

Role of a Project Manager in Managing Agile Projects

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Abstract

With the advent of the agile project management methods, the role of a project manager has enhanced to satisfy the needs. The traditional project management principles are not enough to manage today's large, complex projects. In this paper, we will review the role of a project manager in managing agile projects and how it is different from traditional project manager's approaches. A comprehensive literature review on the changing roles of a project manager in an agile project is the theoretical foundation of the paper.

Keywords: Agile; Project manager; Waterfall; Sprint; Scrum; Scrum master

Introduction to Agile Project Management

The principle of the project management is to manage a project successfully so that it can produce the desired outcome within the specific budget and time. The role of a project manager is not same in managing different projects. The project management techniques are designed carefully so that the project manager can run the project successfully by minimizing the risks and other negativities. One of the recent project management techniques is the agile project management.

With the initiation of business management practices, today's business environment has become versatile and uncertain. The requirements of clients are changing. Therefore, the business processes accommodate to fulfill client's demands. A project is defined as "a collection of simultaneous and sequential activities which together produce an identifiable outcome of value [1]." A project is a unique set of activities with definite objectives, specific time to complete and identified budget.

The project management team manages the internal and external factors which have an impact on the project. To avoid any risky circumstances, the project management team acts quickly so that project timelines and priorities can be achieved. The quality of taking quick actions to manage the project is known as agility [2]. The contemporary financially unstable and technology driven environments are unreliable for traditional project management methodologies. Changing customer demands, minimizing budget and tightening the delivery deadline are the three key factors of managing a project in agility – "The ability to move quickly and dramatically to get around any and all obstacles [2]." Agile project management process develops a realistic and repeatable methods to increase the flexibility of the project.

According to Chin et al., the reasons to implement agile project management practices in an organization are as follows:

1. Business-centric decision making is quick and easy.
2. The project team is focused on achieving the business goal.

3. The conflict of having multiple goals can be avoided.
4. Managing changes are easy to reach the project goals.
5. Roles and responsibilities can be shared by individuals and the micro management of management can be avoided.

Transforming to agility

According to Chris et al., one of the common project management methods is known as Waterfall project management principle [3]. According to this concept, the project is divided into different phases. One phase needs to be completed before another phase begins. Skilled individuals are associated with the project irrespective of teams and geographic locations. A successful project can bring changes in the organizational operation and it may have a long-term impact on the business (Figure 1).

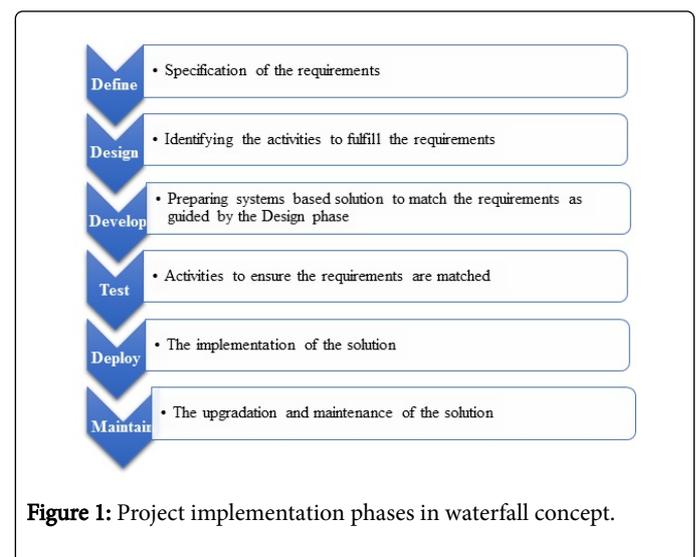


Figure 1: Project implementation phases in waterfall concept.

Limitations of waterfall concept

Waterfall process develops several limitations to achieve the project objectives [3].

- The project plan and activities are planned in the initial phase of the project. All the activities might not require later on.
- A project takes a longer time to complete as one phase needs to be completed before another phase begins.
- The project manager is responsible for prioritization of daily activities.
- Once the project begins, changes in project objectives are difficult to accommodate.
- Documentation is considered to measure the accountability of the team members.

Agile methodology

Agile methodology can be defined as “Iterative and incremental style of development that dynamically adjusts to changing requirements and enables better risk management [4].” The agile projects are customer defined, aligned to client’s expectation and measurable activities specific. It focuses on delivering the client’s needs at the earliest, forming the project plan as per client’s demands and implementing changes to provide the best solution to the client [5]. In agile methods, the interactions of the individuals are valued to develop a software solution for the changing requirements of the client.

