

Lean vs. Agile, which approach is more applicable in the construction industry?

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Abstract

The construction industry is one of the most expensive and most expansive industries [3]. Each country spends billions of USD in this industry annually by implementing multi-million dollar projects. There are many management approaches available for the organization to choose from, two of the main management approaches which is applied most in construction industry are; the lean approach and the agile approach. Whether lean is more applicable and used in the construction industry or agile is subject of debate. The aim of this research is to find out which approach is more suitable and usually used in the construction and why.

Introduction

- Lean is systematic approach to eliminate waste without sacrificing quality of a product. The lean management approach was developed by Ohno (1988) at Toyota. [1]
- Agile project management means; managing projects in a change adaptive manner[2]

Differences

- Lean tends to combine a project in least possible number of lots while Agile tends to break down the project into small manageable pieces. [5]
- Lean is focused on improvement of the whole organization while agile focusses on the improvement and successful delivery of a single project [1]
- In lean supply chains the focus is on "waste" elimination, but agile focuses on the ability of comprehension and rapid response to market changes. [1]

Background Information

- -Lean management approach was introduced by Toyota company in 1988. In construction industry it was first adapted in 1992, since then many companies are following this approach
- -Agile was first introduced with the publishing of "Agile Manifesto" formally in 2001. [8]

Advantages of Lean vs. Agile

| Lean | Agile |
|---------------------------|-----------------------------|
| Increased product quality | Adaptability to change |
| Improved lead times | Less waste of resource |
| Sustainability | Immediate customer feedback |
| Increased profits [4] | Customer Satisfaction |
| | On time delivery [5] |



Fig.#1. Illustration of Lean Principles. [#6]

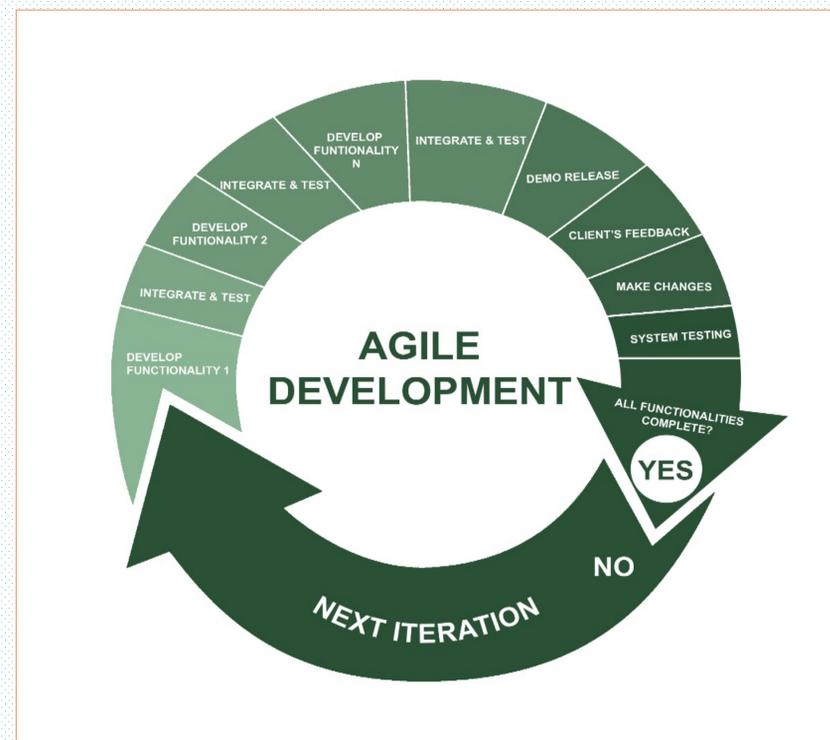


Fig.#2. Illustration of Agile Development Process. [#7]

Disadvantages of Lean vs. Agile

| Lean | Agile |
|--|--|
| Require dedicated and experienced worker | difficult to measure progress |
| Costs Money | Projects can become ever-lasting |
| Difficult Supply Management | Short cycles don't leave enough time for the design thinking process |
| Customer Dissatisfaction due to delays [2] | Require dedicated and experienced worker [5] |

Current method construction industry?

- Traditionally, construction projects are managed through traditional sequential steps introduced in PMBOK [9]
- -Due the complexity of the construction projects in recent years, lean and agile is also employed.
- -Among these two approaches, lean is more common in the construction projects compared to the agile management approach
- Agile is less used due to its flexibility to change

Conclusion

After a comparative analysis of the advantages and disadvantages of the lean and agile project management, it can be concluded that both methods have some distinctive characteristics. Although other project management methods have been successful for long time but the complexity and high requirements of the projects in recent years encourages more and more organizations towards the lean and agile approaches. These two methods are new practices and, is in an ongoing process of development through right experimentations. Among these two methods, currently lean management approach is more applicable in the construction industry compared to agile management approach due to its specific characteristics described earlier. Although Agile approach is also applied in some organization, however, the fact the agile approach adapts change at any phase of a project, discourages construction companies to utilize this approach because, as a construction projects reaches higher milestones, changes in a projects becomes costly.

References

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