Factors Influencing Project Achievement: Exploration of Project Leadership, Project Management Practices, Team Engagement and System Adoption of the University's Strategic Projects

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Abstract: Malaysian public universities are governed to develop strategies to spearhead academic and research achievement in supporting the national agenda. Performance indicators were set, and projects are run to ensure the achievement of outcomes successfully. Since these projects are massive and very challenging, managing them requires a blend of multiple contexts involving matrix engagement, various leadership styles and diverse team members. Past studies have argued on the importance of people, resources, time and cost for an effective project management. Hence, using a case study of a Malaysian public university transformation projects, the aim of this study was to measure the project achievement by examining the project leadership, project management practices, team engagement and project monitoring system adoption. The work was based on a quantitative survey method on the project teams and the data was analysed by using SmartPLS. It was found that project leadership, project management practices, and system adoption play their roles as predictors to project achievement except project team engagement. This study is important as managing projects requires close coordination and corporation from stakeholders. By identifying the critical issues of project achievement, cases of project laggings could be minimized.

Index Terms: Keywords: Project Management Governance, University Transformation Projects, Project Performance.

I. INTRODUCTION

In meeting the challenging environment and technological era, the organization need to be ready to change the way of doing business. Such programs are used to increase the organization's performance by developing new capabilities within the organization involving organizational restructuring, business process changes, adoption of new technologies and optimizing resources (1). Some significant impacts can be achieved through these processes that directly can enhance new achievement of the organization. These projects are classified as strategic projects that directly will contribute to the major impacts of the overall organization's performance if the projects are successfully achieved their ultimate goals.

This study was based on the implementation of the transformation program in one of the Malaysian public universities. This program has been designed and implemented to transform the institution in reaching the new heights towards global recognition and achievement. 58 special projects were initiated and implemented that can be categorized under four main university's pillars such as; organization, talent, process and technology. Each project has been assigned to a specific project team lead by a project manager. The project teams were required to redefine their project objectives and plan of their project implementation. In addition, these projects have been registered in the customized Internet based project management software for centralize the project documentation repository and monitoring purposes. Aligned with Too and Weaver (2), a university project management office (PMO) has been created and assigned to oversee, facilitate and report the project progress and achievement to the related stakeholders.

One of the strategies to cope with the project challenges is to deploy a system that monitors, tracks and manages project performance. However, having the system does not guarantee for the project success. Past studies have indicated the importance of team engagement, project leadership and project management practices as the key drivers (2-7). However, these key points are yet to be investigated as the critical success factors for university projects

Therefore, it is the aim of the study to validate the assumptions and to evaluate the governance of university projects. The research is important as managing projects requires close coordination and corporation from various sources. By identifying the critical issues of project governance and the use of the system, cases of project

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II. LITERATURE REVIEW

A. Project Achievement

Universities are the agents of social and economic transformation. Strategies are then developed to spearhead research and academic programs that align with the national plan. As such, university projects are introduced. In managing the projects, the important aspects of planning, scheduling and controlling must be adhered (8). However, managing university projects is a challenging process as not only the key project characteristics of costs, resources and time have to well attained, (2), but the success governance of the matrix engagement indicates project achievement.

In university projects, leaders and team members from different entities are appointed. The temporary endeavor requires a good commitment and project competencies (9). The manpower that assigned to these designated projects was not full-time basis and involved with other administrative responsibilities. Thus, indirectly required more attention and good project governance in ensuring the intended projects' outcomes can be achieved as planned. It is also become so important for the project teams to be more precise and detail in their project planning in producing the expected project outputs. At the same time, sharing the inspiration of these agenda become more difficult since the selected project teams may not fully understand the main objective of implementing this transformation program.

Since the main purpose of the transformation program is crucial, in general the durations of these projects are approximately around two to three years subject to the targeted university's outputs and deliverables. The project progress will be evaluated and compared to the selected project indicators in yearly basis. If necessary, the targeted indicators will be negotiated and revised between university's project management office (PMO) and the project team to ensure the project progress can be projected higher from the current performance in the next coming year. Project revision also will be conducted if the current project performance is not at satisfying level and reformulation of project strategies together with project approaches will further enhance.

Due to the uniqueness of the project resources and implementation, and the nature of organization, there are several elements that should be given attention in governing these projects to be successful achieved the organization's desired goals, such as; (i) leadership competency, (ii) project team engagement, (iii) project management practice, and (iv) information technology adoption.

