IMQS

IMQS TECHNOLOGY

AGILE METHODOLOGY

OVERVIEW

Agile software development refers to a group of software development methodologies that promotes development iterations, open collaboration, and process adaptability throughout the life-cycle of the project. It chooses to do things in small increments, with minimal planning, rather than plan at length. This helps to minimize the overall risk, and allows the project to adapt to changes more quickly. There is also an emphasis on stakeholder involvement. Meaning: At the end of each iteration, the stakeholder is consulted about the product and feedback is integrated. At IMQS, Agile is not just a software development framework. It is a framework used in many areas of our business. It is about eliminating bureaucracy, improving profitability and visibility.

IMQS successfully implemented Agile (Scrum) in early 2012 and never looked back since. It was clear back then that we needed a framework to support our complex business domain, promote collaboration and being able to adapt to the rapid client requirement changes. The key to the implementation of any framework or methodology is the buy-in from the entire business. Agile is truly aligned with our sought-after culture and is embraced by every employee.

In 2012, we started with 2 product-centric teams, which consisted of 4 developers, a product owner, a scrum master and a dedicated QA analyst. As we've become more mature in our Agile approach, we've managed to scale using the well-known "agile seeding" method. Within a year, 2 primary teams became 4, and we have currently (September 2015) 7 Agile development teams based in 2 regions (Stellenbosch and Bedfordview), across South Africa.

1. OUR FLAVOUR OF AGILE

We pride ourselves on running an orthodox vanilla *Scrum* process! That being said; one of the primary objectives of Agile is to focus on continuously refining and improving the process. As a software development group, we must be reactive to our clients, so our approach has evolved over the past few years.

Our development sprints are 2 weeks in duration and consist of all the standard Scrum ceremonies and artifacts, as explained in detail below. We have a well-defined "Definition of Done", which include fundamental Agile and development practices. Our experienced process facilitators (Agile Project Managers) ensure that every ceremony is well prepared, energetic and business value-driven. We've invested tremendously in our Agile movement and that allowed for relatively seamless scaling.

We've implemented Agile across many parts of our business, including the Management, Operations, Sales and Asset Management Teams.

2. AGILE ROLES

As mentioned above, IMQS conform to the standard Scrum roles, apart from introducing *Solution Analysts* and *Agile Tribes*, as we've scaled our Agile approach.

We have the following Agile Roles at IMQS:
- Product Owner
- Solution Analyst
- Agile Project Manager
- The Team
- Agile Tribes
- Stakeholder

Below is a role interaction diagram, as well as a brief description of each role.
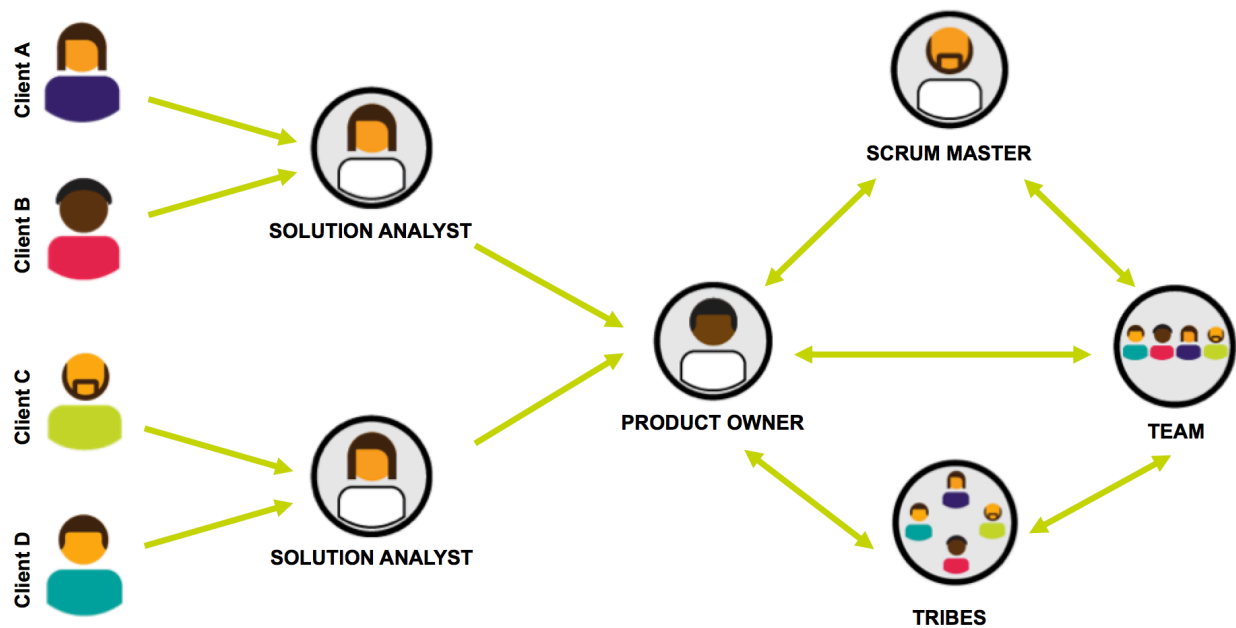
IMQS Scrum Role Interaction Diagram

