

## CSFs towards successful ERP Implementation: A Conceptual Model

Marina Hassan<sup>\*1</sup>, Azlinda Abdul Aziz<sup>2</sup>, Nur Syufiza Ahmad Shukor<sup>3</sup>

<sup>1</sup>Universiti Selangor  
marina@unisel.edu.my

<sup>2</sup>Universiti Selangor  
azlinda@unisel.edu.my

<sup>3</sup>Universiti Selangor  
nur\_syufiza@unisel.edu.my

### Abstract:

Effectiveness and efficiency of enterprise resource planning (ERP) execution is depending on the organization implementation. Due to effective execution, the concept of critical success factors (CSFs) was early emerged in 1961. Many studies have been conducted in order to analyze the most effectiveness CSFs towards successful of ERP implementation. Few research intended directly to focus on successful of company organizational performance. A conceptual model will be developed to show the relationship between all the selected CSFs towards organizational performance in making sure the successful of ERP implementation in the organization. Systematic Literature Review (SLR) has been done in order to gain the CSFs. CSFs gains from journal papers will be list and traceability matrix table will be produced to develop the conceptual model. Keyword was used in order to refined the findings. Pilot study has been conducted to proof the conceptual model suggested. A questionnaire was distributed to 30 industry respondents to get the view of the conceptual model suggested. A conceptual model was developed to show that few CSFs are chosen that has strong indicator that give a big impact on effectiveness of ERP implementation towards organizational performance. This paper proposes a clearer and more comprehensive understanding of the CSFs influencing the ERP execution and their impact on organizational performance. These propose model will be very useful as a guidance to any organization in order to check on effectiveness of the organizational performance towards the successful implementation of ERP.

### Keywords:

ERP critical success factors, ERP execution, Organizational Performance

## 1. Introduction

Enterprise Resource Planning (ERP) software is widely used in many organization. The concept of Critical Success Factors emerged in 1961. Reference [1] stated that [2] influenced the contemporary use of CSFs as a tool to identify management's information needs and strategic priorities. The large body of research identifying CSFs seems to have reached a broad consensus regarding which key factors can have a significant influence on the ERP implementation process.

Although the concept of CSF has been studied in a broad range of contexts, it appears that the role of CSFs in project success and performance outcome has attracted little specific attention. As discussed and defined earlier, a factor can only be termed a CSF if attending to this factor in a satisfactory manner results in performance improvements. Therefore, merely identifying a possibly important factor is not sufficient to constitute a CSF. The problem of establishing whether a CSF is really critical is further compounded by the multidimensional

contexts in which ‘success’ and ‘performance’ may be measured, such as by user satisfaction or successful completion of a project, or through the tangible and intangible benefits to an organization.

We find that only a few studies have attempted to investigate the effect of proposed CSFs on implementation success and/or organizational performance improvements. Noticeable examples include [3] whose study found that leadership and business process re-engineering were significant predictors of ERP adoption performance, and [4] who found that organizational change and vendor support had a positive influence on operational efficiency and economic results, in other words, ERP system output performance.

We conclude that while some research work has been done to understand the influence of CSFs, the output is fragmented and based on a variety of success and performance measures. The output fragmentation leads to difficulties in the consolidation, generalizability and clear understanding of the effect of CSFs on implementation and post-implementation performance outcomes. These factors are Project Management (PM), Training and Education (TED), Business Process Re-engineering (BPR) and System Integration (SI).

The selection of these four factors for this study was based on the literature that has indicated their importance for the success of ERP projects, and has shown that their relationship to success has not been empirically well established. Further, the divergence in measurement of success or performance has resulted in fragmentary understanding of the role of the selected factors in achieving success and performance gains from ERP projects, thus merits further research attention.

Except for the TED factor, it is important to note that the other three factors have not been examined previously in terms of their relationship to important success measures of project deliverables related to success of the implementation process, such as being on time, on budget and meeting user expectations. By conceptually distinguishing the successful implementation and organizational performance as two separate outcomes of ERP projects, we aim to provide empirical evidence of the direct influence of the chosen CSFs on organizational performance and the mediating role of implementation success on the relationship between CSFs and the organizational performance of ERP projects.

## **2. Research Model and Hypothesis**

As discussed above, four CSFs were chosen, PM, TED, BPR and SI, to examine their effect on **ERP implementation success (IMP)** and **organizational performance (OP)**. To facilitate this examination, a conceptual model showing the potential relationships of these four factors to IMP and OP was built and is presented in Figure 1.

