BARRIERS TO INFORMATION TECHNOLOGY PROJECT SUCCESS IN SAUDI ARABIAN PUBLIC ORGANIZATIONS

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ABSTRACT

Many studies and reports have revealed that the rate of Information Technology (IT) project failures is high, in spite of enormous investment in IT infrastructure and software. This paper presents an empirical study of the main barriers that affect IT project success in Saudi Arabian public organizations, from the chief information officers’ (CIOs) perspective. A qualitative approach using a semi-structured interview method was used to collect the data; interviews were conducted with CIOs in order to gather their opinions about the barriers to IT projects’ success. A content analysis method was adopted to analyze the outcomes of the interviews. The findings of the study propose ten barriers that may affect the success of IT projects. These are: (1) lack of project management; (2) lack of top management support; (3) shortage of Saudi IT expertise; (4) lack of training; (5) resistance to change; (6) stakeholders’ conflicts of interest; (7) high staff turnover; (8) lack of organizational fit of the project; (9) lack of evaluation of IT projects; and (10) lack of accountability, and corruption.

Keywords: IT project; barriers; public; Saudi; CIO

1. INTRODUCTION

In spite of the vast investment in IT, many studies and reports have found that the rate of IT project failures is high. It is estimated that more than 50% of US companies experience some degree of failure in their IT projects (Umble and Umble, 2002). 75% of Enterprise Resource Planning (ERP) projects are considered to be failures and many projects have ended disastrously (Rasmy et al., 2005). The failure rate of ERP implementations has been estimated to be around 50% (Muscatello and Parente, 2006). Wang (2007) believed that 70% of ERP implementations failed to deliver the anticipated benefits. The Standish Chaos Summary Report provides a view of IT projects’ status. This report found that 24% of projects were considered to be total failures and abandoned, and 44% were considered to be a partial failure or were challenged (Almajed and Mayhew, 2013). Organizational and managerial issues were the most common causes for the projects’ failures (McManus and Wood-Harper, 2007). The challenges facing IT project performance are largely organizational and not technical in nature (Ewusi-Mensah, 1997).

In developing countries, IT researchers still take an interest in the area of IT project success (Chevers and Duggan, 2012). Even though there is an increasing number of theoretical and empirical studies on IT project failures, most of the studies are derived from developed countries and from the private sector (Gauld, 2007), and limited attention has been paid to the public sector (Hussein et al., 2007). In fact, the failure rate of IT projects is higher in the public sector, reaching around 84% (Gauld, 2007). Many IT projects have been categorized as failures in developing countries, “Alongside the successes, many information systems in developing countries can be categorized as failing either totally or partially” (Heeks, 2002). As there has not been much research in the area of project success in high income developing countries, even though they have a vast potential market for IT projects, more research should be focused on these regions (Ngai et al., 2008).

With respect to Saudi Arabia, only trivial attempts have been made to identify and investigate the factors that are responsible for IT projects’ failures (Alghobiri, 2003). Therefore, the aim of this research is to identify the barriers that affect the success of
IT projects in Saudi Arabian public organizations. The paper is organized as follows: section 2 presents a literature review, section 3 illustrates the research methodology, section 4 describes the study analysis and findings, and the last section provides the conclusion and suggestions for further research.

2. LITERATURE REVIEW


In a study conducted by Umble and Michael (2002), three major reasons were identified for the failure of IT projects: poor planning or poor management, a change in business goals during the project and lack of business management support. Lack of concern about human resources, lack of top management support, ineffective management of consultants, resistance to change, infrastructure inadequacy, economic and political instability, culture unsuitability, time/location dispersion, and an inappropriate management style are examples of the many challenges that IT projects face (Al-Debei and Al-Lozi, 2012).

In Saudi Arabia, a few studies have been done to identify the barriers to success, or CFFs, however they have concentrated on a specific IT project such as ERP, Health Information System (HIS) or Portal. The following is a brief summary of the findings of these studies. Al-Mashari and Al-Mudimigh (2003) found in their case study of a failed ERP implementation for a major Middle Eastern manufacturer (Comp Group) that the CFFs are: scope creep, lack of ownership and transfer of knowledge, lack of change management, lack of communications, lack of performance measurement, and propensity to isolate IT from business affairs. Abouzahra (2011) found in his study of 52 HIS projects that the main factors behind healthcare IT project failures are unclear scope, failure to manage risks, failure to identify stakeholders, and miscommunication.

