

Project Management

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Week: 1

Lecture 03 : Agile Project Management

Dear students, today we are going to discuss about Agile project management, the agenda for this lecture is I will discuss what is the need for agile project management, then I will discuss about 12 agile principles, then some of the important terms and characteristics of agile projects and what are the benefits of agile project management and finally implementing agile project management. These are the content which I am going to cover in this lecture. As you know that this lecture has three phases, phase 1, phase 2 and phase 3. The first phase is project initiation. So far we covered introduction to project management, introduction to project management 2.

**Phase-I
Project Initiation**

Course outline

Introduction to project management-I	Managing for stakeholders
Introduction to project management-II	Resolving Conflicts
Agile project management	Negotiation
Project selection models	Project in the organization structure
Examples of Project selection Model	Human factors and the project team
Project manager	
Attributes of Effective Project Manager	



Now currently we are in the topic called agile project management. After that we will go for project selection models, then I will take some examples in project selection model, then I will solve it. Then we will go to the project management, attributes of effective project manager, managing for stakeholders, resolving conflicts, negotiation, project in the organization structure and human factors in the project team. So these are the topics which are going to cover in the project initiation phase.

Waterfall Approach for Project Management

- In the traditional approach to project management, one phase of the project is completed before the next phase is started.
- This is typically referred to as the “Waterfall” method.
- For example,
 - Software development projects
- Six Sigma process improvement projects



source: Meredith, J. R., Shafer, S. M., & Mantel Jr, S. J. (2017). *Project management: a strategic managerial approach*. John Wiley & Sons.

So currently we are going to discuss about agile project management. Typically the projects are managed, the traditional project management is called waterfall approach. So in the traditional approach to project management, one phase of the project is completed before the next phase is started. Here all the projects are done in terms of different phases. This is typically referred as waterfall method.

Waterfall Approach for Project Management

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Look at the picture on the right hand side. Suppose take an example of software project. There is a requirement is one stage, then we will go to the design stage, then we will go to the development, testing, deployment and maintenance. There are different phases and you see that there is no interaction between one phase to another phase. So that is a drawback of this waterfall approach.

Some of the examples of this waterfall approach is software development projects as I

discussed just now. The second one suppose you want to implement Six Sigma to our organization. There are different stages, define is one stage, measure is one stage, analyze, improve, control process. So these are the traditional way of managing project called waterfall approach. The problem with the waterfall approach is there is no interaction between one stage to another stage.

So once for example something is the define stage, it is moved to measure stage, then there is no concept and there is no way to correct things which have done in the define stage. To overcome this problem, this concept of agile project management has come. So to lower the cost and improve project outcomes and reduce project completion time, 17 software developers and project experts met in 2001 to discuss and identify the characteristics shared by successful projects. So group of people formed, they want to say for a software projects, what are the characteristics of a successful software project. Based on this discussion and leveraging management principles, the group developed a new approach to project management.

Agile Project Management

- To lower costs, improve project outcomes, and reduce project completion times, 17 software developers and project experts met in 2001 to discuss and identify the characteristics shared by successful projects.
- Based on these discussions and leveraging management principles, the group developed a new approach to project management.
- Foundational values for this new approach were spelled out in a declaration entitled the “Manifesto for Agile Software Development” (agilemanifesto.org)

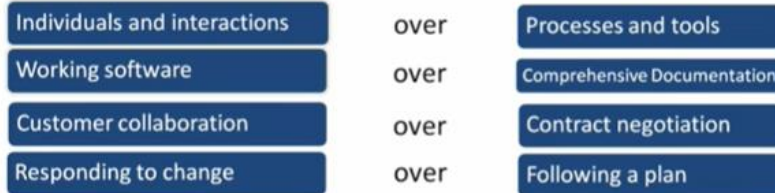


source: Meredith, J. R., Shafer, S. M., & Mantel Jr, S. J. (2017). *Project management: a strategic managerial approach*. John Wiley & Sons.