B. Leadership competency

Competency of project leader plays an important role in ensuring the project can be planned and implemented according to the given project objectives (3, 10). The project understanding is crucial to the project managers when dealing with the top-down designated projects that assigned to them. Failure to comprehend the needs of the project by the project manager may lead to the creation of undesirable project results that could not give to the expected contribution to the KPIs (11). The project managers also need to have capabilities to control and utilize their project resources and manpower effectively and efficiently (3, 4, 10, 12). Creativity, experience and emotional intelligent elements are required by the project manager in developing the best project implementation approach (3, 10).

C. Project Team Engagement

The project environment also may contribute to the engagement method among the team members (13). In many scenarios, the project manager has independent to select his team members for the project. Thus, it will allow the project manager to work closely with his subordinates effectively. However, team member engagement effectiveness will also depend on the leadership style of the project manager (5, 7, 14, 15).

D. Project Management Practice

The project management knowledge among project team members are important to ensure good project practice is applied throughout project planning and implementation (2, 3, 5, 6, 16). Thus, it will help the project team effectively monitor the project progress and can take corrective actions if needed during the implementation. The project documentation and communication should be organized without constant monitoring by the PMO. The project team may also constantly conduct risk management process to ensure the negative impacts on the project can be managed effectively and efficiently (5).

E. Information Technology Adoption

With the application of project management system, the project easily can be monitored effectively by the project team (17). 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 (5, 16, 17).

Based on the discussion, we offer the following hypotheses:

H₁: There is a positive significant relationship between project leadership competency and project achievement

H₂: There is a positive significant relationship between project team engagement and project achievement

H₃: There is a positive significant relationship between project management practices and project achievement

H₄: There is a positive significant relationship between project management system (system adoption) and project achievement

III. METHODOLOGY/MATERIALS

A. Population, Sample size and Instrumentation

An online survey was conducted as a means to gather

the information and it was designed using Survey Monkey. The questionnaires were sent to the respondents via official email. The questions were divided into three sections: Section A required the respondents to supply their demographic profile, Section B requested the respondents to answer questions on project leadership (18), Section C requested the respondents to answer questions on project team engagement (13, 15) and Section D required the respondents to answer the questions on project achievement (11). Face and content validity procedure was performed by the seeking the opinions from the experts in the field.

The population of the study was the project managers and the project members of public university strategic program. There are 58 projects under transformation programs. The number of population is 265 which involve 58 project managers and 207 project members. 155 respondents (34 project manager and 121 project members) were chosen as samples by using proportionate stratified sampling technique as shown in Table I.

Table I: *Sample Size*

Position	Population	Percentage	Sample
Project Manager	58	22%	34
Members	207	78%	121
Total	265	100%	155

B. Respondents' Demographic Profile

There were 71 respondents (45.8%) returned the questionnaires. However, only 60 responses were usable after the data screening process. Although the number is considered small, based on Sekaran and Bougie (19) it is considered appropriate for a correlation study. A descriptive analysis was conducted to describe the demographic profile of the respondents. and the results are shown in Table II. Out of 60 respondents, 28 (46.7%) of them were male and 32 (53.3%) ware female. Concerning to their position in the project, 26 (43.3%) are the project managers and 34 (56.7%) are the project members. Majority of them are Malay (90%) and followed by Chinese and Indian (6.67 and 3.33 respectively).

Table II: Demographic Profiles of the Respondents

Variable	Frequency	%	Variable	Frequency	%
Gender			Race		
Male	28	46.7	Malay	54	90.0
Female	32	53.3	Chinese	4	6.67
Position			Indian	2	3.33
Project Manager	26	43.3			
Project Member	34	56.7			

C. Assessment of measurement model

The conceptual model was empirically analyzed using SmartPLS version 3 for confirming on the validity and reliability. The indicator loading, CR and AVE for the reflective constructs are shown in the Table III. All of the item loadings exceed the minimum recommendation value of

0.6, which is required for an exploratory study (20). All constructs meet the minimum value of the threshold requirement of composite reliability (CR)> 0.7 and average variance extraction (AVE) are greater than 0.5 (21).

