Contract Control System vs Project Control System 合同控制系统和项目控制系统**– they both include procedures. The contract control system requires more documentation and more signoff. 它们都包括进程。合同控制系统需要更多的文件和签名。

**Work Authorization Systems 任务授权系统** – can be used to coordinate/control what time and sequence work is done. It helps with integrating tasks into a whole. 用于调整/控制工作在何时以何种次序进行。它帮助将任务集成于一体。

**Performance Scope of Work 任务执行范围** – describes the performance – not the functionality-- required by the customer 描述而非泛泛而谈用户所要求的执行情况

**Independent Estimate 独立评估** – most concern with costs, comparing cost estimates with in-house estimates or with outside assistance (part of Source Selection)多数关注成本, 在内部评估和外部补助(资源选择的一部分)之间比较成本估算

#### Procurement Audit 获得审计

– structured review that flush out issues, and set-up lessons learned. Helps ensure problems are resolved for future projects. Identify successes and failures that warrant transfer to other procurements.回顾所有涌现的问题, 学到的经验教训。确保对于未来项目存在的问题都已经得到解决。区别成功与失败

**Beneficial Efficiency 法律效力** – when the work is being used for the intended purpose and has been certified 当任务用于被确定的目的并已被鉴定

**Terminating contract for Convenience 为方便而定的终止合同** – if a project is terminated before it is complete, the level of extent of completion should be established and documented.项目在完成之前终止, 需要建立和记录项目完成程度的水平。

<b>Contracting</b>	
<b>Centralized 集中订立</b>	<b>Decentralized 发散订立</b>
+ More economical 更经济	+ Project Manager has more control <b>PM 更大控制权</b>
+ Easier to Control 易控	+ Contracting personnel are more familiar with project 合同订立人员对项目需求更熟悉
+ Higher degree of specialization (expertise)高度专业化	+ More flexible and adaptable to project needs 针对项目需求, 更具适应性和灵活性
+ Orders can be consolidated 形成固定化订单	- Duplication of contracting efforts 合同工作重复性
- May become a bottleneck 可能形成瓶颈	- Higher costs 高成本
- Less attention to special needs 不太关注项目具体要求	- No standard policies 没有形成标准化的合同政策

<b>Negotiating Tactics 谈判策略</b>	
Deadline 最终期限	Strategic Delay 战略延迟
Surprise 吃惊	Reasoning Together 一起论理
Limited Authority 有限权力	Withdrawal 撤退
Missing Man 不露面的人	Unreasonable 不合理
Fair and Reasonable 公平合理	Suggesting Arbitration 建议仲裁
	Fait Accompli 既成事实

#### Documentation 文件

- **Statement of Work 工作说明** – describes the procurement item in sufficient detail to allow prospective sellers to determine if they are capable of providing the item. (Scope Statement between Client and PM / SOW between PM and Seller)按合同的要求对产品提供详细的叙述性说明以使潜在供方判断是否有能力提供相应服务(范围说明存在于 PM 和客户之间/工作说明存在于 PM 和供应商之间)

#### INTEGRATION 综合

**Project Baseline 项目基线** – should be changed for all implemented changes. Sometimes, certain classification of changes get automatic approval on a project and do not need Change Control Board approval.依所有执行中的变更而更新。有时, 某种特定的变更分类可以不通过 **CCB** 直接变更

**Changes 变更** – if the functional manager wants to make a change to time associated to a task (change in goals and objectives of the Charter) and there is not enough reserve, senior management (not the Project Manager) should authorize the change. The best method to control changes on the project is to look for sources of change. The best method to deal with changes is to direct the changes to the **Change Control Board**.如果职能经理理想作出一个与任务相关的时间变更(战略目标和章程的产品目标)并且没有足够的储备, 高级管理层(不是 PM)应该核准变更。项目中控制变更的最好方法是控制引起变更的原因。处理变更的最好方法是直接将变更呈给 **CCB**。

**Change Control System 变更控制系统** – must also include procedures to handle changes that may be approved without prior review (e.g. result of an emergency)必须也包括一个绿色通道(例如: 紧急情况)

**Schedule Change Control System 进度变更控制系统** – can include the paper, systems and approvals for authorizing changes. The project manager is normally not the approval authority, and not all the changes approved 可以包括文档, 跟踪系统和变更的批准层次。项目管理者一般不是被公认的权威人士, 不是所有的变更都能被批准。