2.1 PRODUCT OWNER

The Product Owners at IMQS comes with special powers! They have to work their magic on a complex product platform, for multiple projects and for a diverse group of clients. These superstars are ultimately responsible for the:

- Product Vision
- Product Roadmap
- Product Backlog
- Release Planning
- ROI

In order to accomplish the above mentioned mission, they work closely with our Solution Analysts and clients to gather, analyse and process the complicated requirements. They represent the voice of the customer. They ensure that the Scrum team works with the right things from a business perspective.

2.2 SOLUTION ANALYST

The Solution Analyst is a combination of a business and systems analysis. The unique aspect of a solutions analysts job is the level of expectation. They are required to be knowledgeable in a range of IMQS' software products that have the potential to meet business needs. They are more client focussed and are ultimately responsible for gathering and processing client requirements to the Product Owner and Team.

2.3 AGILE PROJECT MANAGER (SCRUM MASTER)

The Agile Project Manager role at IMQS is multi-facetted and not to be confused with a traditional project manager. They are process facilitators, change agents and admin-driven rock stars! The Scrum framework is facilitated by a Scrum Master, whose primary job is to remove impediments, enabling the team to deliver on their sprint goal. They help the teams improve, by embracing courageous process experiments.

2.4 THE TEAM

The real superstars! The team has the responsibility to deliver the product, that simple. Our teams are self-organising, ranging from 5-7 people with cross-functional skills to do the actual work. Our teams consist of 4-5 developers and a dedicated QA Analysts. the teams determines their sprint commitments and specifies work results. They are also responsible for demonstrating the completed work at the end of a sprint, during the sprint review meetings.

2.5 AGILE TRIBES

Dealing with multiple teams in a product development organisation is always a challenge! Following the rapid growth at IMQS, we had to scale the Agile process accordingly. One of the issues we had to address was to break down *silos* and align the different development disciplines. An Agile Tribe objectives is to:

- Promote visibility and communication across teams
- Align development strategy and enforce consistency
- Avoid silos from building in development department
- Provide unified mission and goals for teams

