ERP - Supply Chain Management Requirements Specification

Version 1.0

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Use this Requirements Specification template to document the requirements for your product or service, including priority and approval. Tailor the specification to suit your project, organizing the applicable sections in a way that works best, and use the checklist to record the decisions about what is applicable and what isn't.

The format of the requirements depends on what works best for your project.

This document contains instructions and examples which are for the benefit of the person writing the document and should be removed before the document is finalized.

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# Executive Summary

## Project Overview

The supply chain management manages the supply of the product which are premade clothing that are sold based on trends of the market. The sales and marketing considers the trends in the market and their impact, the production, and the consumer use stage, to minimize the negative effects on the world around them. SCM focuses on enhancing the collaboration and cooperation among all companies in the supply chain with a goal of satisfying what market wants.

## Purpose and Scope of this Specification

Describe the purpose of this specification and its intended audience. Include a description of what is within the scope what is outside of the scope of these specifications. For example:

In scope

This document addresses requirements related to phase 2 of Project A:

* Manage supply and deliveries of products
* The products offered by the sales department would be requested to the supply chain/inventory management and are delivered to the customers
* The inventory items are restocked by making restock orders and passing it to the accounting department for approval
* Storage for raw materials and finished products
* Budgeting of products/resources

Out of Scope

The following items in phase 3 of Project A are out of scope:

* Payments for products
* Managing and hiring employees
* Product advertisement
* Payrolls for employees
* Contracts with clients
* User can create account
* Releasing of budget
* Monitoring transactions of business
* Approval of budget product, business proposal

# Product/Service Description

In modern clothing, supply chain management is a crucial part of sales in addition to the concepts on improving the production efficiency, quality control, and product design. With the advance of technology today, both in terms of computer-based information technology and material-science related production technology, many timely research issues emerge in supply chain management of cloths. Environmental and human rights issues have also became consideration for clothing and spurred the promotion and use of some natural materials that are considered environmentally friendly. Flexibility in reaction time include the need for an increase in production of a product.

## Product Context

How does this product relate to other products? Is it independent and self-contained? Does it interface with a variety of related systems? Describe these relationships or use a diagram to show the major components of the larger system, interconnections, and external interfaces.

The SCM is being depended upon by every company to provide the needs of customer and process the items and services that the organization offers.

The project will interface with the other parts of the ERP as a whole. Checkout sales reports from Sales and Marketing would be processed and delivered to the customers. Delivery reports will include the income from the sales, which would be passed to the Accounting & Finance. The ordering of inventory items should be processed and submitted to Accounting & Finance for approval. Then the employees in the SCM department should be assessed for performance to the Human Resource department of the organization.

Diagram to be inserted soon……

## User Characteristics

Create general customer profiles for each type of user who will be using the product. Profiles should include:

* Inventory Administrator
  + The Inventory Administrator will be the personnel that will primarily maintain the inventory system of the organization. He should be experienced with warehousing of the products by having warehouse employees assist in the inventory process.
* Department Manager
  + The manager should be experienced in the management of the department and use the system to its fullest extent.
* Manufacturer
  + Production of raw materials for use or sale using labour and machine, tools, chemical and biological processing or formulation to make new products that the end user may used.
* Customers
  + A client, buyer or purchaser that demand for a good products in exchange of money or valuable consideration and frequently ask question, concern and write reviews regarding to the purchased product.

## Assumptions

The software should be accessible as a browser page hosted locally in the organization. The department should have a dedicated server to host the database of the system and the system should be accessed in a personal computer or a mobile device connected to the organization’s local area network or the organization’s intranet.

## Constraints

Describe any items that will constrain the design options, including

* Limited information is obtained because there is no such system as a basis.
* There’s no stable internet connection in the development of the system.
* Limited references in developing the system.

## Dependencies

The system depends on items and product details from the Sales and marketing Department for us know the reports of orders needed by SCM. The system also needs the approval of Finance Department to restock.

. Examples:

* This product will require a local intranet infrastructure that has a dedicated server to host the system database.
* The definition of the shared database should be defined before the system can be built.

