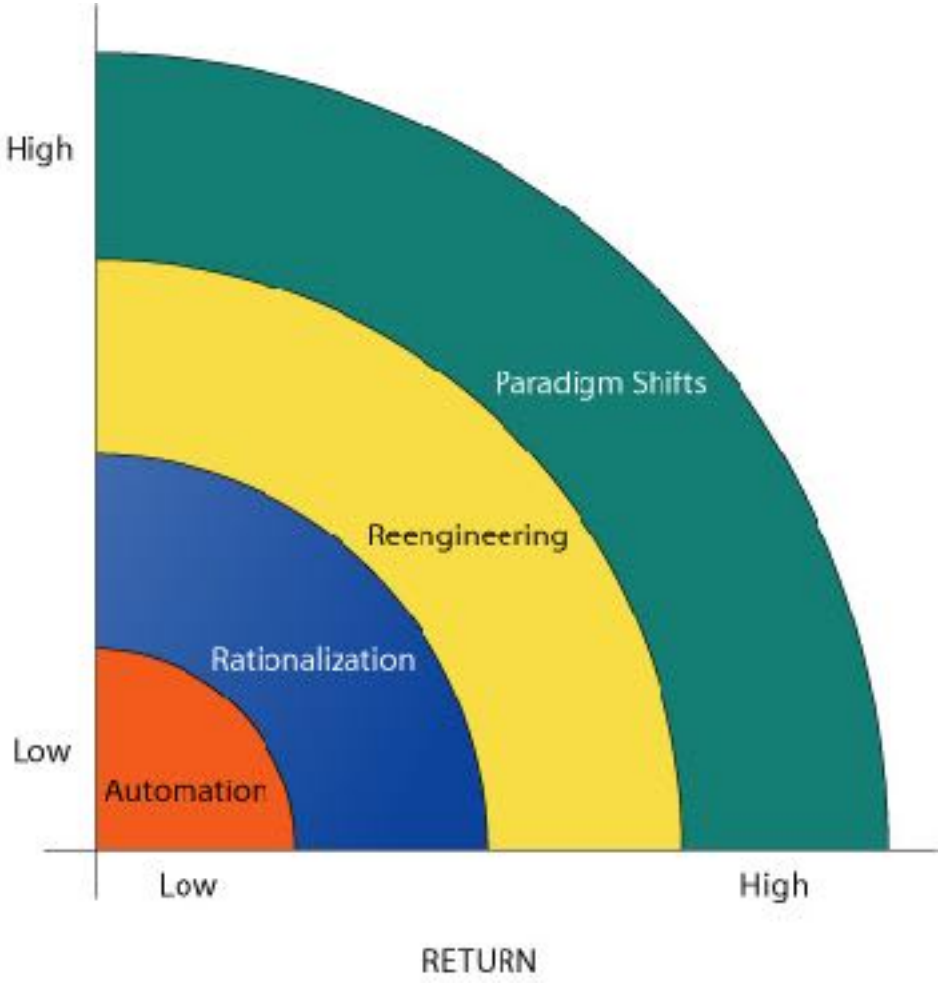
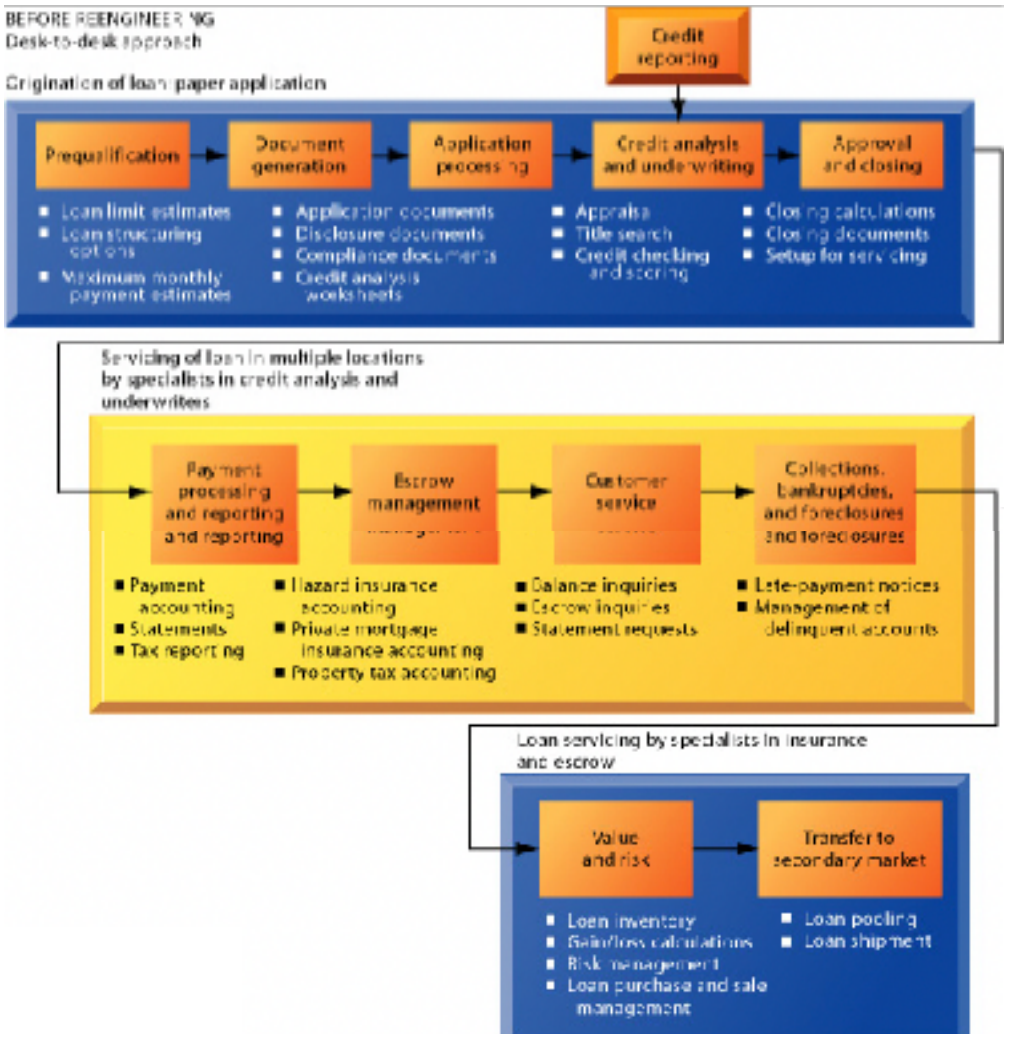
