

## IMPLEMENTATION OF AGILE FRAMEWORK IN PROJECT MANAGEMENT

**K. V. V. S. KUMAR VARMA**

Research Scholar in Management  
Studies  
Jawaharlal Nehru Technology  
University, Kakinada

**E-Mail:** samanthvarma@gmail.com

**DR. P. V. V. SATYANARAYANA**

Asst. Professor  
School of Management Studies  
Jawaharlal Nehru Technology  
University, Kakinada

**DR. P. VIJAYA KUMAR**

Programme Director  
School of Management Studies  
Jawaharlal Nehru Technology  
University, Kakinada

### ABSTRACT

*The work is regarding the implementation of agile framework in Project Management for IT companies. First we describe the process implemented in Project management. Then we describe implementation of agile framework in Project Management. After that, we evaluate different agile methods and features of Project Management activities which cover customer collaboration, working product, communication and responding to changes. At the last, we propose the need of implementing Agile Framework in Project management.*

**Keywords**—agile; project management; software development; Scrum; Lean development; Software Development Life Cycle. Agile Project Management

### I. INTRODUCTION

Day by day business environment is becoming more quickly, changeable and unpredictable. In industry after industry, client demands continuous innovation, and reducing cost of experimentation are signaling a huge switch from expectant to versatile styles of improvement. Companies attempting to flourish in our turbulent economy must change both their processes and their views on change. We are considering about everything changes in – scope, features, technology, architecture – within the span of small period. Agility is the facility to both create and respond to change to benefit in a turbulent business environment.

In a dubious and riotous world, achievement will be obtained in companies where they have ability to accept change, and possibly tumult, for their competitors. Accepting change requires innovation. This theory explains us that development – making something incipient in ways that we cannot plenary expect, an incipient result – occurs more yarely are the balance point amongst tumult and request, adaptability and stability. Adjusting at the edge of disorder between adaptability and dependability requires specific agile project management strategies and practices in view of analyses.

Project management practices and execution measures are diverse for investigation and experimentations based methodologies than they are for generation and detail based ones. Product oriented PM processes and practices underline early planning and getting requirement in time early with negligible change requests. Investigation based processes accentuate nominal early planning, adequate prerequisites and Exploratory design with huge continuous learning and change. Every methodology has its place, but the project development lifecycle framework has an altogether different model from the earlier models. APM model consists of five stages: Visualize, Contemplate, Investigate, Adapt, and Change.

These stages look like an experimental investigative process more than a project management process. The Visualize phase helps in obtaining a well expressed business or product visualization which helps in getting the next steps enclosed. In Contemplate phase, the team theorizes about the item to be delivered, as in the project it needs to consider both the technology and customer requirements which will help the team to gain new knowledge. The Investigate stage will be like parallel and iterative in which the design will be implemented as per the customer stipulations and design. Items which are considered as tentative are liable to more test than others, whose customer stipulation and design is more exact. In the Adapt stage, the

consequences of these investigations are subjected to technical, client specified, and business case audit and adaptive activities are adjusted into next iteration.

As we can see, Agile Project Management is the general framework that does not prescribe any practice for misuse. Some of the literatures say that applying agile means begin ready to "Respond quickly, accept changes, convey rapidly". While agile practices will vary based on the need and importance, they have common specialties including customer communication, minimizing the documentation, responding to change. This helps in developing the project management framework and transferring from different agile practices. The article aims to study and structure agile practices from software engineering area to introduce agility to the project management activities.

## II. AGILE PRACTICES IN SOFTWARE ENGINEERING

In IT industry implementing agile practices, agile frameworks are completely different from traditional methods the way they are designing the software and recognize the "requirement for another option to documentation driven, durable IT programming forms". Experts came to comprehend that the way of responding to change as fast as it emerged were important and that in a dynamic situation, "inventiveness, not full composed standards, is the best way to oversee complex programming issues"

In IT industry agile practices are becoming popular now a day's even though it has a mix of acceptable and controversial software practices. The most imperative components of them are culture, people, and communication. Agile framework needs people support; else they won't succeed. Skilled team members are critical. Agile framework uses less people with more skilled technologies. Physically co-located teams support rapid communication. Frequent customer interaction and accepting feedback are the most accomplishments while implementing agile framework.

