

Collaborative Requirements Development Methodology

Requirements Definition
Participant's Guide

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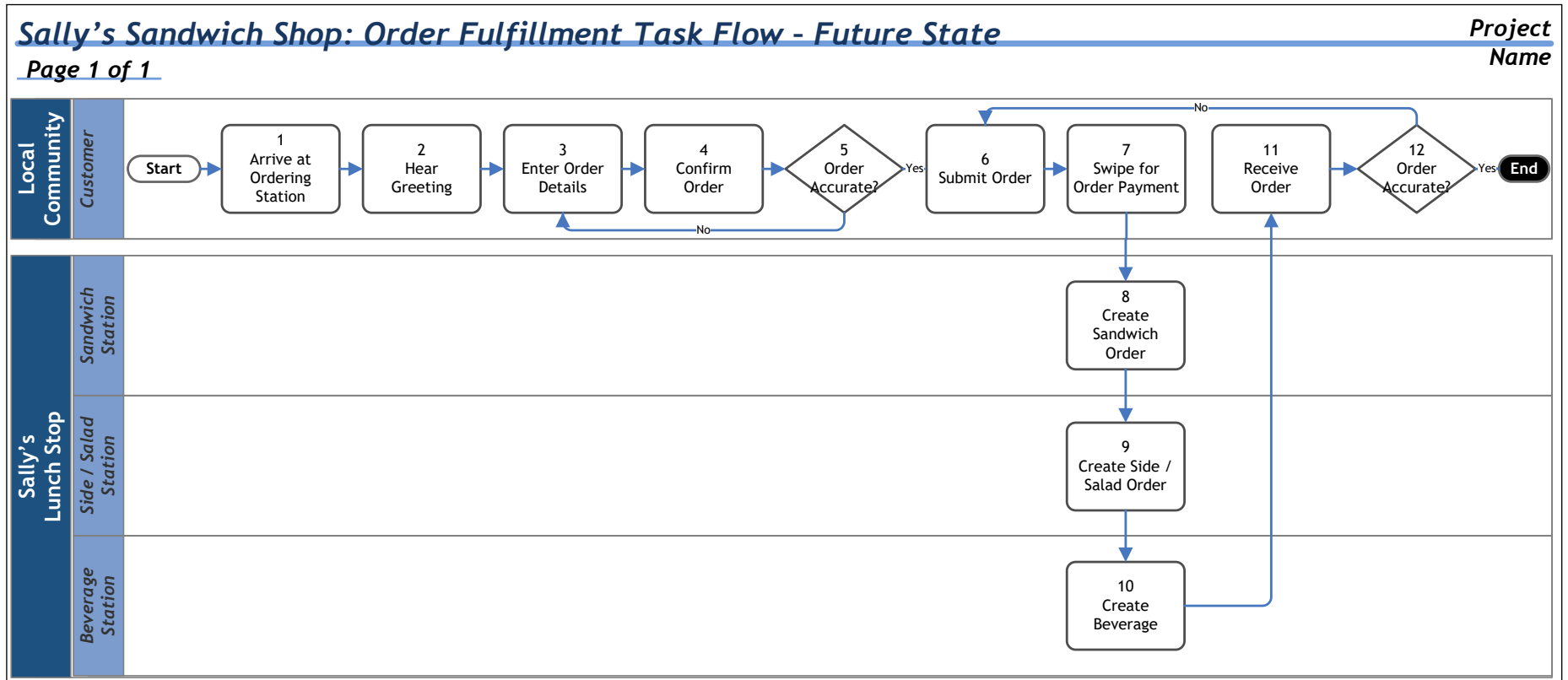
General information on requirements definition

REQUIREMENTS	Statements that describe the functionality of an information system. They also provide a description of what the information system needs to capture, perform, and display. They also should answer the question of “how would you see information systems supporting task/activity x?”
PURPOSE	To clearly define the needs and wants of information systems that supports the activities in business processes.
WHAT YOU’LL NEED	<ul style="list-style-type: none"> • Task flows • Stakeholders • Facilitator • Way to post group’s work
PROCESS OVERVIEW	Requirements Definition is a phase in the IT Lifecycle. This phase of work requires the workgroups to identify information system requirements that are needed to support each documented business process. The first step is to understand the business process activities and its components. The process can then be scanned for system-enabled activities (those activities that are/can be supported by a system). Each process activity that is “flagged” as system-enabled is thoroughly discussed to uncover requirements.
OUTCOMES	Listing of requirements, organized by business process.
GUIDELINES	<ul style="list-style-type: none"> • Requirements should be described in a way that is independent of technology and/or applications. • Requirements should be clear and concise, so that a wide range of participants can understand them. • Requirements should be measurable for evaluation purposes.
TOOLS	<ul style="list-style-type: none"> • Business Process Task Flows • Requirements Tracking Spreadsheet

