NETWORK SECURITY PROJECT INTEGRATION MANAGEMENT

1

LECTURE 11

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THE KEY TO SUCCESS

- Project Managers describes the framework for project integration.
- Project Managers need to look at problems in the holistic view.

- Perform project management tasks to provide for security of data, quality data assurance and security measures to govern the network from harmful attacks and threats.

FRAMEWORK

3

Fig 1: Framework for Project Integration Management

KNOWLEDGE AREAS (y-axis): SCOPE, TIME, COST, QUALITY, HUMAN RESOURCE, COMMUNICATIONS, RISK, PROCUREMENT

PROJECT INTEGRATION MANAGEMENT

PROECT SUCCESS

SECURE NETWORK LIDE CYCLE (x-axis): INITIATION, ACQUISITION AND DEVELOPMENT, IMPLEMENTATION, OPERATION AND MANAGEMENT, DISPOSITION
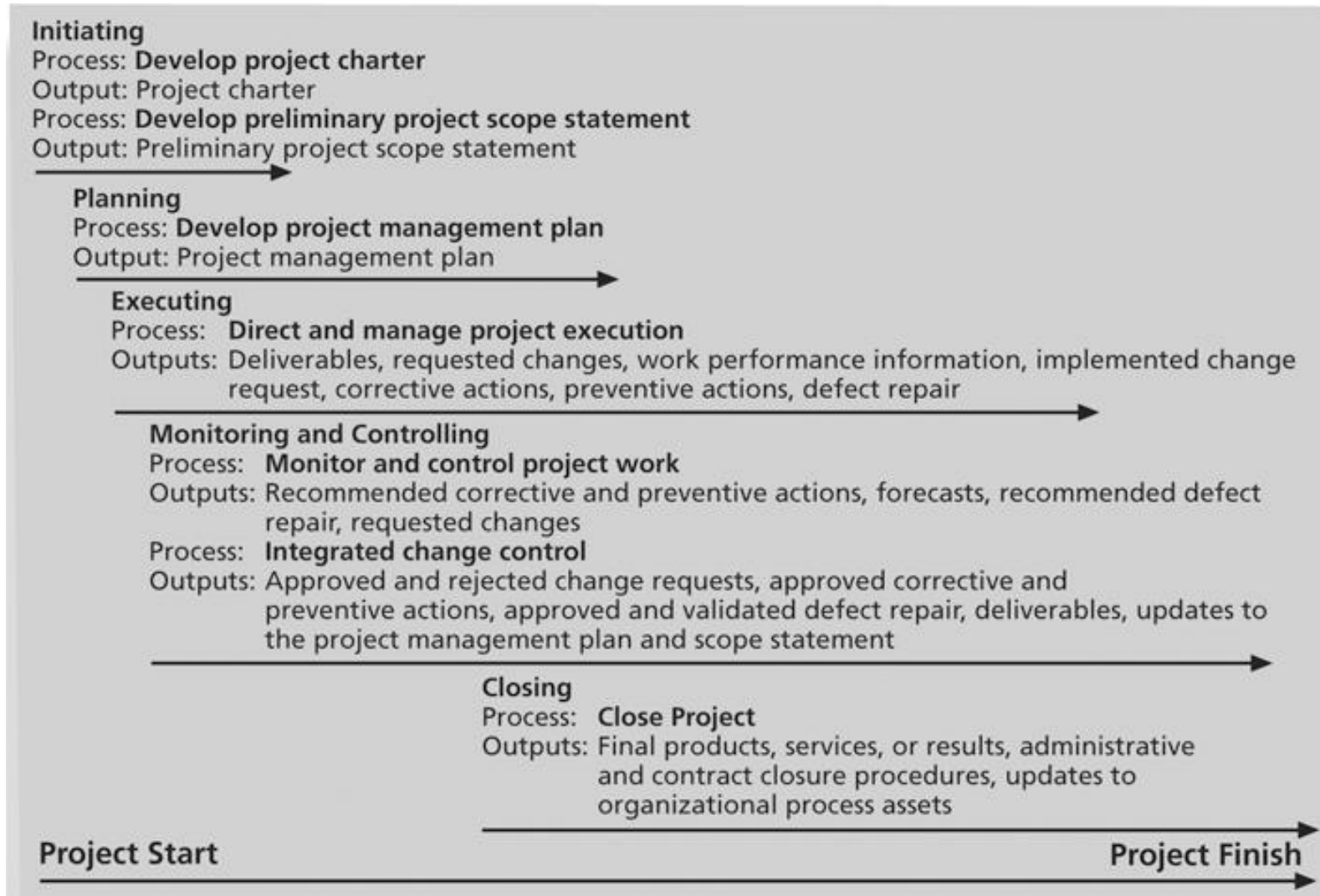
PROJECT INTEGRATION MANAGEMENT PROCESSES

- **Develop the project charter**: working with stakeholders to create the document that formally authorizes a project—the charter

- **Develop the preliminary project scope statement**: working with stakeholders, especially users of the project's products, services, or results, to develop the high-level scope requirements and create a preliminary project scope statement

- **Develop the project management plan**: coordinating all planning efforts to create a consistent, coherent document—the project management plan

PROJECT INTEGRATION MANAGEMENT PROCESSES

- **Direct and manage project execution**: carrying out the project management plan by performing the activities included in it

- **Monitor and control the project work**: overseeing project work to meet the performance objectives of the project

- **Perform integrated change control**: coordinating changes that affect the project's deliverables and organizational process assets

- **Close the project**: finalizing all project activities to formally close the project

PROJECT INTEGRATION MANAGEMENT SUMMARY

Initiating
Process: **Develop project charter**
Output: Project charter
Process: **Develop preliminary project scope statement**
Output: Preliminary project scope statement

Planning
Process: **Develop project management plan**
Output: Project management plan

Executing
Process: **Direct and manage project execution**
Outputs: Deliverables, requested changes, work performance information, implemented change request, corrective actions, preventive actions, defect repair