The basic structure of an Agile Tribe is consisted of a member from each team, who is accountable for that particular development discipline or aspect. For example, the *Architecture Tribe* is responsible for aligning the architectural design and implementation and will have a member of each team whom will regard backend technologies and stacks as their forté. The UI/UX Tribe will focus on simple, clean design principles and intuitive user experience.
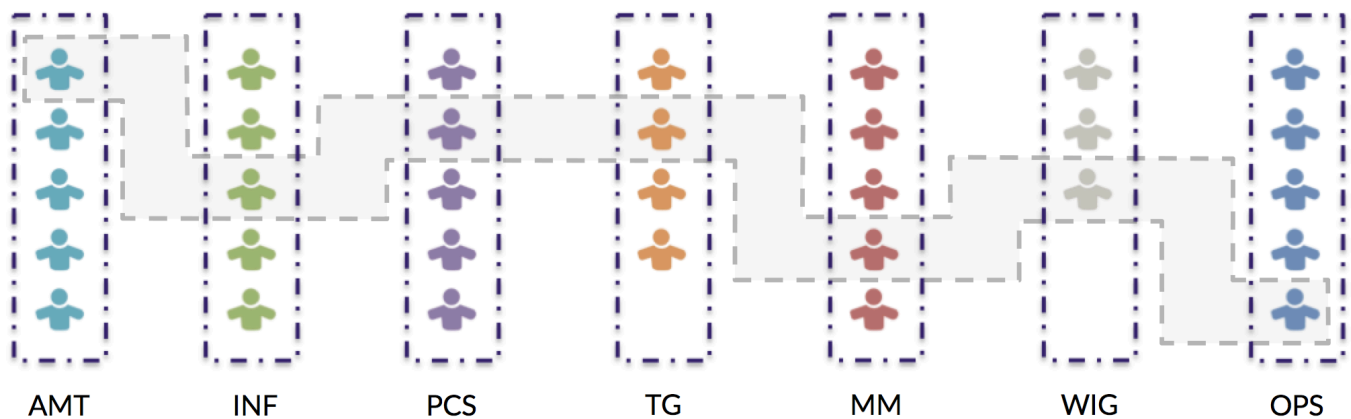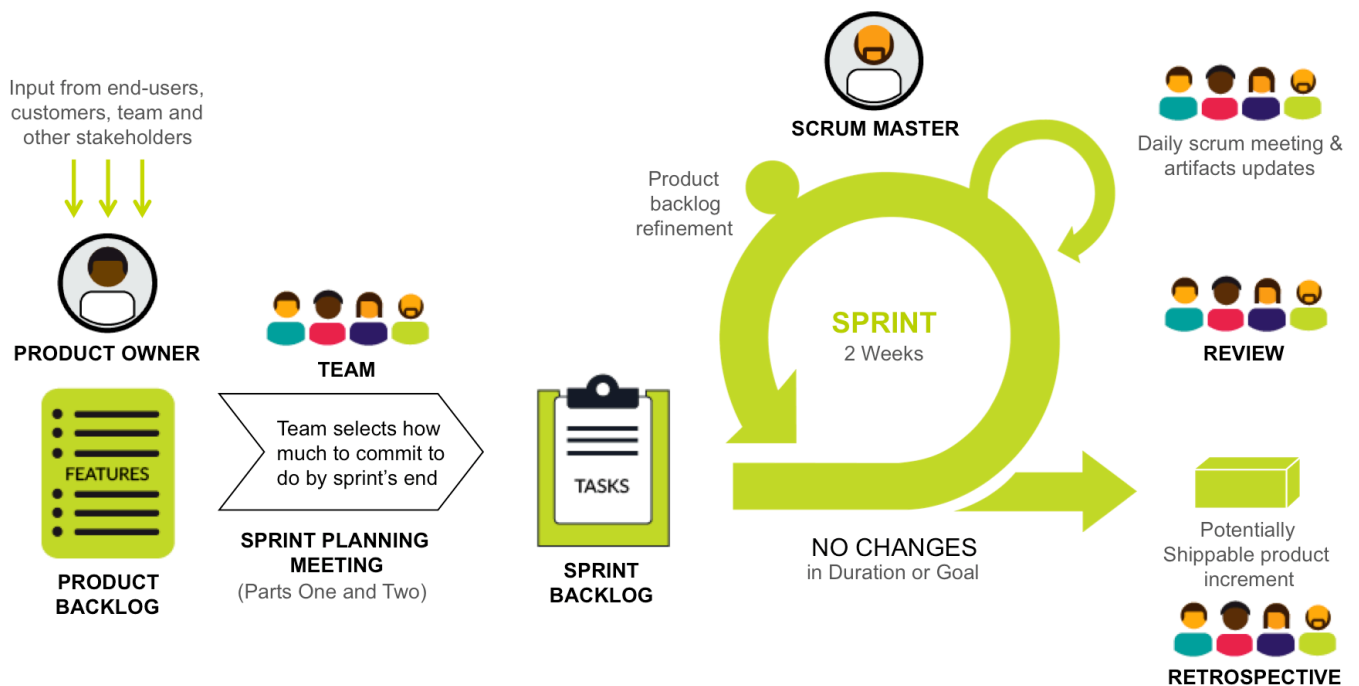

