

SOFTWARE REQUIREMENT ENGINEERING

LECTURE NO: 9

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Requirements Elicitation

Story

“Good morning, Maria. I’m Phil, the business analyst for the new employee information system we’re going to build for you. Thanks for agreeing to be the product champion for this project. Your input will help us a lot. So, can you tell me what you want?”

“Hmmm, what do I want?” mused Maria. “I hardly know where to start. The new system should be a lot faster than the old one. And you know how the old system crashes if an employee has a really long name and we have to call the help desk and ask them to enter the name for us? The new system should take long names without crashing. Also, a new law says we can’t use Social Security numbers for employee IDs anymore, so we’ll have to change all of the IDs when the new system goes in. Oh, yes, it’d be great if I could get a report of how many hours of training each employee has had so far this year.”

Phil dutifully wrote down everything Maria said, but his head was spinning.

Maria’s desires were so scattered that he wasn’t sure he was getting all her requirements. He had no idea if Maria’s needs aligned with the project’s business objectives. And he didn’t know exactly what to do with all these bits of information. Phil wasn’t sure what to ask next.

The Intro...

The heart of requirements development is *elicitation*, the process of identifying the needs and constraints of the various stakeholders for a software system.

Elicitation is not the same as “gathering requirements.” Nor is it a simple matter of transcribing exactly what users say.

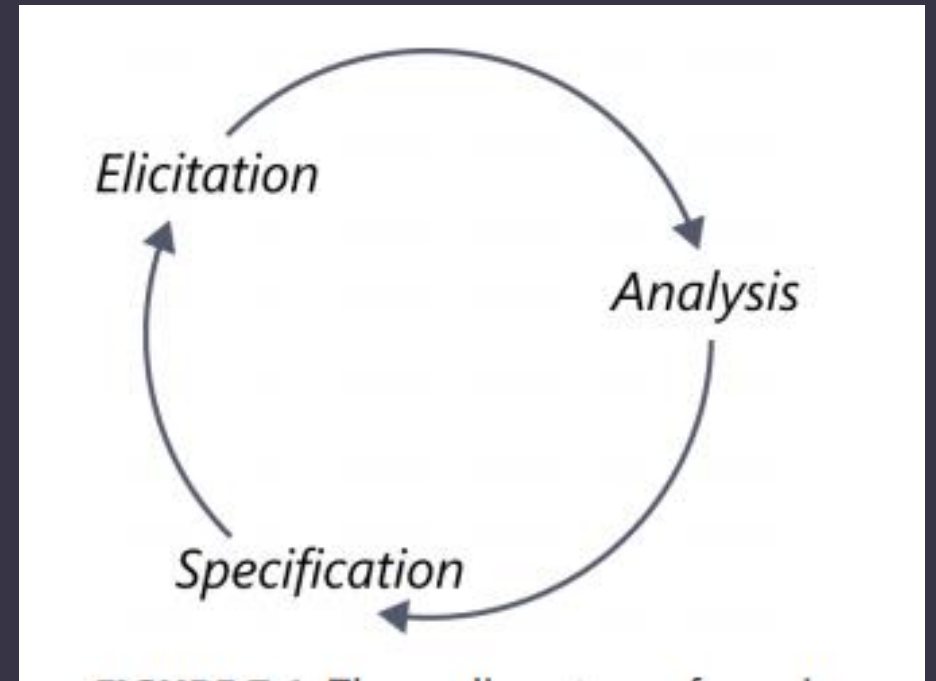
Elicitation is a collaborative and analytical process that includes activities to collect, discover, extract, and define requirements.

Elicitation is used to discover business, user, functional, and nonfunctional requirements, along with other types of information.

Requirements elicitation is perhaps the most challenging, critical, error-prone, and communication-intensive aspect of software development.

The cyclic nature of requirements elicitation, analysis, and specification

The nature of requirements development is cyclic. You will do some elicitation, study what you learned, write some requirements, perhaps determine that you are missing some information, perform additional elicitation, and so forth.



