

Introduction of Agile Project Management (APM) Methodology to a Railway and Military Construction Contracts in India.

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Abstract - The project management in construction industry in India mostly deals with the lean methods that are traditionally came as a successive dissipation generation wisely. Similar condition of the construction sector in minor contracts in railways and military sectors is observed in everywhere. There must be the need of change of the implementation method in this contracts sector to reduce the corruption and delay related all issues. In this paper the idea of introducing agile construction management is exemplified with old and reputed railway and military construction contractor company in india. The M/S Bhirud Electric Stores is the name of the contractor firm company that is being considered while doing this study.

Keyword - Agile, Project, Construction, Management, Contractor.

1. Introduction -

The construction sector in India is lagging a far from it's growth and having a long gap in it's overall implementation process. The contracts and claim sector in India needs to be revised under some circumstances to improve the growth in it. This happens due to the old cultural method that is being always used in the implementation of the project. Hence here it needs to be a requirement of a new project management method in the construction industry.

1.1 Expansion of Agile -

In 1990, Japanese industries restructuring after the 2nd world war introduced the word "agile" in the project management history. Agile project management has their significant headway in the information technology industry. Agile project management is a management science of Deming itself but perhaps, it got on a hold due to the war like situations. While in 2001 the term agile was introduce as the umbrella in the software industry. This agile movement is being active particularly in between the early of 2003 in the information technology industry. But this agile software management has the wider scope in all the fields rather that just in the software as replicated by project management experts.

In 2001 the agile manifesto for software development happens and it evolved it's routes in the software development industry. After that the progress of Information and technology sector is being goes increasing day by day. Hence all the efforts that made by the leaders is comes into existence from that time due to agile project management. But amongst all that the footprints of agile project management methodology must be planted in the other industries too, to replace the lean and waterfall method of traditional nature. After the success of agile methodology in software development industry, leaders are introducing this method to the another industries such as in manufacturing and in construction industries too.

2. What is Agile Project Management -

The meaning of agile is to be able to move flexibly. This similar concept is being used in the agile project management method. In agile methodologies it implies that problems must be solve in the iterative approach along with having the flexible ability to the changing environment in any how situation. Interaction with individuals and direct collaboration with the with the customer is considered as the major priority for the project. Weaknesses for the project must be identified before it's implementation and root cause analysis of the project must be done to solve the problems. Softwares must be used to respond the constantly changing plans. The organization must be stand firm in the constantly unpredictable business environment. Agility is not a skill or method but it is a state of mind that must be kept while thriving on a execution of project. It focusses on the constant training and improvement of the engineers and labours. Dividing process in the fragmentation to simplify the task load.

2.1 Benefits of Using Agility -

1. It Improves efficiency.
2. Decrease the problem of project delay
3. Reduces risk of cost overrun.
4. Best Quality maintained.
5. On time delivery is possible.
6. Client satisfaction.
7. Reduces Cost of process.

3. Need of APM in Construction Contracts –

The process of the executing the minor railway and military contracts in India is a way more difficult task to complete it in a given time. About 70 percent of the contracts are facing the problems of the delay and cost overrun due to inflation by using the traditional waterfall method. Bidding, Tendering and execution stage must need a significant amount of change in this industry in india to execute small projects. The lack of material management, lack of solutions to deal with the changing weather conditions causes the contract to delay further and further.

Table -1: Comparison

Categories	Traditional Approach	Agile Approach
Implementation	Stepwise	Flexible
Customer Collaboration	When Needed	Regularly
Software Use	No	work must be on softwares
Changing plans	periodically	Always Ready

4.Literature Review –

[1] Milind Padalkar, Saji Gopinath, State in their Research paper the pros and cons of using the agile project management methodology by taking the interview of the employs of the most prominent construction company. & **concluded that the agile methods can be of highly productive if it used with a lot of trust.**

[2] R.L. Owen, L. Koskela, analyses the agile methodologies which can be used in the manufacturing and in project management field rather than just using them in the information technology industry. Authors gives all the principles of agility that are discussed in the agile manifesto and given out all the overview of agility.

