

Investigation on Project Management Performance Using Knowledge Project Management Performance Assessment Model: A Pilot Study

Norshima Humaidi and Nor Azilah Mohd Asarani

Abstract—Project Management is an important tool use in a project development. Therefore, as a project manager, he/she should practice project management adequately. This study was conducted to construct a research model namely Knowledge Project Management Performance Assessment (KPMPA) model. In finding the gap of the study, several literatures on project management issues have been reviewed. Based on the literature review, the study posited four constructs (Project Leadership, Project Teamwork, Project Life Cycle, and Project Knowledge) which are believed can influence project management performance. The Key Performance Indicators (KPIs) is use to evaluate the Information Communication and Technology (ICT) project management performance. Pilot study was conducted with 42 respondents. A result of reliability analysis shown the alpha value for each construct is more than 0.7, which means all constructs are acceptable. The proposed model will be used to investigate the performance of project management at ICT Company in Malaysia.

Index Terms—Project management, project management performance, Project development, key project performance indicators.

I. INTRODUCTION

A project is an important asset in most of Information Communication and Technology (ICT) Company. Most ICT Company implements information system (IS) development project which is the project that have dynamic, complex and unstructured characteristics [1]. Thus, project manager or person who heads the project must be able to practice good project management. To ensure each project performs successfully, it does not depend whether the methods or tools are applicable or the best, but what is important is to practice on how to manage the project resources especially the people who are involved in the project. One way to do this is to practice the recommended skills in the project management (PM).

PM is able to handle complex or novel activities. PM is important because it does provide project guidelines to project team [2]. This guideline explains on how to organize, plan and manage project resources in order to accomplish project goals and objectives. Without proper project guideline, most projects do not meet time and budget goals, or fail to satisfy customer and company expectation [3]. In spite of that, other factors also have contributed to the

failure of project such as weaknesses in project mission and planning, lack of project knowledge, communication breakdown between teamwork, lack of resources, politics issues, control issues, lack of top management support, and weaknesses in leadership skill, etc. Knowledge is important as it can influence project management performance [4]. Reference [5] indicated that teamwork must have good knowledge on project undergoing otherwise project might fail. Lack of experience and knowledge can lead to a troubled project development. Thus, it is the responsibility of project leader or manager to ensure project team can fulfill their job.

Few studies were done on the effect of leadership style on project management performance (PMP). Reference [6] claimed that leadership style is a critical factor to project success. Therefore, this study was carried out with aim to propose project model where leadership style is one of the construct. The study focuses on four main research questions; 1) Does leadership styles influence project management performance? 2) Does teamwork competency influences project management performance? 3) Does project life cycle influences project management performance? 4) Does knowledge moderates the effect of leadership style and teamwork competency on project management performance increase?

II. LITERATURE REVIEW

A. Definition of Project Management

It is important to understand the concept of project before discussing about project management. Project Management Institute defines project as a temporary endeavor undertaken to create a unique product, service, or result [7]. The operation differences between projects are depending on when objectives are reached and the project terminated. A project may appear to be in a large scale or small scale and may involve more than one person or may reach up to thousands of people and due to this, projects need to be managed efficiently.

“Projects were seen as a mechanism to manage the output from unique, capital-intensive activities, in such areas as construction, and furthermore, recent literature suggests project can be viewed as vehicle for managing all types of change.”[8]. “Project management is the application knowledge, skills, tools and techniques to project activities to meet project requirements” [7].

B. Research Background & Hypotheses

1) Leadership style

Leadership style is defined as style on how project

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manager manage or control the progress of the project [6]. This construct has been revealed to give an impact to project performance in industry [6], [9]-[10]. Transformational leadership may be the predictor of project performance and this style suits for complex project [9]. However, according to [11], transactional style was for simple project. Reference [6] and [10] believed that both may influence project management performance.

H1-a: Leadership style influence PMP

H1-b: Transformational leadership style is more frequent in ICT project. In contrast, transactional leadership style is more frequent in ICT project.

2) Teamwork

Teamwork is defined by [12] as a group of people who are held responsible to perform task given in project development. Every member in project teams should be able to share and utilize project information effectively and efficiently. Thus, [6] believes that collaboration and communication among team members are important. Reference [12] stated that the team members must aware of each other's expertise and roles. Project team requires a diversity of knowledge among its members to complete the project. One of the important elements in project team is their competency because it is believed that it can promote project performance [13]-[14]. Reference [13] also stated that lack of competency on IS project is one of the primary reasons for the failure of IS project.

