April 27

IS 345
Notebook

2017

Systems Analysis

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SD1 – Essential Software Requirements

Definitions

Requirements

Requirements are a specification of what should be implemented. They are descriptions of how the system should behave, or a system property or attribute. They may be a constraint on the development process of the system

Business requirement

A high-level business objective of the organization that builds a product or od a customer who procures it.

Business Rule

A policy, guideline, or regulation that defines or contrains some aspect of the business. Not a software requirement in itself, but the origin of several types of software requirements.

Constraint

A restriction that is imposed on the choices available to the developer for the design and construction of a product.

External Interface Requirement

A description of a connection between a software system and a user, another software system, or a hardware device.

Feature

One or more logically related system capabilities that provide value to a user and are described by a set of functional requirements.

Functional Requirement

A description of a behavior that a system will exhibit under specific conditions.

Nonfunctional Requirement

A description of a property or characteristic that a system must exhibit or a constraint that is must respect.

Quality Attribute

A kind of nonfunctional requirement that describes a service or performance characteristic of a product

System Requirement

A top-level requirement for a product that contains multiple subsystems, which could be all software or software and hardware.

User Requirement

A goal or task that specific classes fo users must be able to perform with a system, or a desired product attribute.

Requirements Hierarchy
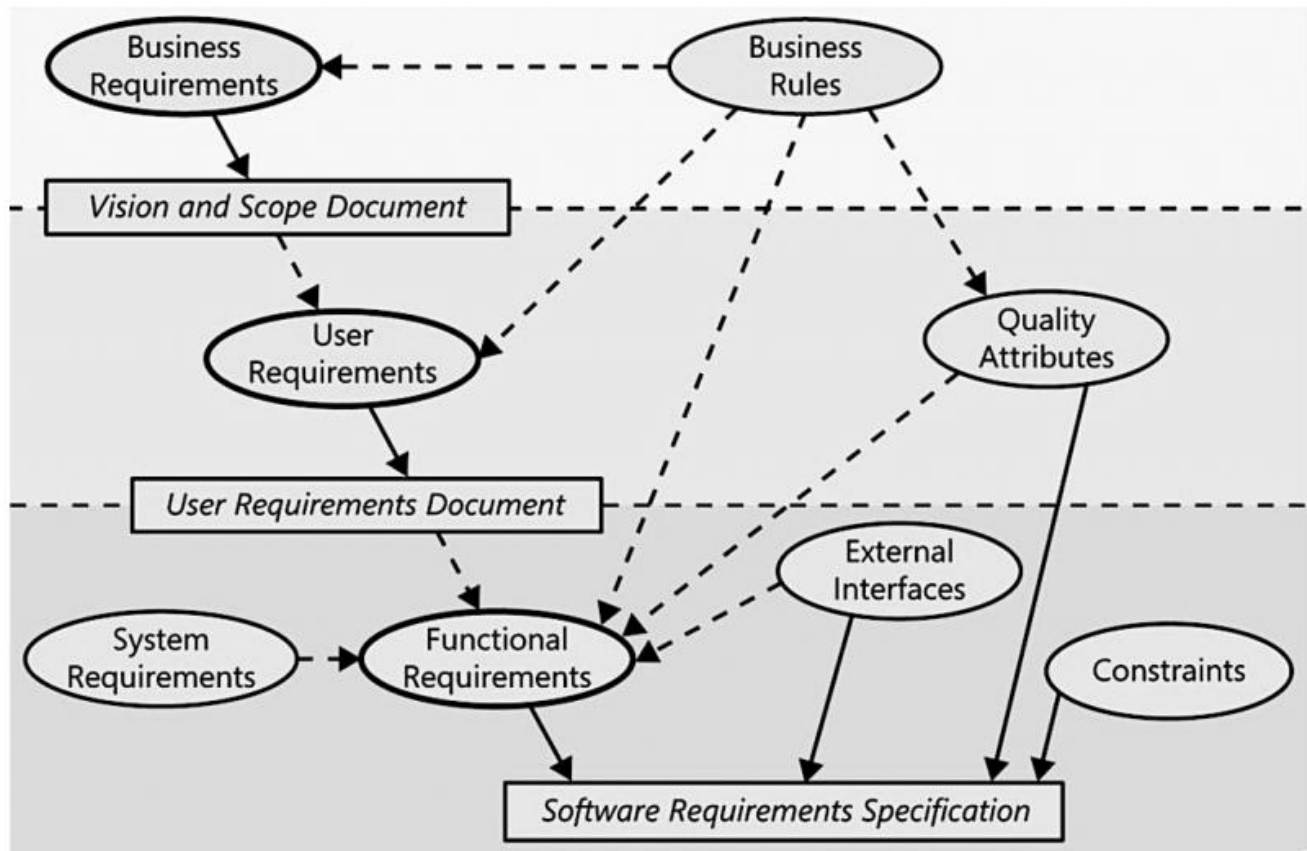
Business Rules

- Policies, guidelines, standards or regulations that constrain how a business functions
- Includes
  - Facts
  - Constraints
  - Action enablers (triggers)
  - If-then rules
  - Formulas
- Can be documented as architectural artifacts

Business Requirements

- High level business objectives of the organization or customer
- Represents the motivation for implementing the system
- Justifies the investment in the development process

- Should be documented in the vision and scope statement for the system

User Requirements

- A goal or task that specific classes of users must be able to accomplish, or a desired attribute
- Includes attributers or characteristics important to user satisfaction
- Document in the form of use cases, user stories, or event-response tables

System Requirements

- Top Level Requirements for the system as a whole
- Written in the form of functional requirements
- Can be documented as architectural artifacts

Functional Requirements

- A description of system behavior under specific conditions
- Documents system features
- Breaks out system requirements
- Describe what must be implemented

Nonfunctional Requirements

- A property or characteristic the system must echibit or a constraint that it must respecy
- Includes
  - Quality of service requirements
  - Performance
  - Safety
  - Availability
  - Portability
  - Reliability
  - Scalability

Features

- System capabilities that provide value
- Can cross cut task related functionality

- Can encompass multiple user requirements
- Documented in functional requirements

Feature Tree

Web Browser

Bookmarks

Add a Bookmark

Export Bookmarks

Go to a Bookmarked Location

Edit Bookmarks

Cookies

Tabs

Add-Ins

1. *The system shall display bookmarks as a collapsible and expandable hierarchical tree.*
2. *The user shall be able to resequence bookmarks.*
3. *The system shall display bookmark properties.*
4. *The user shall be able to modify a bookmark's name, URL, and description.*

Key

Feature

User Requirement

1. *Functional Requirement*

Hierarchy of Stakeholder Participation

Requirements information flows between hierarchy levels through multiple pathways
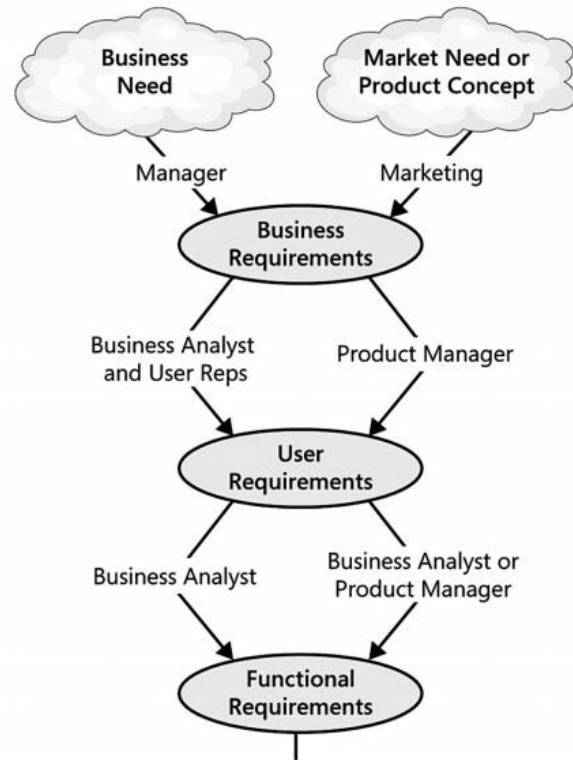
Requirements Development Process
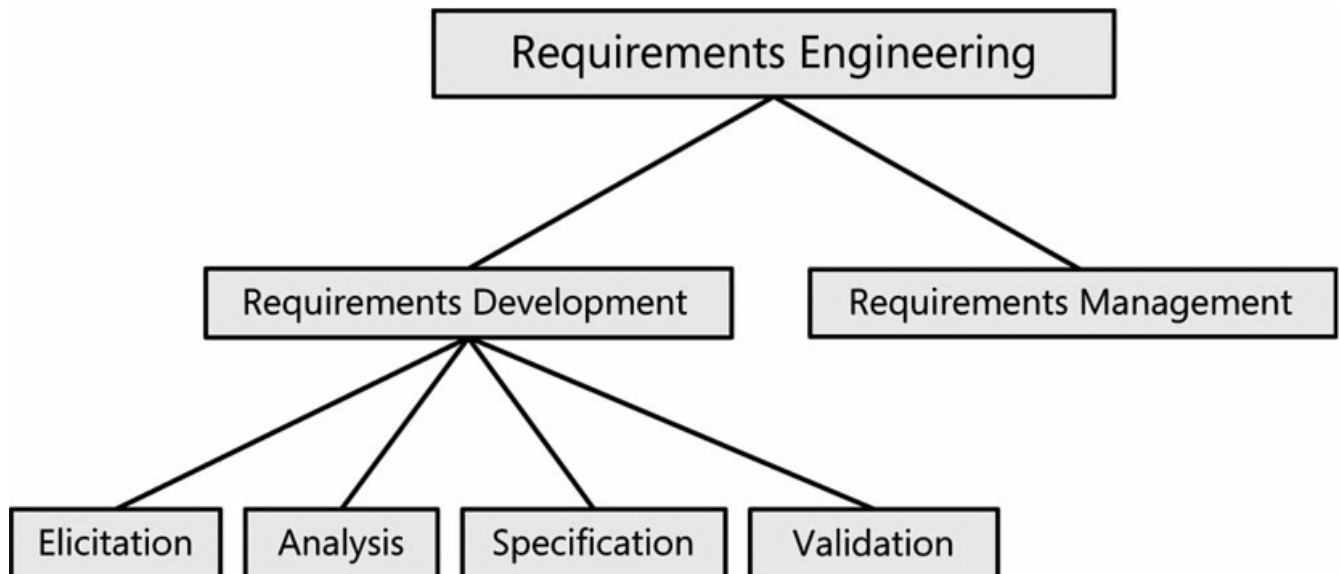
Phases of Requirements Development