**Project Plan 项目计划** – as an input to team development, the project plan describes the technical context within which the team operates.作为团队发展的输入, 项目计划描述团队工作的技术框架。

## PROFESSIONAL RESPONSIBILITIES 专业职责

**Routine Government Fee (Transfer Fee) 常规政府费用 (转会费)** – only government official can collect routine government fees (this is not a bribe) 只有政府官员可以收取常规政府费用 (这不是贿赂)

**Company Policies 公司政策** - It is the project manager's professional responsibility to ensure that company policies are followed during the project. 在项目执行过程中遵循公司政策是项目管理者的专业职责。

**Copyright laws 版权法** – do not violate 不能违反

**Employee mistake 职员错误**

- when a team member makes a mistakes, allow him to save face and to fix the problem. Try to workout an issue before escalating. Exception: *if it is not considered a project related issue* (e.g. harassment), it should be reported directly to the employee's manager. 当团队成员犯错误时, 允许他们保留面子, 处理问题。尽量在事态发展之前检测出问题。例外: 如果不是考虑与项目相关的问题 (如: 折磨), 应该直接向员工经理汇报。

Do not make illegal payments, report thefts 不要进行非法付款, 报告偷窃行为

**Company and Customer's Interest 公司和用户的利益** - professional responsibility requires the investigation of any instances where the legitimate interests of the customer may be compromised. If such compromise is found, action must be taken. Protect your company's interests 专业职责要求调查涉及用户合法利益的任何情况。如果此类情况被发现, 必须采取行动。保护你公司的利益。

**Budget tampering 预算贿赂** - presenting anything besides your original estimate to allocate more to the budget is inaccurate and calls into question your competence and integrity as project manager (e.g. if a customer ask to estimate "pessimistically", you should add as a lump sum contingency fund to handle project risks) 投入比最初评估预算多的任何费用都是不正确的, 这将对项目管理者的能力和诚实人品带来质疑 (例如: 如果客户需要“悲观的”评估, 你应该增加一小部分的意外资金应对项目风险)

**Rights 权力** - do not do business with a country where there is a clear violation of the fundamental rights (e.g. non-discriminating treatment). 不要和有明显有违基本原则 (例如: 无差别待遇) 的国家合作

## POSSIBLE EXAM QUESTIONS 考点

<b>Scope Questions 范围</b>	
Why is a careful and accurate needs analysis important? 为什么一个仔细的准确地需求分析是重要的?	To make sure customer or stakeholder expectations can be identified and satisfied. 确保用户和干系人的需求能够被正确的识别和满足
How is a change control board used? Can there be more than one? 如何使用变更控制委员会? 它是唯一的么?	To approve or reject change requests according to responsibilities defined and agreed upon by key stakeholders. Multiple CCBs may be used on large projects. 由项目干系人正式设立的组织, 批准或拒绝变更需求。多变更控制委员会可用于大型项目。
What is the purpose of the project charter? How does it benefit the project manager? 项目章程的作用是什么? 它对项目管理者有什么益处?	To formally document the existence of the project, including the business need that the project was undertaken to address and the product description. It provides the project manager with the authority to apply organizational resources to project activities. 它是项目存在的正式文档形式, 包括商业需求和产品描述。授予项目经理为执行项目活动而使用组织资源的权利。
What is the Delphi Technique? 什么是德尔菲技术?	A forecasting technique used to gather information; it relies on gathering expert opinions. Usually goes three rounds. Obj.: Gain consensus of expert opinions. 通过收集信息对未来进行预测的工具; 它依赖于收集专家意见。通常进行三次循环。目标是: 获得专家意见的某种共识。
What is the purpose of the scope management plan? 范围管理计划的作用是什么?	To describe how project scope will be managed and how scope change will be integrated into the project. 描述项目范围如何被管理及范围变更如何被整合到项目之中
What is the purpose of the WBS dictionary? 工作分解	To provide interested parties with work package descriptions and other planning



