I J A B E R, Vol. 13, No. 8 Part 2 (2015): 6529-6652

CRITICAL SUCCESS FACTOR ON E-GOVERNMENT IT PROJECTS IN BRUNEI DARUSSALAM

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Abstract: *The aim of this paper is to investigate e-Government main critical project success factor to e-Government project in Brunei Darussalam and to provide better understanding on factor contribute to project success and failure in e-Government project development. One hundred and seventeen respondents from four government ministries of Brunei Darussalam who are the users of e-Government services participated in the research. The research findings suggest that the E-Government project development life-cycle on project implementation process can be improves to increase success factor. The paper contributes to empirical study in the area of critical success factor and added value to the current literature in the wider context on critical success factor on project performance.*

Keywords: *E-Government Projects, Project Manager, IT Vendors/ Contractor, Critical Success Factors, Project Management, Brunei Darussalam*

1.0 INTRODUCTION

1.1 E-Government Project

IT projects challenges specifically to the development of e-Government public sector project in developing countries often faces with challenging outcomes. KPMG International (2015), on their Global IT Management Survey report identifies 29% of organizations in Asia Pacific region experienced at least one IT project failure at an average cost of US$8.9 million. A survey published by the British Computer Society (BCS Review, 2001) found that only around one in eight IT projects (13%) were successful and most of them are related to e-Government project. One of the reasons, according to the majority researcher's is the project success criteria that become a vital point and caused project to failed (Schwalbe, 2010).

Project success is defined by major literatures as a two components: project success factors and project success criteria (Jugdev and Muller, 2005; Morris and Hough, 1987; Wateridge, 1998; Turner, 1999). It is viewed as one crucial KPI in

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accessing delivery effectiveness in public sector, the successful implementation of public funded projects should gain more attentions from both policy makers and also the project managers. Project success criteria are measured based on the outcome of project or endogenous variables. It is difficult and critical for project governance planning to conduct thoroughly on project process as the success or failure is difficult to determine. According to Pinto and Slevin (1988, 1989) project success failure if refined accordingly could improve Critical Success Factor (CSF) project overall Such examples are the project owners and project scopes that become the major aspect in influencing project to fail and even if the problem exist and could be modified for example the scope creep issue on the time taken to re-do the activities will have significant impact to overall performance due to more time is needed in fixing process.

From various literature studies, attempts were also made by different researchers to determine CSFs in e-Government IT projects specifically to project owner's involvement. A number of variables on project owner's influencing project success have been discussed. Some variables are common to more than one list, but there is no general agreement on the variables of project owner's support and decisions specifically influence to critical success factors for different project objectives (schedule performance, budget performance, and quality performance) or by different types of IT infrastructure and project sizes. This implies that governmental organization has little time to study or evaluate project success or failure of each project

Abdullah, Rahman, Harun, Alashwal and Berksin (2010) views project success has become a blueprint and that factors influencing critical success factors (CSF) relating to project management needs to be identify before the execution of projects to ensure project success. It is therefore very important for governmental organizations in developing IT project to determine the optimal quality and quantity of information for better decisions making to ensure better project performance. Therefore, it is essential to identify project critical success factor to ensure sustainable project success in public sector, specifically in e-Government IT projects in Brunei. The identification of the CSFs enable limited resources of time, manpower and money to be allocated appropriately and the probability of success will be better predicted (Hwang and Lim 2013).

This research explore the main 10 success factors by Pinto's and Slevin (1989) in association with e-Government project performance (eg schedule performance, budget performance, and quality performance) and to identify CSFs particularly that has influenced project success.

1.2 Overview of E-Government in Brunei

E-Government are often defined as a process encompassing ICT and Internet within the governmental public administrations and its units (Beatle, 2009) During the last few years there has been major initiative from the government of Brunei towards ushering the E-Government IT projects to help smoothens the government day-to-day process. The government of Brunei emphasis on providing better services and allow greater public access to information and improving internal productivity for better, more efficient, cost-effective, allows convenience access across and inter-ministries and department services. The network technology in e-Government promoted sharing of information among different governmental departments and agencies in a real time basis.The establishment of Brunei e-Government starts with their Information Technology Council (BIT Council), the authority for ICT infrastructure in 2002 who has been given the responsibility to spearheading the implementation of the National IT Strategic Plan.