- Elicitation

- Analysis

- Specification

- Validation

Elicitation Tasks

- Identify user classes and other stake holders

- Understand user tasks and goals and their underlying business objectives

- Learn about the environment and context

- Understand the functional needs and quality expectations of each user class

Analysis Tasks

- Analyze user feedback to distinguish task goals from functional requirement, quality expectations, business rules and design suggestions

- Decompose high level requirements to an appropriate level detail

- Derive Functional Requirements

- Understand functional requirements

- Allocate requirements to software components defined in the system architecture

- Negotiate implementation priorities

- Identify gaps in requirements or unnecessary requirements given defined scope

Specification Tasks

- Translate the user needs into written requirements

- Identify requirements origins – which stakeholders care

- Uniquely label requirements so they can be tracked and modified as needed

Validation Tasks

- Review all documentation to ensure consistency and completeness

- Develop tests at the function and user requirements levels

- Define acceptance criteria that will meet customer needs and business objectives

Requirements Management Tasks

- Define the requirements baseline

- Evaluate the impact of proposed changes when requested

- Incorporate approved changed in a controlled manner

- Keep project plans current with evolving requirements

- Negotiate new commitments when requirements change

- Define relationships and dependencies between requirements

- Trace individual requirements to their corresponding design, source code, and tests

- Track requirements status and change activity throughout the project

Requirements Development vs. Management
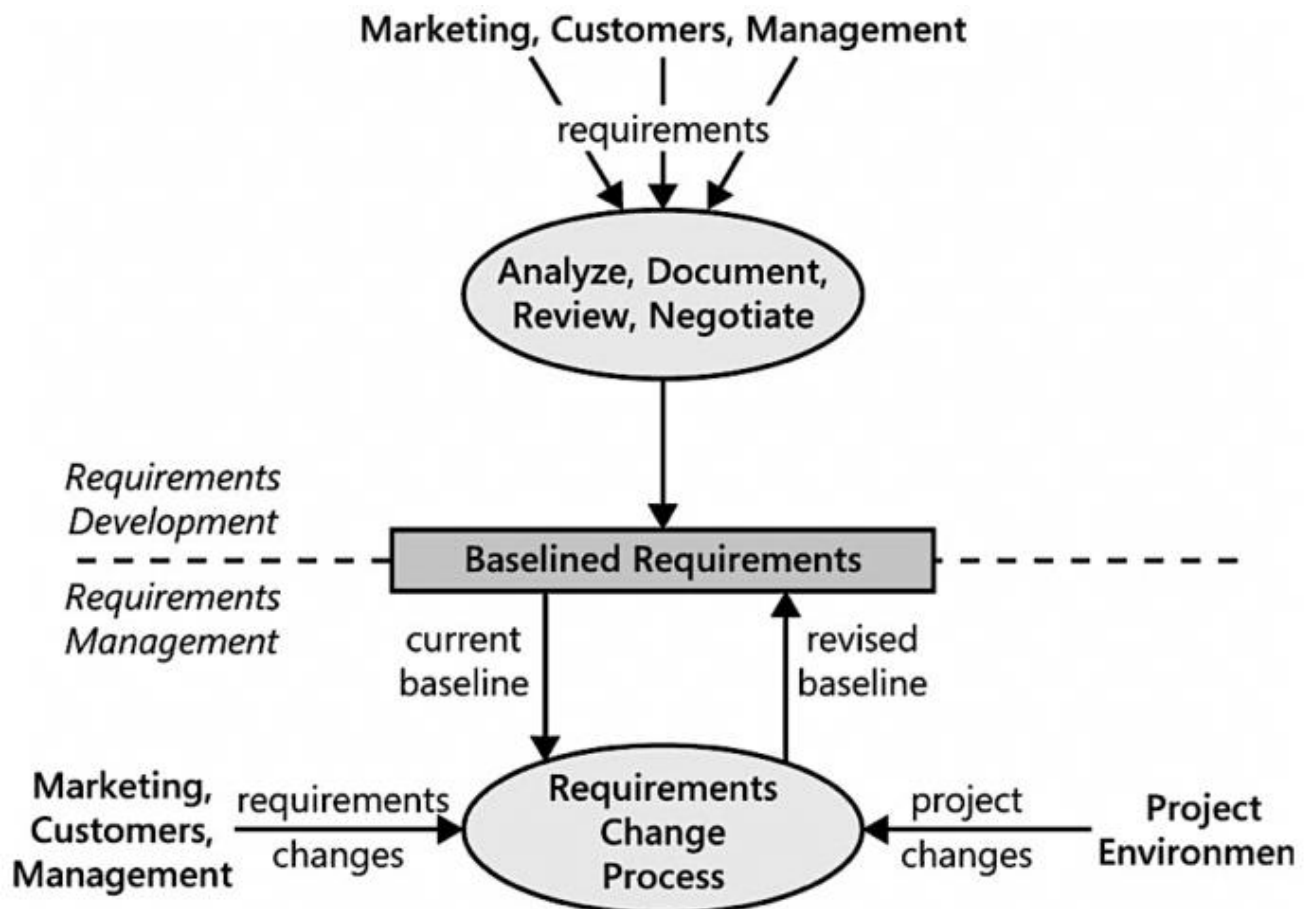
What Can go Wrong

- Insufficient user involvement

- Inaccurate planning

- Creeping requirements
- Ambiguous requirements
- Gold plating
- Overlooked stakeholders

Why do it

- Fewer Defects
- Reduced Rework
- Faster delivery
- Fewer unused features
- Less scope creep
- Reduced cost
- Higher satisfaction
- Systems that do what they're supposed to

SD2 – Requirements and the Customer

Customer contact and the expectation gap
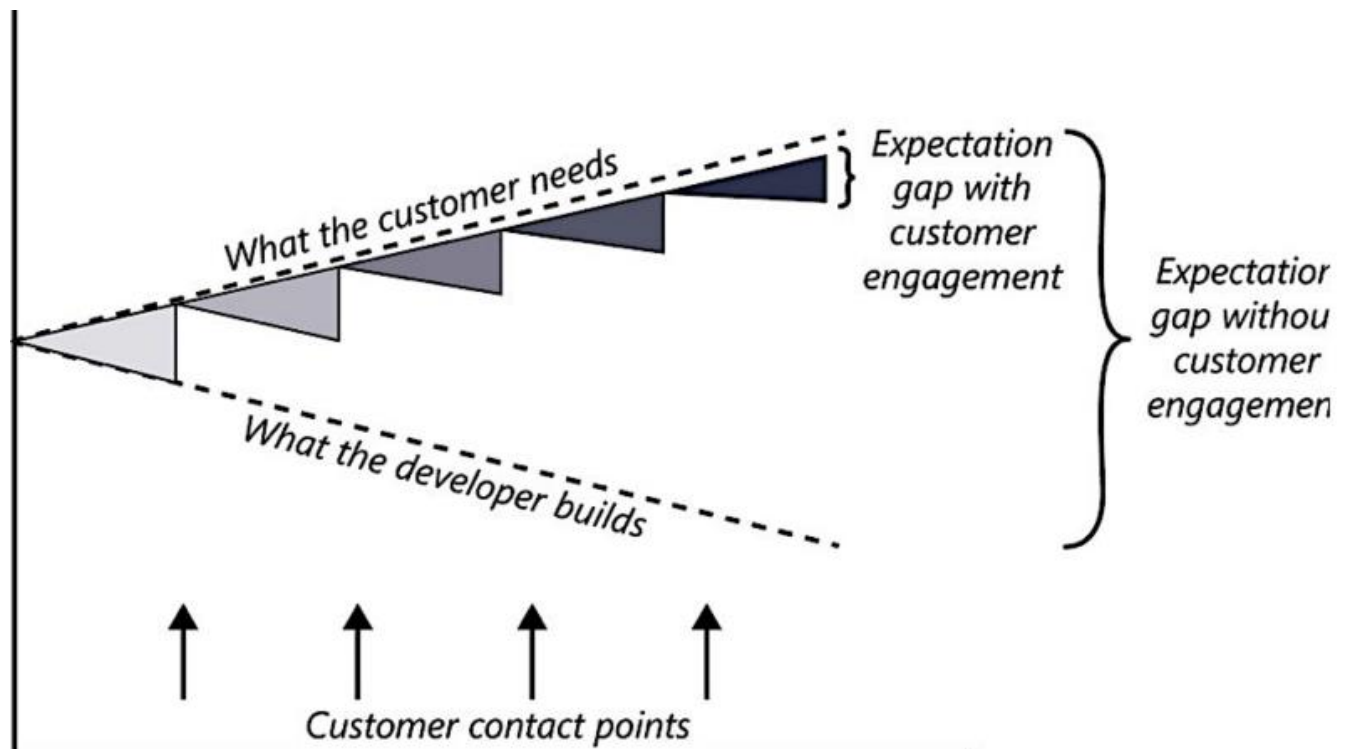
Stakeholder Analysis

- Who are the stakeholders?

