Construction Waste Optimization – A Lean Six Sigma Technique

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Introduction

One of the major bottlenecks in any construction project is the issue of construction waste management. The prime reasons for a large generation of construction wastes are improper planning and execution, unskilled labours, errors in design and the use substandard materials. Owing to this, there is a fall in the quality of construction as well as an increased cost. So, it becomes imperative for all construction projects to optimize the wastes.

Six sigma, a highly effective quality improvement technique has been extensively used in the recorded history. A similar technique of lean methodology can be used to minimize or nullify the waste in various processes. A combination of Lean and Six Sigma concepts enable the achievement of multi-dimensional quality improvement as well as waste minimization. This study implements the DMAIC (Define, Measure, Analyse, Improve and Control) methodology, a prominent feature of the six sigma ideology, in which the controlling causes of waste generation are identified during the define phase, quantified during the measure phase, examined subsequently in the analyse phase. Post the analysis, methods to overcome the problem and the techniques for improvement are discussed during the improve phase. Recommendation for an optimized execution of the project with the expected quality and least wastage are derived at the control phase.

Materials and Methods

This research work is limited to the incorporation of Lean and Six Sigma concepts, to study the nature and causes of increased generation of wastes in a construction project. DMAIC technique is used as a key factor for framing sequential steps, with which lean concepts are integrated at each phase. A framework is established and suggestions for waste optimization are presented.

Results and Concluding Remarks

A framework to minimize the construction wastes is presented and recommendations are suggested. The advantages of implementing Lean Six Sigma are also discussed.

References

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