

Changing Roles and Responsibilities from Traditional project management to Agile project management

Vishvadeep Tripathi
School of computer science and IT
Devi Ahilya University
Indore, India
vishvadeep@gmail.com

Arvind Kumar Goyal
School of computer science and IT
Devi Ahilya University
Indore, India
goyalkcg@yahoo.com

Abstract—agile project management is based on the principles such as welcoming change during the project development, focus on delivering high value requirement to customer and increase customer satisfaction. For delivering high priority and high value requirement to customer in sprint which should not be longer than one month, managers should focus on collaboration and continuous learning. This paper is outcome of extensive literature survey and interaction with many agile practitioners. The purpose of this study is to identify what are common goals for agile and traditional project managers, skills which need to be learn by the agile project manager's , skills which need to be unlearn by the project managers while moving from traditional to agile methodology.

Keywords- Project management; Agile project management, Project manager's Goal; Skills for project management; Team Collaboration; Training

I. INTRODUCTION

Software Companies are changing the approach to manage the projects. They are moving from hierarchical approach of management to collaborative approach of management. Now as global demands are changing and companies are moving from traditional methodology to agile methodology, project manager's required to show flexibility, dedication and commitment to change their style of management. Hierarchical approach or traditional project management style is based upon the command and control and Agile project management style is based upon collaboration, flexibility and dynamism.

Agile project management gives emphasis upon value generation and includes higher management in project planning, execution. Traditional methodologies might phase difficulties to deliver the project which have complex structured, uncertain, requirement is continuous changing and strict time bound. New approach such as agile is more suitable for these types of projects and with continuous involvement of the end client from beginning to end and with high flexibility companies are able to adopt it and already delivered so many successful projects.

Traditional project managers are basically believes on the processes and planning. Processes are decided at the beginning of the project and planning also done in the beginning of the project .project manager's manage their project on the basic of budget, schedule, and scope. Traditional project planning takes so much time of higher management. After planning project progress is tracked on the basis of the matrix which comes from the project plan. Agile managers do not give emphasis on the process and they focus upon the deliverable and business values. They more focused on good relationship with the stake holders and deliver high value requirements to the customer in very short span of time using sprint.

In traditional projects, scope of project is defined first, development should start after requirements are frozen and

signed off and estimation has been done upfront. If requirement, scope changed then it is very difficult to incorporate in the traditional methodology. Agile methodology has been introduced to overcome above mentioned issues. Agile methodology is based up on concept of embracing changes. It welcomes change and collaboration and continuous acceptance of requirement is done. Project managers are getting changes throughout the life cycle they have to manager the changes and make sure that changes are coming with through proper channel and first it go to product back log , prioritization should be done and then only it should be consider for the development.

It has been observed that in traditional projects, project manager held accountable for success of the projects for creating, executing, communicating and managing liner project plan. In agile project manager works like a coach who give guidance to the team, focus given to team's continuous improvement, team performance and full team is responsible for the success or failure of the project. Biggest challenge is shift from hierarchal based responsibility and task assignment to self-organized team based approach. In traditional project delegation and direction to the team is given by project manager and in agile emphasis on problem-solving and feature creation from multiple points of view.

In traditional projects transparency is less and higher management takes the decision which need to be followed by the team even if they do not like it but in the agile project management every team member is involve from planning ,estimation to successful delivery of the project. Highly transparent environment needs to be created and encouraged by the project manager. Everyone should be aware of what is going on in the project and how project is progressing.

In Agile customer collaboration is required, team needs to participate in selection of the processes of the project and if it has some issues then it should be immediately addressed and resolved.

Traditional project management best suitable for the projects which are big and have stable environment, deliverables and requirements are stable and known. Agile project management is best where the product requirement is uncertain and where the environment is changing very fast.

In traditional methodology everything has been designed and implemented and after that if any problems emerge, requirement changes it leads to expensive fixes and sometime even public recalls. Changing requirements is one of major critical issues mostly plan based companies faced. It is difficult to respond quickly when they are already in implementation phase often tends to affect the planning and the process. Anticipation of the requirements which can vary with the time, creation of initial detailed requirement documents is one of the solutions to cope with the changing requirements.