Scrum is another agile method, developed by Jeff Sutherland. According to Hoda et al. Scrum refers to short development phases of a large project [4]. The daily short interaction of Product Owner, Scrum Master, and the team is one of the key characteristics of the scrum method. The product owner maintains the accurate business standpoint, the scrum master is a facilitator and the team, consists of 5-7 executives, executes on the project activities. The responsibilities of the team include sprint planning and scrum meeting. A Sprint is a specific timeframe (usually 2-4 weeks) to work on a set of activities. In a sprint review meeting, the set of activities is identified and reviewed. The Scrum master organizes a daily meeting of 15 minutes to discuss any issues or concerns [4]. By using Sprint and Scrum methods, agile project management techniques empower the project managers and the team to successfully manage risks, define scope, maintain budget and follow timelines.

According to Lee et al. agility is defined as “the continuous readiness of an entity to rapidly, inherently proactively or reactively, embrace change, through high-quality, simplistic, economical components and relationships with its environment [6].” Agility is the promptness in accepting a change or action. There are two dimensions. It can be accepting and adapting to changes or ability to re-engineer the existing process. Agile methodology is “a set of flexible techniques [7].” It helps the software development team to sustain in a volatile environment. The teams are responsible for managing the software development process, resolving issues, making decisions and delegating tasks to other teams. The expertise in managing changes by using agile methodologies make it easily acceptable by the software development teams.

Limitation of agile process

Turk et al. mentioned that agile process combines technical and managerial processes to adapt the changes in a software development process during development phase or in the environment of the software development [8]. Following are some limitations of agile process:

- Support is limited to distributed development situations and subcontracting,
- Support is limited while developing reusable objects and involving large teams,
- Unavailability of adequate support while developing critical, large, safety critical and complex software,
- An agile project is unpredictable and difficult to control in development culture.

The agile process focuses on the interaction between people, process, and tools. It also fosters customer’s involvement in providing best solution [9].

Project manager in agile project

According to Turbit et al., a project manager is a way to connect to the steering committee [10]. The responsibilities of a project manager include the following:

- Managing people in an unpredictable and stressful environment - In agile projects, project timelines are critical. Project Manager ensures the sprint of the project is completed on time.
- Motivating everyone to remain focused on reaching the goal. In a large agile project, challenges and issues create frustration among team members. Project manager motivates his team members to avoid any issues that degrade employees’ performance.
- Modifying work-pressure and timelines to keep the pace - The project is divided among several segments which need to be completed phase wise in a specific timeline. The project manager assigns tasks to individual and balances the workload.
- Managing issues and escalating to the right authorities - Project manager informs the right person at the right time to resolve the issue.
- Communicating changes to the stakeholders – Project manager informs all the stakeholders about the status of the project.
- Fighting for the proper resource – Project manager manages approvals for required resources from the authorized people.
- Preparing project plans and making changes if necessary – Project manager helps to prepare project plans and ensure the project plan is being followed. If any changes required, he ensures changes are updated in the project plan and communicated to all.
- Developing risk management plans – Project manager identifies risks and develops risk management plans.
- Resolving issues to keep the project moving – Project manager ensures any interpersonal conflict, political issues, technical skill scarcity, shortage of the budget should not harm the project. He takes preventive actions to avoid risks.

Project manager as a scrum master

As a scrum master, a successful project manager attains a daily meeting with the team members. This helps the project manager to identify any issues that the team members have faced or shared the update among all the team members [11]. As a scrum master, the project manager is responsible for sharing status reporting, communicating changes, risks, project plans and to identify any missing roles. Contrary to waterfall method, roles are distributed among all the team members. The key people in an agile method are the team members, scrum master, and the client.

According to Eriksson, in an agile method, 'command and control' method is not applicable [11]. The scrum master role is like 'servant leader' who leads his team and perform his part. The scrum master is more flexible and versatile than a project manager.

Project manager roles and responsibilities expand in an agile method. As a project manager of an agile project, he manages project financials, project status report, change management, governance, role identification and business communication to the stakeholders.

As a Scrum Master, a project manager plans a sprint. One of the major responsibilities of the project manager as a scrum master is to divide a large project into different phases, accomplish the sprint objectives and maintain the smooth flow of the project.