Requirements definition steps

<p>1</p>	<p>Review Task Flow</p> <p>The task flow represents the key activities that are contained within the business process. To ensure a common understanding of those activities, review the task flow from start to finish. Place special emphasis on the objective of the process, the triggering event, and the outcome of the activities. Also review business process matrix and other supporting information.</p>
<p>2</p>	<p>Identify System-Enabled Activities</p> <p>Go through the task flow again to determine which activities could potentially be enabled by information technology. Flag those activities. Remember, most (if not all) of the task flow activities can be enabled by information technology.</p>
<p>3</p>	<p>Develop Requirements</p> <p>The next step is to determine the appropriate requirements related to each activity that is noted. A discussion is held on each activity, where the general question asked is “How would you see information systems supporting task/activity X?” Requirements are statements that describe the functionality needed to support the process. Although requirements are intended to be specific and concise, they should refrain from calling out any application, tool or system. Requirements typically start with the terms ‘shall’, ‘must’, ‘will’, ‘should’, or ‘may’. See p.8 for example requirements.</p> <p>Repeat for Other Tasks Flows</p> <p>Review all the task flows in your current scope of work and perform steps 1-3 above, or continue until you achieve appropriate levels of quality and efficiency.</p>
<p>4</p>	<p>Validate Requirements</p> <p>Conduct desk checking (reading through the requirements and noting any changes needed), walk throughs (having a group of stakeholders walk through the document page by page according to a checklist), and peer reviews (a follow up to desk checking in which peer groups bring their feedback to a meeting and discuss it) to validate the requirements. Build consensus among all stakeholder groups.</p>

Sally's Sandwich Shop: Task flow diagram



Requirements table for order fulfillment

Directions: Write requirements for the remaining activities on Sally’s task flow. Try to identify three to five requirements per activity.

ACTIVITY NAME	ENTITIES OR FUNCTIONAL GROUPS INVOLVED	REQUIREMENT

Example requirements table

Note: These are just a few examples of the many requirements that could be developed.

ACTIVITY NAME	ENTITIES OR FUNCTIONAL GROUPS INVOLVED	REQUIREMENT
Arrive at Ordering Station	Customer, Information Technology	Must have the ability to recognize when a customer has arrived.
Hear Greeting	Customer, Information Technology	Must have the ability to greet a waiting customer.
Enter Order Details	Customer, Information Technology	Shall have the ability to display all the menu options.
Enter Order Details	Customer, Information Technology	Must have the ability to select and choose between combinations of menu options.
Enter Order Details	Customer, Information Technology	Shall have the ability to capture and store customer information.
Order Accurate	Customer, Information Technology	Must provide a “draft” order summary for review.
Order Accurate	Customer, Information Technology	Should have the ability to provide order suggestions.
Submit Order	Customer, Information Technology, Sandwich Station, Side / Salad Station, Beverage Station	Must have the ability to provide a detailed order summary.
Submit Order	Customer, Information Technology	May have the ability to email a sales receipt to the customer.

Sample requirements tracking worksheet

ID	BUSINESS PROCESS	ACTIVITY	ENTITY / FUNCTIONAL GROUP	REQUIREMENT	CATEGORY	COMMENTS
	<i>The name of the business process.</i>	<i>The activity in the process.</i>	<i>The person, persons, or role that will be a user within the requirement.</i>	<i>The requirement detail.</i>	<i>Required – process must be supported by this requirement. Optional – a nice-to-have for enabling the process.</i>	<i>Any additional information related to the requirement.</i>
1	Sally's Lunch Stop – Order Fulfillment	Arrive at Ordering Station	Customer, Information Technology	Must have the ability to recognize when a customer has arrived.	Required	
2	Sally's Lunch Stop – Order Fulfillment	Hear Greeting	Customer, Information Technology	Must have the ability to greet a waiting customer.	Required	
3	Sally's Lunch Stop – Order Fulfillment	Enter Order Details	Customer, Information Technology	Shall have the ability to display all the menu options.	Required	
4	Sally's Lunch Stop – Order Fulfillment	Enter Order Details	Customer, Information Technology	Must have the ability to select and choose between combinations of menu options.	Required	
5	Sally's Lunch Stop – Order Fulfillment	Enter Order Details	Customer, Information Technology	Shall have the ability to take customer information.	Required	
6	Sally's Lunch Stop – Order Fulfillment	Order Accurate	Customer, Information Technology	Must provide a "draft" order summary for review.	Required	
7	Sally's Lunch Stop – Order Fulfillment	Order Accurate	Customer, Information Technology	Should have the ability to provide order suggestions.	Optional	
8	Sally's Lunch Stop – Order Fulfillment	Submit Order	Customer, Information Technology, Sandwich Station, Side / Salad Station, Beverage Station	Must have the ability to provide a detailed order summary.	Required	
9	Sally's Lunch Stop – Order Fulfillment	Submit Order	Customer, Information Technology	May have the ability to email a sales receipt to the customer.	Optional	

Validating requirements

Instructions: Depending on your situation, you may use one, two, or all three of the methods described below. In any case, you should involve all your stakeholders, particularly users, and stop once you have achieved consensus.

