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Requirement Management in Agile Software Environment

Nomi Baruah [a] *

[a] *Dibrugarh University,Dibrugarh-786004,India*

Abstract

Understanding and fulfilling each individual customer requirements has been recognized as a pressing challenge for software industries. To produce high quality software products and meeting stakeholder's requirement is a major challenge in software requirement. Poor requirements and changes to requirements are one of the causes for project overrun and quality issues in the delivered software. The paper discusses about how the different agile methodologies follow requirement management steps in a project. It tries to give an idea to those organizations who undergo projects with frequent change in the requirements so that they can produce quality products and survive in the market strategy.

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Keywords: Agile Methodolgies;AUP;Extreme Programming;LSD; Requirement Management;Scrum.

1. Introduction

Requirement Engineering field was established partly due to extensively growing size of requirement specifications creating needs to provide engineering means to activities related with discovering system functionalities and constraints [1] .The management of requirements by the developer is completed with the delivery of products that satisfy the acceptance criteria [2] .Park and Nong affirmed that as a software system becomes increasingly larger ,requirement management becomes increasingly challenging [3] . Control over the requirements

* Corresponding author. Tel.: +91-8399015002; fax: 0373-237004.
*E-mail address:*baruahnomi@gmail.com

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helps in anticipating and responding to requests of change [4] .Requirement management is seen as one of the most critical activities to software delivery success and project lifecycle. The software development teams which follow agile software development concept welcomes changes in requirements in any phase during software development cycle of the product. There is no lengthy requirements document in agile methodologies.

The table below describes the requirement management steps followed in different agile software development methodologies.

Table 1. An example of a table.

Sl No	Name of the Methodology	Requirement Management Description
1.	Extreme Programming(XP)	Addresses requirements through user stories & onsite customer [5] .User Stories of two components: written card & conversations after the written card.Wriiten cards are just ”promises for conversation”. Cards need not be complete or clearly stated. Story cards destroyed after implementation [6]
2.	Scrum	Also addresses requirements through user stories. Thus discussion of user stories which defines actual requirements. So, product owner plays the lead role in the development of the software[7]
3.	Feature Driven Development(FDD)	Gather user requirements & represents in a UML diagram with a list of features [8] .Feature list manage functional requirements & development tasks. Solution requirements analysis begins with a high level examination of the scope of the system & its context.The team assesses the domain in detail for each modeling area. Small groups composes a model for each domain and present the model for peer review.
4.	Lean Software Development	User requirements gathering is done by presenting screens to the end-users & getting their input.Just in time production ideology applied to recognize specific requirements & environment [9] .At the beginnning customer provides the needed input presented in small cards or stories.Developers estimate the time needed for the implementation of each card.Work organization changes into self-pulling system ,each morning during stand-up meetings
5.	Adaptive Software Development(ASD)	Requirements gathering is done in speculative phase.First,setting the project's mission & objectives,understanding constraints,establishing project organization ,identifying & outlining requirements,making initial scope estimates & identifying key project risks.Project initiation data is gathered in a preliminary JAD sessions [10] .
6.	Kanban	User stories help to understand what the actual goals of a sprint were.A sprint contains one story card.The tasks divides a user story into smaller pieces.A story is divided into client-side & server-side task.The tasks were divided into sub-tasks.Developers minimize the

		amount of items within a sprint to maintain time of the project [11].
7.	Agile Unified Process(AUP)	Requirement phase includes identifying the stakeholders ,understanding the user's problem,establishing a basis of estimation & defining user interface for the system.Activities occur during the Inception phase & Elaboration phases but continue through the phases to improve the unfolding design.The deliverables are the business use case model.In construction phase,user stories implemented & iteratively reworked to reflect understanding of problem domain as the project progresses [12].
8.	Dynamic System Development Method(DSDM)	Four requirement management phase. Feasibility phase: Requirements for a particular project is gathered & checked for feasibility & prioritization

2. Conclusion

The Requirement Management, independent of any software development methodology is carried on for the whole life of the system. It is seen in the software industries while developing any software product that the requirements frequently changes from the customer sides which becomes difficult for the software developers to produce a quality software. There is no proper approach to manage the frequently changing requirements during software development cycle. To meet customer requirements is very critical. Agile software development methodologies supports changes in requirements. So, different agile software development methodologies are studied, so as to provide an idea how requirement management practices are performed for software development. It tries to ensure that the need of the customer is always heard at all points in the development process and at the same time preservation of the integrity of that information for the life of the system and also with respect to changes in the system and its environment. And how in future we can improve for quality requirement management practices.

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