BPE

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- **Sessional 1**
  - **Chapter 1(Introduction to Business Process Engineering)**
    - **What Is a Business Process?**
      - **Business Process**
        - **Business:** This could be any organization offering goods or services, including companies, nonprofits, and even government agencies.
        - **Process:** This refers to a sequence of actions or activities leading to a particular result. Think of it as a recipe for achieving something.
        - **Business Process**: A business process is a series of connected steps that transform inputs into outputs to achieve a specific goal within an organization.
      - **Process Types and Hierarchies**
        - **Process Types**
          1. **Individual Recipes:** Tasks done by one person (e.g., data entry).
          2. **Functional Chapters:** Processes within a specific department (e.g., marketing campaign).
          3. **Cross-Functional Recipes:** Combine steps from different departments (e.g., order fulfillment).
        - **Process Hierarchies**
          - **Cross-Functional Recipe:** Think of it as a main course, broken down into:
            - **Functional Sub-Recipes:** Sides and sauces (e.g., marketing, manufacturing).

        - **Activities:** Individual steps within each sub-recipe (e.g., designing ads, assembling product).
    - **Example:** Order fulfillment involves:
        - Sales & Marketing (taking orders)
        - Manufacturing (building the product)
        - Shipping & Logistics (delivery)

▼ **Why Cross-Functional(Core) Processes Matter**

- **Biggest Improvement Potential:** Often less optimized than manufacturing processes.
- **Complexity Makes It Tricky:** Harder to see waste and inefficiency.
- **Focus on Speed, Not Value:** Much time spent on non-essential tasks.
- **Customers Care More:** Poor service impacts them more than product quality.

▼ **Determinants of the Process Architecture**

- The process architecture comprises five main elements:
- **Inputs & Outputs:** Clearly identify what "starts" and "finishes" the process.
    - Physical (tangible) or intangible (information, time).
    - **Examples**: manufacturing (raw materials to products), service (customers in, served, out).
- **Flow Units:** What moves through the process, changing or being used.
    - **Examples**: materials, orders, customers, products, transactions.
    - Impacts capacity and resource needs.
- **Activities & Buffers:** The actual steps and waiting areas.
    - Identify all activities and their order (which happens first, next, etc.).

    - Buffers hold flow units waiting for the next step, impacting flow speed.
    - Goal: minimize buffer time to speed up the overall process.
- **Resources:** The tools and people doing the work.
    - **Examples**: machinery, equipment, employees.
    - Used but not consumed in the process (unlike inputs).
- **Information Structure:** The "how-to" guide for each step.
    - **Example**: inventory levels needed to trigger order placements.

▼ **Workflow Management Systems**

- Think of your work like a recipe (a **process**) and imagine each step as an ingredient (a **document**).
- **Workflow:** The order in which you mix these ingredients (do the steps) to complete the dish (the goal).
- **Workflow Management Systems (WMS):** Like a digital assistant guiding you through the recipe, making sure you:
- Use the right ingredients (have access to the correct documents)
- Do things in the right order (follow the process flow)
- Don't make mistakes (controls what and how you can modify documents)

Example: Travel authorization:

1. You fill out the form (ingredient).
2. Travel office might add details (another ingredient).
3. Manager approves or changes it (mixing step).
4. Form comes back to you (finished dish).

Key Points:

- WMS keeps things organized and efficient.
- It can handle unexpected changes (like missing info).
- It also gives you permissions to make adjustments (add spices!).

- Modern WMS are called Business Process Management (BPM) systems, doing even more!

▼ **The Essence of Business Process Design**

What is it?

- Business process design is about **efficiency and effectiveness** in your organization's processes.
- It's all about **delivering value** to your customers, both internal and external.

How does it work?

- You configure your process architecture, considering elements like inputs, outputs, and resources.
- You focus on complex processes, especially those that cross functional boundaries.
- You understand the challenges of division of labor and the need for parallel processing.
- You meticulously evaluate customer requirements, including cost, quality, and response time.

Design vs. Redesign?

- Both aim for optimal performance, but design offers more freedom for innovation.
- Incremental improvement builds on existing processes, while design challenges assumptions and seeks breakthroughs.

Remember:

- **Always focus on the customer** and their needs.
- **Don't just automate,** redesign your processes for maximum impact.
- **Continuous improvement is key** to staying ahead of the curve.

Example:

- Insurance claims handling process redesign: streamlined from weeks to hours, improving customer experience and reducing costs.

Framing the Question Right:

- Ask yourself: "What are we trying to achieve for our customers?"
- Focus on **fundamental process redesign** for lasting results.

