Critical Success Factors for Information Systems Implementation: An End-User Perspective

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INTRODUCTION

Successfully implementing information systems (IS) projects is of critical importance to the prosperity and even survival of modern organizations (Joshia and Laurel, 1998; Umble et al, 2003). This is because an effective use of IS for supporting the operations of modern organizations usually leads to significant improvements in organizational productivity (Mandal and Gunasekaran, 2003) and often provides organizations with crucial competitive advantages (Poon and Wagner, 2000).

Numerous IS projects have been initiated, developed and implemented. The evidence for success as reflected in the literature, however, is not particularly encouraging (Ferrat and Starke, 1995; Field, 1997; Hong and Kim, 2002). Ferrat and Starke (1995) find that about thirty percent of the projects studied in the United States produce no benefit to the organization. Field (1997) reveals that twenty-six percent of the projects investigated in the United Kingdom produce very disappointing results, while five percent are complete failures.

Implementing IS projects successfully is not easy for any organization. This is because the implementation process often leads to significant organizational changes and may result in fundamental reorganization of the business processes (Joshia and Laurel, 1998; Boddy and Macbeth, 2000). Much research has been carried out, and several theories have evolved in an attempt to understand the critical success factors (CSF) in this regard. These theories focus on aspects such as the impact of external and organizational environments on the IS project development, the extent of alignment between organizational and IS objectives, the social factors affecting the development of IS project plans (Quazi, 1999; Butler and Fitzgerald, 2001), the factors affecting the extent of implementation of IS project plans (Thong, 2001), and the likelihood of success of different IS planning approaches in turbulent organizational environments (Butler and Fitzgerald, 2001). Existing studies, however, hardly show a general agreement on the CSF for the general IS project implementation. More importantly, the end-user perception of the success or failure of the project has not been explored comprehensively.

This paper presents an empirical investigation of the CSF for successful IS project implementation from the end-user perspective. A hybrid approach consisting of survey and interview is used for obtaining first-hand experience of the end-user towards their perception of the CSF in IS implementation success. A financial institution in Australia is chosen to carry out the empirical study. As a result, an end-user perception of the CSF can be obtained that would be of practical significance to successful IS project implementation in general.

In what follows, we first present a review of the CSF in IS project implementation from the end-user perspective. We then describe the research questions and the methodology used in the empirical study at an Australian financial institution. This is followed by a discussion of the research findings based on the empirical results.

A REVIEW OF THE CSF IN IS PROJECT IMPLEMENTATION

IS projects are usually developed with high expectations and yet often end in failure. How can we define IS project implementation success? What are the main criteria for measuring the project success? Unfortunately, it is difficult, if not impossible, to justify using standard economic evaluation methods for evaluating the success of IS project implementation due to the complexity of the IS project implementation process and the long-term impact of the project on the organization (Watson et al., 1992).

Nevertheless, much research has been done and numerous criteria have been identified for assessing the success of IS project implementation from various perspectives (Boddy and Macbeth, 2000; Hong and Kim, 2002). From the end-user perspective, four main criteria including the end-user satisfaction, the organizational impacts, the project champion, and the change management are identified in the literature (Quazi, 1999; Butler and Fitzgerald, 2001; Huitfeldt and Middleton, 2001; Thong, 2001).

The end-user satisfaction on IS projects reflects the subjective perception of the end-user on the success of the IS project (McKeen and Guimaraes, 1997; Poon and Wagner, 2000). This is often measured in terms of (a) the accessibility of the IS project, (b) the actual usage of the IS project, (c) the impact of IS project on the end-user, (d) the degree of dispersion of the IS project, and (e) the management of data (Santosus, 1998; Poon and Wagner, 2000). The level of the end-user satisfaction has a direct impact on whether or not the implemented IS project will be used. An unsatisfied end-user may not use the system at all even if it is well developed and good for the organization.

The organizational impact of the IS project on the end-users should also be taken into consideration in assessing IS project implementation success (Joshia and Laurel, 1998). This impact usually comes from three different levels including the individual level, the group level, and the organizational level. At the individual level, the impact analysis mainly deals with the changes resulting from the introduction of the IS project from the perspective of the end-user. Individuals by and large are concerned about the changes the proposed IS project brings. They are more likely to embrace the systems if the resultant changes from the introduction of a new system are positive.

At the group level, the fairness in sharing the gains or losses brought about by a change in the organization is often examined. Changes in the

relative outcomes of the end-user are compared with that of the organization as a whole. Relative outcome for all stakeholders is defined as the ratio of change in outcomes to the worthiness of each stakeholder based on inputs, merit, or other criteria. Many technological innovations help increase productivity and profitability for the organization. End-users who participate in implementing such changes also expect the benefits to be shared with them. The end-user would judge the change to be negative if the organizational benefits come at their expense, for example, in terms of increased efforts or stress (Joshia and Laurel, 1998).

At the organizational level of analysis, the issue of comparison with other end-users in the organization is considered (Joshia and Laurel, 1998). Very often, departmental affiliations may provide a frame of reference to compare the changes in the relative outcomes of one department with that of other departments.

The importance of a project champion in IS project implementation is well recognized in the literature (Newman and Sabherwal, 1996; Thong et al, 1996; Thong, 2001). This is due to the fact that a project champion such as a senior executive in an organization usually has a better understanding of the organizational objectives and is in a position to directly affect the resource allocation and a stakeholder's commitments towards the project.

