INTEGRATING CONSTRUCTION SCHEDULES AND ERP PROCESSES

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Degree of Master of Science

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This thesis is submitted in partial fulfilment of the requirements for the degree Master of Science in Construction Project Management

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Declaration

I am Senarathne G.M.R.Y., declare that this is my work, and this thesis does not incorporate without acknowledgement any material previously submitted for a Degree or Diploma in any other University or institute of higher learning. To the best of my knowledge and belief, it does not contain any material previously published or written by another person except where the acknowledgement is made in the text.

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Senarathne G.M.R.Y. Date

The above candidate has researched the Masters thesis under my supervision.

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Prof. A.A.D.A.J. Perera Date
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Thank You

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Abstract

Construction schedule is the key tool for project managers to manage and deliver the project successfully within the time, under the budget and expected quality by utilizing resource. Therefore, viable construction schedule should be prepared during the estimation & planning stage of the project life cycle. During the project execution stage project monitoring should be evaluated thoroughly to get the successful deliverables. During real time scheduling, it should be focused on conflicts such as setting priorities, workload prediction, Time management, Inconsistency of dates, lack of integration, Manual data entry errors.

Enterprise Resource Planning Systems (ERP) have replaced the manual construction planning procedure due to significant developments of the digitalization. ERP is a solution that facilitates efficient resource management through the automation of resource planning and real-time activity tracking. ERP systems offer numerous advantages, such as increased efficiency and productivity, it should be needed to integrate with the organization's system specially in project planning in effective way.

The main objective of this research was to develop framework to mitigate challenges of ERP integration with construction schedule. Literature review has identified the integrating challenges such as Complexity of customization and configuration, Cost Overrun, Poor Legacy System Integration, Poor technical tendency, Data Security and Reluctance to change. These factors are identified as core factors of this research. The research was carried out using methods related to quantitative as well as qualitative analysis. A questionnaire survey was carried out for quantitative analysis and data collected through a semi structured interviews were used for qualitative analysis. Further, descriptive statistics were used as the analysing tool.

Sri Lankan construction industry is moderately satisfied with current ERP practise but not with the Planning & Scheduling. Ultimately, a framework was developed with suggestions and analysed questionnaire results to mitigate the issues in the above identified areas. Thus, the framework will contribute construction organizations and IT service providers to improve and modify further integrations for a successful ERP system.

Keyword: Enterprise Resource Planning, Construction Schedule, Integration, Construction Industry, IT Service Providers

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LIST OF ABBREVIATIONS

Abbreviation	Description
ERP	Enterprise Resource Planning
HRM	Human Resource Management
IT	Information Technology
PMBOK	Project Management Body of Knowledge
ICTAD	Institution of construction Training and Development
BOQ	Bill of Quantities
HR	Human Resource
MR	Material Request
GRN	Good Receive Note
PM	Project Manager
APP	Application

LIST OF APPENDICES