<b>Scope Questions 范围</b>	
结构字典的作用是什么?	information such as schedule date, cost budgets, and staff assignments for each WBS element. 有利于为可交付成果提供工作包的描述及其它计划编制信息, 如任何一个工作分解结构要素的进度日期、成本预算、人员分配。
What is the 80 hour rule? 什么是 80 小时规则?	Each task should be broken down into work packages that require no more than 80 hours to complete. 每一项工作都应该被分解为完成时间不超过 80 小时的工作包
What is the difference between scope verification and quality control? 范围确认和质量控制之间的不同之处是什么?	Scope verification is primarily concerned with <u>acceptance</u> of the work results; quality control is primarily concerned with the <u>correctness</u> of the work results. 范围确认主要是针对工作结果的 <u>可接受性</u> ; 质量控制主要针对工作结果的 <u>正确性</u>
What are the three steps involved in MBO? 目标管理的所包括的三步是什么?	(1) Establish unambiguous and realistic objectives 确定清晰的实际的目标 (2) Periodically evaluate whether project objectives are being achieved 阶段性评估项目目标是否完成 (3) Act on the results of the evaluation. 在评估结果的基础上采取措施
When should scope verification occur? 范围确认应何时发生?	At the end of the project. 在项目收尾(管理收尾)的时候
<b>HR Questions</b>	
Which are the five methods of managing conflict is recommended? Why? 在解决冲突的 5 种方法中哪一种是被推荐的? 为什么?	Problem Solving/confrontation because both parties can be fully satisfied if the work together to find a solution that satisfies both their needs. 解决/面对问题, 因为双方对他们共同选择的方法都会满意
What are the three types of project interfaces that serve as inputs to the organizational planning process. When can they occur? 作为组织计划进程输入的三种项目界面是什么? 它们什么时候出现?	(1) Organizational interfaces 组织界面 (2) Technical interfaces 技术界面 (3) Interpersonal interfaces 人际关系界面 They can occur simultaneously. 它们经常同时发生
What is McGregor's Theory X? What is management's role in this approach? 什么是麦克格雷德的 X 理论? 管理在这个方法中所扮演的角色是什么?	Traditional approach: workers are self-centered, lazy, lacking ambition. Managers organize the elements of the productive enterprise in the interest of <i>economic ends</i> . 传统的方法: 工人自私, 懒惰, 没有上进心。管理者要广泛应用于以结果为导向的生产部门。
What is McGregor's theory Y? What is management's role in this approach? 什么是麦克格雷德的 Y 理论? 管理在这个方法中所扮演的角色是什么?	Workers are not by nature resistant to organizational needs; they are willing and eager to accept responsibilities and are concerned with self-growth and fulfillment. Managers should try to create an environment where workers can achieve their own goals. 工人愿意工作; 他们愿意和期望承担责任并关注自我实现和满足。管理者应该尽量创造能让工人实现他们目标的环境。
What is an organizational breakdown structure (OBS)? 什么是组织分解结构?	A specific type of organizational chart that shows which units are responsible for which work items 组织图的一种具体类型用于显示哪一个部门负责哪块工作
What is the purpose of a resource Gantt chart? 资源甘特图的作用是什么?	It identifies when a particular resource is or will be working on a particular task 描述何时某项特殊的资源被消耗于某项特别的任务
Does the matrix form of project organization facilitate or complicate project team development? 项目组织的矩阵形式是简化了还是复杂化了项目团队发展?	It complicates team development because team members are accountable to both a functional manager and a project manager. 复杂化了团队发展因为团队成员既对职能经理负责也向项目经理负责。
Name three major forms of project organizational structure. 命名项目组织结构的三种主要形式	Functional, Matrix, and Project zed 职能型、矩阵型、项目型
What is the expectancy theory? 什么是期望理论?	It holds that people tend to be highly productive and motivated if they believe their efforts will lead to successful results and they will be rewarded for their success. 人们如果相信他们的努力极可能得到成功的结果同时会因为成功而得到奖励, 那么他们将被激励并具有很高的生产力
What is problem solving/confrontation? 什么是问题解决/面对?	Addressing conflict directly by getting the parties to work together to define the problem, collect information, develop and analyze alternatives, and select the most appropriate alternative. 直接面对冲突所有各方一起定义问题, 收集信息, 开发分析应对方案, 选择最合适的方案
Give three examples of hygiene factors in Herzberg's theory of motivation. How do they affect motivation. 给海兹伯格动机理论的卫生因素举三个例子。它们如何影响动机	Pay, attitude of supervisor, and working conditions. 薪水、上级的态度、工作环境 Poor hygiene may destroy motivation, but improving hygiene factors in not likely to increase motivation. Motivators are an opportunity to achieve and experience self-actualization. 恶劣的卫生因素可能损害动机, 但改善的卫生因素并不能增强动机。激励理论促进工作完成、自我实现。
Who is responsible for addressing individual performance problems? 谁对个体绩效问题描述负责?	Senior and functional management 高层和职能经理
Describe the difference between a weak matrix and a strong matrix. 描述弱矩阵和强矩阵之间的差异	Weak matrices are similar to functional organizations. Strong matrices are similar to projectized organizations (with balance of power tipped toward the project manager) 若矩阵类似职能型组织, 强矩阵类似项目型组织(权力天平倾向于项目经理)



