The Influence of Organizational Factors in the Success of IT Project Management

Shamsudin Md Sarif[1], Saidatul Rahah Hamidi[2], Bukhary Mamat Ramli@Ramli[2] and Anitawati Mohd Lokman[2]

[1]Department of Computer and Mathematical Sciences, Universiti Teknologi MARA (UiTM), Cawangan Seremban, Negeri Sembilan, Malaysia; dinmdsa@gmail.com
[2]Department of Computer and Mathematical Sciences, Universiti Teknologi MARA (UiTM), Shah Alam, Selangor, Malaysia; rahah@tmsk.uitm.edu.my, bukhary148@gmail.com, anita@tmsk.uitm.edu.my

Abstract

Objectives: In this paper, an Information Technology Project Management (ITPM) method is applied to identify factors related on organization that influence the success of the IT project management and to rank the most importance factors of the IT Project in Malaysian public sector from organizational perspective. **Methods/Statistical analysis:** Six organisational factors and three ITPM success criteria were used in the study's framework to investigate relationships between the organisational factors and IT project management success in Malaysia. **Findings:** The result shows that organisational structure and goal alignment in the organisation significantly influence the success of IT project management. The result provides useful insights to the success of the IT project management, which could assist project management professionals to understand and thus enable strategies to successful IT project management implementation. **Application/Improvements:** This study can be further extended to conduct a research in another government agencies as well as private sector with different location and agencies, for getting more diversity results of the data collection and analysis.

Keywords: IT Project Management, IT Project Success Factor, Information Technology, Organisational Factor, Organisation Culture

1. Introduction

In recent years, various organisations have been investing in projects in Information Technology (IT) as the core of organisational development. An IT project implementation often depends on the allocation of time, money and resources that have been determined with the expected future of the organisation to get something of value with the investments made[1]. The Malaysian government has a unit for monitoring and controlling all ICT project management implementation in government agencies, which is called the Project Management Unit under the Malaysian Administrative Modernization and Management Planning Unit or well known as MAMPU. MAMPU held responsible in monitoring all the implementation of IT projects in the Malaysian government

sector that comprises of 26 ministries, agencies under the ministries, local state government and local authorities to assist in ensuring all the ICT project management implementation are successful.

However, there were projects that faced challenges and affected the success of the projects. There are many factors, which could lead the success or failure of a project. Past literature found that causes for success or failure were attributed to factors involving project management, top management, technology, organisational, complexity, and process[2]. Thus, it is important to recognise the key factors of success or failure. The main objective of this study is to identify the influence of organisational factors and rank the factors of IT project management success in the Malaysian government agencies.

2. Background

In Malaysia, the Ministry of Health has invested in ICT for a project called MyHealth and the completion was extended from 2007 to 2012[3]. This issue arises when the organisation fails to provide the proper management and project planning report towards decreasing project failure rate in Malaysia. The report surveyed by MAMPU in 2010 among Malaysian government agencies also shows that the IT project success rate is approximately 63%, whereas the failure rate is still high at 24%[4]. According to the study by[5], they found that the reasons of project failure are rooted from the six generic types of the IT project failure. The factors include project management, top management, technology, organisational, complexity or size, and process factors. Therefore, organisational factors are one of the most important issues to be looked into when implementing computer-based information systems in Malaysian government agency[6]. On top of that, there is a lack of empirical studies that integrate organisational factors and IT project success particularly in Malaysia. This study attempts to provide a better understanding of the influence of organisational factors on IT project management successes in Malaysian government agencies.

2.1 Information Technology (IT) Project Management Success and Project Product Success Criteria Considerations

The indicator of success for IT projects is when the project has successfully in completed activities in a fixed budget, in a timely manner, and has met the fixed specifications[7,8]. It can also be utilised by users for a positive impact on the improved efficiency or effectiveness of the organisation directly. The success of IT projects can be considered if the project is completed on schedule, within budget, meets the goal or requirements, and when the project is accepted by clients that used the product[9]. Project success is the combination of project management success and product success[10].