Checklist for validation

- ✓ Accurate
- ✓ Consistent
- ✓ Feasible
- ✓ Able to be validated
- ✓ Clear and simple to understand
- ✓ Numbered for reference
- ✓ Only one requirement per statement—don't try to lump them together

Desk checking

Desk checking means asking individual stakeholders to conduct a written review of your requirements.

- Read document through without documenting defects.
- Determine whether any major aspects are missing and document those.
- Determine whether the document structure is clear and then document it.
- Read checklist through to remember particular points to consider.
- Reread document with checklist in mind.
- Record defects and queries noticed.
- Send list to business analyst and keep a copy.

Walk through

Walk throughs are facilitated group reviews of the requirements.

- Gather a group (usually 10 or fewer) to discuss the requirements and find defects.
- Ask the business analyst to be an observer and resource.
- Assign a neutral facilitator.
- “Walk through” the document page by page, looking for and recording defects.
- Use the checklist above and jot your thoughts.
- The facilitator or analyst should make a list of defects and queries for document revision.

Peer Review

The peer review is similar to a walk through. It is highly structured, following a set of rules. Peer review is useful for validation in high-risk projects, and has a goal of finding as many defects as possible.

Rules

- Peer group consists of 4 – 5 peers (e.g., users in one group and management in another).
- Each member prepares for the meeting by performing an individual review using a checklist.
- Each member must bring a list of defects found to the meeting.
- Each member must track preparation time.
- Each member has a specific facilitator role during the meeting:
 - Author—makes sure people understand the intent of a requirement, makes revisions after the meeting
 - Moderator (Facilitator)—sends out agenda and pre-meeting instructions, facilitates meeting, and makes sure revisions are made
 - Reader—reads each requirement in turn to introduce it
 - Recorder—takes notes on all problems identified; should indicate seriousness
 - Timer—Provides time checks at $\frac{1}{4}$, $\frac{1}{2}$, $\frac{3}{4}$, and end times
- Reviews last no more than two hours (including break).
- The goal is to find problems and only problems (not solutions).

Procedure

Before meeting

- Facilitator: Identify participants and send out requirements and supporting materials for review. Based on time demands on participants, schedule meeting.

During the meeting:

- Facilitator: Ask the group for large-scale items missing from document.
- Facilitator: Ask the group for large-scale comments on the document.
- Reader: Read or paraphrase each requirement (or set of requirements), with comments following each.
- Facilitator: Limit any discussion about solutions; keep focus on identifying problems.
- Recorder: Track problems noted for each requirement.

Application: Identifying requirements

Form small groups of about six people (e.g., table teams). Your trainer will give each group a business process and related task flow. Each process will be assigned to two to three groups, so that you can compare work and also see a variety of examples.

I: Identify requirements and post.

Complete steps 1 -3 on page 5 to identify the requirements for your assigned task. Create a flipchart of your requirements (like the one on page 7) and another flipchart with “issues we faced” and “questions we still have.”

II: Compare your requirements to another team with the same business process.

Post two sets of like flipcharts (same process) together. Walk around and look at each others’ flipcharts. Post comments and questions using sticky notes. You may want to reference the validation checklist.

III: Large group review.

As a large group, review the work that was done and address any issues.

Application: Writing effective requirements

Form small groups. Discuss each requirements statement below and determine if it is a simple, complete and well structured statement. Place a plus sign (+) in each column that you agree that the requirement statement meets the simple, complete and well structured statement rules. Place a minus sign (-) in each column in which you disagree that the statement meets these rules.

For each requirement that you placed a minus sign in the simple, complete or well structured column, revise the requirement to meet these rules. Use the second table to notate your revised requirement (s).

Requirement	Simple	Complete	Well Structured
Update the client record			
User should select coverage options from drop down menu			
Approve application unless policy holder has a pending claim			
Users should use passwords consisting of at least 3 alpha and 3 numeric characters without special character to access the system			
Users should input data, calculate pricing and generate a statement for the customer			

Current Requirement	Revised Requirement(s)
Update the client record	
User should select coverage options from drop down menu	
Approve application unless policy holder has a pending claim	
Users should use passwords consisting of at least 3 alpha and 3 numeric characters without special character to access the system	
Users should input data, calculate pricing and generate a statement for the customer	

Preparing and facilitating a requirements workgroup

What is a requirements workgroup?	A type of meeting where a group of project stakeholders are assembled to discuss and describe their business needs. The output of these meetings are a list of approved business requirements.
Preparation Checklist	<ul style="list-style-type: none">• Determine dates for workgroup• Secure meeting venue• Invite stakeholders (8 – 12 participants)• Create agenda• Create meeting documents, presentations and visual aids
Role of the facilitator	<ul style="list-style-type: none">• Create a positive and inspiring atmosphere• Prevent some participants from being too dominant• Constructively manage conflicts• Try to make participants feel good about the results so that they are encouraged to continue to engage in the workgroup
Role of the note taker	<ul style="list-style-type: none">• Lessen the burden of note taking off of the facilitator• Take notes throughout the workshop
Role of the workgroup participants	<ul style="list-style-type: none">• Be an active participant• Articulate how a system can help support their work• Be open to new ways of doing things.• Ask questions