Managing agile tests in an extreme offshored context
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In a SCRUM Agile project, the actors are supposed to be in a same place as per Fig1. In the scrum team there are:

- **Stakeholders**: Business owners who review the delivered product at the end of each sprint.
- **Product Owner (PO)**: The central authority responsible for the functionality prioritization. There are other PO delegates to elaborate the User Stories.
- **Dev Team**: all the developers and testers in a self-autonomous team.
- **Scrum master**: the scrum team coach.

But, on a multi-country project using offshored development and tests, your organization looks rather like the Fig2:

- **Stakeholders**: Business owners based in different countries with only internet communication capabilities.
- **Product Owner**: local client authority helped by client or subcontractors’ PO delegates.
- **Dev Team**: Offshored developers in one or many locations.
- **SIT Team**: Offshored test team different from developers.
- **UAT team**: Client (or subcontractors) business process oriented test team requested by stakeholders to validate.

Offshored teams belong to Global Delivery Centers (GDC) which provides IT services to Front teams. This organizational variance at the SCRUM model leads to the following problems:

This White paper is the synthesis of experiences of these situations and aims to propose a pragmatic solution, respectful of the Agile and Scrum spirit while sticking as close as possible to ISTQB standards.
The key to a good organization is to focus on achieving Scrum goals for each phase, instead of establishing a strict Scrum framework. Attempting to reconstruct a Dev Team including a fragmented test is doomed to failure because rhythms and understanding (and not just because of the language) will not naturally be as expected. The proposed solution in Fig 3 focusses on giving an agile rhythm to the dispersed teams by clearly defining their scope with a strict respect to the steps of the sprint.

- The PO Team consists of a single Product owner, the only decision-maker for prioritizing and centralizing user stories. He is supported by PO Delegates who can be distributed on several locations. The PO Delegates are in charge locally of the User Stories (preparation) and remote support activities of Dev and UAT teams.

- The validation is carried out by the UAT Team on behalf of the stakeholders. UAT testers can be distributed across multiple locations.

- The “IT Team”, here used to refer to all the teams in charge of the support, install packages on the production servers and potentially tests on environments external to the projects.

These actors have activities that depend on a reference sprint respecting the Scrum approach for a maximum of 4 weeks as per Fig 4. Nevertheless, the complexity of the subjects to be prepared and centralized, and the duration of the UAT forces each team to have an intervention lag on the sprint. Lead by an operational view, the following organization makes it possible to always be on sprint logic and on within deadlines without impact on the testing activities.
**Scrum vision**

**Sprint Retrospective**

**Product Backlog Grooming**

Based on the preparation status, the PO can refine the sprint Backlog with the help of all actors. That means he must have a clear vision of the UAT status (US from sprint N-1 with defects' severity)

**Sprint Planning**

**Sprint Execution**

Regarding the Gravity and Impact of a UAT bug on a User story, the US is added (or not) to the Sprint Backlog.

**Sprint Review**

**Production**

The validated US from Sprint N-1 can be delivered in Production.

**Details per phase**

**a) Grooming**

In the Grooming phase, the PO will work with PO Delegates to first, update the Backlog with all the new elaborated user stories and some of the existing user stories according to the final result of UAT testing and then will prioritize each one in order to prepare the upcoming sprint.

The complexity of this exercise is due to the difficulty to accurately evaluate each User Story. To improve this phase it is advised to create a milestone for all User Story named ‘Review for Ready for Development’ followed by a status ‘Ready for Development’.

Concretely, this assumes that each user story when on the status “Review for Ready for Development” a review session (conference call) will be held to allow the POs to review it and explain its functionalities to the Dev team. Then the voting can take place in order to estimate the story points and then finally update the status to “Ready for Development”.

It is strongly advised to ask for the presence of the UAT and SIT in charge of writing test cases associated with the reviewed user story to understand it and be aware of the acceptance criteria.

**b) Planning**

This organization adds a constraint to the PO & Dev team: they need to consider the adding of User stories to fix from previous sprints. In that situation the MVP methodology should help the PO: rather than focus on the Blocking defects as in non-agile approach, he should rather choose to add the User stories which help to finish a MVP. The Dev Team must also evaluate, as usual in SCRUM, the correction cost in Story point (or whatever other unit) to evaluate the overall estimate of the Sprint.

