Applying Agile Practices to Avoid Chaos in User Acceptance Testing (UAT)
A Case Study

Computer Science and Engineering Department
University of Moratuwa

K.V. Jeeva Padmini
Dr. Indika Perera
Dr. H. M. N. Dilum Bandara
Goal – find a better way to enhance *productivity, efficiency, and time to market of the UAT team*.

Proposed tailored framework to conduct UAT in efficiency and productively.

- Team productivity increased.
- Team worked more collaboratively.
- Defect tracking and identification efficiency increased.
- More modules released with in shorter time period.
Background

- UAT in plan driven process encounter as final stage of the process.
- This is widely used bad practice.
- High risks of failures.
- Agile practice do the testing at production-like environment at recurring time schedule.
- Very little study exists on UAT process.
“What are the steps to enhance productivity, efficiency, and time to market of the UAT team with the application of Agile practices?”
Case study

Process streamline using Scrum framework

Development team

International Vendor

Functional Testing

User Acceptance Testing

Complex - Large scale system (Revenue Management System)

Non Functional Testing

Public Institute

UAT team <100>
Revenue Management System

- Public web portal and a set of backend applications.
- Portal consist with three different SIT and UAT releases.
- Phase one consist with 15 modules.
- Complex and Large-scale system.
- Large no of participants join for UAT test (100).
- UAT included both the functional and non-functional testing.
Initial UAT process

- Complex - Large scale system (Revenue Management System)
- User Acceptance Testing
- No proper documentation mechanism
- Less efficiency
- No process
- Less Team communication
- Low productivity
- Lack knowledge about testing process
Methodology

- Literature review
- Identify existing UAT execution methods
- Collect and analyzed available documents
- Identify existing UAT process
- Checklists and schedules prepared
- Conduct Face-to-face interviews with team members and project leadership
- Biography details of UAT team members
- Understanding about UAT process
- No of trainings engaged
- Level of domain knowledge
- Preference for IT adaptation
- Team wise transformation
- Proposed framework
# Initial UAT process Drawbacks

<table>
<thead>
<tr>
<th>#</th>
<th>Observations</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>UAT team does not have an understanding about testing levels and types, defect identification, etc.</td>
</tr>
<tr>
<td>2</td>
<td>UAT team is not clear about their roles and responsibilities.</td>
</tr>
<tr>
<td>3</td>
<td>Lack of knowledge in writing scenarios for UAT.</td>
</tr>
<tr>
<td>4</td>
<td>Conflict between project leadership and UAT team’s objectives.</td>
</tr>
<tr>
<td>5</td>
<td>Lack of communication between project leadership and UAT team.</td>
</tr>
<tr>
<td>6</td>
<td>Lack of communication between project leadership and UAT team.</td>
</tr>
<tr>
<td>7</td>
<td>No proper communication between vendor and UAT team.</td>
</tr>
<tr>
<td>8</td>
<td>No proper communication between vendor and UAT team.</td>
</tr>
<tr>
<td>9</td>
<td>Limited presence of UAT team members at UAT premises.</td>
</tr>
<tr>
<td>10</td>
<td>UAT test scenarios are not get signed off by responsible body.</td>
</tr>
<tr>
<td>11</td>
<td>No proper documentation and naming convention practiced.</td>
</tr>
<tr>
<td>12</td>
<td>No proper configuration management used.</td>
</tr>
<tr>
<td>13</td>
<td>Lack of perception and attitude.</td>
</tr>
</tbody>
</table>
Scrum Framework

Product Owner
Product Backlog

Sprint planning meeting

1-4 week sprint

Sprint Backlog

Sprint Team

Scrum Master

Daily Scrum

Sprint Retrospectives

Shippable product
Tailored Framework for UAT

**Daily Meetings**
- Team Lead
- Scenario planning meeting
- 2 week sprint

**Weekly Meetings**
- UAT Team A
- UAT Team B
- Weekly Meetings

**Sprint Retrospectives**
- Shippable product
- 1. Execution Results
- 2. Defect Log
- 3. Screen shots
- 4. Review Reports

**Release Backlog**
- Scenario Backlog
- Module Backlog

**Release Backlog**
- Scenario planning meeting
Tailored Framework for UAT

- Release Backlog
  - Release 1
  - Release 2
  - Release n
  - Ranked list depending on the priority

- Module Backlog
  - Module 1
  - Module 2
  - Module n

- Scenario Backlog
  - User Scenario 1
  - User Scenario 2
  - User Scenario n

- Team A
  - Team members select scenarios for execution
  - Scenario planning meeting

- Team B
  - Scenario planning meeting
  - User Scenario 1
  - User Scenario 2
  - User Scenario n

- Team lead
  - Weekly Meetings
  - Sprint deliverables and planned date do not change

- Daily Meeting

- Finished Work
  - Execution results
  - Defect log
  - Screen shots
  - Review Report
UAT review process introduced to enhance the quality.

- Screenshots taken by UAT team
- Shared with UAT Review team
- Verify Screenshots
- Shared with UAT team
- Report prepared by Review team
- Shared with UAT review team
- Verify the report with test execution
- Module Release signal
Case Study Findings

- Recurring survey conduct at the end of each sprint to measure the people perception towards tailored framework.
- Some comments received from the participants after training sessions.
  
  "Now I understand how to catch a defect. We neglect some misbehaviors since we thought those should be there in the system"

  "For testing, we need to get other browsers installed as well. We have only Firefox in our machines"

- Team productivity and efficiency increased.
Defect identification improved
Case Study Findings

- Defect identification improved

![Graph showing the improvement in defect to remark ratio over time](https://via.placeholder.com/720x540)

**DEFECT TO REMARK RATIO**

<table>
<thead>
<tr>
<th>DATE</th>
<th>01-09-15</th>
<th>01-10-15</th>
<th>01-11-15</th>
<th>01-12-15</th>
</tr>
</thead>
<tbody>
<tr>
<td>DEFECT TO REMARK RATIO</td>
<td>20%</td>
<td>25%</td>
<td>30%</td>
<td>35%</td>
</tr>
</tbody>
</table>
Summary

- We analyze the existing UAT process and propose a tailored framework for complex, large-scaled system.
- UAT productivity, efficiency and time to market increased with the introduction of the tailored framework.
- We experience the significant change in UAT team and its results.
- Defect to remark ratio increased with the time.
- Continuous survey results show UAT team is happy to work within the tailored framework.