What is a projectized organization? 什么是项目型的组织	<p>One in which a separate, functional organization is established for each project. Personnel are assigned on a full-time basis. 针对每一个项目制定的一个独立的职能型组织, 成员被分配全时工作</p> <p>Project manager's concern is that the team may not be focused on completing the project (team looks for new mandate or tries to extend the length of the project). According to PMI, the biggest problem in Administrative Closure is retaining team members until closure of the project. 项目经理关注团队能否聚焦于项目的完成(团队成员经常寻找新的机会或试图延长项目历时)依照 PMI 的理论, 管理收尾的最大难题是保留项目成员直至项目结束。</p>
<b>Communications Questions 沟通</b>	
What is a project "war room"? What is its primary benefit? 什么叫项目作战室? 它的主要用处是什么?	A single location for the team to get together for any purpose. It provides a repository for project artifacts, records, and up-to-date schedules and status reports. It gives an identity to the project team. 为解决任何目标而使团队一起工作的专有的场所。它提供一个知识库存储项目信息、记录、更新的进度和状况报告。它提供给项目团队统一的标示。
Describe the six parts of a Communications Management Plan. 描述沟通管理计划的六个部分	<ol style="list-style-type: none"> <li>(1) What information will be collected 收集什么信息</li> <li>(2) How the information will be collected 怎样收集信息</li> <li>(3) How and to whom the information will be distributed 信息怎样发布及谁发布, 发布给谁</li> <li>(4) When the information will be communicated 何时传达信息</li> <li>(5) How to obtain information between regular communications 获得信息的途径(媒介)</li> <li>(6) How the Communications Plan will be updated through the project 沟通计划在项目中怎样被更新</li> </ol>
What is variance analysis? 什么是偏差分析	Comparing actual project results to planned or expected results in terms of cost, schedule, scope, quality, and risk. 将实际结果和计划进行对比
What are six actions project managers should take to ensure effective project team communications? 项目管理者确保项目团队进行有效沟通的六点措施是什么?	<ol style="list-style-type: none"> <li>(1) Be an effective communicator 有效沟通者</li> <li>(2) Be a communications expeditor 联络者</li> <li>(3) Avoid communications blockers 避免沟通阻断器</li> <li>(4) Use a tight matrix 使用紧密矩阵式结构(紧密矩阵不等于强矩阵)</li> <li>(5) Have a project war room 作战室</li> <li>(6) Make meetings effective 有效会议</li> </ol>
What is active listening? 有效倾听?	Listening in which the recipient is attentive and asks for clarification of ambiguous messages 移情式聆听是专著和要求对不明确信息澄清的一种聆听方式。
What is major cause of conflict with functional managers? 导致职能经理间冲突的主要原因	Schedules 进度
What is most difficult conflict to deal with? 需要解决的最困难的冲突是什么	Personality conflicts 个性冲突(人际问题)
What is earned value analysis? How is it used in performance reporting? 什么是挣值分析? 在绩效报告中如何使用?	An analysis that integrates cost and schedule measures. It is used to help the project management team assess project performance. 综合了成本和进度衡量标准的一种分析方法。帮助项目管理团队评价项目绩效。
What is the tool for used for communication planning? 沟通计划的工具是什么	Stakeholder analysis 干系人分析
What is the most important characteristic for a project manager? 项目管理者最主要的特点是什么?	Ability to work well with others 和其他人愉快的工作的能力
What factor has the greatest effect on the project's communication requirements? 对项目沟通要求影响最大的因素是什么?	The project's organizational structure 项目的组织结构
What is the primary condition leading to conflict in both the weak and strong matrix organizations? 在弱矩阵和强矩阵组织中, 导致冲突的主要条件是什么?	Ambiguous jurisdictions. They exist when two or more parties have related responsibilities, but their work boundaries and role definitions are unclear. 不明确的权限。两个以上的职责关系, 但它们的工作界限和角色定义不明确
When is a project considered closed? 项目何时正式结束?	When the archive is completed. All project docs goes into the archives; this is the last thing to create before releasing the team. 存档完成。所有项目记录归档; 最后一件工作是团队成员遣散
<b>Time Questions</b>	
What is the critical path? 关键路径是什么?	The longest path through the network which represents the shortest amount of time in which the project can be completed. 项目网络图中最长的一条路径, 项目完成历时时间最短。
What is crashing? 什么是赶工?	Taking action to determine how to obtain the greatest amount of duration compression for the least incremental cost; generally increases cost. 一种试图用最小的成本投入换取最大的历时压缩

