Best Practices for Collecting User Requirements

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Requirements

Provide direction for program success
Why Requirements are Important?

Early mistakes lead to costly fixes
Features and Functions Used in a Typical System

- Never 45%
- Always 7%
- Often 13%
- Sometimes 16%
- Rarely 19%
- 20% - Often or Always
- 64% - Rarely or Never

Standish Group Study Reported at XP2002 by Jim Johnson, Chairman

Build for Value | Requirements evolve over time
Where do Requirements fit? | Waterfall implementation
Where do Requirements fit?  

Agile implementation
- Involve the right people
- Align requirements gathering with project approach (COTS, Custom, Agile etc.)
- Invest adequate time
Types of Requirements

- Business
  - Meet Goals
  - Derive Benefits

- What Benefits?
  - Increase Productivity
  - Streamline Processes
  - Reduce Costs

- Functional
  - “What?”

- Quality of Service
  - “How Well?”
  - “What Constraints?”

- Solution Concept
  - Leverage COTS components

- What Benefits?
  - Increase Productivity
  - Streamline Processes
  - Reduce Costs

Types of Requirements: Business, Functional/Technical, COTS
Requirements Collection

Potential techniques

- COTS First
- Surveys
- Workshops
- Prototyping
- Document Analysis
- Scenario Walkthroughs
- User Stories
- Interviews
- Use Cases
- User Stories
### Custom Development

- Custom build to meet business goals

### COTS Components

- Custom system using some COTS elements

### COTS System

- Orchestrates COTS to meet business goals

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**COTS First Approach**

Leveraging existing technologies
- Immediate capability… continually improving via COTS release cycles
- Users engaged early to define “real” requirements
- Accelerated project lifecycle and reduced time to deployment
- Reduce overall risk

Benefits of a COTS First Approach

Leveraging existing technology
Requirements Workshops

Getting at the “real” needs

Vision - Get everyone on the same page

Use Cases – Actor to System interaction

User Stories – Supported scenarios

Allocate to iterations

Small focused
Use Case #: 00001
Title: Explore new locations

1. User accesses web application or app on the iPad
2. User selects ‘View Map’ from title bar
3. User turns on property locations within the map
4. User selects property sites to view attribute information for a location
5. Once user has defined an Area of Interest User can select ‘View Charts’ from title bar
6. User can select ‘Demographics’ to obtain market data in chart format
We are uncovering better ways of developing software by doing it and helping others do it. Through this work we have come to value:

**Individuals and interactions** over processes and tools
**Working software** over comprehensive documentation
**Customer collaboration** over contract negotiation
**Responding to change** over following a plan

That is, while there is value in the items on the right, we value the items on the left more.

*Manifesto for Agile Software Development*
User Story

- Simple, brief descriptions of functionality
- Primarily from a user (role) perspective
- Sized for planning
- Testable
As a [role], I can [feature] so that [reason]
User Stories | Simple and concise

- As a real estate manager, I need to interact with a map to explore new locations.
- As a public citizen, I need to interact with a map to see where new permits are allowed and potential site my new business.
- As an analyst, I need the ability to create a map with pop-ups to build easy-use-maps for management.
- As an analyst, I need to the ability to run hurricane models from Provider X and see the results on a map, so that I can better understand the impact on our book of business.
- As a data provider I need to be able to upload my data to the client on a monthly basis, so that I can provide the most up-to-date data for analysis.
- As a real estate manager, I need interactive map capability on my iPad so that I can travel minimalistic during site visits.
- As a real estate manager, I need to receive information by clicking on potential sites to better understand the property.
User stories facilitate a conversation with the team.
As a real estate manager, I need to interact with a map to explore new locations.

As a real estate manager, I need to receive information by clicking on potential sites to better understand the property.

As a real estate manager, I need to be able to see a pie chart of surrounding demographics so that I can match consumer demand with product.

As a real estate manager, I need interactive map capability on my iPad so that I can travel minimalistic during site visits.

User Stories | Progressively decompose your stories
User Stories

Consider grouping them into themes
As a user interface, I need to look like the following image so that I can be intuitive to use.
Scenario 1: Title

Given [context]
And [some more context]…
When [event]
Then [outcome]
And [another outcome]…

How to test a user story

Don’t forget the acceptance criteria
User Story 1: Pop-up window display

As a user, I can click on a project feature to view a configured set of properties so that I can understand the details of a the particular project.

Test Scenario 1: Pop-up Window Display

• Given the user has the permissions to open the app
• And the Current Project web map is loaded
• When the user clicks on a feature
• Then the application will open a centered dialog
• And display the configured properties of feature.
Use Paper Cards

Keep them simple and concise
Agile Lifecycle

Evolutionary Refinement of Requirements

Best Practices for Collecting User Requirements

- Who is it for?
- What is the result?
- Why is it needed?
Best Practices for Collecting User Requirements

Acceptance from the Customer

Invest plenty of time

Source: Agile & Iterative Development. Craig Larman
Keep user stories visible | Focus of daily meetings
Microsoft Team Foundation Server (TFS) | JIRA

Requirement Management Tools | Licensed and Open Source

Best Practices for Collecting User Requirements
• Avoid long lists of requirements
• Do not be judgmental
• Prepare for conflicting requirements
• Avoid requirements that are ambiguous
• Avoid requirements that describe HOW (unless you are using COTS approach)
• Don’t forget to prioritize
• Solid requirements gathering leads to successful projects
• Consider solution, COTS capabilities before collecting additional requirements
• Involve the right people in the process
• Pick a methodology that fits your project
• Focus on the level of detail that is appropriate
• Important to prioritize and allocate
• Invest plenty of time to secure customer approval

Requirements | THE most important part of a project
• Esri project methodologies
  www.esri.com/services/professional-services/methodology.html
• Agile & Iterative Development: A Manager’s Guide by Craig Larman, Addison-Wesley, 2003
• Software Requirements (2nd Edition) by Karl Wiegers, Microsoft Press, 2003
• Use Case Driven Object Modeling with UML by Doug Rosenberg and Matt Stephens, Apress, 2008
• Writing Effective User Cases, A Cockburn, Addison-Wesley, 2001
• Agile Development with ICONIX Process by Doug Rosenberg, Matt Stephens, and Mark Collins, Apress, 2005
• agilemanifesto.org/
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