FP- International Journal of Computer Science Research (IJCSR)
Volume 2, Issue 2, Pages 176-178, June 2015

Agile Software Development Methodologies and Comparative Study of Agile v/s Traditional Approach

Ankita Sharma
Dept of Computer Science Engineering
Chandigarh University, Punjab
ankita.sharma931@gmail.com

Sumit Kaur
Dept of Computer Science Engineering
Chandigarh University, Punjab
sumit.bhangu87@gmail.com

Charanjeet Kaur
Dept of Computer Science Engineering
Chandigarh University, Punjab
gill.channy@gmail.com

ABSTRACT
This paper will provide Coverage on Agile model as an effective software life cycle model. Now a day's many iterative and the incremental method exit to control the project, but currently agile technologies deserving of the highest esteem. In the software industry with changing business requirement, environment, customer and end users, the main aim is to develop the valuable and low cost product in minimum time interval .Agile model is able to meet most of so. In this paper we introduce the comparison b/w the agile SDLC and the traditional SDLC and how Agile can be a big change for today's software development industry. In the end three approaches are seen to be conflict to foremost the future possibility of agile s/w engineering.

Keywords
Software development approaches; Agile Methodologies; Scrum ; XP ; Agile adoption.

1. INTRODUCTION
Now days agile development mythologies are becoming popular in the industry [6].Traditional s/w development approach are not able to satisfy the new requirement of the industry .As a result new agile software development approaches are introduce. Due to the use of agile software development we make our product more flexible and productive [8].This paper will focus on how Agile software development is better than traditional one and describe the various methodologies in this paper. Forrester Research surveys of 1000+ IT professionals in 2009 and in 2010, showed a forgo in the use of "Traditional" development methodologies, and a Growth in adoption of Agile. About 40% of organizations reported using one or another of the agile family of methodologies [5]. Studies show a wide range of positive effects of Agile: 5% to 61% reductions in cost, 24% to 58% reductions in development time, and 11% to 83% reductions in product defects. Despite these results, in the Government, and particularly the defense sector, Agile is resisted [5].

Software development life cycle may be consist of various phases like planning ,designing ,coding and testing .There are many number of new approach are introduce like scrum,(xp)etc. Here our research is based on which model is better traditional or waterfall fig 1.1

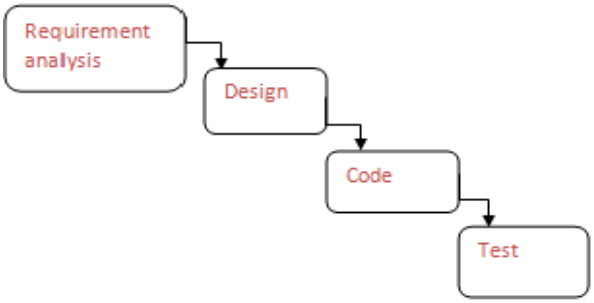

Fig1.1: Traditional model

2. BACKGROUND
Here in this paper focus on agile methodologies like SCRUM, but before this we will compare the traditional software development with the agile software development [4].

Table 1.1 Comparative chart of traditional v/s agile [4, 7].

Categories	Agile software development	Traditional software development
Development model	Iterative and Incremental model	Linear (waterfall , spiral)
Customer involvement	Central process ,client onsite	Low involvement
Documentation	Light, When needed	Detailed
Change requirement	Every Step involve	At starting only
Team structure	Self organizing	Pre structure
Measure of success	Business value deliver	Conference to plan
Focus	people	Process

3. AGILE METHODS

Agile methodologies follow the iterative and incremental way of development. Agile method includes the following approaches .Like SCRUM, extreme programming and rational unified language.

3.1 Scrum

Scrum is the first methodology. It was developed in 1995 by KEN SCHWABER .It produces the high business value in the shortest time interval by developing product in iterative manner. Role involve in Scrum like scrum master, product owner and Scrum team.

Scrum master may responsible for making the process run smoothly. It may also remove the barrier b/w development team and product owner. Product owner focus on what to deliver, prioritize product requirement [9]. Scrum team may comprise the developer, tester and programmer. Each team member is responsible for their work. In each team there may be 5-9 member .sprint review and Scrum meeting. Sprint planning meeting is conducted by product owner, team member and scrum master.

The artifact used in the Scrum are product backlog, sprint backlog and burn down chart .Product backlog is a prioritize list of high –level requirement .Sprint backlog is the prioritize list of task to completed during sprint. Requirement should change during sprint execution. Burn down chart showing the remaining work in the sprint backlog.