**c) Execution**

During Execution, Sprint N user stories are developed and tested in SIT. The User Stories are sent to UAT Team for test and approval.

In parallel, UAT team tests the Sprint N-1 US and US (N-1) Passed can go in production if Stakeholders are agreed.

**d) Review**

The Review stage is in this organization split in two parts:

- Review of developed Users stories approved by SIT. If it’s considered as ok, it can be sent to UAT (instead of production in classic SCRUM).
- Review of UAT on proposition of UAT Team. User Stories passed can go in production if Stakeholders are agreed.

**e) Retrospective**

There are too many teams to organize Retrospective meeting. Only the Dev Team (including SIT testers) should have a retrospective meeting.
**Framework: System Integration Tests (SIT)**

In this approach, SIT Team is a part of the DEV Team (in complement of developers). Aim of the SIT is to establish a testing process that exercises a system’s coexistence with others external systems.

As the SIT team is in an offshored GDC and not necessarily in the same place as Developers, the followings conditions should be filled:

- The SIT Team must be in the same country than the developers to have a better understanding and the same time zone.
- SIT Team must be composed of people with testing skills rather than functional or dev skills to guarantee the awaited quality of tests.
- Tests must be linked to User stories (considered as requirements) with the same ID that will be used in UAT. That gives us the opportunity to let the UAT having a real efficient vision of the status of each User Story (or Epic). It will help to know what must or must not be tested/reviewed.
- Tests should use the same test tool as the UAT test tool to be able to import the functional part of the tests from SIT to UAT.

The SIT team remains self-organized but interacts with the client’s IT on most of the tests as in Fig6. Client IT Team is in charge of creating the tests related to external systems and support the test execution part in external systems.

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**Additional end-to-end/NRT tests**

**Client-IT : SIT**
- Create tests cases & Datas
- Create Campaigns
- Link test cases to US

**Tool**
(ALM-QC, Jira...)

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**GDC : SIT**

**Preparation**
- Create tests cases & Datas
- Create Campaigns
- Link test cases to US

**Tool**
(ALM-QC, Jira...)

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**GDC : E2E and/or NRT Execution**
- Run SIT end-to-end tests with Client-IT support

**Client-IT : Support GDC for first end-to-end tests**
- Control results
- Manage External bugs
- Support

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Managing agile test in an extreme offshored context
**Definition:** User Acceptance Testing is carried out by the client's team and supported by the SIT team. The execution will be undertaken by key Business users on client's servers.

**The UAT complex organization**

A normal "Agile" flow for one single sprint would be the following Fig 7:

However, taking into consideration the complexity of the project, it is advised to make some changes:

Instead of delivering the package and directly installing it on go-live server, a User Acceptance Testing "UAT" phase can be added as per Fig 8. This will help reduce risk and get validation of the package directly from the end user.

**The UAT structure**

A number of agents are selected from each center so that all the end users are represented and involved as shown in Fig 9.

Then a UAT management team is created to manage the UAT testing activity. A UAT Test Design Team that designs test cases to be performed by the End User Testers, and a UAT Test Manager who is in charge of assigning test cases to the UAT testers and monitoring their execution. Once the End User Testers run the test cases and encounter a defect, they normally should assign it to the Dev team to fix it.

But in this process we still have elements that could create a huge workload of "false" defects. Issues that can be encountered are:

- **Language:** end users, UAT management team and development team do not speak the same language.

- **Culture & communication:** Dev team is offshore. UAT management team is in client country and End User Testers are all around the world (Poland, France, Canada, Middle East, Asia...). Communication, with different local cultures, quickly becomes an issue. Things that can be logic and not written in User stories (acceptance criteria or description) in one country can be nonsense in another. User Interfaces developed in one country with the local habits could also be viewed as a defect from another country (colors, organization...). And, at last, the way of describing defects could be considered in some country as aggressive and in some other as too polite.

- **Location:** the team is divided on locations all over the world which makes it difficult to schedule meetings (due to different time zones).

