

Key Success Factors for Managing Projects

Nader Sh. Kandelousi, Ooi. J., Abdollahi. A

Abstract—The use and management of projects has risen to a new prominence, with projects seen as critical to economic in both the private and public sectors due challenging and dynamic business environment. However, failure in managing project is encountered regularly, which cause the waste of company resources. The impacts of projects that failed to meet stakeholders expectations have left behind long lasting negative consequences in organization. Therefore, this research aims to investigate on key success factors of project management in an organization. It is believed that recognizing important factors that contribute to successful project will help companies to increase the overall profitability. 150 questionnaires were distributed to respondents and 110 questionnaires were collected and used in performing the data analysis. The result has strongly supported the relationship between independent variables and project performance.

Keywords—Project Performance, Leadership, Top Management Involvement

I. INTRODUCTION

PROJECT Management has evolved in the past fifty odd years. Many people spent their life-times, spent several trillions of dollars in ensuring project success. The use of project management methodologies and techniques will be able to help organizations to face with the challenges [7]. The rapid growth of global markets, introduction of Total Quality Management, Continuous Improvement, redesign of business processes all require skills of project management, of which have increasingly recognized as highly desirable for managers at all levels in an organization. Unfortunately, project management has been considered as too complicated which resulted frequent misunderstood and poorly practiced in other parts of the business.

Large-scale engineering and construction projects have traditionally dominated the subject of project management and implementation. According to Pinto [16], the project implementation is a complex, usually requires extensive and collective attention to a broad aspect of human, budgetary and technical variables. In addition, projects often possess a specialized set of critical success factors in which if addressed and attention given will improve the likelihood of successful implementation. On the other hand, if these factors were not taken seriously might lead to the failure of the project. The use and management of projects has risen to a new prominence, with projects seen as critical to economic in both the private and public sectors. The reason behind the expansion of project based work typically arise due to the new challenging

environment and opportunities brought about by technological developments, the shifting boundaries of knowledge, dynamic market conditions, changes in environmental regulations, the drive towards shorter product life cycles, increased customer involvement and the increased scope and complexity of inter-organizational relationships [5].

In reference to the emerging importance of projects, the widespread use of projects in organizations and in multiple industries today is the driving force in the search of critical factors that influence project success. There has been an increasing trend where core business activities are organized through projects [13]. Therefore, this research aim to investigate on key success factors of project management in an organization. It is believed that recognizing important factors that contribute to successful project will help companies to increase the overall profitability.

II. DEFINING A PROJECT

As defined in “A Guide to the Project Management Body of Knowledge” (PMBOK Guide), “*project is a temporary endeavor undertaken to create a unique product, service, or result. The purpose of the project is to attain its objective and then terminate*” [18]. As further elaborate by PMBOK Guide, projects are often utilized as a way of achieving organizational strategic plan by the project team within the organization or contracted service provider. Usually, projects are established resulted from the strategic considerations such as market demand whereby extra production line is to be added in order to cater for more market demand; organizational needs whereby new computer system is to be implemented in the organization; customer request whereby customer requested to have new design of product.

III. OVERVIEW OF PROJECT MANAGEMENT

According to A Guide to the Project Management Body of Knowledge [18], “*project management is the application of knowledge, skills, tools and techniques to project activities in order to meet or exceed stakeholder needs and expectations from a project. Meeting or exceeding stakeholder needs and expectations invariably involves balancing competing demands among: 1. Scope, time, cost and quality, 2. Stakeholders with differing needs and expectations, 3. Identified requirement (needs) and unidentified requirements (expectations)*” [18]. Project management is about creating an environment and conditions in which defined or desired objective or goal can be achieved in a controlled manner by a team of people. Project Management is fulfilled via the application and integration of project management processes i.e., initiating, planning, executing, monitoring, controlling and closing. Most of the books called this process as Project Life Cycle. To successfully reach the

N. Sh. Kandelousi is with the Islamic Azad University, Tehran North Branch (phone: +98-21-22977862, +98-21-22977932, fax: +98-21-22977861; e-mail: nader927@gmail.com).

J. Ooi., was with Olympia College, Knowledge Universe, Penang, Malaysia. (e-mail: knooi21@yahoo.com).

A. Abdollahi (e-mail: anahita_abdollahiii@yahoo.com).

ambitious project objective or goal, project manager is responsible for collaborating and managing all these processes.

In most of the cases, project management is also used to describe an organizational approach to the management of some projects or ongoing operations. An organization that adopts this approach usually defines its activities as projects. In these recent days, there have tendency that organizations managing its operational activities using project management.

