IMPACT OF ERP SYSTEM TO THE CONSTRUCTION INDUSTRY

MASTER OF SCIENCE

IN

CONSTRUCTION PROJECT MANAGEMENT

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DECLARATION

I certify that this thesis does not incorporate without acknowledgement any material previously submitted for a degree or diploma in any university to the best of my knowledge and believe it does not contain any material previously published, written or orally communicated by another person or myself except where due reference is made in the text.

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ABSTRACT

Information technology is significantly changing the management of a growing number of companies worldwide. These changes have important implications for the engineering profession and engineering practices, particularly in the twenty-first century. Enterprise resource planning (ERP) systems are the enterprise around which all the activities of a company to automate and replace existing systems, integrating all departments and functions across a company into a single information system that runs on a single database so that the various departments can more easily share information and communicate with each other.

ERP systems have an important role within the organization, assisting in the planning and management of organizational resources. Indeed, the success of an organization depends on the efficiency of resources allocated by the organization. Even though ERP systems have been used and grown rapidly in globally, the most of engineering and construction companies have not followed significantly. Many engineering and construction companies know how beneficial ERP systems, but they are still hesitant to use these systems due to its high cost and risk. This research examines the implementation of ERP systems as a means to illustrate how changes in information systems, construction companies to link the whole management of operations. The successful ERP implementation should depend on a number of important factors according to the literature review. However, most of the engineering and construction companies have no idea about implementation.

The impact of use of ERP to the construction industry studied by very few researchers. The purpose of this research is to identify the impact of the use of the ERP system in the construction industry. The series of five different areas were covered by the literature review, such as theory of IT systems, ERP systems available, the construction industry, the system for managing the supply chain and the impact of an ERP system to organizations. The research methodology conducted by using quantitative data gathered via companies' annual reports of ERP users in large and medium scaled enterprises in the construction industry. Secondary data were gathered from trusted ERP vendors and from national stock exchanges. Profound analyses were done with precise data set of construction firms within the medium and large scale. The research investigates the change of a management system of traditional construction with a focus on the implementation of ERP systems, including ERP potential impact on business and the profit margin. A 29 number of companies' rich data set were collected from reliable source for analysis of absolute key values of the business process, which had implemented of ERP between 2005 and 2010. The results showed that ERP systems are supported to organization key operation.

Finally, research suggests recommendations for a successful ERP implementation. This research has provided useful information for the engineering and construction companies, when they plan to adapt the ERP systems to their organization.

Key words: Enterprise Resource Planning Systems, Construction Industry, Supply Chain Management, Information Technology.

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R A J N Perera

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3gERP	: Third Generation Enterprise Resource Planning system
APICS	: American Production and Inventory Control Society's
ARPMS	: AR Project Management Services (Pvt) Ltd
BI	: Business Intelligent
BIM	: Building Information Model
BPCS	: Business Planning and Control System
BW	: Business Warehouse
CAGR	: Compound Annual Growth Rate
CRM	: Customer Relationship Management
EIS	: Executive Information System
ENR	: Engineering News Record
ERP	: Enterprise Resource Planning
ICT	: Information and Communication Technology
IS	: Information Systems
IT	: Information Technology
KIP	: Key performance indicator
LE	: Large Enterprise
MAPICS	: Manufacturing, Accounting, Production Information Control System
MIS	: Management Information System
MRP	: Material Requirement Planning
OSS	: Open Source Software

PLC : Public Limited Company

RFID : Radio Frequency Identification system

ROA : Return on Assets

SaaS : Software as a Service

SAP : System Application Program

SCM : Supply Chain Management

SEM : Systems Engineering Management

SME : Small and Medium-sized Enterprises

TOC : Theory of Constraints

TPS : Transaction Processing System

WBIS : Web Based Information System