That new approach is agile project management. The foundational values for this new approach were spelled out in a declaration, the manifesto for agile software development. Now we will discuss about better ways of developing software by doing it and helping others to do it. In the agile project management, the focus is on individuals and interactions over processes and tools. In the traditional project management, more focus is given on processes and tools, but in the agile project management, more focus is given individuals and interactions.

Agile Project Management

Better ways of developing software by doing it and helping others do it.



source: Meredith, J. R., Shafer, S. M., & Mantel Jr, S. J. (2017). *Project management: a strategic managerial approach*. John Wiley & Sons.

The second point is in the agile project management is focus is given on working software over comprehensive documentation. In the traditional project management, the more focus is on given on documentation, but in the agile project management, it is a working software. The third focus is customer collaboration. In agile project management, the focus is given on customer collaborations over contract negotiation. So the contract negotiation is the word way and traditional way of managing projects, but in agile project management, there is a close collaboration with the customers.

The advantage is that whenever any changes in their requirement that changes can be easily incorporated in the agile project management methodology. The last focus is responding to change over following a plan. You see in the traditional project management, the things are already decided. For example, scope of the project is already decided. We are trying to follow to various techniques, methodology to achieve that scope, but in the agile project management, if any changes, there is a provision for changing the scope because the projects like software products, the users themselves may not know what is their expectation.

Agile Project Management

- The first value, individuals and interactions over processes and tools addresses providing an effective and efficient way to solve problems and build cohesive teams.
- A critical implication of this value is that Agile teams must be staffed with people who can work effectively with others.



They over the period of time, they will keep on say their expectation that new changes can be easily incorporated into the agile project management. That is the biggest advantage of the agile project management. Now, we will discuss about the values which we discussed. The first value, individuals and interactions over processes and tools addresses, providing an effective and efficient way to solve problems and build cohesive teams. A crucial implication of this value is that agile team must be with the people who can work effectively with others.

Agile Project Management

- The second value, working software over comprehensive documentation, clarifies that the emphasis is on producing products with working functionality.
- It is also implied that minimal product development activities, project documents, meetings, and other administrative activities should be used.



Here the focus is on the satisfaction and the teamwork of the people. The second value, working software over comprehensive documentation. This clarifies that emphasis on producing products with working functionality instead of focusing on unnecessary documentation. It is also implied that the minimal product development activities, project documents, meetings and other administrative activities should be used it because we need not have unnecessary documentation, we need not have unnecessary time spending on only the meeting. Here the ultimate aim is the project has to work, software project has to work.

Agile Project Management

- The third value in the Agile Manifesto, customer collaboration over contract negotiation, clearly defines the customer's central role in product development projects.
- With the traditional Waterfall approach, customers are involved at the start of the project, when the project scope needs to change, and at the end.
- Aside from these times, customer input is discouraged, often creating an adversarial relationship between the project team and the customer.



The third value in the agile manifesto, customer collaboration over negotiation. This clearly defines that customers central role in product development projects. With the traditional waterfall approach, customers are involved at the start of the project when the project scope needs to change, scope needs to change. At the same time, the customer will come to play only at the end of the projects. Aside from these times, customer input is discouraged, often creating an adversarial relationship between the project team and customers.

So the customers are blind here because they are visible only at the time of defining the scope and at the time of when the product is ready. In between the customers are not aware what is happening to their projects and its also not encouraged. The final value that is responding to change versus following a plan. It recognize that having the flexibility to adapt changing requirement is invaluable to the pursuit of developing superior product and services. This is one of the important advantage of using agile project management.

Agile Project Management

- The final value, responding to change versus following a plan, recognises that having the flexibility to adapt to changing requirements is invaluable to the pursuit of developing superior products and services
- In the traditional Waterfall approach, the project team relies on detailed and structured change management procedures that ultimately discourage changes and stifle creativity



Source: Meredith, J. R., Shafer, S. M., & Mantel Jr, S. J. (2017). *Project management: a strategic managerial approach*. John Wiley & Sons.

