TEAM RELATED FACTORS INFLUENCING PROJECT PERFORMANCE AS PERCEIVED BY PROJECT MANAGERS IN MALAYSIA

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A Thesis Submitted to Asia e University in Fulfilment of the Requirements for the Degree of Doctor of Philosophy

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Abstract

As more and more project teams are formed to help Malaysian organizations to achieve their objectives that individual efforts alone cannot achieve, studies showed that returns of project investment is not very encouraging as people issue is a major contributor. Since a typical project requires a team of members and project manager to deliver its objectives, there is compelling reason to understand what are the team related factors influencing project performance.

This research developed a model underpinned on Cohen and Bailey's (1997) Team Effectiveness Framework as well as General Systems Theory (Bertalanffy, 1968; McGrath, 1984) to empirically analyze some of the critical factors that can influence project performance. Data were collected through an online survey from members of the Project Management Institute Malaysia Chapter in which sample of 201 respondents were randomly selected. The model and data were then tested using Partial Least Squares whereby the results showed that a project manager's leadership roles, team building & participation and team shared mental models are important but not directly influencing project performance. These three factors are influencing project performance indirectly through interaction among themselves as well as through team attitudinal outcomes which include team trust and team satisfaction. These three factors also can influence team behavioral outcomes directly but team behavioral outcomes which include team cohesion and team effectiveness alone do not directly influencing project performance.

Lesson learnt for a project manager is to demonstrate different leadership roles more frequently and build up a project team by encouraging team members' participation. Team building activities that can improve communication, clarifying team objectives, promoting mutual supportiveness, enable problem and conflict resolution as well as facilitating team empowerment are encouraged. When these are attained, common knowledge about the team members' characteristics and their interaction patterns will improve in which this will promote team trust and team satisfaction. Amelioration of all these outcomes will produce the aspired positive project performance. In summary, this empirical research merely represents a small step in pursuing a more comprehensive and epistemological model that can provide insight on how team related factors are influencing project performance.

Approval Page

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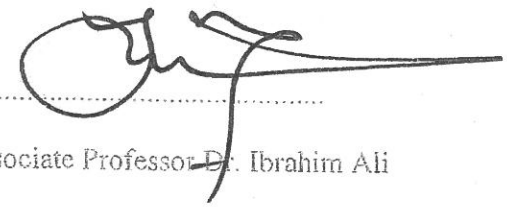

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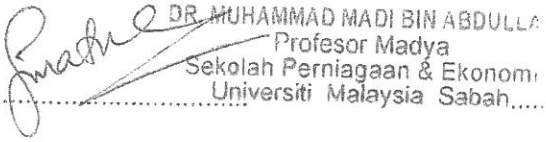

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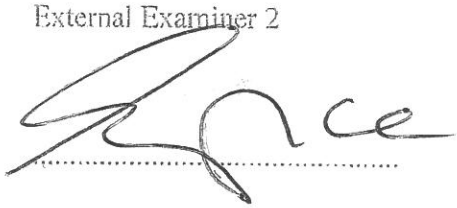

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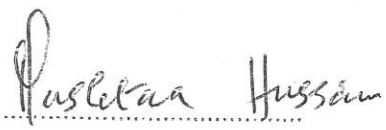

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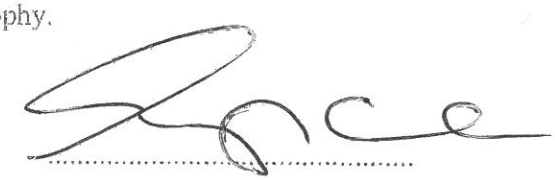

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I hereby declare that the thesis is submitted in fulfillment of the PhD degree is my own work and that all contributions from any other persons or sources are properly and duly cited. I further declare that the material has not been submitted either in whole or in part, for a degree at this or any other university. In making this declaration, I understand and acknowledge any breaches in this declaration constitute academic misconduct, which may result in my expulsion from the program and / or exclusion from the award of the degree.

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List of Abbreviations

10MP	10th Malaysian Plan
ADB	Asian Development Bank
AVE	Average Variance Extracted
BCL	Behavioral Complexity Leadership
CFA	Confirmatory Factor Analysis
CIDB	Construction Industry Development Board
CPM	Critical Path Method
CSF	Critical Success Factor
CVF	Competitive Values Framework
EFA	Exploratory Factor Analysis
ICR	Internal Composite Reliability
ICT	Information Communication Technology
IPO	Input-Process-Output
IPOO	Input-Process-Output-Output
IT	Information Technology
JDI	Job Description Index
LR	Leadership Roles
M	Mean
MBI	Managerial Behavior Instrument
MIDA	Malaysian Industrial Development Authority
MLE	Maximum Likelihood Estimation
NPV	Net Present Value
PERT	Program Evaluation Review Technique
PIP	Project Implementation Profile
PLS	Partial Least Squares
PLS-SEM	Partial Least Squares-Structural Equation Modeling
PMBOK	Project Management Book of Knowledge
PMI	Project Management Institute
PP	Project Performance
PPP	Public-Private Partnership
RM	Ringgit Malaysia
ROI	Return Of Investment
S.D.	Standard Deviation
SEM	Structural Equation Modeling
SMM	Shared Mental Models
TAO	Team Attitudinal Outcomes
TBO	Team Behavioral Outcomes
TBP	Team Building & Participation
TSMM	Team Shared Mental Models