H2: Teamwork's task competency influences PMP

3) Project life cycle (PLC)

PLC refers to a logical sequence of activities to accomplish project goals and objectives. It consists of several phases, where each phase have deliverables output. PLC emphasizes on upstream and downstream activities [15]. According to [16], PLC can help project leader or manager to control the execution of the project and the resources. With well-structured PLC, it can help to reduce project risk.

H3: PLC influences PMP

4) Knowledge

Knowledge has been selected as a moderator variable in this framework. In project environment, knowledge is important and should be able to be shared by all the people involved in the project. In addition, sharing knowledge is important to motivate all the team members to perform their best [17]. Leader plays an important role and has a significance influence upon the knowledge management process applied in project development. Thus, a leader's responsibility is to ensure that information gained from the project was preserved and made accessible team members.

H4: Knowledge moderate the effect of leadership style and PMP

H5: Knowledge moderate the effect of Teamwork's task competency and PMP

C. Project Management Performance (PMP)

Project performance is defined as meeting cost and time objectives and adhering to a product specification. In order to measure PMP, KPIs will be used.

1) Key performance indicators (KPIs)

Reference [18] observed that the KPIs are useful when being compared between the actual and estimated performance in terms of effectiveness, efficiency and quality of both workmanship and product. In short, success factors are the efforts made – or strategy adopted – to achieve the success on project. Whereas, according to [19], KPIs are the compilations of data measures (either by quantitative or qualitative data) used to access the performance of the construction operation.

Based on previous studies, we have to look at various project performances in order to evaluate project management success or project success. "To measure project success, project performance must achieve project objective and must be aligned with criteria stated by project stakeholders" [20]-[21]. "If the clients or project stakeholders are satisfied with the outcome of the project, it shows the performance of the project itself. Besides that, benchmarking approach or KPIs can also be used to measure project success [22]-[23]. Reference [23] claimed that benchmarking approach has also proved its usefulness in measuring PMP based on KPIs.

D. Research Framework

The proposed model discussed the interrelationships between several constructs that have been identified and the interrelationships among variables that were deemed to be integral to the dynamics of the situation being investigated. Thus, the proposed model in Fig. 1 posits the construct based on literature review discussed. This research recognized the independent variables and proved that these 4 constructs have an influence on the dependent variable.

The four constructs are Project Leadership Style (transformational leader and transactional leader), Project Teamwork, Project Management Life Cycle and Project Knowledge. Knowledge has been located in the framework as moderating variable in this study. KPIs are used to measure PMP. Research framework is adapted from [15] and named as knowledge project management performance assessment model or KPMPA.

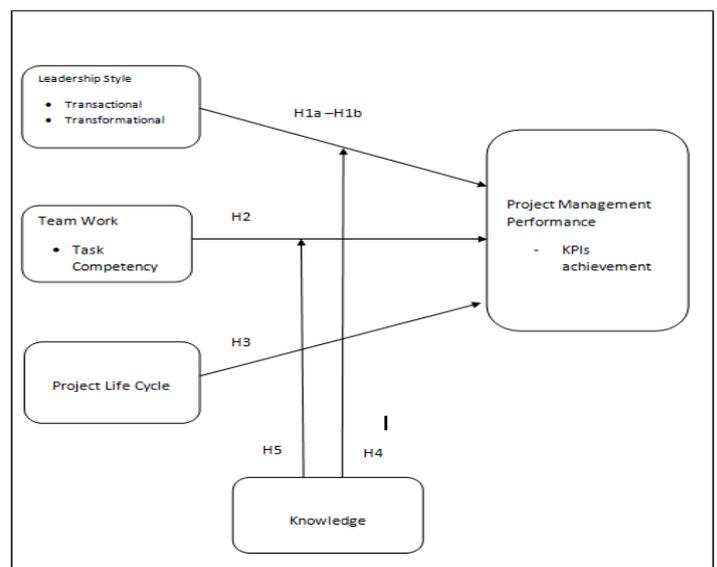


Fig. 1. KPMPA model

III. RESEARCH METHODOLOGY

A. Research Design

The pilot study employed quantitative research method; specifically questionnaires were distributed randomly to employees from various positions such as Project Manager, IT Project Manager, Software Developer, Software Engineer, Systems Analyst, Network Engineer and employees who have experience in project environment. The sampling frame used for this study was obtained from the Human Resource Manager and Human Resource Senior Executive at ICT Company, Klang Valley, Malaysia.

Total of 42 questionnaires were obtained and validated. The researcher analyzed the data gathered from each individual and treated each respondent as an individual data source.

