Agile Development

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Abstract

Today's business environment is very much dynamic, and organisations are constantly changing their software requirements to adjust with new environment. They also demand for fast delivery of software products as well as for accepting changing requirements. Agile software development brings its own set of novel challenges that must be addressed to satisfy the customer through early and continuous delivery of the valuable software. It's a set of software development methods based on iterative and incremental development process, where requirements and development evolve through collaboration between self-organizing, cross-functional teams that allows rapid delivery of high quality software to meet customer needs and also accommodate changes in the requirements.

1 Introduction

An iterative and incremental (evolutionary) approach to software development which is performed in a highly collaborative manner by self-organizing teams within an effective governance framework with "just enough" ceremony that produces high quality solutions in a cost effective and timely manner which meets the changing needs of its stakeholders .Agile software development is actually a group of software development methods based on iterative and incremental development, where requirements and solutions evolve through collaboration between self-organizing, cross-functional teams .

2 Waterfall Model

The waterfall model is a sequential design process, used in software development processes, in which progress is seen as flowing steadily downwards (like a waterfall) through the phases of Requirement, Design, Coding, Testing and Maintenance

– Requirements The first step is to gather the requirements that the system must fulfill. This is done by doing consultation with the users of the system. The constraints and goals are defined in detail and serve as a system specification.

– Design The system is thereafter

designed, which will partition the requirements into hardware and software systems. The architecture is established by identifying the fundamental software system abstractions and their relationships.

– Coding After the system is designed a set of programs are implemented and tested. Each unit is tested individually in order to verify that it meets its specification.

– Testing The different program units are integrated and tested together to ensure that the system has fulfilled the software requirements. The system is delivered to the customer when all tests have been successfully performed.

– Maintenance The last step includes operation and maintenance of the system. This is normally the longest phase. The system must be adopted to new requirements that have been discovered and errors that were not discovered in earlier stages must be corrected.

• 3 V-Model

In software development process, the V-model may be considered an extension of the waterfall model. Instead of moving down in a linear way, the process steps are bent upwards after the coding phase, to form the typical V shape.

The V-model provides guidance for the planning of projects. The following objectives are intended to be achieved by a project execution:

Minimization of project risks: The V-model improves project transparency and project control by specifying standardized approaches and describing the corresponding results and responsible roles. It permits an early recognition of planning deviations and risks and improves process management, thus reducing the project risk.

Improvement and guarantee of quality: As a standardized process model, the V-Model ensures that the results to be provided are complete and have the desired quality. Defined interim results can be checked at an early stage. Uniform product contents will improve readability, understandability and verifiability. .

4 Spiral Model

The spiral model is a risk-driven process model generator for software projects. Based on the unique risk patterns of a given project, the spiral model guides a team to adopt elements of one or more process models, such as incremental, waterfall, or evolutionary prototyping. With this technique, it has some other techniques infused in it.

5 Prototype Model

The Prototyping Model is a systems development method (SDM) in which a prototype (an early approximation of a final system or product) is built, tested, and then reworked as necessary until an acceptable pro-

totype is finally achieved from which the complete system or product can now be developed. With this technique, the designer has to make different samples for the client before executing the final work. A designer may proceed only if the sampled prototype is accepted by the client.

6 Conclusion

Agile software development methodologies are evolutionary and incremental models have become increasingly popular in software development industry. Through, in many organizations, agile system development methods at adoption stage, agile methods might start to become well-established processes of these small, mid-level, even large organizations. There is increasing need to have a deeper understanding of agile methods in use in software development industry; as well as, have a better understanding – the benefits of agile approach as for accepting agile methods into their development style and for cope-up with their dynamic business needs.

References

[1] http://www.open.edu/openlearn/science-maths-technology/introduction-software-development/content-section-9.