▼ **Business Process Design, Overall Business Performance, and Strategy**

▼ **Business Process Design and Overall Business Performance**

- **Definition of Business Performance:** Measurement against stated goals and objectives.
- **Profit-Maximizing Firms:** Aim to maximize long-term profits or shareholder value by maximizing revenues and minimizing costs.
- **Nonprofit Organizations:** Strive to survive, grow, and provide the best service or products to customers.
- **Common Objective:** Satisfy customer requirements efficiently to achieve long-term success.

▼ **Business Process Design and Strategy**

- **Definition of Strategy:** The unifying theme aligning all decisions within an organization.
- **Two Levels of Strategy:**
  1. **Corporate Strategy:** Determines which industries the firm should operate in.
  2. **Business Strategy:** Dictates how the firm should compete within a specific industry.
- **Competitiveness Requirement:** Essential for success in today's global economy, even for nonprofit organizations.
- **Business Strategy Development:** Involves understanding external and internal environments, setting long-term goals, and leveraging strengths while mitigating weaknesses.
- **SWOT Analysis:** Evaluates internal strengths and weaknesses along with external opportunities and threats.
- **Link to Business Process Design:**
  - **Internal Environment:** Well-designed processes contribute to strengths, while poorly designed ones reflect weaknesses.

        - **External Environment:** Process design must align with customer requirements and supplier capabilities to support the business strategy.
    - **Strategic Fit:** Alignment between desired strategic position in the marketplace and internal capabilities.
    - **Market-Driven vs. Process-Driven Strategy:**
        - **Market-Driven:** Identifies key competitive priorities and designs processes to support them.
        - **Process-Driven:** Utilizes available process capabilities to identify a strategic market position.
    - **Role of Business Process Design:** Crucial for linking internal capabilities to external environment to realize preferred business strategy.

▼ **Why Do Inefficient and Ineffective Business Processes Exist?**

- **Stuck in the past:** Processes designed for yesterday's needs linger.
- **Unplanned growth:** Patchwork fixes create messy labyrinths.
- **Fear of change:** Comfort trumps progress, even if it means inefficiency.
- **Data darkness:** Lack of information hinders clear decisions.
- **Data overload:** Too much information leads to paralysis.
- **Quick fixes:** Band-aids create bigger problems later.

The fix? Be proactive: plan, update, embrace change, use data wisely, and avoid quick fixes.

▼ **Chapter 2(Process Management and Process-Oriented Improvement Programs)**

▼ **Process Management and the Power of Adopting a Process View**

▼ **2.1.1 Phase I: Initialization**

▼ **Process Ownership**

- **Accountability and Authority:** The owner must have authority to sustain performance and implement changes.

- **Problem Resolution:** Facilitating resolutions and ensuring actions are taken are key responsibilities.
- **Jurisdictional Mediation:** Mediating conflicts between departments ensures alignment with objectives.

▼ Analyzing Process Boundaries and Interfaces

- **Process Boundaries:** Define where input enters and output exits, clarifying the process's scope.
- **Internal Interfaces:** Identify handoff points between departments for effective coordination.

▼ Customer-Producer-Supplier (CPS) Model

- **Customer Requirement Phase:** Define and document customer needs using various methods.
- **Process Capability Phase:** Assess if the process meets customer needs; renegotiate if necessary.
- **Producer Requirement Phase:** Negotiate input needs with suppliers.

▼ 2.1.2 Phase II: Definition

▼ Documenting the Process

- **Word Descriptions:** Often used for detailing work content in activities and tasks, known as operating procedures or standard operating procedures (SOPs). These documents can be lengthy and less reader-friendly.
- **Flowchart-based Methods:** Preferred for documenting entire processes, illustrating how work flows between activities using graphical and verbal descriptions. Various graphical tools are available for this purpose.

▼ Information Gathering Techniques

- **Interviews:** Individual or group interviews with process workers.
- **Observation:** Analytical observation involves following people around and documenting their activities.

- **Documentation Review:** Review of existing operating procedures and relevant documentation.

- Defining a process involves:

1. Identifying process boundaries, inputs, and outputs.
2. Collecting information about the work performed, defining activities, and describing workflow using graphical tools.

▼ 2.1.3 Phase III: Control

▼ Establishing Control Points

- Control points encompass activities like inspection, verification, and measuring, crucial for maintaining process integrity. Without control points, reliance solely on customer feedback leads to reactive management and potential quality issues. Control points are strategically placed based on criticality and feasibility.

▼ Developing and Implementing Measurements

- Meaningful, accurate, and timely measurements are essential for proper process control.

1. ***Measures of conformance****:* verification that the work conforms to a given specification or requirement.
2. ***Measures of response time****:* time it takes to complete a sequence of activities. Response time is often referred to as *lead time* or *cycle time*.
3. ***Measures of service levels***: degree to which a service or resource is available to a user or customer. For example, the service level at a storage facility is often measured as the fraction of customer orders in a replenishment cycle that can be filled on request.
4. ***Measures of repetition***: frequency of recurring events, such as the number of times a job needs to be reworked before it is approved.
5. ***Measures of cost****:* can include many different types of costs, but a very important component is usually the “cost of quality.”