Agile framework in IT industry have common practices, for example, what they value, it will be different in agile practices which are being proposed. In this paper, we will consider Scrum and Lean types of frameworks as illustrative of the group for project management frameworks. We will consider our study mostly on the support provided by management, frequent communication and leadership support.

### A. Scrum

Scrum is one of the more widely utilized agile methodologies. Ken Schwaber initially portrayed Scrum in 1996 as a process that "accepts that the development process is unpredictable", formalizing the "do what it takes" mindset, and originated success with several independent software vendors.

The core practices analyzed in the article are Small Size Teams (S1), Frequent delivery teams (S2), Customer Collaboration (S3), Frequent Testing (S4), Fixed Documentation (S5), Iterative Development (S6), and Ability to deliver project in time (S7).

S1 prescribes that the team size should be less than 10 people. This helps the team members to pick their work based on the bandwidth they have. Project Manager will be validating the work taken by the team members. With the small teams it helps the team members to communicate either formal or informal ways in an easy manner with all the team members including the managers, Customers and Developers. With the small teams it helps in taking the decision easier with small team sizes.

S2 prescribes the development of executables that can be analysed, developed, tested, recorded and built on frequently on daily base. Frequent developing helps the project manager to analyze the stage of the process at any phase to track the process. This enables the development team to convey the status of the framework

work flow with the development team and project manager and stakeholders, and this helps the project manager to plan and monitor the all phases of the development life cycle.

S3 suggests that work should be spitted into multiple tasks and should we assigned to the resources and get completed in that iteration. Here with the customer collaboration project manager will assign work to the development team and discusses with them which eliminates the wrong coding and to take proper decisions for the design.

S4 gives the PM a framework which can be demonstrated to the customer whenever and permits development team know the present situation of the release at anytime.

S5 provides complete picture of the framework and its updates, the project manager can utilize them for debugging the issues and they can be used for the new people as a reference who joined the team. With the proper documentation any customer can find out about their individual interests with the new framework. This practice manages that documentation should be provided and hold up to data for all the requirements and entire release. This will help the team and Project manager for reference.

S6 helps the Project Manager estimate the business specifications, functionality, hazard and plan accordingly the iterations. While planning iteration there will be huge collaboration between the clients, project managers and software developers while implementing this practice. Project Managers can take decisions on the release planning with this iterative model.

S7 is management policy putting accentuation on easy if use and accuracy of the system than specific component development. This facility influences what kind of features need to be consolidated into the next iteration, and also changes the mindset with which the project manager handles the team.

Table I generalizes the issue.

**TABLE I. ANALYZE OF SCRUM PRACTICES**

Type of support	Practices						
	S1	S2	S3	S4	S5	S6	S7
Support provided by Management	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Frequent Communication							
Team Member-Client	Yes	No	N/a	N/a	Yes	Yes	N/a
Team Member - Team Member	Yes	Yes	No	No	Yes	Yes	N/a
Team Member -PM	Yes	Yes	Yes	Yes	Yes	Yes	N/a
Leadership support							
Release Management	Yes	Yes	No	No	Yes	Yes	Yes
Design and Development	Yes	Yes	Yes	Yes	Yes	No	No
Project Management	Yes	Yes	No	No	Yes	Yes	Yes

### ***B. Lean Development***

Lean Development (LD) was founded by Bob Charette, which illustrate on how Lean Manufacturing had success in the manufacturing industry in 1980. While other agile frameworks gave high priority to the change in the process, Charette trusted that to be more agile we need to make the complete process change

from all the hierarchies. Lean principles give high priority to the management policy but 3 are mostly related how to sustain the improvement process. So because of that we are considering only 9 out of 12 principles. Customer satisfaction is given the most priority (L1), always provide best product to the fund (L2), based on the client participation success will be relied (L3), Team effort can be achieved with every LD project(L4), Everything is Changeable (L5), than concentrating on tomorrow's 100 percent solution concentrate on today's 80 percent solution (L6), Minimalism is Essential (L7), Need of the technology should be determined (L8), and Product development can be achieved by the Feature development not the size growth (L9).