Requirements elicitation techniques

- Elicitation techniques include both facilitated activities, in which you interact with stakeholders to elicit requirements, and independent activities, in which you work on your own to discover information.
- Facilitated activities primarily focus on discovering business and user requirements.
- Working directly with users is necessary because user requirements encompass the tasks that users need to accomplish with the system.
- Most projects will use a combination of both facilitated and independent elicitation activities.

1. Interviews

- Interviews are a traditional source of requirements input for both commercial products and information systems, across all software development approaches.
- Most BAs will facilitate some form of individual or small-group interviews to elicit requirements on their projects
- Agile projects make extensive use of interviews as a mechanism to get direct user involvement.
- A few suggestions for conducting interviews follow. These are useful tips for conducting elicitation workshops as well.
 - **Establish rapport**
 - **Stay in scope**
 - **Prepare questions and straw man models ahead of time**
 - **Suggest ideas**
 - **Listen actively**

2. Workshops

Workshops encourage stakeholder collaboration in defining requirements.

“A structured meeting in which a carefully selected group of stakeholders and content experts work together to define, create, refine, and reach closure on deliverables (such as models and documents) that represent user requirements.”

- Workshops are facilitated sessions with multiple stakeholders and formal roles, such as a facilitator and a scribe.
- Workshops often include several types of stakeholders, from users to developers to testers.
- They are used to elicit requirements from multiple stakeholders concurrently.
- Working in a group is more effective for resolving disagreements than is talking to people individually.
- Also, workshops are helpful when quick elicitation turnaround is needed because of schedule constraints.

Facilitator in Workshops

“Facilitation is the art of leading people through processes toward agreed-upon objectives in a manner that encourages participation, ownership, and productivity from all involved”

The facilitator plays a critical role in planning the workshop, selecting participants, and guiding them to a successful outcome. Business analysts frequently facilitate elicitation workshops.

Techniques and tools for workshop facilitation

Following are a few tips for conducting effective elicitation workshops, many of which also apply to interviews.

- **Establish and enforce ground rules**
- **Fill all the team roles**
- **Plan an agenda**
- **Stay in scope**
- **Use parking lots to capture items for later consideration**
- **Timebox discussions**
- **Keep the team small but include the right stakeholders**
- **Keep everyone engaged**

3. Focus Groups

A focus group is a representative group of users who convene in a facilitated elicitation activity to generate input and ideas on a product's functional and quality requirements.

- Focus group sessions are interactive, allows all users a chance to voice their thoughts.
- Focus groups are useful for exploring users' attitudes, impressions, preferences, and needs.
- They are particularly valuable if you are developing commercial products and don't have ready access to end users within your company.

Observations

- When you ask users to describe how they do their jobs, they will likely have a hard time being precise—details might be missing or incorrect. Often this is because tasks are complex and it's hard to remember every minute detail. In other cases, it is because users are so familiar with executing a task that they can't articulate everything they do

Observations are time consuming, so they aren't suitable for every user or every task.

- Observations can be silent or interactive.
- **Silent observations** are appropriate when busy users cannot be interrupted.
- **Interactive observations** allow the BA to interrupt the user mid-task and ask a question. This is useful to understand immediately why a user made a choice or to ask him what he was thinking about when he took some action.

Questionnaires

Questionnaires are a way to survey large groups of users to understand their needs. They are inexpensive, making them a logical choice for eliciting information from large user populations, and they can be administered easily across geographical boundaries.

Tips for preparing Questionnaire

- Provide answer options that cover the full set of possible responses.
- Make answer choices both mutually exclusive (no overlaps in numerical ranges) and exhaustive (list all possible choices and/or have a write-in spot for a choice you didn't think of).
- Don't phrase a question in a way that implies a "correct" answer.
- If you use scales, use them consistently throughout the questionnaire.
- Use closed questions with two or more specific choices if you want to use the questionnaire results for statistical analysis. Open-ended questions allows users to respond any way they want, so it's hard to look for commonalities in the results.
- Consider consulting with an expert in questionnaire design and administration to ensure that you ask the right questions of the right people.
- Always test a questionnaire before distributing it. It's frustrating to discover too late that a question was phrased ambiguously or to realize that an important question was omitted.
- Don't ask too many questions or people won't respond.