- Different types of stakeholders

  - Internal/External

  - Customers

  - Users/End Users

  - Direct/Indirect

Outside the Developing Organization

Outside the Developing Organization

Direct user	Business management	Consultant
Indirect user	Contracting officer	Compliance auditor
Acquirer	Government agency	Certifier
Procurement staff	Subject matter expert	Regulatory body
Legal staff	Program manager	Software supplier
Contractor	Beta tester	Materials supplier
Subcontractor	General public	Venture capitalist

Developing Organization

Development manager	Sales staff	Executive sponsor
Marketing	Installer	Project management office
Operational support staff	Maintainer	Manufacturing
Legal staff	Program manager	Training staff
Information architect	Usability expert	Portfolio architect
Company owner	Subject matter expert	Infrastructure support staff

Project Team

Project manager	Tester
Business analyst	Product manager
Application architect	Quality assurance staff
Designer	Documentation writer
Developer	Database administrator
Product owner	Hardware engineer
Data modeler	Infrastructure analyst
Process analyst	Business solutions architect

You Have the right to…

1. Expect Bas to speak your language
2. Expect Bas to learn about your business and your objectives
3. Expect Bas to record requirements in an appropriate form
4. Receive explanations of requirements practices and deliverables
5. Change your requirements
6. Expect and environment of mutual respect
7. Hear ideas and alternatives for your requirements and for their solution
8. Describe characteristics that will make the product easier to use
9. Hear about ways to adjust requirements to accelerate development through reuse
10. Receive a system that meets your functional needs and quality expectations

You have the responsibility to…

1. Educate Bas and developers about your business
2. Dedicate the time this it takes to provide and clarify requirements
3. Be specific and precise when providing input about requirements
4. Make timely decisions about requirements when asked
5. Respect a developer's assessment of the cost and feasibility of requirements
6. Set realistic requirement priorities in collaboration with developers
7. Review requirements and evaluate prototypes
8. Establish acceptance criteria
9. Promptly communicate changes to the requirements
10. Respect the requirements development process

SD3 – Requirements Engineering

Requirements Engineering Process

Requirements effort varies by development life cycle

Initial/Iterated Steps of requirements Development

Initial steps for project initiation

1. Define business requirements
2. Identify user classes
3. Identify user representatives
4. Identify requirements decision makers
5. Plan elicitation
6. Identify user requirements

7. Prioritize user requirements

Iterated steps for each release

8. Flesh out user requirements

9. Derive functional requirements

10. Model the requirements

11. Specify nonfunctional requirements

12. Review requirements

13. Develop prototypes

14. Allocate requirements to components

15. Develop tests from requirements

16. Validate:

    a. User requirements

    b. Functional requirements

    c. Nonfunctional requirements

    d. Analysis model

    e. Prototypes

SD4 – The Analyst

Analyst as a Fulcrum
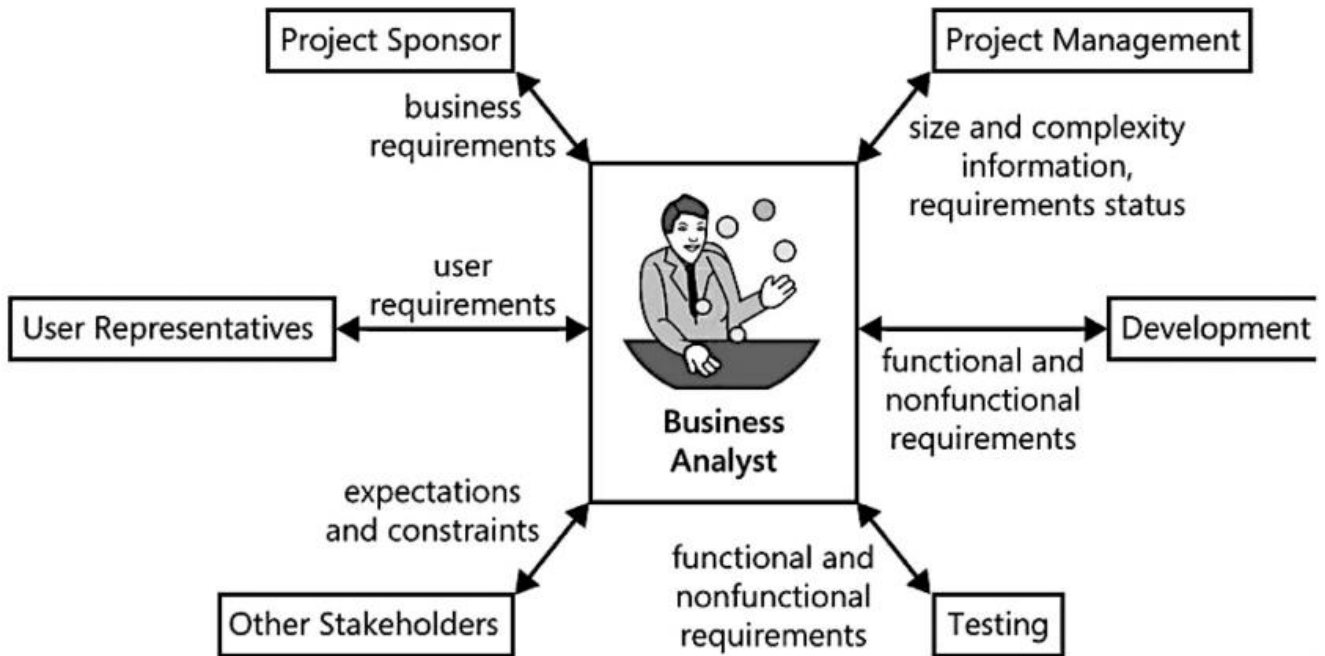
The Analyst's Tasks

- Define Business Requirements

- Plan the Requirements Approach

- Identify Stakeholders & User Classes

- Elicitation

- Analysis

- Document Requirements

- Communicate Requirements

- Lead Requirements Validation

- Facilitate Requirements Prioritization

- Manage Requirements

Analyst Skills

- Listening

- Interviewing & Questioning

- Thinking on your feet

- Analysis

- Systems Thinking

- Learning

- Facilitation

- Leadership

- Observing

- Communicating

- Organizing

- Communicating

- Modeling

- Interpersonal skills

- Creativity

Analyst's role in an agile process

- The requirements process would be flexible

- Requirements should be documented at the right level

- Define the form of items in the backlog

- Ensure stakeholder perspectives are up to date

- Validate that customer needs are accurately documented in the backlog

- Facilitate backlog prioritization

SD5 – Business Requirements

Defining Business Requirements

- Identify Desired Business Benefits

- Develop Project Vision

- Define/Refine project scope

- Make sure the vision achieves the benefits

- Resolve conflicts between business requirements

The Vision and Scope Statement Template

1. Business Requirements
2. Scope and Limitations
3. Business Context

1. Business Requirements

1. Background
2. Business Opportunity
3. Business Objectives
4. Success Metrics
5. Vision Statement
6. Business Risks
7. Assumptions and Dependencies

2. Scope and Limitations

1. Major Features
2. Scope of Initial Releases
3. Scope of Subsequent Releases
4. Limitations and Exclusions

3. Business Context

1. Stakeholder Profiles
2. Project Priorities
3. Deployment Considerations

Scope Presentation Techniques

- Context Diagram
- Ecosystem Map
- Feature Tree
- Event List

Context Diagram
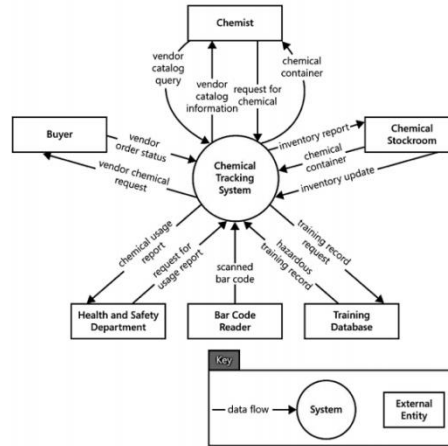
Ecosystem Map
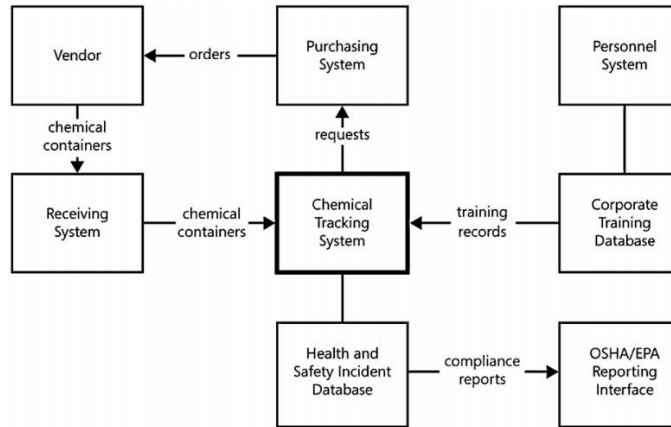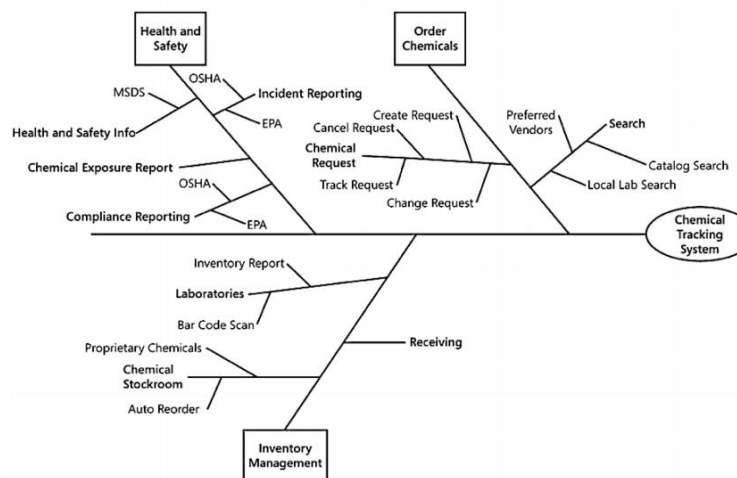
Feature Tree

Event List

External Events for Chemical Tracking System

- Chemist places a chemical request

- Chemical container bar code is scanned

- Time to generate OSHA compliance report arrives

- Vendor issues new chemical catalog

- New proprietary chemical is accessioned into system

- Vendor indicates chemical is back-ordered

- Chemist asks to generate his chemical exposure report

- Updated material safety data-sheet is received from EPA

- New vendor is added to preferred vendor list

- Chemical container is received from vendor

Keeping Scope in Focus

- Use business objectives to make decisions about scope

- Assess the impacts of scope changes

- Use business objectives to determine completion

Vision and Scope for Agile Projects

- Agile process is always focused on the satisfying the prioritized backlog items

- Scope creep may cause project end to be moved back

SD6 – User Classes

Outside the Developing Organization

Outside the Developing Organization

Direct user	Business management	Consultant
Indirect user	Contracting officer	Compliance auditor
Acquirer	Government agency	Certifier
Procurement staff	Subject matter expert	Regulatory body
Legal staff	Program manager	Software supplier
Contractor	Beta tester	Materials supplier
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Business analyst	Product manager
Application architect	Quality assurance staff
Designer	Documentation writer
Developer	Database administrator
Product owner	Hardware engineer
Data modeler	Infrastructure analyst
Process analyst	Business solutions architect

Hierarchy of Stakeholders

- Stakeholders

- Customers

- Users (Direct/Indirect)

