

An Investigation of Fundamental Organizational Factors Influencing IT/IS Projects in Jordanian Banking Sector

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ABSTRACT

Information Technology (IT) has been regarded as an important factor influencing the competition in a rapidly changing global market. It plays a major role in industry structural change as well as in creating new industries. However, IS project continues to fail, several researchers have argued that it is essential to look at IS as a social-technical system rather than purely technical system; and so they proposed the so-called strategic IS implementation which consider both technical and organizational aspects of IS projects. An evaluation of this proposed paradigm is receiving a great amount of research efforts. However, few research attempts have been made within the context of the developing countries to cover this important issue. This paper aims to highlight systematically selected organizational factors that may influence successful implementation of IT/IS projects within the context of Jordanian banking sector. These factors include: management support, users participation, and information technology culture. The selection of these factors was based on extensive review of the available surveys concerning IT projects failure. The findings of this study revealed that the investigated organizational factors have a significant effect on IT success and can explain 24.1% of the variance in IT success.

Keywords: IT projects, Organizational culture, Management support, User participation.

1. INTRODUCTION

The focus of this study will be on the investigation of three organizational factors that indicate potential influence on IT/IS projects. The selection of this area in particular is justified based on a review of the previous studies concerning IT/ IS projects failure; which emphasized that the major causes of failure are largely related to organizational aspects of IT projects. Therefore, this study attempts to explore this issue in the Jordanian banking sector context. The unique cultural, managerial and social characteristics of this context are important aspects to be investigated especially considering the scarcity of the available studies; not only in Jordanian context, but also in the larger Arab and the developing countries' context which

provide a motivation to conduct this study. The following section will provide an overview of the available studies concerning IT failure. Then, the research focus and hypotheses will be outlined leading to the design of the research methodology, analysis and interpretation of the findings.

Theoretical Foundation

IT adoption has been subject to extensive research in the last few years (Lapierre & Denier 2005, Grandon & Pearson 2004; Pullig et al. 2002, Peled 2001, Gottschalk, 1999). However, an expensive failure of IT projects is still a common trend. Statistical data over the rate of failure of IT projects (table 1) show surprising facts (IT Cortex: www.it-cortex.com/Stat_Failure_Rate.htm).

A systematic overview of the failure causes is shown in Table (1) below which indicates that organizational factors including management support, users participation, lack of IT culture; which all represent the major causes of IT failure.

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Table (1): Statistical data on the rate of IT projects failure

Survey	The nature of survey	Participants	Failure rate	Key findings (failure causes)
The Robbins Gioia Survey (2001)	Empirical, 232 survey respondents	Multiple industries including government, information technology, utilities, communications, financial and healthcare	51% (of ERP projects)	Undefined
The Conference Board Survey (2001)	Empirical, 117 interviews	Companies that attempted ERP implementation	40%	Undefined
The Bull Survey (1998)	Empirical, 203 telephone interviews,	IT projects managers from finance, utilities, manufacturing, and business services	undefined	1. Breakdown in communication. 2. Lack of planning. 3. Poor quality control.
The KPMG Canada Survey (1997)	Empirical, 1450 Survey questionnaire (176 were analyzed)	Canada’s leading public and private sector organizations	61%	1. Poor project planning. 2. Weak business case. 3. Lack of top management involvement and support.
The Chaos report (1995)	Empirical, 365 questionnaire survey and focus group interviews	IT executive managers in large medium and small companies across major industry segments.	(52% over cost, 31.1% cancelled)	4. Incomplete requirements. 5. Lack of user involvement. 6. Lack of resources. 7. Unrealistic expectations. 8. Lack of executive support. 9. Changing requirements and specifications. 10. Lack of planning. 11. Didn’t need it any longer. 12. Lack of IT management. 10. Technology illiteracy. 11. Others.
The OASIG study (1995)	Empirical, 45 interviews	Expert employed by universities or consultancy offices	70%	Lack of attention to the human and organizational aspects of IT. Poor project management. Poor articulation of users’ requirements.

