

# Review-Scrum(R-Scrum) Introduction Of Model Driven Architecture (MDA) In Agile Methodology

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**Abstract:** Review-Scrum is basically reversion of Scrum; basic features in R-Scrum are to sort out those issues which are challenges in scrum. Issues of risk handling factor, lack of pictorial model, number of hectic meetings and continuous pressurize working environment. In R-Scrum using the MDA which gives the pictorial model of the product.

**Keywords:** Agile, Review-Scrum, Scrum

## I. INTRODUCTION

Scrum Framework is useful in this modern era, but few issues are highlighted by different researcher. Due to these issues, introduction of R-scrum (review scrum) is held. The standard Scrum model that is “wrapped” with additional elements (artifacts and roles) that we labeled R-Scrum(Review-Scrum)—provides a directly usable framework that can be adopted or further tailored as needed. Scrum gives the best output in small projects but if we move in huge & critical projects, scrum is not a best option. Failure reason for huge projects in scrum is not clearing the pictorial model and lack of release planning .Basically R-Scrum is specially design to cover up the above issues of scrum and also having some additional features in Agile methodology which is provides result in future. When the organization hire’s some new person in scrum teams they faces a different types of problems in starting time .They can’t understand the workflow of the project reason behind that pictorial model of the projects are not in front of that persons. Basic purpose of agile methodology is to deliver the product as soon as possible to client. But in above case primarily focus of agile methodology is fail. We can say Scrum framework is also fail in above case.

## B. Structure of Scrum Framework:

Scrum’s backbone is small iteration in product development life cycle. Small iteration in scrum called sprints [4]. Storing unit of sprints is product backlog. Figure 1 shows the whole process of Sprint working. Product owner splits the development portion of the product in the form of sprints and maintain the sprints in backlog. After that product owner handover the sprint and discuss the problems with our team in Retrospective meeting. Daily scrum is organized by scrum master .Length of Daily Scrum is not more than 15minites. Normally sprint length is 30days, which are mention in fig 1.

## II. LITRATURE REVIEW

### A. History of Scrum

SCRUM methodology was firstly introduced by Ken Swaber in 1995. It was first practiced before the announcement of Agile Manifesto [11]. Later, it was included into agile methodology since it has the same underlying concepts and rules of agile development. SCRUM has been used with the objective of simplifying project control through simple processes.