- Favored User Classes

- Disfavored User Classes

- Ignored User Classes

- Other User Classes
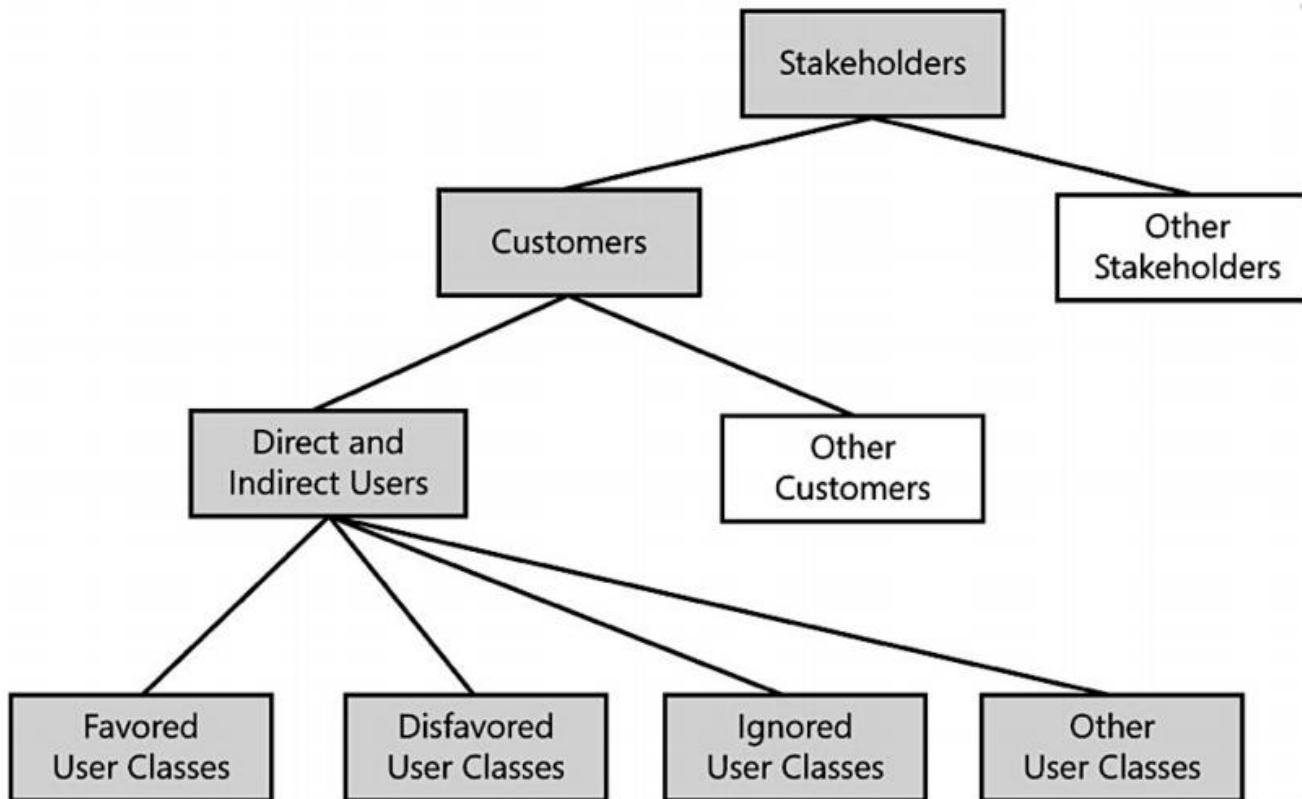
Definitions

Stakeholder

An Individual, group or organization that is actively involved in a project, is affected by its process or outcome, or can influence or process or outcome

Customer

An individual or organization that derives either direct or indirect benefit from a product. Customers may request, pay for, select, specify, use o receive the output generated by a product.

User

A customer who is interact with a system either directly or indirectly (e.g. receiving results from the system). Synonymous with End User

Distinction for classifying Users

- Task perfoemed
- Features used
- Access priviliges

- Frequency of use

- Expertise

- Platform used

- Language

- Direct or indirect interaction

Types of User Classes

Favored User Classes

User whose satisfaction is most closely aligned with the project's business objectives

Disfavored User Classes

Users who are not intended to use the system for legal, security or safety reasons

Ignored User Classes

Users who will use the system, but whose requirements are ignored

Strategy for Identifying User Classes

1. Enumerate Everyone

2. Group like users together

Do not leave anyone out! Where do we find users? Scope documentation!

Context Diagram
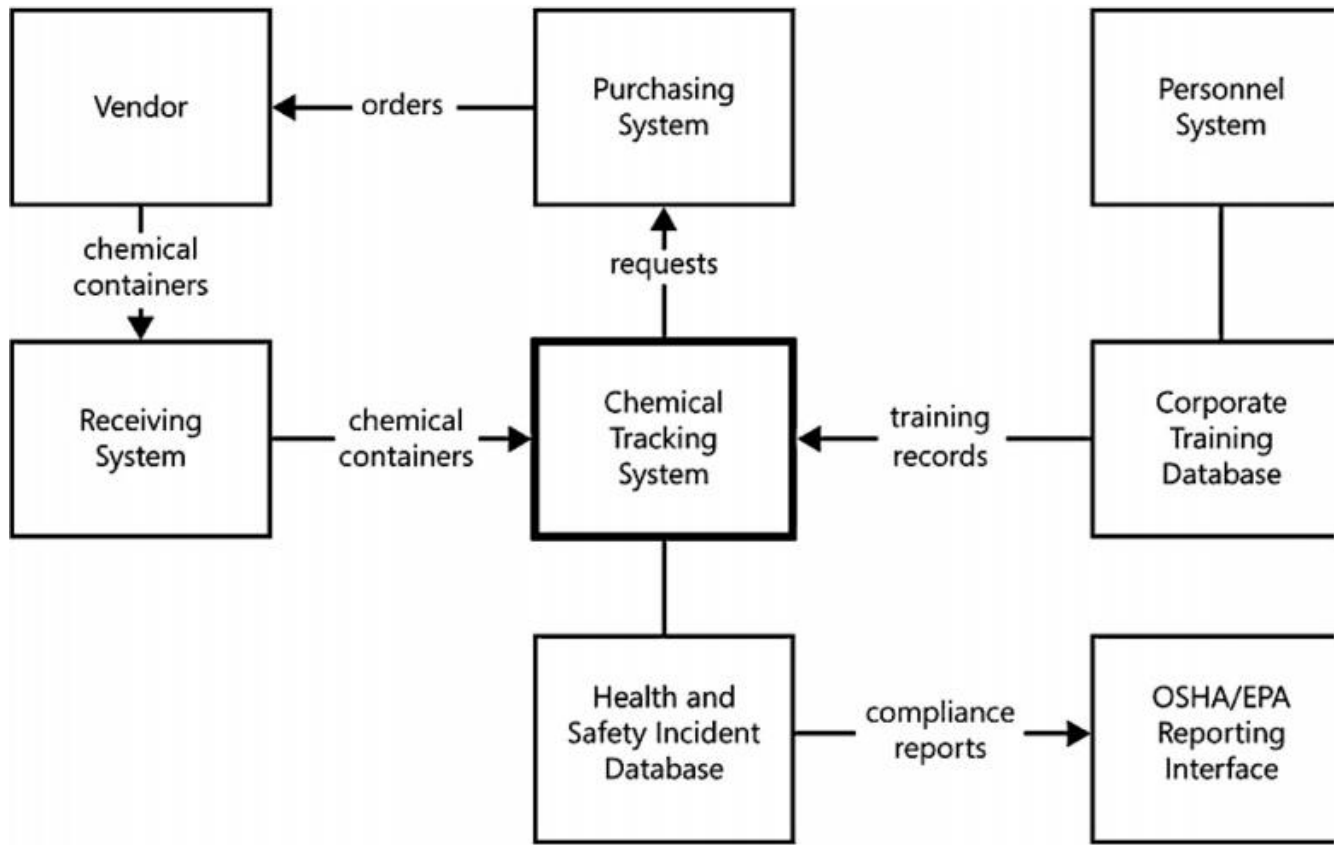
Chemist
- vendor catalog query
- vendor catalog information
- request for chemical
- chemical container

Buyer
- vendor order status
- vendor chemical request

Chemical Tracking System

Chemical Stockroom
- inventory report
- chemical container
- inventory update

Health and Safety Department
- chemical usage report
- request for usage report

Bar Code Reader
- scanned bar code

Training Database
- training record request
- hazardous training record

Key
- data flow → System
- External Entity

Ecosystem Map

Event List

External Events for Chemical Tracking System

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Example Organization Chart
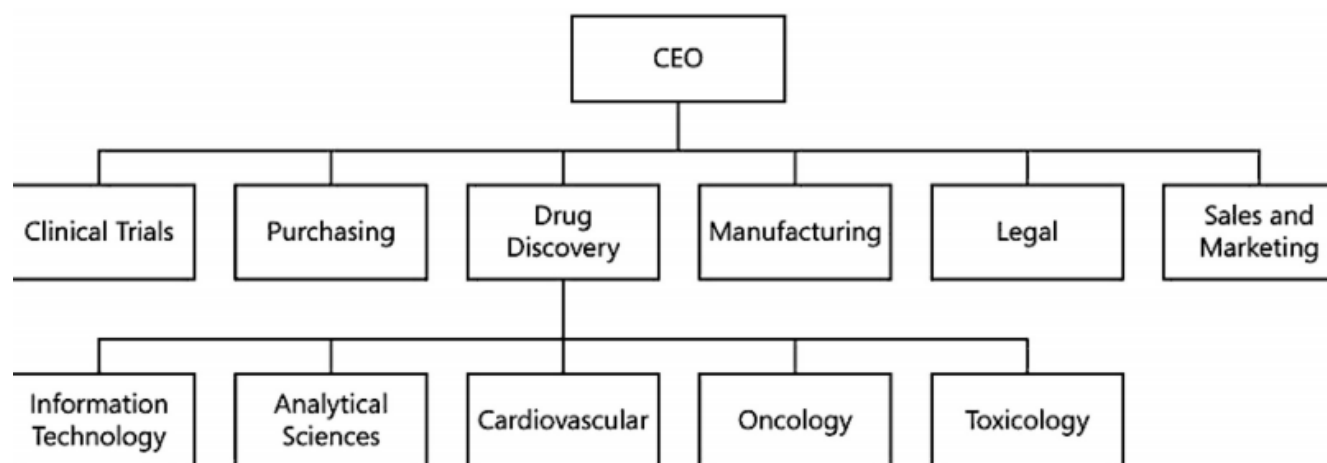
Document the user classes

| Name	Number	Description
Chemist (Favored)	Approximately 1,000 located in 6 buildings	Chemists will request chemicals from vendors and from the chemical stockroom. Each chemist will use the system and several times per day, mainly for requesting chemicals and tracking chemical containers into and out of the laboratory. The chemists need to search vendor catalogs doe specific chemical structures imported from the tools they use for drawing structures
Buyers	5	Buyers in the purchasing department process chemical requests. They place and track orders with external vendors. They know little about chemistry and need simple query facilities to search vendor catalogs. Buyers will not use the system's container-tracking features. Each buyer will use the system an average of 25 times per day.
Chemical Stockroom Staff	6 technicians, 1 supervisor	The chemical stock room staff manages inventory of more than 500,000 chemical containers. They will supply containers from three stockrooms, request new chemicals from vendors, and track the movement of all containers into and out of the stockrooms. They are the only users of the inventory-reporting feature. Because of their high transaction volume, features that are used only by the chemical stockroom staff must be automated and efficient.
Health and safety Department staff (favored)	1 manager	The Health and Safety Department staff will use the system only to generate predefined quarterly reports that comply with federal and state chemical usage and disposal reporting regulations. The Health and Safety Department manager will request changes in the reports periodically as government regulations change. These reports changes are of the highest priority, and implementation will be time critical

