

**FACTORS CONTRIBUTING TO THE SUCCESS OF PROJECT IN
MALAYSIAN COMPANIES**

by

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ABSTRACT

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The primary purpose of this study was to explore the factors that contribute to the success of a project focusing on several key factors such as the organisation, the individual and the project factors and to further examine the order of importance of these factors in a Malaysian context. This study also examined whether the respondents' demographic characteristics contributed to the differences of opinion related to project success factors. The organisation factor includes common business, cultural and politics adopted and commonly practiced and the technical competency available in the organisation. The individual factor relates to the experience, leadership and qualification of the project leader. The project factor includes the project cost, scope and schedule. The target population for the study consisted of project managers attached to organisations operating in Malaysia. 50 participants were selected for the study. The results indicate that all the factors contribute to the success of a project however the organisation and individual factor was found to be significant.

Dedicated to my loving wife, Thama
&
my kids, Sandhya and Ram

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PERMISSION SHEET

It is hereby certified that **PRAKASH SUNDARASEN** (ID No: **10UEM07297**) has completed this dissertation entitled “**FACTORS CONTRIBUTING TO THE SUCCESS OF PROJECT IN MALAYSIAN COMPANIES**” under the supervision of Dr Chia Fah Choy (Supervisor) from the Department of Surveying, Faculty of Engineering and Science, and _____ (Co-Supervisor) from the Department of _____, Faculty of _____.

I hereby give permission to my supervisors to write and prepare a manuscript of these research findings for publishing in any form, if I did not prepare it within six (6) months' time from this date, provided, that my name is included as one of the authors for this article. Arrangement of names will depend on my supervisors.

APPROVAL SHEET

This dissertation entitled “**FACTORS CONTRIBUTING TO THE SUCCESS OF PROJECT IN MALAYSIAN COMPANIES**” was prepared by PRAKASH SUNDARASEN and submitted as partial fulfilment of the requirements for the degree of Master of Science in Project Management at Universiti Tunku Abdul Rahman.

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DECLARATION

I hereby declare that the dissertation is based on my original work except for quotations and citations which have been duly acknowledged. I also declare that it has not been previously or concurrently submitted for any other degree at UTAR or other institutions.

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CHAPTER 1

INTRODUCTION

1.1 Background

Malaysia is a rapidly developing country in the Asian region, with its economy heavily dependent on agriculture, forestry, petroleum and, more recently, manufacturing. By the year 2020, Malaysia aspires to become a fully developed nation. The essence of this vision is the consequences of involvement in business and commerce that is dependent on all substantial successful accomplishment of projects.

Project Management in Malaysia is growing exponentially. It's now used in virtually all industries, such as government, construction, telecoms, IT, education and banking. Efficient and responsible project management is key to any successful organizations streamline to improve productivity. Expertise and responsibilities of project managers is a source of security, prosperity and power to many companies in Malaysia. Importantly, declared Government policies as the Economic Transformation Programme would require exploring project management success strategies in order to bring the country's economic performance to a competitive level. Furthermore, green energy future in Malaysia has been identified as the growing industry. Hence, precedence to implement effective project management in projects is essential. (Mekhilef et al. 2011)

Nowadays, project management has become a key activity in most modern organisations. Project results continue to be crucial for the growth of a company; the project effectiveness directly depends on the success of its projects. Project management researchers have been trying to discover the most important empirical studies on the critical factors leading to project success.

So what are the critical factors that “really” lead to successful projects in Malaysian context? To date, projects usually involve attention to a variety of budgetary and technical variables compare to classical approach that lies on behavioural systems. Although many definitions exist in a success factor of a project, a comprehensive answer to the question of which factors are critical to project success depends on main factors including project scope, time and cost, quality of execution, risk management, human resources, procurement, communications, integration and project management techniques limited budget, schedule, quality standards, and a series of complex and interrelated activities.

1.2 Problem Statement

Projects usually involve attention to a variety of human, budgetary and technical variables. Organization units and individual actions may possibly couple in stimulating entrepreneurial behaviours towards a project success that emphasize on human interactions or motivation and decision-making practices.

Other factors i.e. leadership and organizational technical skills are also important.

