

Agile Methodology in Product Engineering

Srikanth Ramamurthy
Senior Technical Architect

Abstract

Software industry has changed rapidly with the advent of SaaS, Cloud and other related technologies and delivery models. Time to produce new products and release cycles have shrunk. Time to market, superior quality, reduced development cost are some of the key differentiators for the success of any product development. In order to make the product successful, it's often that the product development team comes under tremendous pressure. Keeping up with these pressure in an uncontrolled fashion, leads the team to lose control on the product deadlines, scope, requirements, deliverables etc. To better co-ordinate the team efforts, Trigent uses Scrum project management framework with agile engineering best practices in many of their projects. This paper describes the Scrum methodology used, best practices implemented and lesson learned from one such engagement.

Introduction

Our client needed a highly customized web based content management system to be built on LAMP technology stack. This project was executed in our offshore facility to keep the development cost low. In product engineering, the traditional water fall development model will not work as it has its own drawbacks of sequential development lifecycle phases, not involving customer earlier, difficulty in implementing changes in requirements etc.

Trigent followed Scrum development process to develop this product. The below diagram shows the process used at high level:



Product Engineering - At a Glance

Below sections describe how Trigent used a Scrum based product development cycle.

Product Conceptualization

Trigent worked with the customer to define and refine the product idea. Trigent's business analyst worked with the customer to understand the business goals and to align the product features with that goal.

Sprint Planning

The product development was divided into 4 Sprint iterations. Each iterations spanning for 3 weeks with a defined set of features to be implemented in each Sprint. The features to be implemented in each Sprint were defined by POs. Scrum master was identified for the project.

Prototyping

To validate the design to get an early feedback from the customer, a product prototype was implemented. The feedback received was reflected in the user stories and the design.

Delivery

The product was delivered to customer at the end of each iteration. This helped getting early feedback from the customer making it easy to implement any changes or fixing the bugs. The feedback comments from POs were added to the Sprint backlog.

Sprint Review

Sprint review meetings were conducted to find out what went wrong, lessons learnt, changes required in the process.

Requirement Gathering

The product requirements from customer were captured as user stories. The complete set of product features formed the product backlog. Trigent's analyst worked with the customer to develop the user stories. Customer and Trigent's Analyst became the Product Owners (PO).

Product Design

Trigent identified critical features of the product. These features became the part of the earlier Sprint. The initial design of the product was done to meet the critical product features. Each Sprint enhanced the product design.

Development & Testing

The features to be implemented were maintained as Sprint backlog. The user stories were divided into smaller tasks. Tasks were assigned to the developer. A daily stand-up team meeting was conducted to address issues, track progress of the team. Burn down chart was used to track the project progress.

Peer to peer testing was followed wherein each developer tests the feature implemented by his peer. This helped the team to understand to get a over all working of the product.

Retrospective

Some of the best practices followed are described below:

Defining Acceptance Criteria

When the PO wrote the user stories, Trigent made sure that PO defines the acceptance criteria for the features also. It provided clarity to the development team on what is expected from them to meet the requirements. As a process, the POs were involved during the development to test the features against the acceptance criteria. This testing helped the team in fixing the issues earlier on while they were developing it.

Product Owner on the Team

Trigent ensured that the product owners be part of the team. This provided a better clarity and communication to the team. It also gave better visibility to the client on the progress. Product owners also involved in the incremental review as the developer deemed the product is ready for testing.

Burn down Chart

Scrum master maintained the burn down chart and it was visibly displayed in the meeting rooms. The chart provided a warning to the team if they were lagging behind the schedule and helped the team to manage their work properly.

Summary

Scrum serves very well in product development engineering. Working incremental product deliverables at end of each Sprint provides clarity to all the stakeholders on the progress. An emphasis on the purpose rather than documentation and process aids the team to get the product to market faster. Scrum provides better communication between customer and development team enabling the customer to get what he wants rather than taking what the development team gives.

Better Effort Estimation

Since the team had better clarity on the features with the acceptance criteria, the effort estimation process improved a lot. The team was able to correctly estimate the time required to implement the user stories and stick to the time estimated. This reduced the pressure on the team and they were able to meet the deadline what was committed.

Measuring Progress

Stories were divided into number of tasks. The tasks were assigned to the team. Trigent used either "done" or "not done" to measure the progress. The tasks were done when the developer finished his part of coding, testing, the feature has met the acceptance criteria and that it has been verified by product owner. This provided a measurable way of tracking the project progress.

About Trigent Software Inc.

Trigent is a privately held, professional IT services company and a Microsoft Gold Partner with its U.S. headquarters in the greater Boston area and its Indian headquarters in Bangalore. We provide consulting services in various technologies including Microsoft Solutions. Our operating model is to conduct sales, customer relationships and front-end consulting (e.g., business case, requirements, architecture) onsite with our clients and perform the detail design, development, integration, testing and quality assurance offshore at our world class development and support center in Bangalore. We are a SEI CMM Level 4 company and is ISO 9001:2000 TickIT certified organization.

For sales contact sales@trigent.com or call 508-490-6000.



Microsoft Partner
Gold Application Development
Gold Collaboration and Content
Silver Mobility