

第四章 PROJECT INTEGRATION MANAGEMENT

学习目标：

LEARNING OBJECTIVES

After reading this chapter, you will be able to:

- Describe an overall framework for project integration management as it relates to the other project management knowledge areas and the project life cycle
- Discuss the strategic planning process and apply different project selection methods
- Explain the importance of creating a project charter to formally initiate projects
- Describe project management plan development, understand the content of these plans, and describe approaches for creating them
- Explain project execution, its relationship to project planning, the factors related to successful results, and tools and techniques to assist in directing and managing project work
- Describe the process of monitoring and controlling a project
- Understand the integrated change control process, planning for and managing changes on information technology (IT) projects, and developing and using a change control system
- Explain the importance of developing and following good procedures for closing projects
- Describe how software can assist in project integration management

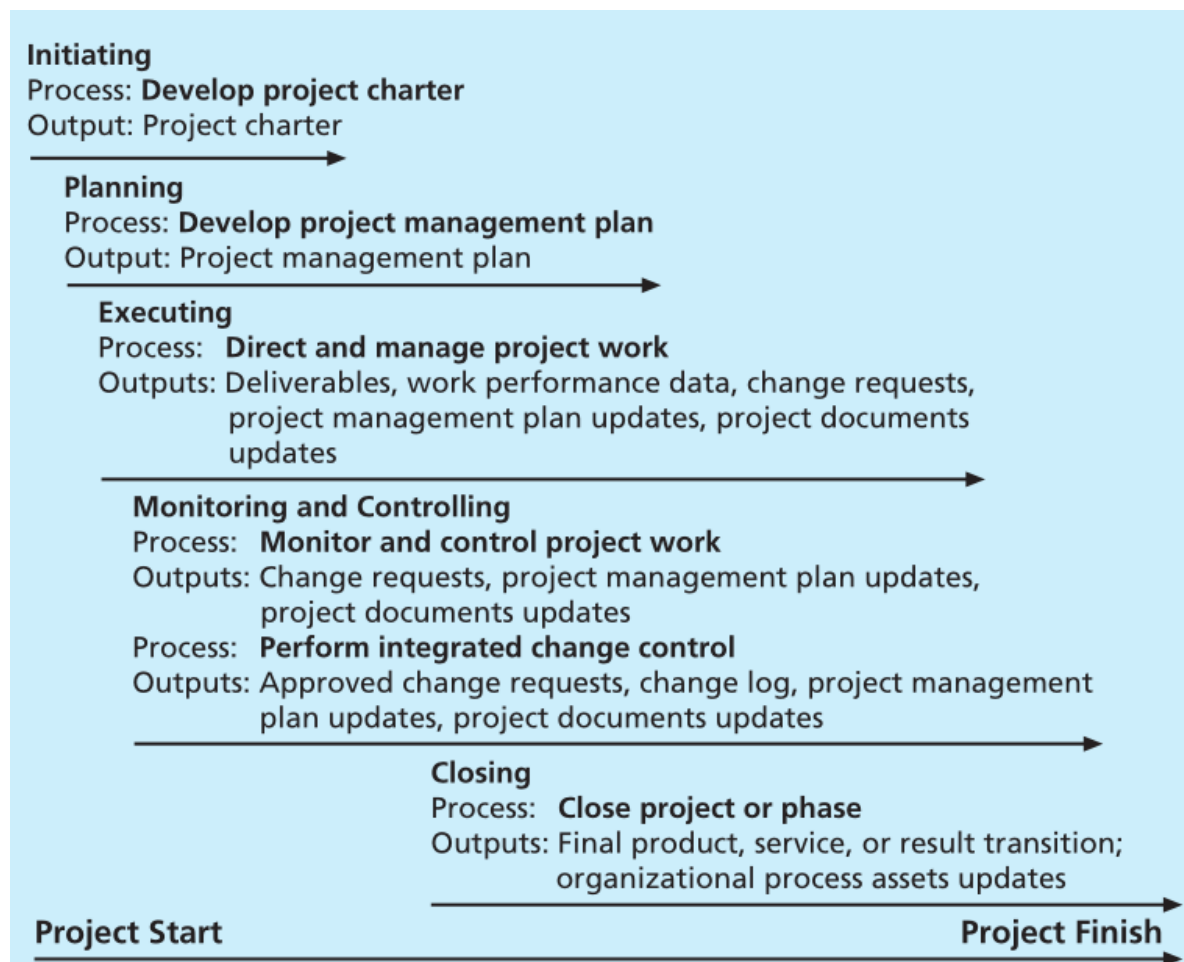
- 1、描述项目集成管理，它与其他项目管理知识和项目生命周期均有关系
- 2、讨论一下战略规划过程，应用不同的项目选择方法
- 3、解释一下创建一个项目章程去正式启动项目的重要性
- 4、描述项目管理计划的发展，理解这些计划的内容，并描述创造它们的方法
- 5、解释项目执行过程，说出能够使项目成功的一些因素、说出一些能够帮助指导和管理项目运行的工具和技术
- 6、描述项目监控过程
- 7、理解集成改变控制过程
- 8、解释一下遵守一个好的流程来关闭项目的重要性
- 9、描述软件能怎样有助于项目集成管理