Case Study

The case study is about a project where the agile methodology was followed. The objective of the project is the implementation of Mobile Work Management Systems at Denver Water, Colorado by following the agile project management approach. Denver Water field work used to be communicated to its customer service technicians by phone, paper or radio. The scope of the project was to develop the "mPlatform mobile work management application" which makes the work more efficient and easier for the field technicians. The budget of the project was approximately \$1 million and the maximum time allocation was 6 months. Mr. Mike Aragon was the "product owner" of this project. He was trained in agile methodologies. He was involved in many other IT projects previously which followed waterfall method. According to him, it was a challenge to follow waterfall method due to lack of daily involvement with customers or users. He followed agile methodologies in the following way:

- At first, a pilot team was formed which consisted of selective field technicians from different fields of operation. The pilot team had 5 field technicians who have rich experience and necessary computer skills.
- The pilot team worked as a sample of the end-users. Their daily feedback and suggestions were carefully considered to modify the product as per their needs.
- Another core team was developed which was formed by the supervisors of different fields of operations. As the product owner, Mr. Aragon was responsible for prioritizing the best suggestions, received from the pilot team and the core team, and implements the same in the project.
- The prioritization was done based on the cost-benefit analysis and the business value analysis. Mostly, the suggestions of the pilot team were implemented as they were the future end-users of the application.
- As the product owner, Mr. Aragon was careful to avoid any insecurity of losing jobs among the field technicians due to not using the application correctly.
- The risk management plan was developed with the help of the pilot team. This pilot team was involved in identifying the potential risks and to generate suggestions to mitigate the risks.
- The agile methodology was also applied in training the field technicians. Instead of week-long classroom training, the pilot team members were being deployed as the on-the-job trainers for the field technicians.
- After seven months of scrum process, the application was "go-live" in 2 days. The volume of the end-user support calls was very

minimum as the entire field technicians were carefully trained by the pilot team members. The application was successfully implemented throughout the organization's field technicians and the project was successful by following the agile methods.

The project was beneficial by following the agile methodologies. It was able to meet the objective of the project within time and the budget. The deployment of the project was a huge success. According to Mr. Aragon, producing the same results by following the traditional waterfall approach was difficult. Therefore, the success of this project makes it a benchmark for the following projects in Denver Water organization.

Findings: How role of a scrum master differs from a PM

According to Frederico et al., the role of a project manager and a scrum master differs from each other [12]. In an agile project environment, the roles of a project manager and a scrum master are as follows:

- A project manager manages the project – scope, cost, timeline and the overall quality of the project. A scrum master manages each scrum to reach the project goals.
- A project manager might manage multiple projects at a time. A scrum master usually focused on a specific project team.
- A project manager manages the budget and the risks of the project. A scrum master motivates the team members, facilitates sprint planning and scrum meetings.
- A project manager focuses on processes and allocates tasks to the team members. A scrum master helps to improve team dynamics and acts as a servant leader if required by the project.
- A project manager is a communicator between the management team and the team members. A scrum master is the facilitator and trains the product owner.
- A project manager informs the management about the project progress and coordinates with other teams. A scrum master motivates the team members and increases the team bonding.

Conclusion

The project manager and the scrum master are not two separate entity. The role of a project manager expands as a scrum master. The objective of a project manager is to complete a project successfully within specific budget and timeline. With the advent of the agile method, the involvement of a project manager increases. In agile project management, the distribution of the roles and responsibilities are specific to the individuals. Therefore, the role of a project manager as a scrum master is now more specific, crisp and concise. In an agile method, the focus of a project manager is not limited to the entire project but as a scrum master, it is every scrum that needs to be successful. This new point of view makes it more methodical and quantitative to achieve the success.

Recommendations

In this competitive world, the role of a project manager or a scrum master is critical to the success of a project. Be it a project manager or a scrum master, the objective of successful execution of a project remains same. In order to achieve success, the clarity of roles and responsibilities is necessary. Moreover, a project manager and a scrum master can be same individual or different individuals. Both the roles are important for a successful project in agile methods. Therefore, the

skills to become a project manager in managing agile projects need to be learned and applied since the early phase of career development. The skills of segmenting a large project into small parts, involving and contributing with the team as a scrum master, communicating and negotiating with the stakeholders and achieving the success need to be learned over the time. Therefore, be it a scrum master or a project manager, an individual needs to learn the project management techniques continuously to improve themselves and gain more successes.

Lessons Learned

According to Granot et al., the success of a project depends on the careful planning, managing co-related activities and scheduling the tasks [13]. Careful planning includes developing strategies, managing resources and handling risks. In an agile project, the responsibilities of a project manager are not only limited to careful planning and managing activities; but also to involve in segmenting the project and participate with the team to become successful in the phase-wise implementation of the project. The agile project management gives the flexibility to choose where to start from and where to reach at first before moving further. Therefore, it is one of the most popular project management practices now. With the future perspective, the role of a project manager will be enhanced in order to follow the agile project management methodology.

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