Yusufa et al. (2004) in their investigation of Enterprise Information Systems (ERP) project implementation state that in spite of the fact that

implementation of information technologies and systems such as (ERP) facilitates the desired level of integration between organizational components; there are cases of

successful and unsuccessful implementations. In their view, the principal reason for failure is often associated with poor management of the implementation process. In addition, Efstathiades et al. (2002), in their attempt to develop a strategic integrated implementation and technology transfer, indicated that the level of planning for human resource development, the continuing management and operators support, and the level of training given can underline the success or failure rate of IT projects. Moreover, Pullig et al. (2002), in their investigation of sales force automation systems suggest that an appropriate implementation climate including sufficient training, encouragement, facilitative leadership, and organizational support, are the critical success factors to IT project success. They emphasized that the creation of organizational shared values including a customer orientation, adaptive cultural norms, information-sharing norms, entrepreneurial values, and trust among organizational members is necessary to support the success of IT projects.

In his investigation of the role of cultural fitness in user resistance to information technology tools, Gobbin (1998) proposed that user adoption or rejection of new IT tools is derived from the cultural fitness of the tools in the organizational context rather than being close to the user's operational or business-related adaptation. He confirmed that social communication and learning processes, together with historical and cultural time involvement, represent the challenging factors in the research of user resistance to the introduction of new IT tools.

Vadapalli & Mone (2000) proposed a mechanism to enforce user participation, it consists of three constituents-project teams, steering committees, and project champions performing different functions and supporting each other during the course of project implementation. Oostveen & Besselaar (2004) also stated that user participation does not hinder or slow down technology development at all, but that it actually enriches it. Therefore, they emphasized that technology development should be combined with participatory design and technology assessment. In a 2003

Computerworld's article, Julia King reported that at companies that aren't among the top 25% of technology users, three out of 10 IT projects fail on average. Moreover, less than 40% of IT managers say their staffs can react rapidly to changes in business goals or market conditions.

In addressing the issue of IT projects failure, Wang et al. (1998) suggests that the effectiveness of IT projects is significantly higher when multidisciplinary and multifunctional teams are involved in technology assimilation. Creation and management of these teams should be the responsibility of organizational management. In addition, they argued that the organization structure should provide an environment that encourages communication, coordination, and openness which were found to facilitate successful technology assimilation. Furthermore, managing the interaction between the source and recipient of technology is another critical activity determining the effectiveness of technology assimilation.

Al-adaileh & Siddiqi (2003), in their analysis of the available literature, also emphasized that the success of information technology projects depends on the fitness between the technology and the receiving context. The receiving context includes people and their cultural background. They state that organizations should not implement IT projects as an end in themselves but they should think about IT as a part of comprehensive organizational change that serves and integrates with other organizational components.

The Problem of the study

An extensive review of the available literature revealed that organizational factors that can influence IT/IS projects vary according to the context of the study in hand, the nature of organizational activities, and the influence level of IT project. However, one can conclude that user participation, management support, and organizational culture tend to be major themes when considering IT/IS project success or failure. Therefore, the focus of this study is to explore these themes within a unique context where the scarcity of the available

literature is a major concern. Banking sector within the Jordanian context was selected as an example of the IT projects in developing countries context. The selection of the banking institutions can be justified based on the recognition of the central role in which IT can play in banking institutions. According to Network Magazine (May 2003), IT has moved from being just a business enabler to being a business driver. This is one of the major reasons why new private and multi-national banks have been able to survive, thrive, and adapt in an increasingly competitive environment. The use of IT applications can achieve the three main objectives of banking institutions including cost reduction, product differentiation, and customer-centric services (Network Magazine, May 2003). However, the achievement of these objectives depends on the nature of IT implementation projects and consideration of the implementation/organizational context and the current study aims to explore this important concern.

The Aims of the Study

This study aims to investigate the influence of organizational factors on the successful implementation of IT/IS projects within the context of Jordanian banking sector. These factors include management support, users participation, and information technology culture. A

systematic investigation will be made to determine the importance of these factors. In addition, recommendations for decision makers will be provided to enable successful implementation of IT/IS projects.

Research Model and Hypotheses

Towards the achievement of the aim and objectives of this study, and based on our review of the available literature, the following hypotheses were proposed:

Hypothesis No.1

There is a significant statistical relationship between employees’ perception of IT project success and management support of IT projects.

