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The Lean Transformation in the Construction Industry

Executive Summary

Quantum Associates, Inc conducted this research to demonstrate the potential of **Lean Process Improvement** in the construction industry especially in light of the current economic challenges the industry face.

Research shows that in the typical construction project workers are standing idle 20 to 30 percent of the time. At the same time, huge piles of materials often sit at construction sites untouched for weeks because they cannot be installed or used until certain parts of the job are completed.

Why so much waste? There is a lot of fragmentation on a construction project. Many times subcontractors do their work disregarding how what they do impact the work of other subcontractors. We call this the "throw it over the wall" mentality. One functional department (in this case subcontractor) completes its part of the project and throws it over the wall to the next department (subcontractor) who throws it back over the wall because it isn't right. This mentality sub-optimizes the performance of the entire organization. Each subcontractor seeks to optimize their own work which may conflict with another—leading to project sub-optimization.

Lean thinking is a new way to manage construction. Many people object because they believe lean is a manufacturing strategy and has no application in a "unique" industry like construction. The goal of Lean Process Improvement is to maximize value and eliminate waste using techniques like one-piece flow, Just-in-time delivery, and inventory reduction regardless of the industry.

There is a small but growing movement to apply lean principles to construction. Applying lean principles to construction really means applying them to project management. This transformation involves mapping your construction processes, determining the most efficient work flow and establishing a pull system. How do you create a pull system? As a contractor you can begin by looking at what the completed project should be, and then work backwards, identifying each preceding step. Downstream processes determine what the upstream processes will be and when they should take place. Taking this view of the project will help you control the work flow. You should also look at creating value stream or process maps of your job support processes as well as project processes. Processes like job setup, estimating, payroll, accounts payable, purchasing, tool and material handling are good candidates for mapping.

This study explores the need for change in the construction industry, the implications of lean process improvement, and demonstrates the power of lean in the construction industry through case histories of companies implementing Lean.

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