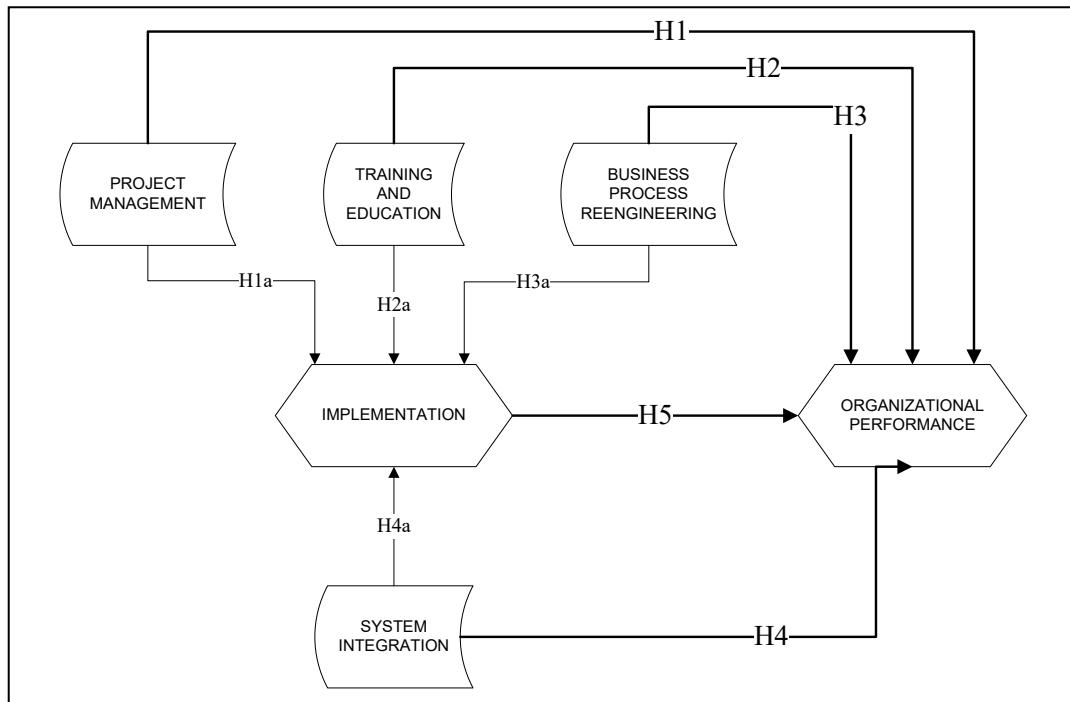


Figure 1. The proposed model

## 2.1 Project management (PM)

Based on the literature, we argue that implementation success acts as a mediator between project management and performance outcome. It is an enabler of the achievement of:

**H1: The use of PM for ERP projects is directly and positively associated with OP.**

**H1a: The influence of the use of PM on OP is mediated by the achievement of IMP.**

## 2.2 Training and education (TED)

We contend that an effective TED program is expected to improve users' levels of comfort and their expertise and knowledge of the system. It is also expected to influence system success and post-implementation OP outcomes. Thus, this study investigated the following hypotheses:

**H2: TED is directly and positively associated with OP.**

**H2a: The influence of TED on OP is mediated by achieving IMP.**

### **2.3 Business process re-engineering (BPR)**

The empirical evidence cited above establishes that performing BPR is expected to significantly improve the chances of ERP IMP and post-implementation OP. Given that a BPR exercise may precede implementation, it is expected that IMP will mediate the relationship between BPR and the realization of OP improvements. Thus, the following hypotheses were postulated:

**H3: Undertaking BPR is directly and positively associated with OP.**

**H3a: The influence of BPR on OP is mediated by achieving IMP.**

### **2.4 System integration (SI)**

System integration is considered one of the CSFs at the deployment stage of ERP this finding reinforces the importance of ensuring that all the ERP modules are interfaced for the seamless operation of ERP systems, thus allowing successful implementation. It is therefore expected that IMP will mediate the influence of system integration on OP. In consideration of the above arguments, the following hypotheses were proposed:

**H4: SI is directly and positively associated with OP.**

**H4a: The influence of SI on OP is mediated by achieving IMP.**

## **3. Conclusion**

A systematic literature review reveals a limited number of elements that can elucidate the factors influencing ERP implementation and its impact on organizational performance. Through the review, four pivotal factors are identified, directly influencing the effectiveness of ERP implementation in relation to organizational performance. A model has been formulated based on the obtained results. To validate these factors, interviews will be conducted to ensure their significant impact on organizational performance. This paper presents a conceptual model outlining these factors and their relationship to organizational performance.

## **4. Acknowledgements**

Unending gratitude to the Centre of Graduate Studies, UNISEL, for providing the opportunity and platform for us to publish this journal paper. Thank you to the supervisors who never knew the meaning of boredom in educating and guiding us in producing this research. Also, thanks to all family members who provided support throughout this study.

## **References**

1. Rockart, J.F., 1978. A New Approach to Defining the Chief Executive's Information Needs. MIT Working Paper, CISR 37 (WP 1008-78).
2. Drucker, P.F., 1966. The Effective Executive. Harper Business Essentials, London.

- Ehie, I.C., Madsen, M., 2005. Identifying critical issues in enterprise resource planning (ERP) implementation. *Computers in Industry* 56 (6), 545–557.
3. Ettlíe, J.E., Perotti, V.J., Joseph, D.A., Cotteleer, M.J., 2005. Strategic predictors of successful enterprise system deployment. *International Journal of Operations and Production Management* 25 (10), 953.
  4. Federici, T., 2009. Factors influencing ERP outcomes in SMEs: a post-introduction assessment. *Journal of Enterprise Information Management* 22 (1/2), 81–98.
  5. 105. New York: Random House, Inc.