Change management is another issue to consider in IS project implementation (Jermier et al, 1994; Goff, 2000; Piderit, 2000). With rapid advances in technologies and the increasing sophistication of society, organizations nowadays have to be able to adapt the changes both internally and externally in order to survive and to be competitive in the market. To effectively respond to this challenge, organizations are adopting flatter, more agile structures and more empowering, team-oriented cultures.

Managing changes effectively is critical for successful IS project implementation. Dissatisfied end-users which resulted from poorly managed IS project implementation, may not use the system leading to under-used systems. Three key issues often have to be considered in managing the changes in IS project implementation including (a) managing resistance, (b) ensuring effective communication, and (c) providing training and education on the use of the IS project (Jermier et al, 1994; Goff, 2000; Piderit, 2000).

RESEARCH DESIGN AND DATA COLLECTION

This study aims to identify and validate the CSF in successful IS project implementation from the end-user perspective. Such a study would be of practical significance to the successful IS project implementation in general. To achieve the research objective as above, a number of research questions are framed as follows:

- What are the factors that the end-users perceive lead to their satisfaction?
- What approaches can be used for managing the changes?
- What is the organizational impact of the IS implementation?
- What impact does a champion of an IS project have on the success of an IS implementation?

With these research questions in mind, a questionnaire and an interview agenda are prepared for carrying out the research. The implementation of the Electronic Customer Information Management System (eCIMS) at the Australian financial institution is investigated in order to reject or confirm the literature analysis on the CSF as above for successful IS project implementation from the end-user perspective.

The study is carried out in the pilot region at this Australian financial institution. There are over 970 end-users for the eCIMS project across 55 sites national wide, with about 100 end-users in this pilot region for the introduction of the eCIMS. The profiles of the end-user in the pilot region range from Clerk to the Regional Executive who has direct involvement in the successful implementation of the eCIMS at this financial institution.

The research is conducted through a series of personal interviews with the end-users. Questionnaires are sent prior to the interview, thus ensuring that all interviews follow the same general format and the interviewees can provide more informative data. Interviewees are asked to complete the questionnaires before the interviews are held. The face-to-face interview protocol follows the questionnaire questions in order to focus on the aspects that are most relevant to IS project success and failure. The interview findings and other results are then discussed and analysed in detail with the literature review findings.

RESULTS AND DISCUSSION

The empirical study is carried out based on the experience of the end-users on the implementation of the eCIMS in the Australian financial institution. Questionnaires are distributed to one hundred end-users in the region. Forty five valid questionnaires are collected. Follow-up interviews are conducted with respect to specific issues identified in the collected questionnaires. Table 1 presents a summarized view of the research findings.

More than seventy-four percent of the respondents agree that the end-user satisfaction is the most critical factor in IS project implementation success. This shows that end-user satisfaction is vital for IS project implementation success no matter in what industry an IS project is implemented. This finding is consistent with existing research in which end-user satisfaction is widely considered to be the most important CSF (Watson and Rainer, 1995).

Follow-up-interviews with those end-users who have responded to the survey at work further show that there are ten main factors contributing to the end-user satisfaction in successfully implementing this specific IS project. These factors include (a) the end-user involvement, (b) the expertise constraints, (c) the external expertises, (d) the end-user expectation, (e) the system requirements, (g) the intended end-users, (h) the comfort, (i) the system's response time, (j) the system's effectiveness, and (k) the system design. A careful consideration of these factors in the development and implementation of the IS project would facilitate the involvement of the end-users in the IS project and greatly improve the chance of acceptance of the IS project by the end-users.

The organizational impact of the IS project has a critical role to play in the success of the IS project implementation as identified in the survey and interviews. With the successful introduction of the eCIMS at this Australian financial institution, a positive impact is detected at the individual level, at the group level, and at the organizational level as well. This is reflected in the ninety percent support rate of the respondents surveyed for the organizational impact as the CSF in IS project implementation.

Both the survey and follow-up interviews show that the introduction of the eCIMS has led to the reduction of cost, error rate and a decrease in the time that the end-users have to spend on some troublesome searching task. This allows the end-users to allocate more time to their clients and consequently generate more business for the organization. That explains why such a system is well received in the financial institution and is deemed to be a success.

About seventy percent of the respondents agreed that the project champion is a CSF. This explains the reason for the success of the eCIMS

Table 1. End-User Perception of the CSF in IS Project Implementation Success

CSF	Disagree	Indifferent	Agree
End-user satisfaction	6.9%	18.8%	74.3%
Organizational impact	0%	10%	90%
Project champion	0%	30%	70%
Change management	0%	16.7%	83.3%

implementation in this organization. The research found that this project had the direct support of the Managing Director of the Business Department. His support ensures the adequate allocation of organizational resources and proper addressing of the business needs of the organization.

More than eighty-three percent of the end-users agree that the change management is critical for successfully implementing the IS project. In the empirical study conducted, the follow-up interviews with the end-users identify three factors considered important to change management in implementing the eCIMS including (a) managing resistance, (b) providing end-users with training and education, and (c) ensuring effective communication in the organization. This finding is consistent with the existing literature in IS project implementation with respect to the CSF.

Overall this empirical investigation clearly validates what the existing literature shows in regard to the CSF in successful IS project implementation. It reinforces the common belief that the end-user satisfaction, the organizational impact, the project champion, and the change management are critical in IS project implementation.

CONCLUSIONS

The process of implementing IS projects is a very complex task in every organization. Numerous factors effect the successful implementation of IS projects. This paper conducted an empirical investigation of the end-user perception of the CSF in IS project implementation in an Australian financial institution. The research findings from the study reinforce the common belief that the end-user satisfaction, the organization impact, the project champion, and the change management are the main CSF for successful IS implementation.

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