If any changes, there is a flexibility to adapt, to observe any changes and any stage of this project phases. In the traditional waterfall approach, the project team relies on detailed and structured change management procedures that ultimately discourage change and stifle creativity. The traditional waterfall approach, we are not encouraging the changes, but in the agile project management, we encourage the changes that change can be brought at any stage of the project that can be easily implemented into the project. That is the biggest advantage of using agile project management. The other point is when to use traditional project management, when to use agile project management.

Whenever there is any uncertain in the project scope, many time the users may not know what they want from the project. That time the best suitable way of managing project is agile project management. Because there are project, there would not be any changes, there would not be any uncertainty, then we can go for our traditional project management. So this is the difference to know when to go for agile project management and when to go for traditional project management. Now we will discuss about 12 agile principles.

12 Agile Principles

- More specifically, the Agile Principles were developed as guidelines to assist project teams in implementing the Agile methodology and techniques.

1. Our highest priority is to satisfy the customer through early and continuous delivery of valuable software.

2. Welcome changing requirements, even late in development.



Source: Meredith, J. R., Shafer, S. M., & Mantel Jr, S. J. (2017). *Project management: a strategic managerial approach*. John Wiley & Sons.

More specifically, the agile principles were developed as a guidelines to assist project teams in implementing agile methodology and techniques. The first principle is our highest priority used to satisfy the customer through early and continuous delivery of valuable software. Second one is welcome changing requirement even late in the development. The third principle is deliver working software frequently from a couple of weeks to a couple of months with a preference to the shorter time scale. Here the focus is on having a shorter project life cycle so that very quickly we can deliver the product to the customer.

12 Agile Principles contd...

3. Deliver working software frequently, from a couple of weeks to a couple of months, with a preference for the shorter timescale.

4. Businesspeople and developers must work together daily throughout the project.



The fourth principle is business people and developers must work together daily throughout the project. Every day there will be a morning, there will be a meeting. The morning meeting, it will be discussed what was done yesterday and what is going to be done today. So these two points will be discussed in every day the morning meeting. The fifth principle is build projects around motivated individuals, give them environment and support they need and trust them to get the job done.

12 Agile Principles contd...

5. Build projects around motivated individuals. Give them the environment and support they need and trust them to get the job done.

6. The most efficient and effective method of conveying information to and within a development team is face-to-face conversation



Source: Marcellino, I. D., Schafer, S. M., & Mustafiz, S. I. (2017). *Designing management in start-ups: managerial approaches*. John Wiley & Sons.

So this says about importance of team members who are highly motivated. The sixth principle is the most efficient and effective method of conveying information to and within a development team is face to face conversation. As I told you that every day the team manager, the team leader and the team members will meet and discuss about what was done yesterday and what is going to be done today and so the best way of communication is face to face communication. The seventh principle is working software is the primary measure of the progress. It is not that amount of work done, it is not the amount of budget is spent.

12 Agile Principles contd...

7. Working software is the primary measure of progress.

8. Agile processes promote sustainable development. The sponsors, developers, and users should be able to maintain a constant pace indefinitely.



The measure of the, the successfulness of the project is measured by whether the software is working or not. They do not bother about how much time you spend it. At the end whether it is the product is working or not that is the seventh principle. The eighth one is agile processes promote sustainable development. The sponsors, developers and users should be able to maintain a constant pace indefinitely.

12 Agile Principles contd...

9. Continuous attention to technical excellence and good design enhances agility.

10. Simplicity—the art of maximizing the amount of work not done—is essential.



Source: Meredith, J. R., Shafer, S. M., & Mantel Jr, S. J. (2017). *Project management: a strategic managerial approach*. John Wiley & Sons.

Since we are observing any changes at any stage of the projects, the sustainability of agile project management is more because any it is highly adaptable. The ninth principle is continuous attention to technical excellence and good design enhances agility. The tenth one is simplicity that is the art of maximizing amount of work not done is essential. Here what we discuss about you need not do much work but you have to do the work which is only required. So when you do a work which is not required, so automatically that will lead to waste.

