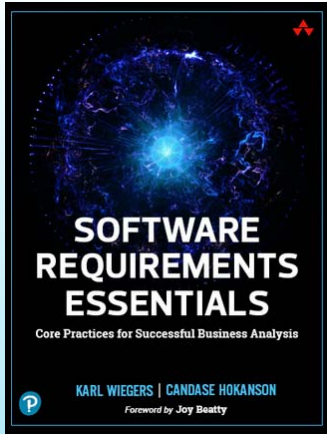


# ESSENTIAL REQUIREMENTS PRACTICES



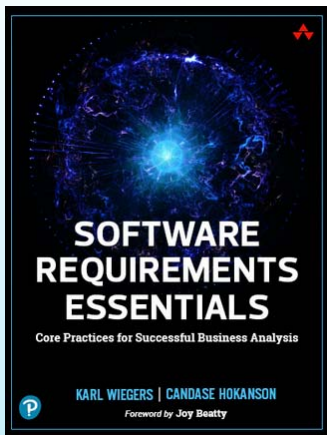
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v3

## Agenda



- Laying the foundation
- Requirements elicitation
- Requirements analysis
- Requirements specification
- Requirements validation
- Requirements management

# Laying the Foundation for Success

*Why are we working on this?*

*What are we trying to build?*

*Who are we trying to satisfy?*

*What do we implement first? Next? Maybe never?*

*How can we tell if our solution is good enough?*

*How do we know when we're done?*

---

*Essential Requirements Practices*

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# Laying the Foundation: Core Practices

- #1. Understand the problem before converging on a solution.
- #2. Define business objectives.
- #3. Define the solution's boundaries.
- #4. Identify and characterize stakeholders.
- #5. Identify empowered decision makers.



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*Essential Requirements Practices*

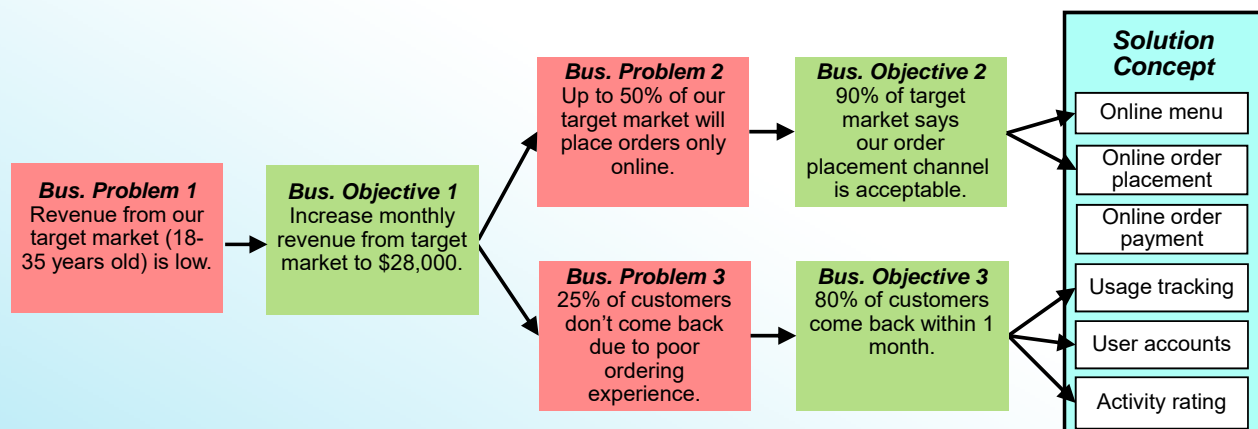
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## #2. Define Business Objectives

- Begin with a problem statement
  - ➔ Business objectives
  - ➔ Success metrics
  - ➔ Solution concept
  - ➔ Scope definition
  - ➔ Solution requirements
- Setting objectives helps to
  - ◆ Identify stakeholders
  - ◆ Define the necessary functionality
  - ◆ Prioritize requirements
  - ◆ Plan releases



## Business Objectives Model



# Requirements Elicitation

- What is requirements elicitation?
  - ◆ Involves collection, exploration, discovery, and invention
  - ◆ Many sources of requirements
  - ◆ Many elicitation techniques: interviews, workshops, observation, surveys, process modeling, document analysis, ...
- Core elicitation practices
  - #6. Understand what users need to do with the solution.
  - #7. Identify events and responses.
  - #8. Assess data concepts and relationships.
  - #9. Elicit and evaluate quality attributes.