Hypothesis No.2

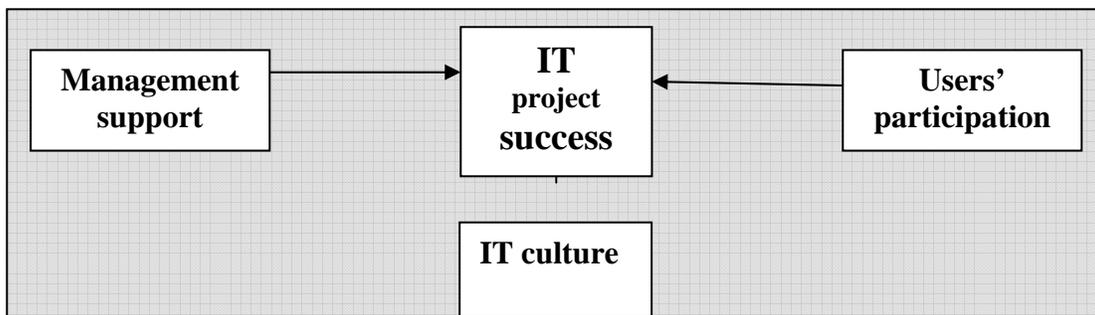
There is a significant statistical relationship between employees’ perception of IT project success and employees’ participation in IT projects.

Hypothesis No.3

There is a significant statistical relationship between employees’ perception of IT project success and IT culture.

Towards a systematic investigation of the above hypotheses the following research model was proposed (Figure 1).

Figure (1): Research Model



The following section describes the methodological approach used to empirically test the above model.

Research Methodology

This research tends to be deductive because it starts

from theories and current literature to explain and analyze the reality. This study is mainly a quantitative study, which is based on the use of a sample survey to investigate and verify the proposed hypotheses. The method involves the application of a standardized

questionnaire to enable individuals to be placed on a dimension indicating three perceptions concerning some organizational factors that may influence the success of IT projects within their organizations.

Data Collection Method

The questionnaire used for data collection consists of two parts. Part A consists of demographic variables. Part B explores the investigated organizational factors in addition to one statement that measures the dependent variable (IT success). The scale was developed based on a review of the

previous studies in addition to the researchers’ perception of the important elements that measure each of the investigated factors.

A five-point differential scale from 1 (strongly agree) to 5 (strongly disagree) was used. The questionnaire was originally prepared in English, and was later translated into Arabic (the native language of respondents)

Before conducting the study, it was important to understand how the variables were created. Table (2) below describes the operational definition for the variables together with a label to enhance the analytical process.

Table (2): Definition of Variables

Variable	Direction of Causality	Label	Description
Management Support	Independent	MS	Organizational variable that describes the degree to which management of the organization supports IT projects.
User Participation	Independent	UP	Organizational variable that describes the degree of users participation in IT projects.
IT Culture	Independent	ITC	Organizational variable that investigate the availability of IT culture within the organization.
IT success	Dependent	ITS	Cognitive variable that describes employees perception concerning IT project success

Sampling Procedures

Due to time and cost constraints, a convenience sample of employees and operational managers was selected from ten Jordanian banks. The study involved a sufficient number of participants to provide moderate statistical power for testing the hypotheses. 500 questionnaires were distributed. The returned questionnaires were carefully examined for completeness. The total number of usable responses resulting from this process was 375 (232 Male and 143 Female). Response rate was 75 % of the distributed questionnaires.

Responses were coded based on the questionnaire items. The final data inputs were loaded into a statistical package (SPSS 10.0) which enables performing an appropriate statistical analysis. Methods of data analysis include factor analysis, correlation analysis and multiple regression.

Analysis of Data

The internal consistency reliability is measured by applying the Cronbach’s alpha test to the overall measure. Cronbach’s alpha value was 75%. As the alpha value for the scale was greater than the guideline of 70% as specified by Nunnaly and Bernstein (1993), we concluded that the scale can be applied for the analysis with acceptable reliability.

Multiple Regression Analysis

Multiple regression analysis was used to test our proposed model (Table 3). This method of analysis allows researchers to analyze a set of independent and dependent variables. Multiple regressions can establish that a set of independent variables (IT culture, management support, and user participation) explains a proportion of the variance in a dependent variable (IT success) at a significant level (through a significance test of R²).

