PROJECT STRATEGY AND PERFORMANCE: MODERATING EFFECTS OF INFORMATION TECHNOLOGY USE AND POSITION

Ariff Md Ab Malik, Universiti Teknologi MARA
Erne Suzila Kassim, Universiti Teknologi MARA
Hanitahaiza Hairuddin, Universiti Teknologi MARA Cawangan Selangor, Kampus Puncak Alam

ABSTRACT

Strategic projects are part of universities' mission achievement. However, managing them is very challenging as it is massive, complex and requires temporary involvement from the academicians. Hence, adequate project strategy is very important. Using a case in a Malaysian public university transformation projects, the study aims to examine the link between project strategy of quality, engagement and practices, and the project performance. In the meantime, this study attempts to examine the moderating roles of IT use and project positions in the relationships. The results from the survey show the evidences of the importance of project quality and project management practices for project performance and also the significant interaction effects of the moderators. The findings indicate the importance of strategic management for achieving the performance, which is necessary for organizational achievements.

Keywords: Project Strategy, Project Performance, Project Quality, Project Management Practices, IT System Adoption, Project Position.

INTRODUCTION

Key Performance Indicator (KPI) is one of the techniques to assess the project success or failure. In the Malaysian academic sector, KPIs were established and instituted by the Ministry of Higher Education Malaysia (currently known as Ministry of Education Malaysia) to all public universities (Malaysia, 2015) based on national interests for supporting the national agenda. These KPIs were formulated into workable approaches through various special projects or efforts managed by the universities. The outputs of these projects are categorized and accumulated as the KPIs project indicators and the performance is closely monitored and assessed quarterly. These projects were classified as strategic projects that directly contribute to the overall organization's performance and goals achievements. Subject to this study, each project was assigned to a project team led by selected project manager who was responsible for redefining the project objectives and planning for the project implementation. These projects were registered in a customized project management software that administered by the project management office (PMO). According to Too & Weaver (2014), PMO is important for overseeing and reporting the projects progress. Therefore, this study aims to examine the factors of university project performance and the moderating roles of IT use and project position.

REVIEW OF LITERATURE

Project performance can be assessed by evaluating the project criteria against the project output (Pinto, 2013; Ab Malik et al., 2018). In the case of KPI performance assessment approach, Cox et al. (2003) emphasized that this methodology is very helpful in comparing the actual and estimated performance especially on the project effectiveness and efficiency, including project output quality. Thus, the project performance can be measured through a compilation of quantitative and qualitative data of project's performance indicators (Pinto, 2013). On top of this technique, it is required for the project team members to clearly understand their project objectives and outcomes for helping them to plan project strategies.

One of the factors that can foster greater project performance is the project team engagement (Ab Malik et al., 2018). Effective project team engagement leads to the high performance and successful organization (Woods, 2015). Managing the project with quality is another factor to be considered as the requirement for the implementation of project management practices. Therefore, it is crucial for the project manager to lead the team efficiently to ensure the high performance and quality of the project output. As a leader, the direction given to the team members must be correct and strong to provide a better practice of strategic implementation (Bae et al., 2017). Besides that, the project management knowledge among the team members are important to ensure good project practice is applied throughout project planning and implementation (Too & Weaver, 2014; Banihashemi et al., 2017). Thus, it will help the project team effectively monitor the project progress and can take corrective actions if needed during the implementation.

In addition, with the application of project management system, the project easily can be monitored effectively by the project team (Kostalova et al., 2015). However, in optimizing this system efficiently the team members must have better understanding with project management concept and approach. Thus, it will allow them to optimize the usage of system platform. The system familiarization among the team members are also required since most of the organization's project management system is customized developed according to the management requirement and may not follow exactly the best practice of project management body of knowledge (Banihashemi et al., 2017). Moreover, how project team, depending on the project position, responses to the project indicates its success. Aga et al. (2016) concluded that the project team is part of the success factors of project performance. Based on the discussion, we offer the following hypotheses:

H_1 *There is a positive relationship between project quality and project performance*

