SEN319 Software Project Management

Project Selection

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Agenda

- **Selecting the Right Project**
  - Identifying Potential Projects
  - Aligning IT with Business Strategy
  - Focusing on broad organizational needs
  - Categorizing IT projects
  - Performing financial analyses
  - Using a weighted scoring model
  - Implementing a balanced scorecard
- **Methods for Selecting Projects**
  - Focusing on broad organizational needs
  - Categorizing IT projects
  - Performing financial analyses
  - Using a weighted scoring model
  - Implementing a balanced scorecard
- **Workshop**

Selecting the Right Project

- The first step in project management is deciding what projects to do in the first place.
- Therefore, project initiation starts with identifying potential projects, using realistic methods to select which projects to work on, and then formalizing their initiation by issuing some sort of project charter.

Steps

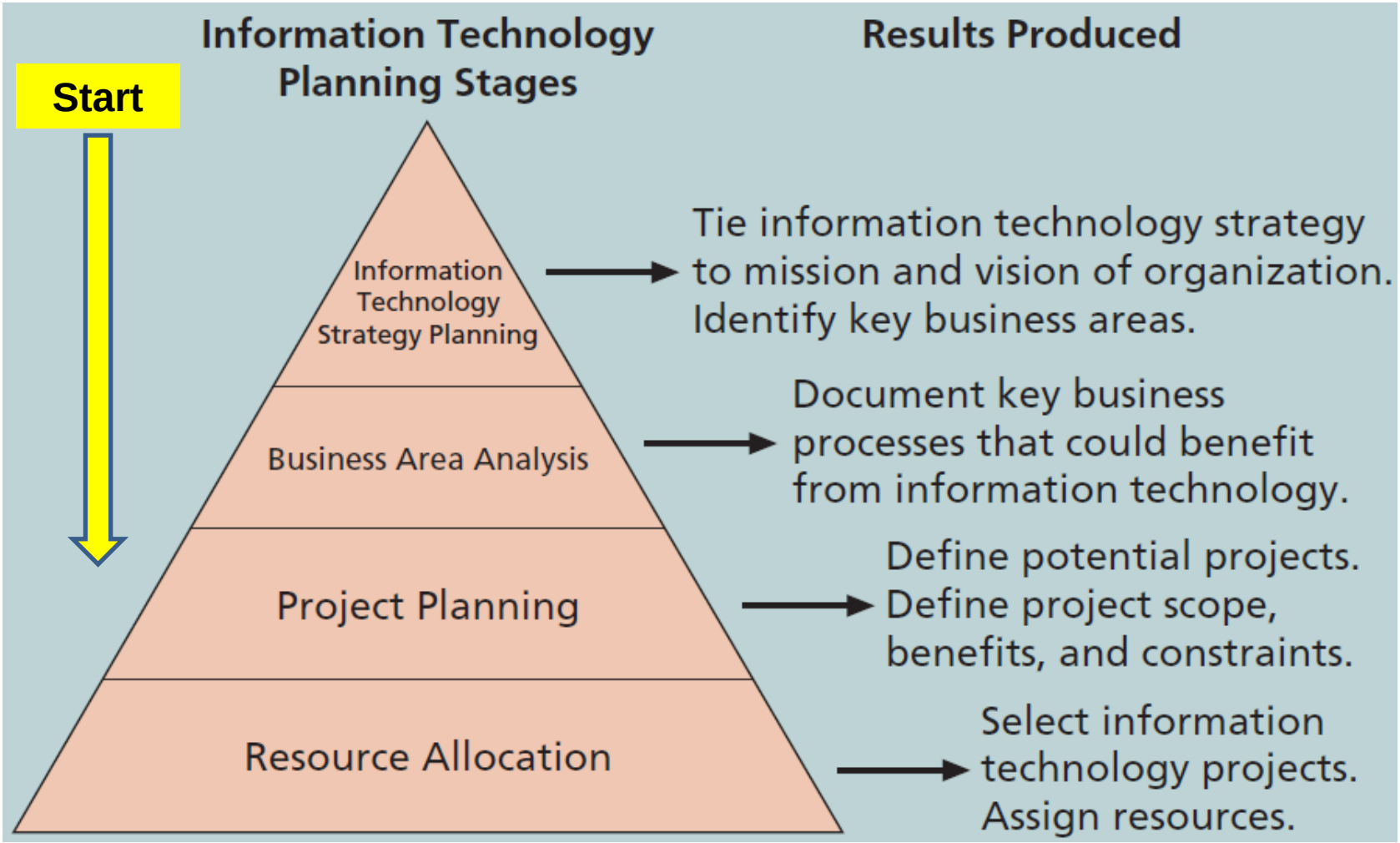
- Identifying Potential Projects
- Aligning IT with Business Strategy