Table (3): Multiple Regression Analysis

Model Summary

		R	R Square	Adjusted R Square	Std. Error of the Estimate
Model	1	<i>.491^a</i>	<i>.241</i>	<i>.235</i>	<i>.9418</i>

a. Predictors: (Constant), CULTURE, SUPPORT, PARTICIP

As shown in the above table, R² value of 24.1% indicates that the three factors proposed in our model including IT culture, management support, and user participation can explain 24.1% of the variance in IT

success. Table (4) also confirms that three of the causal relationships between the factors proposed by our model are well supported.

Table (4): Hypotheses testing

Coefficients ^a

			Unstandardized Coefficients		Standardized Coefficients		
			B	Std. Error	Beta	t	Sig.
Model	1	(Constant)	<i>.793</i>	<i>.287</i>		<i>2.766</i>	<i>.006</i>
		SUPPORT	<i>.720</i>	<i>.077</i>	<i>.429</i>	<i>9.406</i>	<i>.000</i>
		PARTICIP	<i>.233</i>	<i>.071</i>	<i>.160</i>	<i>3.266</i>	<i>.001</i>
		CULTURE	<i>-.283</i>	<i>.068</i>	<i>-.206</i>	<i>-4.188</i>	<i>.000</i>

a. Dependent Variable: Success

The outcomes of the above analysis revealed the following:

- Management support has a significant direct effect on IT success (t = 9.406; sig = 0.000).

as shown in Table (4), the results of the first hypothesis show that T value is (9.406) and the significance level is (0.000) which means a confidence level of (100%); and since it is higher than the confidence level of this study which is (95%), the first hypothesis is accepted. On the other hand, the Beta value was (0.429) which supports this result, and asserts that there is a approval trend among the individuals of the sample for the effect of management support on the success of IT projects.

- User participation has a significant direct effect on IT success (t= 3.266; sig = 0.001).

as shown in Table 4, the results of the second

hypothesis show that T value is (3.660) and the significance level is (0.001) which means a confidence level of (99.9%); and since it is higher than the confidence level of this study which is (95%), the second hypothesis is accepted. The Beta value was (0.160) which supports this result, and asserts that there is a strong agreement among the individuals of the sample for the effect on user participation on the success of IT projects.

- IT culture has a significant direct effect on IT success (t = 4.188; sig = 0.000)

as shown in Table 4, the results of the third hypothesis show that T value is (4.188) and the significance level is (0.000) which means a confidence level of (100%) and since its higher than the confidence level of this study which is (95%), the second hypothesis is accepted. The Beta value was (-0.206) which supports

this result, and asserts that there is a strong agreement among the individuals of the sample for the effect of IT culture on the success of IT projects.

▪ Since the three factors proposed in our model including IT culture, management support, and user participation can explain 24.1% of the variance in IT success as shown in Table (3) above, other organizational and technical factors can influence the success or failure of IT projects.

Interpretation and Discussion

The findings of this empirical study emphasize that successful implementation of IT/IS requires consideration of not only technical aspects but also organizational aspects. The current global trend should be modified to involve preparation of the organization for supportive organizational environment prior to successful implementation. Although this study has only considered three organizational factors including IT culture, management support and user participation, it is found that these three factors can explain 24.1% of the variance in IT success. Accordingly, it is expected that the consideration of other organizational factors (e.g. organizational structure, management styles, organizational process, documentation...etc) will provide further chances for implementing IT/IS successfully.

Previous researches in other contexts (e.g. Yusuf et al., 2004; Oostveen & Besselaar 2004; Efstathiades et al., 2002; Pullig et al., 2002; Vadapalli & Mone, 2000;

Gobbin, 1998) provide support for the above findings. However, the context of this study should be considered when interpreting its findings. Taking into consideration the nature of an organization as a social entity that includes people as the main input element, one could argue that the universalistic and networked nature of Arab organizations (Weir, 2000) increases the importance of organizational factors where ethics and interpersonal relationships play a great role in shaping the organizational members' response to organizational changes that usually go along with IT/IS implementation.

The significant outcomes revealed in this study inform the way in which IT/IS should be introduced. It seems that the starting phase should be an organizational phase where people's thinking about IT should be investigated, and management role should be considered, and the mechanism for user involvement and participation should be arranged beforehand. The findings of this study also emphasize the importance of teamwork, cooperation and communication between the management and employees in order to create an adaptable work environment to potential IT projects.

This study provides direction for future research in the field of IT/IS projects and the factors that can increase the success rate of these projects. As indicated within the context of this study, other factors including organizational and technical factors should be addressed and investigated.

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