▼ Feedback and Control

- Feedback mechanisms are vital for efficient process management, enabling corrective actions in response to process deviations. Feedback should be provided constructively to engage employees positively. Employees' awareness of how their work impacts overall process performance fosters involvement and commitment, essential for successful process management.

▼ Six Sigma Quality Programs

▼ 2.2.1 Six Sigma Definitions

Definition:

- Six Sigma is an improvement program aimed at reducing variability and minimizing defects in all aspects of a company (broader perspective).
- It focuses on reducing costs, increasing revenue, and improving process efficiency and effectiveness.

Methodology:

- Project-based approach with a quantitative and disciplined methodology (DMAIC).
- DMAIC stands for Define, Measure, Analyze, Improve, and Control.
- Focuses on variance reduction, cycle time reduction, and yield improvement.

Goal:

- Achieve a defect rate of no more than 3.4 defects per million opportunities (dpmo).
- This means the process is statistically very unlikely to produce defects.
- The 3.4 dpmo goal is based on a specific statistical analysis and can be adapted by companies.

▼ 2.2.2 The Six Sigma Cost and Revenue Rationale

Six Sigma is all about profits! It focuses on making companies more money by:

1. **Cost Reduction (Efficiency Loop):**

- **Eliminate waste and variability:** Six Sigma attacks various cost types, including labor, by targeting process inconsistencies and inefficiencies.
- **Predictability and centering:** Processes are optimized for consistency and accuracy, minimizing defects and rework.
- **Cycle time and yield:** Streamlined processes lead to faster production and higher output, maximizing resource utilization.
- **Commitment is key:** Top management buy-in and consistent tracking of cost savings are crucial for long-term success.

2. Revenue Enhancement (Effectiveness Loop):

- **Customer focus:** Six Sigma identifies and prioritizes customer needs, translating them into product/service features.
- **Quality and satisfaction:** Predictable, defect-free processes lead to higher customer satisfaction and loyalty.
- **Market share and pricing:** Increased customer satisfaction translates to stronger market share and potential for premium pricing.
- **Measurement and alignment:** Rigorous monitoring ensures processes consistently meet customer expectations.

▼ 2.2.3 Six Sigma in Product and Process Design

- Addresses fundamental design flaws beyond just optimizing existing processes.
- Leverages the familiar DMAIC methodology and statistical tools for design projects.
- Aims for three key design objectives:
    - **System Design:** Exceed customer expectations by tailoring the product/process to their needs.

- **Parameter Design:** Minimize variation by finding optimal values for design parameters.
- **Tolerance Design:** Narrow down tolerances for input materials and work to reduce variability.

▼ 2.2.4 The Six Sigma Framework

The Six Sigma framework comprises five key components:

1. **Top Management Commitment**: Long-term commitment from top management is crucial, integrating Six Sigma into the business strategy.
2. **Stakeholder Involvement**: Active involvement and support from all stakeholders are essential, facilitated through training and collaborative projects.
3. **Training**: Comprehensive training programs cover statistical tools, methodologies, and project management, with different levels denoted by belt ranks.
4. **Measurement System**: A robust system collects relevant data, focusing on reducing defects to fewer than 3.4 per million opportunities.
5. **Improvement Methodology (DMAIC)**: Core methodology emphasizes data-driven decision-making through Define, Measure, Analyze, Improve, and Control phases, ensuring continuous improvement.

▼ 2.2.5 Concluding Remarks: Key Reasons for the Success of Six Sigma

1. **Top Management Commitment**: Six Sigma's bottom-line focus encourages ongoing support from top management, vital for long-term success.
2. **Unified Quantitative Approach**: The consistent use of a unified quantitative approach fosters communication and tangible results, with the DMAIC methodology creating a common language for sharing experiences.
3. **Customer-Centric Focus**: Emphasis on understanding and satisfying

customer needs ensures that improvements target both efficiency and effectiveness, leveraging revenue rationale and relying on factual data over anecdotes.

4. **Strategic Project Selection and Training**: Six Sigma's strength lies in selecting crucial projects, training skilled individuals, and applying appropriate statistical tools effectively, leading to remarkable synergies and tangible results.

Business Process Reengineering

Reengineering and Its Relationship with other Earlier Programs

TQM:

- Focuses on continuous, incremental improvement across all processes.
- Aims to improve quality, reduce costs, and enhance customer satisfaction.
- Uses data and problem-solving to identify areas for improvement.

BPR:

- Focuses on radical, one-time redesign of core business processes.
- Challenges existing designs to achieve significant improvements.
- Often uses information technology as an enabler.