Many known projects have been either delayed, have had cost overruns or did not meet the initial objectives. Project success seems to be a “human factors” approach wherein each stakeholder group – e.g., customers, senior management, etc. – takes a view of the project success from a different angle on the start of the project and to identify the possible cost before making monetary investment and managing it within a milestone. The logic here is that measures of project success need to include the diversity of stakeholder interests, skills team work and attitude in preliminary cost estimate and budgetary control. Almost all industries would have conducted some form of ‘projects’ either as professional services or within the organization itself, for example a project to improve the product or services produced by the company. Failures are more common than successes, and can be found in all fields, throughout history and in contemporary society (Wysocki, 2007). However, sustainable success of a project is more likely to be achieved effective company's project portfolios. These portfolios may be dependent or independent to individual and organizational factor. Thus, this research intends to provide insights on how individual, organizational factors and project factors that contribute or affect success of projects in various industries in Malaysia.

1.3 Research Objective

The objectives of this study are:

1. To identify the critical factors for project success and to determine the extent of which the Organization (organization culture and organisation politics), the individual (the project manager's experience, certification, leadership) and the project factor (schedule, scope, cost) contribute towards the success of projects in a Malaysian context.
2. To identify whether the answers provided by the respondents with different demographic characteristics differ statistically with one another.

1.4 Expected Research Outcome

The expected outcome of the research is to determine the order of importance among the researched factors of organization, individual and project factor as described above towards the success of projects in Malaysian companies.

For example:

1. Organizational factors such as culture, politics, organization structure, teamwork etc does/does not influence the success of a project.

2. Individual factor of the project manager, such as leadership, gender, experience in the field (Years of experience), leadership style and academic qualification and professional certification does/does not influence the success of a project.

3. Projects factors of schedule, scope and cost does/does not influence the success of a project.

1.5 Dissertation Structure

Chapter 1:

The chapter comprise of an overview of the research followed by the problem definition, the research objective, the research questions, and the methodology.

Chapter 2:

The chapter discusses the literature review pertaining the research questions and topics to be answered and elaborated. The chapter is divided into three sections: Project Definition, Project, organization culture, project management and project management success factor. The chapter concludes with a conceptual success factor of project management in the context of organizational culture and the literature review that is studied.

Chapter 3:

The chapter starts with a brief introduction, then the research design and methodology assigned for this research is being discussed. In the research design and methodology section, first research approach will be discussed, followed by: research purpose, research methodology, research strategy, and the time horizon. In the following sections, the researcher will state the problem definition, the research objective, the research questions, the research hypothesis, the data collection, the sample selection, the data analysis, the reliability and validity, and last but not least, a brief summary.

Chapter 4:

The chapter addresses a comprehensive description, discussion, and a detailed analysis of the data obtained from the research survey. In this chapter, data analysis and statistical methods will be applied using the SPSS version 17. The analysis and test used in research are: Descriptive analysis, Reliability test (Cronbach's Alpha), One T test and ANOVA test.

Chapter 5:

The chapter interprets the research findings and presents the discussion. In this chapter, the research questions are being answered, and the results are discussed in further detail.

Chapter 6:

The chapter presents the conclusion and limitation of the study. The chapter concludes with recommendations for further future research in the area of project leadership.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

The research aims at studying selected organisations in Malaysia investigating the research question, namely on the organization, the individual (Project Manager), and project factors (cost, scope & schedule) and how these contribute to project success in Malaysia. The project management field has not evolved beyond thinking that the answer lies in monitoring and controlling cost, scope and schedule (Leybourne, 2007) to individualistic and working organization concept. There is a blend of project, organization, and individual variables contributing to project success. Excellent administrative aspects of a project, controlling project cost, project schedule, and project scope are essence of success factor of project management in the of the 20th century. These administrative aspects consist of two main elements; individual (project managers or top management) and organizational culture. Additionally, techniques and methods of project management applied by a project managers' is necessary for the performance within time frame.

2.2 Definition of Project

One could find numerous definitions describing a project in literature. Amongst those, (Juran, 2006) defined a project as a problem scheduled for solution which plays crucial roles in accomplishment of a “plan for a scheme or undertaking” by an individual or organization. The objective and performance of an organization’s business dimensions are dependent to efficiency in project prospective and judgement. A project is a temporary endeavour undertaken to create a unique product or service under an environment and conditions in which the defined or desired objective or goal can be achieved in a controlled manner by organization with precise plans and operations executed by people. The integration of project management processes i.e., initiating, planning, executing, monitoring, controlling and closing completes the functions of project management. (Shtub et.al, 1994).

2.2.1 Definition of Terms

Project Cost – the estimated total cost of a project, determined by the project schedule and project resource requirements determined during the project planning process.

Project Management – the application of knowledge, skills, tools and techniques to project activities to meet project requirements.

Project Management Body of Knowledge (PMBOK) – an inclusive term that describes the sum of knowledge within the profession of project management.