*Essential Requirements Practices*

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## #6. Understand What Users Need to Do

- Usage-centric vs product-centric elicitation approach
  - ◆ **What functionality stakeholders think the solution should have**, versus
  - ◆ **What users need to do with the solution**
- Eliciting user requirements
  - ◆ Must align with achieving business objectives
  - ◆ Explore normal, alternative, and exception scenarios
  - ◆ Reveals needed functionality
  - ◆ Avoids building unnecessary functionality



*Essential Requirements Practices*

8

## Use Cases and User Stories

- Use cases
  - ◆ Use case name defines the user's goal: "*View article statistics*"
  - ◆ Use case specification has preconditions, postconditions, flow steps, etc.
  - ◆ Derive functional requirements and tests from the use case spec
- User stories
  - ◆ Story gives more information: "*As an author, I want to view the statistics for my articles so that I can see which topics my readers enjoy the most.*"
  - ◆ Provide story details through acceptance criteria
- With both:
  - ◆ Focus on user goals, not bits of functionality

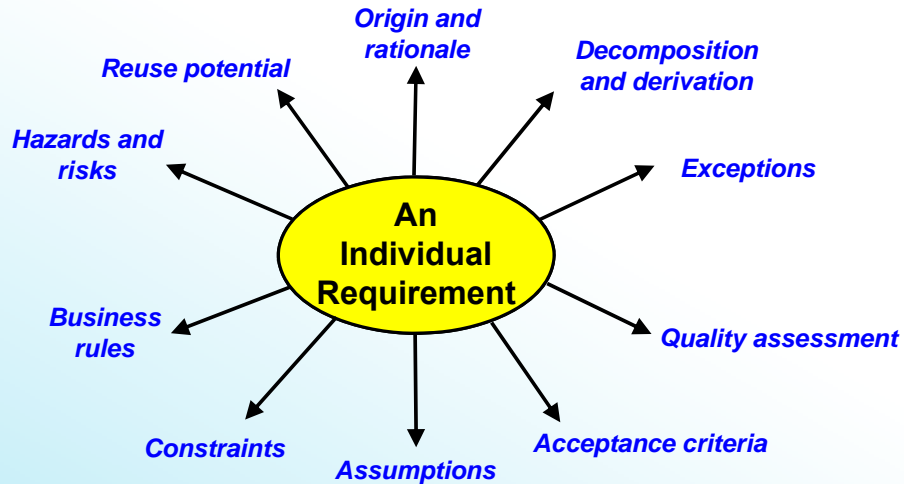


## Requirements Analysis

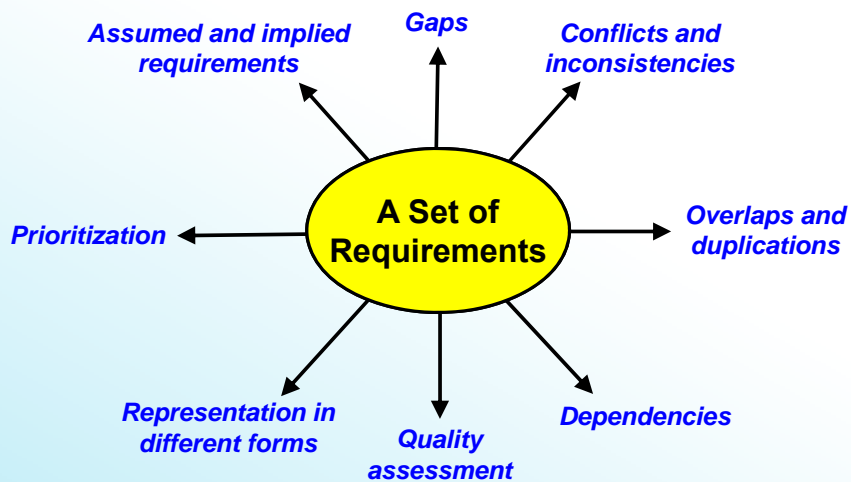
- What is requirements analysis?
  - ◆ Ensuring that all stakeholder needs are understood and recorded
  - ◆ Ensuring that a satisfactory solution can be defined, built, and tested
  - ◆ Involves questioning, learning, decomposing, comparing, closing gaps, confirming, refining
- Core analysis practices
  - #10. Analyze requirements and requirement sets.
  - #11. Create requirements models.
  - #12. Create and evaluate prototypes.
  - #13. Prioritize the requirements.