# Requirements

* Describe all system requirements in enough detail for designers to design a system satisfying the requirements and testers to verify that the system satisfies requirements.
* Organize these requirements in a way that works best for your project. See Appendix DAppendix D, Organizing the Requirements for different ways to organize these requirements.
* Describe every input into the system, every output from the system, and every function performed by the system in response to an input or in support of an output. (Specify what functions are to be performed on what data to produce what results at what location for whom.)
* Each requirement should be numbered (or uniquely identifiable) and prioritized.

See the sample requirements in Functional Requirements, and System Interface/Integration, as well as these example priority definitions:

Priority Definitions

The following definitions are intended as a guideline to prioritize requirements.

* Priority 1 – The requirement is a “must have” as outlined by policy/law
* Priority 2 – The requirement is needed for improved processing, and the fulfillment of the requirement will create immediate benefits
* Priority 3 – The requirement is a “nice to have” which may include new functionality

It may be helpful to phrase the requirement in terms of its priority, e.g., "The value of the employee status sent to DIS **must be** either A or I" or "It **would be nice** if the application warned the user that the expiration date was 3 business days away". Another approach would be to group requirements by priority category.

* A good requirement is:
* Correct
* Unambiguous (all statements have exactly one interpretation)
* Complete (where TBDs are absolutely necessary, document why the information is unknown, who is responsible for resolution, and the deadline)
* Consistent
* Ranked for importance and/or stability
* Verifiable (avoid soft descriptions like “works well”, “is user friendly”; use concrete terms and specify measurable quantities)
* Modifiable (evolve the Requirements Specification only via a formal change process, preserving a complete audit trail of changes)
* Does not specify any particular design
* Traceable (cross-reference with source documents and spawned documents).

## Functional Requirements

* + 1. Login and Registration Forms

The form is a means for logging in and registration of system users.

* + 1. Inventory Tables

The inventory tab would display the inventory of products in a table format.

Certain functions in the inventory system would include filter function and print function.

* + 1. Restock Form

The restock form would be a function of the system where items to be restocked can be requested for approval of the Accounting and Finance department.

* + 1. Pending Orders Form

This form of the system will facilitate order requests sent by the Sales and Marketing department. Upon assessment of said orders, the products should be delivered to the customers and Delivery reports should be generated. This delivery report should then be passed to the Accounting and Finance department.

* + 1. Add New Item

This form should assess if new products are to be offered by the Sales department and should be added into the inventory.

* + 1. Change Item Details

This form should be used if details, categories or prices should be modified for an inventory item

* + 1. Restock History

This form should display logs of restock reports previously done in the Restock Form. Approved restocks should be shown in the logs.

* + 1. Order/Delivery History

This form should display logs of order and delivery reports previously done in the Pending Orders Form.

In the example below, the requirement numbering has a scheme - BR\_LR\_0## (BR for Business Requirement, LR for Labor Relations). For small projects simply BR-## would suffice. Keep in mind that if no prefix is used, the traceability matrix may be difficult to create (e.g., no differentiation between '02' as a business requirement vs. a test case)

The following table is an example format for requirements. Choose whatever format works best for your project.

For Example:

| Req# | Requirement | Comments | Priority | Date Rvwd | Reviewed / Approved |
| --- | --- | --- | --- | --- | --- |
| BR\_LR\_05 | The system should display all stock products in inventory | Admin must see each informaton of the product stock | 1 |  | Bob Dylan, Mick Jagger |
| BR\_LR\_08 | The system should record the deliveries and orders of all products | Admin need to monitor all product deliveris and orders | 2 | 7/13/04 | Bob Dylan, Mick Jagger |
| BR\_LR\_10 | The system should display all requested products in Sales and Marketing | Admin must filter the products requested in Sales and Marketing | 2 | 7/13/04 | Bob Dylan, Mick Jagger |
| BR\_LR\_16 | The system should provide the updated product list | Admin need to update and monitor for the new arrival products | 2 |  |  |
| BR\_LR\_18 | The system should provide the list of approved products list from Accounting and Finance | Admin need to report the approved products to update list | ~~2~~ |  |  |

## User Interface Requirements

In addition to functions required, describe the characteristics of each interface between the product and its users (e.g., required screen formats/organization, report layouts, menu structures, error and other messages, or function keys).