Getting User Interaction

- User representatives

- User personas

- Product champions

Communication Pathway
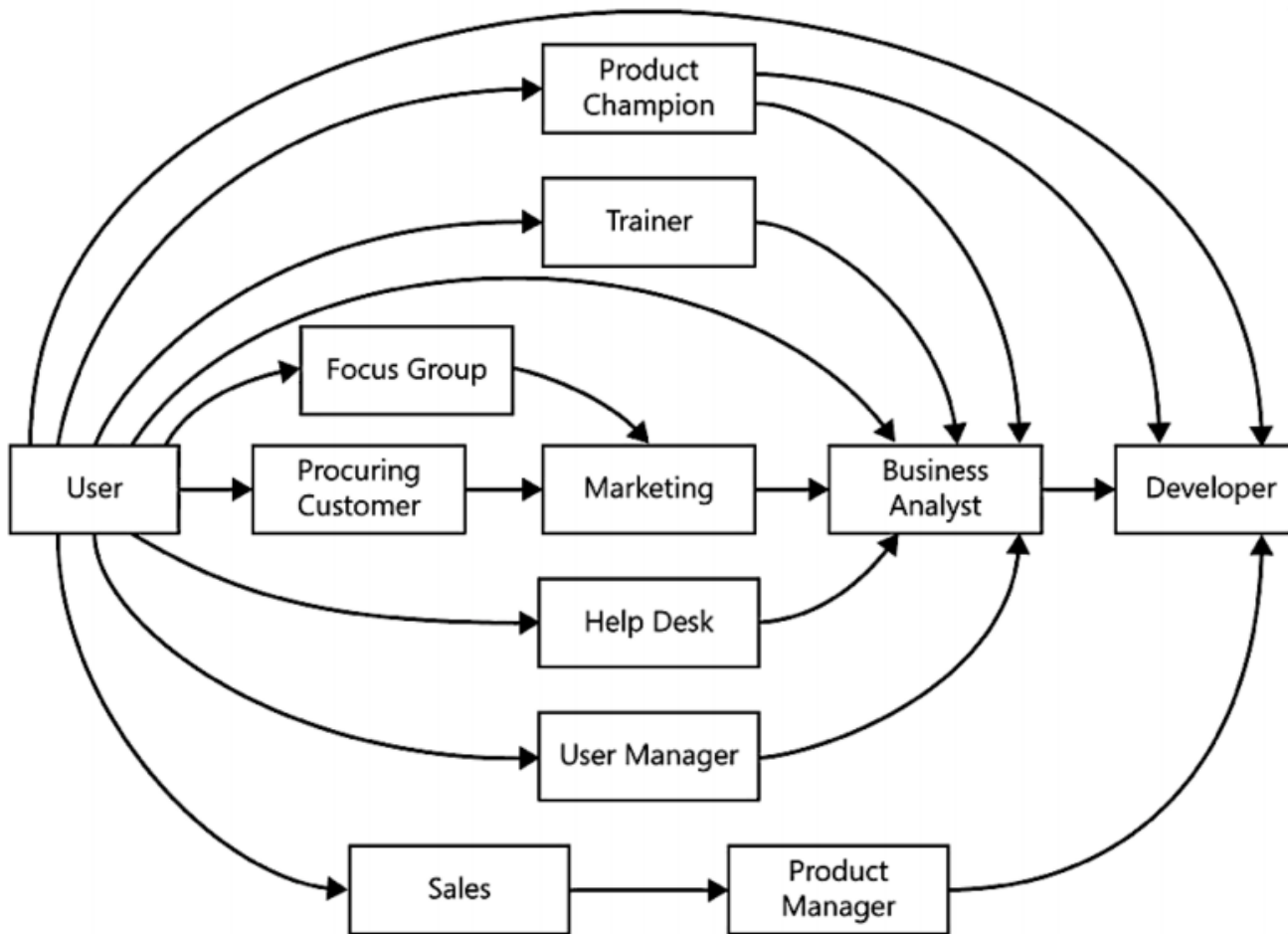
Product Champion Activities

- Planning & Scope Refinement

- Requirements Development

- Validation & Verification or Requirements

- Creating User Aids to Facilitate Implementation

- Requirements Change Management

Product Champion Model
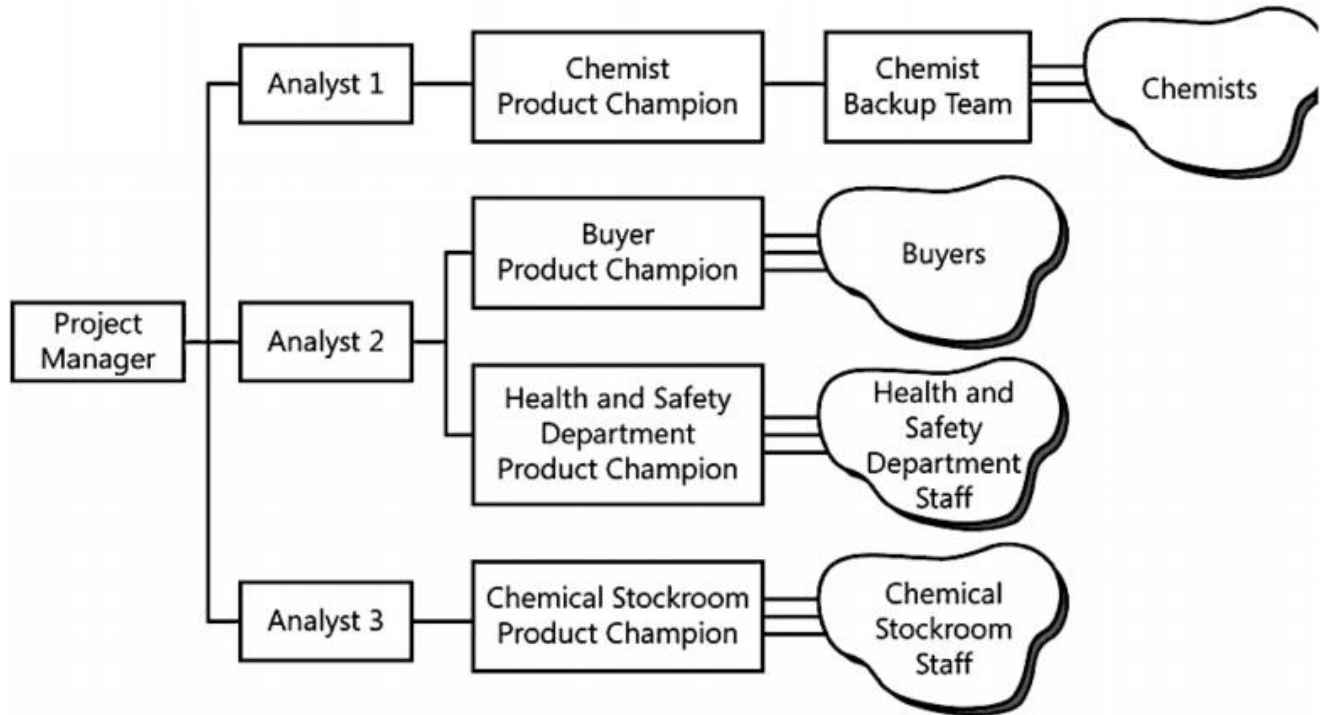
Resolving Conflict Requirement

Disagreement Between	How to resolve
Individual Users	Product Champion or product owner decides
User Classes	Favored user class gets preference
Market Segments	Segment with greatest impact on business success gets preference
Corporate Customers	Business objectives dictate decision
Users and User Management	Product owner or product champion for the user class decides
Development and customers	Customers get preference, but in alignment with business objectives
Development and Marketing	Marketing gets preference

SD7 – Requirements Elicitation

Activities in an elicitation process
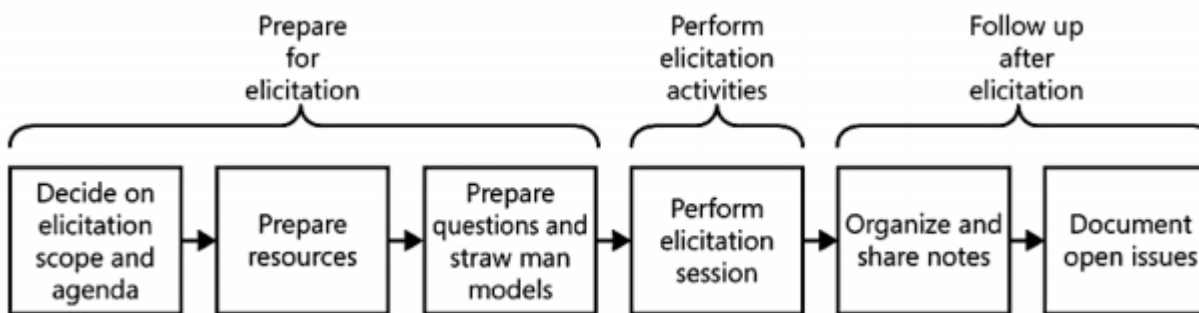
Elicitation Techniques