Monitoring and Controlling
Process: **Monitor and control project work**
Outputs: Recommended corrective and preventive actions, forecasts, recommended defect repair, requested changes
Process: **Integrated change control**
Outputs: Approved and rejected change requests, approved corrective and preventive actions, approved and validated defect repair, deliverables, updates to the project management plan and scope statement

Closing
Process: **Close Project**
Outputs: Final products, services, or results, administrative and contract closure procedures, updates to organizational process assets

Project Start   **Project Finish**

PROJECT INTEGRATION MANAGEMENT PROCESSES

- The project managers takes responsibility for
    - Coordinating all people, plans and work required to complete a project
    - Focusing on the big picture and steering the project team toward successful completion
    - Making the final decisions when there are conflicts among project goals or people involved
   - Communicating key project information to top management

PROJECT INTEGRATION MANAGEMENT PROCESSES

- Good project integration management is critical to providing stakeholder satisfaction
  - **Interface management** – identifying and managing the points of interaction between various elements of the project
    - The number of interfaces can increase exponentially as the number of people involved in the project increases
    - Therefore, the PM must establish and maintain good communication and relationships with all stakeholders, customers the project team, top management , other PMs and opponents of the project.
      - This was one of Nick Carson's mistakes – he did not find out what top management expected of him as PM and did not see the big picture

STRATEGIC PLANNING & PROJECT SELECTION

- **Strategic planning** involves determining long-term objectives, predicting future trends, and projecting the need for new products and services

- Organizations often perform a **SWOT Analysis**
  - Analyzing **S**trengths, **W**eaknesses, **O**pportunities, and **T**hreats
    - Very important to have managers from outside the IT dept assist in the planning process as they can help to understand organizational strategies and identify the business areas that support them

- As part of strategic planning, organizations:
  - Identify potential projects
  - Use realistic methods to select which projects to work on
  - Formalize project initiation by issuing a project charter

IT PLANNING PROCESS
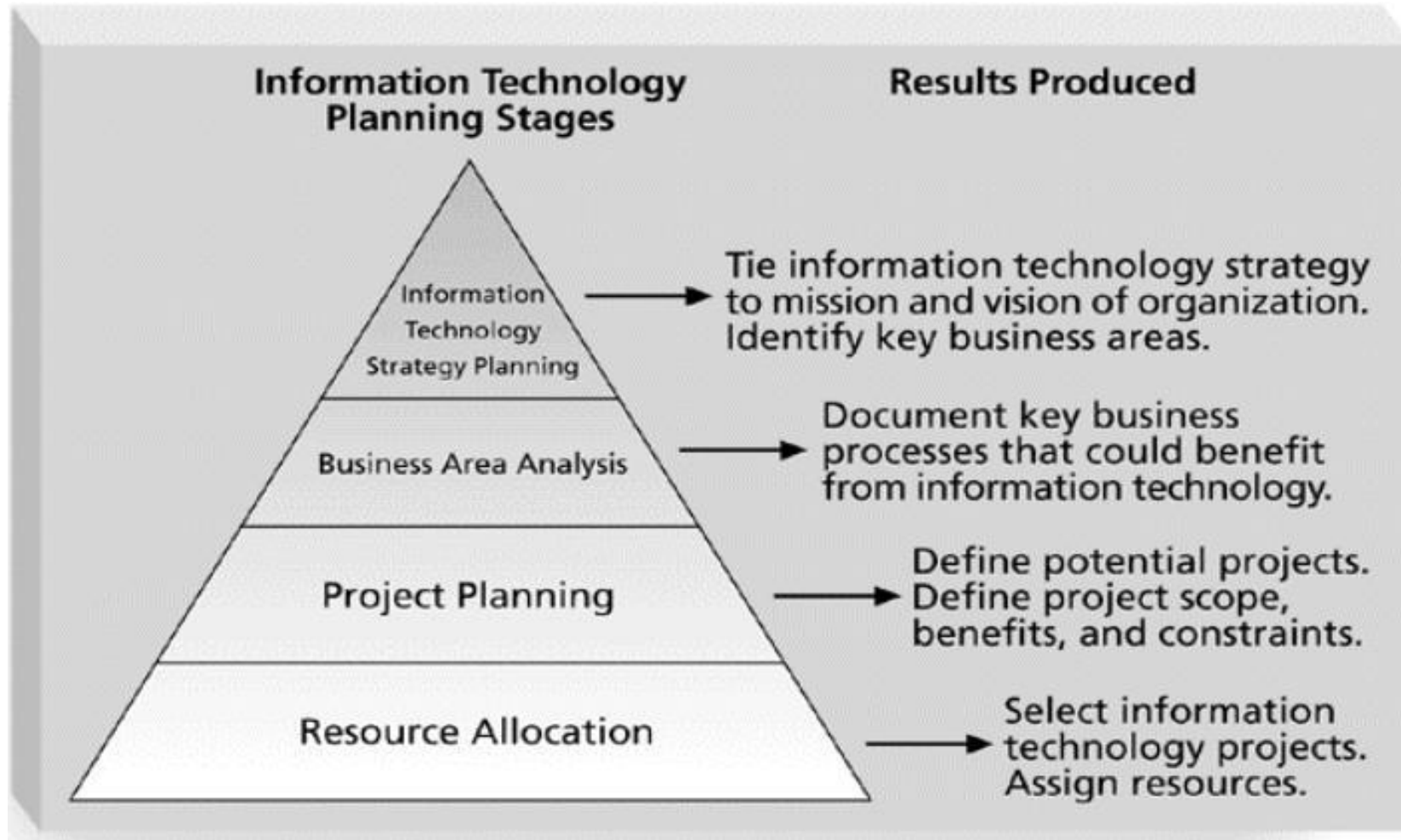
ALIGNING IT WITH BUSINESS STRATEGY

- This is consistently the top concern for CIOs

- Research shows that supporting explicit business objectives is the number one reason cited for why organizations invest in IT projects
  - An organization's strategic plan should guide the IT project selection process