* The user interface shall
* The interface has a log in form, which only allow the admin to access the portal
* Tha interface has seven tabs at the top, which allow user to easily switch between the different parts of the system
* The first tab is “Inventory”, where it displays the product inventory in table format
* The second tab is “Sales Orders”, which display the total sales from this date up to this date.
* The Third tab is “Restock Orders”, which display all the requested products that need to be approve by Accounting and Finance
* The forth tab is “Restock Items”, which function is to select product and its quantity
* The next tab is “Add new Products”, where its function is to

## Usability

* The system should be always efficient to the user.
* The users should be instructed in using the system to produce the expected output.
* The system needs to be easy to use to make a well produce output or product..
* The system must be always available to the users.

## Performance

* The system must be interactive and be able to be accommodate the users of the system.
* The system must always be accessible to make it efficient to the user.
* The delays in the system performance needs to be avoided.

### Capacity

Include measurable capacity requirements (e.g., the number of simultaneous users to be supported, the maximum simultaneous user load, per-user memory requirements, expected application throughput)

The supply chain management are connected to different department that provide the customer needs

### Availability

* The informations about the specific products should be provided.
* There must be a report provided in every transactions.
* The systems operations must be continuously working.
* The system maintenance or repair should not have an impact to its performance.
* The system must be reliable to its operations.

### Latency

Include explicit latency requirements, e.g., the maximum acceptable time (or average time) for a service request.

* In delivery, we have 3-7 days delivery depends on locaton
* In adding new products, we have 2 days to process items
* In requesting for approvals, we have 7 days to process

## Manageability/Maintainability

### Monitoring

Include any requirements for product or service health monitoring, failure conditions, error detection, logging, and correction.

* Inventory of products
* Restocked items requested to Accounting and Finance
* Modify product details, categories and prices
* Facilitate order request sent by Sales and Marketing
* Delivery reports and log of orders
* Delivery monitoring
* Schedules of deliveries and inventory of supplies.
* Raw materials inventory.
* Delays in the deliveries.
* Monitoring of the resources needed in the production.
* Inventory of stocks.
* Supply of raw materials and products.

### Maintenance

Specify attributes of the system that relate to ease of maintenance. These requirements may relate to modularity, complexity, or interface design. Requirements should not be placed here simply because they are thought to be good design practices.

### Operations

Specify any normal and special operations required by the user, including:

* periods of interactive operations and periods of unattended operations
* data processing support functions
* backup and recovery operations
* safety considerations and requirements
* disaster recovery and business resumption

## System Interface/Integration

Specify the use of other required products (e.g., a database or operating system), and interfaces with other systems (e.g., UWHires package interfaces with PubCookie and ODS, HEPPS system interfaces with Budget system). For each interface, define the interface in terms of message format and content. For well-documented interfaces, simply provide a reference to the documentation.

Outline each interface between the product and the hardware or network components of the system. This includes configuration characteristics (e.g., number of ports, instruction sets), what devices are to be supported, and protocols (e.g., signal handshake protocols).

### Network and Hardware Interfaces

Specify the logical characteristics of each interface between the product and the hardware or network components of the system. This includes configuration characteristics (e.g., number of ports, instruction sets), what devices are to be supported, and protocols (e.g., signal handshake protocols).

### Systems Interfaces

Example systems interface requirements:

* System1-to-System2 Interface

The <external party> will create and send a fixed length text file as an email attachment to [System2mail@u.washington.edu](mailto:heppsmai@u.washington.edu)to be imported into the System2 system for payroll calculation. This file must be received on EDIT day by 4:00 PM in order to be processed in the EDIT night run. The requirements below document the file specifications, data transfer process, and specific schedule. This file is referred to as "FileName" in this document.

File Structure and Format

* 1. The FileName file is a fixed length text file.
  2. The FileName file is an unformatted ASCII file (text-only).
  3. The FileName file contains a batch totals record and several detail records.

File Description: Batch Totals Record

* 1. The batch totals record can be placed at the beginning, in the middle, or at the end of the file.
  2. The batch totals record contains the following:

Record Type (value: XA)

Process Type (value: A)

Batch Number (3 digit number assigned by Payroll Dept)

Origin Code (AIG)

Total number of detail records

Total deduction amount

File Description: Detail Records

* 1. The FileName file contains a row for each record meeting xxx criteria.
  2. Each row in the FileName file contains the following fields, comma-delimited and encased in double-quotes where the data includes commas or spaces:
* Employee Id
* Record Type
* Process Date (MMDDYY)
* XYG Number
* Element Code
* Amount
* Amount Sign
* Year Flag
* Total Amount
* Total Amt Sign

## Security

### Protection

Specify the factors that will protect the system from malicious or accidental access, modification, disclosure, destruction, or misuse. For example:

* Informations should be transmitted securely without any changes.
* There must be a proper log in process for the security of the user.
* Each user must have its own identity.

