Critical Success Factors in IT Project Management Effectiveness: A Study in Thai Firms

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Abstract

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Pragmatic approach to project management methodology can enhance success. Project managers must confront and overcome obstacles, and utilize methodology to maximize the chances of success. The lack of quality processes will impact on project schedules and budget. Project management practices follow common guidelines; however, these may be customized for different types of projects. This study reviewed the key elements pursuant to project success and achievement. Managers from 12 leading Thai firms were interviewed to discuss success factors for their IT project management. Results were illustrated by an innovation model of IT project management effectiveness framework. We found influencing factors of project manager skills, quality management, scope management, change management, and communication management. Practical implications were suggested, along with the potential for future research.

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Keywords: IT project management; project effectiveness; critical success factors; criteria; innovation model.

1. Introduction

The statistics for project and program delivery shows the high portion of below expected benefits, over budget, and late schedule. Zwikael and Globerson (2006) indicated that project managers did not manage their time effectively among the different project management processes, following the influent

on project success. This is supported by Ahlemann, Teuteberg, and Vogelsang (2009) that had indicated the project management issues of low adoption and individual acceptance rate. Ahlemann, El Arbi, Kaiser, and Heck (2013) also pointed the cause of project management problem from some degree of effectiveness and indistinct application scenarios. In project management, utilization development standard and tool ability will enhance development quality (Hornstein, 2015). However, standardized tools and higher level of tool capacity require a lot of efforts to learn and apply the practices and tool application. Lack of identified process and sufficient information, projects will confront problems of schedule and cost overruns, underperformed quality, or even project disaster (Browning, 2010). With the project management information system, the lower quality of the system provide the lower quality information; hence project managers used their system less and were less supported in their tasks (Snyder, 2013). The issue of project management application exploitation is supported by Ahlemann et al. (2009) that many firms still have low maturity of project management and are still under the step of being fully utilize the system to achieve the benefits of project management.

The objective of this study is to find the major factors influencing project management effectiveness in Thai firms. Unlike the previous research in project management, the new model will introduce influenced factors from experienced experts' points of view of IT industry in Thai firms. Snyder (2013) suggested the gap of study project success or performance from client's perspective, that is, evaluate if the impacts of the project management information system on project outcomes provide an adequate solution to the client's problem, bring true advantages solution to the client's problem, bring true advantages to the organization in terms of quality, and provide benefits such as increased sales and revenues. This study will fulfill the research gap of project management process and methodology. Quality management is a tool to increase customer satisfaction, which is a common goal of information technology project. In-depth interview sessions are conducted in twelve companies to investigate the management of IT projects and expected results. Thus, the primary contribution of this study is to investigate IT project management effectiveness and develop a framework that can be applied in both effective implementing IT project management process and future research.

2. Literature Review

The project management was widely used in 1950s by NASA space projects and US Navy (Shenhar et al., 2005). The original concept was all projects are the alike and can be organized with the single set of processes and practices (PMI, 2013). However, projects are actually different from one to one and the single technique would not fit all. Shenhar et al. (2005) proposed project management framework of NASA that introduced the guidelines for tailoring projects and programs. Today project management practices are common used in both construction management projects and information technology projects. The most favorite guideline of projects management is based on PMBOK® Guide of Project Management Institute (PMI, 2013). A project has unique characteristics that specify begin date and finished date. Project implementation allows organization to change corporate strategy to action following project management methodology (Baccarini, Salm, & Love, 2004). For IT projects, the major risk is users will not use information technology as the way designed to relate to their work practices (Serrador & Pinto, 2015). This argument is supported by Sherer, Kohli, and Baron (2003) that

mention the overcoming resistance to change will lead to the success in IT project implementation. As the success in IT project management is not one fit for all, change management will drive the success in project implementation.