Common Techniques for Selection

- Focusing on broad organizational needs
- Categorizing IT projects
- Performing financial analyses
- Using a weighted scoring model
- Implementing a balanced scorecard

Selecting the Right Project

Identifying Potential Projects (Ex: Selection of IT Projects)



Selecting the Right Project

Aligning IT with Business Strategy

- A **business strategy** is an outline of the actions and decisions a company plans to take to reach its goals and objectives.

Examples

- Most innovative product or service
- Grow sales from new products
- Improve customer service
- Cornering a young market
- Product differentiation
- Pricing strategies
- Technological advantage
- Improve customer retention

Selecting the Right Project

Aligning IT with Business Strategy

- Aligning IT projects with business strategy is at the heart of selecting IT projects.
- It is often difficult to educate line managers on technology's possibilities and limitations and keep IT professionals in tune with changing business needs.
- An organization must develop a strategy for using IT to define how it will support the organization's objectives.
- Many information systems are classified as strategic because they directly support key business strategies.

Selecting the Right Project

Aligning IT with Business Strategy

Worldwide IT Spending Forecast (Million $)

	2020 Spending	2020 Growth (%)	2021 Spending	2021 Growth (%)	2022 Spending	2022 Growth (%)
Data Center Systems	178,836	2.5	196,142	9.7	207,440	5.8
Enterprise Software	529,028	9.1	600,895	13.6	669,819	11.5
Devices	696,990	-1.5	801,970	15.1	820,756	2.3
IT Services	1,071,281	1.7	1,191,347	11.2	1,293,857	8.6
Communications Services	1,396,334	-1.5	1,451,284	3.9	1,482,324	2.1

- **Information systems often are central to business strategy.**
- **Worldwide IT spending is increasing.**

Ref: Gartner

Methods for Selecting Projects

- Organizations identify many potential projects as part of their strategic planning processes, and they need to narrow down the list of potential projects to the ones that will be of most benefit.
- They often rely on experienced project managers to help them make project selection decisions.
- Selecting projects is not an exact science, and many methods exist for selecting projects.
- Five common techniques:
  1. Focusing on broad organizational needs
  2. Categorizing IT projects
  3. Performing financial analyses
  4. Using a weighted scoring model
  5. Implementing a balanced scorecard

Methods for Selecting Projects

Focusing on Broad Organizational Needs

- **Top managers must focus on meeting their organizations' many needs when deciding what projects to undertake, when to undertake them, and to what level.**
- **Projects that address broad organizational needs are much more likely to be successful because they will be important to the organization.**

Three important criteria: *need*, *funding*, and *will*

1. **Do people in the organization agree that the project needs to be done?**
2. **Does the organization have the desire and capacity to provide adequate funds to perform the project?**
3. **Is there a strong will to make the project succeed?**

Methods for Selecting Projects

Categorizing IT Projects

- **Another method for selecting projects is based on various categorizations:**
  - **Project's impetus:**
    1. **Solving a problem**
    2. **Aligning with new regulations and directives**
    3. **Taking advantage of new opportunities**
  - **Time window: How long will it take to complete a project and what is the deadline for completing it?**
  - **General priority: High, medium, or low priority based on the current business environment.**