3. Research Model and Hypothesis

A quantitative research method is used to measure the phenomenon. This study adopted the "framework for determining critical success/failure factors" in projects by[11], combined with other organisational factors identified from past literatures. This is to achieve the objective is to identify a list of factors related to the organisation that influence the success of IT project management. A survey has administered and questionnaires was distributed to Malaysian Public Sector personals that are experienced and have been involved in managing and conducting IT projects. In addition to that, the hypotheses testing are conducted in order to determine factors that lead to the success of IT projects between variables. As shown in Figure 1, this study will investigate the organisational factors which are top management support, organisation structure, goal alignment, resources allocated, user participation and organization culture that contribute to the success of an IT project management criteria which are delivered on time, cost and meets the technical objectives.

3.1 Top Management Support

The support from top management treating the project as a champion strengthens the project according to organisations respectively. This entails that top managers assist project managers to understand and achieve the project's objective. In the organisation, top management's support on IT projects involves commitment, clear directive, and adequate resources allocated for the project and motivation given to the project manager or team member. Thus, the researcher developed the first hypothesis, H1: IT Project success is dependent on the top management support to the project.

3.2 Project Organisation Structure

The structure of the organisation is "an organisational structure that consists of activities such as task allocation, coordination and supervision, which are directed towards the goal of the organisation"[12]. At the same time, the perspective of the environment and local culture is able to influence the formation and success of the organisation structure[11].
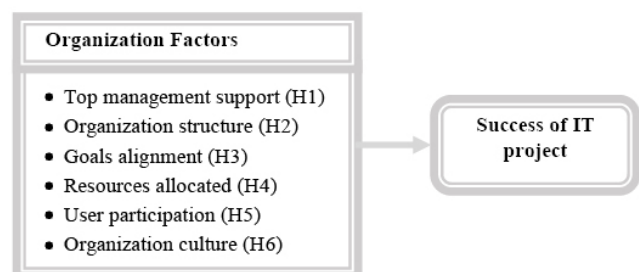

Figure 1. Research model.

This situation could explain the boundaries of power and responsibilities of each entity for each job in since it is able to influence the actions and success of the organisation. Base on that, the researcher has constructed the second hypothesis in this study, H2: IT Project success is dependent on the project organisation structure in the project.

3.3 Goals Alignment

The goal alignment shows the relationship between the business goals and IT strategy goals. Numerous researchers are interest in this area focusing on the goal or strategy alignment that influences the success of an IT project in public and private sectors[13,14,15]. According to[14], the Malaysian banking industry found that the problem of the IT project implementation is caused by the lack of strategy alignment. A study by[16] in the Malaysian public sector that investigated the impact of organisational factors to IT usage. In that study, they found that goal alignment is the second strongest influences of IT usage in public sector organisations. Based on the above statements, the researcher constructed the third hypothesis in this study, H3: IT Project success is dependent on the goals alignment in the project.

3.4 Resources Allocation

Managing resources is one of the most challenging in project management. Most resources needed in a project like people, money and time. [17]were defined to the success of the project that requires sufficient resources. Resources are one of the factors that can influence an organisation to plan the project better and could assist to solve obstacles[18]. Sufficient resources allocated in a certain project leads to success in project implementation[19]. Based on these statements, the researcher has constructed the forth hypothesis in this study, H4: IT Project success is dependent on the resources allocated in the project by organization.

3.5 User Participation

Numerous past studies identified that inadequate user participation in system's development may lead to IT failures. According to[20], active involvement of users in the organisation effects the system's developments, which give the impacts in system's development outcome such as the overall user's satisfaction and system's usage. The user also brings a specific knowledge to the project team that would never get through the traditional method of defining requirements and matching up the systems[21]. Thus, the researcher constructed the next hypothesis in this research, H5: IT Project success is dependent on the user participation in the project.

3.6 Organisation Culture

Several studies were conducted and several dimensions of organisational culture were explored, such as the organisational strategy, culture, structure, behavioural patterns and the processes of an organisation. "Project's organisational culture is a combination of top and line management's support and attitude that monitors as well as prioritise staffing according to projects"[17,22,23]. Project's organisational cultures include the organisational policies, procedures as well as rules including formal and informal roles[7]. Based on these, the researcher developed the sixth hypothesis, H6: IT Project success is dependent on the organization culture in the project.

4. Methodology

4.1 Data Collection

The data is collected through questionnaires that were distributed among the Malaysian Public Sector personnel.