12 Agile Principles contd...

11. The best architectures, requirements, and designs emerge from self-organizing teams.

12. The team reflects on becoming more effective at regular intervals, then tunes and adjusts its behaviour accordingly.



Source: Meredith, J. R., Shafer, S. M., & Mantel Jr, S. J. (2017). *Project management: a strategic managerial approach*. John Wiley & Sons.

So always we should focus on the work which is required currently. The eleventh principle is the best architectures, requirements and design emerge from self organizing teams. The twelfth principle is the team reflects on becoming more effective at regular intervals, then tunes and adjust its behavior accordingly. These are the twelve principles for implementing agile project management. Now we will discuss about some of the terminologies and characteristics of agile approaches.

Characteristics of Agile Approaches and Scrum

- While there are several different Agile approaches, they are all based on the Agile Manifesto and the 12 Principles and they all share the following general characteristics
- The project is divided into iterations, mostly called sprints



Source: Meredith, J. R., Shafer, S. M., & Mantel Jr, S. J. (2017). *Project management: a strategic managerial approach*. John Wiley & Sons.

While there are several different agile approaches, they are all based on the agile manifesto and the twelve principles and they all share the following general characteristics. The project is divided into iterations mostly called sprint. Each iteration in the project is called sprint. Based on its roots in lean management, there is an emphasis on simplicity. Project teams are self managing, progress on the project is measured in terms of working product functionality.

Characteristics of Agile Approaches and Scrum

- Scrum is the most popular Agile approach and was developed by Ken Schwaber and Jeff Sutherland in the early 1990s as a framework for **creating and delivering complex products**
- The scrum framework defines specific scrum team roles within the scrum team.



Source: Meredith, J. R., Shafer, S. M., & Mantel Jr, S. J. (2017). *Project management: a strategic managerial approach*. John Wiley & Sons.

Another terminology in the agile approaches is called Scrum. Scrum is the most popular agile approaches and was developed by Ken and Jeff in the early 1990s as a framework for creating and delivering complex products. See the term Scrum, the term sprint has come from the sports called rugby. The Scrum framework defines a specific Scrum team roles within the Scrum team. Scrum has been applied in a variety of industries and types of projects.

Characteristics of Agile Approaches and Scrum

- Scrum has been applied in a variety of industries and types of projects, including
 - Software and hardware development
 - By governments and educational institutions
 - Identifying new markets
 - Autonomous cars
 - Developing cloud operating environments, and
 - Developing services



Source: Meredith, J. R., Shafer, S. M., & Mantel Jr, S. J. (2017). *Project management: a strategic managerial approach*. John Wiley & Sons.

For example, software and hardware development by governments and educational institutions, identifying new markets, developing autonomous cars, developing cloud operating environment and developing services. And these are the places where we can use the principle of Scrum. Now I will discuss about benefits organization have obtained through adoption of agile methods. The first benefit is higher customer satisfaction due to receiving customer input and feedback throughout the project. The next one is increased flexibility to incorporate changing requirements.

Benefits organisations have obtained through the adoption of Agile methods

- Higher customer satisfaction due to receiving customer input and feedback throughout the project.
- Increased flexibility to incorporate changing requirements.
- Less waste on non-productive work.
- Faster delivery of products with working functionality.
- Higher quality and faster problem detection.
- Reduced risk of project failure.



Source: Meredith, J. R., Shafer, S. M., & Mantel Jr, S. J. (2017). *Project management: a strategic managerial approach*. John Wiley & Sons.

The next one is less waste on non-productive work, then faster delivery of products with working functionality, higher quality and faster problem detection and reduced risk of project failure and increased collaboration among stakeholders and team members and higher team morale resulting from the use of self-managed teams, enhanced performance visibility, improved predictability of key project outcome. These are the benefits of agile methods. Now we will discuss about implementation stage, implementing agile project

management. Once it has been determined that the agile or some of its practices are desirable, implementing these practices can become a significant challenge. Previously I told you when to go for agile project management, when there is uncertainty about the project outcome, when there is a chance to get product changes, product design changes in any time we should go for agile project management.