Project Manager – an individual tasked with the responsibility to deliver the project successfully.

Project Scope – the work that must be performed to deliver a product, service or result with the specified features and functions.

Schedule – the time required to complete the project through all planned phases of activity.

Success – the integration of several factors that result in an organisation's ability to produce products or services acceptable to the consuming market.

2.2.2 Characteristic of a Project

Nigel J. Smith (2002) has concluded that projects can be characterized in six elements which are described in Figure 2.1. Projects have clearly defined objectives and goal setting out to produce clearly defined results. Their goals must be realistic and achievable by taking account both of requirements and of the financial and human resources available to complete the project within a milestone. A manager of a team should clearly distinguish the on-going project with planned operation. Operations are different from projects. Operations involves daily costing and work schedule. Project is considered big plan for

completing a major task. Projects are often broken down to smaller tasks that require careful coordination and control in terms of timing, precedence, cost, and performance that meets or exceeds the expectations of the stakeholders.

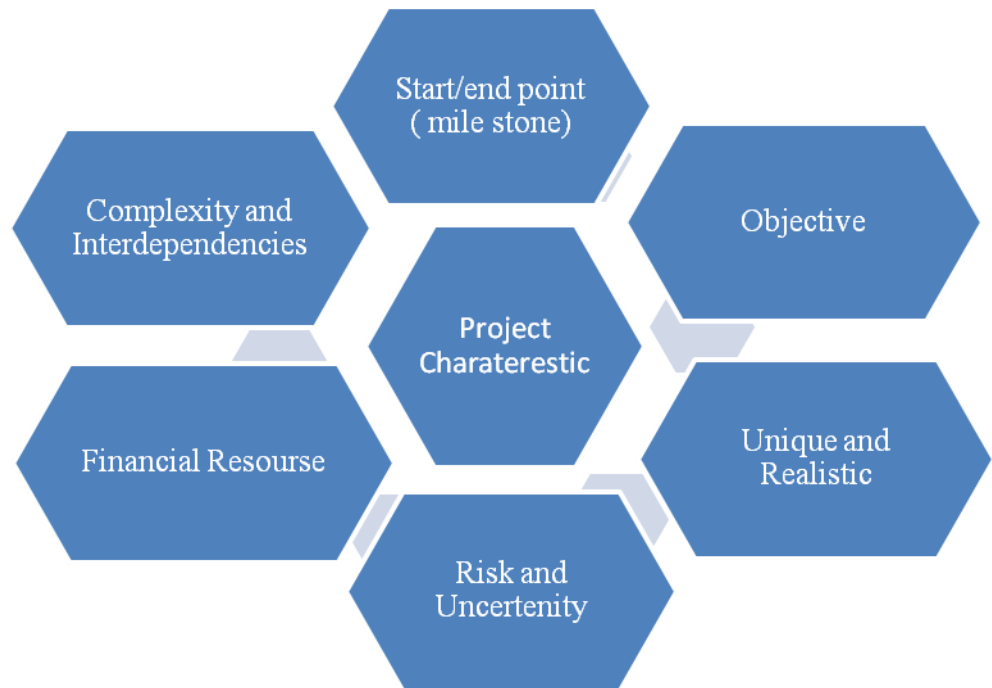


Figure 2.1. Characteristic of a Project (Smith, 2002)

2.2.3 Definition of Project Cycle

Effective evaluation and implementation of a project development aligns with planning and management of projects is the basis for design. (Blackman, 2003) introduced successive phases of project management depicted as a cycle that is planned and implemented through to completion. The number of phases differs slightly depending on project characteristics; however a general model is shown below in Figure 2.2 (Ngang, 2009). As described by Ngang (2009), the cycle phase starts with an idea leading to a strategic concept for action, which is designed in further detail involving finance and implementation. The implementation phase comprises detail monitoring followed by evaluation after completion.