3. RESEARCH METHODOLOGY

This study empirically investigates the barriers that play a significant role in hindering the success of IT projects in Saudi Arabian public organizations. For this purpose, a qualitative method using semi-structured interviews was used to enrich the study’s findings through open-ended questions. A qualitative approach assists the researcher in reaching deeper into the participants’ experiences (Corbin and Strauss, 2008). The population of the study is CIOs from Saudi Arabian public organizations. The interviews were conducted by asking a number of CIOs the following question: “In your opinion, what are the major barriers/obstacles for IT projects’ success in Saudi Arabian organizations?”, and by then noting down their comments about the important ideas and concepts.

Invitations were sent to 40 CIOs in the field, but only 14 agreed to participate in this study. The researcher conducted the interviews during April 2014. Each interviewee was briefed on the aims of the study and the purpose of the interviews. The duration of each interview was about one hour, and each interview was conducted on a one-to-one basis.

The interviews were conducted in English or Arabic. Participating CIOs were assured of their anonymity before the beginning of each interview. For the purpose of confidentiality and ensuring the anonymity of each participant, in the data analysis the researcher gave the interviewees a number (CIO#1 to CIO#14) and these numbers are used in the study as a reference for each interviewee. None of the interviews were tape-recorded because some of the CIOs requested that the information they provided should not be recorded. Therefore, notes were taken. These interview notes were emailed to each CIO after the interview for confirmation and validation.

The researcher transcribed the results onto a separate form for each interviewee. This form
Analyzes the data in the interviewees’ analysis, the participants’ answers were summarized in Table 1. Each category was created by selecting statements which were found to be relevant, representing a barrier to IT project success. This method was adopted. Content analysis is an approach to the quantification of qualitative data (Holsti, 1969). Weber (1990) described the method of measurement in content analysis as “counting the occurrences or calculating percentages of meaning units such as specific words, phrases, content categories and themes, and later transferring them to a control document.” This method allows the use of frequency analysis by extracting quantitative data from qualitative data in the interviewees’ answers, and further recording it in frequency tables for the purposes of analysis. The method of content analysis was adopted in this study, rather than the data extraction method or the frequency analysis method alone, because some of the barriers were not explicitly clear and required careful reading, understanding, and interpretation to produce accurate findings. It is not enough to simply count the occurrence of words (barriers) as is done in the data extraction or frequency analysis methods.

Using the content analysis method, the researcher started to analyze the interviewees’ answers to the open-ended question “In your opinion, what are the major obstacles for IT projects’ success?” Prior to performing the frequency analysis, the participants’ answers were read to generate appropriate categories. Different barriers that contributed to the same meaning, or same domain, were grouped into one category. For example, lack of employees’ competencies, gap between graduates and the field, lack of skills resources, shortage of IT talents, lack of IT professionals and lack of Saudi experience were grouped together in the ‘Shortage of Saudi Expertise’ category. This process was repeated until different sets of categories were created, each category representing a barrier to IT project success.

The 14 respondents expressed a total of 125 statements which were found to be relevant, complete and suitable to be allocated to a category. The analysis of data resulted in the creation of 10 categories. Then, two colleagues were invited to generate category systems, independently and without seeing the researcher’s list. The three lists of categories were then discussed and adjustments made as necessary. The aim of this step was to enhance the reliability of the categorising method and to guard against researcher bias. In order to perform the frequency analysis, the numbers and percentages of the occurrences of each barrier were then transferred and tabulated in a frequency table. Thereafter, the researcher was able to arrange the different categories according to their importance, as indicated by the interviewees. This then allowed a conclusion to be drawn about the most important barriers that might hinder project success. The results are summarised in Table 1.

The most frequent category was the lack of project management, with 33 statements. This category contains statements such as changing SOW, unclear RFPs, insufficient time to complete the project, no clear measurable objective, critical requirements are unspecified or missing, no standard to be followed for all projects, lack of clear business case for the project, responsibilities are not clear, project management spend more time filling in paperwork than really managing projects, lack of project managers, and no dedicated staff for the projects.

The second category was the lack of top management support, with 20 statements. This category contains statements such as lack of top management support, top management stability, no enforcement for end user to use the system by top management, non-committed top management, existence of strong and presentable top management, top management not understanding IT projects, limited authorities given to CIO, authority over other departments, top management less cooperative, and top management intervention.