4.1 What is Project Integration Management?

项目集成管理是：将项目生命周期中的所有项目管理知识或领域融合到一起，它确保了项目中所有的元素能够在正确的时间集合到一起，去成功的完成项目。

1. 六个主要过程

1. Developing the project charter (制定项目章程)
和stakeholders共同完成一份正式批准该项目的文案——charter
2. Developing the project management plan (制定项目管理计划)
协调所有计划工作，以创建一致的、连贯的文件——项目管理计划。
3. Directing and managing project work (指导管理项目工作)
按照项目管理计划执行，会得到一些成果物，也可以了解到工作性能的信息、会改变需求、更新项目管理计划和项目文档等
4. Monitoring and controlling project work (监控项目工作)
监督项目开发过程，让项目达到预期的目标，这个阶段的output是：改变需求、更新项目管理计划和项目文档等
5. Performing integrated change control (实施集成变更控制)
识别、评估、管理项目生命周期中的各种改变
6. Closing the project or phase (关闭项目)
项目圆满结束，最后产出一个final product



2. 项目经理的职责

- 协调所有人、计划、工作
- 从大局来审视项目并率领员工取得成功
- 遇到矛盾时要做出最终决断
- 积极向上级汇报项目进展。
- 了解组织的需求并作出正确决定，找有能力的员工
- 必须和所有利益相关者积极交流，including customers, the project team, top management, other project managers, and opponents of the project.