E-Government project infrastructures in Brunei Darussalam are divided into 3 development period and stages: wave 1 (2002 – 2005), wave 2 (2006 – 2009) and wave 3 (2009 – 2014) (Mus, 2010). BIT Council manages the 1st and 2nd waves until the new national IT infrastructure authority the Electronic Government National Centre (EGNC) under the control of Prime Minister's offices took the responsibilities in April 2008 and managed the wave 3. BIT Council and EGNC efforts has improves the e-Government public domain application and transformed a number of the public sector operations fully online such as the e-Passport (Immigration), e-Customs, e-Gate (Autogate), TAFIS (Treasury Accounting and Financial Information System), e-SIKaP (Housing Development Information System), and others. E-Government usage helps major information exchange throughout the country and helps to promote economy growth in Brunei. Over B$950millions of project worth have been made available for e-Government project spending across the government ministries during the Brunei Development Planning (RKN 2007 - 2012) (Pelita Brunei, 2012). Most Brunei e-Government projects are a turn-key IT projects (fully tested, and ready to be running online upon delivery), and they are the backbone to the government IT network. Majority of e-Government e-services are interconnected within the ministries and its departments as well as to public networks.

The development of Brunei e-Government system has provides a multidisciplinary nature and accommodates various kinds of success factors and it indicate that the e-Government project initiative in planning, monitoring, controlling, delivery and so forth are running correctly and provide a positive CSF for project to succeed (Schelin, 2004). Up to the present time, several researchers from various journal and articles tries to formulate various kind of success factor

in e-Government specifically in management and operational, however, all of the success factors discussed scattered and are not being synthesized to give the holistic list of success factor for e-Government project success.

1.3 Problem Statement

From literature study, various attempts were made by different researchers to determine CSFs in e-Government IT projects. Several projects activities' delay are caused by ineffective internal operation, management, people and process (Chan and Chan, 2004) and this impact the critical success factors by means of effectiveness of project performance. In managing a success project it requires the 10 critical success factors project process to run project effectively which consists of project mission, top management support, project schedule or plan, client consultation, personnel, technical tasks, client acceptance, monitoring and feedback; communication and troubleshooting. According to Brown (2006) and Hyvari (2006) project size alone can affect relationship between the 10 factors and project performance. However, organizations size and the project performance to the 10 factors are not been consistently observed in empirical data. Hence, this research is to add to empirical data and to determine whether there is significant difference between organization size and project size in related to the 10 critical success factors on successful and unsuccessful project outcome.

1.4 Objectives and Research Questions

The main objective of this research is to identify the critical success factors in implementing e-Government IT projects. The sub-objectives of this paper derived from the main objectives aim to:

a. Investigate the relationship strength between the critical success factors and E-Government project performance.
b. Analyze the significant difference on critical success factors between a successful and unsuccessful project outcome.
c. Analyze the affect relationships of project size will have on the relationship strength between the critical success factors and E-Government project performance.
d. Analyze the affect relationships of organization size will have on the relationship strength between critical success factors and E-Government project performance.

Accordingly, it will answer to the following questions:

1. What are the relationships between CSFs and E-Government project performance?

2. What is the difference significance of CSFs toward project outcome (successful and unsuccessful)?
3. What are the relationships between CSFs and E-Government project performance moderating effect on project size?
4. What are the relationships between CSFs and E-Government project performance moderating effect on organization size?

2.0 LITERATURE REVIEW

1.2 What is Critical Success Factor

A review in the project management literature and business literature indicated a gap existed pertaining to critical success factor in predicting project performance (Cooke-Davies, 2002; Hyväri, 2006). It further led to the same research and was used in other studies (Hyväri, 2006; Delisle, 2001; Jones, 2007) on project performance. Hence, in this research it will continue to understand critical success factor for e-Government IT project and to investigate the validity relationship strength between critical success factors and E-Government project performance in Brunei Darussalam.

Critical success factor (CSFs) is identified as a necessary process to be achieved in order to create excellent results for the project to be considered success (Erling et al. 2006). The term critical success factors (CSFs) was first introduced by Rockart (1979) in helping executives define their information needs. Some literatures in Daniel (1961), Geetika (2006), Horst (2007b) and Gates (2010) has provide in-depth study on project CSF term and concept and was popularized by MIT Sloan School of Management (Rockart, 1979). CSFs are those limited number of areas in which results, if they are satisfactory, will ensure successful competitive performance for the organization. If the CSFs are not present or taken into consideration, one can largely expect that problems will be experienced which act as barriers to overall successful outcomes (Rockart 1979). There are also discussions on the analogous of Hertzberg's hygiene factors to motivate the presence of CSFs that does not guarantee success but their absence is likely to lead to failure.

Despite the drawbacks on earlier researchers work, an association between project performance and factors can be confirmed through the researcher work by Pyle (1986) where data collection is carried out using participants of an information technology project study. A theory applying to the effect on individual factor importance when corresponding it to phases in the project life cycle was constructed by Pinto and Prescott (1988). The project critical success factor was then further developed focusing on a sample from a specific occupation (Pinto and Slevin, 1989). It was discussed through Pinto and Slevin (1986, 1988) in

"Critical success factors across the project life cycle" (Slevin and Pinto, 1987) and emphasized project performance as the main criteria towards project success.