IV. PROJECT PERFORMANCE

With current economy situation, in many organizations, the focus is on doing more with fewer resources, i.e. shorter deadlines, tighter budgets, reduced human resources and general uncertainty in the organization. Many companies are facing with increasingly complex and competitive situations. Companies cannot longer afford to spend too long time in responding to the changing or dynamic market situation, time to market is important and critical. Failure in capitalizing the quick and competitive opportunities or market demands will lead to poor business result and lost of market share. That is why project can come into the picture. Project Management is even considered as a strategic tool in helping the organization to move forward [8]. Companies are also adopting project management as a key enabler for business improvement methodologies to improve their efficiency and competitiveness, such as Six Sigma or Lean Manufacturing. For a company to maximize the affect of these methodologies, it is necessary condition to have a robust project management core competency [1].

There are various and different techniques and models are used to measure the performance of projects, for instance, Work Breakdown Structure (WBS) and Earned Value Management. These tools provide the cost and schedule performance measurement. Work Breakdown Structure (WBS) is useful for a complex project, whereby it breakdown the works into the smaller task. The main purpose is to define and organize the scope of the total project more accurately and specifically. With that, the project manager will be able to assign responsibilities, allocate resources, monitor and control the project more effectively as WBS makes the project's objective or deliverables more precise and concrete. At the same time, the project team will be clear of the expected deliverables. Importantly project manager is able to counter check all the deliverables' specifics with the stakeholders and make sure there is nothing missing or overlapping. Whereas EVM is, project planning and control approach, which provides cost, and schedule performance measurement, by comparing the actual accomplished of schedule work and associated cost against planned schedule and budgeted cost. With the visibility of actual progress of project work, schedule and cost trends, project manager will be able to take timely corrective actions if there are any variances.

Traditionally, the definition of good project performance was defined by the project team's meeting cost, time and product quality related criteria, in which researchers like Atkinson [2] described as Iron Triangle of project management. Until now, this Iron Triangle still

regarded as the measurement for team performance on all types of projects. Various researchers and industrial practitioners have developed other measures of project performance beyond the Iron Triangle. Researchers and practitioners also suggest that in order to accurately measure project performance, the measurement must incorporate criteria may include meeting the long term financial objectives of clients, customer or clients objectives such as their requirements for functionality and operability [10]. Other measurements include project's satisfying psychosocial criteria, like gauging the client's satisfaction with the way the project was managed [17].

Project success is a topic that is frequently discussed by various researchers and yet rarely agreed upon [4]. Different individual has different definition and no mutual agreement can be obtained for the meaning of success. It is hard and difficult to define. Success is a word that so general and wide in nature. In one of the article, written by Judgev and Muller [11], they mentioned that in order to define the meaning of success in a project context is like gaining agreement from a group of people on the definition of "good art". In general, the view and definition of project success have evolved over the years, from the simple definitions, which were limited to implementation phase of the project life cycle, to the definitions that reflect an appreciation of success over the project and product life cycle [11].

V. SUCCESS FACTOR IN MANAGING PROJECT IN AN ORGANIZATION

For a project to be successful, it is essential to understand the project requirements right from the start and go for project planning which provides the right direction to project managers and their teams and execute the project accordingly. A successful project is one that is delivered on time and managed within the budget.

Time, cost and quality have been recognized as "triple constraint" or important elements of project success [3 & 18]. Throughout the literature review process, noticed that many researchers mentioning about others various success factors contribute to the successful projects. However, this study would focus on two main factors: Leadership of Project Manager and Top Management Involvement.

A. Leadership of Project Manager as Success Factor

As define by Richard Daft, in his book: *The Leadership Experience, Leadership is an influence relationship among leaders and followers who intend real changes and outcomes that reflect their shared purposes* [6]. Leaders set vision, direction and key processes; this means leadership has a large influence on project process. The emphasis of leadership in project management field, is due to the recognition of the need for the special skills that leaders posses and bring to an organization. In the early days, in identifying the key success factor for project management, academic and industry practitioners focused primarily on tools and techniques that project manager could used to increase the chance of project success. However, in the recent study, attention has been switched to the competence and leadership style of project manager and its contribution to project success [20].

Most project are technically complex, it is important for project manager to understand the technology, markets, trends and business environment related to the projects, so that together with the team, they are able to have effective solution and technological innovations [9]. As projects is operating under different influences which includes the team's perceptions and emotions, the organization's control measures, economic and industrial intervention, project manager must have strong knowledge of psychological, sociopolitical, institutional, legal, economic and technical influences.