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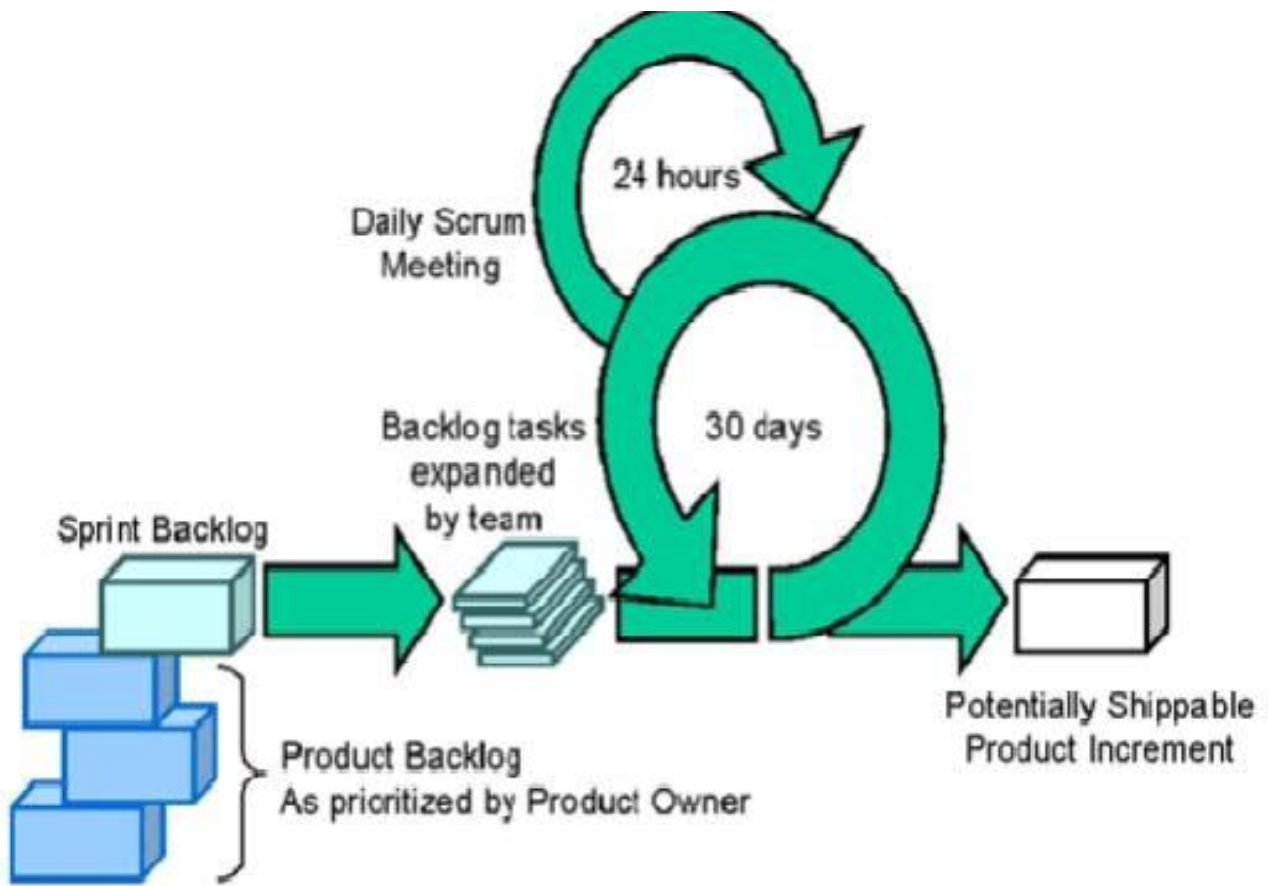


Figure 1 Sprint Process [4]

