CRITICAL SUCCESS FACTORS FOR THE IMPLEMENTATION OF ENTERPRISE RESOURCE PLANNING SYSTEMS IN MALAYSIA

By

SEYED MOHAMMADBAGHER JAFARI

Thesis Submitted to the School of Graduate Studies, Universiti Putra Malaysia, in Partial Fulfilment of the Requirement for the Degree of Master of Science

October 2006

In dedication to:

My dear parents,

and my beloved brother and sister

For all their encouragement, patience and support

With love and gratitude

Abstract of thesis presented to the Senate of Universiti Putra Malaysia in partial fulfilment of the requirements for the degree of Master of Science

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Chairman : Ir. Mohd. Rasid bin Osman

Faculty : Engineering

Enterprise resource planning (ERP) systems as the last version of Manufacturing Resource Planning (MRP II) can be considered as the most important development in the corporate use of information technology and is beginning to be the backbone of organizations. The difficulties and high failure rate in implementing ERP systems have been widely cited in the literature. Factors affecting ERP implementation are complex and abundant. Numerous authors have identified a variety of factors that can be considered to be critical to the success of an ERP implementation.

The objective of this research is to identify and evaluate the critical factors that affect ERP systems implementation success in Malaysia. The importance of these factors and the measures of a successful ERP system implementation have been investigated. These critical success factors (CSFs) were derived through a process that involved identification and synthesis of those critical requirements for implementation that have been recommended by practitioners and academicians

through an extensive review of the literature. Through this comprehensive review, ten factors were found to be critical to ERP implementation success: top management support, clear goals and objectives, communication, effective project management, business process reengineering, data accuracy and integrity, suitability of software and hardware, vendor support, education and training, and user involvement.

By using questionnaire survey method, these factors were investigated in Malaysian companies in order to know their importance. A questionnaire including these criteria was formed to secure data from companies. To measure the importance of various critical factors, a five-point Likert scale was used in the questionnaire. Statistically the importance of the identified CSFs has been determined between Malaysian firms. "Top management support" and "Clear goals and objectives" have been shown to be the extremely important factors for ERP implementation in Malaysia. Case study review was conducted as a supplementary work to enhance the results of the survey.

Data analysis showed that CSF is vital to ERP implementation and more awareness of CSFs leads to a more satisfied and successful ERP implementation. Moreover, the data analysis confirmed that more awareness of CSFs leads to more outcomes of ERP systems. This study proves the significance of CSFs in ERP implementation.

The practical implications of this study are useful information about ERP systems situation in Malaysia. Recommendations from this study are useful for ERP vendors,

consultants and Malaysian companies that are implementing ERP or expecting to implement it to make certain their success.

Abstrak tesis yang dikemukan kepada Senat Universiti Putra Malaysia sebagai memenuhi keperluan untuk ijazah Master Sains

FAKTOR-FAKTOR KRITIKAL BAGI KEJAYAAN PELAKSANAAN SISTEM PELAN SUMBER KEUSAHAWANAN DI MALAYSIA

Oleh

SEYED MOHAMMADBAGHER JAFARI

Oktober 2006

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Perancangan Sumber Perusahaan (ERP) sistem sebagai versi terakhir di dalam Perancangan Sumber Pembuatan (MRPII) boleh dianggap sebagai perkembangan terpenting di dalam penggunaan teknologi maklumat di sesebuah koporat dan merupakan tulang belakang bagi sesuatu orginasasi. Kadar kegagalan dan kesukaran yang tinggi di dalam memperkenalkan sistem ERP telah diperkenalkan di dalam literatur. Faktor yang mempengaruhi di dalam pelaksanaan sistem ERP adalah kompleks dan membebankan. Ramai penulis telah mengenalpasti pelbagai faktor yang boleh dianggap sebagai kritikal di dalam kejayaan bagi pelaksanaan sistem ERP.

Objektif bagi kajian ini adalah untuk mengenalpasti dan menilai faktor- faktor kritikal yang mempengaruhi kejayaan di dalam pelaksanaan sistem ERP di Malaysia. Kepentingan faktor-faktor tersebut dan penilaian bagi kejayaan untuk pelaksanaan sesuatu sistem ERP telah juga dikaji. Faktor-faktor kritikal bagi kejayaan (CSFs) telah diperolehi melalui satu proses yang melibatkan pengenalpastian dan sintesis

keperluan kritikal bagi memperkenalkan faktor yang telah disyorkan oleh para akademik dan pengamal melalui kajian literatur yang menyeluruh. Melalui kajian ilmiah terperinci, sepuluh faktor kritikal dalam kejayaan pelaksanaan Sistem ERP telah dikenalpasti: Sokongan pengurusan atasan, matlamat dan objektif yang jelas, komunikasi, pentadbiran projek yang berkesan, proses kejuruteraan kembali perniagaan, integriti dan ketepatan data, kesesuaian perisian dan pekakas, sokongan pembekal, latihan dan pendidikan dan penglibatan pengguna.