Table III: Internal Consistency and Convergent Validity

Item		Item Loading	C. Alpha	CR	AVE
Project leadership competency			0.972	0.974	0.693
PL1	Critical analysis and judgment.	0.759			
PL2	Imaginative and innovative.	0.822			
PL3	Aware of broader issues and implications.	0.898			
PL4	Establish clear objectives and	0.79			
PL5	Able to convert long-term goals into action plans.	0.864			
PL6	Engage others, approachable and accessible.	0.766			
PL7	Give direct autonomy and encourage team to take challenges and develop their accountability.	0.88			
PL8	Develop team's competencies and invests time and effort in coaching them.	0.896			
PL9	Determine to achieve objectives and implement decisions.	0.851			
PL10	Aware of my feelings and able to recognize and control them	0.78			
PL11	Retain focus despite personal challenges or criticism.	0.895			
PL12	Drive decisions in the face of incomplete or ambiguous information by using both rational and 'emotional' perception.	0.918			
PL13	Aware of and take into account the needs and perceptions of others.	0.851			
PL14	Able to persuade others to change a viewpoint.	0.779			
PL15	Able to provide rationale for change.	0.74			
PL16	Have drive and energy to achieve clear results and make an impact.	0.797			
PL17	Display clear commitment.	0.834			
Project Team Engagement			0.976	0.979	0.806
PTE1	strongly felt they are part of the project.	0.944			

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Item		Item Loading	C. Alpha	CR	AVE
PTE2	are strongly attached to this project.	0.914			
PTE3	felt proud to be part of the team.	0.916			
PTE4	felt responsible for maintaining and protecting the team.	0.923			
PTE5	have adequate skills to work on the project.	0.876			
PTE6	have adequate experience to work on the project.	0.929			
PTE7	have adequate knowledge to work on the project.	0.851			
PTE8	establish routine communication	0.813			
PTE9	share project-relevant information	0.829			
PTE10	communicate directly.	0.939			
PTE11	communicate project problems and issues.	0.928			
Project Management Practices			0.98	0.982	0.784
PMP1	Project plan	0.916			
PMP2	Feasibility study	0.919			
PMP3	Project deliverables list	0.891			
PMP4	Scope statement	0.922			
PMP5	Project schedule	0.873			
PMP6	Schedule update	0.808			
PMP7	Project activities list	0.911			
PMP8	Activity duration estimates	0.838			
PMP9	Quality checklists	0.91			
PMP10	Quality management plan	0.886			
PMP11	Quality audit	0.898			
PMP12	Roles and responsibilities list	0.877			
PMP13	Risk management plan	0.844			
PMP14	Contingency plan	0.862			
PMP15	Status review meetings / updates	0.916			
System adoption			0.995	0.995	0.937
PMO1	Provide details of the project	0.978			
PMO2	Schedule the project	0.975			
PMO3	Monitor the project	0.971			
PMO4	Updating the project progress	0.943			
PMO5	Overview the project activities	0.926			
PMO6	Register the performance indicators	0.930			
PMO7	View the performance indicators	0.978			
PMO8	Register the project issues	0.984			
PMO9	Register the project risks	0.978			

Item		Item Loading	C. Alpha	CR	AVE
PMO10	Monitor the project risks	0.984			
PMO11	Able to assign resources to each task	0.971			
PMO12	View reports	0.984			
PMO13	Calendaring	0.968			
PMO14	Uploading evidence	0.978			
Project Achievement			0.984	0.986	0.831
PPA1	Delivered on time.	0.929			
PPA2	Delivered within the budget.	0.957			
PPA3	Used resources efficiently.	0.808			
PPA4	Delivered the expected goals.	0.909			
PPA5	Conforms to the stakeholders' expectations.	0.750			
PPA6	Satisfies the needs of the stakeholders.	0.945			
PPA7	Prepares for the future needs.	0.913			
PPA8	Increases customer (students/staff/stakeholder) satisfaction.	0.958			
PPA9	Promotes university image.	0.944			
PPA10	Establishes high quality service process.	0.95			
PPA11	Provides excellent teaching quality.	0.94			
PPA12	Increases staff quality	0.943			
PPA13	Increases income.	0.935			
PPA14	Contributes to the project performance.	0.851			

Next, a discriminant validity procedure was conducted to observe how the constructs are truly distinct from one another. This is achieved by assessing the cross loading criterion, Fornell and Larcker criterion and Heterotrait-Monotrait ratio of correlations (HTMT) (22). Based on the results shown in Table III, there is a clear evidence of the discriminant validity establishment following the suggestions of Gold, Malhotra (23) and Kline (24). The square-root of the AVEs of all latent variables which are shown in bold are higher than the correlations on other variables. As there has been criticism on the usage of Fornell-Lacker criterion to detect discriminant validity, HTMT ratio correlations as suggested by Henseler, Ringle (25) that offers a stringent of better discriminant criterion was used. The results of the HTMT inference using bootstrapping confidence interval technique are less than 1. Therefore, it is confirmed every construct is truly distinct from one another.