Even key success factors of project management are studied in recent researches, the issue of project accomplishment is still remained. This can be a research gap to study projects success factors and improve the process for IT project management methodology. Project success can be measured from the results of project management and the outcome of the project: for example, product or service. Critical success factors have linkage to the chance of success of projects (Westerveld, 2003). Adams, Bessant, and Phelps (2006) suggested the organization to establish formal project processes and make use of tools and techniques that will encourage the achievement of project efficiency. For quality related, Bertram, Voida, Greenberg, and Walker (2010) mentioned about issue tracker, which is not only a database for tracking issues and bugs, but also a tool for communication and coordination with related stakeholders within and beyond the project team. (PMI, 2013) applied Fishbone Diagram to identify project obstacles in order to cope with the obstacle factors. Caniëls and Bakens (2012) found that the quality of project management information system will have an impact on the quality of decision making. However, the majority of project managers are unsatisfied with their project management information system's quality. Project effectiveness and efficiency will be resulted from project that was proactively identified to assign and fix errors in the application, and implement new features in the software (Ghapanchi & Aurum, 2012). According to (Crawford & Bryce, 2003), four main issues of project management are the issue related to time, inappropriate assigning indicators, insufficiency of verification, and static nature of framework. In addition, a number of researches have proposed the model for either the project level or the firm level (Griffith-Cooper & King, 2007). However, there is still a gap for the business model between the project level and the firm level. Hornstein (2015) suggested project business model should relate to firm business model. In area of quality control, Barad and Raz (2000) suggested the improvement of process control and the improvement of training are the quality needs for the process of project management.

3. Methodology

This study employed semi structured qualitative interviews for 12 qualified experts working in Information Technology divisions of Thai firms. One benefit of using the case study research is that our study was conducted in a real-life business setting. Each expert had over 10 years' experience in the IT industry, and still worked directly with IT projects. Data collection was carried out using face to face semi structured in depth interviews, focusing on the practices of IT project management, critical success factors necessary to pursue project achievement, and the issues associated with IT project management processes. The interviews were conducted individually at pre determined times and locations. Each interview session lasted for 1   2 hours. All interviews were recorded and transcribed. Notes were also taken concerning the experts' answers to, and explanations for each question.

Table 1. Job position and industry of the IT experts participating in the study.

Order	Position	Industry	Number of projects/Year
Expert 1	IT Director	Hospital	10-20 projects
Expert 2	IT Division Manager	Hospital	20 projects
Expert 3	Project Manager	Pharmaceutical	10-20 projects
Expert 4	IT Manager	Siemens	4 5 projects
Expert 5	Project Manager	Energy	10-20 projects
Expert 6	Project Manager	Banking	2-3 big projects and more than a hundred medium and small projects
Expert 7	Managing Director	Software	4 5 projects
Expert 8	Managing Director	Software	10 projects
Expert 9	IT Department Manager	Trading	2-3 big projects and a number of medium and small projects
Expert 10	IT Division Manager	Food (with 50 sub-companies)	Approximately 4 large-sized projects
Expert 11	IT Department Manager	Automotive	1-2 big projects
Expert 12	IT Director	Automotive	10-15 projects

4. Findings and Discussion

The findings revealed the factors which affected project management effectiveness in Thai firms. Based on our in depth interviews, the study confirmed five factors that influenced project management effectiveness in Thai firms. These were project management process, quality management, scope management, change management, and communication management.

4.1 Skills of the project managers

Based on our study of all 12 firms, we found that having strong management skills allowed the project manager to work smoothly. Expert 7 stated that all of their project managers previously held technical position; therefore, they had to build their management skills and interact with the project teams. When asked about their IT project management processes, the experts commented that their organizations had guidelines and templates for project managers. Expert 11 stated that the processes must be streamlined so that new project managers could easily apply the guidelines in their projects. Experts 5, 9, and 10 agreed to waive some processes for small projects. Experts 2, 10, and 12 had learned from their partners to adapt Capability Maturity Model Integration (CMMI) process to their practices. We also found that industry standards impacted on project management processes. Expert 1 stated that the hospital industry standard required the company to maintain paper based documentation. Experts 1 and 5 practiced agile project management methodology. Expert 1 applied agile project management for all projects, while expert 5 applied the process only for projects involving new applications; existing business processes followed the same functions and features. Agile project management involves real time interaction with users to both understand and suggest their requirements. Based on our findings and analysis we propose:

Proposition 1. The project manager must follow project management processes and apply tools which enhance project management effectiveness. The processes can be customized from project to project; small projects usually have less process than larger ones.