[3] Piotr Nowotarskia, Jerzy Paslawskia done a case study of the electrical subcontractor company in their country and given the output that how the agile project management can be used in the contracts system to improve the performance of that electrical subcontractor company.

[4] Rashina Hoda, Dr. Stuart Marshall, gives a comparative study of how the agility concepts are different from the traditional waterfall method of project

management and proposed how the role of project manager can be transitioned into the agile framework.

[5] Gopika Krishna.S.A, J.Sahaya Nisha, This paper finds out the factors affecting for the delay of the major construction projects and discuss how the agility concepts can be used successfully in the project management methods in the construction sector to reduce the delay and project overrun problems.

5.Observation -

The Observations is done on the basis of interviewing a reputed railway and military construction contractor based in India and after that found out the lagging that is being going on in the field of construction contracts in India.

1. After Interviewing the M/S Bhirud contractor it is found out that the tendering and bidding process of the railway and military contract is done on the lowest bid conceptuality.
2. Awarding contract process involved a lot of malfunctional practises that need to be regulated with proper planning.
3. The policies such as Solvency and taking deposit from the contractor is implemented before awarding the contract which found to be more hectic in nature.
4. The bidding is done on the basis of standard traditional estimation rates that is most time not applicable to the practical scenario.
5. Lack of verification in the process of awarding the contract is observed.
6. Lack of use of Technology and softwares in the process of tendering makes the process more lengthy.
7. The policy of 10% penalty on the project overrun is not strictly implemented as possible.
8. The contractor is awarded for the bonus after the successful completion of the contract.
9. Budget overrun and contractors loss had not given a significant amount of weightage which may be the crucial cause of project Delay.
10. In the implementation stage of the project strict supervising is not observed to manage the quality of the work.
11. Material Management and supply chain analysis is uses a traditional approach that rises the problem of project delay and Cost Overrun.
12. Labour Management by contractor seems to conflictory with the individuals and other parties.

13. Lack of technical knowledge is the main cause of the delay while executing the contract.
14. Payment Delay Issues from the client and lack of revising document seem to be the major reason for the project cost overrun.

6. Research Methodology. –

6.1 Case Study –

The changes needed as per the agile methodology in the tradition railway and military contracts system in India is indulged here and how the APM is being successful in the minor construction of railway and military contracts is studied.

- The Tendering and Bidding process must contain flexibility and can be made use of proper software for Documentation and Technology to improve the Performance.
- The regular communication must be happens between the Contractor and the superintendent Engineer to smoothen the process and to make quick changes as early as possible.
- Military and Railway Engineers must award the contract in an iterative approach with strict provision of rules.
- Direct Collaboration must be done between the highest authority and contractor to minimize the gap.
- Weaknesses must be identified before estimating the cost of the contract in order to reduce the delay issues.
- In the constantly unpredictable environment the contractor must deal with proficiency towards the price fluctuation problems of the materials to reduce cost overrun issue.
- Overall method must be analysed on the root causes of incoming problems before starting of the projects.
- Integrity should be maintained to implement the contract so that no any department being alone in the process.
- Computerized Documentation and Estimation need to be done.
- Proper planning softwares must be used to plan the activities in the short cycle planning.
- Planning must be divided in the short span of works to execute the work in time.

- Quality must be maintained in the project with the help of fragmented work breakdown structure.
- Problems arises in material shortage and labour management must be identified before it arise.
- Payment Distribution Record must be maintained periodically.
- Always contractor should have the attitude to change the process to execute the project.

7. Conclusion –

The Problems that are there in the railways and military contracts in India is identified first and then the agile solutions based on the agile project management methodology is suggested with the help of the proper case study and by doing the actual site visits and speaking with the working professionals to suit this agility concept. The regulations must be followed as per the agility to reduce the delay problems which is the major problem in this sector to maintain the quality of the work. Hence here it is concluded that if we use this agile frame work in this contract sector too then it makes the process more transparent and utilize the time frame.

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