- **Skills:** End User Testers are often more "user" than "tester" and are not present in User Stories elaboration, so this makes the risk of having "false" defects higher.

So to reduce risk and limit the impact of all these issues, it is possible to introduce a Review and Support Team. It is a multicultural team, speaking multiple languages, with testing skills. The members of this layer are in charge of:

- Analyzing the defects logged by the End User Testers, assign or reject them to the dev team to fix.

- Provide assistance for the UAT team: answer their questions regarding the functionalities and schedule functional demonstration sessions if needed with the help of PO delegates.
From SIT to UAT, a seamless process

As per Fig 11, at the end of SIT, all the designed test cases should not be lost and useless. They are sent to UAT or shared in a tool (like ALM) in order to be re-used.

Like for SIT, the user stories are considered as requirements and linked to UAT tests. That’s done, at any time we have a clear vision of coverage.

For each user story we must be able to give the number of tests written and executed (UAT AND SIT) with status and severity of the defects.

Each “Epic” will be traced in the test tool as a group of user stories in order to have also a clear functional status of the project.

The limit, as usual in test management is the fact that a Requirement (here a user story) with 100 tests can be considered as failed if any test is failed.

To make communication even better, it is recommended to schedule a 1h UAT meeting (call) with all actors twice a week to discuss all the current issues and ask/answer questions.

This approach has a positive impact:
- Reduce considerably the number of rejected defects.
- It helps filter defects logged by UAT and reduce defects workload for the Dev team.
- It makes end user validation possible in an international context and in an agile mode.

UAT-Tests Organisation

The Review and Support Team is between 1 to 3 people, all in the same location (near from Dev Team if possible). The ROI of those additional 1 to 3 ETP is very interesting because it helps avoid “ping-pong” of defects, avoid disturbing developers, avoid bad fixing (and defects reopening) due to incomprehension of defects log, avoid UI related misunderstanding (there is nothing more blurry than an UI related defect) and last but not least, it helps maintain a good team spirit (misunderstanding could create frustration and hate).

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UAT Workflow: simple shared workflow for complex organization

Figure 12: UAT Workflow for a Complex Organization
In this offshored organization agile-oriented, Indicators and Dashboards must be done on UAT only (SIT in Scrum is self-organized) and their aims must be focused on the Approval Review (the objective of the UAT).

So, the indicators must answer to those questions:
- What is the status of the User stories per sprint?
- How are the defects managed by the teams?
- What quality level of development do we have?
- Is there organization issues?

Here is some quick-win proposal to answer it:

a) Coverage status of User Stories for the ongoing sprint:

The details can be seen at any time by PO

![Figure 13: Coverage Status](image)

b) Defect grouped status (active vs Ended) for the project:

In this two graph, we want to find organization issue: where does the defects stands between offshored dev team (GDC) and UAT and why?

In this example, we meet a huge amount of rejected defects which leads us to take an action on test creation phase (misunderstanding of the application).

![Figure 14: Defect Status (Active vs Ended)](image)

c) Main operational indicators:

- % defects Rejected per sprint : to track UAT misunderstanding
- % defects Re-opened per sprint : to track Dev Team misunderstanding
- Number of Defects (non-rejected) /100 Story Points : To evaluate at any time the quality of development whatever the number of story point in a sprint.

![Figure 15: Operational Indicators](image)
The provided suggestions help to reach the awaited quality of testing, reduce risks considerably, and make having the end user’s test and validation possible in an extreme international, multicultural and offshored context.

Some of, or the entire propositions of this document could be used in a project as long as it is kept in mind that the key is to focus on achieving Scrum goals for each phase, giving each team (DEV, SIT, POs, UAT…) the same Sprint phase Rhythm.

To go further in Test quality, Review can be enhanced with a change-management ‘oriented Pre-production phase. This phase should be conducted under real conditions and executed by end users – future ambassadors of the product -(instead of testers), who were not involved in the UAT, using real production server and data.

This completely new pre-production approach is currently being tested and could be the subject of another white paper.

27 CNAs are, by definition, already in the Cloud. This also means that they “tend” to adhere to modern software engineering technologies and practices. However, we must remember that CNAs also face their own challenges to Cloud Portability as it has been described in this paper.
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