Modern Systems Ana	alysis and Design
MODERN SYSTEMS ANALYSIS DESIGN	Chapter 5
WALACIGN GEORGE	Initiating and Planning Systems Development Projects
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### **Learning Objectives**

- **5.1** Describe the steps involved in the project initiation and planning process
- **5.2** List and describe various methods for assessing project feasibility
- $\bf 5.3$  Describe the activities needed to build and review the baseline project plan
- **5.4** Describe the activities and participant roles within a structured walk-through

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### Introduction

 Project initiation focuses on activities designed to assist in organizing a team to conduct project planning



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### **Initiation and Planning Projects**

**5.1** Describe the steps involved in the project initiation and planning process

- · When does project initiation and planning (PIP) end and analysis begin?
- · Three important questions must be considered when making
  - How much effort should be expended on the project initiation and planning phase?
  - Who is responsible for performing the project initiation and planning process?
  - Why is project initiation and planning such a challenging activity?

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Figure 5-1: Systems Development Life Cycle with Project Initiation and Planning Highlighted Pearson Copyright © 2020, 2017, 2014 Pearson Education, Inc. All Rights Reserved

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### **Table 5-1: Elements of Project Initiation** Elements of Project Initiation Establishing the project initiation team · Establishing a relationship with the customer Establishing the project initiation plan Establishing management procedures Establishing the project management environment and project workbook Developing the project charter Pearson

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Е	lements of Project Initiation
•	Describing the project scope, alternatives, and feasibility
•	Dividing the project into manageable tasks
•	Estimating resources and creating a resource plan
•	Developing a preliminary schedule
•	Developing a communication plan
•	Determining project standards and procedures
•	Identifying and assessing risk
•	Creating a preliminary budget
•	Developing the project scope statement
•	Setting a baseline project plan

### **Deliverables and Outcomes** (1 of 2)

**5.1** Describe the steps involved in the project initiation and planning process

- Business case justification for an information system, presented in terms of the tangible and intangible economic benefits and costs and the technical and organizational feasibility of the proposed system
- Baseline Project Plan (BPP) major outcome and deliverable from the project initiation and planning phase that contains the best estimate of a project's scope, benefits, costs, risks, and resource requirements



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#### **Deliverables and Outcomes** (2 of 2)

**5.1** Describe the steps involved in the project initiation and planning process

 Project Scope Statement (PSS) – document prepared for the customer that describes what the project will deliver and outlines generally at a high level all work required to complete the project



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### **Assessing Project Feasibility**

**5.2** List and describe various methods for assessing project feasibility

- Most feasibility factors are represented by the following categories:
  - Economic
  - Technical
  - Operational
  - Scheduling
  - Legal and contractual
  - Political

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# Figure 5-2: System Service Request for Customer Tracking System (Pine Valley Furniture)



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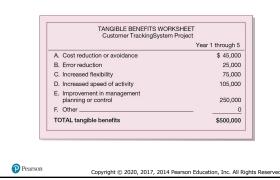
### Assessing Economic Feasibility (1 of 2)

5.2 List and describe various methods for assessing project feasibility

- Economic feasibility process of identifying the financial benefits and costs associated with a development project
- Tangible benefit benefit from the creation of an information system that can be measured in dollars and with certainty
- · Most tangible benefits:
  - Cost reduction and avoidance
  - Error reduction
  - Increased flexibility
  - Increased speed of activity
  - Improvement of management planning and control
  - Opening new markets and increasing sales opportunities



### Figure 5-3: Tangible Benefits for Customer Tracking System (Pine Valley Furniture)



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### Assessing Economic Feasibility (2 of 2)

**5.2** List and describe various methods for assessing project feasibility

 Intangible benefit – benefit derived from the creation of an information system that cannot be easily measured in dollars or with certainty (See Table 5-3)

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### Table 5-3: Intangible Benefits from the Development of an Information System

Intangible Benefits from the Development of	Intangible Benefits from the Development of		
an IS	an IS		
Competitive necessity	More confidence in decision quality		
More timely information	Improved processing efficiency		
Improved organizational planning	Improved asset utilization		
Increased organizational flexibility	Improved resource control		
Promotion of organizational learning and understanding	Increased accuracy in clerical operations		
Availability of new, better, or more information	Improved work process that can improve employee moral or customer satisfaction		
Ability to investigate more alternatives	Positive impacts on society		
Faster decision making	Improved social responsibility		
Better usage of resources ("greener")			

(Source: Based on Parker & Benson, 1988; Brynjolfsson & Yang, 1997; Keen, 2003; Cresswell, 2004)

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### **Determining Project Costs** (1 of 3)