- Many IT systems are "strategic" because they directly support key business strategies
  - Wal-Mart's inventory control system
  - Fed-Ex's online package tracking system

METHODS FOR SELECTING PROJECTS

- There are usually more projects than available time and resources to implement them

- Methods for selecting projects include:
    - Focusing on broad organizational needs
    - Categorizing information technology projects
    - Performing net present value or other financial analyses
    - Using a weighted scoring model
    - Implementing a balanced scorecard

- In practice, organizations usually use a combination of these approaches to select projects. Each approach has its pros and cons

FOCUSING ON BROAD ORGANIZATIONAL NEEDS

- Projects that address broad organizational needs are more likely to be successful because they will be important to the organization

- It is often difficult to provide strong justification for many IT projects and/or estimate their financial value, but everyone agrees they have a high value

- "It is better to measure gold roughly than to count pennies precisely"

- Three important criteria for projects:
  - There is a *need* for the project
  - There are *funds* available
  - There's a strong *will* to make the project succeed

CATEGORIZING IT PROJECTS

- One categorization is the impetus for a project i.e., responding to :
  - A **problem** is an undesirable situation that prevents an org. from achieving its goals – system slow, needs upgrades
  - An **opportunity** is a chance to improve the org. – creating a new product
  - A **directive** is a new requirement imposed by management, govt or some external influence – medical technologies must meet govt requirements

- Another categorization is how long it will take to do and when it is needed

- Another is the overall priority of the project

FINANCIAL ANALYSIS OF PROJECTS

- Financial considerations are often an important consideration in selecting projects
  - "Projects are never ends in themselves. Financially they are always a means to an end, cash" Dennis Cohen and Robert Graham , *The Project Manager's MBA*

- Three primary methods for determining the projected financial value of projects
  - Net present value (NPV) analysis
  - Return on investment (ROI)
  - Payback analysis

- PMs must become familiar with the language of business executives in order to make their case

NET PRESENT VALUE ANALYSIS

- A dollar earned today is worth more than a dollar earned five years from now

- **Net present value** (NPV) analysis is a method of calculating the expected net monetary gain or loss from a project by discounting all expected future cash inflows and outflows to the present point in time

- Projects with a positive NPV should be considered if financial value is a key criterion because that means the return from a project exceeds the cost of capital (the return available by investing the capital elsewhere)

- The higher the NPV, the better

NET PRESENT VALUE ANALYSIS

- NPV is the difference between the present value of cash inflows and the present value of cash outflows.

- NPV compares the value of a dollar today to the value of that same dollar in the future, taking inflation and returns into account.

- For example, if a retail clothing business wants to purchase an existing store, it would first estimate the future cash flows that store would generate, and then discount those cash flows into one lump-sum present value amount, say $565,000.

  - If the owner of the store was willing to sell his business for less than $565,000, the purchasing company would likely accept the offer as it presents a positive NPV investment.

  - Conversely, if the owner would not sell for less than $565,000, the purchaser would not buy the store, as the investment would present a negative NPV at that time and would, therefore, reduce the overall value of the clothing company.

NET PRESENT VALUE ANALYSIS

- NPV = Net Present value = Present value of net cash flows
  - Each cash inflow/outflow is discounted back to its PV and then they are summed.

$$\text{NPV} = C_0 + \sum_{t=1}^{N} \frac{C_t}{(1+r)^t} \quad \text{shortened} \qquad \text{NPV} = \sum_{t=0}^{N} \frac{C_t}{(1+r)^t}$$

t - the time of the cash flow
N - the total time of the project
r - the discount rate (the rate of return that could be earned on an investment in the financial markets with similar risk.)
C_t - the net cash flow (the amount of cash) at time t

C_0 - the initial investment

NET PRESENT VALUE EXAMPLE

	A	B	C	D	E	F	G
1	Discount rate	10%					
2							
3	PROJECT 1	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	TOTAL
4	Benefits	$0	$2,000	$3,000	$4,000	$5,000	$14,000
5	Costs	$5,000	$1,000	$1,000	$1,000	$1,000	$9,000
6	Cash flow	($5,000)	$1,000	$2,000	$3,000	$4,000	$5,000
7	NPV ⟶	$2,316					
8		Formula =npv(b1,b6:f6)					
9							
10	PROJECT 2	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	TOTAL
11	Benefits	$1,000	$2,000	$4,000	$4,000	$4,000	$15,000
12	Costs	$2,000	$2,000	$2,000	$2,000	$2,000	$10,000
13	Cash flow	($1,000)	$0	$2,000	$2,000	$2,000	$5,000
14	NPV ⟶	$3,201					
15		Formula =npv(b1,b13:f13)					
16							

Note that totals are equal, but NPVs are not because of the time value of money

JWD CONSULTING NPV EXAMPLE

Multiply by the discount factor each year, then take cum. benefits – costs to get NPV

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					

Note: See the template called business_case_financials.xls

NPV CALCULATIONS

- Determine estimated costs and benefits for the life of the project and the products it produces

- Determine the discount rate

- Calculate the NPV
  - Use NPV function in Excel (npv9discount rate, cash flows range)
  - Calculate total discounted benefits and total discounted costs . NPV is benefits - costs

RETURN ON INVESTMENT

- **Return on investment** (ROI) is calculated by subtracting the project costs from the benefits and then dividing by the costs
    ROI = (total discounted benefits - total discounted costs) / discounted costs

- The higher the ROI, the better

- Many organizations have a **required rate of return** or minimum acceptable rate of return on investment for projects

- **Internal rate of return** (IRR) can by calculated by finding the discount rate that makes the NPV of all cash flows equal to zero

INTERNAL RATE OF RETURN

- **Internal Rate of Return** (IRR): The discount rate that makes the net present value of investment zero.
  - It is an indicator of the **efficiency** of an investment, as opposed to NPV, which indicates value or magnitude.
  - The IRR is the annualized effective compounded return rate which can be earned on the invested capital, i.e., the yield on the investment.
  - A project is a good investment proposition if its IRR is greater than the rate of return that could be earned by alternate investments (investing in other projects, buying bonds, even putting the money in a bank account).
    - Thus, the IRR should be compared to any alternate costs of capital including an appropriate risk premium.