Shortage of Saudi Expertise was the third with 18 statements. This category contains statements such as lack of employees’ competencies, lack of skills resources, shortage of IT talents, gap between graduates and field, lack of IT/business skills, lack of IT professionals and lack of Saudi experience. Lack of training came forth with 12 statements. This category contains statements such as lack of training, lack of sufficient training, there are
few training opportunities, no career development path, no adequate end-user training for new system, and no resources available for training.

Resistance to Change was the fifth with 10 statements. This category contains statements such as resistance to change, fear of the unknown, change seen as a threat, overcome end-user resistance, and it is not change itself that people are afraid of, but the fear that change will adversely affect them. In the sixth, Stakeholders’ Conflict of Interests came with 8 statements. This category contains statements such as stakeholders’ fear of losing power, some stakeholders are a big obstacle, the intervention of some stakeholders in the implementation of IT projects, and stakeholders are less cooperative.

High Staff Turnover came seventh with 8 statements. This category contains statements such as high staff turnover, the loss of one of the workers in the project especially difficult to compensate for. Lack of organizational fit came with 7 statements. This category contains statements such as lack of organizational fit, lack of organizational data and database fit. Lack of IT projects evaluation came with 5 statements. This category contains statements such as we have no IT project evaluation, no experience on project evaluation processes, and IT project evaluation is seen as a waste of time and money by the top management. Lack of accountability and corruption came with 4 statements. This category contains statements such as managerial corruption, financial corruption, favouritism and abuse of power.

For each CIO (CIO#X), the following information has been considered: the CIO’s background (Age, Education Level, and Experience), and the barriers that were the most important in his opinion based on the aforementioned category system. The breakdown of the CIOs interviewed has been summarized in Table 2, and more details of the results are presented in the following subsections.

3.1. Lack of Project Management

Lack of project management can increase the cost and the time of the IT project more rapidly than any other factor. Lack of a clear vision leads to poorly defined goals and specifications, poor requirements, insufficient project planning time, lack of a project plan, and unrealistic deadlines and budgets (Verner and Evanco, 2005).

This study found that 100% of the respondents agreed that this barrier is critical. CIO#1 said “there is no clear measurable objective, and there was a lack of understanding of the value of Project Management Office (PMO) and role which prevents the PMO from existing”. CIO#3 commented “no standard to be followed for any projects, and responsibilities are not clear”. CIO#9 pointed out that “either the end-users are not stating their requirements correctly or critical requirements are missing”. CIO#11 said “project scope is not clear because of the changes, and insufficient time to complete the project”. CIO’14 believes that “in our organization, project management fill in paperwork more than really manage projects, and we don’t have a PMO to standardize our IT projects”.

3.2. Lack of Top Management Support

Top management support is vital if an organization is to cope with the complexity of change and resource allocation for IT projects such as ERP and HIS (Gable, 1991). Without the authorization of top management, most IT projects will not be approved in the first place (Ngai et al., 2008). Executive participation can help improve IT project success by resolving conflicts, tracking the project status, overcoming barriers to adoption, providing resources, energizing the team, and accelerating the decision-making process (Finney and Corbett, 2007). Hence, it is expected that the lack of top management support can decrease IT project success.

This study found that 100% of CIOs agreed that this barrier is critical. CIO#5 confirmed this by saying “definitely, without endorsement/sponsorship of top management, the project is likely to be challenged or to fail”. CIO#7 commented “it is critical to ensure top management’s continuing support to resolve any obstacles that the project may face”. CIO#8 mentioned “limited delegation of authority given to the CIO hindered him from achieving success in the IT projects”. CIO#13 said “in our organization, we have had five different CEOs in the last 8 years, which makes success hard to achieve without continuous support and commitment to our IT project plans.”
3.3. Shortage of Saudi Expertise

A shortage of professional and adequately skilled personnel at all levels of management and field operations was identified as a cause of project failures (Ikediashi et al., 2014). The skills shortage, particularly for IT specialists’ jobs, are worse in public organisations due to some government regulations through the Nitaqat program which tightened emigration policies and demanded higher Saudization quotas. (Alshitri and Abanumy, 2014). Therefore, with a severe shortage of IT professionals, Saudi Arabian public organizations have resorted to hiring less-skilled and unexperienced personnel and then training them.