H_2 *There is a positive relationship between project engagement and project performance*

H_3 *There is a positive relationship between project management practices and project performance*

H_4 *The positive relationship between project engagement and project performance will be stronger for project leader when compared to project member*

H_5 *The positive relationship between project quality and project performance will be stronger when IT system is used when compared to none-use*

RESEARCH METHOD

The population of the study was the project managers and the project members of 58 projects under university transformation program. An online survey was conducted and disseminated to the respective respondents through official email. In total, 60 useful responses

were obtained. Although the number is relatively small, it is considered appropriate for a correlation study (Salkind & Frey, 2019). Items to measure project performance were based on Ogunlana (2010), project engagement (Wang et al., 2005; Suprapto et al., 2015); project management practices (Papke-Shields et al., 2010). Both project position and IT system were measured as categorical scale. The project position was grouped as either project manager or project member, and the IT system use was measured as yes and no.

The conceptual model was empirically analyzed using SmartPLS3. All items meet the minimum loading of 0.708 (Ramayah et al., 2018), the minimum value of the composite reliability (CR)>0.7 and average variance extraction (AVE) >0.5 (Pallant, 2011). A discriminant validity procedure was conducted to observe how the constructs are truly distinct from one another. This is achieved by assessing the Fornell & Lacker's (1981) criterion. Based on the results shown in Table 1, there is a clear evidence of the internal consistency, convergent validity and discriminant validity establishment. Prior to the structural model development, a procedure for addressing the collinearity issue was conducted. Multicollinearity is not an issue since the VIF values for all the constructs are less than 5 (Pallant, 2011).

Table 1
CONVERGENT, DISCRIMINANT VALIDITY AND VIF

Construct	α	C.R	AVE	(1)	(2)	(3)	(4)	VIF
P. Quality (1)	0.953	0.961	0.755	0.869				2.006
P. Engagement (2)	0.976	0.979	0.806	0.61	0.898			3.549
P.M. Practices (3)	0.98	0.982	0.784	0.597	0.817	0.885		3.348
P. Performance (4)	0.984	0.986	0.831	0.684	0.621	0.689	0.911	-

RESULTS AND FINDINGS

The results of one-tailed path coefficients with significant value of $p < 0.1$ are shown in Table 2.

Table 2
PATH COEFFICIENT ASSESSMENT

Hypotheses	Std Beta	Std Error	T Statistics	P Values	f2	Q2	Results
H_1: Quality -> Performance	0.368	0.142	2.585	0.005	0.190	0.474	Supported
H_2: Engagement-> Performance	0.077	0.154	0.499	0.309	0.005		Not Supported
H_3: Practices -> Performance	0.365	0.188	1.944	0.026	0.112		Supported
H_4: Engagement*Position -> Performance	0.185	0.128	1.447	0.074	0.082		Supported
H_5: Quality*System Use -> Performance	0.162	0.113	1.44	0.075	0.041		Supported

Note: R^2 (excluding interaction effects) 0.603
R^2 0.646

Following Hair et al. (2017) for acceptance of t-value > 1.28 for p value < 0.10, it was found project quality has a positive relationship with project management performance (ß = 0.368, $p<0.05$), and project management practices has a positive relationship with project management performance (ß = 0.365, $p<0.05$). The value of coefficient of determination (R^2) of the main effect model is 0.603, suggesting a 60.3% of the variances in project performance. Although not all studies reported the effect size, it is an advantage to perform the test as any

statistics significant should not only base on the statistical test result (p-value) but also the actual size of the effect (Hair et al., 2017). The effect sizes for H1 and H3 are 0.19 and 0.112 which indicate a medium effect size.