25

INTERNAL RATE OF RETURN

- Mathematically the IRR is defined as any discount rate that results in an NPV of zero of a series of cash flows.

- In general, if the IRR is greater than the project's cost of capital, or hurdle rate (minimum rate of return that must be met for a company to undertake a particular project), the project will add value for the company.

INTERNAL RATE OF RETURN

To find the internal rate of return, find the value(s) of r that satisfies the following equation:

$$\text{NPV} = C_0 + \sum_{t=1}^{N} \frac{C_t}{(1+r)^t} = 0$$

(See net present value for details on this formula.)

Example

Year	Cash Flow
0	-100
1	+30
2	+35
3	+40
4	+45

Internal Rate of Return (IRR)

$$\text{NPV} = -100 + \frac{30}{(1+r)^1} + \frac{35}{(1+r)^2} + \frac{40}{(1+r)^3} + \frac{45}{(1+r)^4} = 0 \Rightarrow r \approx 17.09$$

IRR = r,
IRR = 17.09%

Net Present Value (NPV)
Thus using r = IRR = 17.09%,

$$\text{NPV} = -100 + \frac{30}{(1+17.09\%)^1} + \frac{35}{(1+17.09\%)^2} + \frac{40}{(1+17.09\%)^3} + \frac{45}{(1+17.09\%)^4} = 0.00$$

PAYBACK ANALYSIS

- Another important financial consideration is payback analysis

- The **payback period** is the amount of time it will take to recoup, in the form of net cash inflows, the total dollars invested in a project

- Payback occurs when the net cumulative benefits equals the net cumulative costs

- Many organizations want IT projects to have a fairly short payback period
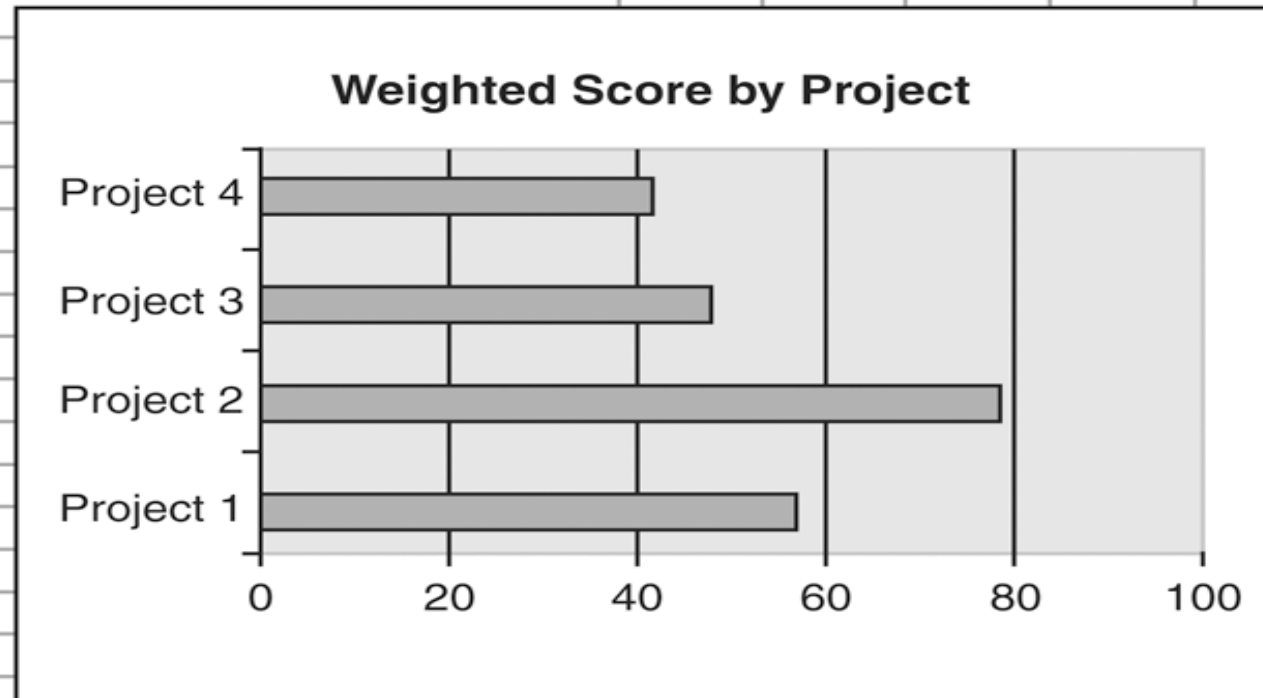
CHARTING THE PAYBACK PERIOD