This study found that 86% of CIOs agreed that this barrier is critical. CIO#4 said, “We still have vacant positions from six months ago and we can’t fill them”. CIO#10 commented, “Besides the shortage of IT professionals, they demand a lot of money and we can’t afford what they ask”. CIO#14 pointed out, “The market is booming right now and there is a shortage of people in the IT field. Knowledgeable staff are not available. This might be because the market is so big or our salary structure might not be competitive. Most of the graduates want to go into the private sector”.

3.4. Lack of Training

Most participants recognised the importance of training for both the end user and project team members. Lack of, or inadequate training have been one of the most significant reasons for many IT projects’ failure (Gupta, 2000, Somers and Nelson, 2001). Training provides an opportunity to empower and motivate employees, reduce employee resistance and increase the chances of project success (Kappelman and Prybutok, 1995).

This study found that 64% of CIOs agreed that this barrier is critical. CIO#1 commented “the cost of training is often under-estimated, and these costs are usually many times greater than originally anticipated and sometimes training is neglected during the preparation of the project”. CIO#4 said “one of the challenges the CIO faces in IT project implementation is selecting an appropriate plan for end-user training and education” CIO#8 mentioned “In our organization, training is still seen as an extra issue and there is no budget for it, and there is no career development for the IT project team members”.

3.5. Resistance to Change

End users’ resistance to new innovations is one IT project success barrier. For example, many ERP systems still face resistance, and ultimately, failure (Aladwani, 2001). Organizations should conduct sufficient training sessions to introduce the new innovations. It must be stressed to all end users that the project is not meant to replace some of the staff, but rather to improve the performance of the organization (Altuwajri and Khorsheed, 2011).

57% of CIOs agreed that this barrier is critical. CIO#6 confirmed that by saying “employees should be directly involved in the change process, which shall motivate and reduce resistance, and extra incentives should be made available to further encourage and reward compliance”. CIO#12 commented “for those who would remain resistant to the whole project, organizations might have to make difficult decisions to move them”.

3.6. Stakeholders’ Conflicts of Interest

In any project, and especially in IT projects, the many different and sometimes discrepant interests of the stakeholders must be considered. Inadequate management of stakeholders’ interests often leads to conflicts and disagreements about the implementation of the project. Therefore, negative intervention and involvement in the IT project by stakeholders can severely obstruct its implementation (Olander and Landin, 2005). Such an obstruction will cause cost overruns and exceeded time schedules, due to conflicts and controversies concerning project design and implementation.

This study found that 50% of CIOs agreed that this barrier is critical. CIO#4 said, “during the implementation of the personnel system, the personnel manager was unwilling to help and hid critical information about vacancies and salary details in order to preserve his power”. CIO#9 pointed out, “there is no transparency in the information provided by many managers, for their own interest, which either delays the implementation or forces the project into failure, and then they blame our department”.

3.7. High Staff Turn Over
Another barrier that compounds the problem of a shortage of Saudi expertise is the high turnover of staff. Turnover of employees disturbs the organizational routine of any organization which makes management initiatives like IT projects difficult to develop successfully (Yong and Wilkinson, 1999). The high turnover rate of highly skilled personnel is widespread in Saudi Arabia (Alshitri and Abanumy, 2014). In their study of 250 organizations in Saudi Arabia covering over 219,000 jobs, HayGroup (2011) states that 30% of organizations reported that employee retention has become more difficult and the average staff turnover now stands at 8%. Therefore, the need to retain skilled employees in Saudi Arabia is of perhaps even greater importance than elsewhere (Alshitri and Abanumy, 2014).

This study found that 43% of CIOs agreed that this barrier is critical. Employees leave their jobs in search of better pay, working conditions, and greater job satisfaction, creating a discontinuity in an organization’s efforts and its daily working routine. In relation to this, CIO#5 commented as follows: “the competition is high. Our project team members leave us for better compensation”. CIO#10 commented that “People move a lot. Once you have trained them and assigned them to a project, they leave without completing their tasks”.

3.8. Lack of Organizational Fit

A benchmarking study of IT project implementations such as ERP shows that no single system can fit the diverse needs of different organizations because of organizational differences (Hong and Kim, 2002). When deciding on what system to adopt, leading companies often carefully assess organizational data fit, business process fit and user interface fit. These companies are fully aware of the importance of trade-offs between the system customization and the needs of the business process. Organizational fit is one kind of environmental risk that a project manager has little control over during project implementation (Hung et al., 2013). If not properly managed, this environmental risk may pose a serious threat to the success of IT projects (Devadoss and Pan, 2007).