Cooke and Davies (2002) have tried to discover and determine the success criteria leading to project success. Geetika (2006) views project planning stages are an important CSFs stages and but main strengths of analysis is the planning support. (Basahel, 2009, Dvir and Lechler (2004) focus on the planning stage and examine the relationships between three planning variables (i.e. the quality of planning, goal changes, and plan-changes) and project success. Using multivariate analyses, Dvir and Lechler (2004) determined that planning was significant and positively related to efficiency and customer satisfaction. The quality of planning has the highest positive direct effect on efficiency, while goals changes have the highest negative direct effect on customer satisfaction" (Dvir and Lechler 2004, 10).

Chan, Scott and Chan (2004) conduct a thorough review on literature related to CSFs in seven major management journals and suggest that CSFs can be grouped under five main categories. These include human-related factors, project-related factors, project procedures, project management actions, and external environment. Chan, Scott and Chan (2004) further identified various variables affecting the factors and determined that variables within each group are inter-related and intra-related, i.e. a variable in one group can influence a variable in the others, and vice versa. To study how those factors affect project success separately and collectively, Chan, Scott and Chan (2004) has suggested that project success is about project related factors and the external environment are very inter and intra related. However, this has been described in more detail by Gil-Garcia and Pardo (2005) and shared some expression on e-Government challenges and the factor of critical success strategies. Gichoya (2005) concurred that the absence of CSF can cause the project to fail and its presence can also cause project to success.

3.0 THEORETICAL FRAMEWORK

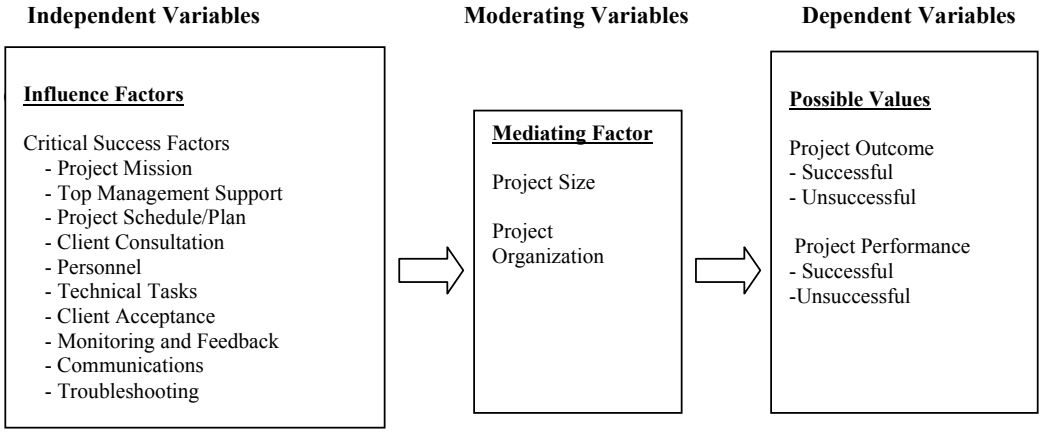
The predictor variables were 10 critical success factors defined by the Project Implementation Profile which consist of Project Mission, Top Management Support, Project Schedule/Plan, Client Consultation, Personnel, Technical Tasks, Client Acceptance, Monitoring and Feedback; Communication and Troubleshooting. This study will come up with some answers that could increase project success outcomes. It hopefully provided a deeper and broader understanding of critical success factors in the perspective of E-Government project.

A key issue faced in the beginning was the performance and outcomes of the project. In this study the focus was on the significant relationship viewed by project staffs involved in E-Government project had on the performance and outcome of project. The focus is to analyse the significant relationship of critical success factors

on E-Government project when project size and organization size were controlled. The influence factor consists of the 10 critical success factors tested with possible values of project outcome and project performance.

Table 1 presents the framework underpinning this study. This framework is developed based on reviewing the literature. The framework shows that there are two independent variables, namely individual roles and critical success factors. The dependent variable was made up by the values which consist of project outcome and project performance in terms of successful or unsuccessful which will be perceived by the respondents in this study.

Table 1
E-Government CSF Project Implementation Framework



To analyse the variables the following hypotheses have been drawn. All the four hypotheses were analysed based on inferential statistic analysis. According to Creswell (2005) and Neuman (2003), hypotheses illustrate the possible outcomes related to research questions in a study. The degree of relationship between predictor variables and criterion variables or the statistical analysis on variances is guided by null hypotheses and alternative hypotheses (Cooper & Schindler, 2003).