4.2 Sample and Population

For this study, sample of respondents were taken from population of people who are involved in managing and conducting IT projects in public sector. The questionnaires were distributed to respondents who worked at public sectors in Putrajaya and Kuala Lumpur. About 147 hard copies of these questionnaires were prepared and distributed to government agencies in Kuala Lumpur and Putrajaya to be completed by respondents. 89 respondents have completed their response and enable the research to have the required data in hypothesis testing.

4.3 Data Analysis

The data analysis used is to deduce the knowledge among respondents, which consists of top managers, IT managers, project managers, project team leaders, project team members and regular users, who are involved in managing and conducting IT projects in the public sector working in Putrajaya and Kuala Lumpur. Descriptive and correlation analysis was performed to analyse the collected data.

5. Results and Discussion

5.1 Respondent's Profile

More than half of the respondents were aged between 20 to 39 years old (59.6%), and 36 respondents were aged between 40 to 59 years old. Slightly more than half of the respondents were male (56.2%). The majority of the respondents have a Bachelor's Degree (52.8%), followed by those that have a Masters and Diploma (22%). The higher the education background of the respondents indicated higher IT competency or IT literacy.

Majority of these respondents were Project Team Leader/ Responsible Officer/ In-charge Officer posts position which (36.0%) followed by Project Team Members (30.3%), and Project Managers (11.2%). This is because in the public sector, the numbers of Project Team Leader / Responsible Officer / In-charge Officer are plenty, as well as IT project managers. Meanwhile, the Top Management is where directors or deputy directors sit in the structure, and they are the decision maker pertaining to the policies and administration of the overall agencies of the IT project.

5.2 Experience of Respondents

Majority of respondents have involved in the IT projects either directly or indirectly (97.8%). The highest percentage of respondents are involved in a group between 0 to 5 IT projects (46.1%), and the lowest percentage of respondents are involved in a group between 16 to 20 IT projects (7.9%).

Only two respondents were not involved directly or indirectly in any IT project. This is because, there are 8 ICT main areas which are system development, ICT strategic plan, project management, information management, ICT security management, network management, database management and data center management[24]. Thus, some respondents are not involved directly with the project, and they are involved in information management and ICT strategic plan areas.

5.3 Information Technology (IT) Project Management Success

Table 1 represent the percentage of respondent's agreement to the success of IT project management. A majority of the respondents strongly agrees and agrees with the IT project success must be delivered on time as planned and must be delivered within the stipulated cost (78.6%).

Besides, the respondents also agree that the IT project's success must meet technical performance objectives of the project.

5.4 Respondent's Agreement Level on Organization Factors

Table 2 represents the percentage regarding respondent's feedback on agreement to six organizational factors that contributes to the success of IT project management. The highest rated with 93% agree and strongly agree are the top management support, clear organization structure, and goals alignment are detrimental success factors for an IT project management.

5.5 The Influence of Organization Factors and The Success of IT Projects Management

The relationship between organizational factors and IT project management success criteria is identified by using correlation analysis (Spearman rho). This correlation analysis used, because of the data collected was in an ordinal or ranked data. Following table shows the summarized result of the correlation analysis in this study.

From Table 3 the hypothesis H1 test result revealed that IT project success was not dependent on top management support but when IT project management success criteria

Table 1. Consideration for IT project management success

Criteria	SA	A	S	D	SD
Is Delivered On Time	34.8	46.1	11.2	5.6	0
Is Delivered Within Cost	29.2	49.4	16.9	2.2	0
Meets Technical Objectives	37.1	47.2	11.2	2.2	0

SA=Strongly Agree, A=Agree, S=Somewhat Agree, D=Disagree, SD=Strongly Disagree.

Table 2. Agreement level on organisation factors towards importance success factor for IT project

Factors	SD	A	S	D	SD
Top management support	46.5	46.5	7.0	0	0
Clear organization structure	36.0	57.0	7.0	0	0
Goals alignment	48.8	44.2	7.0	0	0
Enough resources allocated	50.0	34.9	12.8	2.3	0
Good user participation	51.2	36.0	12.8	0	0
Organization culture	36.0	51.2	11.6	1.2	0

Table 3. The summary result for correlation analysis between organisational factors and IT project management success criteria