### Authorization and Authentication

Specify the Authorization and Authentication factors. Consider using standard tools such as PubCookie.

## Data Management

Specify the requirements for any information that is to be placed into a database, including

* types of information used by various functions
* frequency of use
* data access rules
* data entities and relationships
* integrity constraints
* data retention
* valid range, accuracy, and/or tolerance
* units of measure
* data formats
* default or initial values

## Standards Compliance

Specify the requirements derived from existing standards, policies, regulations, or laws (e.g., report format, data naming, accounting procedures, audit tracing). For example, this could specify the requirement for software to trace processing activity. Such traces are needed for some applications to meet minimum regulatory or financial standards. An audit trace requirement may, for example, state that all changes to a payroll database must be recorded in a trace file with before and after values.

## Portability

If portability is a requirement, specify attributes of the system that relate to the ease of porting the system to other host machines and/or operating systems. For example,

* Percentage of components with host-dependent code;
* Percentage of code that is host dependent;
* Use of a proven portable language;
* Use of a particular compiler or language subset;
* Use of a particular operating system;
* The need for environment-independence - the product must operate the same regardless of operating systems, networks, development or production environments.

# User Scenarios/Use Cases

Provide a summary of the major functions that the product will perform. Organize the functions to be understandable to the customer or a first time reader. Include use cases and business scenarios, or provide a link to a separate document (or documents). A business scenario:

* Describes a significant business need
* Identifies, documents, and ranks the problem that is driving the scenario
* Describes the business and technical environment that will resolve the problem
* States the desired objectives
* Shows the “Actors” and where they fit in the business model
* Is specific, and measurable, and uses clear metrics for success

# Deleted or Deferred Requirements

Identify any requirements that have been deleted after approval or that may be delayed until future versions of the system. For example:

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Req# | Business Requirement | Status | Comments | Pri | Date Rvwd | SME Reviewed /Approved |
| BR\_LR\_01 | The system should validate the relationship between Bargaining Unit/Location and Job Class. | April 2005: Deleted.  This requirement has been replaced by BR\_LR\_036 and BR\_CC\_33. | Business Process = “Assigning a Bargaining Unit to an Appointment” | 1 | 7/13/04 | Bob Dylan, Mick Jagger |
| BR\_LR\_02 | The system should validate that the supervisor indicator is correct according to job class.  Deferred to Phase 2B: 3/29/2005 | April 2005: Deferred to Phase 2B. | Business Process = “Assigning a Bargaining Unit to an Appointment” | 3 | 7/13/04 | Bob Dylan, Mick Jagger |
| BR\_LR\_03 | The system should derive the bargaining unit code, union code, and supervisor indicator from the job class code and location. | April 2005: Deleted  Replaced by BR\_LR\_16 and BR\_LR\_17. | Business Process = “Assigning a Bargaining Unit to an Appointment”; This will eliminate the need, typically, for the user to enter the bargaining unit code, union code and supervisor indicator. | 1 | 7/13/04 | Bob Dylan, Mick Jagger |

# Requirements Confirmation/Stakeholder sign-off

Include documentation of the approval or confirmation of the requirements here. For example:

|  |  |  |
| --- | --- | --- |
| Meeting Date | Attendees (name and role) | Comments |
| 7/13/07 | Bob Dylan, Labor Relations SME  Mick Jagger, Labor Relations SME  Ringo Starr, Technical Project Manager  Debbie Harry, Technical Analyst  Janis Joplin, Technical Analyst  Fred Meyer, Project Manager | Confirmed BR\_LR\_01 – BR\_LR\_15 |
| 04/15/05 | Bob Dylan, Labor Relations SME  Mick Jagger, Labor Relations SME  Ringo Starr, Technical Project Manager | Deferred / Deleted: BR\_LR\_01 - BR\_LR\_04, BR\_LR\_07, BR\_LR\_12, BR\_LR\_14, BR\_LR\_15, BR\_LR\_06, BR\_LR\_17 |

APPENDIX

The appendixes are not always considered part of the actual Requirements Specification and are not always necessary. They may include

* Sample input/output formats, descriptions of cost analysis studies, or results of user surveys;
* Supporting or background information that can help the readers of the Requirements Specification;
* A description of the problems to be solved by the system;
* Special packaging instructions for the code and the media to meet security, export, initial loading, or other requirements.