Simultaneously, technical expertise is vital for communication effective with project team. Lastly, project manager must have basic or essential skills, i.e., administrative skills such as planning, scheduling or budgeting. It is also important for project manager to understand the company operating procedures in running the projects [9]. Good leadership of project manager encourages greater productivity, as he is able to exercise effective leadership throughout the project life cycle. Project leadership means going beyond the mechanics of managing a project, as leaders inspire the team members to accomplish the goals and objectives in a manner that meets, even exceeds expectations of stakeholders. Therefore, this leads us to propose as:

Hypothesis 1

Leadership of project manager is the key success factor for managing project in an organization.

B. Top Management Involvement as Success Factor

Until now, there is no definite definition for top management support. Some authors defines as "devoting time as proportion with the cost and potential benefits of a project". However, other authors define as "the degree to which top management understands the importance of the project functions. Until now, there is still lack of consensus in most of the literature as to who comprises of top management. However, the identification of top management is varying according to the organizational structure as well the size of organization. Usually, understanding of this term ranges from immediate superior to departmental manager to director or even to CEO [14]. Most of the researchers called it as "Top Management Support" [14]. However, in this study, term used will be top management involvement instead.

Top Management Involvement can take several different forms such as demonstrating commitment, helping teams to overcome obstacles, making things happen and provide encouragement to team. In general, top management involvement comes in the form of sufficient resources allocated both manpower and the physical resources. It also includes clear authority and power given by the top management to the project leader and team members for ensuring the success of project implementation. Top management involvement is particularly crucial during the implementation stage of project cycle as sufficient resources in the forms of monetary, manpower as well as materials are needed in carrying the project task and to achieve the intended purpose of the project.

Various researchers have studied different types of projects and identified the Critical Success Factors (CSF) needed for successful project implementation. One of the main Critical Success Factors associated with project success is top management support or involvement. Many of the studies even revealed that top management involvement "is a main ingredient in the recipe of project success" [14 & 15]. In addition, in the survey conducted by White and Fortune [23] to determine the current practice in project management, support of top management ranked third out of 23 critical factors listed.

Top management support is essential in ensuring project success. Following the research done by Ofer [15] it has concluded that top management support have been recognized to have positive impact on project success. However, senior manager should be mindful in providing their support and involvement. They should not overstep and implement their own agenda; otherwise, this might distress the project and project manager [22]. Therefore, it gives rise to following hypothesis:

Hypothesis 2

Top management involvement is the key success factor for managing project in an organization.

VI. METHODOLOGY

A. Participants and Procedure

Questionnaire was the main source of survey in the present study. The sample population for this study comprises of employees from the various levels and positions employed in the foreign and local manufacturing industries surrounding Penang Industrial Zones, such as the manufacturing companies around Perai on the mainland and Bayan Lepas industrial area on the island. The convenient and stratified random sampling techniques were used to select samples for the survey, as it is the most appropriate method for this study. Approximately a total of 300 questionnaires were distributed and 156 were returned of which we were able to use 110 (46 questionnaires were discarded because of missing data).

During collection of data anonymity of respondents was assured. A total of 59% were male and 41% of respondent's gender was female. Participants have different educational levels: Certificate 1.8%, diploma, 20%, bachelor's degree 57.3% and Master's degree 20.9%. The respondents came mainly from medium size companies where the headcount group of 1001 to 2000 employees, who contributed to 30.0% of those who responded, followed by 26.2% from the headcount of 101 to 1000 employees and 25.4% from the headcount group of more than 2000 employees. Lastly, 3.6% of those who responded come from the headcount group of 1 to 100 employees. From the statistic obtained, a total of 34.5% respondents were from the small and medium enterprise as defined by SMIDEC (Small and Medium Industries Development Corporation). The respondents come mainly from computer products industry, which contributed 26.4% of the total respondents, followed by the automotive industry, which accounted for 21.8% of the total respondents, whereas 15.5% of the total respondents

are from electrical products industry. 12.7% of the respondents are from other industries such as printing and service industry. Both semiconductor and medical industry accounted for the same number of respondents, which is 11.8%.

B. Measure

The survey was questionnaire based which consisted of 22 self-administered Likert style questions. The questionnaires were sent to the respondents through E-mail. The self-administrated questionnaires were designed for the purpose of collecting data and relevant information regarding the variables and hypothesis of the research problem. The questions were adopted from the various literature reviews and those applicable for the study were selected and improved to meet the specific requirement of local needs.