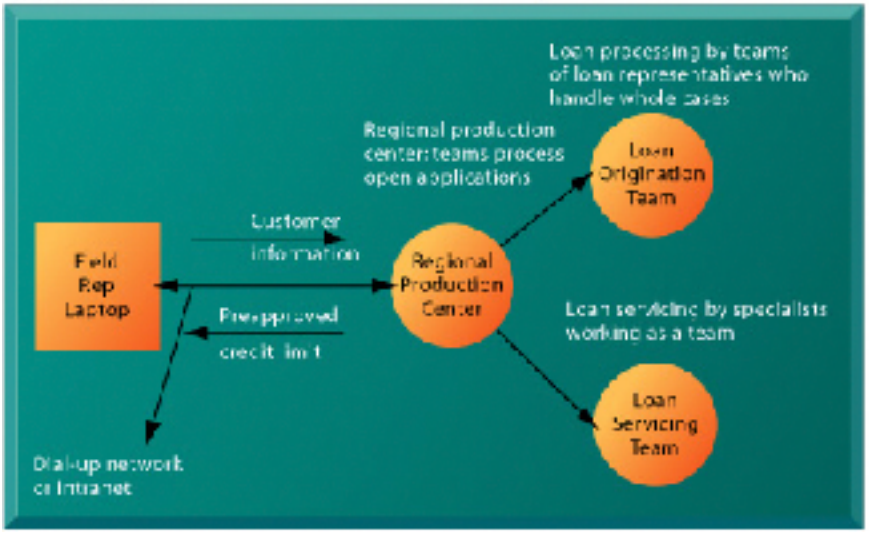
Systems Development and Organizational Change (Laudon)