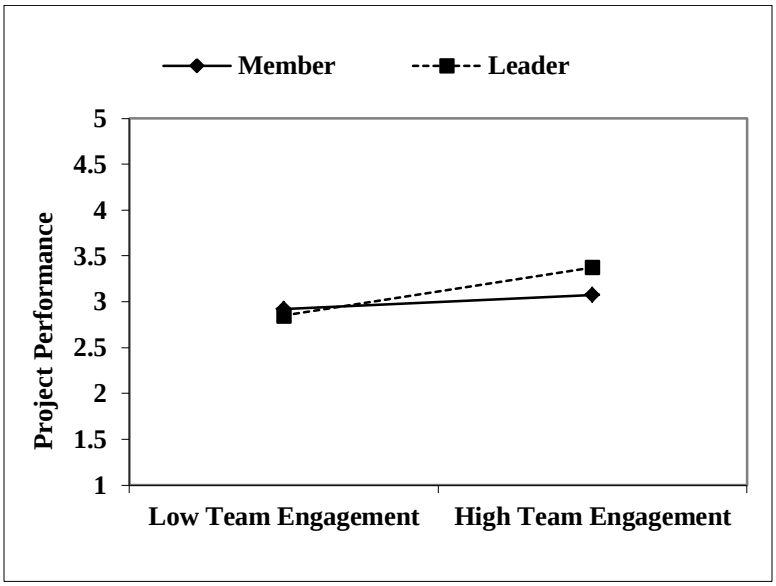

FIGURE 1
PROJECT POSITION EFFECT

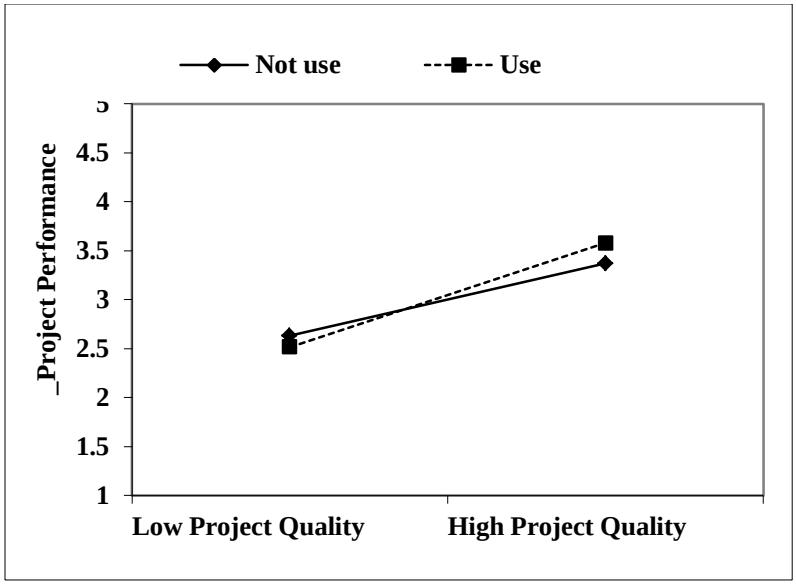

FIGURE 2
IT USE EFFECT

The product indicator approach (PIA) was used to examine the interaction effects. The coefficient determination R^2 increased to 0.646. There is an effect size of 0.127. The interaction effects of project position and IT system use are significant (ß = 0.185, $p<0.10$) and (ß = 0.162, $p<0.10$). Their effect size to R^2 is 0.082 and 0.041. The interaction effects are illustrated in

Figure 1 and Figure 2. There are evidences that the positive relationship between project engagement and project performance is indeed stronger for project leader. Besides, the positive relationship between project quality and project performance is also stronger when IT system is used in the project. Therefore, both hypotheses are supported.

CONCLUSION

University projects are introduced to convey the organizational strategies that were developed to lead research and academic programs that align with the national plan. Based on the findings, the project quality and project management practices are the key factors to the university project performance. In addition, IT use and project position will differentiate between success and failure. The results show that there is a strong positive relationship between project engagement and project performance for project leader. Furthermore, this study also shows that the quality and performance of the projects increase with the use of IT. Therefore, these factors must be carefully blended and crafted for continuous university project success. However, taken into consideration the limited sample size and the delimitation of project communication and leadership, we propose future research to enlarge on the sample and study on the potential antecedents.

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