## #10. Analyze Individual Requirements...



## ...and Requirement Sets



# Requirements Specification

- What is requirements specification?
  - ◆ “Writing requirements” really means “representing requirements knowledge”
  - ◆ Specifications vary in content, structure, form, detail, and formality
  - ◆ The goal is always **clear and effective communication**
- Core specification practices
  - #14. Write requirements in consistent ways.
  - #15. Organize requirements in a structured fashion.
  - #16. Identify and document business rules.
  - #17. Create a glossary.



## #16. Identify and Document Business Rules

- Define or restrict an organization’s operations
- Influence behaviors of people and systems
- Lead to derived functional and data requirements

- *Facts*
- *Constraints*
- *Action enablers*
- *Computations*

### Types

- *Policies*
- *Laws*
- *Regulations*
- *Industry standards*

### Sources



## Decision Tables

Rule ID	DISC-1	DISC-2	DISC-3	DISC-4	DISC-5	DISC-6
<b>Conditions</b>						
Order total	<\$50	\$50-\$100	>\$100	<\$50	\$50-\$100	>\$100
Club member	N	N	N	Y	Y	Y
<b>Action</b>						
No discount	X			X		
10% discount		X	X		X	
20% discount						X
Free shipping			X	X	X	X

## Requirements Validation

- What is requirements validation?
  - ◆ Confirm that requirements accurately describe stakeholder needs
  - ◆ Confirm that a solution would satisfy needs and achieve business objectives
  - ◆ Verification = doing the thing right  
Validation = doing the right thing
  - ◆ Interwoven with elicitation, analysis, and specification
  - ◆ Can use prototypes and early releases
- Core validation practices
  - #18. Review and test the requirements.





## #18. Review the Requirements...

1. Select the right participants
  - ◆ Author and other business analyst
  - ◆ Representatives of requirements sources
  - ◆ Consumers of requirements
2. Choose a level of formality and rigor
  - ◆ Ad hoc review, passaround, team review, inspection
  - ◆ More formal is slower but more effective
3. Use a checklist to look for common types of errors
  - ◆ Ambiguities, inconsistencies, omissions, duplications, unneeded requirements, missing information...

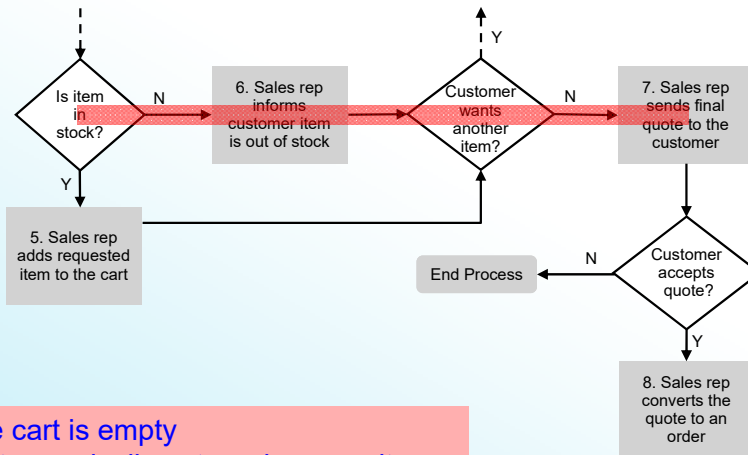


## ...and Test the Requirements

- Start testing after writing your first requirement!
- **Requirements** ← *complementary thought processes* → **Tests**
- Acceptance criteria on agile projects: *Given-When-Then*