Six Sigma:

- Combines elements of TQM and BPR, focusing on key processes and customer value.
- Seeks "breakthrough" results through aggressive improvement projects.
- Employs continuous improvement to sustain gains and institutionalize change.

When Should a Process Be Reengineered?

Understanding the Drivers:

- **Customers:** Increasingly educated and demanding, seeking personalized experiences.

- **Competition:** Intense and diverse, driving companies to enhance efficiency and quality.
- **Change:** Necessitated by technological advancements, market shifts, and evolving customer expectations.

Key Questions for Consideration:

1. Are customers demanding more value at lower costs?
2. Can competitors offer more value at lower costs?
3. Can work be completed significantly faster than normal cycle times?
4. Have incremental quality improvements plateaued?
5. Have technology investments failed to deliver results?
6. Are there plans to introduce new products/services or enter new markets?
7. Is there a risk of becoming unprofitable?
8. Have cost-cutting efforts failed to improve performance?
9. Is the organization undergoing mergers or consolidations?
10. Are core business processes fragmented or inefficient?

Signs Continuous Improvement is Ineffective:

- Continuous improvement efforts no longer yield significant results.
- Diminishing returns indicate the process is operating near its theoretical capability.
- Redesign becomes necessary to achieve significant performance improvements.

▼ **What Should Be Reengineered?**

Focus on Processes, Not Organizations:

- Reengineering targets processes, not organizational units.
- Processes are often overlooked because they lack visibility compared to organizational structures.

Formal vs. Informal Processes:

- Formal processes, guided by written policies, are prime candidates for reengineering due to their scope and complexity.
- Informal processes may also benefit from improvement but are often less structured and contained within organizational units.

Selection Criteria for Reengineering:

1. Likelihood of successful reengineering.
2. Ability to produce rapid results.
3. Significance of benefits to customers and the organization.

Identifying Dysfunctional Processes:

- Dysfunctional processes exhibit symptoms such as extensive data redundancy, inventory buffers, high checking/control ratios, rework, and complexity.
- Symptoms may not always align with the underlying issues; careful analysis is required.

Determining Importance:

- Importance is gauged by correlating customer concerns with the processes that most affect them.
- For example, if customers prioritize product cost, the product development process becomes crucial.

Assessing Feasibility:

- Feasibility considers the scale of the project, associated costs, process owner commitment, and team strength.
- Larger projects offer greater payoffs but face more hurdles and lower success rates.

Avoiding the Process Paradox:

- Dramatic process improvements do not guarantee long-term success; careful consideration of the "right" processes is essential.

Balancing Art and Science:

- Process selection is not purely analytical; it involves both art and science.

- Principles and tools can guide the process design effort to achieve optimal outcomes.

▼ **Suggested Reengineering Frameworks**

Introduction:

- Reengineering encompasses various approaches with common traits focused on radical design and rapid implementation.
- Different frameworks proposed by practitioners and researchers offer guidance for reengineering projects.

1. Roberts' Framework:

- **Gap Analysis Approach:** Begins with identifying the gaps between current and desired states.
- **Feedback Loop:** Allows for adjustments to the process design based on risk analysis and pilot testing.

2. Lowenthal's Framework:

- **Four Phases:**
  1. **Preparing for Change:** Builds understanding and support in management and prepares for cultural shift.
  2. **Planning for Change:** Simultaneously plans future strategies and cultural transition.
  3. **Designing for Change:** Identifies, maps, and designs business processes for radical improvement.
  4. **Evaluating Change:** Evaluates improvements and sets priorities for future efforts.

3. Cross et al.'s Framework:

- **Three Phases: Analysis, Design, Implementation**
- **Analysis Phase:** Understanding market requirements, current processes, and potential improvements.
- **Design Phase:** Applying principles in service quality, workflow, workspace, continuous improvement, workforce, and information technology to redesign processes.

- **Implementation Phase:** Institutionalizing the new design into day-to-day operations, beginning planning in parallel with the analysis and design phases.

▼ **Revolutionary versus Evolutionary Change**

1. **Evolutionary Change:**

- **Basis:** Change originates from within the organization, managed by current leadership and employees.
- **Approach:**
  - Change is incremental, based on dissatisfaction with current situations and a desire to improve.
  - Pilot testing of new processes precedes full implementation, allowing for adjustments over time.
- **Advantages:**
  - Less disruptive and risky compared to revolutionary change.
  - Increases organization's capacity for change.
- **Disadvantages:**
  - Takes longer to achieve desired vision.
  - Requires ongoing adjustments to align with changing market conditions.

2. Revolutionary Change:

- **Basis:** Driven by external factors and necessitates rapid structural and cultural transformation.
- **Approach:**
  - Top-driven, externally imposed change requiring significant resources and outside perspectives.
  - Rapid implementation marked by tough decisions and strict milestones.
- **Advantages:**
  - Drastic results achieved quickly.