Ha1: *Critical success factors have significant relationships with E-Government project performance.*

Ha2: *Critical success factors have different significance relationships with E-Government project outcome.*

Ha3: *Moderating for project size has effect on the significant relationship between the predictor variables and E-Government project performance.*

Ha4: *Moderating for organization size has effect on the significant relationship between the predictor variables and E-Government project performance.*

4.0 RESEARCH METHODOLOGY

4.1 Data Collection and Sampling

This researched used quantitative methods and data (primary) are obtained through distribution of survey questionnaires. The targeted study population for this research is 130 people consists of top management, director (CIO), managers, executives and department staff from the Brunei 10 government ministries of:

1. Ministry of Education
2. Ministry of Finance
3. Ministry of Foreign Affair and Trade
4. Ministry of Development
5. Prime Minister Office (EGNC)
6. Ministry of Religious Affair
7. Ministry of Internal Affair
8. Ministry of Communication
9. Ministry of Health
10. Ministry of Industry & Primary Resources

The project survey target E-Government projects on IS in Brunei that had been completed or partially completed within the past 10 years. In meeting the current research study's sample characteristics, each member of the population had an equal chance of being selected by their superior to participate in the questionnaire, provided the project's specific constraints were met. The sample selected comprised those with at least 3 years' experience in the Brunei ICT field.

Sample size needed to be representative of a given population (Krejcie and Morgan 1970). Figure 3.3 shows the relationship between sample sizes versus total population. There are 117 survey questionnaires returns giving 90% responds rate. Selection of samples was done randomly as it is the purest form of probability sampling. Each unit of the population had an equal chance of being selected.

4.2 Research Instrument

The research instrument used for this study is questionnaires based on Project Implementation Profile that was used similarly in the study by Delisle (2001). The questions are closes-ended. According to Mukesh, Salim and T. Ramayah (2013),

closed-ended question has many advantages such as easy and fast it gets a response, easy to compare respondents' answers, the answers given by the respondents are also difficult to analyze with a computer, they also were able to choose the correct answer based on a clear question and easy to refer to other studies. The self-administered questionnaires were distributed to the ministry IT department and were leave for 2 weeks to give time to respondents to participate in the survey.

The current study focuses its primary criterion variable on measuring project performance by the overall perception of success. The questionnaire is drafted into 2 sections: Section A is relating to respondents background (demographics). Section B is relating to project mission, top management support, project schedule, client consultation, personnel, technical tasks, client acceptance, monitoring and feedback, communication and troubleshooting. Background data including the role of the participant on the project and type of project the participant involved in were gathered from each participant.

4.3 Data Analysis

The critical success factors that are referred as the predictor variables are scored by the survey instrument with each factor through an aggregation of Likert-type responses to five or six declarative statements pertaining to characteristics of each factor. The data supported the relationships between the critical success factors and E-Government project performance. The data were also controlled for project demographics and it supports the effect on relationships between the criterion variable and predictor variables. The use of standard summary statistics in SPSS allows data to be tabulated into charts to derive the means, frequencies, percentages, and standard deviations. The current study carried out bivariate comparisons using Pearson product-moment correlations between scaled scores of project performance with predictor variables. Multiple regression prediction equations were generated for testing purposes to test the hypothesis.

Point-biserial correlation, the Pearson product-moment correlation of a dichotomous variable with a continuous variable (Newsom, 2006), was carried out between predictor variables and dichotomous project success scores. Point-biserial correlation is precisely the same as the between-groups (independent samples) t test with an identical level of significance (p value) attached (Brown, J.D., 2001; Simon, 2005) except that it has two important advantages over the between-group t tests. Brown stated the two advantages are: (a) supplying a measure of effect size or strength or relationship and (b) simplifying the presentation of results.

Referring the table 4.3, the relationship between two variables are indicated by point-biserial correlation as weak (r=.10), moderate (r=.40), or strong (r=.70) (Brown, J.D., 2001).

Table 2
Strength of relationship

Value of r	*Strength of relationship*
-1.0 to -0.7 or 0.7 to 1.0	Strong
-0.7 to -0.4 or 0.4 to 0.7	Moderate
-0.4 to -0.1 or 0.1 to 0.4	Weak
-0.1 to 0.1	None or very weak

Point-biserial correlation measures the strength of the relationship between two variables, but the t test does not provide the strength of association measurement. It is more important to measure the strength of association with a large sample (N>100) because of the possibility to have a statistically significant correlation even though the relationship between the variables is weak (Brown, J.D., 2001). Point-biserial correlations results are less burdensome to tabularize supporting several analyses on a single table side by side with correlations for continuous variables.