Document Analysis

- Document analysis entails examining any existing documentation for potential software requirements.
- The most useful documentation includes requirements specifications, business processes, lessons learned collections, and user manuals for existing or similar applications.
- When replacing an existing system, past documentation can reveal functionality that might need to be retained, as well as obsolete functionality.
- Document analysis is a way to get up to speed on an existing system or a new domain. Doing some research and drafting some requirements beforehand reduces the elicitation meeting time needed.

User interface analysis

User interface (UI) analysis is an independent elicitation technique in which you study existing systems to discover user and functional requirements.

- When working with packaged solutions or an existing system, UI analysis can help you identify a complete list of screens to help you discover potential features.
- By navigating the existing UI, you can learn about the common steps users take in the system and draft use cases to review with users.
- UI analysis can reveal pieces of data that users need to see. It's a great way to get up to speed on how an existing system works (unless you need a lot of training to do so). Instead of asking users how they interact with the system and what steps they take, perhaps you can reach an initial understanding yourself

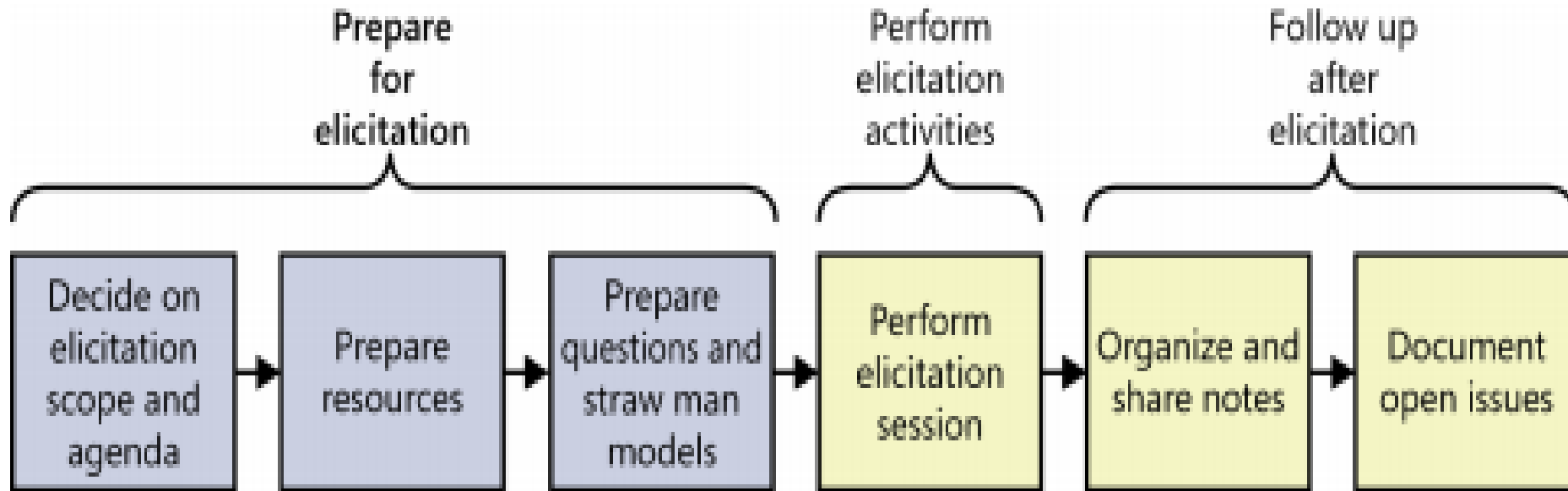
Planning elicitation on your project

- ❑ Elicitation objectives
- ❑ Elicitation strategy and planned techniques
- ❑ Schedule and resource estimates
- ❑ Documents and systems needed for independent elicitation
- ❑ Elicitation risks
- ❑ Expected products of elicitation efforts

Suggested Elicitation Techniques by Project Characteristics

	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			

Prepare, Perform Elicitation Techniques for a Single Elicitation Session & follow-up after Elicitation Session



Classifying Customer Input