    - Offers a clear break from the past.
- **Disadvantages**:
    - High risk of failure due to disruption and uncertainty.
    - May divert attention from external marketplace and core organizational values.

▼ **Chapter 3(A Framework for Business Process Design Projects)**

▼ **Step 1: Case for Action and Vision Statements**

1. **Case for Action:**
    - **Purpose**: To depict the current state of the organization and emphasize the necessity for change.
    - **Components:**
        - **Business Context**: Provides insight into the present environment and key competitors.
        - **Business Problem**: Identifies specific challenges obstructing organizational success.
        - **Marketplace Demands**: Sets out performance benchmarks established by the market.
        - **Diagnostics**: Explains the reasons behind the organization's inability to meet marketplace demands.
        - **Cost of Inaction**: Highlights the repercussions of not implementing change.
2. **Vision Statement:**
    - **Purpose**: To articulate the desired future state of the organization.
    - **Elements:**
        - **Objectives**: Includes both qualitative and quantitative goals for the new process.
        - **Measurable Indicators**: Provides metrics for evaluating progress towards the vision.
        - **Competitive Advantage**: Defines how achieving the vision will differentiate the organization.

Example:

- **Case for Action Statement (Pharmaceutical Company):**
  - Describes competitors' shorter development cycles.
  - Highlights the necessity for a globally integrated R&D organization.
  - Estimates the cost incurred due to delays in the development process.
- **Vision Statement (Pharmaceutical Company):**
  - Outlines objectives for shorter development cycles and enhanced quality.
  - Details the implementation of uniform processes and information systems globally.

▼ **Step 2: Process Identification and Selection**

1. **Consider All Processes**: Evaluate all business processes, with a focus on core ones due to their significant impact.
2. **Prioritize Criteria**:
   - **Dysfunction**: Identify processes facing significant challenges.
   - **Importance**: Prioritize processes crucial to the organization's strategy and customer impact.
   - **Feasibility**: Assess the likelihood of successful redesign and implementation.
3. **Additional Considerations**:
   - **Project Scope and Costs**: Evaluate project scope and associated costs.
   - **Team Strength**: Assess the strength of the team for redesign and implementation.
   - **Management Commitment**: Consider sustained management commitment.
   - **Need for Redesign**: Determine if complete redesign or incremental improvements are necessary.

- **Technology Obsolescence**: Assess if outdated technology is a factor.

4. **Implementation Considerations**:
   - **Resource Constraints**: Compare change tactic cost with budget limits.
   - **Team Composition**: Ensure the team has necessary attributes for redesign.
   - **Management Commitment**: Evaluate ongoing management support.
5. **Continuous Improvement vs. Redesign**: Recognize when continuous improvement suffices.
6. **Obsolete Processes or Technology**: Assess if processes or technology are outdated and if technology replacement alone could suffice.
7. **Design Team Composition**:
   - **Insiders vs. Outsiders**: Combine insiders' insights with outsiders' fresh perspectives.

▼ **Step 3: Obtaining Management Commitment**

1. **Recognize Top Management's Role**: Acknowledge the crucial role of top management in driving and supporting the design project.
2. **Tailor Commitment to Project Scope**: Align the level of top management involvement with the project's scale and significance.
3. **Educate Management**: Ensure managers understand the design and implementation processes to gain their buy-in effectively.
4. **Address Change Resistance**: Mitigate middle managers' resistance by addressing their concerns and emphasizing top management's commitment to change.
5. **Importance in Rapid Implementation**: Emphasize the criticality of strong leadership and commitment, especially in rapid implementation scenarios.

6. **Evolutionary Change Approach**: Recognize that while evolutionary changes may face fewer challenges with resistance, management commitment remains vital regardless of the change approach.

▼ **Step 4: Evaluation of Design Enablers**

1. **Avoid Equating Technology with Automation**: Don't see technology solely as a means of automating existing processes. Automating old processes doesn't lead to significant improvements and can reinforce outdated practices.
2. **Look Beyond Automation**: Explore how technology can enable entirely new approaches. Consider ways it can enhance current processes or facilitate innovative methods that weren't possible before.
3. **Focus on Innovation**: Prioritize innovation when assessing technology. It should not only speed up existing processes but also enable new capabilities and goals. Technology should break compromises made due to limitations of older systems.
4. **Use Inductive Thinking**: Apply inductive thinking by analyzing observed data to identify patterns and draw conclusions. Avoid relying solely on deductive thinking, which starts with general conclusions and seeks specific solutions based on existing beliefs.