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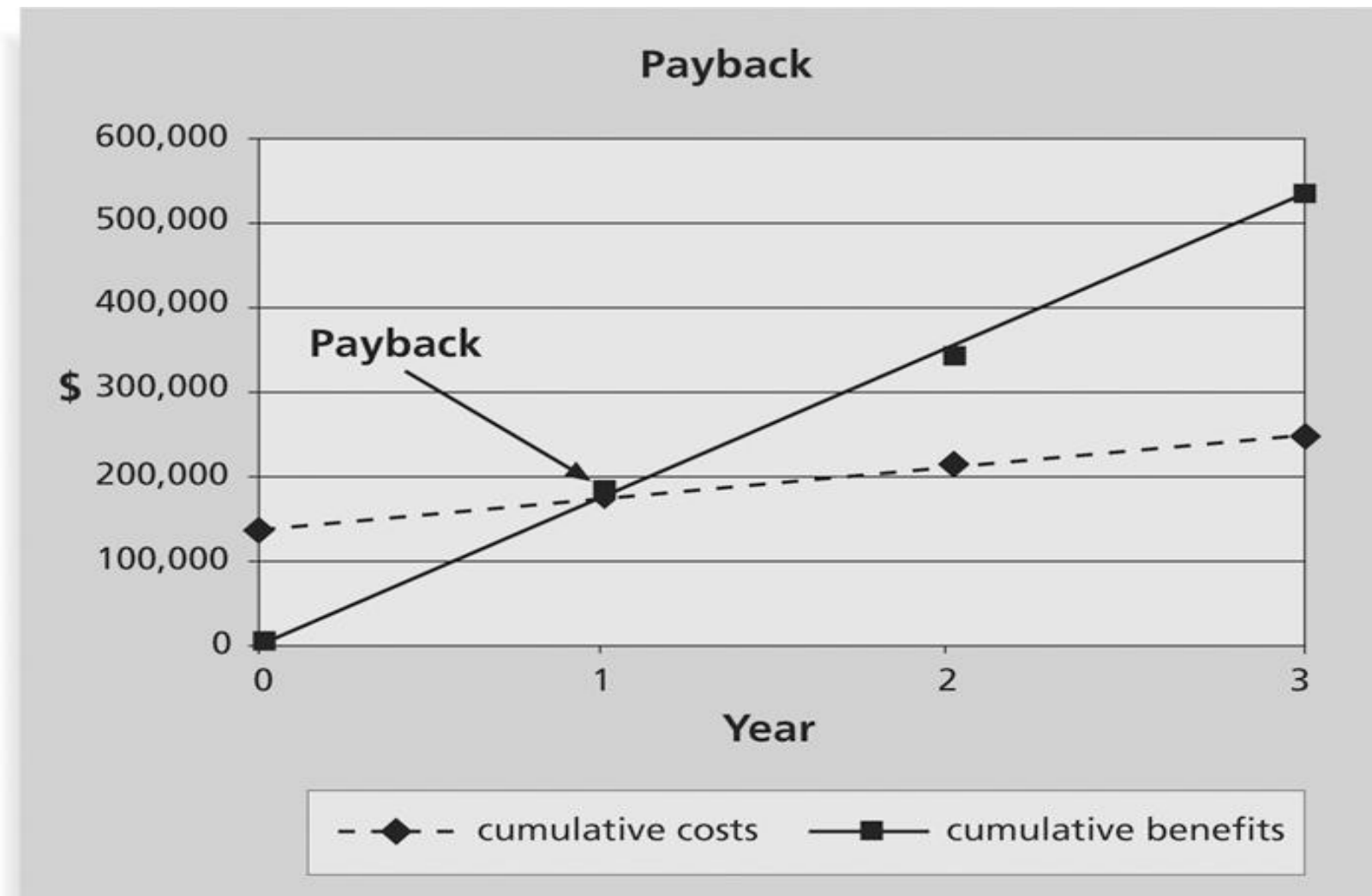
WEIGHTED SCORING MODEL

- A weighted scoring model is a tool that provides a systematic process for selecting projects based on many criteria
  1. Identify criteria important to the project selection process, e.g.,
     1. Supports key business objectives
     2. Has strong internal sponsor
     3. Has strong customer support
  2. Assign weights (percentages) to each criterion so they add up to 100%
  3. Assign scores to each criterion for each project
  4. Multiply the scores by the weights and get the total weighted scores

- The higher the weighted score, the better

SAMPLE WEIGHTED SCORING MODEL FOR PROJECT SELECTION

	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**

Weighted Score by Project

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IMPLEMENTING A BALANCED SCORECARD

- Drs. Robert Kaplan and David Norton developed this approach to help select and manage projects that align with business strategy

- A **balanced scorecard**:
  - Is a methodology that converts an organization's value drivers, such as customer service, innovation, operational efficiency, and financial performance, to a series of defined metrics
    - Organizations record and analyze these metrics to determine how well projects help them achieve strategic goals

- See www.balancedscorecard.org for more information

BALANCED SCORECARD INSTITUTE

- The balanced scorecard is a strategic planning and management system that is used extensively in business and industry, government, and nonprofit organizations worldwide to align business activities to the vision and strategy of the organization, improve internal and external communications, and monitor organizational performance against strategic goals.

- It can help your organization by translating high level organizational strategy into something that employees can understand and act upon in their day-to-day operations and initiatives

BALANCED SCORECARD INSTITUTE

- An effectively implemented balanced scorecard can help an organization in many ways:
  - Increase focus on strategy and results instead of tasks
  - Break down communication silos between departments
  - Better understand and react to customer needs
  - Improve organizational performance by measuring what matters
  - Help leaders make better decisions based on leading performance indicators instead of lagging financial data
  - Help leaders budget time and resources more effectively
  - Help leaders and employees prioritize the work they do