Benefits organisations have obtained through the adoption of Agile methods

- Increased collaboration among stakeholders and team members
- Higher team morale resulting from the use of self-managed teams
- Enhanced performance visibility
- Improved predictability of key project outcomes



Source: Meredith, J. R., Shafer, S. M., & Mantel Jr, S. J. (2017). *Project management: a strategic managerial approach*. John Wiley & Sons.

But implementing this agile project management is a challenging task. The challenge stems mainly from the significant change in mindset required to transition from traditional to agile approaches. Because accepting order changes, accepting design changes, it is not done easily acceptable by people. But we have to change our mindset, we have to change ourselves to accept any changes at any stage. For example, with agile approaches, the project's outcome does not require 100% completion of all customer requirements.

Implementing Agile

- Once it has been determined that Agile or some of its practices are desirable, implementing these practices can become a significant challenge.
- The challenge stems mainly from the significant change in mindset required to transition from traditional to Agile approaches.
- For example, with Agile approaches, the project's outcome does not require 100 % completion of all customer requirements, whereas, in traditional approaches, 100% completion is typically expected.



Source: Meredith, J. R., Shafer, S. M., & Mantel Jr, S. J. (2017). *Project management: a strategic managerial approach*. John Wiley & Sons.

Whereas in traditional approaches, 100% completion is typically expected. What is more important agile project is that the project, the software has to work, whether you have implemented all the methodology, whether you have used all the resources. But in the traditional method, we have to follow all the procedures that need not be followed in the agile project management. The significant change in mindset required complicate the task of getting buy-in from project team members and other key stakeholders. When we say new idea like agile project management, that has to be accepted by the project team members.

Implementing Agile

- The significant change in mindset required complicates the task of getting buy-in from project team members and other key stakeholders.
- Several practices have been found to help facilitate the task of getting the critical buy-in needed.
- For example, the organization can sponsor book clubs that provide employees with the opportunity to learn about and discuss the benefits and mechanics of Agile approaches.



Source: Meredith, J. R., Shafer, S. M., & Mantel Jr, S. J. (2017). *Project management: a strategic managerial approach*. John Wiley & Sons.

They have to accept, they have to willingly accept that agile project management idea. So if the team members are not accepting, if they are not buy-in, then implementing agile project management is will be a challenging task. Several practices have been found to help facilitate the task of getting the critical buy-in needed, that is to accept the project team members. For example, the organization can sponsor a book clubs that provide

employees with an opportunity to learn about and discuss the benefits and mechanics of agile approaches. Additionally the organization can establish a center of excellence like community of practice to champion and educate project workers about the agile principles, agile management.

Implementing Agile

- Additionally, the organisation can establish a Center of Excellence (aka Community of Practice) to champion and educate project workers about Agile.

These centers of excellence can also ensure that agile practices are implemented correctly and consistently across the organization. The organization can also sponsor workshops and other training opportunities to help communicate the rationale for why agile is being implemented. Finally the project workers can obtain support by networking with other professionals via professional meetings and conferences. At the end of the day, it is helpful to recognize the agile is more of a journey and less of a destination.

Implementing Agile

- These centres of excellence can also ensure that Agile practices are implemented correctly and consistently across the organisation.
- The organisation can also sponsor workshops and other training opportunities to help communicate the rationale for why Agile is being implemented.



It is a continuous process. There is no end for this because it is done at different iterations. As the organization gains experience with agile, it will be inevitably realize there is a much more to learn and related to learning there is often no better teacher than the experience. So when they do many projects on agile then there will be a more learning. It is to be expected that team will fail in some of their early attempts with agile. But the best management practice is not to focus on preventing these failures but rather to help team members learn from them.

Implementing Agile

- It is to be expected that teams will fail in some of their early attempts with Agile.
- But the best management practice is not to focus on preventing these failures, but rather to help team members learn from them.



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So far in this lecture I have discussed about agile project management and what is the need for agile project management and compared agile project management versus traditional project management then discuss about 12 agile principles. Then I have explained some of the important terms and characteristics of agile approaches. Similarly how to implement agile approaches that also I have explained in this lecture. Thank you.