When appendixes are included, the Requirements Specification should explicitly state whether or not the appendixes are to be considered part of the requirements.

1. Definitions, Acronyms, and Abbreviations

Define all terms, acronyms, and abbreviations used in this document.

1. References

List all the documents and other materials referenced in this document.

1. Requirements Traceability Matrix

The following trace matrix examples show one possible use of naming standards for deliverables (FunctionalArea-DocType-NN). The number has no other meaning than to keep the documents unique. For example, the Bargaining Unit Assignment Process Flow would be BUA-PF-01.

For example (1):

| **Business Requirement** | **Area** | **Deliverables** | **Status** |
| --- | --- | --- | --- |
| BR\_LR\_01  The system should validate the relationship between Bargaining Unit/Location and Job Class.---Comments: Business Process = "Assigning a Bargaining Unit to an Appointment" (Priority 1) | BUA | BUA-CD-01  Assign BU Conceptual Design | Accepted |
| BUA-PF-01  Derive Bargaining Unit-Process Flow Diagram | Accepted |
| BUA-PF-01  Derive Bargaining Unit-Process Flow Diagram | Accepted |
| BR\_LR\_09  The system should provide the capability for the Labor Relations Office to maintain the job class/union relationship.---Comments: Business Process = "Maintenance" (Priority 1) | BUA | BUA-CD-01  Assign BU Conceptual Design | Accepted |
| BUA-PF-02  BU Assignment Rules Maint Process Flow Diagram | ReadyForReview |

For example (2):

| **BizReqID** | **Pri** | **Major Area** | **DevTstItems DelivID** | **Deliv Name** | **Status** |
| --- | --- | --- | --- | --- | --- |
| BR\_LR\_01 | 1 | BUA | BUA-CD-01 | Assign BU Conceptual Design | Accepted |
| BR\_LR\_01 | 1 | BUA | BUA-DS-02 | Bargaining Unit Assignment DB Modification Description | Accepted |
| BR\_LR\_01 | 1 | BUA | BUA-PF-01 | Derive Bargaining Unit-Process Flow Diagram | Accepted |
| BR\_LR\_01 | 1 | BUA | BUA-UCD-01 | BU Assign LR UseCase Diagram | ReadyForReview |
| BR\_LR\_01 | 1 | BUA | BUA-UCT-001 | BU Assignment by PC UseCase - Add Appointment and Derive UBU | Reviewed |
| BR\_LR\_01 | 1 | BUA | BUA-UCT-002 | BU Assignment by PC UseCase - Add Appointment (UBU Not Found) | Reviewed |
| BR\_LR\_01 | 1 | BUA | BUA-UCT-006 | BU Assignment by PC UseCase - Modify Appointment (Removed UBU) | Reviewed |
| BR\_LR\_09 | 1 | BUA | BUA-CD-01 | Assign BU Conceptual Design | Accepted |
| BR\_LR\_09 | 1 | BUA | BUA-DS-02 | Bargaining Unit Assignment DB Modification Description | Accepted |
| BR\_LR\_09 | 1 | BUA | BUA-PF-02 | BU Assignment Rules Maint Process Flow Diagram | Accepted |
| BR\_LR\_09 | 1 | BUA | BUA-UCD-03 | BU Assign Rules Maint UseCase Diagram | Reviewed |
| BR\_LR\_09 | 1 | BUA | BUA-UCT-045 | BU Assignment Rules Maint: Successfully Add New Assignment Rule | Reviewed |
| BR\_LR\_09 | 1 | BUA | BUA-UCT-051 | BU Assignment Rules MaintUseCase: Modify Rule | Reviewed |
| BR\_LR\_09 | 1 | BUA | BUA-UCT-053 | BU Assignment Rules MaintUseCase - Review Assignment Rules | Reviewed |
| BR\_LR\_09 | 1 | BUA | BUA-UCT-057 | BU Assignment Rules MaintUseCase: Inactivate Last Rule for a BU | Reviewed |
| BR\_LR\_09 | 1 | BUA | BUA-UI-02 | BU AssignRules Maint UI Mockups | ReadyForReview |
| BR\_LR\_09 | 1 | BUA | BUA-TC-021 | BU Assignment Rules Maint TestCase: Add New Rule (Associated Job Class Does Not Exist) - Success | ReadyForReview |
| BR\_LR\_09 | 1 | BUA | BUA-TC-027 | BU Assignment Rules Maint TestCase: Modify Rule - Success | ReadyForReview |
| BR\_LR\_09 | 1 | BUA | BUA-TC-035 | BU Assignment Rules Maint TestCase: Add New Rule (Associated Job Class Does Not Exist) - Error Condition | ReadyForReview |
| BR\_LR\_09 | 1 | BUA | BUA-TC-049 | BU Assignment Rules Maint TestCase: Modify Rule - Error Condition | ReadyForReview |