Agile companies have to less worried about changing requirements. As they use an iterative process in which customer can refine or modify requirements, change in requirements encouraged. Agile companies deliver the product faster because of the frequent planned release during development appears to be more satisfactory.

Change is very hard and it is very difficult for the project managers who have rich experience in the traditional methodology to move in agile methodology. Managers need to change their mindset, learn new skills, learn new tools, and learn new matrices. Team collaboration is very important factor and managers needs to provide support to team.

The remaining of this paper is organized as follows. Section II contains literature review. Section III presents the finding of this paper in the form of identifying role and responsibilities of agile project managers and skills needs to be learnt and unlearn by them. Finally section IV concludes the papers.

II. LITERATURE REVIEW

Literature in the field of Roles and responsibilities of project managers contains a large body of research work. However, we have focused this literature survey on skills which needs to be learnt by the project managers and skill which should be unlearns by the project managers at the time of adopting agile project management. We have identified the common goal of project manages and focus on the challenges faced by the managers while adopting agile project management.

Sheedy and Sankaran proposed agile project management framework which consist of four phases. Initiation phase which give emphasis on objective and vision of the project, planning phase which give importance on creation of back-log and deciding the priority of the requirements, executing and controlling phase which uses iterative project cycle and closing phase in which working software is delivered and learning needs to be documented[1].

Fernandez and Fernandez compared agile project management strategies. Liner strategy, incremental strategy, Iterative strategy, adoptive strategy, extreme strategies are compared from scope design build test and deploy perspective. They have come up with the conclusion that agile work on the iterative strategy and agile project management is more closely focused on deliverables, and therefore those

deliverables will be closer to the requirements than the output of traditional project management [2].

Nayak and Patra presented their work about project manager's roles and suggested that agile project managers needs to have, ability to establish clear role and responsibilities to ensure effective communication network, ability to proper team management and ability to take accountability of the work. Agile project managers believe on continuous learning and adoption [3].

Sutherland et al. presented their study for outsourced and distributed development teams. They have presented isolated scrum, distributed scrum of scrum and totally integrated scrums distributed team models and provided best practices to work in distributed environments. Distributed teams can be productive as a small collocated team. It needs good project management, excellent implementation of agile methodology with good engineering practices. Distributed Teams must function as single team with one globe repository, one tracking and reporting tool. Daily meeting between teams between distributed teams is very much required for success and it should be handled by the project managers [4].

According to Augustine et all "The agile manager understands the effects of the mutual interactions among a project's various parts and steers them in the direction of continuous learning and adaptation". They have provided adoptive project management frame work that gives managers free hand and makes managers adaptive leaders, setting direction, establishing simple rules for the project and encouraging constant feedback, adoption and collaboration [5].

Leybourne compared improvisational working and agile project management. Author presented common area across two working styles and listed benefits of agile methodologies. Study presented some best practices about agile project management, emphasis given on the adoption techniques and managing tension between innovation and process in agile projects [6].

Boehm and Turner presented management challenges which are faced by project managers while implementing agile practices and process in traditional development organization. They have presented three major challenges development process conflict, business process conflict and people conflict which are faced by project managers. They have suggested the best practices which need to be followed by project managers to resolve conflicts. If project managers improve their skills and keep an eye of above mentioned conflicts throughout the agile project then success is certain [7].

Boehm and Turner presented their study about integrating agile and plan driven methods. They have taken five critical dimension size, criticality, dynamism, personnel, and culture then applies risk-based approach to develop a balanced development strategy. They have suggested project managers can follow balance development strategy for successful execution of project [8].

Ceschi et all done survey and presented their result. It shows adopting agile methods improve management of the development process and customer relationship. Requirements and technology both affect all the companies but companies which follow agile can perform better and protect customer from most of the negative effects. Agile project manager should attend agile training and practice it because limited

knowledge can create lot of problem while adopting agile methodology and can cause to failure of the project [9].