After Reengineering
Team approach



Building New Information System as planned organization change

Information System Plan (Laudon)

1. Purpose of the Plan
   - Overview of plan contents
   - Current business organization and future organization
   - Key business processes
   - Management strategy
2. Strategic Business Plan Rationale
   - Current situation
   - Current business organization
   - Changing environments
   - Major goals of the business plan
   - Firm's strategic plan
3. Current Systems
   - Major systems supporting business functions and processes
   - Current infrastructure capabilities
     - Hardware
     - Software
     - Database
     - Telecommunications and Internet
   - Difficulties meeting business requirements
   - Anticipated future demands
4. New Developments
   - New system projects
     - Project descriptions
     - Business rationale
     - Applications' role in strategy
   - New infrastructure capabilities required
     - Hardware
     - Software
     - Database
     - Telecommunications and Internet
5. Management Strategy
   - Acquisition plans
   - Milestones and timing
   - Organizational realignment
   - Internal reorganization
   - Management controls
   - Major training initiatives
   - Personnel strategy
6. Implementation Plan
   - Anticipated difficulties in implementation
   - Progress reports
7. Budget Requirements
   - Requirements
   - Potential savings
   - Financing
   - Acquisition cycle

ENTERPRISE ANALYSIS (BUSINESS SYSTEMS PLANNING)

