Leveraging Visualization to Elicit, Validate and Communicate Requirements

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Presentation Overview

• What is software visualization?
• Why should I care about visualizing requirements?
• How does visualization work?
• Are visualization methods difficult to learn?
• When and how will I apply visualization methods on my projects?
• What are three best practices for getting started with visualization?
• Visualization in action – iRise platform demo
What Is Software Visualization?
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• Communication
  » Is describing enough?
  » Difficulty in describing increases with level of complexity.

• Interpretation
  » Descriptions (whether verbal or written) are open to interpretation, which leads to ambiguity.

“If I can’t picture it, I can’t understand it.”
- Albert Einstein
What Is Software Visualization?

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What Is Software Visualization?

- Visualization
  - Provide stakeholders with a visual representation of requirements.
  - Build consensus and reach agreement quickly – tighter feedback loops.
  - Show what you want AND reveal what you don’t want.
What Is Software Visualization?

“We have essentially found that the prototype is a richer type of specification, for less work, since it has other uses (usability testing, demos, etc.). A prototype also invites richer feedback, because the reviewer has to imagine less about how the system would work.”

Why Should BAs Care?
Every Business is Under Extreme Pressure

• Increasing complexity
  » Mobility
  » Globalization
  » Integration
  » Regulation

• Accelerate time to market
• Shift to innovation
• Do it all at the lowest possible cost!
...But the Way That Software is Defined Hasn’t Changed in Over 30 Years!
Issue #1: Business Users Don’t Know What They Want Until They See & Interact With It
**Issue #2:** Business Users Can’t Interpret Text Specs., Use Cases, Screen Shots, etc.
The Impact is Dramatic

- Long cycle times
- Late stage rework
- Poor adoption
- Risky global sourcing
- Blown business plans
- Strained relationships
Light Bulb #1 – Visualize at Light Speed
Light Bulb #2 – Rapid Iteration
Light Bulb #3 – Communication is Transformed
Why Should BAs Care?

<table>
<thead>
<tr>
<th>IIBA Business Analysis Competency Model v2.0</th>
<th>Corresponding – and Superior – Benefits of Software Visualization</th>
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<tbody>
<tr>
<td>Elicitation - “The purpose of elicitation is to ensure that a stakeholder’s actual underlying needs are understood, rather than their stated or superficial desires.”</td>
<td>Stakeholders get a fully immersive, accurate experience when interacting with visualizations. The business can ‘test drive’ a simulation of the final system – before any coding. The business analyst gets the ‘real’ requirements faster and easier. And missing requirements become a rarity.</td>
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<td>Requirements Analysis - “How business analysts prioritize and progressively elaborate stakeholder and solution requirements in order to enable the project team to implement a solution that will meet the needs of the sponsoring organization and stakeholders.”</td>
<td>Visualizations are assembled at light speed. Stakeholders are amazed when BAs can visualize screens, behavior, data interactions and business logic in minutes. Oftentimes this happens in the middle of stakeholder review sessions, which dramatically speeds up requirements iterations.</td>
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<td>Communication and Requirements Management – “How business analysts manage conflicts, issues and changes in order to ensure that stakeholders and the project team remain in agreement on the solution scope, how requirements are communicated to stakeholders, and how knowledge gained by the business analyst is maintained for future use.”</td>
<td>Communication is transformed. Business stakeholders lean forward in meetings. They are engaged and participate actively. Communication is facilitated in new and powerful ways. Leveraging visualization, the business analyst becomes a master facilitator and a black belt at getting to the right answer faster.</td>
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What Can Be Visualized?

Web 2.0 & Rich Internet Applications

Desktop Apps & Enhancements...

Mobile Applications

Packaged Applications
How Does Visualization Work?
The iRise Enterprise Visualization Platform

iRise is an Enterprise Visualization Platform

1. Elicitation & Capture
   - iRise Studio
     - Desktop Application
       - Authoring environment used to create and edit simulations.
   - iRise Definition Center
     - Shared Software Server
       - Shared server that enables real-time collaboration among Studio users and reviewers.
   - iRise Reader
     - Thin Client Application
       - Available for free at iRise.com and allows reviewers to view simulations offline.
2. Communicate, Validate, Collaborate
   - iRise Simulations
     - Windows Web Browser
       - iRise Simulations can be viewed online via a URL link to Definition Center or offline via iRise Reader.
3. Manage
   - iConnect API
How Does Visualization Work?

Multiple layers dynamically come together to render a visualization:

- Workflow/Process
- User Interface
- Data Flow
- Business Logic

Simulations have varying degrees of fidelity across multiple dimensions:
Scenarios

Scenarios are used to describe the sequence of events and interactions that helps the application user perform a task or accomplish a goal.
How iRise Works

Application Modeling

Full functionality of the application is simulated by dragging text boxes, images and other widgets onto a page from a palette of pre-defined objects provided with iRise.
How iRise Works

Text Requirements

Text requirements can be documented right alongside the screens of the visualization or scenarios.

Specific requirements can be visually associated to elements on a page.
How iRise Works

Datasheets

• Datasheets enable business analysts to quickly connect real data into visualizations thus allowing stakeholders to have a more realistic view of the application to be built.
• Datasheets behave like familiar spreadsheets making them easy to understand
How iRise Works

Masters & Templates

Masters allow you to create page content that you can define/create once and then use throughout your simulation via drag and drop functionality.