- Interviews
- Workgroups
- Focus Groups
- Observation
- Questionnaires
- System Interface Analysis
- User Interface Analysis
- Document Analysis

Elicitation Planning

- Identify objectives (scope)
- Choose techniques (based on stakeholders)
- Schedule activities
- Identify required materials
- Define expected products
- Identify Risks

Suggested elicitation techniques by project characteristic

	Interviews	Workshops	Focus groups	Observations	Questionnaires	System interface analysis	User interface analysis	Document analysis
Mass-market software	X		X		X			
Internal corporate software	X	X	X	X		X		X
Replacing existing system	X	X		X		X	X	X
Enhancing existing system	X	X				X	X	X
New application	X	X				X		
Packaged software implementation	X	X		X		X		X
Embedded systems	X	X				X		X
Geographically distributed stakeholders	X	X			X			

Activities in an elicitation session

Prepare for elicitation			Perform elicitation activities	Follow up after elicitation	
Decide on elicitation scope and agenda	Prepare resources	Prepare questions and straw man models	Perform elicitation session	Organize and share notes	Document open issues
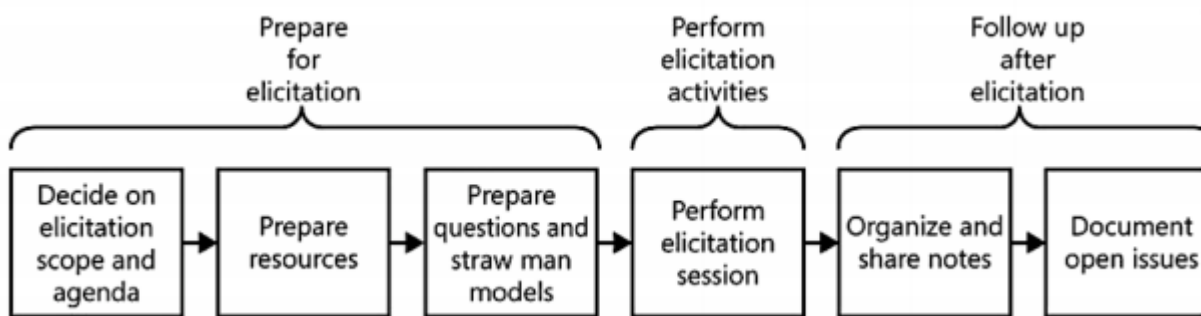
Preparation

- Define session scope
- Plan agenda
- Prepare resources
- Learn about the stakeholders in the session
- Prepare questions
- Prepare straw man models

Performing

- Educate stakeholders
- Take good notes (how?)
- Use the physical space

Follow up

- Organize and share notes
- Document open issues
- Classify input

Classifying input
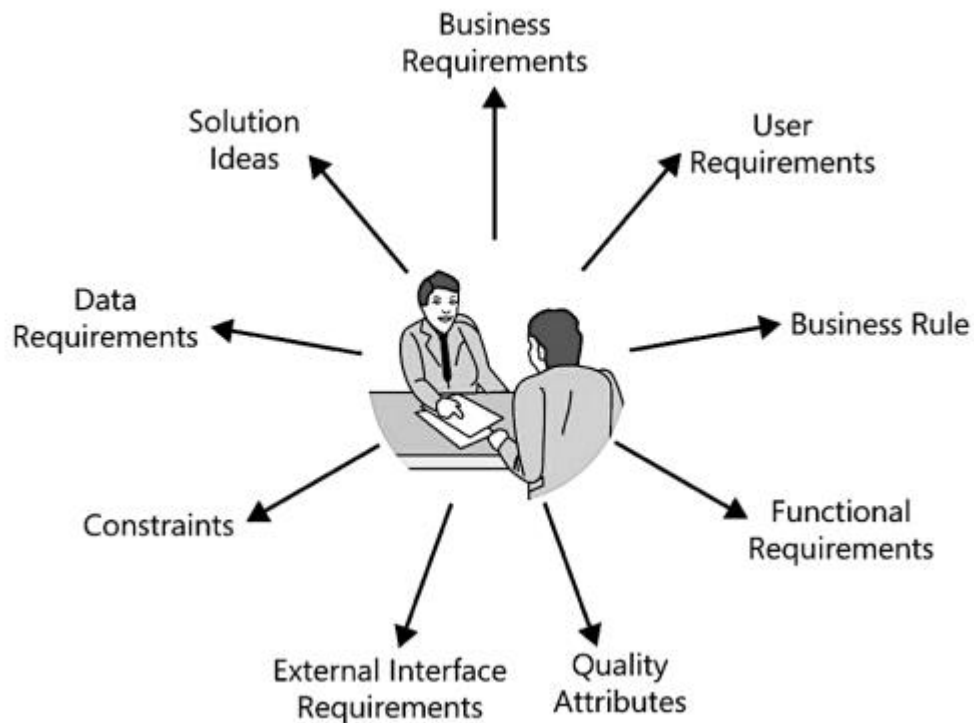
When to stop?

- Fewer or no new use cases or user stories
- New cases/stories don't lead to new features
- New features, requirements, cases or stories are all out of scope
- New features, requirements, cases or stories are all low priority

Risk mitigation for elicitation

- Balance stakeholder representation so everyone is heard

- Define scope appropriately – solutions should solve problems

- Avoid design arguments when collecting requirements – care about the *what* not the *how*

- Spin research needs off into project threads

The unstated risks

- Assumed requirements – what is expected about being stated

- Implied requirements – what is needed because of another requirement but no explicitly stated

Missing Requirements

- Decompose high level requirements to reveal what is actually requested

- Ensure all user classes provide input

- Trace all requirements (at any level) down to functional requirements

- Check boundary for values for missed cases represent requirements in multiple ways (text, graphics, tests, etc.)

- Make sure all logical conditions are examined and have functional requirements associated with them

- Use checklist of common functional areas

- Use data model – entities need functionality to create, read, update, and delete them (CRUD)

SD8 – User Requirements

Product-centric vs. user-centric

Product-Centric

- What the system does

- Starts with features

User-centric

- What users do

- Starts with user's goals

User-centric pros & cons

- Good for business application that a focus on user interaction

- Not for computationally intensive systems or real0time and embedded system

Use Cases

- Names with verb – object pairs

- Describe a sequence of interaction between a system and an external actor

Use case Examples

Application	Sample use case
Chemical tracking system	Request a chemical Print material safety data sheet Change a Chemical Request Check status of a order Generate Quarterly Chemical-Usage reports
Airport check-in kiosk	Check in for a flight Print Boarding Pass Change Seats Check Luggage Purchase an Upgrade
Accounting System	Create an Invoice Reconcile an Account Statement Enter a Credit Card Transaction Print Tax Forms for Vendors Search for a specific Transaction
Online Bookstore	Update Customer Profile Search for an Item Buy an Item Track a Shipped Package Cancel an Unshipped Order

User Stories

A short, simple description of a feature told from the perspective of the person who desires the new capability

Template Form:

> As a <type of user>, I want <goal> so that <reason>

Use Case – User Story Correspondence

Application	Sample Use Case	Corresponding User Story
Chemical Tracking System	Request a Chemical	As a chemist, I want to request a chemical so that I can perform experiments
Airport Check-in Kiosk	Check in for a flight	As a traveler, I want to check in for a flight so that I can fly to my destination
Accounting System	Create an Invoice	As a small business owner, I want to create an invoice so that I can bill a customer
Online Bookstore	Update customer Profile	As a customer, I want to update my customer profile so that future purchases are billed to a new credit card number

User requirements lead to functional requirements
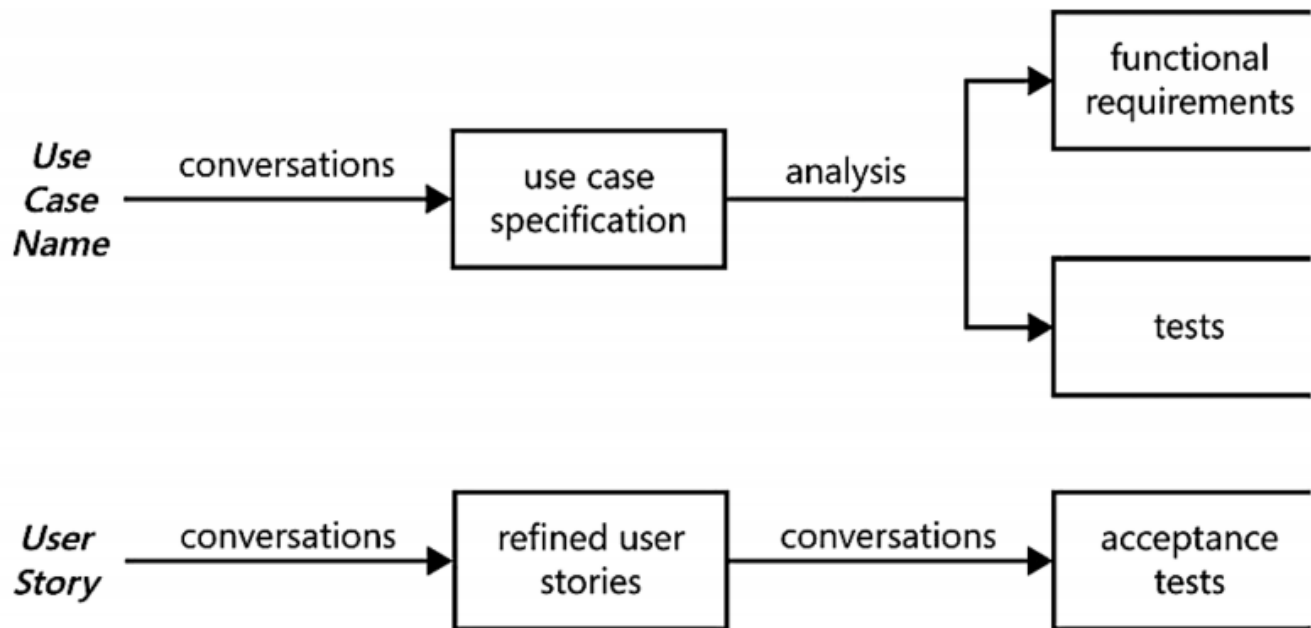
Use Case Diagram