C. Roles in Scrum:

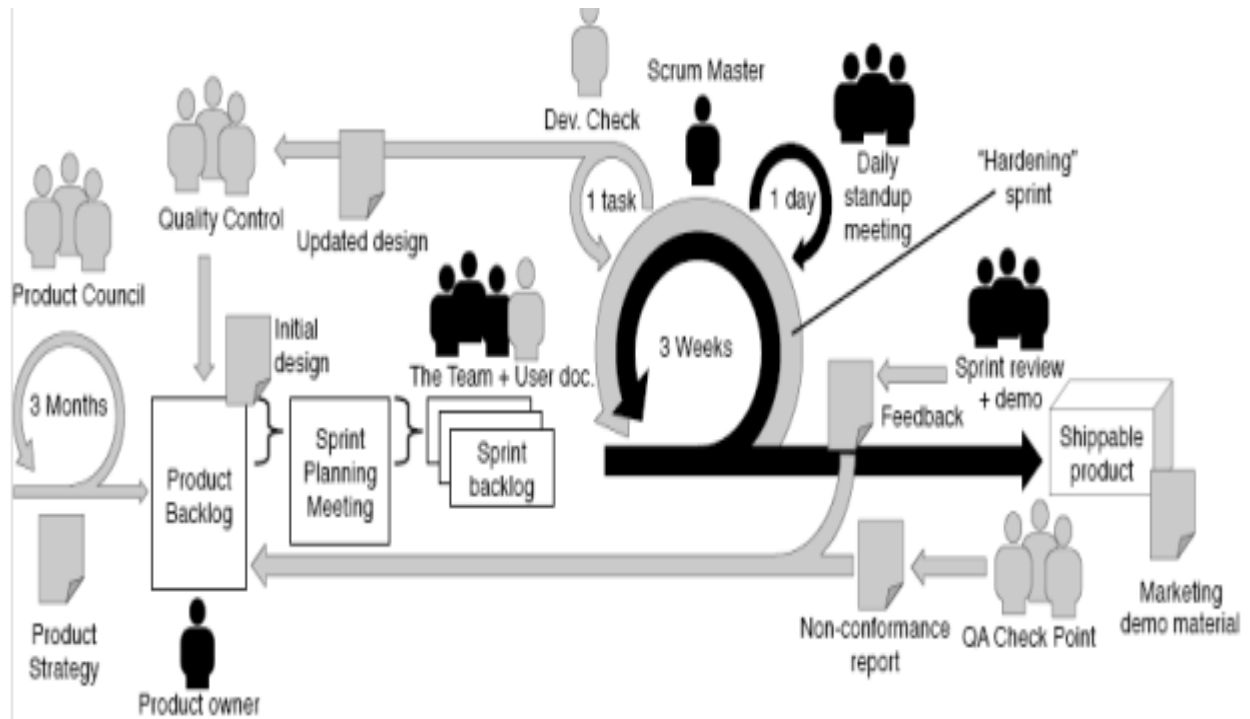


Figure 2 Roles involve in Scrum [1]

Figure 2 represents the roles which are working in Scrum. If we can check out the whole story of scrum, finding that each role in scrum is moving around the Scrum Master. Scrum master is the key person in scrum. Basically three primary roles are working in scrum. One is Development Team, second one is quality control team and third one is release manager/controller. Product council discusses the product strategy and passes to Product owner. After that product owner gives the sprint working to development team and engaging the Quality team with development team[14]. Release manager/controller plays a bridge role between development team and quality team.

#### D. Development in Scrum

The process of development using SCRUM divides the project into phases [4]. In each phase, one feature is fully developed, tested, and become ready to go to production. The team does not move to a new phase until the current phase is completed. Whether what is being done adds value to the process or not, is the main concern of each phase. Different types of meetings are organized in Scrum for running the production cycle smoothly[7].

- Retrospective meeting is organizing by product owner for setting sprint and rank ups the future tasks with the help of cards
- Sprint review meeting basically a quick review of the problems which were faced in previous sprint plus also covers the achievement in that particular sprint.
- Daily scrum is organizing by Scrum Master. In this meeting Scrum Master invites the development team, Quality Assurance team and Release controller/Manager
- Release Plan is executing by Release manager[16]. He/she invites the product owner and scrum master to join setup of proper release plan and also discuss the issues in releases.

#### E. Problems in Scrum

In Scrum (Agile method) Framework [16], there are number of limitations with the respect of work nature. Such problems are training of staff, management, involvement, access to external resources, corporate or organization size, distributed area, sub contraction, developing large and complex systems, but still there are number of open areas where no significant research work has been done.

### III. CHALLENGES IN SCRUM FRAMEWORK

There are number [3] of issues that affect scrum implementation directly or indirectly and resulting in violation of Scrum rules.

#### A. Issues of Scrum

- Quality Issues
- Module Integration Issues
- Code Quality
- Disruption in Team Work
- Mature vs. Immature Scrum
- Sprint Duration
- Multiple Teams
- Risk Management
- Documentation
- Communication/Scrum Ceremonies

## IV. PROPOSED METHDOLOGY

#### B. Review Scrum:

Review-Scrum is basically reversion of Scrum [11]; our aim is to sort the critical issues in Scrum framework. First time in the history of agile methods, we proposed Model Driven Architecture (MDA) in any framework. Due to existence of MDA in R-Scrum gives the pictorial model for all stakeholders.

#### C. Architecture of R-Scrum

In figure 1 represents the workflow of R-Scrum Startup with the launch of ERP of the system. Project manager and other stakeholders (CEO/Client) are invited for launching ERP. After that it's a time to start up the storyboard meeting. In this meeting all stakeholders including development team, Quality team, release team plus project manager and client. At that time it's necessary to all stakeholders to clear the pictorial model of the system. Now the time to break the systems requirements in the form of normal chunks. So these chunks we are calling sprints. Sprints are storing in product backlog DB. Such DB is maintained by project manager. Next step is choosing sprint from backlog. Now it's time to change a direction little bit, daily scrum is replace by roadmap (weekly bases). After that process is similar with Scrum one. but one bit difference is Deployments. Deployments on staging (local) server are doing by Release controller and deployments on live server are doing by Release Manager[11]. Quality team works independently in whole R-scrum Workflow [12]. Such approach gives the better product in the end. Ratio of bugs in product is low as compare to the other frameworks. Key point of the R-scrum is regular coordination between Release controller and Release manager.