如果没有交流好的话，

上述这些均可用项目集成管理来实现

4.2 Strategic Planning and Project Selection

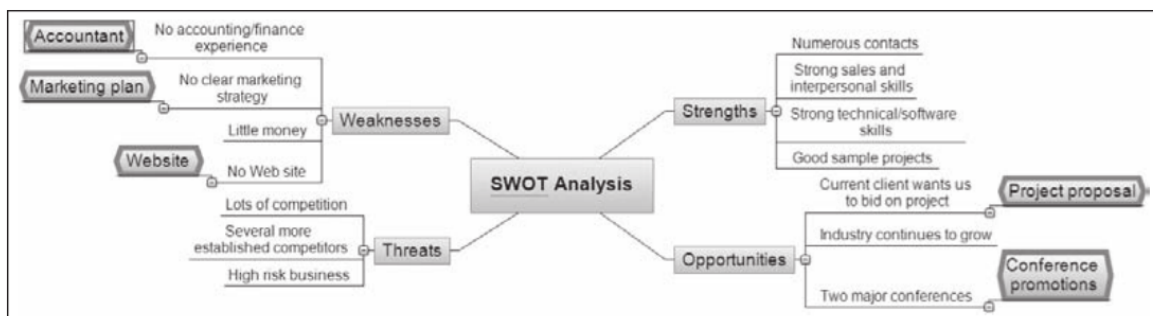
通过战略规划选择项目，使组织获得最大利益

1. SWOT

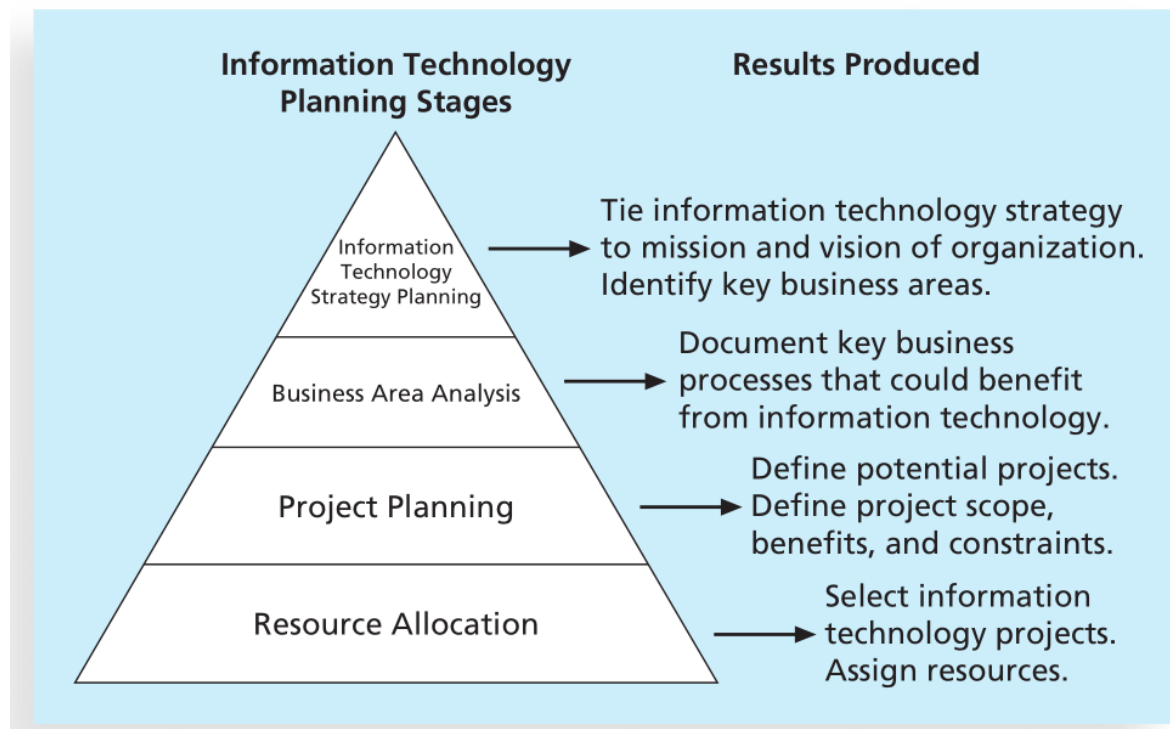
Strengths

Weaknesses

Opportunities



2. 确定潜在项目



1. Information Technology Strategy Planning

steering committee 由许多非IT人员（组织中其他部门的人）和一些管理者，以及一些IT人员组成
这个委员会的任务是：基于组织的战略计划来制定出使得组织利益最大化的IT战略计划（develops an IT strategic plan that is tied to the organization's overall strategic plan）

产生的结果：a well-defined list of IT strategic goals.

2. Business Area Analysis

做业务领域的分析，记录那些可以对组织产生利益的业务过程

3. Project Planning

定义项目的功能范围、利益、限制

4. Resource Allocation

选定项目，并分配资源

3. 使IT与业务战略保持一致

组织的战略计划指导IT项目选择

IT项目要支持业务目标

组织大力投资IT项目就是为了支持组织明确的业务目标

目前大多数组织都在不断增加IT项目的预算，投入更多的钱到IT项目中

4.3 Methods for Selecting Projects

1. 五种方法

- Focusing on broad organizational needs
关注组织总体的需求
- Categorizing IT projects
将IT项目分类
- Performing net present value or other financial analyses
- Using a weighted scoring model
- Implementing a balanced scorecard

2. 将IT项目分类

1、项目的推动力：

为了响应项目的问题、机会、指令

对于解决问题和满足指令的IT项目优先考虑，但也要关注能让组织提升实力的机会IT项目

2、项目的时间

考虑项目完成需要的时间和deadline

3、优先级

基于当前的业务环境，将IT项目按优先级划分为：低、中、高三个等级

优先做高优先级的

3. 执行财务分析

1、Net Present Value Analysis (NPV)

把未来的钱折算到现在值多少钱

NPV 的计算方法：

The mathematical formula for calculating NPV is:

$$NPV = \sum_{t=0 \dots n} \frac{A_t}{(1+r)^t}$$

where t equals the year of the cash flow, n is the last year of the cash flow, A is the amount of cash flow each year, and r is the discount rate.