4.2. Quality management

The research evidence, developed through in-depth interview analyses, revealed that to be effective in project management, an organization should establish an environment that supports such activities to meet quality standards. Expert 3 stated that quality was a must for the pharmaceutical industry, not only the project quality but also the product quality. Therefore, there was no compromise for errors in production. Expert 4 indicated that quality was essential to manage and complete issues; however, management issues were usually delayed since they had to wait for answers from the global mother company. Management by issue tracker is supported by Bertram et al. (2010). Expect 12 stated that quality in design automation was paramount and the application must have no faults. Therefore, quality assurance is a must to ensure the standard of project management process. This was supported by expert 2 who stated that even if the application had many benefits, nobody wished to work on it if the performance was poor. Expert 9 mentioned that the quality of project deliverables impacted from the quality of the workers. Expert 10 who stated that quality was hard to measure; focus should concentrate on the user acceptance test. Expert 12 indicated that any change in project scope increased the risks, and the project must deeply analyze the impact of these risks to maintain quality. All the experts considered that contingency plans were important to respond to risks. From the research finding, we state:

Proposition 2. A quality management process is crucial for testing and solving all the major issues before production commences. However, quality management processes in the service industry must focus on solving issues in a timely manner.

4.3. Scope management

The evidence from all 12 firms indicated that scope control was considered as one of the most important factors leading to the effectiveness of IT project management. Expert 1 stated that the scope of project management changed continuously; therefore, the scope management is emotional management. Expert 8 usually worked on projects with complex scope that had similar patterns; he indicated that it was easy to control the scope if the project manager understood what the users needed. Expert 6 worked on mega projects where the scope was very hard to control. Any unit requesting new requirements had to pay for the cost of effort and impact assessment. Expert 12 stated that projects with similar scope should have equal requirements and change should be strictly controlled. However, expert 3 pointed out that changes in industry standards impacted on changes in project scope. Expert 10 indicated that design changes may be acceptable if they have reasonable explanations and are not the result of weak project control. From this finding, we propose:

Proposition 3. The greater the scope of control and management, the greater will be the project management effectiveness.

4.4. Change management

We found a pattern from the case analyses which indicated that Thai firms tended to spend more effort on change management for large-sized projects. However, hospitals were exceptional cases where change management was an important factor for all projects. Expert 2 specified that project management was change management. The organization initiated projects because they planned to change; therefore, the project must persuade stakeholders to agree with the change. This was supported by expert 1, who agreed that the major activity in a project was change management. Experts 9 and 12 agreed that support from top management influenced users to change to new business processes and resulted in successful projects. For mega projects, expert 6 dedicated a change team to coordinate, educate, train, and inform other units. Expert 10 specified that top management must communicate to external stakeholders for non IT details to encourage the collaboration between external stakeholders and the project. Expert 4 stated that his organization changed business processes every year, and employees had to accept the changes. This impacted from the leadership behavior from the German mother company on the ability of individual employees to accept change (Kavanagh & Ashkanasy, 2006). From the analysis, we state:

Proposition 4. Change management processes are crucial for big projects. The greater the activities of change management, the greater will be the project management effectiveness.