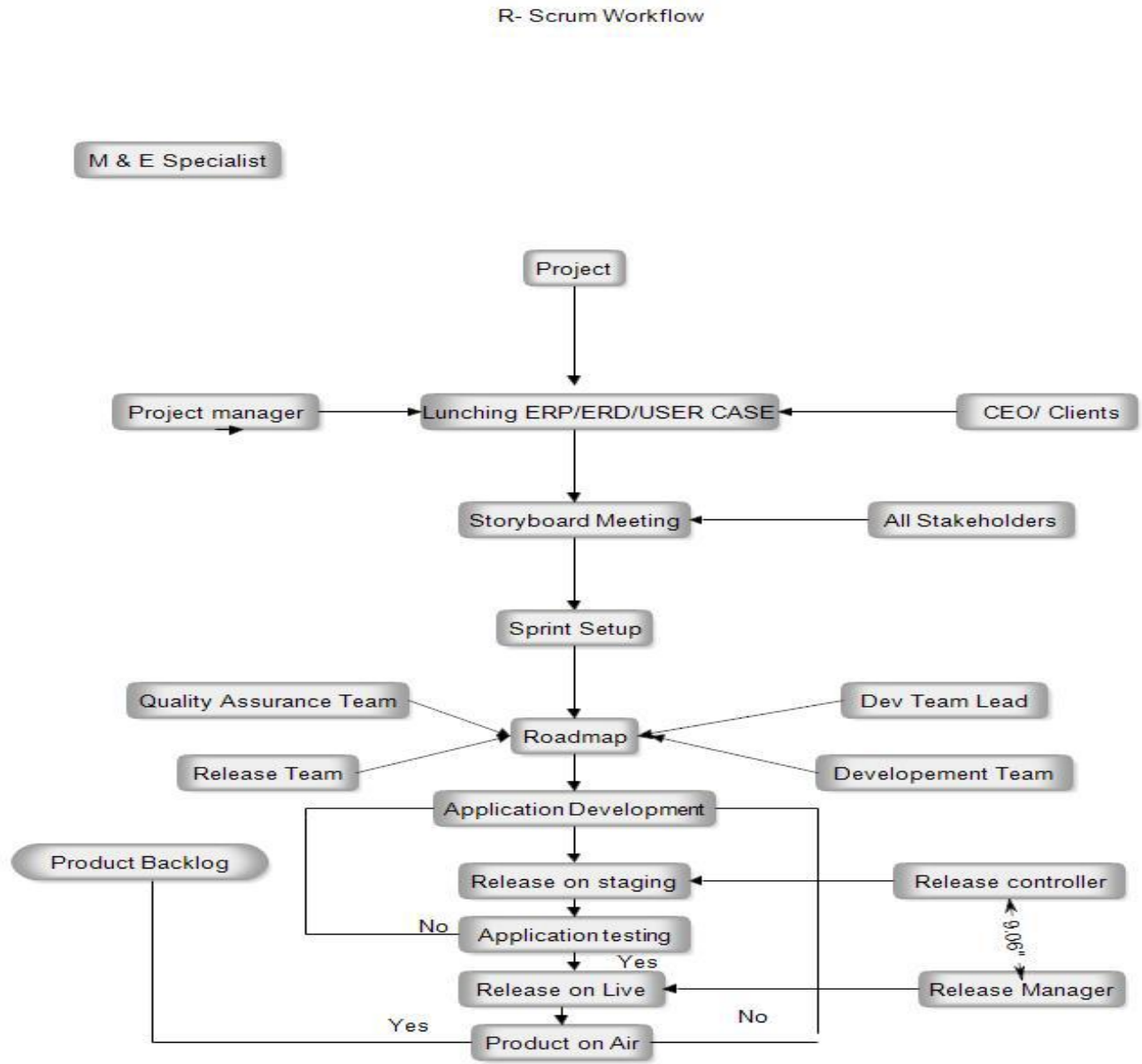
#### D. Features in R-Scrum

In R-Scrum, first time we introduce the model driven architecture (MDA) in agile model, its mean, we can start up our project with proper pictorial model like ERP, Use case of that project.