If you cannot enter the data into spreadsheet software, you can perform the calculations by hand or with a calculator. First, determine the annual **discount factor**—a multiplier for each year based on the discount rate and year—and then apply it to the costs and benefits for each year. The formula for the discount factor is $1/(1+r)^t$, where r is the discount rate, such as 8 percent, and t is the year. For example, the discount factors used in Figure 4-5 are calculated as follows:

$$\text{Year 0 : discount factor} = 1/(1 + 0.08)^0 = 1$$

$$\text{Year 1 : discount factor} = 1/(1 + 0.08)^1 = 0.93$$

$$\text{Year 2 : discount factor} = 1/(1 + 0.08)^2 = 0.86$$

$$\text{Year 3 : discount factor} = 1/(1 + 0.08)^3 = 0.79$$

Discount rate	8%					
Assume the project is completed in Year 0			Year			
	0	1	2	3	Total	
Costs	140,000	40,000	40,000	40,000		
Discount factor	1	0.93	0.86	0.79		
Discounted costs	140,000	37,200	34,400	31,600	243,200	
Benefits	0	200,000	200,000	200,000		
Discount factor	1	0.93	0.86	0.79		
Discounted benefits	0	186,000	172,000	158,000	516,000	
Discounted benefits - costs	(140,000)	148,800	137,600	126,400	272,800	← NPV
Cumulative benefits - costs	(140,000)	8,800	146,400	272,800		
		↑				
ROI	→ 112%					
	Payback In Year 1					