Coram and Bohner presented their work and examine the impact of Agile Methods on the resources involved in a project, the process which is used for the development of the project, and on the project itself in an attempt to give opportunity to project managers to evaluate the applicability using an agile method [10].

Uikey and Suman performed various comparative studies to analyze both agile methodologies and PMBOK. They have incorporated project management practices in agile methods and suggested combined approach which can be help full for the agile project managers to increase the productivity and manageability of the software [11].

Sulaiman et all has presented their study and explained earn value management in the scrum projects. Scrum framework focus on maximizing return of investment. Scrum does not specify how to manage and track cost of the project. They have compare earn value management of the traditional and agile methodology and suggested that burn down trend analysis and velocity analysis give all the required details which we get from the matrix of traditional project management [12].

Melo et all developed conceptual frame work for finding factors which is responsible for team productivity. They have suggested agile team management is the most influential factor in achieving agile team productivity. They have suggested in intra-team level main productivity factor is team design like structure and work allocation. In inter-team level main productive factor is how well teams effectively coordinated by proper interfaces and other dependencies to avoiding delays in providing promised software to dependent team. Project managers and team members both have to learn how to recognize signs of conflicts to prevent productivity threats [13].

III. IDENTIFIED ROLES AND RESPONSIBILITIES

We did extensive literature survey and interacted with agile practitioners to identify the roles and responsibilities of the agile project managers. Based on our extensive literature survey we have identified what should be goal of agile project manager. We have identified similarities and differences of the goals of traditional project manger's and agile project manager's goal. We have identified common skills which project mangers' should have to get success in agile project management. We have identified skills and habits of traditional project manager which needs to be refined or changed to lead successful agile projects

Project managers has similar goal whether they are from agile or traditional. Some of them are listed below.

- a. Deliver on time product/project within budget, schedule and with high quality.
- b. Project phase and sub phases are need to be clear and specified for every release. Interpretation of these in agile and waterfall may be different.
- c. Good and historically successful engineering practices needs to use in both the methodology like Continuous improvement, Continuous integration, Automation of testing, Unit test automation, Test driven development.

Project managers needs to understand what are basic differences between agile and traditional methodology it will help managers to move from traditional methodology to agile methodology and easy to adopt the change.

Values Vs plan driven approach: Agile methodology gives emphasis on development and delivering high value requirements/features first as early as possible and values needs to be shown to customer from first sprint which has maximum one month duration. Plan driven approach is based on developing the plan and then following the plan and result of development of traditional methodology is shown to the customer after the completion of the project.

Emphatically vs Prescriptive approach: Agile practitioner follows emphatically approach and use result of project and matrices to derive the project. It shows value and continuous improvement to the customer as sprint progress and release date comes closure. In traditional project managers follow the plan driven approach in which completion of task is shown to the customer on status report but actual how software will look like, how it will perform is shown at the end of the complete development only.

Self-organized vs Directed team: agile followers uses light weight documentation, believes on early feedback, implement feedback's suggestion, remove impediment and let team self-managed but in traditional methodology project managers direct the team give the instruction take the status of the work and team become follower. No direct customer involvement is there in the development life cycle before user acceptance testing.

Stake holder's management vs Stake holders' involvement: Stake holders should be involved in the development process. In agile methodology product owner who is giving the requirement and priorities the requirement are very much part of the team and have day to day involvement in the project. Product owner is having full view of the project, need to have decision making authority and power and member of end client who is going to accept or reject the project. Traditional approach does not have stake holder's involvement in the development phase and stake holder's management needs to be done by the project managers using status report and mastics which come from project plan.

Project manager's vs. Scrum masters: in traditional methodology it is command and control mechanism decision has been taken from the mangers and teams need to follow. But in agile servant leadership style follows in which team collaboration is targeted, team is involved in the every decision and scrum masters become the facilitator to the team and remove the impediment faced by the team.