1) Project Performance

It consisted of 9 items. The participants were asked to answer all items on a 1–5 Likert scale. 1= “Strongly Disagree” and 5= “Strongly Agree”. These items ask about: “Project is usually successfully implemented in our organization” and “The project has been completed on time” and “The project has been completed according to the budget allocated.” The Cronbach’s alpha for project performance was $\alpha = .67$

2) Leadership of Project Manager

Six questions are about leadership of project manager. All the items of this questionnaire are rated by using a 5-point Likert-scale ranging from 1 (strongly disagree) to 5 (strongly agree). Examples of the items of the measurement are; “Project manager must undergo the formal training before he or she is appointed as project manager” and “Project manager must possess the relevant skills such as technical skills, interpersonal skills and adequate administrative skills in managing the project” and “Project manager is not accountable for the success or failure of the project.” The Cronbach’s alpha for this variable was ($\alpha = .71$).

3) Top Management Involvement

The part of the questionnaire measures top management involvement. All the items of this questionnaire are rated by using a 5-point Likert-scale ranging from 1 (strongly disagree) to 5 (strongly agree). Examples of the items of the measurement are; “Top management viewed project management as a strategic activity” and “Sufficient commitment was provided by top management during the course of managing project” and “Top management shared responsibilities with the project team for ensuring project’s success.” The Cronbach’s alpha for this variable was ($\alpha = .78$).

VII. RESULTS

A. Correlation Analysis

The Pearson's correlation is used to find a correlation between at least two continuous variables. The correlation analysis with multiple variables was done and Pearson coefficient result was tabulated in Table I.

TABLE I
PEARSON CORRELATION ANALYSIS RESULT

	Project Performance	Leadership	Top Management Involvement
Project Performance	1		
Leadership	0.07	1	
Top Management Involvement	0.42**	0.20*	1

B. Regression Analysis for Hypothesis Testing

Regression Analysis was used to gain the acceptance value to determine the hypothesis as stated before. It was carried out to test the relationship between the independent variables of Leadership of Project Manager and Top Management Involvement against the dependent variables of Project Performance. The result of regression analysis is tabulated in Table II.

From the data resulted from then regression analysis, Leadership of Project Manager is positively and significantly connected to project performance. A beta coefficient for this variable is 0.00 ($p < 0.05$). The result did not show any significant relationship between Top Management Involvement and project performance since the beta value for this analysis stood at 0.33.

TABLE II
SUMMARY OF REGRESSION ANALYSIS

Variables	Beta	T-Values	Sig
Leadership of Project Manager	0.00	0.03	0.97
Top Management Involvement	0.33	3.88	0.000

VIII. DISCUSSION AND CONCLUSION

The result gained from the regression analysis shows that there is relationship between top management involvement and project performance. This is also in line with the research done by Ofer [15]; whereby in his study, it confirmed that top management support or involvement possess positive impact to the success of project performance. In the research done by Raymond and Ernest [19], it confirmed that top management support or involvement is not simply one of the success factor for project performance but it the most important success factor. Raymond and Ernest [19] also stated that “*top management involvement is meta-factor that encompasses other success factor*” in project performance. This finding is also in line with the findings of Kerzner [12], where he concluded that project is very likely to be successful if visible support from top management is present. Usually, top management support is in the form of providing sufficient resources to the team in ensuring project success and communicating with project team in the case of authority and responsibility. Top management is particularly important in the times of crisis or unexpected situations arise.

The test result from the regression analysis showed that there is a no relationship between good leadership of

project manager and project performance. This is contradicts with the research done by Riyue [21] in her Master's Degree thesis whereby from her survey, it is confirmed that quality leader is important and significant because its influence the whole project process. In her study, leadership skills component has been recognized as one of the significant value in project management. She further commented that leadership is an art, which affect project team member behavior in achieving the preset project's goal and to accomplish the task successfully. In the current economy situation, whereby companies are moving towards globalization, as such projects are becoming more complex. Furthermore, with the rapid changes, competitive threats and escalating customer demands, hence effective leadership of project manager is needed in managing project, to ensure project is running smoothly [20].

The present study has found no relationship between leadership and project performance. The main reason of this might be the nature of the respondents of the present study. The respondents of the present study are individuals engaged in a project and not exactly the leaders of the projects. Since these respondents have no leadership position in the projects, therefore, they have no idea about the importance of this issue on the success of the projects. In other word, if another study collects the data from the leaders of the projects, a tangible and significant relationship between leadership and project performance would be found. A Project Manager is required to handle people's emotions, to motivate people when they get disappointed, to take the teams together during the difficult times, and finally to make sure that they have concentrated on the goals of the project.