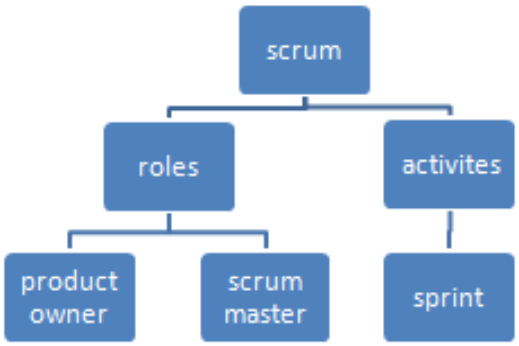

Fig 1.3: Scrum

3.2 Extreme programming (XP)

It was developed in 2000 by Kent Beck .Extreme programming include programming in pairs and doing extensive code reviews [8]. XP is a package of several practices and idea. XP values are divided into four parts:

- First, high communication b/w developer and their customers.
- Second, the simplicity of design.
- Third, the continuous modification according customer's feedback, by delivering a large number of working software to the customer.
- Fourth, encouraging the customer and developers to get to correct requirements by the develop – feedback cycle [8]. These all four process may used in the extreme programming as the XP values .Now in fig 1.3 the following cycle may take place ,they may as follow:

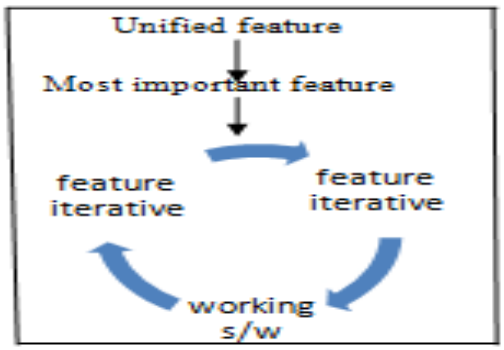

Fig 3.2: Unified modeling

3.3 Kanban

It was developing in 2004.Kanban is a new technique for managing a software development process in a highly efficient way. In addition, RUP subdivides the project lifecycle into 4 major phases (Inception, Elaboration, Construction, and Transition) [12].

4. AGILE ADOPTION

Agile methods are highly being adopted because of expectations that these methods can bring development success [4]. One of the main reasons for success with agile methods is that they are highly adaptive. Figure 1 reveals the current levels of agile adoption. In this case, 71% of respondents indicated that they work in organizations that have succeeded at agile and an additional 15% work in organizations that have tried agile but have not yet succeed at it.

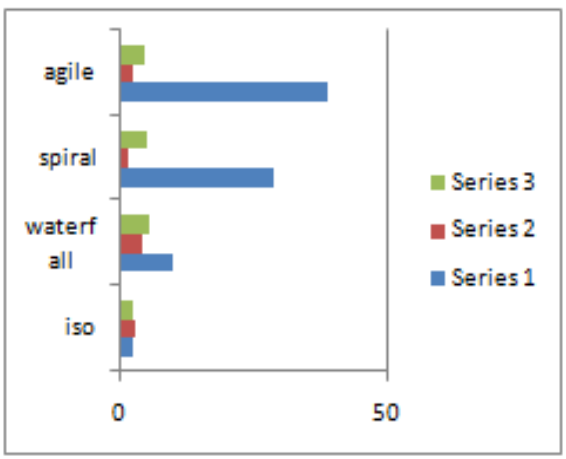

Fig 4.1: Agile adoption rate

The main reasons behind for adopting Agile approaches rather than plan-driven approaches relate to: rapid changes; need for rapid results; emergent requirements.

Method name	Advantages	Disadvantages
Scrum	It works in iteration	Hard to estimate
Extreme programming (XP)	Xp works in term of priority	Hard to do work In large project
kanban	Provide flexibility	Less effective in shared resource situation.

Table 1.2 Methodologies

5. CONCLUSION

Agile software development methodologies are evolutionary and incremental models have become increasingly popular in software development industry [8]. In this paper we have compared the traditional development approach with the agile development approach and conclude them on some parameter basis, how agile is better than traditional one [7]. Agile methodologies are not best suited for all projects. When communication between the developer and the customer is difficult (or in the distributed system), or when the development team includes mainly beginners, agile methodologies may not give the best results. But when the Communication b/w the developer and the customer are strong then it gives the best result.

REFRENCES

[1]. Ziauddin, Shahid Kamal Tipu, "An Effort Estimation Model for Agile Software Development", Advance in Computer Science and its Applications (ACSA) Vol.2, No. 1,2012, ISSN 2166-2924

[2]. Rashmi Popli, "An Agile Software Estimation Technique based on Regression Testing Efforts", 13th Annual International Software Testing Conference in India 04 – 05 December 2013, Bangalore, India

[3]. Rashmi Popli and Naresh Chauhan, "Cost and Effort Estimation in Agile Software Development", 2014 International Conference on Reliability, Optimization and Information Technology -ICROIT 2014, India, Feb 6-8 2014.

[4]. Kaushal Pathak and Anju saha, "Review of Agile Software Development Methodologies", International conference on Software Engineering, 18,915-924.

[5]. Andreas Schmietendorf, Martin Kunz, Reiner Dumke, "Effort estimation Agile methods of the software development project", Proceedings 5th Software Measurement European Forum, Milan 2008.

[6]. Rashina Hoda andProf. James Noble, "Review paper on agile project management", International conference on Software Engineering.

[7]. Dr Syed Akhter Hossain, "Comparative Study on Agile software development methodologies", International Journal of Emerging Technology and Advanced Engineering Volume 3, Issue 6, June (2013).

[8]. Malik hussain", International Journal of Research and Reviews in Applied SciencesISSN: 2076-734X, EISSN: 2076-7366 Volume 1, Issue 1(October 2009).

[9]. M.Mahalakshmi,DR.M. Sundararajan, "Traditional methodology v/s A Comparative study Scrum and SDLC", Advanced Engineering Website: www.ijetae.com (ISSN 2250-2459, ISO 9001:2008 Certified Journal, Volume 3, Issue 6, June 2013).