**5.2** List and describe various methods for assessing project feasibility

- Tangible costs costs associated with an information system that can be measured in dollars and with certainty
- Intangible costs costs associated with an information system that cannot be easily measured in terms of dollars or with certainty

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### **Table 5-4: Possible Information Systems Costs**

Type of Cost	Examples	Type of Cost	Examples
Procurement	Hardware, software, facilities infrastructure Management and staff Consulting and services	Project	Infrastructure replacement/improvements Project personnel Training Development activities Services and procurement Organizational disruptions Management and staff
Start-Up	Initial operating costs Management and staff Personnel recruiting	Operating	Infrastructure replacement/improvements System maintenance Management and staff User training and support

(Source: Based on King & Schrems, 1978; Sonje, 2008)

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### Table 5-5: Guidelines for Better Cost Estimating

# Have clear guidelines for creating estimates. Use experienced developers and/or project managers for making estimates. Develop a culture where all project participants are responsible for defining accurate estimates. Use historical data to help in establishing better estimates of costs, risks, schedules, and resources. Update estimates as the project progresses. Monitor progress and record discrepancies to improve future estimates.

(Source: Based on Lederer & Prasad, 1992; Hubbard, 2007; Sonje, 2008)



### **Determining Project Costs** (2 of 3)

**5.2** List and describe various methods for assessing project feasibility

- Total cost of ownership (TCO) cost of owning and operating a system, including the total cost of acquisition, as well as all costs associated with its ongoing use and maintenance
- One-time costs costs associated with project start-up and development or system start-up
- Recurring cost costs resulting from the ongoing evolution and use of a system

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#### **Determining Project Costs** (3 of 3)

**5.2** List and describe various methods for assessing project feasibility

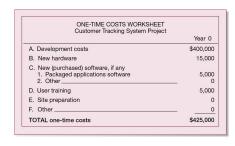
- Examples of recurring costs include:
  - Application software maintenance
  - Incremental data storage expenses
  - Incremental communications
  - New software and hardware leases
  - Supplies and other expenses (e.g., paper, forms, data center personnel)

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### Figure 5-4: One-Time Costs for Customer Tracking System (Pine Valley System)



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### Figure 5-5: Recurring Costs for Customer Tracking System (Pine Valley Furniture)

RECURRING COSTS WORKSHEI Customer Tracking System Pro	
	Year 1 through 5
A. Application software maintenance	\$280,000
B. Incremental data storage required: 20 GB \$50 (estimated cost/GB = \$50)	1,000
C. Incremental communications (lines, messages,	) 2,000
D. New software or hardware leases	0
E. Supplies	2,000
F. Other	0
TOTAL recurring costs	\$285,000

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### Time Value of Money (1 of 3)

**5.2** List and describe various methods for assessing project feasibility

- Time value of money (TVM) concept that money available today is worth more than the same amount tomorrow
- **Discount rate** rate of return used to compute the present value of future cash flows
- Present value current value of a future cash flow

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#### Time Value of Money (2 of 3)

**5.2** List and describe various methods for assessing project feasibility

• Formula for the present value of money:

$$\mathsf{PV}_n = \mathsf{Y} \times \frac{1}{\left(1+i\right)^n}$$

- PV<sub>n</sub> = present value of Y dollars n years from now based on a discount rate of i
- Net Present Value (NPV) uses the discount rate to determine present value of cash outlays and receipts



Figure 5-6: Summary Spreadsheet Reflecting the Present Value Calculations of All Benefits and Costs for the Customer Tracking System (Pine Valley Furniture)



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#### Time Value of Money (3 of 3)

**5.2** List and describe various methods for assessing project feasibility

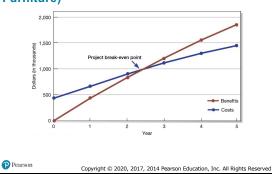
- Break-even analysis type of cost-benefit analysis to identify at what point (if ever) benefits equal costs
- · Breakeven ratio:

Break-Even Ratio = Yearly NPV Cash Flow - Overall NPV Cash Flow Yearly NPV Cash Flow

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### Table 5-6: Commonly Used Economic Cost-Benefit Analysis Techniques

Analysis Technique	Description
Net Present Value (NPV)	NPV uses a discount rate determined from the company's cost of capital to establish the present value of a project. The discount rate is used to determine the present value of both cash receipts and outlays
Return on Investment (ROI)	ROI is the ratio of the net cash receipts of the project divided by the cash outlays of the project. Trade-off analysis can be made among projects competing for investment by comparing their representative ROI ratios.
Break-Even Analysis (BEA)	BEA finds the amount of time required for the cumulative cash flow from a project to equal its initial and ongoing investment.