- Meetings process in R-Scrum is little bit different with Scrum. Roadmap meeting is replacing by Daily Scrum in R-Scrum. Sprint Setup is replace with Sprint planning. Launching ERP, Storyboard these two are new in R-Scrum.
- Roadmap meeting held on week bases. If we compare with Daily Scrum which was organized daily, such one is quite hectic for everyone.
- In Sprint Setup, client of the project is invite to join the team of R-Scrum.
- Launching ERP clears the whole requirements of the project.
- In Storyboard meeting all stakeholders of project are invited to join.
- Some additional roles are added in R-scrum for running the whole process in systematic way, such roles are M & E specialist, Release Manager and Release controller.
- M & E specialist works for deeply monitoring the whole process either all roles follow the process or not.
- Release Manager works only for deployment on live servers and monitoring & managing the whole schedule of deployments
- Release Controller (RC) works only for deployment on

staging (local) servers and also assistant to Release Manager (RM). Coordination process between RC

and RM is clear one Regular Coordination with Distributed teams with proper planning.



**Figure 3** Work Flow in R-Scrum

**E. Pictorial Model in Review-Scrum**

Review-Scrum is a first framework of agile methodology which introduce Model Driven Architecture (MDA). Due to MDA introduction, everyone clears where we are stand and where we will reach in coming time.

- R-scrum is easily implemented in huge type of project.
- Roles define in R-scrum is well organize as compared with Scrum.
- ❖ M&E Specialist is introduce which can monitor the basic rules of this framework and

Documentation plus client requirements

- ❖ Re-Structure the Release setup, Release Manager and Release Controller both work in different direction. (RM role is only for live deployments on server and RC role is only staging (local) servers.
- Reduction of scrum master, assign his/her role to team leader
- Organize less meeting in this Framework
- Quality Assurance Team works independently