▼ **Step 5: Acquiring Process Understanding**

- **Understanding the Existing Process**
    1. **Configure the Design Team:** Balance insiders and outsiders for diverse perspectives.
    2. **Build a High-Level Process Map:** Highlight customer interactions, critical subprocesses, and key interfaces.
    3. **Test the Original Scope:** Reevaluate scope and scale based on new insights.
    4. **Identify the Process Owner:** Involve the individual accountable for the new process to ensure smooth implementation.
- **Understanding the Customer**

▼ **Step 6: Creative Process Design**

1. **Creative Process Design**: Process design requires creative thinking to break away from existing, often complex and inefficient configurations. Creative approaches are necessary to devise new, more effective designs.
2. **Benchmarking**: Benchmarking involves comparing an organization's performance with others in the industry to identify gaps and stimulate improvement. It fosters creativity by learning from others' practices and generating ideas for enhancement.
3. **Design Principles**: Various design principles guide process design, including people-oriented principles such as organizing work around outcomes and technical principles like workflow design. These principles help optimize processes for efficiency and effectiveness.
4. **The Devil's Quadrangle**: In process design, trade-offs exist between time, cost, flexibility, and quality. The Devil's Quadrangle framework helps identify and manage these trade-offs to ensure improvements in one dimension don't adversely affect others.

▼ **Step 7: Process Modeling and Simulation**

1. **Testing Conceptual Designs**: Before implementation, it's crucial to test conceptual process designs to ensure they meet intended goals.
2. **Pilot Projects vs. Simulation**: While pilot projects are effective, they're costly and time-consuming. Simulation offers a faster, cheaper alternative for initial testing, allowing greater flexibility.
3. **Process Modeling Steps**: Process modeling involves building, running, analyzing, and evaluating simulation models.
4. **Benefits of Simulation**: Simulation reduces risk by enabling scenario-based analyses without disrupting operations and helps avoid suboptimization.
5. **Promoting Creativity**: Simulation fosters creativity by providing a low-risk environment for testing new designs.
6. **Capturing System Dynamics**: Simulation models random events using probability distributions and provides visualization through animation and graphical tools, capturing system dynamics.

▼ **Step 8: Implementation of the New Process Design**

1. **Alignment with Implementation Strategy**: Choose an implementation strategy (revolutionary, evolutionary, or combination) that aligns with organizational capabilities and objectives.
2. **Leadership and Management Commitment**: Strong leadership, particularly from senior executives and management, is vital for successful implementation.
3. **Involvement of Design Team**: The design team may be involved in implementation, but buy-in from line managers is crucial.
4. **Employee Training**: Training employees in new skills is essential for successful implementation.
5. **Measuring and Assessing Impact**: Measure the effects of process changes and assess their impact against objectives.
6. **Reflection and Learning**: Reflect on the implementation process to identify successes, failures, and areas for improvement.
7. **Knowledge Sharing**: Share implementation experiences and successes to transfer knowledge and maintain momentum for change.

▼ **Chapter 4(Basic Tools for Process Design)**

▼ **Process Flow Analysis**

▼ **General Process Charts**

- **Charts Used:** General process chart, process flow diagram, process activity chart, and flowchart.
- **Activity Categories:** Operations, transportation (physical and information), inspection, storage, and delay.
- **Symbols:** Symbols used to represent activities include those for operations, delay, inspection, transportation of physical items, and transportation of information.
- **Differentiating Storage and Delay:** Storage is a planned delay, while delay is unplanned waiting time.
- **Value Addition:** Operations are typically the only activities that add value to the process.

- **Example:** A general process chart example illustrates how time spent on value-added activities can increase with a redesigned process.

TABLE 4.2

Example of a General Process Chart

	Current Process			Redesigned Process			Difference	
Activity	No.	Time	%	No.	Time	%	No.	Time
Operation	5	30	10	5	30	37.5	0	0
Inspection	3	60	20	1	20	25.0	−2	−40
Transportation	10	120	40	2	20	25.0	−8	−100
Storage	0	0	0	0	0	0	0	0
Delay	7	90	30	1	10	12.5	−6	−80
Total	25	300	100	9	80	100	−16	−220

▼ Process Flow Diagrams

- **Purpose:** Provide a spatial view of the process to understand movement and handling requirements.
- **Analysis:** Helps identify unnecessary movements and optimize layout for efficiency.
- **Questions Answered:** Addresses questions related to center inclusion, space allocation, configuration, and location.
- **LD Score:** Load–distance score helps compare alternative designs for efficiency.

