THE POWER OF VISUAL REPRESENTATION FOR AN EFFICIENT TEST DESIGN

FEEDBACK FROM AN IT IMPLEMENTATION PROJECT IN AN INDUSTRIAL COMPANY

Presented by Bruno LEGEARD
CONTENT

- Lightweight Model-Based Testing approach based on the visual representation of the application workflows

- Return on experience ERP – Streit Group

- Implementation of the approach in agile
Why Lightweight Model-Based Testing for enterprise IT

- Allow System Matter Experts, Business Analysts and Functional Testers to create and share easy-to-write (business-process oriented) visual representations for functional test design and implementation

⇒ The power of MBT with 2 hours learning curve!
Simple notation: workflow and decision tables

Application workflow

Decision table

<table>
<thead>
<tr>
<th>Client Type</th>
<th>Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>New</td>
<td>Existing customer ? → No → Customer Creation</td>
</tr>
<tr>
<td>Existing</td>
<td>Existing customer ? → Yes → Check customer data</td>
</tr>
</tbody>
</table>
Keep it simple: workflow modeling

Workflow sample – ERP Project

Modeling elements:
- start
- Task
- Choice point
- Sub-workflow
- end
- grouping
Simple notation: workflows and decision tables

Keep it simple: design test cases

Decision tables to identify test data and express business rules

<table>
<thead>
<tr>
<th>Statut_produit ?</th>
<th>Nouvelle_piece</th>
<th>Fournisseur</th>
<th>Nb...</th>
<th>Actions</th>
<th>Résultats attendus</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Oui</td>
<td>non AQP</td>
<td>3</td>
<td>Réception</td>
<td>Contrôle qualité nécessaire</td>
</tr>
<tr>
<td>2</td>
<td>Non</td>
<td>AQP</td>
<td>0</td>
<td>Sans contrôle qualité</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Non</td>
<td>AQP</td>
<td>3</td>
<td>Contrôle qualité nécessaire</td>
<td></td>
</tr>
</tbody>
</table>

Exigence
- Contrôle qualité
- X10C
- Contrôle qualité
- X10C
- Contrôle qualité
- X10C

Decision table sample – ERP project
Generate your tests
Publish it in your test management tool

<table>
<thead>
<tr>
<th>Information</th>
<th>Test Scenario 37</th>
<th>Expected Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Arrivee d'une commande de type <em>Reception stockee - Commande Fermee</em> valide avec :</td>
<td>La commande a été identifiée</td>
</tr>
<tr>
<td>2</td>
<td>Identification de reception de commande</td>
<td>Enregistrement d'arrivée de commande au quai</td>
</tr>
<tr>
<td>3</td>
<td>Reception de commande de</td>
<td>Commande avec n° de commande</td>
</tr>
<tr>
<td>4</td>
<td>Saisie des informations relatives a la <em>Commande Fermee</em>: lot, version, quantite normale</td>
<td>L'étiquette est présente</td>
</tr>
<tr>
<td>5</td>
<td>Verification presence des etiquettes</td>
<td>L'étiquette est cohérente</td>
</tr>
<tr>
<td>6</td>
<td>Verifier le code et couleur de l'étiquette. Verifier que le code (bleu/blanche/verte) correspondent au type</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Identifier les nombre d'elements</td>
<td></td>
</tr>
</tbody>
</table>

**Informations**

<table>
<thead>
<tr>
<th>Action</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Réduire</td>
<td></td>
</tr>
</tbody>
</table>

1. *Identification et vérification de la commande que tous les éléments sont corrects:*
   - cote Streit : code fournisseur, code article
   - existant, n° commande, n° d'appel, n° de contrat et cote fournisseur: n° BL, n° commande,
   - ligne de livraison
   - La commande a été identifiée

2. *Identification de reception de commande avec son numéro de lot, emplacement, statut, code produit et quantite donnee*
   - Enregistrement d'arrivée de commande au quai

3. *Reception de commande de type Reception stockee*
   - Commande avec n° de commande 1234 arrivee

4. *Reception de produit avec:
   - Statut : A et un
   - Fournisseur : AQP*
   - Il n'est pas necessaire d'effectuer un controle qualite
CONTENT

- Lightweight Model-Based Testing approach based on the visual representation of the application workflows

- Return on experience ERP – Streit Group

- Implementation of the approach in agile
• 950 employees
• 5 production sites (France, Slovaquia, Serbia)
• 7.5 millions of parts per year for various industries (automotive, rail, defense, …)
• Certifications ISO 9001, 14001 – OHSAS 18001
• ERP Project is strategic for the Group
Goal of using Lightweight MBT approach for the ERP Project:
leverage user workflows visual representation per domain and end-to-end to produce the test scenarios

- 7 business domains covered by the ERP functionalities
- 19 persons involved in the testing sub-project
- 32 business processes
- 750 test scenarios produced

ERP – Sage X3 v7
Streit ERP project

- Training on Lightweight MBT and tooling
  - Organized by domain
  - A 2-hour getting started session + 1 day of support by the tool vendor

- The visual representations of the user workflows, the business rules and data sets enabled to:
  - Precisely monitor the test coverage
  - Clarify analysis and test needs for certain complex workflows
  - Accelerate the creation of the test cases

- Test cases are published in Excel sheet per test campaign
  - A familiar format for all the Streit Group testers
  - Enables the monitoring of the execution campaigns per domain and for end-to-end scenarios
Streit ERP project

- **Easy-to-use**: a good adoption of the Lightweight MBT approach by domain experts

- **Efficiency**: approach and tool allowed the team to focus on the most important business processes to test

- **Sharing**: thru the visual representations, the teams to share a common vision of the business processes and rules that also enlarged their own perspective

- **Capitalization**: the visual representations of the user workflows on the ERP are an asset that will be reused in the other sites of the Group for the next ERP go-lives
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The representations of the application workflows and business rules facilitate alignment and acceptance test design within the agile team.

Create acceptance test as early as possible:
- As soon as product features refinement is done in the backlog

Expected workflows and Acceptance Criteria
As a bank employee, I can check customer data in order to verify the eligibility of the loan.

**Acceptance Criteria**

<table>
<thead>
<tr>
<th>Loan Amount</th>
<th>Situation</th>
<th>Direction suivante</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt;=1500</td>
<td>Student</td>
<td>Not Eligible customer</td>
</tr>
<tr>
<td>&lt;30000</td>
<td>Employee</td>
<td>Contract Signature</td>
</tr>
</tbody>
</table>
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Thank You For Your Attention

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