4.4 Appropriateness of Correlation and Regression

Parametric statistics (correlation and regression) are appropriate because primary variables for the current study were scale scores measured on the interval level. The concern of normality becomes less important when the sample is large as this is due to the central limit theorem (Stevens, 2002). The t test and the F test in larger samples have been established to be strong against violations of assumption of the central limit theorem. Stevens (2002) stated that sums of 50 or more observations are approximate to normality even for distributions which depart markedly from normality. The current study with the intended sample of 117 should have adequately addressed regression assumption.

4.5 Simple Regression

Simple regression results are interpreted similarly to the method used to interpret a slope of a straight line by representing the average value of the dependent variable where the analysis consists of one predictor variable with one criterion variable. Person's correlation coefficient was used to test for research question 1 the related Hypotheses H1 through H10. The analysis was reiterative, once for each of the 10 contributing factors. The predictor variable was 1 of the 10 contributing factors and the criterion variable was one of the two project success scores. Project success was scored once by an overall dichotomous response to project success and an aggregation of scale scores to 13 declarative statements regarding different elements of project success.

4.6 Multiple Regressions

Multiple regressions are a statistical test used to represent the linear relationship combination of two or more predictor variables and one criterion variable. Research Question 3 with the related Hypotheses Ha3; and Research Question 4 with the related Hypotheses Ha4 were tested using partial correlations moderated for organizational size and project size. Hierarchical multiple regression was considered as the result sets between partial correlations and hierarchical multiple regression are the same. The analysis was a reiterative process where the criterion variable in the regression model was project performance.

Project success was scored once by an overall response to project success and a score by an aggregation of responses to 13 declarative statements regarding different elements of project success. The predictor variables were the 10 critical success factors. The moderating variables were project size and organization size. Project size was the moderator variable for Hypothesis Ha3. The interaction between the10 critical success factors and project size was essential to make a conclusion on Hypothesis Ha3. Organization size was the moderator variable for Hypothesis Ha4. The interaction between critical success factors and organization size was essential to make a conclusion on Hypothesis Ha4.

After controlling data for moderating variables, if the effect was a statistically significant relationship, then the null hypothesis would be rejected. The current research study also concluded on the associations between the 10 critical success factors and E-Government project performance after controlling data for project size or organizational size. Table 3 includes a summary of the approach to data analysis.

Table 3
Approach to data analysis

Research Question	*Data elements*	*Analytic approach*
R1. What are the relationships between the critical success factors and E-Government project performance?	• Aggregate of 13 project performance elements. • Predicted by critical success factors. • Overall perception of project success.	Pearson correlation
R2. What are the relationships between the critical success factors and E-Government project performance moderating for demographics on project size?	• Aggregate of 13 project performance elements. • Predicted by critical success factors. • Overall perception of project success. • Project size.	Partial correlation

R3. What are the relationships between the critical success factors and E-Government project performance moderating for demographics on organization size?	• Aggregate of 13 project performance elements. • Predicted by critical success factors. • Overall perception of project success. • Organization size	Partial correlation
R4. Which individual roles and project activity affect the critical success factors by Pinto (1986)?	• Predicted by critical success factors. • Individual roles. • Project activity.	Two-Way-Anova

4.7 Reliability Test

Main study test was been conducted by using 117 respondents through questionnaires to ensure the questionnaire used in this study is valid and reliable. This was important to make sure the questionnaire was suitable and do not involved sensitive items to the respondents in this study. After collecting the data from the main study, the reliability and validity test were constructed on the result by utilizing the Statistical Package for Social Sciences (SPSS) Version 20.0. The Table 4 below shows the entire related Cronbach's Alpha for independent variables and dependent variables in this study However, a greater number of items in the test can artificially inflate the value of alpha and a sample with a narrow range can deflate it, so this rule of thumb should be used with caution (George, D., & Mallery, P, 2003).

Table 4
Reliability Results by Variables

Variables	*Cronbach's Alpha*
Project performance	0.923
Project Mission	0.849
Top Management Support	0.874
Project Schedule/Plan	0.841
Client Consultation	0.669
Personnel	0.642
Technical Tasks	0.788
Client Acceptance	0.793
Monitoring Feedback	0.800
Communications	0.832
Troubleshooting	0.674

5.0 RESULTS AND FINDINGS

The descriptive statistics frequency output describes the variables are being tested in the correlation test. The variables being correlated are outcome status of project, organization size, project size, project success, project mission, top management support, project schedule/plan, client consultation, personnel, technical tasks, client acceptance, monitoring feedback, communications and troubleshooting. The distribution for outcome status of project, project success, project mission, project schedule/plan, client consultation, technical tasks, client acceptance, monitoring feedback, communications; and troubleshooting are not skewed as their skewness measures are lesser than 0 which imply a platykurtic distribution. The distribution for organization size, project size, top management support; and personnel are skewed as their skewness measures are greater than 0 which imply a leptokurtic distribution. The results are provided as Table 5.