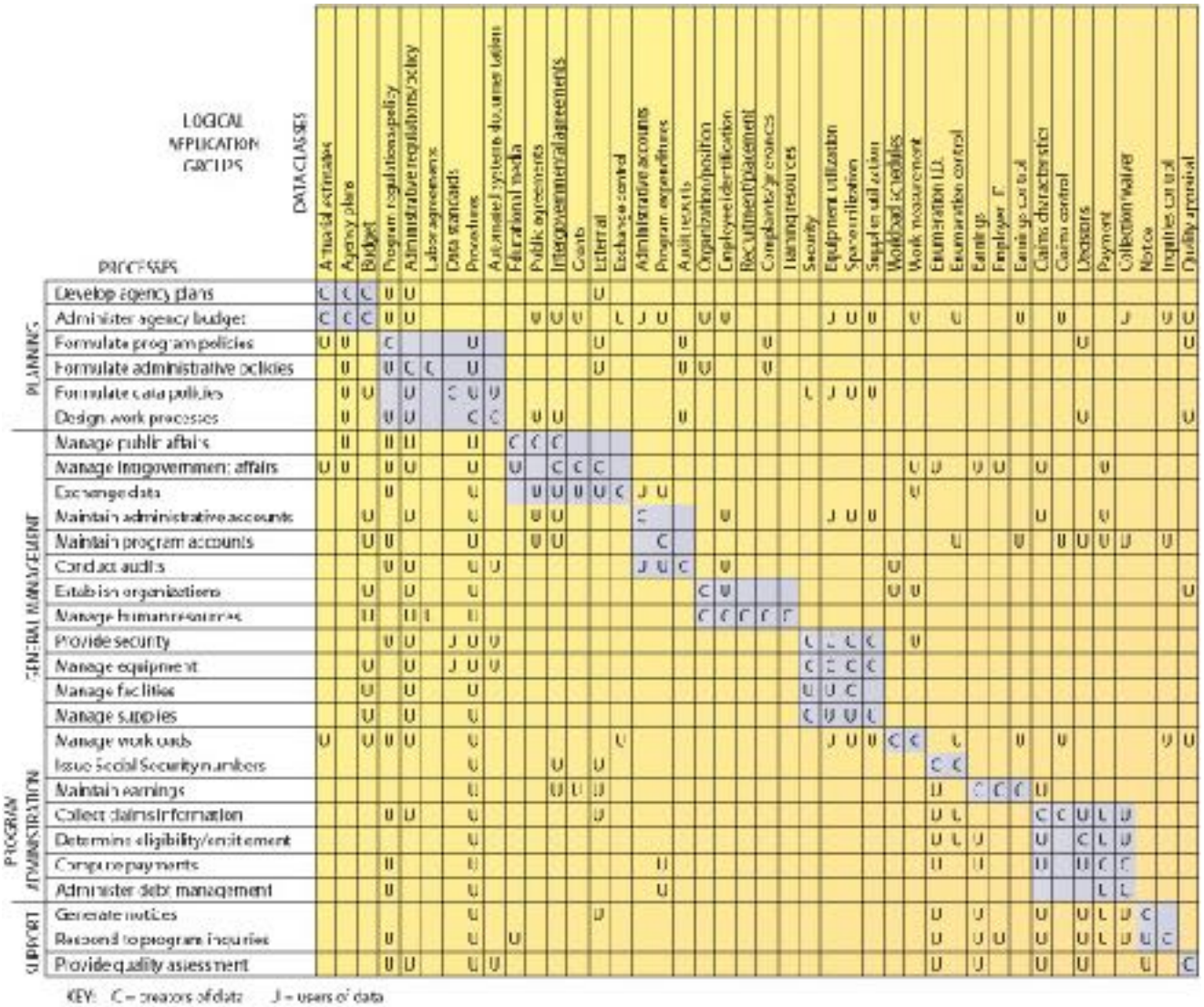


FIGURE 14-1 Process/data class matrix

This chart depicts which data classes are required to support particular organizational processes and which processes are the creators and users of data.