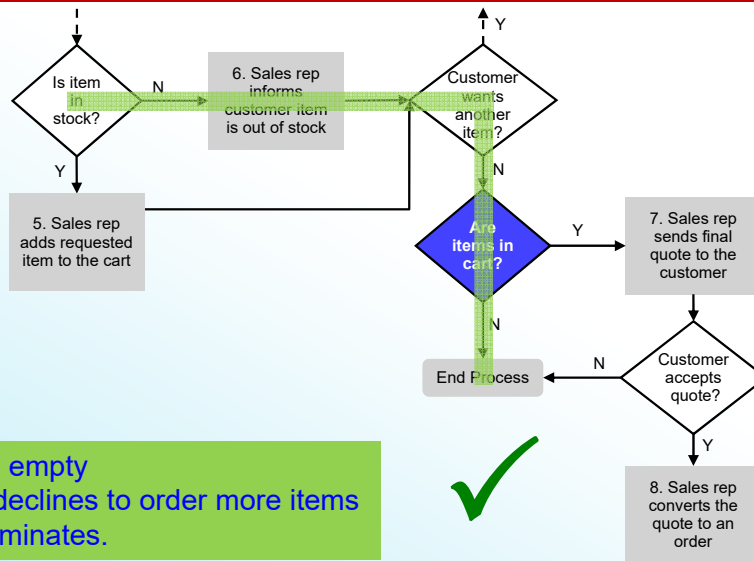
ID	Given	When	Then
AT-1	I am logged into the platform AND I have articles published	I request to view statistics	A graph of my total article view statistics from the past 30 days is displayed AND a list of statistics (views, reads, and likes) for individual articles is displayed in reverse chronological order by publication date

# Testing Requirements Models - 1



**Given** that the cart is empty  
**When** the customer declines to order more items  
**Then** the process terminates.

# Testing Requirements Models - 2



**Given** that the cart is empty  
**When** the customer declines to order more items  
**Then** the process terminates.

# Requirements Management

- What is requirements management?
  - ◆ Dealing with requirements after they've been specified
  - ◆ Requirements version control
  - ◆ Tracking requirements status
  - ◆ Requirements tracing
- Core requirements management practices
  - #19. Establish and manage requirements baselines.
  - #20. Manage changes to requirements effectively.

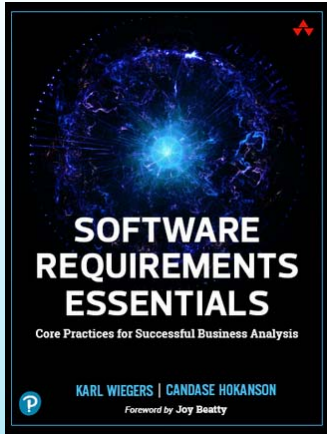


## #19. Establish Requirements Baselines

- **Baseline:** An agreed-upon set of requirements for a specific development cycle
- A baseline can be:
  - ◆ *Time-bound:* whatever requirements fits in the schedule box
  - ◆ *Scope-bound:* work until the allocated requirements are done
- Changes are made against a specific baseline
  - ◆ Follow your change control process
  - ◆ Requires scope, time, and resource negotiations
  - ◆ Contingency buffers provide some slack



# ESSENTIAL REQUIREMENTS PRACTICES

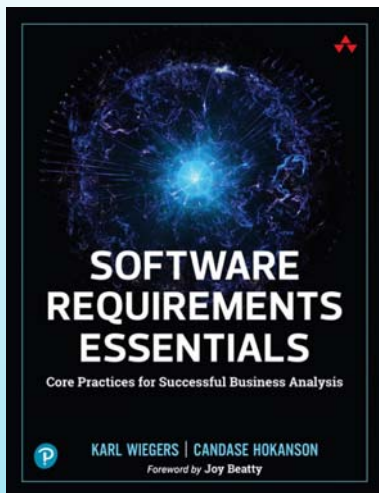


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