Top down vs bottom up approach: Tradition methodology follow the top down approach but agile follows the bottom up approach in which team and individuals self-learning skills and customer involvement has importance. For the estimation agile managers need to perform top down estimation for the release and then bottom up estimation for the spring and validate the estimation which came during release planning.

Project managers those are going to work on the scrum needs to learn so many new skills. After understanding difference between traditional and agile methodology project managers need to take training on project management for agile

methodology. They have to learn following skills to become successful agile project manager.

Servant-leadership: In agile methodology project managers serves to the Team rather than the Team serving the project manager. The agile managers have to guide their teams by defining, distributing and nourishing a vision. A vision is related to anticipate and adopt changing conditions. If the project vision is distributed through all the team members, it can enhance their behavior. The responsibility of agile project managers to organize small teams, there may be sub teams working in parallel and to establish clear roles and responsibility to ensure proper team alignment and accountability. Remove impediment for the team and team needs to empower to take decision. If project manager follow Servant-leadership style then people grow more capable. It builds strength in others which increase strength of the team.

Foster collaboration: Leadership is done via collaboration rather than command and control type relationship. Managers are responsible to track the progress and make decisions. Agile managers must be capable to understand the effects of interactions in various teams and should set them in the continuous learning and adoption direction. Agile project manager should promote self-organization, self-discipline, and respect for individual, conflict resolution and technical competency.

Customer relationship: Both agile and plan based methodology customer relationship plays a very important role, however they differ in the way of managing them. End Customer's needs to be directly available to the agile companies as compared to plan based companies. Constant involvement of the customers with the developer not only helps to clarify the change but also creates a quality link between them in agile companies which is more satisfactory than plan based companies. It is responsibility of the manager to provide this environment and make sure customer's availability.

Balance flexibility and stability: Agile practitioners believe on flexibility. Project managers should flexible enough to understand team dynamics and believe on adoption of change. Team does not have big hierarchal structure manager's needs to handle people conflict and issues. Stability in the agile project is very important factor to get successful delivery of the project.

Agile methodology values: The impact of agile methods represents more involvement of customers than usual methods, helping define requirements, at the end of project with alpha, beta and acceptance testing. Challenge is to find a devoted customer with full time with development teams is hard to find. They must be committed, knowledgeable, collaborative, representative and empowered. If such type of representative is not available then agile methods may not be useful. Commitment, openness, focus, courage and respect are the core values of the agile methodology. Agile project managers need to understand the principal and values of agile methodology and adopt it. It takes time to adopt these core values of the agile but proper training and commitment of the project managers can make it simple.

Accept changes and uncertain requirement: Agile project managers need to understand that change management is very light weight in the agile methodology. As requirements are uncertain in current dynamic world, team should be ready for

the change and accept the change in the development. Risks are always present in the project. Complete avoidance of all the risk and uncertainty is neither possible nor necessary. Understanding planning and managing the risk is one of the main tasks of agile project managers. According to Agile principle Opportunity, uncertainty, and risk reside in proposed product not in the approach to project management.

While doing transition from the traditional methodology to agile methodology project managers has to change their mind set and they have to unlearn some of the skills which they have learn while doing traditional project management. Following skills needs to be revisit by the managers and they have to unlearn them to give expected result by using agile methodology.

Planning everything upfront: In traditional project's planning of the project's done upfront. Project manager's habitual to do upfront planning and then execute it according to the plan. In agile projects planning is done just in time for the features which is present in the product backlog instead of predicting everything upfront.

Big design upfront: Traditional project manager's works on the scenario in which they assume requirements are known upfront frozen and signed off. After requirement analysis project design phase is executed and then development starts. Project manager's needs to understand and accept the fact that requirements are cannot be completely known upfront and prone to change. They should use emerging design and architecture for the agile development.

Formal change management: Agile project manager's needs to come out from traditional approach of change management. Agile methodology does not have big and strict change management process and changes are directly put on the product back log and product owner are responsibly to take decision on the priority and delivery of the new change. In agile Project managers welcomes the change which comes from the customer at any time but restrict it to deliver in the next sprint if it's not feasible to deliver in current sprint.