<b>Communications Questions 沟通</b>	
What is fast tracking? 什么是快速跟进	Compressing the schedule by overlapping activities that would normally be done in sequence; may result in rework and increased risk; logical relationships are modified 将原本顺序进行的活动通过并行实施而压缩进度的方法; 通常造成返工并带来风险, 改变逻辑关系
How does resource-leveling work? 如何进行资源平衡?	By using positive float available on non-critical paths, schedule by smoothing or leveling peaks and valleys of resource utilization 利用非关键路径的可浮动时间, 资源利用的负载水平情况调整进度表
What is activity duration estimating? 什么是活动历时估算	Assessing the number of work periods likely to be needed to complete each activity 评估每一必须完成活动的定量工作周期
What is a dummy activity? 什么是虚活动?	One that consumes no time or resources; it shows only dependency 一种不消耗时间和资源的活动, 只代表依赖关系
What is slack or float? Free float? 什么是时差? 自由时差?	Amount of time that an activity can be delayed without delaying project. Free float is the amount of time an activity can be delayed without delaying the early start of the next activity 时差是活动在不延误项目情况下可以延迟的时间。自由浮动时间是活动再不延误紧后活动最早开始时间情况下的可延迟时间
What is lag? 什么是滞后?	Required waiting time between activities 活动间必须等待的时间

<b>Cost Questions</b>	
What is life cycle costing? 什么是全生命周期成本?	Concept of including acquisition, operating, maintenance, and disposal costs; total cost of ownership 包括获取, 运行, 维护和废弃成本; 所有者的总成本
Which of the following includes an audit; Administrative Closure or Contract Closure? 下列哪一个包括采购审计: 行政收尾还是合同收尾?	Contract Closure includes an audit. 合同收尾包括采购审计
What is "chart of accounts"? 什么是会计科目表?	Coding structure used to report financial information in general ledger. Code of accounts is numbering of WBS elements 编码结构用于报告总账目表中的财务信息。编码结构是工作分解结构要素的唯一编码。
What are cost accounts? 什么是成本账号?	They represent the basic level at which project performance is measured and reported. 它们描述了项目绩效报告和标准的基本水平