Furthermore, the present study is using a self-construct measurement to assess the relationship between leadership and project performance. Using a more valid and standard questionnaire may result a significant relationship between this two variables.

REFERENCES

- [1] Anthony, E. (2007), "Development of Project Management Systems", *Industrial And Commercial Training*, Vol. 39 No. 2, Pp 85-90
- [2] Atkinson, R. (1999), "Project management: Cost, time and quality, two best guesses and a phenomenon, it's time to accept other success criteria", *International Journal of Project Management*, Vol. 17, No. 6, pp. 337-342.
- [3] Avninder, G. (2008), "An Effect-Cause-Effect Analysis of Project Objectives and Trade-Off Assumptions", *International Journal of Managing Projects in Business*, Vol. 1, No. 4, pp. 535-551.
- [4] Baccarini, D. 1999, 'The Logical Framework Method for Defining Project Success', *Project Management Journal*, vol. 30, no. 4, pp. 25-32.
- [5] Bredillet, C. N. (2005), "Reconciling uncertainty and responsibility in the management of project", *Project Management Journal*, Vol. 36, No. 3, pg 3-4
- [6] Daft, R. L. (2008), *New era of management*, Mason (USA): Thomson Higher Education
- [7] David, I. Cleland & Roland Gareis (2006), *Global Project Management Handbook, Planning Organizing and Controlling International Projects*, 2nd Edition, McGraw-Hill Companies, pg xiii, viewed on 2010-05-14,
- [8] Gina, A. (2009), *Establishing Project Management Best Practices*, viewed on 2010-05-16, <<http://www.ginaabudi.com/articles/developing-a-project-management-best-practice>>
- [9] Hans, T. (1991), "Developing Project Management Skills", *Project Management Journal* 22, no. 3, 1991, under Leadership Skills For Project Manager, edited by Jeffrey Trailer and Jeffrey Pinto.
- [10] Jaafari, A. (2000), "Life-cycle project management: A proposed theoretical model for development and implementation of capital projects", *Project Management Journal*, Vol. 31, No. 1, pg 44-53.
- [11] Jugdev, K. & Muller, R. (2005), "A Retrospective Look At Our Evolving Understanding of Process Success", *Project Management Journal*, Vol. 36, No. 4, pp. 19-31.
- [12] Kerzner, H. (1987), "In search of excellence in project management", *Journal of Systems Management*, Vol 38, No. 2, pp. 30-40.
- [13] Maylor, H. (2001), "Beyond the Gantt Chart: Project Management Moving", *European Management Journal*, Vol. 19, No. 1, pp. 92-100.
- [14] Ochini, M.; Shirley, G. and Colleen, H. (2009), *Investigating Top Management Support via the Top and Project Manager Relationship in Software Development Projects*, viewed on 2010-06-25, <http://www.pacis.net.org/file/2009/%5B61%5DWORK%20THAT%20RELATIONSHIP_%20INVESTIGATING%20TOP%20MANAGEMENT%20SUPPORT%20VIA%20TOP%20AND%20PROJECT%20MANAGER%20RELA.pdf>
- [15] Ofer, Z. (2007), "Top Management Involvement in Project Management", *International Journal of Managing Projects in Business*, Vol. 1, No. 3, pp. 387- 403.
- [16] Pinto J. K. and Slevin P. S., *Critical Success Factors in R &D Projects*, *Research Technology Management*, 1989, Vol 32, No. 1, pg 31-36
- [17] Pinto, M. B., & Pinto, J. K. (1991), "Determinants of cross-functional cooperation in the project implementation process", *Project Management Journal*, Vol. 20, No. 4, pg13-20
- [18] PMBOK® Guide (A Guide to the Project Management Body of Knowledge), 2004
- [19] Raymond, Y. & Ernest, J. (2008), *Top Management Support: Mantra or necessity?* Macquarie University, Sydney, Australia
- [20] Rodney, T., Ralf, M., and Vic, D. (2009), "Comparing the Leadership Styles of Functional and Project Managers", *International Journal of Managing Projects in Business*, Vol. 2, No. 2, pp. 189-216.
- [21] Riyue, X. (2008), *Leadership in Project Management*, *Georgia Institute of Technology*
- [22] Swink, M. (2000), "Technological Innovativeness As A Moderator of New Product Design Integration and Top Management Support", *Journal Product Innovation Management*, 17, pp. 208-220.
- [23] White, D., Fortune J. (2002), "Current practice in project management – an empirical study", *International Journal of Project Management*, Vol. 20, pp. 1 -11.