Methods for Selecting Projects

Performing Financial Analyses

- Financial considerations are an important aspect of the project selection process.
- Three primary methods for projecting the financial value of projects:
  1. Net present value analysis
  2. Return on investment
  3. Payback analysis

Methods for Selecting Projects

Performing Financial Analyses

Net Present Value (NPV) Analysis

- **Time value of money principle: A dollar earned today is worth more than a dollar earned 5 years from now.**
- **NPV analysis is a method of calculating the expected net monetary gain or loss from a project by calculating the value of all expected future cash inflows and outflows at the present time.**
- **An organization should consider only projects with a positive NPV if financial value is a key criterion for project selection.**

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

A: Cash flow
t: Year (starts from 0)
r: Discount rate

- **The discount rate is the interest rate used to discount cash flows.**
- **Discount factor: $1/(1+r)^t$**

Methods for Selecting Projects

Performing Financial Analyses

Net Present Value (NPV) Analysis

Discount rate	10%					
PROJECT 1	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	TOTAL
Benefits	$0	$2,000	$3,000	$4,000	$5,000	$14,000
Costs	$5,000	$1,000	$1,000	$1,000	$1,000	$9,000
Cash flow	($5,000)	$1,000	$2,000	$3,000	$4,000	$5,000
NPV →	$2,316					
	Formula =npv(b1,b6:f6)					
PROJECT 2	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	TOTAL
Benefits	$1,000	$2,000	$4,000	$4,000	$4,000	$15,000
Costs	$2,000	$2,000	$2,000	$2,000	$2,000	$10,000
Cash flow	($1,000)	$0	$2,000	$2,000	$2,000	$5,000
NPV →	$3,201					

- Even if the totals are equal, NVPs are different.
- Bigger NPV is better.

Methods for Selecting Projects

Performing Financial Analyses

Return on Investment (ROI)

- Another important financial consideration is return on investment (ROI). ROI is the result of subtracting the project costs from the benefits and then dividing by the costs.
- For example, if you invest $100 today and next year it is worth $110, your ROI is ($110 – 100)/100 or 0.10 (10 percent).
- Note that the ROI is always a percentage. It can be positive or negative.
- For multiyear projects, it is best to use discounted costs and benefits when calculating ROI.

ROI=(total discounted benefits - total discounted costs)/discounted costs

Methods for Selecting Projects

Performing Financial Analyses

Return on Investment (ROI)