Table 5
Results

Successful Project – 67%%	*Unsuccessful Project – 32.5%*
Ranked of the Most Frequent Project Activities	
Enhancing IT Application Development – 35.0%	Adding New IS Application Development – 25.6%
Most Frequent Project Activities – 13.7%	Adding New Hardware – 6.00%
Upgrading Existing Software – 4.3%	Others – 4.3%
Ranked of the Most Frequent Individual Roles	
Technical project team – 53.0%	Administrative project team – 31.6%
Lead on project team – 11.1%	Project Manager – 4.3%
Ranked on Organization Size	
1 – 99 employees (46.2%)	100 – 499 employees (44.4%)
500 – 999 employees (9.4%)	
Ranked on Project Size	
1 – 5 people (17.1%)	6 – 15 people (47.9%)
16 – 30 people (12.8%)	31 or more (22.2.%)

Hypotheses Testing

Hypotheses 1

Determining the correlation between variables statistically significant can be referred to the row labelled *sig*. The value in this row is the probability of the null hypothesis being true. In addition to using the sig. value or P value to determine

whether to reject or retain the null hypothesis, SPSS provide the visual indication of statistical significance on the output. By default, SPSS "flags" (marks) significant relationships with asterisks. Hypotheses 1 have been stated as follow:

Ha1: *Critical success factors have significant relationships with E-Government project performance.*

As depicted in Table 6, the Pearson correlation coefficient between confident success (0.576), project mission plan (0.594), top management support (0.699), project schedule/plan (0.677), client consultation (0.698), personnel (0.269), technical tasks (0.639), client acceptance (0.212), monitoring feedback (.256), communications (0.190), and troubleshooting (0.658). The p-value for both outcomes status and the correlations indicate a statistically significant ($p<0.001$). **So, fail to reject this hypothesis**

Table 6
Bivariate Correlations Output Table Correlations

		Outcome status of project	*Confident success*
Outcome status of project	Pearson Correlation	1	.576**
	Sig. (2-tailed)		.000
	N	117	117
Confident success	Pearson Correlation	.576**	1
	Sig. (2-tailed)	.000	
	N	117	117
Project Mission	Pearson Correlation	.594**	.587**
	Sig. (2-tailed)	.000	.000
	N	117	117
Top Management Support	Pearson Correlation	.699**	.403**
	Sig. (2-tailed)	.000	.001
	N	117	117
Project Schedule/Plan	Pearson Correlation	.677**	.458**
	Sig. (2-tailed)	.000	.000
	N	117	117
Client Consultation	Pearson Correlation	.698**	.545**
	Sig. (2-tailed)	.000	.000
	N	117	117

Personnel	Pearson Correlation	.269**	.226*
	Sig. (2-tailed)	.003	.014
	N	117	117
Technical Tasks	Pearson Correlation	.639**	.426**
	Sig. (2-tailed)	.000	.000
	N	117	117
Client Acceptance	Pearson Correlation	.212*	.264**
	Sig. (2-tailed)	.022	.004
	N	117	117
Monitoring Feedback	Pearson Correlation	.256**	.217
	Sig. (2-tailed)	.005	.078
	N	117	117
Communications	Pearson Correlation	.190*	.238**
	Sig. (2-tailed)	.040	.010
	N	117	117
Troubleshooting	Pearson Correlation	.658**	.408**
	Sig. (2-tailed)	.000	.001
	N	117	117

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

Hypotheses 2

In determining the correlation between variables statistically significant can be referred to the row labeled *sig*. The value in this row is the probability of the null hypothesis being true. In addition to using the sig. value or P value to determine whether to reject or retain the null hypothesis. The level of significance is 0.05.

Ha2 : *Critical success factors have different significance relationships with E-Government project outcome.*

Hypotheses 2 results shows the following:

1. The mean difference in Project Mission between a successful and unsuccessful project outcome was -1.378. The values of t, which are -7.921 and -7.334, were statistically significant (p=0.005). Therefore, the null hypothesis is rejected.
2. The mean difference in Top Management Support between a successful and unsuccessful project outcome was -1.946. The values of t, which are

-10.486 and -12.340, were statistically significant (p=0.005). Therefore, the null hypothesis is rejected.