Popular uses for masters include:
• Application Menus
• Application Headers/Footers
• Portlets
• Functional Search Capabilities
How iRise Works

Stakeholder Review

Working visualizations are reviewed in standard and familiar Web browsers either online via a link to Definition Center or offline via an iDoc.
ACCELERATE YOUR BUSINESS

Is Visualization Hard to Learn?
Is Visualization Hard to Learn?

• Visualization requires a different way of thinking about requirements definition:
  » Keep the user in mind (user needs are key)
  » Involve everyone (collaboration is key)
  » Simulate only what you need to (simplicity is key)
  » Keep everything (reusability is key)
  » Iterate often (agility is key)

• Traditional BA skills – elicitation, communication, requirements analysis, managing expectations, etc. – still just as relevant.
Is Visualization Hard to Learn?

• The mechanics
  » Scenario ideation is drop-dead easy!
  » If you can drag and drop prebuilt UI components into your workspace, you can assemble a simple page.
  » Most common interactions are easy to configure (e.g., page navigation, drop-down menus, simple data flow).
  » More advanced interactions take some persistence to master, but the payoff is huge in stakeholder commitment and accumulation of reusable assets.
  » Reusable assets >> project acceleration!
When Is Visualization Applied?
### When Is Visualization Applied?

<table>
<thead>
<tr>
<th>Phase</th>
<th>Project Mgmt</th>
<th>Functional</th>
<th>Technical</th>
<th>QA</th>
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<tbody>
<tr>
<td><strong>Propose</strong></td>
<td>Submit Project Request</td>
<td>Define Hi-Level Requirements</td>
<td>Develop Solution Design</td>
<td>Quality Tollgate 1</td>
</tr>
<tr>
<td><strong>Plan</strong></td>
<td>Define Change Mgmt Plan</td>
<td>Define Business Process</td>
<td>Define Detail Design</td>
<td>Quality Tollgate 2</td>
</tr>
<tr>
<td><strong>Define</strong></td>
<td>Finalize Mgmt Plan</td>
<td>Develop Test Script</td>
<td>Develop Technical Solutions</td>
<td>Quality Tollgate 3</td>
</tr>
<tr>
<td><strong>Build/Test</strong></td>
<td>Finalize Change Mgmt Plan</td>
<td>Conduct UAT Testing</td>
<td>Conduct Perf Testing</td>
<td>Quality Tollgate 4</td>
</tr>
<tr>
<td><strong>Deploy</strong></td>
<td>Close Project</td>
<td>Train Users Support</td>
<td>Implement Ops Support</td>
<td>Transition To Sustain</td>
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**Tollgates:**
- Tollgate 1
- Tollgate 2
- Tollgate 3
- Tollgate 4

**Key Steps:**
- Submit Project Request
- Define Hi-Level Requirements
- Define Business Process
- Develop Detail Design
- Finalize Mgmt Plan
- Finalize Change Mgmt Plan
- Conduct UAT Testing
- Conduct Perf Testing
- Close Project
## When Is Visualization Applied?

<table>
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<tr>
<th>Concept / Ideation</th>
<th>Analysis &amp; Design</th>
<th>Build Planning</th>
<th>Build &amp; Test</th>
<th>Training &amp; Deployment</th>
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<td>Allows for more accurate estimates of project effort.</td>
<td>Use iRise to elicit, capture, and validate requirements with stakeholders in an agile, iterative fashion.</td>
<td>Pass the visualization to developers (onsite, offsite, or offshore). The visualization clearly indicates what business partners expect.</td>
<td>Stakeholders test drive the application to ensure the user experience meets expectations.</td>
<td>Significant end user training can be performed by using the visualization while the production application is in development.</td>
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**Visualizations provide a head start on creating test scripts; the testing team has a much better idea of how the application works.**

*Incorporates user feedback before development, resulting in more intuitive and usable applications, reducing the need for training.*

*Using a high-fidelity visualization for broader usability and user experience testing can be performed prior to the delivery of the actual application.*
When Is Visualization Applied?

Agile process

SPRINT 0
Product Backlog

SPRINT 1

- 24 Hrs
- 20 Days
- Sprint 1 Backlog
- Sprint 1 Incremental Release

SPRINT 2...

- 24 Hrs
- 20 Days
- Sprint 2 Backlog
- Sprint 2 Incremental Release
When Is Visualization Applied?
Getting Started with Visualization
1. Avoid working in isolation – collaborate!
   » Communicate and set clear expectations with your stakeholders.
   » Engage with other users.

2. Don’t over-simulate.
   » Simulate only what is necessary to achieve the goals of your visualization. This will vary from project to project.

3. Read up on some basic design principles.
   » IxDA, UXmatters, Boxes and Arrows good places to start.
   » Common language with your organization’s designers.
Summary

- **Collaboration**
  - Scope definition
  - Collaborative modeling
  - Stakeholder reviews
  - Feedback in context

- **Requirements in context**
  - Captured in tool
  - Reviewed in context
  - Clear associations
  - Integration with RM tools

- **Reusability**
  - Asset libraries
  - Style definitions
  - Masters and templates
  - Portable output

- **Simulation**
  - Dynamic UI, not static
  - All common interactions
  - Rich application behaviors
  - Real data interactions
Demonstration
Demonstration Overview

- Scenario plus high-level requirements
- Reusable assets
- Application modeling plus functional requirements
  - Page layout
  - Page navigation
  - Business logic
  - Data flow
- Project review and feedback
- Project deliverables
Want to Learn More?

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