<b>Risk Questions</b>	
Generally speaking, in what project phase are risk and opportunity greater than the amount at stake by the widest margin? 总体来说, 在哪一阶段风险带来的机遇最大?	Initiation 启动
Describe the difference between an internal risk and an external risk. 描述内部风险和外部风险的不同之处	An internal risk is under the control or influence of the project team; external is beyond control or influence. 项目团队对内部风险进行控制并施加影响, 外部风险超出了控制和可施加影响的范围
What is purpose of a risk management plan? What should it include? 风险管理计划的目标是什么? 它包括哪些?	To document the procedures that should be used to manage risk throughout the project. It should include the risk identification and risk quantification; how contingency plans will be implemented; how reserves will be allocated. 贯穿于整个项目过程的说明如何管理风险的文档化程序。包括风险识别和量化; 应对计划如何执行; 如何分配储备。
What is a reserve? 什么是储备资源?	A provision in the project plan to mitigate cost and/or schedule risk. Management reserves are for "unknown unknowns" and contingency reserves are for "known unknowns". 降低项目成本和进度风险的一种预防措施。管理储备应对“未知未知”, 应急储备应对“已知未知”
What are the two most common types of management reserves? How are they used? 管理储备的两个一般形式是什么? 怎样使用它们?	Cost and Schedule, used to reduce the chance of overruns in either area 用于减小成本和进度任何一方的超限可能性
When is the highest risk impact generally occur? 一般而言, 什么时候出现最高风险影响?	During Implementation and Close-out - the Amount at Stake is high though risk has decreased. Risk is highest during Initiation and Planning. 执行和收尾期间—高风险数量减少。启动和规划阶段风险最大。
Who is ultimately responsible for identifying and managing risk? 谁负责识别和管理风险?	Project manager 项目经理
You are finding it difficult to evaluate the exact cost consequences of risks. You should: 你发现准确地评估风险的成本原因很难。你应该:	Evaluate them on a qualitative basis.

<b>Risk Questions</b>	
In what circumstance would you have to update the Risk Response Plan? 在什么情况下你要更新风险应对计划?	If a risk occurs and has a greater impact on the project than what was anticipated. (part of Risk Monitoring and Control)当风险发生后对项目所带来的影响大与预期时(风险监控的一部分)
What should be done after competing/updating the Risk Response Plan? 完成/更新风险应对计划之后应该做些什么?	Add tasks to the WBS 在工作分解结构上添加任务
How do you address unknown risks? 怎样定位未知风险?	By applying a general contingency based on past experience 通过过去申请一般的偶然事件应对所积累的经验
What is a known-unknown risk? 什么是已知-未知风险?	Risk that can be identified as possibly happening (e.g. Flood if a business is located in a flood zone) 能被识别的可能发生的风险(例如:在洪水多发地区预测可能发生的洪灾)

<b>Quality Questions</b>	
What are control limits as used in control charts? 控制图表中的控制界限是什么?	Control limits describe the natural variation of a process. Assignable cause is a point outside the control limits.控制界限描述过程的正常偏差。可找出原因的特殊事件是超出控制限度的点。
Define "kaizen"? 为 kaizen 定义	Continuous improvement 持续改进
What is gold-plating? 什么是镀金?	Giving the customer more than what was required. It has no value.提供给客户超出他们需求范围的东西。是没有价值的。
What is the effect of sample size on the standard deviation? 样本大小对偏差的影响是什么?	Whenever sample size increases, the standard deviation decreases.随抽样数量的增加,标准偏差降低。
What is the Rule of Seven? 七值定律是什么?	If seven or more observations in a row occur on the same side of the mean, even though within control limits, they should be investigated as an assignable cause.如果有七个以上的观测点落在均值的同一侧,虽然在控制限度之内,它们应该按特殊原因进行研究。
What is Just-In-Time? “零库存”是什么?	An inventory control approach that attempts to reduce work -in-process inventory; there is no extra stock kept in reserve 通过减少库存物资(过程存货)降低成本,储备中没有多余的库存。
What is meant by the cost of quality? 质量成本包括什么?	Cost of conformance and cost of nonconformance 一致性和非一致性成本
How are cause and effect diagrams used? 因果图用于?	They show how various causes and subclasses relate to create potential problems. After these are identified, corrective action can be taken. 反映潜在问题与造成问题的因素间的联系。它们被确定后,纠正行动可以实施。
What is the principal purpose of the Quality Management Plan? 质量管理计划的首要目标是什么?	To describe how the project management team will implement its quality policy 描述项目管理团队如何制订项目的质量方针。
What is a Pareto Diagram? 什么是帕雷托图?	A bar chart in which data are arranged in descending order of importance. It puts issues into an easily understood framework. 一种柱状图,数据按重要性递减排序。它很容易清楚的反映问题。
What is the underlying concept of a Pareto Diagram? 什么是帕雷托图的基本概念?	A relatively small number (20%) of causes will typically produce a large majority (80%) of the problems or defects. 20%的原因造成 80%项目问题。