Basic representation of an Agile Tribe at IMQS

IMQS currently have the following Agile Tribes:

- Architecture Tribe
- UI/UX Tribe
- Product Tribe
- QA Tribe
- Agile Tribe
- Reports Tribe
- Sales Tribe

IMQS Scrum Process Diagram

CEREMONIES

At IMQS, we have the following Scrum Ceremonies within the 2-week Sprint cycle:

- Sprint Planning
- Grooming Session (*also known as backlog refinement session)*
- Tribe Gathering
- Sprint Review
- Sprint Retrospective

Below is a brief description of each ceremony along with the expected audience and the platforms we use at IMQS to capture and manage these ceremonies.

3.1 SPRINT PLANNING

Audience: Product Owner, Scrum Master and The Team (occasionally a Subject Matter Expert or
                 Stakeholder could be invited)

Platform(s): Atlassian JIRA Agile & Confluence

Frequency: Once per *Sprint* (at the start of a sprint)

Duration: 2.5 hours

Our Sprint Planning sessions are typically split into two phases: **Sprint Planning 1:** "*The What*" and **Sprint Planning 2:** "*The How*"*.* Sprint Planning is a key ceremony in the Agile SDLC and the *first* Scrum meeting within the 2-week sprint. During Sprint Planning 1, The Product Owner shares the desired goal for the sprint with the development team and presents a prioritised list of stories (functionality) from the product backlog, to achieve the goal. The discussions are focussed around *what* needs to be delivered. The Team and the Product Owner will agree on the *acceptance criteria* of each story, which needs to be achieved for the story to be classified as *done.* In order to derive clear and concrete acceptance criteria each story's requirements must be fully understood by the entire development team.

Once the team is confident that they have full comprehension of the story and its requirements, they'll estimate the complexity, using a method called, *Planning Poker*.

Following the estimation exercise, The Team will commit to a number of stories for that particular 2-week sprint. All the stories, along with their acceptance criteria, business value and release notes will form the *Sprint Backlog* and is captured in *Atlassian JIRA Agile.* The agenda, actions and minutes are informally documented, using *Atlassian Confluence.*

During Sprint Planning 2, The Team will focus on how to materialise what needs to be delivered. This is typically a more technical session, where The Team will go into solution mode and make use of different methods to visualise and design the solution. They will also break down each story into fine-grained tasks.

3.2 DAILY STAND UP

Audience: Scrum Master, The Team & Product Owner

Platforms: Physical Scrum Board

Frequency: Every Day

Duration: 15 minutes

The purpose of the stand up is for the team to provide an update to each other, as to reporting to a line manager for instance.

We stand for the sole purpose of keeping the meeting short as nobody wants to be standing for a long period of time. In the stand up, the team discusses:

- Things I have done since yesterday's meeting
- Things I am going to get done today
- Obstacles that I need the Scrum Master to remove

It also serves as a catalyst for the day allowing the team to:

- Have a **Good Start** - The stand-up should give the team energy by installing a sense of urgency and purpose
- Help with **Improvement** - During the stand-up the team can expose problems that will allow us to improve and also assist by sharing better techniques and ideas
- Improve **Focus** - The stand-up should encourage team focus by moving work through the system in order to achieve our objectives
- Provide **Team Support** - The stand-up should support the creation of an environment that encourages people to raise problems and allows other people to help when problems are raised
- Provide **Status Updates** - The stand-up allows the team to raise and answer questions and take accountability for the work they are doing

Example of Physical Scrum Board

3.3 GROOMING

Audience: Product Owner, Scrum Master and The Team (occasionally a Subject Matter Expert or Stakeholder could be invited)

Platform(s): Atlassian JIRA Agile & Confluence

Frequency: At least once per Sprint (ideally twice)

Duration: 1.5 hours

Similar to "grooming" oneself such as trimming a beard or growing it, we groom our product backlog. We identify new stories to be added or remove old ones, which are no longer relevant.