Chapter 1 – Introduction

1.1 Background of the Research

In Malaysia today, many organizations are using project teams to deliver products and resolve problems especially on complex tasks. This is because project performance through team is more effective compare to individual performance as the team outcomes exceed the sum of individual outputs. However, achieving positive project performance does not come at random as it requires a lot of resources and financial commitment. For example, through the loan provided by Asian Development Bank (ADB), there was Ringgit Malaysia (RM) 570 millions being spent on projects in Malaysia from 2005-2009. This amount spanned across sectors like transport, information and communication technology (ICT), energy, water supply and other municipal infrastructure services, agriculture and natural resources and education (Asian Development Bank [ADB], 2009).

From statistics published by Malaysian Industrial Development Authority (MIDA) in 2010, there were 1,311 manufacturing projects amounted to RM49 billions that had been approved from January 2009 to July 2010 (Malaysian Industrial Development Authority [MIDA], 2010). These projects were from various industries including electronics and electrical products, food manufacturing, basic metal products, fabricated metal products, chemical and chemical products, transport equipment and rubber products.

From the statistics published by Malaysia's Construction Industry Development Board (CIDB) in 2010, there were 18,966 construction projects amounted to RM232 billions

which were approved from 2007-2009 (Construction Industry Development Board [CIDB], 2010). These projects include building, civil engineering, electrical and mechanical works from various categories like residential, non-residential, mix development, social amenities, infrastructure and others.

Moreover, in the Malaysia's Prime Minister Budget 2011 speech, several Public-Private Partnership (PPP) projects had been identified under the 10th Malaysian Plan (10MP) that will be implemented from 2011 amounted to RM12.5 billions. These projects include construction of highways, gas power plant, hospitals and academic medical center (Star, 2010).

With multi-billion Ringgit Malaysia investments poured into projects as evidenced from the above illustrations, there is a compelling need for project stakeholders to ensure that there is positive Return of Investment (ROI). This is because any project failure, delay, over cost or quality not meeting the requirement will have ripple effect and ultimately cost more to the organizations or government. Higher the investment for a project, higher will be the risk and implications when the project does not meet its goals. The reason prompting for the study of project performance is that projects require a lot of resources and financial investment but yet there are too many projects failures, delay or cost overrun (Collyer, 2000; Peled, 2000; Standish Group International, 2009; ADB, 2009).

According to Collyer (2000), over 75 percents of all business transformation projects failed. Two of the main reasons are due to lack of internal communication and project

teams' failure to recognize the impact of project's change on the business as a whole. Peled (2000) also reported that only 16 percents of United States Information Technology (IT) projects were completed on time and on budget. The Standish Group International (2009) also reported that only 32 percents of IT projects were succeeded (declined compared to previous 2006 survey), 24 percents failed and 44 percents were considered completed but over budget, late and with fewer IT application features than anticipated.

In Malaysia, for those projects with loans obtained from ADB (2009), there were only 65 percents project success rates from total 57 projects which spread across various sectors like agriculture and natural resources, education, energy, health and social protection, industry and trade, transport, ICT, water supply and other municipal infrastructure and services. In other words, three out of 10 projects were doomed to failure.

Such project failures can cost more than just direct cost because they can expose the organization to other indirect costs like legal implication, problem streamlining operation, problem optimizing product development, delaying speed to market, disruption to customer services, losing to competition and much more. What went wrong? What should have been done differently? What are some of the Critical Success Factors (CSFs) influencing project performance as well as the root causes for projects failure and success?

A better understanding of the factors that improve project performance is important. In order to improve project performance, generally there are three key factors which need to

be considered i.e. people, process and technology or tools. People factor includes individual project managers, project team leaders, team members, project sponsors, users, customers, other stakeholders and organizations as a whole. Process factors include project management methodologies, procedures as well as processes pertaining to initiating, planning, executing, monitoring and controlling a project (Project Management Institute [PMI], 2008). Technology or tools include project management software e.g. HP Project and Portfolio Management Center, IBM Rational Portfolio Manager, Microsoft Project, Primavera, Open Plan, Artemis, Project Workbench (Suhanic, 2001), emails, instant messaging, audio or video conferencing, knowledge repositories, databases, decision systems, Intranet, Internet (Anantatmula, 2008) as well as other instruments or financial resources.

According to Lechler (1998), people factor is the most important as far as project management is concern. All the project success factors stipulated in Cooke-Davies' (2002) study involve a combination of processes, tools and people. As it is the people factor that performs each process and use each tool to complete the project. It is obvious that people is the one who deliver projects not processes and tools. Hence, according to Cooke-Davies (2002), the quality of human interactions, motivation and decision making practices are deemed important in achieving a positive project performance.