This study found that 29% of CIOs agreed that this barrier is critical. CIO#3 said, “IT projects are more likely to fail if they do not fit the needs of the organization”. CIO#8 commented, “Efforts made to enhance organizational fit may lead to improved system performance”. CIO#11 pointed out, “It is imperative to minimize the influence of organizational fit factors in order to deliver projects within budget, on time, and to project requirements”.

3.9. Lack of IT Project Evaluation

The fact that existing or current IT projects in the public sector are not properly evaluated has resulted in failures due to the non-existence of a specific guideline, method or tool that can be used by the public sector to evaluate their IT projects (Arshad et al., 2012).

This study found that 29% of CIOs agreed that this barrier is critical. CIO#2 said as follows: “there is no formal training on project evaluation and no experience in project evaluation processes”. CIO#7 commented, “We do not have knowledge or awareness of IT project evaluation, and it is not a requirement of the organization”. CIO#13 pointed out that “Top management is incapable of seeing the importance of IT project evaluation, and it is seen as a waste of time and money by top management”.

3.10. Lack of Accountability and Corruption

Lack of accountability and corruption are common characteristics of governmental cultures in the public sector of Middle Eastern countries in general, and Saudi Arabia in particular. Corruption usually takes place when there is little commitment to the public interest (Jabbara and Dwivedi, 2004). With a lack of government regulations in practice, over-centralization of authority in the hands of a few officials, and the lack of an effective supervision and control system, Saudi public executives have the opportunity to use their own positions for their personal and families’ interest (Jabbara and Dwivedi, 2004). Some participants recognised the existence of corruption, and in their view, it was both a financial and a managerial issue. While they complained about corruption, only one of them mentioned cases which had happened in his organization.

This study found that 21% of CIOs agreed that this barrier is critical. CIO#2 commented “I have been forced to hire an unqualified employee as a team member in our projects.
because of his father’s power in our organization. This is just one example that puts a lot of pressure on our project plan, and because of their relationship with higher managers, slow-moving people are getting the training and promotions, which kills the motivation of the key team members.” CIO#2 continued by saying, “the biggest project of our organization has been approved without consulting the IT department; in at the end, the project had been abandoned, and some RFPs are prepared in a way that gives a specific unqualified company the chance to win the project, because they have a conflict of interest with one of the managers”.

5. CONCLUSION AND FURTHER RESEARCH

This paper has presented an empirical study of CIOs’ perceptions of the barriers to success in IT projects in Saudi Arabian public organizations. The findings of the study revealed ten barriers that may hinder IT projects’ success. These are: lack of project management, lack of top management support, shortage of Saudi IT expertise, lack of training, resistance to change, stakeholders’ conflict of interests, high staff turnover, lack of organizational fit, lack of IT project evaluation, lack of accountability, and corruption.

The expected contribution of this study to the academic field includes an understanding of the organizational barriers that affect IT project success. This study has contributed to existing knowledge by identifying a number of barriers which are critical to the success of IT projects in Saudi Arabia. Also, this study succeeded in synthesizing existing literature in this area with its findings from real world experiences. The barriers to IT project success found by this research might be applicable to other high income developing countries. A possible area for future research would be the exploration of IT project success barriers in the private sector in Saudi Arabia, comparing those results with the findings of this study. Further research to validate these barriers could be conducted by investigating one of them in greater depth and understanding its influence on project success.

REFERENCES


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### Table 1: Barriers’ List

<table>
<thead>
<tr>
<th>Rank</th>
<th>Category (Barrier)</th>
<th>Count</th>
<th>Percentage</th>
<th>Code</th>
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<td>Statements</td>
<td>Respondents</td>
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<td></td>
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<td>3</td>
<td>Shortage of Saudi Expertise</td>
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</tr>
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<td>Stakeholders’ Conflict of Interests</td>
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<td>High Staff Turnover</td>
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</tr>
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<td>10</td>
<td>Lack of Accountability and Corruption</td>
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### Table 2: Breakdown Interviewed of CIOs

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<th>CIO No.</th>
<th>CIO Background</th>
<th>Important Barriers</th>
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