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					

Methods for Selecting Projects

Performing Financial Analyses

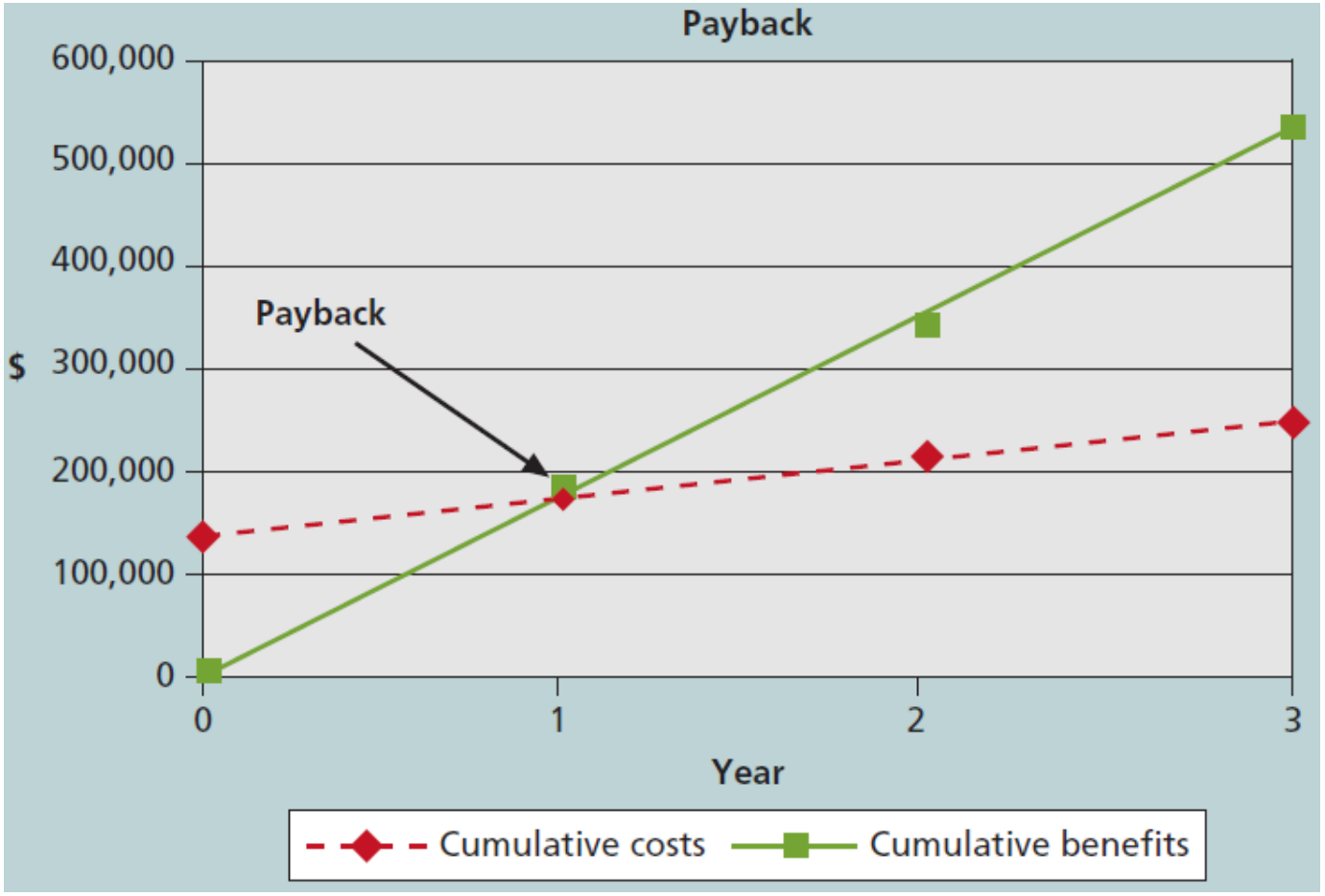
Payback Analysis

- **Payback analysis is another important financial tool when selecting projects.**
- **Payback period is the amount of time it will take to recoup the total dollars invested in a project, in terms of net cash inflows. In other words, payback analysis determines how much time will elapse before accrued benefits overtake accrued and continuing costs.**
- **Payback occurs when the net cumulative benefits equal the net cumulative costs or when the net cumulative benefits minus costs equal zero.**
- **Beyond this point, discounted benefits exceed discounted costs and the project shows a profit.**

Methods for Selecting Projects

Performing Financial Analyses

Payback Analysis



Methods for Selecting Projects

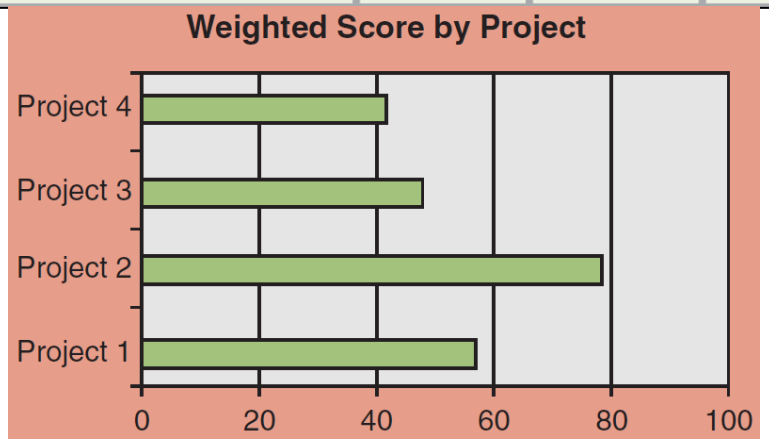
Using a Weighted Scoring Model

- **A weighted scoring model is a tool that provides a systematic process for selecting projects based on many criteria.**
- **The first step is to identify criteria that are important to the project selection process.**
- **Next, you assign a weight to each criterion based on its importance.**
- **Possible criteria for IT projects:**
  - **Supports key business objectives or strategies**
  - **Has strong internal sponsor**
  - **Has strong customer support**
  - **Uses realistic level of technology**
  - **Can be implemented in one year or less**
  - **Provides positive NPV**
  - **Has low risk in meeting scope, time, and cost goals**