In a field study by Thamhain (2004a) on how project environment influences team performance, one of the most striking findings discovered was that a large number of performance factors are derived from human aspect and not from technical aspect.

Thamhain also concluded that organizational components which satisfied personal and professional aspects are strongly affecting cooperation, commitment, risk management as well as steering the overall team performance.

According to Kerzner (1998), in the past, many people misconstrued that project failures were mainly caused by ineffective planning, estimating, scheduling and cost control. However, they gradually realize that project failures are more behavioral related i.e. poor human relations, productivity or commitment.

Through the field experience of project management practitioners, key factors negatively impacted project performance include: stakeholders' conflicts, lack of executive support and user involvement, unclear or understated goals and objectives, vague or no requirement, poor planning, unrealistic timeline, inaccurate cost or resource estimation, scope and feature creep, change of objective during the project implementation, no change control system in place, lack of formal project management processes, poor project quality assurance, inappropriate skills, team members not dedicated to project, i.e., trying to balance too many different project priorities, insufficient communication between team members and users, no incentive to keep team motivated, low morale within team, uncommitted team members, and poor team work (Taimour, 2005; Waters, 2008; Levine, 2009; Haughey, 2010; Carlos, 2010).

From the above factors that have negatively impacted project performance, most of them are people or human related. This is in line with what Guiney (2009) had discovered that

technology is only a secondary issue behind people issue as a cause of project performance dissatisfaction which will eventually contribute to project failure. Lack of team work among project team members is one of the causes for project failure. According to Belbin (1993), two persons can produce better result than what one person can do. Moreover, perfection can be achieved through team efforts rather than relying on one person only. This is because what the entire team can produce in terms of quantity and quality of deliverables is far exceeding the sum of individuals' contribution. Individuals may not be perfect but when work together as a team in a complementary manner, the team will deliver greater results than what individuals can deliver.

Belbin (1993) had suggested that an individual who can work well with other team members is more important than a well-balanced individual who is working alone. This implies the importance of working together as a team. Besides team members, a project team should include representatives from other stakeholders e.g. business management, users as well as customers. If all the stakeholders were represented, involved, motivated and worked together as a team, will this change the negative outcome of a project?

From literature on project management in Malaysia, beside factors like business rules, business processes, technologies and competency, soft-skill factors like communication, cooperation, trust, commitment and working relationships among project managers and team members were identified as one of the major critical success factors for project performance (Omran & Mamat, 2011; Yong & Mustaffa, 2012; Abdullah, Rahman, & Awang, 2011; Zakaria, Haron, Sahibuddin, & Harun, 2011; Ali, Mohd-Don, Alia,

Kamaruzzaman, & Pitt, 2010). Soft-skill issues like miscommunication, lack of cooperation, limited trust, lack of commitment, adversarial relationships were identified to be critical in different projects across different industries like construction, ICT, oil and gas. Hence, there is a need to develop a conceptual framework to identify what are the critical team factors that can influence project performance in Malaysia.

1.2 Research Problem

Among the people success factors, existing literature mainly focusing on stakeholder's participation, project manager's leadership (except leadership roles), project management practices, project organizational structure, communications and external environmental factors (Pinto & Slevin, 1986; Belassi & Tukel, 1996; Ravichandran & Rai, 1999; Dolan, 2005; Zhang & Xu, 2008). Project performance literature is generally silent on the topic related to team e.g. team inputs, team processes and team outcomes. Moreover, there is a lack of research conducted on these topics especially in a multi-racial Malaysian context whereby project manager, team leader, and team members might interact differently as they might use different languages for communications and inherited different cultural values.

With other success factors remaining constant, implementing a project can be a risky endeavor if the team related factors are not understood adequately. A project team is important as it is the actual work unit that accomplishes the project goals and not the project manager alone. Albeit the project manager can lead, plan and control but nothing

will be delivered without the members' team work and deliverables. Hence, there is a need to investigate what are the team related factors influencing project performance.

Problem statement for this research is the lack of understanding as well as empirical evidence on what are the important team related factors that can influence project performance in Malaysia. Addressing this problem is deemed necessary because today many organizations are depending on project teams to deliver their results as they have committed a lot of resources and money to implement the projects. Unfortunately, the project performance keeps disappointing whereby studies showed that people related issues (individual, team and organizational levels) are the major contributor (Collyer, 2000; Peled, 2000; Standish Group International, 2009; ADB, 2009). Moreover, soft-skill issues among project team members that inhibit project performance in Malaysia have prompted the local project management community to find solutions how to address these issues (Omran & Mamat, 2011; Yong & Mustaffa, 2012; Abdullah et al., 2011; Zakaria et al., 2011; Ali et al., 2010). Since a typical project consists of team members and project manager, hence there is a compelling reason to find out what are the team related factors that can help contribute to positive project performance. Once the salient team factors have been identified through this empirical research, they will shed some light in advising project managers how to improve a project performance through managing these team factors more effectively.

Figure 1.1 summarized the three broad group of factors influencing project performance i.e. tools, processes, people, research gap as well as proposed research area.