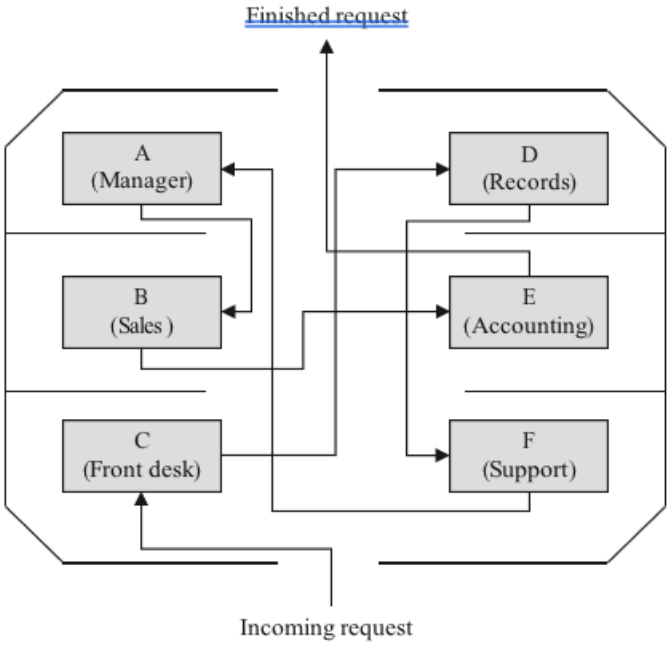

FIGURE 4.4
Example of a process flow diagram.

▼ Process Activity Charts

- **Sequence of Activities:** Details the sequence of activities in the process.
- **Information Included:** Activity category, time requirement, activity description, and additional columns for more details.
- **Limitations:** Cannot show simultaneous activities or processes with several variants.

Process Activity Chart

Page: 1 of 1

Process: X-Ray

Date: 5/1/03

Developed by: Boulder Community Hospital

Current Process ☑

Proposed Process ☐

No.	Description	Time	Value Code (V/N/C)	Symbol
1	Walk to Lab	7	N	
2	Wait	10	N	
3	Fill Insurance Form	6	C	
4	Fill Lab Form	5	C	
5	Wait	7	N	
6	Undressing	3	V	
7	Take X-rays	5	V	
8	Develop X-ray	12	V	
9	Check X-ray	3	C	
10	Transfer X-ray	10	N	
11	Walk back	7	N	

For each activity, fill in the required information. Also, connect the symbols to show the flow through the process.
The value code indicates whether the activity adds value (V), does not add value (N), or controls (C).

FIGURE 4.7
Example of a process activity chart.

▼ Flowcharts

- **Design and Redesign:** Essential for graphically depicting activities, identifying loops, decision points, and alternative paths.
- **Symbols:** Includes symbols for activities, decision points, and flow direction.
- **Additional Information:** Can convey activity times, frequency values, and support information for decision-making.