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### **Assessing Technical Feasibility**

 ${\bf 5.2}$  List and describe various methods for assessing project feasibility

- Technical feasibility process of assessing the development organization's ability to construct a proposed system
- Potential consequences of not accessing and managing risks can include the following:
  - Failure to attain expected benefits from the project
  - Inaccurate project cost estimates
  - Inaccurate project duration estimates
  - Failure to achieve adequate system performance levels
  - Failure to adequately integrate the new system with existing hardware, software, organizational procedures

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### **Table 5-7: Project Risk Assessment Factors**

Risk Factor	Examples
Project Size	Number of members on the project team
	Project duration time
	Number of organizational departments involved in project
	Size of programming effort (e.g., hours, function points)
	Number of outsourcing partners
Project Structure	New systems or renovation of existing system(s)
	Organizational, procedural, structural, or personnel changes resulting from system
	User perceptions and willingness to participate in effort
	Management commitment to system
	Amount of user information in system development effort
Development	Familiarity with target hardware, software development environment, tools, and
Group	operating system
	Familiarity with building similar systems of similar size
User Group	Familiarity with information systems development process
	Familiarity with proposed application area
	Familiarity with using similar systems

(Source: Based on Applegate, Austin, & Soule, 2009; Fuller et al., 2018)

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#### Figure 5-8: Effects of Degree of Project Structure, Project Size, and Familiarity with Application Area on Project Implementation Risk

		Low Structure	High Structure
High Familiarity with Technology or Application Area	Large Project	(1) Low risk (very susceptible to mismanagement)	(2) Low risk
	Small Project	(3) Very low risk (very susceptible to mismanagement)	(4) Very low risk
Low Familiarity	Large Project	(5) Very high risk	(6) Medium risk
with Technology or Application Area	Small Project	(7) High risk	(8) Medium-low risi

(Source: Based on Applegate, Austin, & Soule, 2009; Fuller et al., 2018

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### **Assessing Other Feasibility Concerns**

5.2 List and describe various methods for assessing project feasibility

- Operational feasibility process of assessing the degree to which a proposed system solves business problems or takes advantage of business opportunities
- Schedule feasibility process of assessing the degree to which the
  potential time frame and completion dates for all major activities within
  a project meet organizational deadlines and constraints for affecting
  change
- Legal and contractual feasibility process of assessing potential legal and contractual ramifications due to the construction of a system
- Political feasibility process of evaluating how key stakeholders within the organization view the proposed system

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### Figure 5-9: Outline of a Baseline Project Plan



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### The Baseline Project Plan (1 of 3)

5.3 Describe the activities needed to build and review the baseline project plan

- There are four major sections of the baseline project plan as follows:
- 1. Introduction
  - Provides a brief overview of the entire document and a recommended course of action
  - Should include the definition of project scope (example seen in figure 5-10). Scope depends on these factors:
    - Organizational units affected by new system
    - Current systems that will interact with or change because of new system
    - People who are affected by new system
    - Range of potential system capabilities
- Pearson Figure 5-11 shows context level diagram to help define scope Copyright © 2020, 2017, 2014 Pearson Education, Inc. All Rights Re

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#### Figure 5-10: Project Scope Statement for the **Customer Tracking Systems (Pine Valley** Furniture)

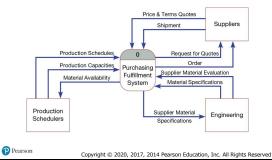


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### Figure 5-11: Context-Level Data Flow Diagram **Showing Project Scope for Purchasing Fulfillment System (Pine Valley Furniture)**



### The Baseline Project Plan (2 of 3)

 ${\bf 5.3}$  Describe the activities needed to build and review the baseline project plan

- 2. System Definition Section
  - Contains an outline of alternative solutions which could be stated as follow:
    - Web-based online system
    - Mainframe with central database
    - Local area network with decentralized database
    - Batch data input with online retrieval
    - Purchasing of a prewritten package
- 3. Feasibility Assessment Section
  - Relates to project costs and benefits
  - Primarily concerned with gaining rough estimates of human resource requirements



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### The Baseline Project Plan (3 of 3)

 $\bf 5.3$  Describe the activities needed to build and review the baseline project plan

- 4. Management Issues Section
  - Includes managerial concerns related to the project
  - Figure 5-12 reveals the task responsibilities for an sample project
  - Figure 5-13 reveals the project communications matrix sample

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### Figure 5-12: Task Responsibility Matrix