## R-SCRUM LIFE CYCLE

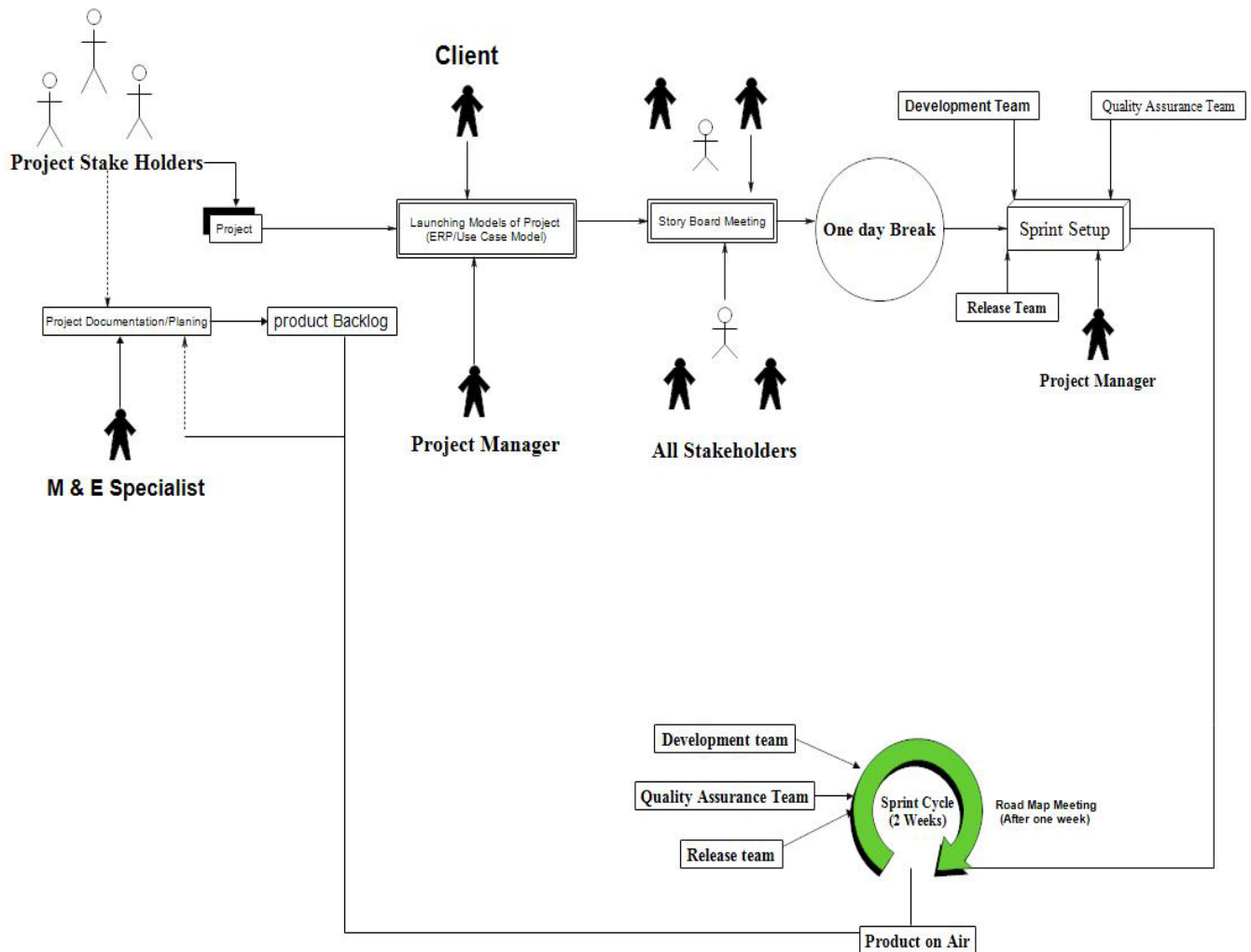


Figure 4 R-Scrum Life Cycle

## V. ANALYSIS OF THE SCRUM AND R-SCRUM METHODOLOGIES:

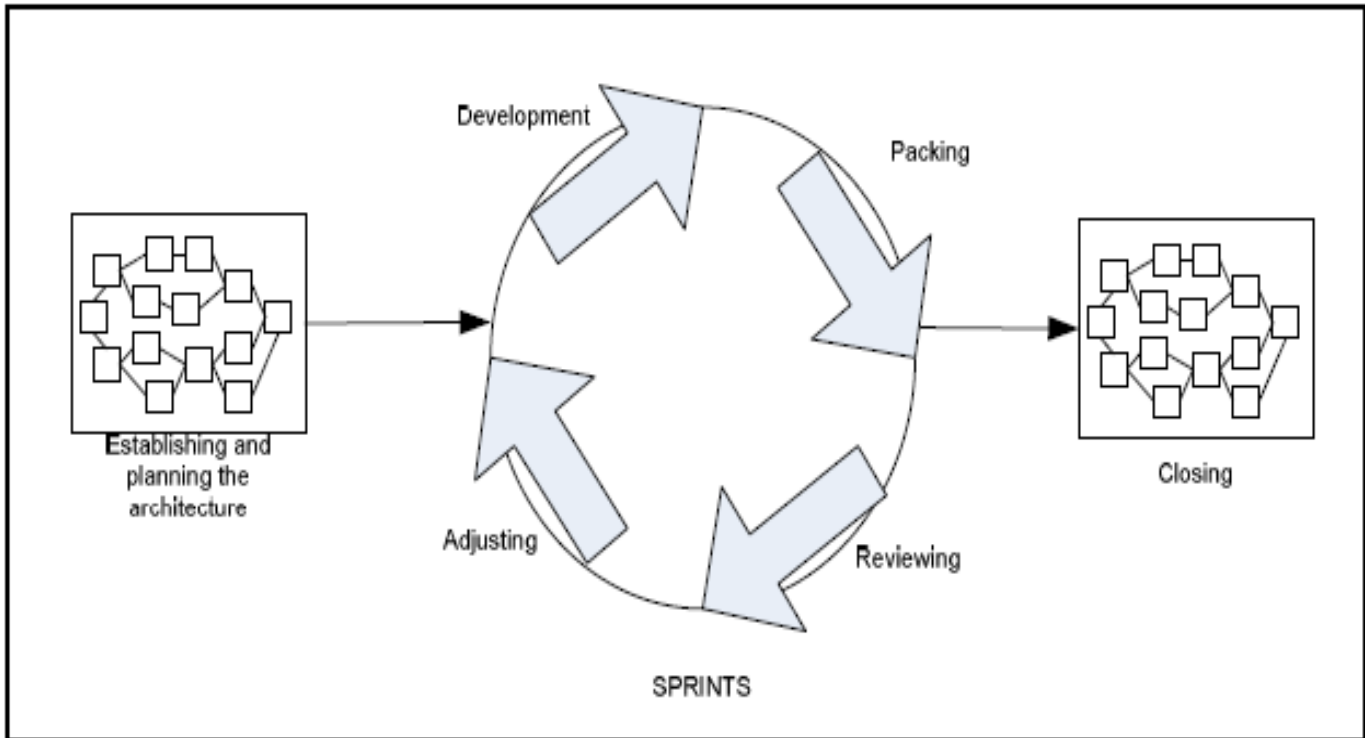
### A. Strengths of SCRUM:

The SCRUM methodology, is basically designed to give a flexible environment in project development life Cycle. It gives a control mechanisms for planning a release. This factor gives the confidence to organizations that they can be easily modify the project and its deliverables at any time, delivering therefore the most appropriate release. The SCRUM methodology frees the developers, so that these can focus on developing particular solutions. RScrum is first agile methodology in which Model Driven Architecture (MDA) introducer. Some additional roles are introduce in this methodology which is basically use to stabilize the framework and overcome the weak area of the Scrum. M& E officer mention the risk factors involve in the product development life cycle and also maintain the documentation in the product life cycle. There are some weak area in Release portion in Scrum.

So R-Scrum is sort out the release problem in scrum by introduce some additional role in it. Release Manager (RM) is only responsible for the deployments on live servers and Release Controller (RC) is doing deployments on local. Conidation between these two is a key factor of R-Scrum.

### B. Weaknesses in SCRUM:

Scrum methodology is most famous methodology of agile in this era. In Scrum it is easy to deliver the desire product of customer. Rapid development and quick release of products gives some benefits. But if we move into other hand some factors such are code quality ,Release Planning ,Risk handling are complete ignore. In scrum methodology new members in any team either in development or testing facing some sort of problem. Such persons is not familiar with pictorial model of the project. Due to this reason news members face the different type of problems in understanding the work flow of System or product.



*Figure 5 Basic Work flow in Scrum Methodology*

### C. Testing Cycle in R-SRCUM:

Testing process in R-Scrum will be start up the initial phase project and regular testing throughout the product development lifecycle, is the foundation on which agile testing is built. Every practice, technique or method is focused on this one clear goal. Agile methodologies are basically designed to decompose the application into manageable parts that can be delivered earlier to the customer. The Primary objective of R-Scrum projects are to deliver the desire products as quickly as possible and then to go through a process of continual improvement. In Sprint, R-Scrum is quite bit similar with Scrum. Development of Product in R-Scrum divided into large number of short delivery cycles (sprints) and priority is also mention by customer and given to the feedback-loops from one cycle to the next. The feedback remarks from the side of client drives continuous improvement and convey the message to the RScrum that such issues will not occur in next cycle. For the achievement of their goals, companies try to re-make their approach to delivery and have their previously independent contributors (Business Analysts, Developers, Testers, and End Users etc.) worked together in teams.

### VI. CONCLUSION AND FUTUREWORK

R-Scrum gives a way to sort out the huge & critical in manageable form. After successfully Implement the R-Scrum we can achieve the following benefits...

- Clearance of work flow with the help of ERP/Use case Diagrams.
- Friendly environment ( less pressurize )
- Proper Documentation
- Reduce number of hectic meetings
- Work independently

In Future R-Scrum further modified by introduce of somedifferent techniques to manage risks which are involve in critical projects and also we can work on WBS(Work Break down Structure) in huge level projects. In the reference of Agile Maturity Model (AMM), testing process in R-Scrum is also improve by introduce some additional features & sceneries to deliver the better product in the end of the development cycle. Such like introduce separate methodology for testing only in R-Scrum.