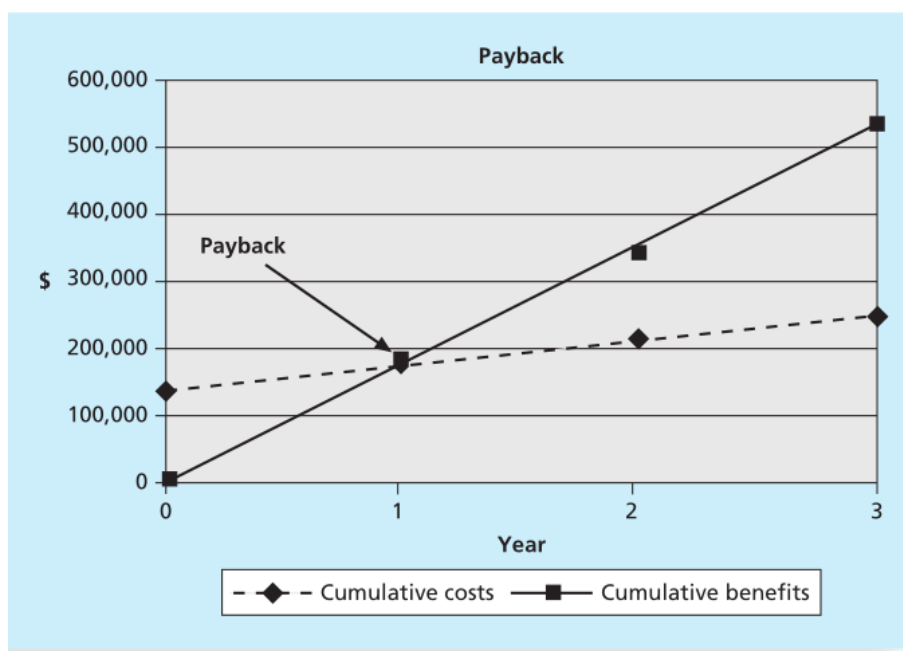
2、ROI

ROI = (收益 - 花销) / 花销

$$\text{ROI} = (516,000 - 243,200) / 243,200 = 112\%$$

3、Payback

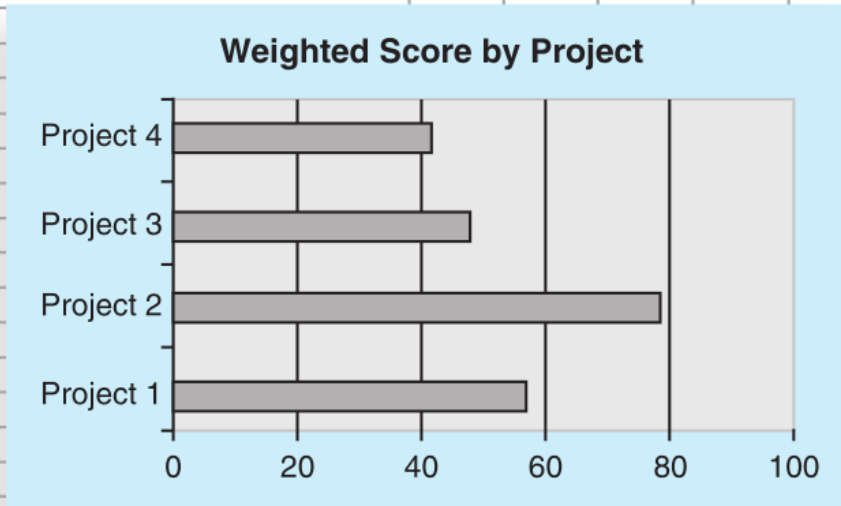
累计的收益 - 累计的花销，看什么时候回本



4. Weighted Scoring Model

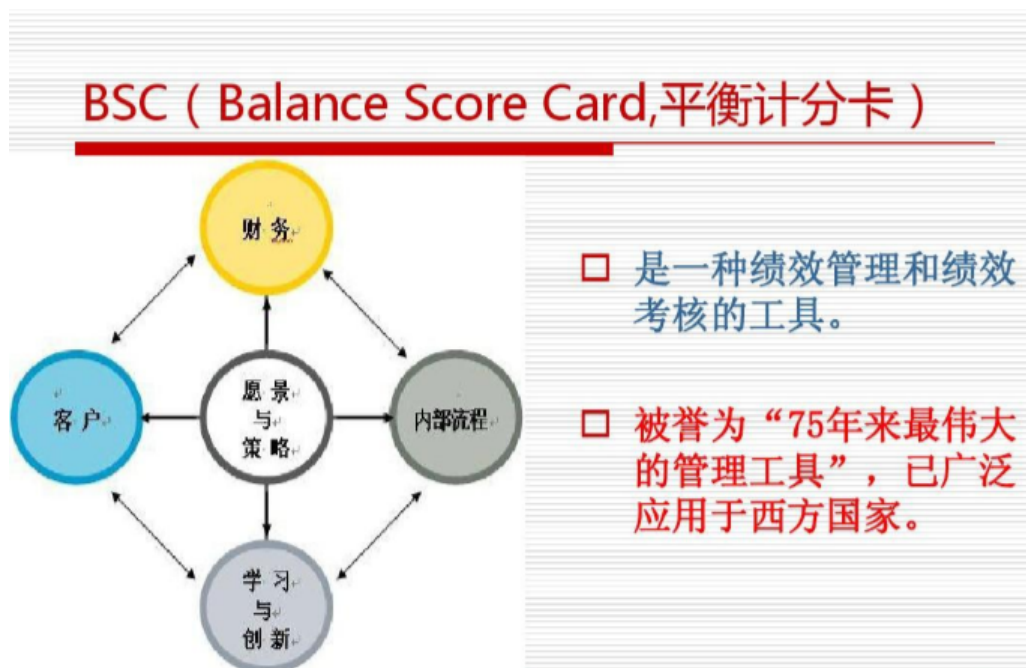
按照权重计算出最佳的IT项目

	A	B	C	D	E	F
1	Criteria	Weight	Project 1	Project 2	Project 3	Project 4
2	Supports key business objectives	25%	90	90	50	20
3	Has strong internal sponsor	15%	70	90	50	20
4	Has strong customer support	15%	50	90	50	20
5	Uses realistic level of technology	10%	25	90	50	70
6	Can be implemented in one year or less	5%	20	20	50	90
7	Provides positive NPV	20%	50	70	50	50
8	Has low risk in meeting scope, time, and cost goals	10%	20	50	50	90
9	Weighted Project Scores	100%	56	78.5	50	41.5
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5. Implementing a Balanced Scorecard (平衡计分卡)

平衡计分卡是从财务、客户、内部运营、学习与成长四个角度，将组织的战略落实为可操作的衡量指标和目标值的一种新型绩效管理体系。



4.4 Developing a Project Charter

A project charter is a document that formally recognizes the existence of a project and provides direction on the project's objectives and management.