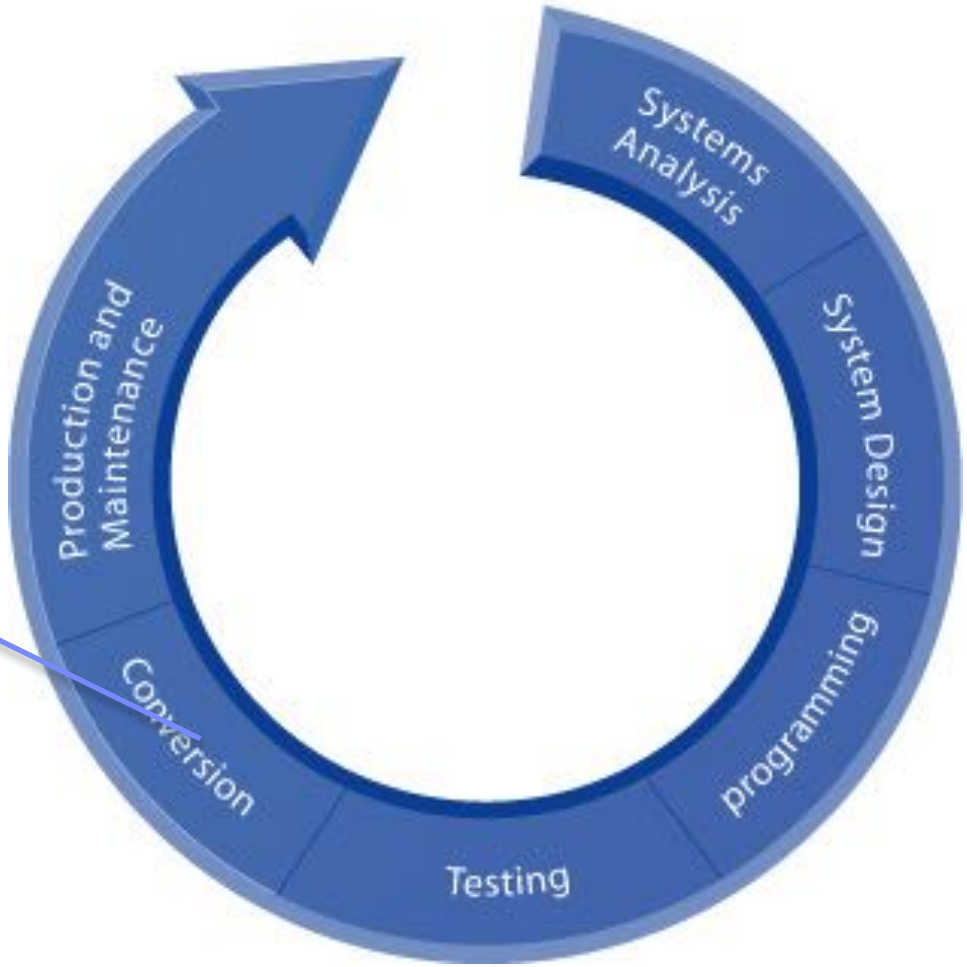
STRATEGIC ANALYSIS OR CRITICAL SUCCESS FACTORS

TABLE 14-2 Critical Success Factors and Organizational Goals

Example	Goals	CSF
Profit concern	Earnings/share Return on investment Market share New product Energy standards	Automotive industry Styling Quality dealer system Cost control
Nonprofit	Excellent health care Meeting government regulations Future health needs	Regional integration with other hospitals Improved monitoring of regulations Efficient use of resources

Source: Rockart (1979).

Systems development process



- the parallel strategy
- the direct cutover strategy
- the pilot study strategy
- phased approach strategy

System Design

OUTPUT
- Medium
- Content
- Timing

INPUT
- Origins
- Flow
- Data entry

USER INTERFACE
- Simplicity
- Efficiency
- Logic
- Feedback
- Errors

DATABASE DESIGN
- Logical data model
- Volume and speed requirements
- File organization and design
- Record specifications

PROCESSING
- Computations
- Program modules
- Required reports
- Timing of outputs

MANUAL PROCEDURES
- What activties
- Who performs them
- When
- How
- Where

CONTROLS
- Input controls (characters, limit, reasonableness)
- Processing controls (consistency, record counts)
- Output controls (totals, samples of output)
- Procedural controls (passwords, special forms)

SECURITY
- Access controls
- Catastrophe plans
- Audit trails

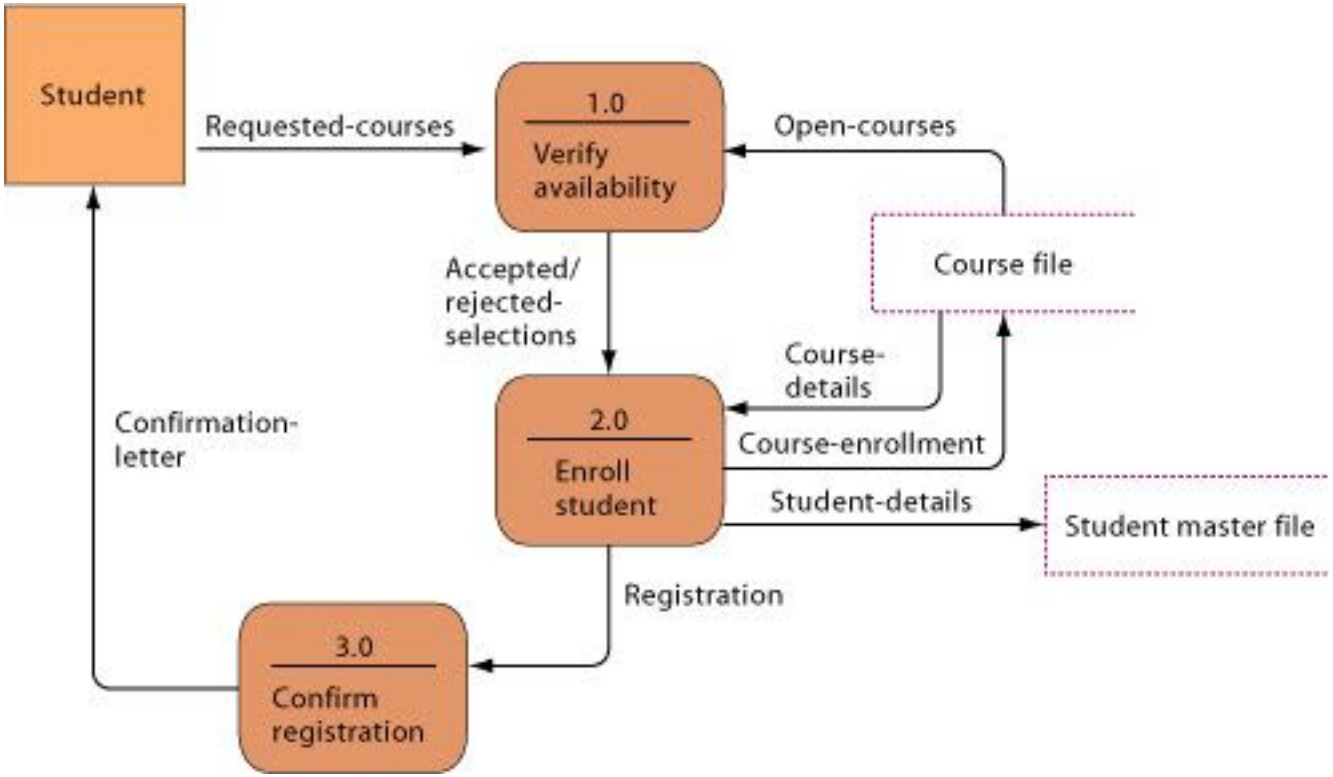
DOCUMENTATION
- Operations documentation
- Systems documents
- User documentation

