

A Comparative Study of Agile Methods: XP versus SCRUM

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ABSTRACT

Extreme programming (XP) and SCRUM are both agile software development methodologies. Each of one has its own way to be applied on specific projects also each one has own value compare with the other. When applied on project or used to improve the productivity of projects through managing the most necessary elements like stakeholder managements.

The research work presents a comparative analysis between XP and SCRUM. The focus will be applicability on the objective of outline the similarities and difference between the two methods. Finally a recommended is made on the possibility of using both of them in an individual project. Also each one focused on field of practices like communication, product development and feedback for the project so on; in this research would be focused on each method by doing comparison between XP and SCRUM through applicability to software project, contract issue, incremental style, iterative level for each method to get some of feature like similarities and differences for tow method to reach point how can useful if XP or SCRUM operate with each other for some project.

Keywords: Agile, XP, SCRUM and PUB.

1. INTRODUCTION

The traditional software development methodologies have no ability to meet the exceeded of requirements added each day, and did not meet the customers' demands, these traditional method applied on small projects that have constantly of changing of plane over the long period of time because having features are lack to the flexibility of changing and development, however, the environment and managing effect on development like small project, lack of user negotiate and the target from project are clear and not have to improvements. So, the agile software development method was used as method to cover all previous challenging as flexibility, user's needs, changing requirements and plan improvements.

Agile method was created to solve the time, changing requirements, quality, and involvements of customers. Agile method gives the quality of project, facing any extra of requirements in the present and future and how to

communicate between people to work with each other as team, and giving monitoring feature and discussion on how duration of time to give outcomes ready for customer. The agile software development faster covers more requirements, managing projects than traditional, where the agile (ASD) satisfied. From 2001 until now with the basic rule as "individuals and interactions, customer collaborate and responding to changes [1]. The XP and SCRUM are different methods of agile SD for software development each of these methods having the different way to analyze project and meet the investigated of plane – development.

However the extreme programming (XP) created to face the user needs and user satisfaction and able to adapt the changing in requirements from beginning until the process to be finish in specific project, in the end should be documented the plane and code to return back if needed. SCRUM method focus on changing requirements to get result may be complex and complicated but the SCRUM treat with the short iteration with flexibility.

XP and SCRUM will be discussed in section (3) detailed in the following sections. Literature review presented in section 2, section 3 should discuss the comparison between XP and SCRUM in details, the recommendation and enhancement are illustrated in section 4, and finally, section 5 gives the conclusions.

2. LITERATURE REVIEW

Agile software development is one of the success full methods used in project for small size project in small and large organization, however; ASD consist of methods to be compatible with constant and distributed environment, therefore; the researchers concern with Agile software development with different of including types as SCRUM and XP supported and applied for different areas and environment to meet all changing in requirements.

I Putu Edy, et al [2] concerned with the XP development method where applied on small and medium organization, therefore develop and create new method called industrial



XPIXP and RUP, these type of methods used for large organization and obtained new type of development method is RUP Rational Unified Process after that's the researchers combining between two method to face the revolution in extended organization.

Eva del Nuevo, et al [3] focused on distributed method in software development, where these researchers concerned in scrum instead of XP and merge most widely-used agile scrum method with RUB to obtain a new development method called SCRUMUP to support the distributed environment such as communication and coordination.

Some research work has been done on the increase of changing requirements each day where the changing happened dynamic change in requirement for organization need for such of software development to face these demand. For that; A B M Moniruzzaman Dr Syed Akhter Hossain researchers [4] present agile software development methods to cover this problem based on incremental and iterative development process. And present the depth from agile development methods then doing comparison on ASDM and TSDM industry software developments.

Frank Treacy, et al [5], applied and examine the agile software development on different areas in such as team selection, communication, scheduling and project planning. There the most methods widely used are SCRUM and XP, the aim at using these is method to improve the communication and collaboration between project team to achieve successful completion completing successfully. Also the researchers suggest using this method on large and small organization through combining this method with deferent methods.

3. EXTREME PROGRAMMING

In software development agile methods are used to improve software responsiveness and quality to changing requirements. The Figure1 shows the XP architecture [6] from begin to the end, where the process has aspects to be important, but in the same time it has drawbacks after test XP procedure, at; the units testing obviously as a block over all codes, volatile requirements become understood, communication between programmers and customers become frequently, reviewing in code [7], for each step of process, finally simplicity in code from begin until finish certain project, so these aspects are very important to build and design projects. But the drawbacks in XP method are no documentations for user plan, unstable requirements, short iteration process, communication between team and short period of time. These points will be detailed in XP and SCRUM.

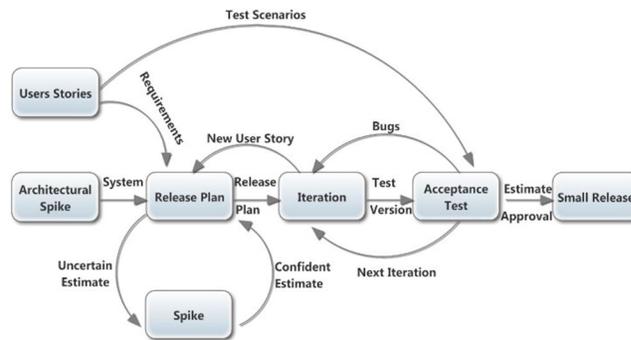


Fig. 1. Extreme Programming Structure

4. EXTREME PROGRAMMING

SCRUM is also an agile method (incremental method) focus on management project applied on large company or organization other suitable for SCRUM are maintenance where it can be applied in running project without any impact, so Figure 2 presents the main process for SCRUM architecture as illustrated in [8] where the method has rules like product owner – represent the interested parties, SCRUM master (one responsible for mainlining to the process) and final rule is team consist of group about 6-8 people who are responsible on plan, design, testing, implementation, ... etc.