L1 proposes that there should be change in the manager's mindset to give high priority to customer satisfaction, rather than spending more time on execution process, legislative issues and other issues. Customer satisfaction can be obtained only when there is mutual communication between developers and clients. Prioritizing customer satisfaction means that during the planning, development and execution phases of the project the customer high priority items should be kept in before of the team and then the work should be started considering the high priority items.

L2 proposes the Project Manager should manage the project with the objective to be developed and organize the framework to give best value to the funds. Providing best product to the customer is a management attitude, which affects the priorities of the requirements that are targeted for that release.

L3 highlights that Project Manager should take care and see that customers are involved in the project. Frequent customer participation enables clients to more impetus to the work with the development team. More decision support can be obtained for Project Managers if customers are more involved in the process and also helps in considering the high priority items.

L4 suggests that Project Manager needs to incorporate complete team in all decision-making processes. Communication between the team members will help in achieving the team effort which can be achieved by entire team collaboration.

L5 points that ability to change means that requirements and development decisions are not set as final and accepting them to change as per business required later if necessary can be acceptable.

L6 highlights that Project Manager should focus on providing at least some working software at that moment than giving entire everything at a time which will delay in delivery of the product. However holding 80% solution means that form a customer, developer and Project manger point of view adding a new options at this moment is a best decision than working on old one.

L7 points that for a successful project, Project Manager should concentrate on holding coded size, team size, documentation and budget as minimum as required. Minimalism helps the PM to decide which piece of code should be delivered to the customer first at the time of development phase.

L8 helps PM and developers to decide on most viable solution rather than huge technical solution for innovative purpose.

L9 highlights that, releases and project managers incline to push high priority items to the top than other low priority items.

Table II generalizes the issue.

**TABLE II. ANALYZE OF LEAN SOFTWARE DEVELOPMENT PRINCIPLES**

Type of support	Principles								
	L1	L2	L3	L4	L5	L6	L7	L8	L9
Support provided by Management	Yes	Yes	Yes	Yes	No	Yes	Yes	No	No
Frequent Communication									
Team Member-Client	Yes	No	Yes	Yes	No	N/a	N/a	N/a	N/a
Team Member - Team Member	No	No	N/a	Yes	N/a	N/a	No	N/a	N/a
Team Member -PM	N/a	N/a	N/a	Yes	No	N/a	N/a	N/a	N/a
Leadership support									
Release Management	Yes	Yes	Yes	N/a	Yes	Yes	No	N/a	Yes
Design and Development	Yes	No	N/a	No	Yes	Yes	No	Yes	No
Project Management	Yes	Yes	Yes	N/a	No	Yes	Yes	Yes	Yes

### III. CONCLUSION

Comparing the above tables I and II it shows that Scrum practices are most suitable in agile project management than applying the Lean Development practices. It is brought that Scrum is the traditional method for the development teams to implement, where all of its practices concentrated accepting the change to meet the coding process which is satisfied by the customers. The only limitation for agile project management is S1. This can be solved by analyzing the software development life cycle practices, Scrum of Scrum enhances that there can be multiple distributed teams which needs to be interacted with in a project. Particularly we suggest honing S5 at the Visualize stage; S3, S5 and S6 at the Contemplate stage; S2, S3, S4, S5, S6 and S7 at the Investigate stage; S2, S5 and S7 at the Adapt stage

To give constrained plausibility to APM its better that principles of Lean Development are most part situated on the management of the software development process flows. In spite of this presenting few principles are at specific stages which are conceivable and can be productive. Particularly we suggest practicing L1, L4, and L8 at the Visualize phase; L1, L2, L3, L4, L7 and L8 at the Contemplate phase; all principles except L8 at the Investigate phase; L1, L3, L4, L5, L8 and L9 at the Adapt phase.

Towards the end of the article, let's highlight that practices applied using agile framework should stay abait our consideration because of their improvement direction in the development process implemented by IT companies. Some practices like XP programming, test driven development can be implemented in agile program management framework. However, learning's obtained from the practices applied in job should be properly implemented. It highlights we begin with the best thoughts and outline we have concocted, however we will accept that we will take in more as we go. At Investigate and Adapt phases its worth full to be used.

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