### REFERENCES

- [1] Brian Fitzgerald, lass-Jan STOL, Ryan O'Sullivan, and Donal O'Brien "Scaling Agile Methods to Regulated Environments: An Industry Case Study", Feb 2006.
- [2] Bernhard Rumpe software system engineering "Agile Test based modeling" URL <http://www.sse.cs.tu-bs.de>
- [3] Akif, R., H. Majeed "Issues and Challenges in Scrum" International Journal of Scientific & Engineering Research, Volume 3, Issue 8, August- 2012.
- [4] Igor Ribeiro Lima,Tiago de Castro Freire,Heitor Augustus Xavier Costa "Adapting and Using Scrum in a Software Research and Development Laboratory" OCT 2012 URL "<http://www.fsma.edu.br/si/sistemas.html>"
- [5] Andrew Begel Microsoft Research Andrew.begel@microsoft.com, Nachiappan Nagappan Microsoft Research nachin@microsoft.com

- “Usage and Perceptions of Agile Software Development in an Industrial Context: An Exploratory Study” , 2010.
- [6] Jeff Sutherland, PhD jeff.sutherland@computer.org, Anton viktorov Star Soft Dev. Labs Anton.viktorov@starsoftlabs.com “Distributed Scrum: Agile Project Management with Outsourced Development Teams”, Jun 2006.
- [7] Granville G.Miller rmiller@togethersoft.com “The Characteristics of Agile Software Processes”
- [8] Robert France france@cs.colostate.edu , Bernhard Rumpe Bernhard.Rumpe@in.tum.de “Limitations of Agile Software Processes”
- [9] Kai Petersen kai.petersen@bth.se, Claes Wohlin claes.wohlin@bth.se “Issues and Advantages of Using Agile and Incremental Practices” August 2005.
- [10] Dr.Marou Vlachopoulou, Dr.Vassiliki Manthou “AGILE SOFTWARE PROJECT MANAGEMENT ETHODOLOGIES. PROSPECTS OF THE GREEK IT MARKET”. The 7th Balkan Conference on Operational Research .BACOR 05.Constanta, May 2005, Romania.
- [11] Malik Hneif , Siew Hock Ow “ Review of Agile Methodologies in software Development ” International Journal of Research and Applied Sciences, Oct 2009
- [12] Kaushal Pathak , Anju Saha “Review of Agile Methodologies in software Development ” International Journal of Advance Research In Computer Sciences and Software Engineering, Feb 2013
- [13] Naftanaila Ionel The Academy of Economic Studies,Management Facultyionel@naftanaila.ro “Critical Analysis of the Scrum Project Methodology”
- [14] Ahsan Nawaz, Kashif Masood Malik Blekinge Institute of Technology Department of Computer Science“Software Testing Process in Agile Development Methodology”
- [15] Chetankumar Patel c.patel@leedsmet.ac.uk, Mu the Ramachandran m.ramachandran@leedsmet.ac.uk , Faculty of IT , Leeds Metropolitan University ( (United Kingdom) “Agile Maturity Model (AMM): Software Process Improvement Framework for Agile Software Development Practices”
- [16] Dan Turk dan.turk@colostate.edu , Robert France france@cs.colostate.edu,BernhardRumpe bernhard.bumpe@in.tum.de Software & System Engineering Munich University of Technology, Germany “Limitations of Agile Software Process”
- [17] Ali Arshad alli.arshad@gmail.com International Islamic University, Islamabad Pakistan “ A Critical Analysis of Techniques for Agile Modeling”
- [18] Granville G. Miller rmiller@togethersoft.com Together Soft “The Characteristics of Agile Software Processes”
- [19] Naga Sri Morampudi, Gaurav Raj “Evaluating Strengths and Weaknesses of Agile Scrum Framework Using Knowledge Management” International Journal Of Computer Applications (0975 – 8887) Volume 65– No.23, March 2013.