项目章程是正式承认项目存在，并为项目的目标和管理提供方向的文件。

项目经理主要来写项目章程

stakeholders需要签字来认可项目的目的和需求

1. 五个input

1、A project statement of work (项目工作说明)

是一个文档，里面记录了项目的一些业务需求和特点

2、A business case (商业案例)

分析项目的目标、需求、时间和金钱的花销等等

3、Agreements (协议)

如果和外部的客户签合同，这个合同必须包括充足的信息来写到项目章程中

因为合同和协议不容易读懂，因此推荐使用项目章程

4、Enterprise environmental factor (公司环境因素)

关注政府和行业的标准、组织的基础设施、市场情况

5、Organizational process assets (组织的过程资产)

组织过程资产包括正式和非正式的计划、政策、过程、指导方针、信息系统、财务系统、管理系统、经验教训，以及能够影响项目成功的历史信息。

2. 项目章程中应该包括的信息

1. 项目名称和授权日期
2. 项目经理的姓名和相关合同的信息
3. 一份计划概要，包括项目开始和结束日期
4. 项目预算
5. 简要描述一下项目目标，包括业务需求，以及授权它的理由
6. 项目成功的标准
7. 概述一下管理这个项目的办法
8. 人物、职责矩阵
9. stakeholder 签字处
10. stakeholder 评论处、

项目章程的例子：

TABLE 4-1 Project charter for the next-gen DNA-sequencing instrument completion project

Project Title: Next-gen DNA-Sequencing Instrument Completion Project			
Date of Authorization: February 1			
Project Start Date: February 1		Projected Finish Date: November 1	
Key Schedule Milestones: <ul style="list-style-type: none">• Complete first version of the software by June 1• Complete production version of the software by November 1			
Budget Information: The firm has allocated \$1.5 million for this project, and more funds are available if needed. The majority of costs for this project will be internal labor. All hardware will be outsourced.			
Project Manager: Nick Carson, (650) 949-0707, ncarson@dnaconsulting.com			
Project Objectives: The Next-gen DNA-sequencing instrument project has been under way for three years. It is a crucial project for our company. This is the first charter for the project; the objective is to complete the first version of the instrument software in four months and a production version in nine months.			
Main Project Success Criteria: The software must meet all written specifications, be thoroughly tested, and be completed on time. The CEO will formally approve the project with advice from other key stakeholders.			
Approach: <ul style="list-style-type: none">• Hire a technical replacement for Nick Carson and a part-time assistant as soon as possible.• Within one month, develop a clear work breakdown structure, scope statement, and Gantt chart detailing the work required to complete the Next-gen DNA-sequencing instrument.• Purchase all required hardware upgrades within two months.• Hold weekly progress review meetings with the core project team and the sponsor.• Conduct thorough software testing per the approved test plans.			
ROLES AND RESPONSIBILITIES			
Name	Role	Position	Contact Information
Ahmed Abrams	Sponsor	CEO	aaabrams@dnaconsulting.com
Nick Carson	Project Manager	Manager	ncarson@dnaconsulting.com
Susan Johnson	Team Member	DNA expert	sjohnson@dnaconsulting.com
Renyong Chi	Team Member	Testing expert	rchi@dnaconsulting.com
Erik Haus	Team Member	Programmer	ehaus@dnaconsulting.com
Bill Strom	Team Member	Programmer	bstrom@dnaconsulting.com
Maggie Elliot	Team Member	Programmer	melliot@dnaconsulting.com
Sign-off: (Signatures of all the above stakeholders)			
<i>Ahmed Abrams</i>		<i>Nick Carson</i>	
<i>Susan Johnson</i>		<i>Renyong Chi</i>	
<i>Erik Haus</i>		<i>Bill Strom</i>	
<i>Maggie Elliot</i>			
Comments: (Handwritten or typed comments from above stakeholders, if applicable)			
<i>"I want to be heavily involved in this project. It is crucial to our company's success, and I expect everyone to help make it succeed."</i> —ahmed abrams			
<i>"The software test plans are complete and well documented. If anyone has questions, do not hesitate to contact me."</i> —Renyong Chi			

4.5 Developing a Project Management Plan