4.5. Communication management

The data collected indicated that communication is another important factor for project management effectiveness. All firms in our study reported project status via formal meetings. Experts 7, 8, and 12, who were all top management, agreed that they reviewed project status at meetings. They were able to determine whether the project was delayed or had issues, even if the project manager tried to hide these details. Expert 10 followed his partner's status through meetings; he stated that any partner who lacked quality did not send status reports. Expert 10 was responsible for the project located in many locations. The coordinators were trained in Bangkok and they trained the end users in their regions. Expert 4 adopted technology to help in communication, such as videoconferencing and SharePoint. Other firms also used SharePoint for project knowledge sharing. The projects of expert 6 involved approximately 60 vendors and many parties. The core team person championed the group and communicated with all other teams and with his own group. Vertical communication can cause a communication gap and delay in message, but this might be the best communication model for a large project team. Expert 6 stated that she received hundreds of emails every day and did not have time to check them. Her most effective communication channel was through meetings. She also used LINE as an information communication channel to effectively communicate as a group with her team. From the finding, we propose:

Proposition 5. Communication management is critical to project management effectiveness for both large and small projects.

Figure 1 shows a framework underlying the effectiveness of project management. The first factor influencing project management effectiveness is project manager skill. Second, it is important that projects meet quality standards. Third, effectiveness in IT project management depends upon scope management. The fourth factor is change management, including having dedicated change teams and

organization culture. This factor is crucial, especially in large scale projects. The last factor in IT project management effectiveness is communication management. Having efficient communication tools and strong teamwork will contribute to the effectiveness of project communication management.
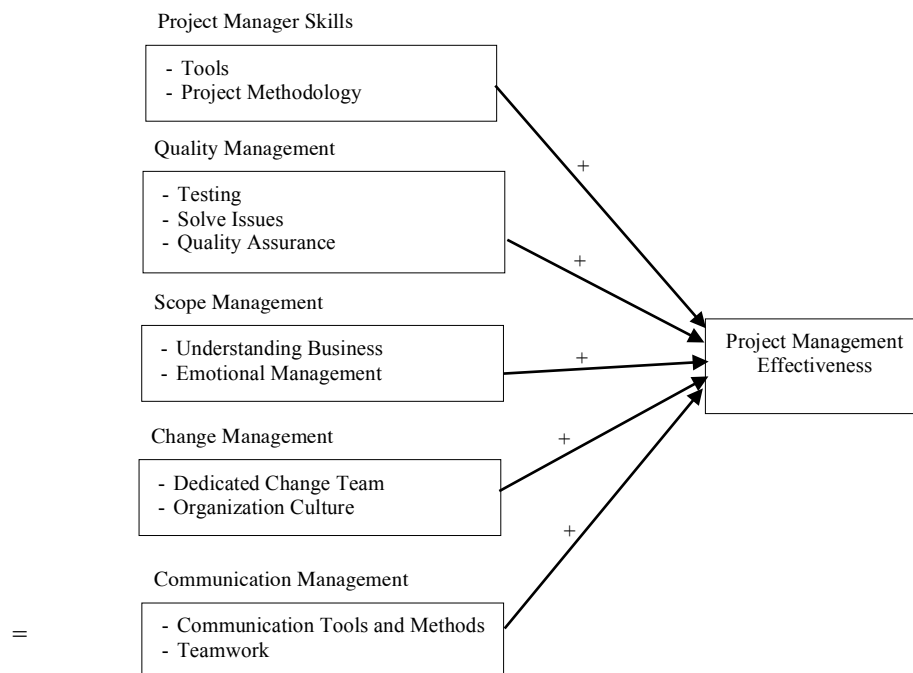

Fig. **1**. IT project management effectiveness framework

5. Conclusions

This research focused on the IT industry in Thai firms. The exploratory study was conducted to investigate the related factors of project management effectiveness, to discover how organizations measure project success. The results suggest new propositions that can be deployed in both future research and practice. The framework supports that effectiveness in project management depends on the factors included project manager skill, quality management, scope management, change management, and communication management. In addition, the effectiveness of project management should be assessed in terms of time-to-market, project goal, customer satisfaction, cost, contribution to organization change, and resource productivity. This research had limitation in sample size due to the nature of our chosen methodology. The future research should confirm the results with broader sampling with quantitative methodology.

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