For example (3):

| **BizReqID** | **CD01** | **CD02** | **CD03** | **CD04** | **UI01** | **UI02** | **UCT01** | **UCT02** | **UCT03** | **TC01** | **TC02** | **TC03** | **TC04** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| BR\_LR\_01 |  |  | X |  | X |  | X |  |  | X |  | X |  |
| BR\_LR\_09 | X |  |  | X |  | X |  |  | X |  | X |  | X |
| BR\_LR\_10 | X |  |  | X |  |  |  |  | X |  | X |  |  |
| BR\_LR\_11 |  | X |  |  |  |  |  |  |  |  |  |  |  |

1. Organizing the Requirements

This section is for information only as an aid in preparing the requirements document.

Detailed requirements tend to be extensive. Give careful consideration to your organization scheme. Some examples of organization schemes are described below:

By System Mode

Some systems behave quite differently depending on the mode of operation. For example, a control system may have different sets of functions depending on its mode: training, normal, or emergency.

By User Class

Some systems provide different sets of functions to different classes of users. For example, an elevator control system presents different capabilities to passengers, maintenance workers, and fire fighters.

By Objects

Objects are real-world entities that have a counterpart within the system. For example, in a patient monitoring system, objects include patients, sensors, nurses, rooms, physicians, medicines, etc. Associated with each object is a set of attributes (of that object) and functions (performed by that object). These functions are also called services, methods, or processes. Note that sets of objects may share attributes and services. These are grouped together as classes.

By Feature

A feature is an externally desired service by the system that may require a sequence of inputs to affect the desired result. For example, in a telephone system, features include local call, call forwarding, and conference call. Each feature is generally described in a sequence of stimulus-response pairs, and may include validity checks on inputs, exact sequencing of operations, responses to abnormal situations, including error handling and recovery, effects of parameters, relationships of inputs to outputs, including input/output sequences and formulas for input to output.

By Stimulus

Some systems can be best organized by describing their functions in terms of stimuli. For example, the functions of an automatic aircraft landing system may be organized into sections for loss of power, wind shear, sudden change in roll, vertical velocity excessive, etc.

By Response

Some systems can be best organized by describing all the functions in support of the generation of a response. For example, the functions of a personnel system may be organized into sections corresponding to all functions associated with generating paychecks, all functions associated with generating a current list of employees, etc.

By Functional Hierarchy

When none of the above organizational schemes prove helpful, the overall functionality can be organized into a hierarchy of functions organized by common inputs, common outputs, or common internal data access. Data flow diagrams and data dictionaries can be used to show the relationships between and among the functions and data.

Additional Comments

Whenever a new Requirements Specification is contemplated, more than one of the organizational techniques given above may be appropriate. In such cases, organize the specific requirements for multiple hierarchies tailored to the specific needs of the system under specification.

There are many notations, methods, and automated support tools available to aid in the documentation of requirements. For the most part, their usefulness is a function of organization. For example, when organizing by mode, finite state machines or state charts may prove helpful; when organizing by object, object-oriented analysis may prove helpful; when organizing by feature, stimulus-response sequences may prove helpful; and when organizing by functional hierarchy, data flow diagrams and data dictionaries may prove helpful.