BALANCED SCORECARD INSTITUTE
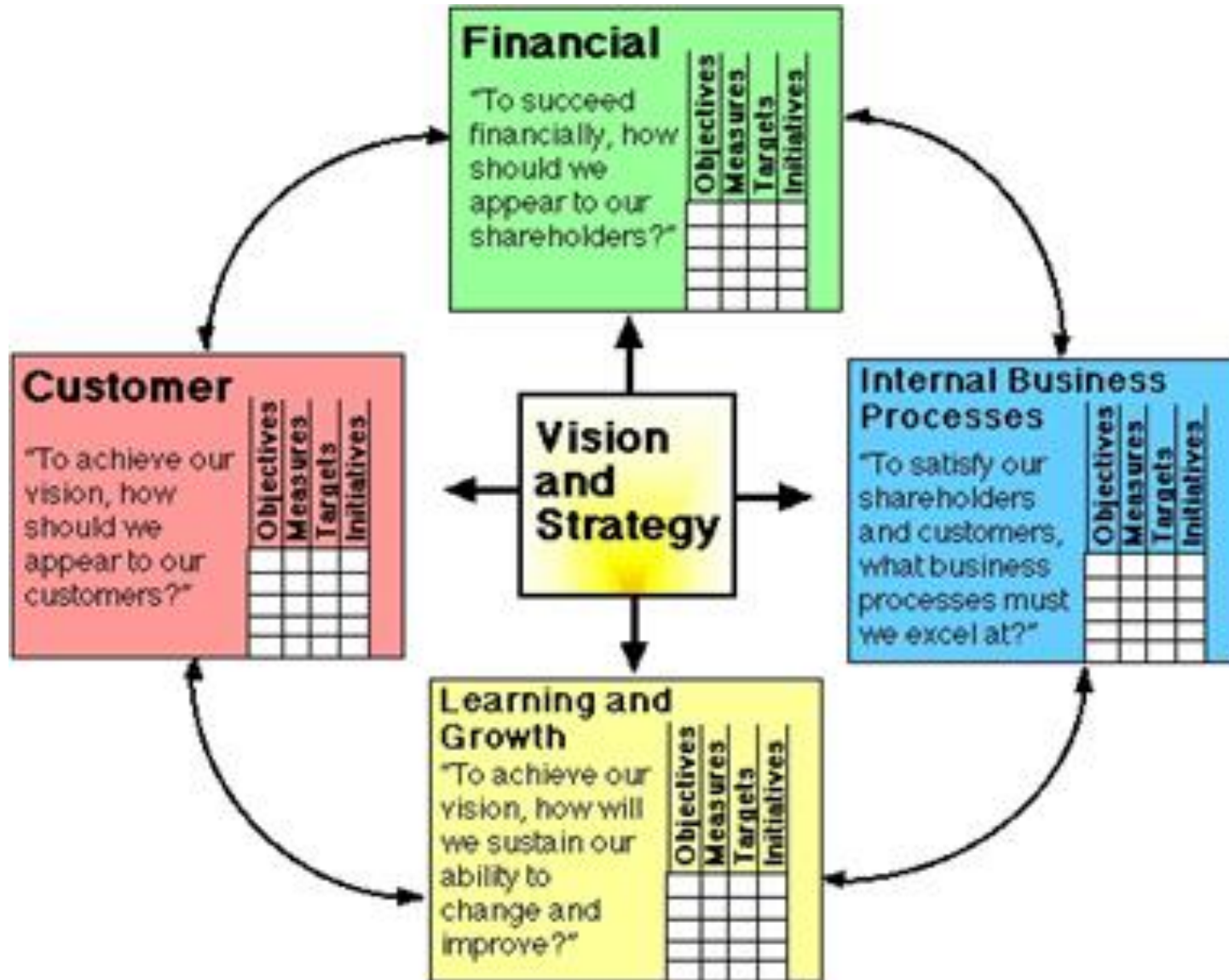
- The balanced scorecard suggests that we view the organization from four perspectives, and to develop metrics, collect data and analyze it relative to each of these perspectives

35

BALANCED SCORECARD EXAMPLE

Mission: Provide responsive, professional finance and accounting services for the people who defend America

Vision:
Best Value to our customers

- World-class provider of finance and accounting services
- Trusted, innovative financial partner
- One Organization, One Identity
- Employer of choice, providing a progressive and professional work environment

Goals

- Fully satisfy customer requirements and aggressively resolve problems to deliver best value services
- Use performance metrics to drive best business practices and achieve high quality results
- Optimize the mix of our military, civilian, and contractor workforce

- Establish consultative relationships with leaders
- Deliver business intelligence to enable better decisions

- Ensure everyone is working towards the same vision and can connect what they're doing to make that vision a reality

- Embrace continuous learning for our workforce to ensure critical, high quality skill sets
- Develop the next generation of DFAS leadership

CUSTOMER PERSPECTIVE
- Improve client/customer satisfaction

FINANCIAL PERSPECTIVE
- Reduce cost to the client/customer
- Expand the use of competitive sourcing

INTERNAL PERSPECTIVE
- Improve and leverage quality
- Encourage innovation
- Deliver system solutions

GROWTH & LEARNING PERSPECTIVE
- Enhance employee competence
- Increase employee satisfaction
- Enhance ability to recruit and retain DFAS talent
- Develop climate for action

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Defense Finance and Accounting Service, "DFAS Strategic Plan," Nov 2001 (http://balancedscorecard.org/files/DFAS-strategic-plan.pdf), p. 13.

36

PROJECT CHARTERS

- After deciding what project to work on, it is important to let the rest of the organization know

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

- Key project stakeholders should sign a project charter to acknowledge agreement on the need and intent of the project; a signed charter is a key output of project integration management

PROJECT CHARTERS

- Input
  - Contract
  - Statement of work
  - Enterprise environmental factors
  - Organizational process assets

- Tools & Techniques
  - Project selection methods
  - Project management methodology
  - Project management information system
  - Expert judgment

- Outputs
  - Project charter

PROJECT INTEGRATION MANAGEMENT

4.1 Develop Project Charter

1. Inputs
- .1 Contract
- .2 Statement of work
- .3 Enterprise environmental factors
- .4 Organizational process assets

2. Tools and Techniques
- .1 Project selection methods
- .2 Project management methodology
- .3 Project management information system
- .4 Expert judgment

3. Outputs
- .1 Project charter

4.2 Develop Preliminary Project Scope Statement

1. Inputs
- .1 Project charter
- .2 Statement of work
- .3 Enterprise environmental factors
- .4 Organizational process assets

2. Tools and Techniques
- .1 Project management methodology
- .2 Project management information system
- .3 Expert judgment

3. Outputs
- .1 Preliminary project scope statement

4.3 Develop Project Management Plan

1. Inputs
- .1 Preliminary project scope statement
- .2 Project management processes
- .3 Enterprise environmental factors
- .4 Organizational process assets

2. Tools and Techniques
- .1 Project management methodology
- .2 Project management information system
- .3 Expert judgment

3. Outputs
- .1 Project management plan

4.4 Direct and Manage Project Execution

1. Inputs
- .1 Project management plan
- .2 Approved corrective actions
- .3 Approved preventive actions
- .4 Approved change requests
- .5 Approved defect repair
- .6 Validated defect repair
- .7 Administrative closure procedures