Melalui kaedah borang selidik, faktor-faktor berkenaan telah dikaji di dalam syarikat- syarikat tempatan bagi menentukan kepentingannya. Borang soal selidik tersebut mengandungi elemen kriteria berkenaan telah dibentuk untuk mendapatkan data daripada syarikat berkenaan. Bagi menilai kepentingan pelbagai faktor kritikal tersebut, satu skala Likert lima-mata telah digunakan di dalam borang soal selidik. Melalui kaedah statistik, kepentingan CSFs telah dikenalpasti di antara firma-firma Malaysia. “Sokongan pengurusan atasan” dan “matlamat dan objektif yang jelas” telah dikenalpasti sebagai faktor yang terpenting di dalam pelaksanaan ERP di Malaysia. Tinjauan semula kes penyelidikan telah dilaksanakan sebagai kerja tambahan untuk mempertingkatkan mutu hasil-hasil kajian.

Analisis data menunjukkan bahawa CSFs sangat penting dalam pelaksanaan ERP dan kesedaran yang lebih banyak dalam CSFs akan membawa kepada kepuasaan dan kejayaan yang tinggi dalam pelaksanaan ERP. Selain itu, data analisis mengesahkan bahawa jika lebih banyak perhatian diberi kepada CSFs akan membawa kepada kejayaan pelaksanaan sistem ERP yang lebih tinggi. Kajian ini telah menunjukkan kepentingan CSFs di dalam pelaksanaan ERP.

Implikasi secara praktikal daripada kajian menunjukkan maklumat penting mengenai situasi sistem ERP di Malaysia. Cadangan daripada kajian ini sangat berguna bagi pembekal ERP, perunding dan syarikat di Malaysia yang sedang melaksanakan ERP atau bercadang untuk melaksanakan sistem ini bagi membantu kejayaan syarikat mereka.

ACKNOWLEDGEMENTS

All the praise to Allah the Al-Mighty for his blessing and benevolence

I wish to express my sincere gratitude and appreciation to the numerous individuals who have contributed towards the completion of this thesis:

- To my supervisor, Ir. Mohd. Rasid bin Osman, and other members of the supervisory committee: Associate Professor Dr. Rosnah Mohd. Yusuff and Dr. Tang Sai Hong, for their invaluable advice, supervision and assistance during this research. Their encouragement, moral and technical support made this work possible.

- To SMIDEC, Malaysian companies and all other individuals that contributed directly or indirectly in this research.

- To all staff in the Department of Mechanical & Manufacturing Engineering, UPM.

- To all my friends in UPM and in Malaysia for all their moral support.

- To all of Iranian and overseas students who involved directly or indirectly towards the success of this research.

- To my dear parents and my beloved brother and sister, for their warm encouragement, patience, love and support.

Thank you for all your contributions.
May Allah bless you all.

I certify that an Examination Committee has met on 6th of October 2006 to conduct the final examination of Seyed Mohammadbagher Jafari on his degree thesis entitled "Critical Success Factors for the Implementation of Enterprise Resource Planning Systems in Malaysia" in accordance with Universiti Pertanian Malaysia (Higher Degree) Act 1980 and Universiti Pertanian Malaysia (Higher Degree) Regulations 1981. The Committee recommends that the candidate be awarded the relevant degree. Members of the Examination Committee are as follows:

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DECLARATION

I hereby declare that the thesis is based on my original work except for quotations and citations, which have been duly acknowledged. I also declare that it has not been previously or concurrently submitted for any other degree at UPM or other institutions.

SEYED MOHAMMADBAGHER JAFARI

Date: 20/12/06

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LIST OF ABBREVIATIONS

AI	Artificial Intelligence
APICS	American Production and Inventory Control Society
BPR	Business Process Reengineering
B2B	Business-to-Business
B2C	Business-to-Consumer
B2E	Business-to-Employee
CIO	Chief Information Officer
CV	Coefficient of Variance
CPM	Corporate Performance Management
CRM	Customer Relationship Management
CSF	Critical Success Factor
DW	Data Warehousing
EAI	Enterprise Application Integration
EIU	Economist Intelligence Unit
ELM	Employee Lifecycle Management
ERP	Enterprise Resource Planning
ICT	Information & Communication Technology
IS	Information Systems
IT	Information Technology
MIS	Management Information Systems
MITI	Ministry of International Trade & Industry
MPS	Master Production Schedule
MRP	Material Requirement Planning
MRP II	Manufacturing Resource Planning II

PLM	Product Lifecycle Management
PSA	Professional Service Automation
RFID	Radio Frequency Identification
SCM	Supply Chain Management
SME	Small and Medium Enterprise
SMI	Small and Medium Industries
SMIDEC	Small and Medium Industries Development Corporation
SOA	Service-Oriented Architecture
SPSS	Statistical Package for Social Science
SRM	Supplier Relationship Management