Who is ultimately responsible for quality? 谁对质量最终负责?	The individual. The project manager has overall responsibility. 个人(谁干活谁负责)。项目经理对整体质量负责。
<b>Procurement Questions</b>	
What is make or buy analysis? 什么是自制或购买分析?	A technique used to determine whether a product can be produced cost effectively by the organization.判断组织生产某项产品总成本的一种技术(自己做和外购哪个更合适)。
What are contract incentives? 什么是合同激励?	Inducements provided by the buyer to the contractor in an attempt to ring the objectives and interests of the contractor in line with those of the buyer; positive and negative. Usually cost effective 协调买卖双方目标和利益。分积极的和消极的,通常降低成本。
What is a bidder's conference? 什么是投标人会议?	Meetings with prospective sellers to ensure that they have a clear, common understanding of the procurement; held before sellers prepare their proposals. 确保潜在供应商清晰的公平的理解需求。在供方提供他们的建议书前召开。
What is part of the contract document? 合同文件由什么组成?	Proposal, Scope of Work, Terms and Conditions (which should be the result of a risk analysis), general provision, special provisions (which takes precedence over general provisions) 建议书,工作说明书,工期和约束条件(需要进行达到目标的风险分析),

	常规规范, 特殊规范 (优先于常规规范)
What do you do if a seller does not perform according to the contract? 如果供应商未按合同规定执行, 你将怎么办?	Take action. (1) Contact seller and ask what's going on. (2) let seller know he is in default (e.g. default letter). 采取行动 (1) 与合同供方联系询问原因 (2) 让供方知道已经违约了 (如: 质询函)
<b>Integration Questions</b>	
Lessons learned are completed by? 经验教训如何获得?	Project team 通过项目团队
What are the major constraints on a project? 项目的主要约束是什么?	Refers to the <b>Triple Constraints</b> : Cost, Time, Quality, along with customer satisfaction and scope of work. 一般指三重约束: 成本、进度、质量及客户满意度和工作范围
When many changes are made to a project, what should a project manager do? 当项目发生很多变化时, 项目经理应该怎样做?	Make change as needed, but maintain a schedule baseline (baseline is there to determine how the project is progressing) 根据需求进行变更, 但要保持进度基线 (基线决定项目如何进行)
What is the purpose of a Project Plan? 项目计划的目标是什么?	<ol style="list-style-type: none"> <li>1. Guide the project execution 执导项目执行</li> <li>2. Document project planning assumption 项目计划假设文档化</li> <li>3. Document project planning decisions regarding alternatives chosen 选择项目计划编制方案的决策文档化</li> <li>4. Facilitate communications among stakeholders 便于干系人沟通</li> <li>5. Define key management review 定义关键管理回顾</li> <li>6. Provide a baseline for progress measurement and project control 为进展衡量方法和项目控制提供一个基线</li> </ol>
You are a new project manager. It is best to rely on ?? to improve your chances of success? 你是一个新项目管理者。依靠什么可以提高成功几率?	Historical information 历史信息

#### **STRATEGY FOR VARIOUS TYPES OF QUESTIONS:**

##### **#1: "What has the project manager FORGOTTEN to do?" 项目管理者忘记了做了什么?**

- a) determine what process they are referring to 确定他们提到的进程
- b) determine if answer choices are/should be input/output/tools (activities) 确定答案选项是否是/应该是输入/输出/工具 (活动)
- c) determine which input/output/tool the question is looking for 确定问题寻找的输入/输出/工具
- d) select the one missing 选择缺少的一个

##### **#2: "What is the BEST thing to do?" 什么是必须做的?**

The correct answer should resolve the underlying problem. 正确的答案应该能解决潜在的问题。

##### **#3 "The project manager must be MOST careful to / Which is the MOST important?" 什么是项目管理者必须特别注意的/什么是最重要的?**

The easiest way to deal with these questions is to look for the choice that will have the highest impact on the project. 处理这类问题的最容易的方法是寻找对项目有最大影响的选择。

##### **#4 Tip: However accurate answer choice are, pick the one that answer the question. 无论正确答案是什么, 选择一个回答问题。**

**#5 Tip: Know problem solving processes** (e.g. for a change: (1) Evaluate impact of the change with the team, (2) determine option and (3) go to management or customer.) 了解问题解决过程 (例如: 针对一个变更 (1) 和团队一起评估变更的影响 (2) 确定选项 (3) 去管理者或用户处)