2. Tools and Techniques
- .1 Project management methodology
- .2 Project management information system

3. Outputs
- .1 Deliverables
- .2 Requested changes
- .3 Implemented change requests
- .4 Implemented corrective actions
- .5 Implemented preventive actions
- .6 Implemented defect repair
- .7 Work performance information

4.5 Monitor and Control Project Work

1. Inputs
- .1 Project management plan
- .2 Work performance information
- .3 Rejected change requests

2. Tools and Techniques
- .1 Project management methodology
- .2 Project management information system
- .3 Earned value technique
- .4 Expert judgment

3. Outputs
- .1 Recommended corrective actions
- .2 Recommended preventive actions
- .3 Forecasts
- .4 Recommended defect repair
- .5 Requested changes

4.6 Integrated Change Control

1. Inputs
- .1 Project management plan
- .2 Requested changes
- .3 Work performance information
- .4 Recommended preventive actions
- .5 Recommended corrective actions
- .6 Recommended defect repair
- .7 Deliverables

2. Tools and Techniques
- .1 Project management methodology
- .2 Project management information system
- .3 Expert judgment

3. Outputs
- .1 Approved change requests
- .2 Rejected change requests
- .3 Project management plan (updates)
- .4 Project scope statement (updates)
- .5 Approved corrective actions
- .6 Approved preventive actions
- .7 Approved defect repair
- .8 Validated defect repair
- .9 Deliverables

4.7 Close Project

1. Inputs
- .1 Project management plan
- .2 Contract documentation
- .3 Enterprise environmental factors
- .4 Organizational process assets
- .5 Work performance information
- .6 Deliverables

2. Tools and Techniques
- .1 Project management methodology
- .2 Project management information system
- .3 Expert judgment

3. Outputs
- .1 Administrative closure procedure
- .2 Contract closure procedure
- .3 Final product, service, or result
- .4 Organizational process assets (updates)

PROJECT INTEGRATION MANAGEMENT OVERVIEW

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PRELIMINARY SCOPE STATEMENTS

- Once the existence of the project has been formally recognized via the project charter, the next step is preparing a preliminary scope statement

- A **scope statement** is a document used to develop and confirm a common understanding of the project scope

- It's important for preventing **scope creep**
  - The tendency for project scope to keep getting bigger

- It's good practice to develop a preliminary or initial scope statement during project initiation and a more detailed scope statement as the project progresses

PROJECT MANAGEMENT PLANS

- A **project management plan** is a document used to coordinate all project planning documents and help guide a project's execution and control
  - Documents project planning assumptions and decisions regarding choices, facilitates communication among stakeholders, provides a baseline for progress measurement and project control
  - Should be dynamic, flexible and subject to change when the environment or project changes
- Includes all project planning documents
  - Plans created in the other knowledge areas are subsidiary parts of the overall project management plan

COMMON ELEMENTS OF A PROJECT MANAGEMENT PLAN

- Introduction or overview of the project

- Description of how the project is organized

- Management and technical processes used on the project

- Work to be done, schedule, and budget information

- Many govt. agencies (e.g., DOD, IEEE) provide guidelines for creating PMPs

SAMPLE CONTENTS FOR A SPMP - SOFTWARE PROJECT MANAGEMENT PLAN

MAJOR SECTION HEADINGS	SECTION TOPICS
Overview	Purpose, scope, and objectives; assumptions and constraints; project deliverables; schedule and budget summary; evolution of the plan
Project Organization	External interfaces; internal structure; roles and responsibilities
Managerial Process Plan	Start-up plans (estimation, staffing, resource acquisition, and project staff training plans); work plan (work activities, schedule, resource, and budget allocation); control plan; risk management plan; closeout plan
Technical Process Plans	Process model; methods, tools, and techniques; infrastructure plan; product acceptance plan
Supporting Process Plans	Configuration management plan; verification and validation plan; documentation plan; quality assurance plan; reviews and audits; problem resolution plan; subcontractor management plan; process improvement plan

IEEE Standard 1058-1998.

43

STAKEHOLDER ANALYSIS

- Needed because the ultimate goal of project management is to meet or exceed stakeholder needs and expectations from a project

- A **stakeholder analysis** documents important information about stakeholders such as:
  - Stakeholders' names and organizations
  - Roles on the project
  - Unique facts about stakeholders
  - Level of influence and interest in the project
  - Suggestions for managing relationships

- Info is often sensitive; available only to PMs and key team members
  - Can provides insights in how to relate to stakeholders to best accomplish the project

SAMPLE STAKEHOLDER ANALYSIS FOR OPENING CASE

KEY STAKEHOLDERS

	AHMED	SUSAN	ERIK	MARK	DAVID
Organization	Internal senior management	Project team	Project team	Hardware vendor	Project manager for other internal projects
Role on project	Project sponsor and one of the company's founders	DNA sequencing expert	Lead programmer	Supplier of some instrument hardware	Competitor for company resources
Unique facts	Quiet, demanding, likes details, business-focused, Stanford MBA	Ph.D. in biology, easy to work with, has toddler	Very smart, best programmer I know, weird sense of humor	Head of a start-up company, he knows we can make him rich if this works	Nice guy, one of the oldest people at company, has three kids in college
Level of interest	Very high	Very high	High	Very high	Low to medium
Level of influence	Very high; can call the shots	Subject matter expert; critical to success	High; hard to replace	Low; other vendors available	Low to medium
Suggestions on managing relationship	Keep informed, let him lead conversations, do as he says and quickly	Make sure she reviews specifications and leads testing; can do some work from home	Keep him happy so he stays; emphasize stock options; likes Mexican food	Give him enough lead time to deliver hardware	He knows his project takes a back seat to this one, but I can learn from him

PROJECT EXECUTION

- Project execution involves managing and performing the work described in the project management plan

- The majority of time and money is usually spent on execution

- The application area of the project directly affects project execution because the products of the project are produced during execution