It is commonplace for teams to use this ceremony to derive stories from the epics found in their product backlog. Epics are essentially large stories, which are decomposed into more manageable stories. The grooming sessions allows the Team to break away from their current workload and peak into future features or functionality. This is two-fold advantageous, The Team can prepare for the next sprint and the Product Owner has an updated prioritised backlog. The Product and Sprint Backlogs are hosted and captured using *Atlassian JIRA Agile.* Similar to the *Sprint Planning* session, the agenda, minutes and actions for this ceremony are captured using our *Atlassian Confluence* instance.

3.4 TRIBE GATHERING

Audience: Dedicated member from each team & Internal Stakeholders

Platform(s): Atlassian JIRA Agile & Confluence

Frequency: Once every fortnight

Duration: 1 hour

This ceremony is designed to discuss and make decisions around each discipline. The Architecture Tribe will for example focus on backend development, security, performance and scalability. During the Tribe gathering each member get the opportunity to table issues surrounding the Tribe-related disciplines. It also serves as an opportunity for the Tribe leader to provide visibility on future developments and roadmaps. Each action point taken from the Tribe gathering will essentially feed of of the Agile teams' Product Backlog.

3.5 SPRINT REVIEW

Attendees: Product Owner, Agile Project Manager, The Team and Stakeholders.

Platform(s): Atlassian JIRA Agile & Confluence

Frequency: Once every Sprint (at the end)

Duration: 1 hour

The Sprint review ceremony serves as an opportunity for The Team to showcase pieces or components of working software, which they have completed during the past sprint. They will showcase the work mainly to the Product Owner and product-related stakeholders. The purpose of this session is to gather and assess stakeholder feedback and to ensure that the product increment is aligned with the Product Owner's vision and end user needs.

This is a valuable feedback session where the stakeholders can assess the progress made during the past sprint. The Agile Project Manager facilitates this session whilst the development team demonstrates the completed stories to the Product Owner and stakeholders. After each Sprint Review meeting, the Agile Project Manager publishes a sprint summary document to all the internal and external stakeholders. The agenda for the review meeting and sprint summary document is hosted on our *Atlassian Confluence* platform.

3.6 SPRINT RETROSPECTIVE

Audience: Scrum Master and The Team (Product Owner optional)

Platforms: Atlassian Confluence (only for measurable action)

Frequency: Once per Sprint (at the end of a sprint)

Duration: 1 hour

The Sprint Retrospective meeting is an informal ceremony, which, if conducted well, will result in improved cohesion, teamwork, quality product and a very effective development team.

The team assesses their performance of the last sprint, establishing one or two measurable action points to address one of the following:

- Stop a negative characteristic or process
- Start a positive characteristic or process
- Promote a positive characteristic or process already introduced to the team

This ceremony is conducted with utmost confidentiality, in a "safe environment", as team members must feel free to address any issue, which furthers or hinders their effectiveness as a team. Due to the sensitive nature of this session we tend to only capture the measurable retrospective actions on our *Atlassian Confluence* platform.

4. ARTIFACTS

Artifacts in Scrum are visual aids or information radiators, promoting visibility and transparency. We use the standard Scrum artifacts, which are listed and explained below:

- Product Backlog
- Sprint Backlog
- Sprint Burn-down Chart

4.1 PRODUCT BACKLOG

The Product Backlog in Scrum is a prioritised features list, containing short descriptions of all functionality desired in the product. Our product backlogs are prioritised by business value. Each feature or story has an associated estimate (story points), provided by the actual team who will do the work. The Product Backlog items come in from diverse sources, but is managed and maintained by the Product Owner.