Project: Prepared by:  WebStore Juan Gonzales		Legend: P = Primary					
Manager:		Page: 1 of 1		S = Support			
Juan Gon	zales	Responsibility Matrix					
Task ID	Task	Jordan	James	Jackie	Jeremy	Kim	Juan
A	Collect Requirements	P	S				S
В	Develop Data Model			P		S	S
С	Develop Program Interface			P		S	S
D	Build Database			S		P	S
E	Design Test Scenarios	S	S	S	P	S	S
F	Run Test Scenarios	S	S	S	S	S	P
G	Create User Documentation	P	S				S
Н	Install System	S	P			S	S
1	Develop Customer Support	S	P			S	S

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# Figure 5-13: The Project Communication Matrix Provides a High-Level Summary of the Communications Plan

Stakeholder	Document	Format	Team Contact	Date Due
Team Members	Project Status Report	Project Intranet	Juan and Kim	First Monday of Month
Management Supervisor	Project Status Report	Hard Copy	Juan and Kim	First Monday of Month
User Group	Project Status Report	Hard Copy	James and Kim	First Monday of Month
Internal IT Staff	Project Status Report	E-Mail	Jackie and James	First Monday of Month
IT Manager	Project Status Report	Hard Copy	Juan and Jeremy	First Monday of Month
Contract Programmers	Software Specifications	E-Mail/Project Intranet	Jordan and Kim	October 4, 2020
Training Subcontractor	Implementation and Training Plan	Hard Copy	Jordan and James	January 10, 2021

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#### **Reviewing the Baseline Project Plan**

**5.4** Describe the activities and participant roles within a structured walk-through

- Must review the BPP to verify it makes sense
- Walk-through peer group review of any product created during the systems development process; also call a structured walk-through
  - Not rigid nor formal or long
  - Roles include coordinator, presenter, user, secretary, standards bearer, and maintenance oracle
  - Can be applied to reviewing BPP, system specifications, logical and physical designs, program code, test procedures, manuals, and documentation
  - Ensures formal review points occur during the project

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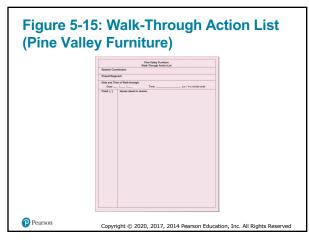
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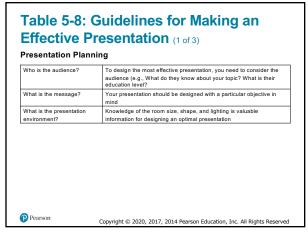
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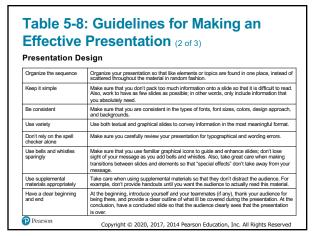
### Figure 5-14: Walk-Through Review Form (Pine Valley Furniture)



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Practice	Make sure that you thoroughly test your completed work on yourself and others to be sure covers your points and presents them in an effective manner within the time frame requirer
Arrive early and cue up your presentation	It is good practice, when feasible, to have your presentation ready to go prior to the arrival of the audience.
Learn to use the "special' software keys	Using special keys to navigate the presentation will allow you to focus on your message and not on the software.
Have a backup plan	Have a backup plan in case technology fails or your presentation is lost when traveling.
Deliver the information effectively	To make an effective presentation, you must become an effective public speaker through practice.
Personal appearance matters	Your appearance and demeanor can go a long way toward enhancing how the audience receives your presentation.
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#### **Table 5-10: PVF WebStore – Project Benefits and Costs** Lower Per-Transaction Overhead cost First to Market Foundation for complete Web-based IS Repeat business Simplicity for customers New customers Tangible Costs (one-time) Intangible Costs No face-to-face interaction Site and usability design Programming Initial Marketing / Search Engine Not all customers use Internet Optimization Database integration Tangible Costs (recurring) Hosting fee Site management Annual Marketing / Search Engine Optimization Maintenance Decreased sales via traditional channels Pearson Copyright © 2020, 2017, 2014 Pearson Education, Inc. All Rights Reserved

### Table 5-11: PVF WebStore – Feasibility Concerns

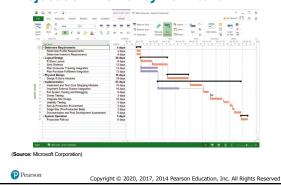
Feasibility Concerns	Description
Operational	Online store is open 24/7/365 Returns/customer support
Technical	New skill set for development, maintenance, and operation
Schedule	Must be open for business by Q1, 2021
Legal	Credit card fraud
Political	Traditional distribution channel loses business

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## Figure 5-16: Schedule for WebStore Project as Pine Valley Furniture



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### **Summary**

- In this chapter you learned how to:
  - Describe the steps involved in the project initiation and planning process
  - List and describe various methods for assessing project feasibility
  - Describe the activities needed to build and review the baseline project plan

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