COORDINATING PLANNING AND EXECUTION

- Project planning and execution are intertwined and inseparable activities

- Those who will do the work should help to plan the work

- Project managers must solicit input from the team to develop realistic plans

PROVIDING LEADERSHIP AND A SUPPORTIVE CULTURE

▪ Project managers must lead by example to demonstrate the importance of creating and then following good project plans

▪ Organizational culture can help project execution by:

- ▪ Providing guidelines and templates
- ▪ Tracking performance based on plans

▪ Project managers may still need to break the rules to meet project goals, and senior managers must support those actions

- ▪ Requires excellent leadership, communication and political skills

IMPORTANT SKILLS FOR PROJECT EXECUTION

- General management skills like leadership, communication, and political skills

- Product, business, and application area skills and knowledge
  - Northwest Airlines spent millions of dollars and had a team of 70 full-time people working on the project led by a PM who had never worked in an IT dept but had extensive knowledge of the airline industry and reservation process

- Use of specialized tools and techniques

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PROJECT EXECUTION TOOLS & TECHNIQUES

- **Project management methodology**: many experienced project managers believe the most effective way to improve project management is to follow a methodology that describes not only what to do in managing a project, but how to do it

- **Project management information systems**: there are hundreds of project management software products available on the market today, and many organizations are moving toward powerful enterprise project management systems that are accessible via the Internet

- PMs should delegate these tasks to other team members and concentrate on providing leadership for the whole project

- See the "What Went Right?" example of Kuala Lumpur's Integrated Transport Information System on p. 161

MONITORING & CONTROLLING PROJECT WORK

- Changes are inevitable on most projects, so it's important to develop and follow a process to monitor and control changes
  - On large projects, 90% of the PMs job is communicating and managing changes

- Monitoring project work includes collecting, measuring, and disseminating performance information

- Two important outputs of monitoring and controlling project work include recommended corrective and preventive actions
  - Corrective result in improvements in project performance and preventive reduce the chances of negative consequences associated with project risks
  - Other outputs – forecasts, recommended defect repairs and requested changes

INTEGRATED CHANGE CONTROL

- Three main objectives are:
  - Influencing the factors that create changes to ensure that changes are beneficial
    - Tradeoff on scope, time and cost and quality
  - Determining that a change has occurred
    - PM must be on top of the status of key project areas at all times and communicate changes to top management and stakeholders
  - Managing actual changes as they occur
    - Change is unavoidable so careful change control is a critical success factor to a project
- A **baseline** is the approved project management plan plus approved changes

CHANGE CONTROL ON INFORMATION TECHNOLOGY PROJECTS

- Former view: the project team should strive to do exactly what was planned on time and within budget

- Problem: stakeholders rarely agreed up-front on the project scope, and time and cost estimates were inaccurate

- Modern view: project management is a process of constant communication and negotiation

- Solution: changes are often beneficial, and the project team should plan for them

CHANGE CONTROL SYSTEM

▪ A formal, documented process that describes when and how official project documents and work may be changed

  ▪ Change is necessary but it needs to be properly managed and controlled

▪ Describes who is authorized to make changes and how to make them

CHANGE CONTROL BOARD (CCB)

- A formal group of people responsible for approving or rejecting changes on a project

- CCBs provide guidelines for preparing change requests, evaluate change requests, and manage the implementation of approved changes

- Includes stakeholders from the entire organization

MAKING TIMELY CHANGES

- Some CCBs only meet occasionally, so it may take too long for changes to occur

- Some organizations have policies in place for time-sensitive changes
  - "48-hour policy" allows project team members to make decisions, then they have 48 hours to reverse the decision pending senior management approval
  - Delegate changes to the lowest level possible, but keep everyone informed of changes

CONFIGURATION MANAGEMENT

- Ensures that the descriptions of the project's products are correct and complete

- Involves identifying and controlling the functional and physical design characteristics of products and their support documentation

- Configuration management specialists identify and document configuration requirements, control changes, record and report changes, and audit the products to verify conformance to requirements

- See Institute of Configuration Management (www.icmhq.com)

SECURITY MEASURES TO GOVERN THE NETWORK FROM HARMFUL ATTACKS AND THREATS

- Strengthen the Physical Security System

- Increase awareness about security measures

- Security Access Control

- Use Network Protection Measure

- Install Network Monitoring Software

SUGGESTIONS FOR PERFORMING INTEGRATED CHANGE CONTROL

- It is the responsibility of the PM to integrate all project changes so that the project stays on track

View project management as a process of constant communication and negotiation.

Plan for change.

Establish a formal change control system, including a change control board (CCB).

Use effective configuration management.

Define procedures for making timely decisions on smaller changes.

Use written and oral performance reports to help identify and manage change.

Use project management and other software to help manage and communicate changes.

Focus on leading the project team and meeting overall project goals and expectations.

59

CLOSING PROJECTS

- To close a project, you must finalize all activities and transfer the completed or cancelled work to the appropriate people

- Main outputs include:
  - Administrative closure procedures
  - Contract closure procedures
  - Final products, services, or results
  - Organizational process asset updates
    - Project documentation, project closure documents, historical information produced by the project, lessons-learned report

USING SOFTWARE TO ASSIST IN PROJECT INTEGRATION MANAGEMENT

- Several types of software can be used to assist in project integration management
  - Documents can be created with word-processing software
  - Presentations are created with presentation software
  - Tracking can be done with spreadsheets or databases
  - Communication software like e-mail and Web authoring tools facilitate communications
  - Project management software can pull everything together and show detailed and summarized information
  - Business Service Management (BSM) tools track the execution of business process flows
    - Can help improve alignment between IT projects (network upgrade) and business goals (reduce cost by processing customer order more quickly)

CHAPTER SUMMARY

▪Project integration management includes:
  ▪Developing a project charter
  ▪Developing a preliminary project scope statement
  ▪Developing a project management plan
  ▪Directing and managing project execution
  ▪Monitoring and controlling project work
  ▪Performing integrated change control
  ▪Closing the project