A use Case

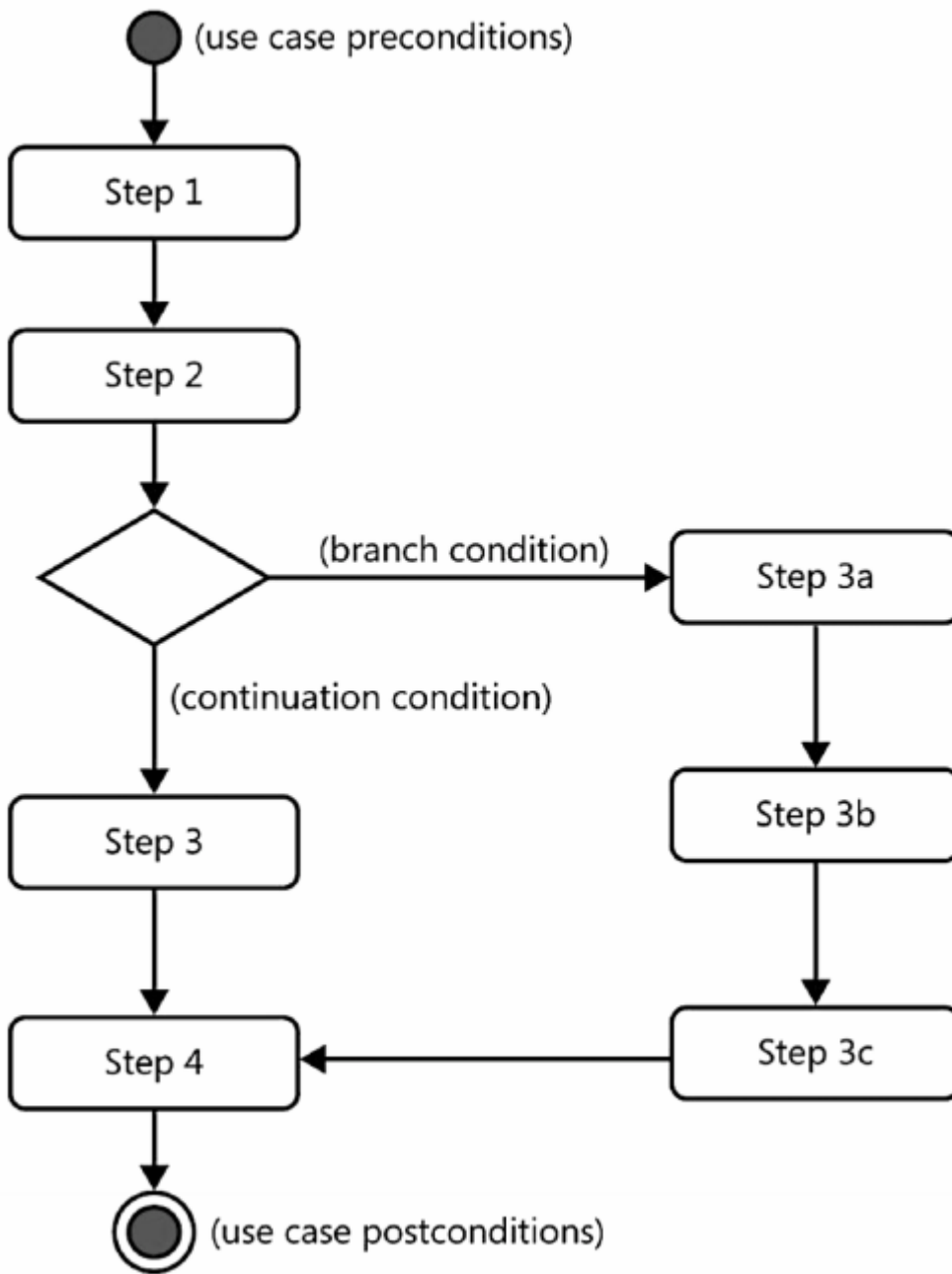| ID and Name:	UC-4 Request a Chemical		
Created By:	Lori	Date Created:	8/22/13
Primary Actor:	Requester	Secondary Actors:	Buyer, Chemical Stockroom, Training Database
Description:	The Requester specifies the desired chemical to request by entering its name or chemical ID number or by importing its structure from a chemical drawing tool. The system either offers the Requester a container of the chemical from the chemical stockroom or lets the Requester order one from a vendor.		
Trigger:	Requester indicates that he wants to request a chemical.		
Preconditions:	PRE-1. User's identity has been authenticated. PRE-2. User is authorized to request chemicals. PRE-3. Chemical inventory database is online.		
Postconditions:	POST-1. Request is stored in the CTS. POST-2. Request was sent to the Chemical Stockroom or to a Buyer.		
Normal Flow:	**4.0 Request a Chemical from the Chemical Stockroom** 1. Requester specifies the desired chemical. 2. System lists containers of the desired chemical that are in the chemical stockroom, if any. 3. System gives Requester the option to View Container History for any container. 4. Requester selects a specific container or asks to place a vendor order (see 4.1). 5. Requester enters other information to complete the request. 6. System stores the request and notifies the Chemical Stockroom.		
Alternative Flows:	**4.1 Request a Chemical from a Vendor** 1. Requester searches vendor catalogs for the chemical (see 4.1.E1). 2. System displays a list of vendors for the chemical with available container sizes, grades, and prices. 3. Requester selects a vendor, container size, grade, and number of containers. 4. Requester enters other information to complete the request. 5. System stores the request and notifies the Buyer.		
Exceptions:	**4.1.E1 Chemical Is Not Commercially Available** 1. System displays message: No vendors for that chemical. 2. System asks Requester if he wants to request another chemical (3a) or to exit (4a). 3a. Requester asks to request another chemical. 3b. System starts normal flow over. 4a. Requester asks to exit. 4b. System terminates use case.		
Priority:	High		
Frequency of Use:	Approximately 5 times per week by each chemist, 200 times per week by chemical stockroom staff		
Business Rules:	BR-28, BR-31		
Other Information:	The system must be able to import a chemical structure in the standard encoded form from any of the supported chemical drawing packages.		
Assumptions:	Imported chemical structures are assumed to be valid.		

Activity Diagram

Normal Flow

Alternative Flow

(use case preconditions)

Step 1

Step 2

(branch condition) → Step 3a

(continuation condition)

Step 3

Step 3b

Step 4 ← Step 3c

(use case postconditions)

Use Case Extend Relationship

Request a Chemical ←<<extend>>-- Search Vendor Catalogs
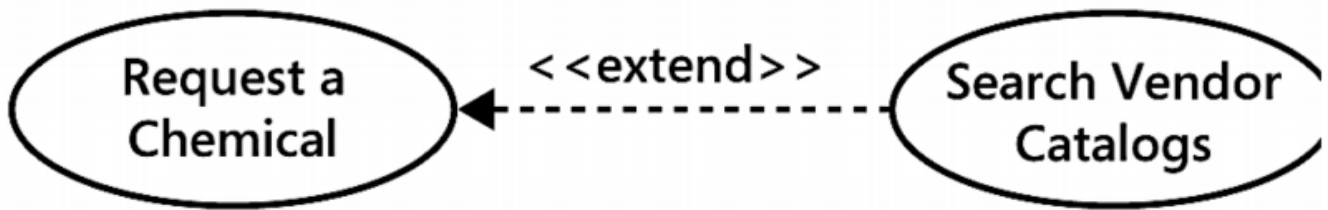
Use Case Include Relationship

Pay a Bill --<<include>>→ Write a Check ←<<include>>-- Reconcile Credit Card
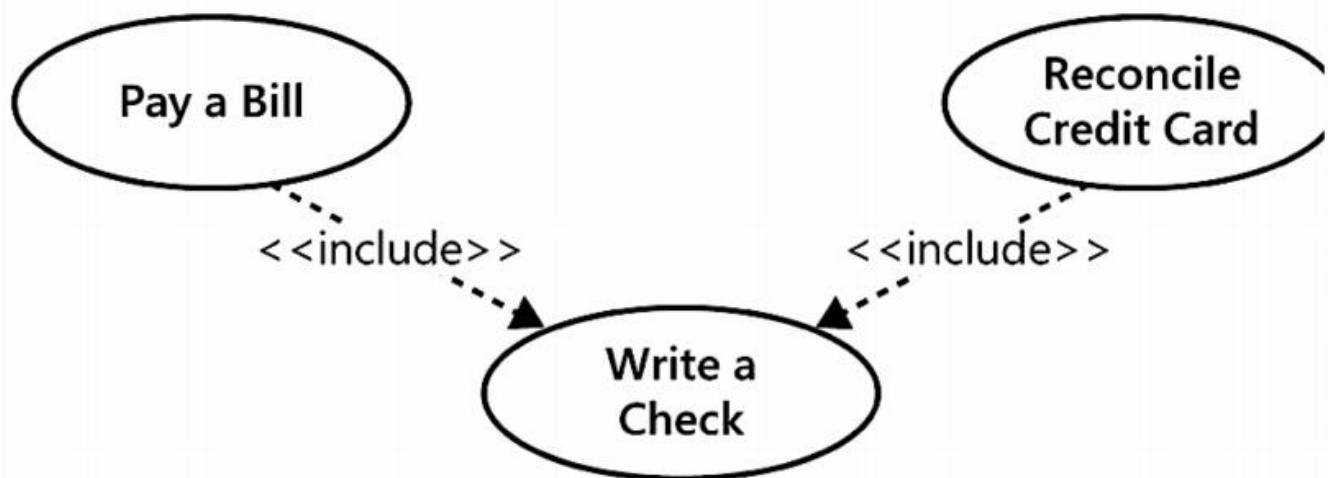
Pre and Post Conditions Define Boundaries