Methods for Selecting Projects

Using a Weighted Scoring Model

Criteria	Weight	Project 1	Project 2	Project 3	Project 4
Supports key business objectives	25%	90	90	50	20
Has strong internal sponsor	15%	70	90	50	20
Has strong customer support	15%	50	90	50	20
Uses realistic level of technology	10%	25	90	50	70
Can be implemented in one year or less	5%	20	20	50	90
Provides positive NPV	20%	50	70	50	50
Has low risk in meeting scope, time, and cost goals	10%	20	50	50	90
Weighted Project Scores	**100%**	**56**	**78.5**	**50**	**41.5**



Methods for Selecting Projects

Implementing a Balanced Scorecard (BSC)

- Robert Kaplan and David Norton developed an approach to help select and manage projects that align with business strategy.
- A balanced scorecard (BSC) is a strategic planning and management system that helps organizations align business activities to strategy, improve communications, and monitor performance against strategic goals.
- It is a performance metric used to identify, improve, and control a business's various functions and resulting outcomes.
- The Gartner Group estimates that over half of large U.S. organizations use this approach.

Methods for Selecting Projects

Implementing a Balanced Scorecard

Workshop
Project Selection for TechNova Inc.

Scenario and Your Tasks

- **TechNova Inc. is a mid-sized technology company that specializes in software solutions for the financial services industry. The company is looking to invest in a new IT project that aligns with its long-term business strategy of expanding its product offerings, improving customer satisfaction, and reducing operational costs. The company's leadership team has identified three potential IT projects, but only one can be selected due to budget constraints.**

- **As part of TechNova Inc.'s project evaluation team, your goal is to assess these three projects using the following methods:**
  - **Project Categorization: Prioritize the projects based on the company's strategic goals.**
  - **Weighted Scoring Model: Develop and apply a weighted scoring model using criteria such as alignment with business goals, financial return, risk, and customer impact.**
- **Each group must choose one project and justify their decision based on the analysis performed.**

Workshop
Project Selection for TechNova Inc.

Projects in the Scenarios

Project 1: Customer Relationship Management (CRM) System Upgrade

•**Description**: Upgrade the existing CRM system to provide better insights into customer behavior, increase automation in customer service, and enhance user experience for both employees and customers.

•**Expected Benefits**:

- 10% increase in customer retention.
- 5% increase in new customer acquisition.
- Improved customer satisfaction scores.

•**Risk**: Medium (there's a risk of disruption during the transition to the new system).

•**Time to Completion**: 12 months.

Project 2: Cloud Infrastructure Migration

•**Description**: Migrate all on-premise data and applications to a cloud-based infrastructure to reduce operational costs and improve scalability.

•**Expected Benefits**:

- 15% reduction in operational IT costs.
- Improved system reliability and disaster recovery capabilities.
- 20% faster deployment for new services.

•**Risk**: High (potential security concerns and a lengthy migration process).

•**Time to Completion**: 18 months.

Project 3: AI-Powered Financial Analytics Tool

•**Description**: Develop an AI-powered tool that provides real-time financial analytics to customers, allowing them to make more informed decisions. The tool will use machine learning to analyze financial data trends and offer personalized recommendations.

•**Expected Benefits**:

- Increase customer acquisition by 10%.
- Enhance product differentiation in the market.
- Position TechNova as an innovative leader in the industry.

•**Risk**: Medium (the tool is new and untested in the market; there are potential integration issues with existing systems).

•**Time to Completion**: 15 months.

Thank you…

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