In order to manage the Product Backlog better, we categorise or group stories into Epics. Epics generally take more than one or two sprints to develop and test. They are usually broad in scope, short on details, and will commonly need to be split into multiple, smaller stories before the team can work on them.
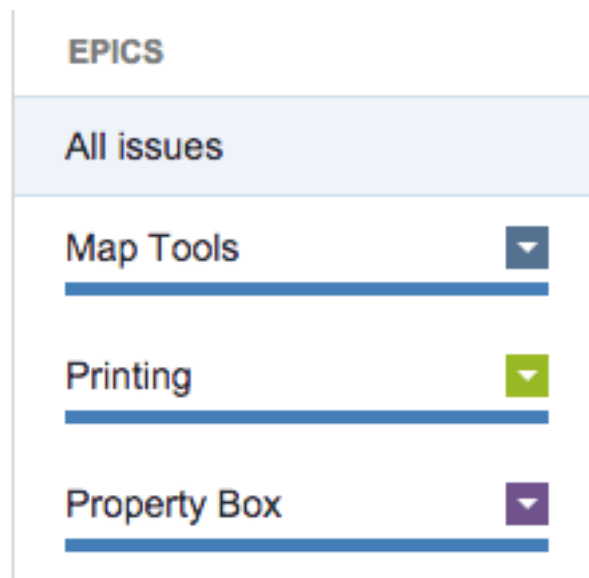
Product Backlog Example - Grouped by Epics

4.2 SPRINT BACKLOG

Top most subset of the Product Backlog, loaded and committed to a current Sprint. Our Sprint Backlog will always contain stories (no Epics) and will have details, such as Acceptance Criteria, Business Description and Release Notes attached to it. Stories are the smallest units of work to deliver a piece of functionality. Multiple stories are rolled up to Epics.

Typically at IMQS a story must be small enough to be completed in less than one sprint. In order for a Story to be completed it should adhere to the team's "Definition of Done".

Sprint Backlog Example

4.3 SPRINT BURN-DOWN CHART

A Sprint Burn-down Chart depicts the total story points remaining per day. This shows you where your team stands regarding completing the tasks that comprise the sprint backlog items that achieve the goals of the sprint.

The X-axis represents days in the sprint (typically 10 work days), while the Y-axis is effort remaining in story points. Ideally the chart burns down to zero by the end of the sprint. If the team members are reporting their remaining story points realistically, the line should bump up and down chaotically.
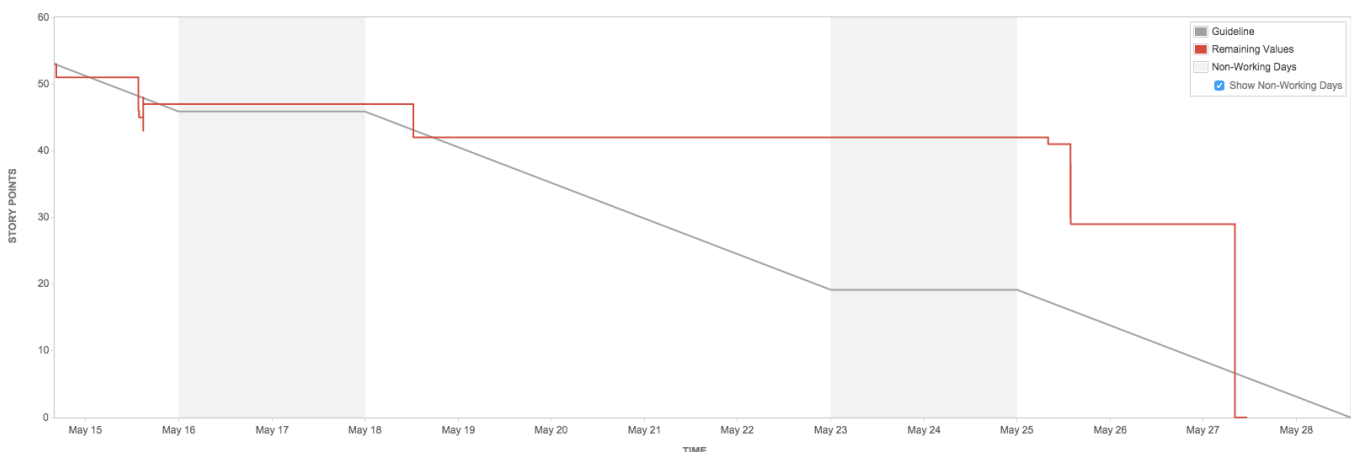
Example of a Sprint Burn-down Chart