3. The mean difference in Project Schedule/Plan between a successful and unsuccessful project outcome was -1.922. The values of t, which are -9.872 and -9.007, were statistically significant (p=0.005). Therefore, the null hypothesis is rejected.
4. The mean difference in Client Consultation between a successful and unsuccessful project outcome was -2.050. The values of t, which are -10.446 and -9.674, were statistically significant (p=0.005). Therefore, the null hypothesis is rejected.
5. The mean difference in Personnel between a successful and unsuccessful project outcome was -0.473. The values of t, which are -2.998 and -3.313, were statistically significant (p=0.005). Therefore, the null hypothesis is rejected.
6. The mean difference in Technical Tasks between a successful and unsuccessful project outcome was -2.121. The values of t, which are -8.916 and -7.750, were statistically significant (p=0.005). Therefore, the null hypothesis is rejected.
7. The mean difference in Client Acceptance between a successful and unsuccessful project outcome was -0.393. The values of t, which are -2.323 and -2.383, were statistically significant (p=0.005). Therefore, the null hypothesis is rejected.
8. The mean difference in Monitoring Feedback between a successful and unsuccessful project outcome was -0.546. The values of t, which are -2.845 and -2.827, were statistically significant (p=0.005). Therefore, the null hypothesis is rejected.
9. The mean difference in Monitoring Feedback between a successful and unsuccessful project outcome was -0.379. The values of t, which are -2.078 and -1.961, were statistically significant (p=0.005). Therefore, the null hypothesis is rejected.
10. The mean difference in Troubleshooting between a successful and unsuccessful project outcome was -1.983. The values of t, which are -9.366 and -8.950, were statistically significant (p=0.005). Therefore, the null hypothesis is rejected.

Overall there are significant differences between critical success factors with E-Government project outcome, so **fail to reject the hypothesis**.

Hypotheses 3

Determining the correlation between variables statistically significant can be referred to the row labelled *sig*. The value in this row is the probability of the null hypothesis being true. In addition to using the sig. value or P value to determine whether to reject or retain the null hypothesis. The level of significance is 0.05. The hypotheses 3 have been stated as follow:

Ha3: *Moderating for project size has effect on the significant relationship between the predictor variables and E-Government project performance.*

The correlation index for the relationship between troubleshooting and outcome status of project shows controlling for project size is 0.661, which is between 0.4-0.7. The correlation index for the relationship between troubleshooting and project success are when controlling for project size is 0.423, and it is between 0.4-0.7. The results from these analyses indicate that there is a moderate, positive relationship between troubleshooting and E-Government project performance when controlling for project size. The P-value for both outcome status of project and process success are 0.000, which is lesser than the level of significance of 0.05. Therefore the correlations for troubleshooting with both outcome status of project and process success ($P<0.05$) is statistically significant. **So, fail to reject this hypothesis.**

On the correlations for both project performance and project success were significant after moderating for demographics on project size, which provided the support for Hypotheses Ha3. The result from these analyses indicate that Personnel, Communication, Monitoring and feedback; and Client acceptance have weak, positive relationship with E-Government project performance while the rest of the other critical success factors have moderate, positive relationship with E-Government project performance after moderating project size.

Hypotheses 4

In determining the correlation between variables statistically significant can be referred to the row labelled *sig*. *value.* The sig. value or P value is to determine whether to reject or retain the null hypothesis. The level of significance is 0.05. The hypotheses 4 have been stated as follow:

Ha4: *Moderating for organization size has effect on the significant relationship between the predictor variables and E-Government project performance.*

The correlations for both project performance and project success were significant after moderating for demographics on organization size, which provided the support for Hypotheses Ha4. The result from these analyses indicate that Personnel, Communication, Monitoring and feedback; and Client acceptance

have weak, positive relationship with E-Government project performance while the rest of the other critical success factors have moderate, positive relationship with E-Government project performance after moderating organization size. The results from these analyses indicate that there is a moderate, positive relationship between project schedule/plan and E-Government project performance when controlling for organization size. The P values for both outcome status of project and process success are 0.000 which is less than the level of significance of 0.05. Therefore the correlations for project schedule/plan with both outcome status of project and process success ($P<0.05$) is statistically significant. **So, fail to reject this hypothesis.**

Summarize Hypotheses Findings

Table 7
Summary of the Research Hypothesis

Ha	*Hypotheses*	*Measure*	*Finding*
Ha1	Critical success factors have significant relationships with E-Government project performance.	Coefficient Correlation	P<0.001 Fail to Reject
Ha2	Critical success factors have significant difference between successful and unsuccessful project.	Independent Sample T Test	P<0.001 Fail to Reject
Ha3	Moderating for project size has effect on the significant relationship between the predictor variables and E-Government project performance.	Coefficient Correlation	P<0.001 Fail to Reject
Ha4	Moderating for organization size has effect on the significant relationship between the predictor variables and E-Government project performance.	Coefficient Correlation	P<0.001 Fail to Reject

5.1 Answer to Research Questions

The Project Implementation Profile was validated with reliable instrument in measuring the criterion variable project performance and the predictor variable critical success factors. Majority of the findings were consistent and few are not consistent. The finding does not add much to the existing stock of knowledge on project outcome but it does provide support for the validity of the critical success factors affecting the E-Government project.