Task master ship: Project managers who are following of traditional methodology needs to change their habit of the task master ship and tracking the task which has been created in project plan. They have to focus on the agile principles encourage team collaboration and guide the team to become self-managed and self-disciplined team.

Time, cost and scope: Agile time and cost are frozen in the beginning of the iteration and only scope is variable and can change which is not a case in the traditional methodology. Agile project managers need to learn it and adopt it while adopting agile methodology.

For successful agile implementation project managers have to focus on agile review and retrospective at the end of the each iteration, release. They have to see what worked and what did not and what need to change. Make the changes in next iteration and again do iterate the same process. Agile methodology principle work on continuous learning and specify that there is no perfect process and methodology. Keep learning and adopting.

IV. CONCLUSION

We have identified common goal of agile and traditional project managers, Skills need to be learn by agile project managers. We also identified what all skills needs to be unlearned if any project manager is moving from traditional project to agile project. To identify these we have done extensive literature survey and interaction with a number of agile practitioners. To conclude agile project managers need to learn Servant-leadership. They have to focus upon Foster collaboration and Customer relationship. They have to give emphasis on balancing flexibility and stability and give importance to agile methodology values. Project manages needs to change their mind set and should be ready for Accepting changes and uncertain requirement.

REFERENCES

- [1] D.Sheedy and S. Sankaran, "Agile Project Management for IT Projects in SMEs: A Framework and Success Factors," The International Technology Management Review 3, Vol. 3, 2013 PP.187-195.
- [2] D. Fernandez and J.Fernandez,"AGILE PROJECT MANAGEMENT--AGILISM VERSUS TRADITIONAL APPROACHES," Journal of Computer Information Systems 49, Vol. 3, 2008 PP 10-17.
- [3] N.M.Kumar, and M.R.Patra,"Agile Project Management-Redefining the Role of Managers," management 11, 2008.
- [4] J.Sutherland et al. "Distributed scrum: Agile project management with outsourced development teams," Proceedings of the 40th Annual Hawaii International Conference on System Sciences,HICSS, 2007 pp. 274a-274a.
- [5] S. Augustine, B. Payne, F. Sencindiver, and S. Woodcock,"Agile project management: steering from the edges,' Communications of the ACM 48, Vol. 12, 2005 PP. 85-89.
- [6] S.A.Leybourne,"Improvisation and agile project management: a comparative consideration," International Journal of Managing Projects in Business 2, Vol. 4, 2009 PP. 519-535.
- [7] B.Boehm and R.Turner,"Management challenges to implementing agile processes in traditional development organizations," Software, IEEE 22, Vol. 5, 2005 PP. 30-39.
- [8] B.Boehm and R.Turner."Balancing agility and discipline: Evaluating and integrating agile and plan-driven methods," In Software Engineering, 2004. ICSE 2004. Proceedings. 26th International Conference on,2004 pp.718-719.
- [9] M.Ceschi, A.Sillitti, G.Succi and S.D.Panfilis."Project management in plan-based and agile companies," Software, IEEE 22, Vol 3, 2005 PP. 21-27.
- [10] M.Coram and S.Bohner."The impact of agile methods on software project management," In Engineering of Computer-Based Systems, 2005.ECBS '05.12th IEEE International Conference and Workshop on the, 2005, pp.363-370.
- [11] T. Chow and D.B. Cao. "A survey study of critical success factors in agile software projects," Journal of Systems and Software Vol 81, No. 6, 2008, pp. 961-971.
- [12] T.Sulaiman,B.Barton, and T.Blackburn."AgileEVM-earned value management in Scrum Projects," In Agile Conference, 2006, pp. 7-6.
- [13] C.de. O Melo, D.S.Cruzes, F. Kon, and R. Conradi. "Interpretative case studies on agile team productivity and management," Information and Software Technology 2013, Vol 55, PP 412-427.