In addition, prior to the structural model development, a procedure for addressing the collinearity issue was conducted. Pallant (26) suggested the existence of multicollinearity does not contribute to a good regression model and the value of VIF should be assessed. Hair, Hult (27) suggest that VIF value of 5 or higher indicates a potential collinearity problem. The results in Table IV indicate

multicollinearity is not an issue in this study. The next step is to proceed with the structural model and hypothesis testing.

Table IV: HTMT Criterion and Variance Inflation Factor (VIF)

	Team Engagement	Project Leadership	PM Practices	System Adoption	Project Achievement	VIF
Team Engagement	**0.898**					3.729
Project Leadership	0.7	**0.832**				2.014
PM Practices	0.817	0.638	**0.885**			3.094
System Adoption	0.292	0.175	0.225	**0.968**		1.095
Project Achievement	0.621	0.609	0.689	0.329	**0.911**	-

IV. RESULTS AND FINDINGS

In order to test for the hypotheses, PLS algorithm was used with a bootstrapping resampling technique of 1000 sub-samples for ensuring the accuracy of the PLS estimates as recommended by Hair, Ringle (21). The results of one-tailed path coefficients are shown in Table V. Following Diamantopoulos and Siguaw. (28) for acceptance of t value > 1.28 for p value < 0.10, it was found project leadership (ß = 0.289, $p<0.10$), project management practices (ß = 0.496, $p<0.01$) and system adoption (ß = 0.178, $p<0.01$) play their roles as predictors to project achievement. On the other hand, there is no evidence that supports the relationship between project team engagement and project achievement. Thus, it could be concluded H1, H3 and, H4 were supported.

Next, the values of coefficient of determination (R^2) of 0.552 suggests the exogenous constructs explain 55.2% of variances in project achievement, which (Hair et al., 201729) (29)considered as moderate. Additionally, the f^2 values that represent the effect size of a specific exogenous construct on the endogenous construct (27) were also assessed. There are medium effect sizes of project leadership and project management practices to project achievement, while the effect size of the system adoption is considered as small.

Table V: Path Coefficient Assessment and Determination of Coefficient (R^2) and Effect Size (f^2)

	Std. Beta	Std. Error	t-value	Decision	f^2
H1: Project leadership and achievement	0.289	0.127	2.274	Supported	0.233
H2: Team engagement and achievement	-0.038	0.164	0.233	Not supported	0.001
H3: PM practices and achievement	0.496	0.175	2.827	Supported	0.177
H4: System adoption and achievement	0.178	0.083	2.139	Supported	0.065
R^2	**0.552**				

V. DISCUSSION

This study aims to examine the roles of project leadership, team engagement, project management practices and system adoption to the achievement of university projects. Based on the results, the key factors to university project achievements are project management practices, project leadership and system adoption. The findings provide several areas of discussion.

First, regardless of the project nature, the essentials of project management, which is the understanding and applying the know-how of project attributes is the foundation of a good project management practices, which is crucial for achieving the success. The success achievement in this aspect is not only about satisfying or fulfilling the classic story of costs, budgets, schedule and customer expectation. But in university projects, equally important is the ability to promote for the university image, increase the staff quality and establish high quality service process.

Second, project leadership is important in deriving the success. This is not by any means of giving the instructions and fully delegating the tasks. As team members of university projects are considered as having the sufficient technical knowledge in the areas of the projects and in other relevant procedures and processes, it is indeed very challenging for the leaders to drive the team towards a common goal. Thus, determination, retain focus despite criticism, high commitment and a good drive and energy are the important leadership capabilities to gear and direct the team towards the goals.

Third, a good information system is important in monitoring the project progress towards achieving the objectives. Thus, turning the classic project requirements of costs and budgets, schedule, resources, project activities and risks to an automation mode definitely pays off. This is especially important when the projects are massive and involves various stakeholders and uncertainties like the university projects.

Forth, although team plays an important role for cohesiveness and engagement, in this study, there is no evidence to capture its role to the project achievements. However, this does not indicate the team members neither not supporting one another nor there is lack of communication. One possible explanation is the nature of the team appointment which being in the project is not the primary responsibilities. As the members are academic staff and teaching, research and publication are the priority, nonetheless, the ability to commit the 'second' job may results in poor team engagement.

VI. CONCLUSION

This study was conducted with the main aim of understanding the key factors of university project achievement. It was found project management practices, project leadership and the use of a project management information system are essential in driving the success. The study therefore provides some lessons and the findings

could be used to formulate strategies to ensure all university projects objectives are successfully implemented for achieving the national agenda.

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