The first research question identifies the hypothesis and conclusion with a description of the supporting data related to finding the relationships between critical success factors and E-Government project performance. The first finding show the 10 critical success factors have positive relationship with E-Government project performance and the correlations are statistically significant (refer to Table 8).

The second research question investigates the different significance relationships critical success factors have with E-Government project outcome. As for the second finding, critical success factors were significant different between E-Government project outcomes in terms of successful and unsuccessful where the mean of successful project was higher than the mean of unsuccessful project.

Table 8
Outcome of E-Government project outcomes (Successful and Unsuccessful)

	Outcome status of project	*N*	*Mean*	*Std. Deviation*	*Std. Error Mean*
Top Management Support	Unsuccessful Project	38	5.05	1.012	.164
	Successful Project	79	6.43	.812	.091
Top Management Support	Unsuccessful Project	38	3.42	.642	.104
	Successful Project	79	5.37	1.052	.118
Project Schedule/Plan	Unsuccessful Project	38	4.05	1.161	.188
	Successful Project	79	5.97	.891	.100
Client Consultation	Unsuccessful Project	38	2.68	1.141	.185
	Successful Project	79	4.73	.916	.103
Personnel	Unsuccessful Project	38	4.55	.645	.105
	Successful Project	79	5.03	.862	.097
Technical Tasks	Unsuccessful Project	38	4.16	1.534	.249
	Successful Project	79	6.28	1.012	.114
Client Acceptance	Unsuccessful Project	38	5.66	.815	.132
	Successful Project	79	6.05	.876	.099
Monitoring Feedback	Unsuccessful Project	38	4.29	.984	.160
	Successful Project	79	4.84	.966	.109
Communications	Unsuccessful Project	38	4.03	1.026	.166
	Successful Project	79	4.41	.870	.098
Troubleshooting	Unsuccessful Project	38	2.79	1.166	.189
	Successful Project	79	4.77	1.025	.115

The third research question is about the relationship between CSFs and E-Government project performance moderating effect on project size. The third finding found that there were moderate, positive relationship between

predictor variables and the E-Government project performance when controlling for project size and the correlations were statistically significant. Out of the 10 critical success factors of Project Schedule/Plan, Project Mission, Top Management Support, Technical Tasks, Client Consultation, Personnel, Communications, Client Acceptance, Monitoring Feedback, and Troubleshooting, the Top Management support had the most moderate and positive relationship project size. While Client Acceptance had the least weak, positive relationship based on the correlations information results.

The fourth research question is about the relationships between CSFs and E-Government project performance moderating effect on organization size. The last finding found that there were moderate, positive relationship between the organization size and the predictor variables on E-Government project performance when controlling for organization size and the correlations were statistically significant. Out of the 10 critical success factors of Project Schedule/Plan, Project Mission, Top Management Support, Technical Tasks, Client Consultation, Personnel, Communications, Client Acceptance, Monitoring Feedback, and Troubleshooting, the Top Management Support had the most moderate and positive relationship with the organization size. While Client Acceptance had the least weak, positive relationship based on the correlation information results.

From all these findings, most of the respondents who were involved in successful E-Government project outcome had rated higher on critical success factors than the less successful one showing that there was difference in project outcome especially successful project when emphasized more importance on critical success factors.

6.0 CONCLUSION

The results of the current research indicate that there are moderate positive association between the 10 critical success factors and E-Government project performance. The finding of moderate positive associations supports the validity of Pinto's conclusions pertaining to project performance. It also indicates that there is weak significant relationship on critical success factors and project performance relationship when the data for organization size or project size are controlled by organization size (Hyväri, 2006) and project size (Brown, 2006).

6.1 Recommendation for Future Research

The association between Technical Task and E-Government project performance, measured by scaled scores, was the highest of the critical success factors. A future study on the association between Technical Task and E-Government

project performance at different types of E-Government projects might provide organizational leaders with detailed knowledge pertaining to specific factors and specific project types.

A future research study of actual measures of project overrun compared to perceived overrun may provide leaders of organizations information about the differences between perception and actual performance. A future research study of actual budget and the number of deliverable compared to perceptions may provide leaders of organizations information about the differences between perception and actual performance.

The perceptions of subject may be studied using scaled project performance scores compared to dichotomous project performance scores to possibly reveal misconceptions about categorizing a project as a success or unsuccessful. Organizational leaders might use the empirical data as a basis to implement training programs defining the characteristics of successful and unsuccessful projects.

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