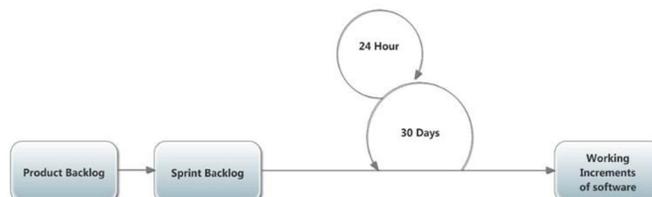


Fig. 2. Architecture Process for SCRUM Method

The sprint [8] box means iteration for process and consistency from two weeks to one month to finish project and decided by team. Also the team determines product “backlog” of requirements and what to complete in the next iteration and the optimization prioritization for next iteration.

The requirements are frozen one of drawback SCRUM method, this mean when begin sprint (iteration) process are not allowed for anybody to alter or change the sprint backlog, in this case the team are extremely responsible to self-organized in process, for that this point reflects the communication between team members.

5. EXTREME PROGRAMMING AND SCRUM DIFFERENCES

These differences between XP and SCRUM as the follows:

1. XP is an engineering practice but SCRUM is not, engineering practice filed concern with automated testing, test driven development, design, pair programming [9] these points previously mentioned in XP and SCRUM section XP can treat with engineering fields but SCRUM cannot because self-organized refer to scrum so the confused happen between team members and the scrum is management practices rather than self-organized.
2. The maintenance and improvements applied on iteration process in XP method , therefore iterative happen without any constraints , but in SCRUM method the changing or any effects not allowed through iteration process ,where the team who is responsible about changing , but it doesn't allowed if sprint begin .
3. SCRUM method takes more time than XP method, SCRUM takes from two weeks up to one month to finishing process, XP method takes two weeks at the most.
4. Product owner is strict to XP but in SCRUM is prioritized product backlog and the team responsible about arranging the sequence that developed backlog product, where the priority controlled here. The team works on higher priority in SCRUM than XP in backlogs.

6. SIMILARITIES BETWEEN EXTREME PROGRAMMING AND SCRUM

Both XP and SCRUM can work iteratively but with different time for each method work based on priority depend on process need to be done, the similarities from two the points mentioned above can be seen. Theses similarities and differences were useful to propose a new method described in the following section.

7. ENHANCEMENT AND FUTURE WORK

XP and SCRUM have features and aspects that can be considered as advantage or disadvantage. XP is preferred for small organization and short project needed to be done quickly, whereas SCRUM preferred on large organization which requires longer time, the features and project fields

for each method that will be applied to get new method that mixes XP and SCRUM to cover large organization with short time for specific project, covering the following items:

- 1- Communication
- 2- Self-organized
- 3- Documentation
- 4- Engineering practice fields
- 5- Team

The first three items taken from SCRUM and last two items taken from XP applied to get new software development method without doing conflict for it where the large organization can cover the engineering field with short period of time. The figure 3 presents the mix between XP and SCRUM cover all of features for two methods; collaboration, communication, self-organization, time, maintenances, changing requirements and team members.

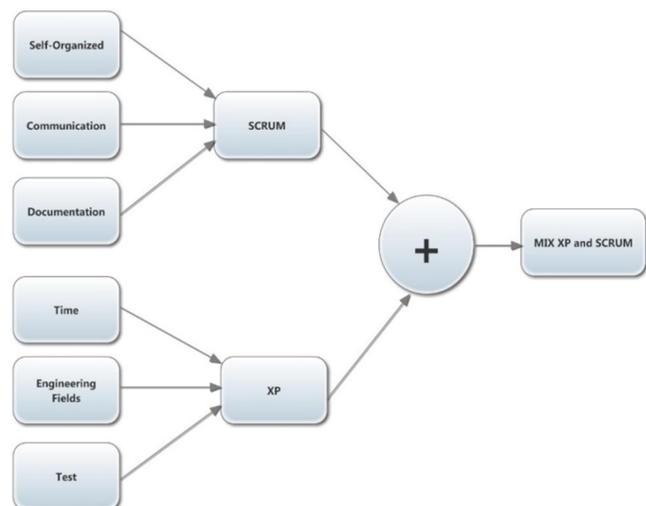


Fig. 3. Proposed new method XP and SCRUM

8. CONCLUSION

XP and SCRUM agile software development methods have several features and aspects to support projects for large or small organization, and the projects that's need short or long period of time to be finished. These methods have team and contractors (product owner) effect of project process with responsibility when changing requirements, added the fields of project where to be applied, where this research take the engineering field as the main filed applied, so to optimize the work process and solve drawbacks for each method, the new method is proposed to deal the fields time and size of organization combining XP and SCRUM.

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