Buy Product

Search Catalog   Add Item to Shopping Cart   Pay for Items in Shopping Cart

preconditions   *postconditions*
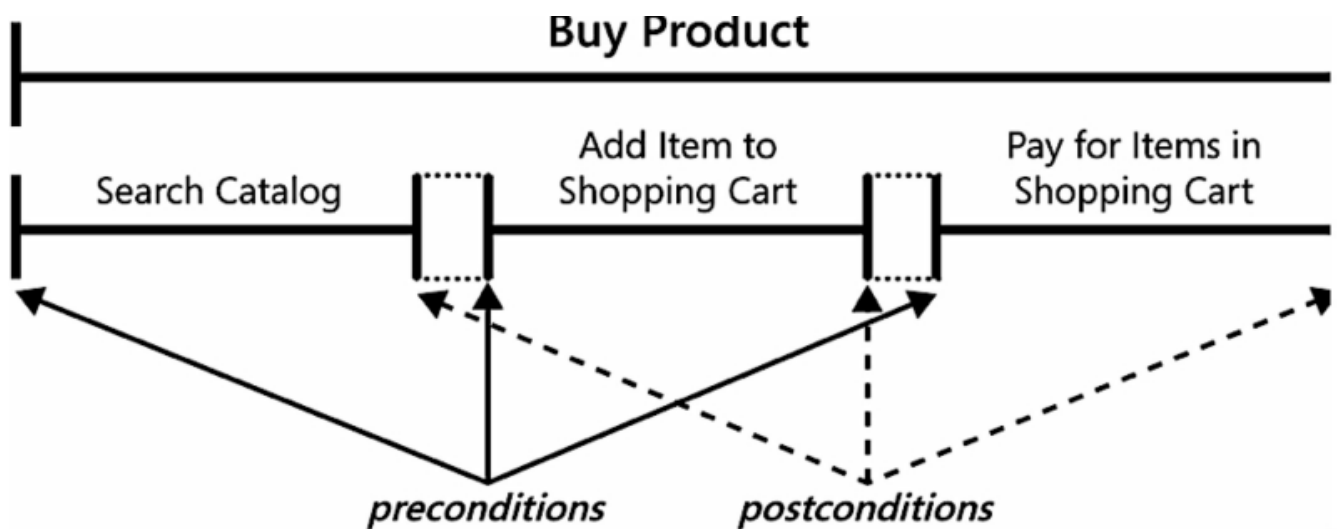
Identifying Use Cases

- Identify the actor, then layout the process

- Create scenario

- Step through a business process description

- Identify an external event that demands a response

- CRUD (Create, Read, Update, Delete) analysis

- Examine context diagrams and ask about external entities objectives

User Case elicitation work products
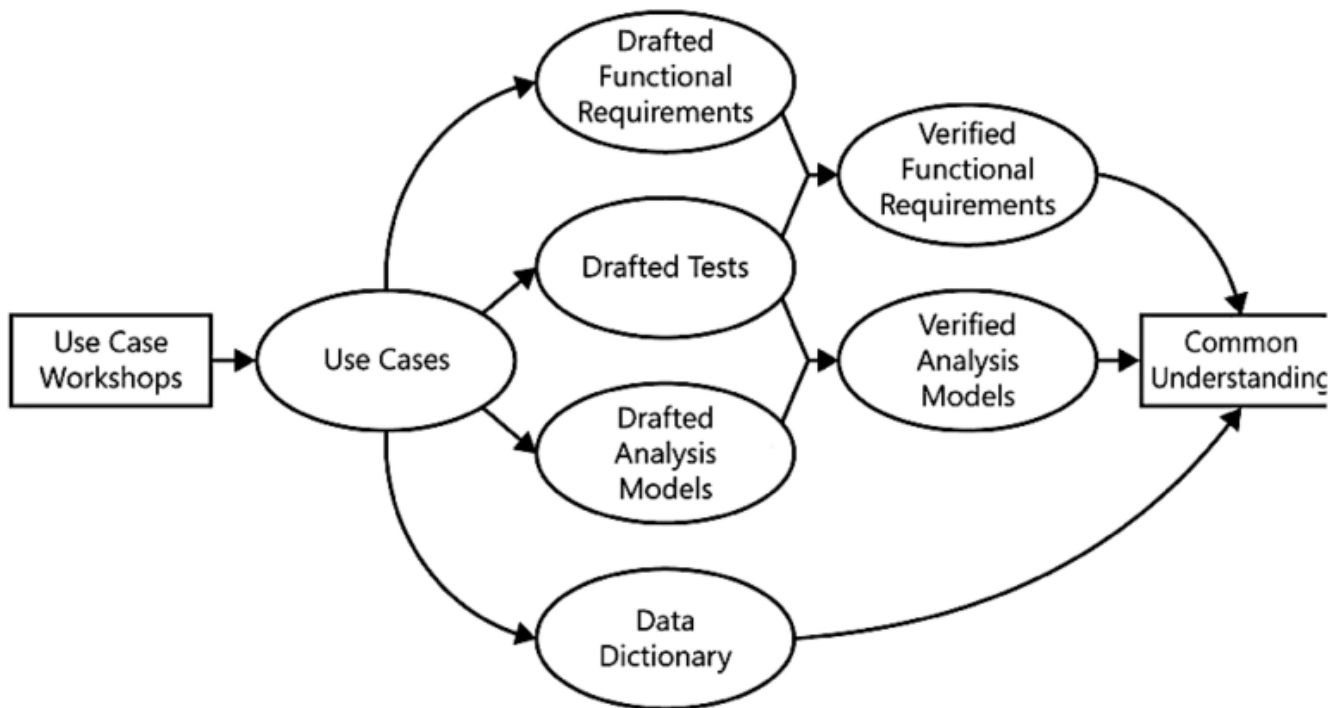
Use Case Traps

- Too many cases

- Cases are too complex

- Design included in use case

- Data definitions included

- Cases users don't identify with.

SD9 – Business Rules

Business rule influence on requirements

| Requirement type	Illustration of business rules' influence	Example
Business Requirement	Government regulations can lead to necessary business objectives for a project	*The chemical tracking system must enable compliance with all federal and state chemical usage and disposal reporting regulations within five months*
User Requirement	Privacy policies dictate which users can and cannot perform certain tasks with the system	*Only laboratory managers are allowed to generate chemical exposure reports for anyone other than themselves*
Functional Requirement	Company policy is that all vendors must be registered and approved before an invoice will be paid	*If any invoice is received from an unregistered vendor, the supplier system shall email the vendor editable PDF versions of the supplier intake form and the W-9 form*
Quality attribute	Regulations from government agencies such as OSHA and EPA can dictate safety requirements, which must be enforced through the system functionality.	*The system must maintain safety training records, which it must check to ensure that users are properly trained before they can request a hazardous material*

A business rule taxonomy
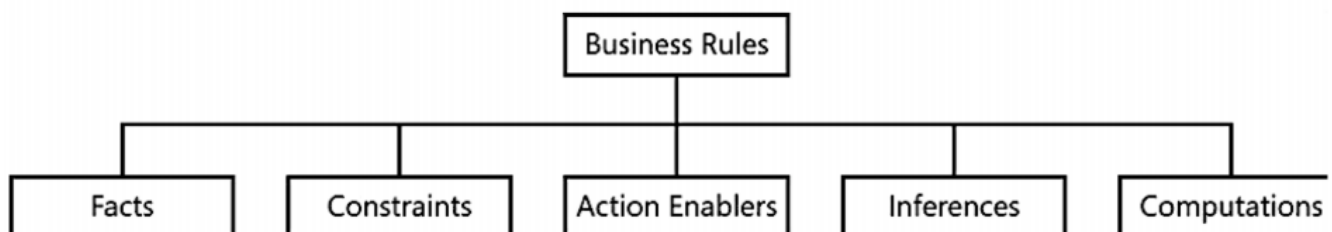
Facts

- All container have bar codes

- Every order has a chipping charge

- No sales tax on shipping charges

- Nonrefundable tickets incur a fee for changes

- Books taller than 16" are oversize

Constraints

- Applicants under 19 of age must have parental permission

- Up to 10 items may be put on hold at any one time

- Correspondences should not include more than 4 digits of an SSN

- All software must comply with accessibility regulations

- Pilots must have 8 continuous ours of rest in every 24-hour period

- Webpages must not contain deprecated HTML tags

Roles and permissions matrix

Roles and Permissions Matrix	Employee	Administrator	Circulation Staff	Library Aide	Non-Employee	Volunteer	Patron
System Operations							
Log in to library system		X	X	X			
Set up new staff members		X					
Print hold pick list		X	X	X			
Patron Records							
View a patron record		X	X				
Edit a patron record		X	X				
View your own patron record		X	X	X		X	X
Issue a library card		X	X				
Accept a fine payment		X	X				
Item Operations							
Search the library catalog		X	X	X		X	X
Check out an item		X	X				
Check in an item		X	X	X		X	
Route an item to another branch		X	X	X		X	
Put an item on hold		X	X	X		X	X

Action Enablers

- IF <condition> THEN <action>

- If the chemical is in stock, offer the existing container to the requester

- On the last day of the quarter, generate the OSHA and EPA reports

- If the expiration date for the container has arrived, notify the individual with the container

- If the customer bought _____, offer them _____

Inferences

- If a payment is not made within 30 days after it is due, the account is delinquent

- If an order cannot be shipped within 5 days of receipt, the items are back-ordered

- Chemicals within a media lethal dose lower than 50mg/kg in mice are considered toxic

Computations

- The domestic ground shipping charge is $4.75 plus 12c/oz. over 2lbs.

- The total price for an order is the sum of the prices of the items ordered, minus any quantity discounts, plus state and local sales tax for the location to which the order ships, plus shipping charges

Table form of business rule

ID	Number of units purchase	Percent discount
DISC-1	1 through 5	0
DISC-2	6 through 10	10
DISC 3	11 through 20	20
DISC-4	More than 20	30

Atomic business rules examples

ID	Rule
Video.Media.Types	DVD discs and Blu-Ray Disks are video items
Video.Checkout.Duration	Video items may be checked out for one week at a time
Renewal.Video.Times	Video items may be renewed up to two times
Renewal.Video.Duration	Renewing a checked-out video item extends the due date by three days
Renewal.HeldItem	A patron may not renew an item that another patron has on hold

Sample business rule catalog entries

ID	Rule Definition	Type of Rule	Static or Dynamic	Source
ORDER-5	If the customer ordered a book by an author who has written multiple books, the offer the author's other books to the customer before completing the order	Action enabler	Static	Marketing policy XX
ACCESS-8	All website images must include alternative text to be used by electronic reading devices to meet accessibility requirements for visually impaired users	Constraint	Static	ADA Standards for Accessible Design
DISCOUNT-13	A discount is calculated based on the size of the current order, as defined in Table BR-060	Computation	Dynamic	Corporate Pricing Policy XX

Discovering Business Rules by Asking Questions

Policies — Why do we have to do it like that?

Regulations — What does the government require?

Data Models — How are these pieces of data related?

Computations — How is that number calculated?

User Decisions — What is a user allowed to do next?

Object Life Cycles — What causes a change in the object's state?

System Decisions — How does the system know what to do next?

Events — What must happen? What cannot happen?

Business Rules