Hypothesis	Organizational Factors	IT project management success criteria		
		Delivered On Time	Delivered Within Cost	Meets Technical Objectives
H1	Top management support	0.215*	0.159	0.220*
H2	Organization structure	0.265*	0.321**	0.249*
H3	Goals alignment	0.254*	0.312**	0.308**
H4	Enough resources allocated	0.188	0.349**	0.300**
H5	Good user participation	0.146	0.269*	0.248*
H6	Organization culture	0.123	0.293**	0.220*

**Correlation is significant at the 0.01 level (2-tailed)
*Correlation is significant at the 0.05 level (2-tailed)

does not meet or delivered within cost. However, there was a low relationship between top management support and IT project management success if the project is meets on time criteria and technical/performance objectives criteria. This finding contradicted the frequency statistics for hypothesis H1, where 93 percent of the respondents rated strongly agree and agrees that the top management support as being important factor for the success of IT project management. These also contradicted with studies conducted by[12,14,25].

For the hypothesis H2, the result shows that IT project success is dependent on the organisation structure as one of the criteria of success. It is found that there is a medium significant relationship between the organisation structure and the project delivered within cost. There is also a low relationship between organisation structure and IT project management success when the project meets the cost while addressing the technical/performance objectives criteria. The frequency statistics for this hypothesis H2 was consistent with current findings and the previous findings by[14,25,26].

The hypothesis H3 was supported by the result, where the IT Project success is dependent to the goal alignment factor. The finding indicates that the goal alignment is significantly related to IT project management success criteria in terms of meeting to deliver the project on time,

delivered within cost and the project must achieve their technical objective. The finding also was consistent to the frequency analysis result for hypothesis H3, where majority of the respondents agree that the goal alignment as being one of the important factors for the success of IT project management. The findings of current study are consistent with[25,27].

Subsequently, IT Project success is not dependent to the resources allocated factor, when IT project management success criteria was not have significant relationship to the time criteria. Therefore, H4 is rejected. These findings contradicted with the frequency analysis for hypothesis H4, where 73 percent of the respondents rated strongly agree and agree at the sufficient resources allocated as being one of important success factor which is contradicted with the finding by[25,26].

Next, hypothesis H5 results indicates that IT Project success is not dependent to the user participation factor, when IT project management success criteria does not have significant relationship to the time criteria. There is a low significant relationship between user participation and IT project management success in terms of cost and technical/performance objectives criteria. The finding contradicted with the frequency analysis result for hypothesis H5, and with previous finding by[12,25,26].

Lastly, IT Project success is not dependent to the organisation culture's factor, when IT project management's success criteria do not have significant relationship to the time criteria. There is a low significant relationship between organisation cultures and IT project management success in term of cost and technical/performance objectives criteria. The finding contradicted with the frequency analysis for hypothesis H6, where 75 percent of the respondents agree that organisation culture as being one of important factor for the success of IT project management. These also contradict with the finding by[26].

6. Conclusion

The objective of this study is to identify factors that are related to organizations that influence the success of the IT project management in Malaysian government agencies. Based on previous studies, six organizational factors have been identified. Then, all of these factors were analyzed to identify the most important organization factors that lead to the success of the IT project management in Malaysian government.

The target population was top managers, IT managers, project managers, project team leaders, project team

members and regular users who were involved or have had experience in managing IT projects in the Malaysian public sector. The data were collected using hardcopy questionnaires that were distributed and completed by respondents.

Based on the overview of the summarized result, only two from six organizational factors have a significant influence to the success of IT project management in public sector, which is the organization structure and the goal alignment. It was in line with study by C.M. Beath, where explained that, to enhance the achievement of the organization's goal, the IT plans must be aligned to the overall organization plan.

Meanwhile another four organizational factors namely top management, resources allocated, user participation and organization culture does not much influence the success of the IT project management since they also meet some of the IT project management criteria. For example, the resources allocated factor has the relationship with the cost and technical objective but does not have a relationship with the time criteria. Sufficient resources allocated to the project such as money and skilled people may lead the project to be completed within the cost and meet the technical objective of the project.

This study will serve as a basis for future studies towards enhancing as well as understanding the influence of organizational factors in the success of the IT project, particularly in Malaysian government agencies. This study also contributes to the existing body of knowledge regarding to the influence of organizational factor to the IT project management that may be valuable to other researchers in local context.

7. Acknowledgment

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