B. Measurement Scale

A set of questionnaire were adapted from previous researches. The seven point likert-scale ranging from 1=Strongly Disagree, 2=Disagree, 3=Somewhat Disagree, 4=Neither Agree or Disagree, 5=Somewhat Agree, 6=Agree, and 7=Strongly Agree were divided into seven sections namely Section A, Section B, Section C, Section D, Section E, Section F, and Section G.

Section A includes the questions on the demographic background of the respondents such as gender, age, experiences in project environment as well as position. The type of scale used in this section was nominal scale. "A nominal scale is used to assign subjects to certain category or groups" [24]. Section B until Section G of the questionnaire focused on the following variables ("Transactional Leadership", "Transformational Leadership", "Teamwork", "Knowledge", "Project Management Life Cycle Processes", and "Project Management Performance (KPIs)").

These sections listed the factors that contributed to the study of the most significant factors of KPMPA model over project management performance in ICT companies in Klang Valley, Malaysia. The type of scale used for this section is interval scale.

C. Survey Instrument

A set of questionnaire were adapted from several researchers such as [15]-[16], [19], [27]-[30], and the question was improved based on study being conducted.

According to [31], a questionnaire is a pre-formulated written set of questions to which respondents write their answers. The questionnaires were written in English and were distributed to all respondents.

IV. RELIABILITY ANALYSIS

The instrument used in this study was tested for validity and reliability to ensure a high-quality measure. Reliability and validity of a measurement instrument were essential because the absence of these qualities could explain why the researcher acts incorrectly in accepting or rejecting the research hypothesis [31].

Cronbach Alpha was used for the purpose of reliability measurement. The purpose of Cronbach's Alpha is to find out how well the item in a set positively correlate to one and

another. The alpha value of the pilot study is listed in Table I.

TABLE I: CRONBACH ALPHA VALUE OF THE PILOT STUDY

Alpha Value		
Section	Name of Construct	Alpha Value
B	Project Leadership Style: Transactional leadership	0.767
C	Project Leadership Style: Transformational Leadership	0.708
D	Project Team Work	0.864
E	Project Knowledge	0.777
F	Project Management Life Cycle	0.802
G	Project Management Performance (KPIs)	0.885

From Table I, it was found that the Alpha value ranges from 0.7 to 0.9. This value indicated that the questionnaire was suitable for the purpose of study as alpha value with the minimum value of 0.60 is accepted for measuring the reliability of the instrument [32]-[33]. According to [31], reliabilities less than 0.60 are considered to be poor, those in the 0.07 range are acceptable and those over 0.80 are good.

As a rule of thumb, [31] interpreted Cronbach's Alpha as follows:

- a>0.9 - excellent
- a>0.8 - good
- a>0.7 - acceptable
- a>0.6 - questionable
- a>0.5 - poor
- a<0.4 – unacceptable

Since the instruments were found to be valid and reliable; no changes were made; therefore the same instruments will be used for final study.

V. CONCLUSION

Many organizations realized that if they want to compete in business, they need to have a good project leaders and good project team members. Reference [15] stated that many organizations from the corporate world are claiming "We manage project very effectively and our performance is outstanding". Despite this, numerous organizations still ignore to invest in evaluating PMP. Many of them focus more on project meeting time, cost and project specification. However, they ignore the performance of project management and does not seriously consider on the competitive side and competency of project leader and team members. Lack of project management skills will lead to project failure. Thus, issues in PMP have to be considered by all the project leaders.

Previous studies have investigated several issues on project management performance. Reference [15]

introduced Project Management Performance Assessment (PMPA) Model. The model posits several constructs which are significant to PMP which are; Project Management Leadership, Project Management Staff, Project Management Life Cycle, Project Management Resources, Project Management Procedure and Resources, and Project Management KPIs. Total Quality Management (TQM) was another model used to test the effectiveness of PMP. Many industries have applied the concept of TQM to improve project performance especially in construction project.

Based on previous literatures, several issues regarding PMP have been identified. Very few studies on factors of leadership style influences PMP were investigated. Thus, this study have proposed new model, called Knowledge Project Management Performance Assessment (KPMPA) model which posits several constructs such as: Leadership style, Teamwork's task competency, PLC, Knowledge (moderators) and KPIs (independent variable use to measure PMP). Reliability test have been done to ensure the reliability of each construct. According to the result, all the constructs have been accepted with alpha value more than 0.7. Thus, new KPMPA model is hoped to investigate and dig out the influence of those constructs on PMP.

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