AGILE METHODOLOGIES AND THE USE OF ITS WATERSCRUMFALL DERIVATIVE FOR SOFTWARE PROJECT DEVELOPMENT

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ABSTRACT

This paper discusses the Agile methodologies and the use of its water-scrum-fall derivative for software project development. This approach seems to be a good alternative to the current development methods.

1. INTRODUCTION

The use of agile methodologies in the development of software projects in industry is gaining support. Traditional methodologies are seen as being useful for large and complex projects and small and medium sized projects find these methodologies routine based and too formal. Small and medium size software projects usually have short delivery cycles which make the use of agile methodologies more acceptable and manageable.

Current statistics on the improvement in the successful performance rates of IS software projects indicate there has not been much progress. The successful percentage rate over the last 10 years (1996-2015) hovers around 26-31%, (Figure 1) [1]. The approach is to include agile methods to improve current IT project success rates.

Figure 1: Chaos Report statistics for IT software projects from 1994 to 2015 [1]

However, the transition from pure traditional to pure agile methodologies has been slow while the mixed approach is getting more recognition and focus. Scrum appears to be the most popular of the agile methods and is being used with the traditional waterfall method to provide a mixed derivative referred to as the 'Water-Scrum-Fall methodology [2].

2. RESULT AND DISCUSSION

The traditional methods stem from the idea that projects take a rational and normative approach where they are quite predictable and linear with relatively little changes as a plan is followed. The emphasis on traditional methods is that it is robust and can be used and reused by prescribing the same tools and the technique for projects uniformly. Current researchers are beginning to stress that "one size does not fit all" [3].

Agile methodologies, on the other hand, is looked at being adaptable to changes as the project is in progress the common is that all of them have been characterized by their adaptability to changes during the project and

the concept of being predictable is not as important as to be ready to make changes quickly. The mindset should be that change is inevitable and project plans make earlier will be reworked as the project progresses in its life-cycles [3].

In a study of a six-month simple project, two teams were compared using the traditional and agile methodologies, the benefits with agile methods were seen in the size of developer, design and quality team numbers Table 1 [4].

Table 1: Team Composition [4]

	Traditional	Agile
Developers	5-9	4
User Experience Design	2	1
Quality Assurance /Process Build Engineers	2	0.5
Project Manager	1	Done by
Principle Investigator	Part-time	Part-time
Interns	Interns	Interns

The waterfall methodology is the most popular linear and sequential process that follows a step-by-step process where next step is initiated when the previous step is completed [5]. The basic idea is that the requirements are totally completed in each step. This is practically impossible and does not recognize that rework is needed for most projects [2].

The use of Scrum within the spectrum of agile methodologies has gained support as being the most popular [5]. It is a platform that works well and also serves as a transition from traditional methodologies to agile methodologies. The studies reviewed show a trend in adopting Scrum by software developers in the organization's software development. Scrum is also an exemplar of agile methodologies.

The use of mixed development methodologies, where there is a combination, Scrum and Waterfall methodologies have become the most popular and is known as the 'Water-Scrum-fall' method. Furthermore, Scrum is often used in combination with other methods and new derivatives are being used and tested in industry [5].

3. CONCLUSION

The hybrid or mixed methods are gaining support and current gaps in combination patterns are being studied. Whilst this approach seems to be a good alternative to the current development methods, it must be emphasized that in Software engineering processes, whether agile or traditional, it must be tailored to fit the team culture, goals, and the context of work. There is no one right way to do it.

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