



Feasibility in Applying Agile Project Management Methodologies To Building Design and Construction Industry

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INTRODUCTION

During the past few decades, fundamental changes have taken place in project development, planning, and execution. This has taken form with embracing new techniques such as various agile project management methodologies to develop products, instead of using the traditional waterfall project management methodology commonly used today. Using agile has been very successful as a large portion of the IT world has integrated it within their companies. Unfortunately, professional fields such as the building design and construction industry have remained mostly with the traditional methods impacting the projects in terms of cost, scheduling, and other project elements that can benefit from the advantages found in agile methodologies. This thesis paper will research and illustrate what is involved with the process of adopting and transforming companies from the traditional to the agile methodology, and will explain the benefits, the hardships, and other components relevant to illustrate what needs to take place in order to implement agile in the construction industry, as well as layout possible solutions that can ease the adoption process.

RESEARCH QUESTIONS

1. What defines the Agile methodology and its fundamental characteristics?
2. How is Agile methodology effectively applied within the IT industry?
3. Can the Agile methodology be effectively adapted for application within the construction industry, and how was it implemented in the design company?
4. What instances exemplify a successful implementation of the Agile methodology within management systems?
5. What specific prerequisites and circumstances are necessary for ensuring a successful implementation of the Agile methodology?

ANALYSIS & DATA

The actual analysis is divided into four sections:- Compare existing methods.- Analyze the implementation of the method in the company- Propose agile methodology alternatives within the architectural process.- Summary of findings and propose recommendation. A comprehensive study of the existing literature aimed at mastering the practical application of agile design methodologies in the context of software development projects. The ensuing analysis is primed to delineate the spectrum of possibilities, while also unmasking the nuanced pros and cons entwined with the Agile approach. The interview with the company's CEO will furnish an invaluable vista into the company's transformative voyage towards the adoption of Agile methodologies. This concerted study is poised to be instrumental in furnishing the company with the fundamental knowledge necessary to navigate the design and construction process, engendering marked efficiency gains.



Scrum Framework Ceremony	Traditional Scrum	Hybrid Scrum For Architects + Engineering Teams
Product Backlog	Features or Requirements list desired for product	determining overall goals for quality, deliverables definition of A+E work performance , Projected obstacles, Redefining Programming phase type feedback.
Sprint Planning Meeting	Meeting to prioritize features list & changes for upcoming sprint.	Discussing overall objectives in hierarchy and prioritizing tasks required for spring backlog.
Sprint Backlog	List of tasks to be completed in the sprint.	List of tasks to be completed in the sprint.
Sprints	Fixed duration cycles Usually 1-2 weeks.	Fixed duration cycles Recommended 2-4 weeks.
Daily Stand-up	Daily meeting to follow up on status, and adapt as necessary.	Daily meeting to follow up on status, and adapt as necessary.
Sprint Review	Accomplishment review, demonstration of new features (briefly).	Quality control of production of sprint content (of added documents and design development).
Sprint Retrospective	Feedback on sprint performance, evaluation and lessons learned for improvement.	Feedback on sprint performance, evaluation and lessons learned for improvement.

RESULTS & DISCUSSION

The traditional waterfall method that is used in the building design and construction projects fails to adapt to communication and coordination intensities found in contemporary large and complex projects. This thesis paper illustrated how Agile Scrum could be a good fit in some aspects of the building design and construction projects, and help enhance the progression efforts by changing current team structures, and adopting new processes that help improve communication routes that are necessary in order to accomplish the completion of tasks and deliverables in a more efficient manner. By creating a Hybrid Scrum process, using a Kanban visualization technique, the team's processes will become quicker and more effective in order to carry out the various tasks that are required in the building design and construction projects. This paper does suggest to replace the overall structure of the building design and construction projects, but merely suggests to adapt it and enhance some of its processes, specifically in the intense phases where it is needed. The mechanics of Agile, especially within the Scrum framework, are intrinsically conducive to fostering a holistic engagement. Team members not only hold a stake in the project but are actively invested in its successful execution. This intrinsic engagement culminates in a pronounced willingness to contribute one's best—a phenomenon that is not merely driven by external directives but is woven into the fabric of the Agile philosophy. This heightened motivation generates a positive feedback loop: the team's enthusiasm begets improved performance, which in turn fuels further motivation. This virtuous cycle precipitates a tangible elevation in overall project outcomes.

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