CONVERSION
- Transfer files
- Initiate new procedures
- Select testing method
- Cut over to new system

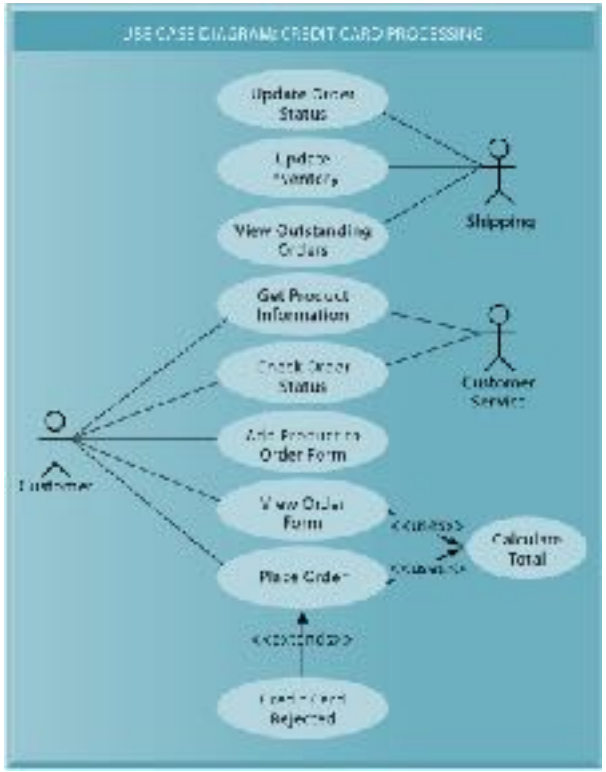
TRAINING
- Select training techniques
- Develop training modules
- Identify training facilities

ORGANIZATIONAL CHANGES
- Task redesign
- Job design
- Process design
- Organization structure design
- Reporting relationships

STRUCTURED METHODOLOGIES



OBJECT-ORIENTED DEVELOPMENT



UML Class Diagram

System Development Approach

Approach	Features	Advantages	Disadvantages
Systems life cycle	Sequential step-by-step formal process Written specification and approvals Limited role of users	Useful for large, complex systems and projects	Slow and expensive Discourages changes Massive paperwork to manage
Prototyping	Requirements specified dynamically with experimental system Rapid, informal, and iterative process Users continually interact with the prototype	Rapid and relatively inexpensive Useful when requirements uncertain or when end-user interface is very important Promotes user participation	Inappropriate for large, complex systems Can gloss over steps in analysis, documentation, and testing
Application software package	Commercial software eliminates need for internally developed software programs	Design, programming, installation, and maintenance work reduced Can save time and cost when developing common business applications Reduces need for internal information systems resources	May not meet organization's unique requirements May not perform many business functions well Extensive customization raises development costs
End-user development	Systems created by end users using fourth-generation software tools Rapid and informal Minimal role of information systems specialists	Users control systems-building Saves development time and cost Reduces application backlog	Can lead to proliferation of uncontrolled information systems and data Systems do not always meet quality assurance standards
Outsourcing	Systems built and sometimes operated by external vendor	Can reduce or control costs Can produce systems when internal resources are not available or technically deficient	Loss of control over the information systems function Dependence on the technical direction and prosperity of external vendors