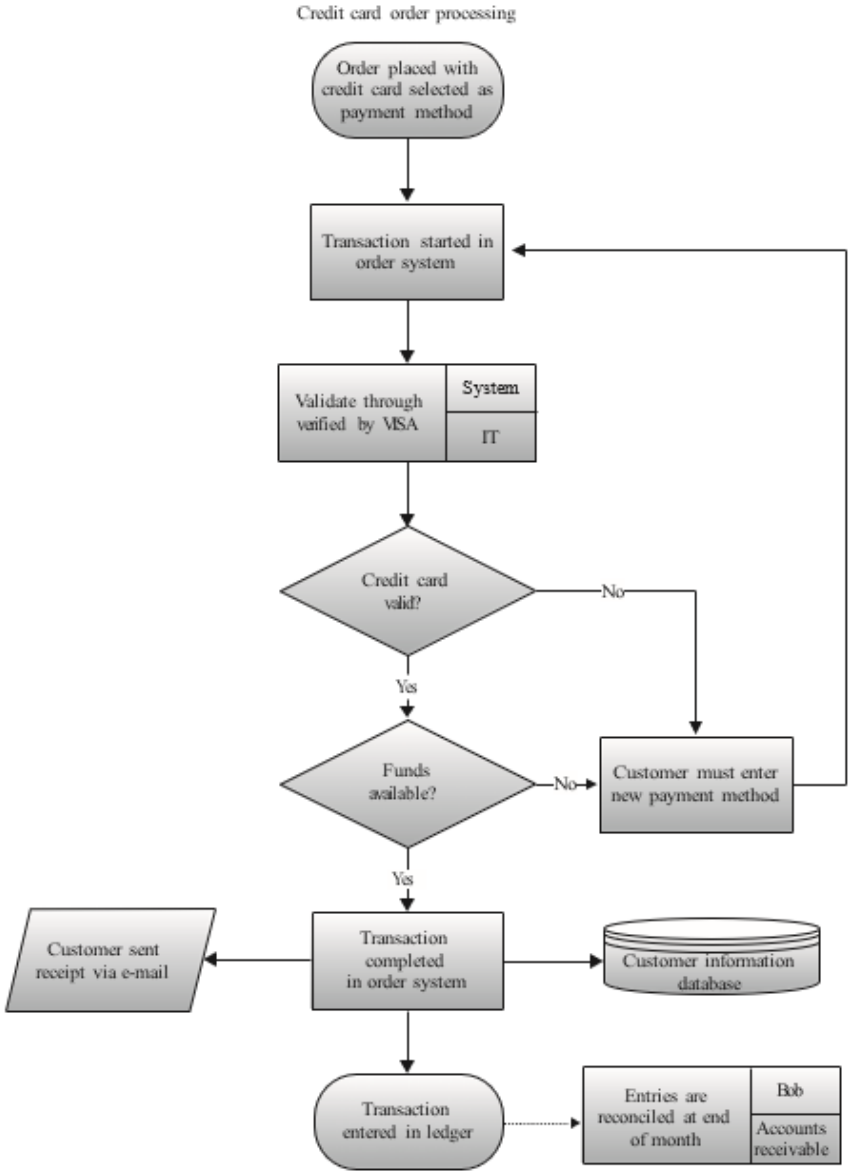

FIGURE 4.9
Flowchart of a credit card order processing created with a flowcharting software tool called SmartDraw.

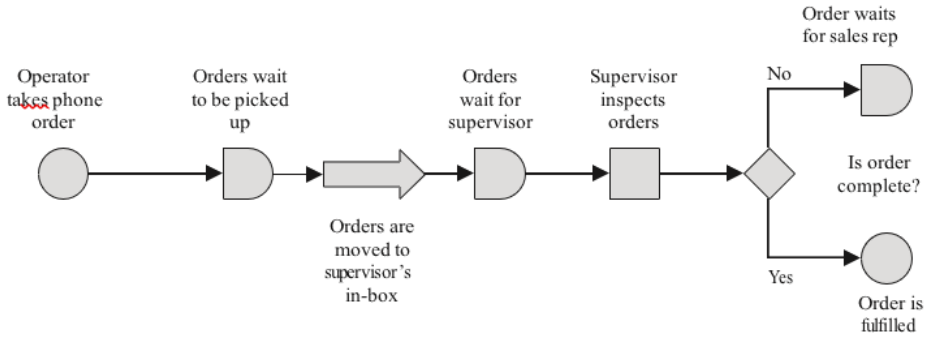

FIGURE 4.8
Example of a flowchart.

▼ Service System Maps

- **Purpose:** Documents interactions between the business process and customers, focusing on value addition and customer satisfaction.
- **Elements:** Horizontal bands organize activities by players, while process segments represent subprocesses.
- **Benefits:** Improved communication, market research focus, operations design, application of information technology, and critical performance measures focus.
- **Software Tools:** Various software tools are available for creating service system maps, often following traditional flowchart notation.

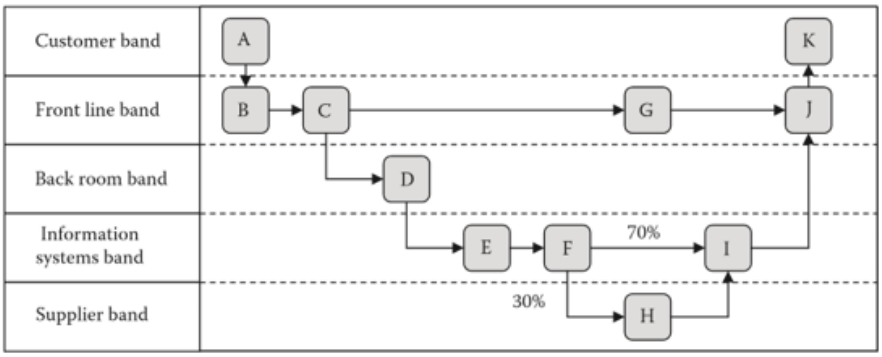

FIGURE 4.10
Example of a SSM with horizontal bands.

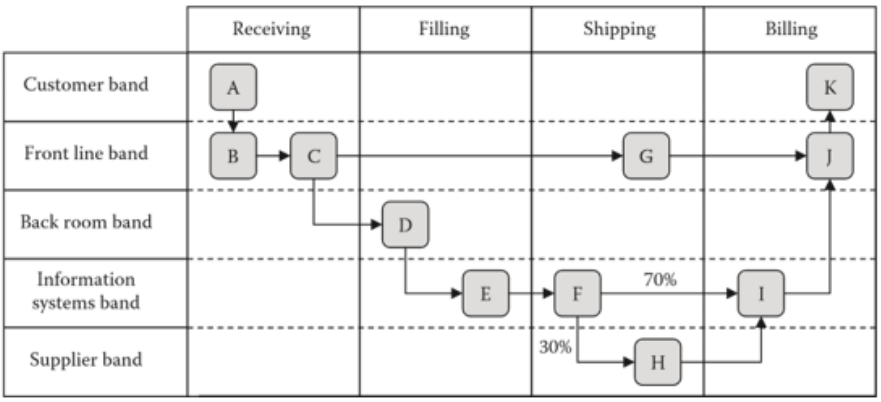

FIGURE 4.11
Example of a SSM with horizontal bands and process segments.