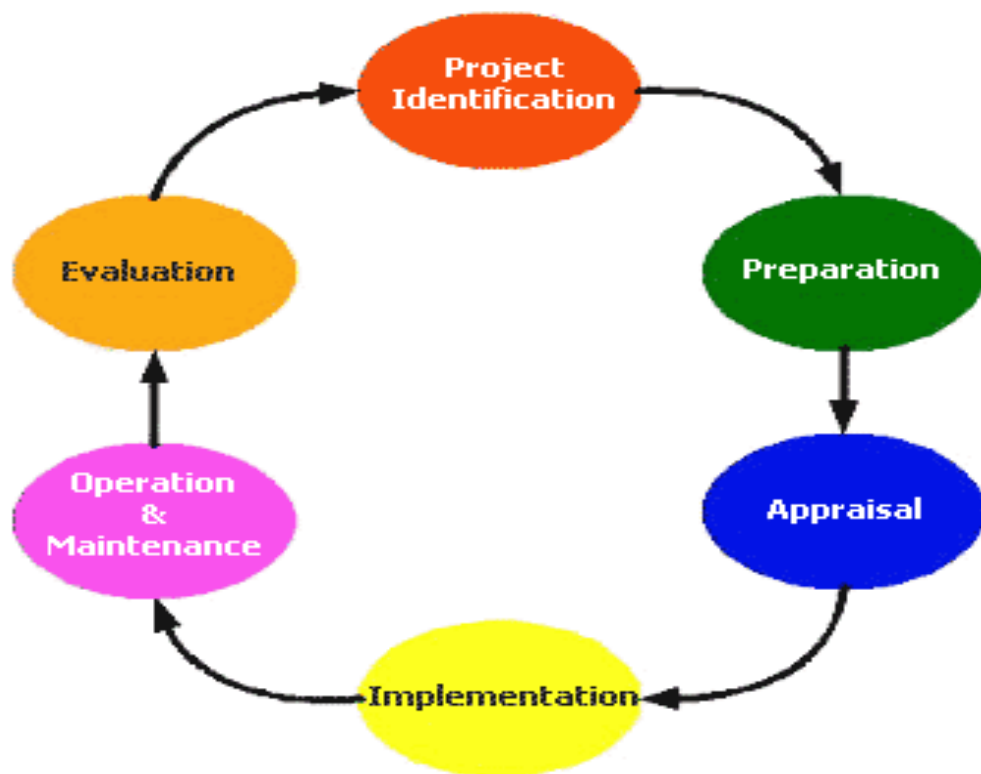


Fig 2.2 General Model of a Project Cycle (Ngang, 2009)

2.3 History of Project Management

Project management has been around for a very long time. Defined as the situation where a group of people and resources that have been assembled and organized to achieve specific one-time objectives requiring complicated management systems has been practiced at least since the construction of ancient wonders such as the great Egyptian pyramids and the Great Wall of China. These ancient projects have required exceptional planning, management of the construction, coordination of human labor, maintaining a schedule and allocation of resources. All of these elements are used in today's modern project management practices but there is no evidence that these projects used optimal scheduling of activities. Another example of project management application would be in the mid-19th century, during the US economic boom, where business leaders of the American industrial revolution found themselves faced with the daunting task of organizing the manual labor of thousands of workers and the manufacturing and assembly of unprecedented quantities of raw material. In the early 20th century, modern project management came about from different areas of application such as construction, engineering, and defense. Henry Gantt the forefather of project management introduced Gantt charts, combine milestones, bars and color in the same chart to indicate progress towards project completion. Another prominent figure in modern project management is Frederick Winslow Taylor's. Taylor, an associate of Henry Gantt, developed scientific theories of management. He studied certain production elements and how each task can be made efficient through the use of fine tuning techniques. The early 1950's saw the beginning of modern

project management with development of mathematical scheduling methods. In example, the CPM, or critical path analysis, is a mathematically based algorithm for scheduling a set of project activities by minimizing the time to end of the project. This allowed project managers, for the first time, to optimize the sequence of scheduling project tasks and basis of project management today (Willis, 1985).

2.3.1 Definition of Project Management

Developing a distinct definition between project and project management (PM) is necessary to understand the functional element of PM. A project is a temporary group activity designed to achievement a specific objective, which involves a series of activities to produce a unique product, service or result. It has to be completed within a set specification, having definite start and end dates. Project management is viewed as a set of tools used to plan, organize, monitor, control, and report projects to be of overall benefit to the company (Pinto; Slevin, 1988).

Duncan Haughey (<http://www.projectsart.co.uk/introduction-to-project-management.html>) adds that:

- Project management is no small task.
- Project management has a definite beginning and end. It is not a continuous process.

- Project management uses various tools to measure accomplishments and track project tasks. These include Work Breakdown Structures, Gantt charts and PERT charts.
- Projects frequently need resources on an *ad-hoc* basis as opposed to organisations that have only dedicated full-time positions.
- Project management reduces risk and increases the chance of success.

Project management is often summarised in a triangle (Figure 2.3). The three most important factors are time, cost and scope, commonly called the triple constraint. These form the vertices with quality as a central theme.



Figure 2.3: The Triple Constraint

More recently, this has given way to a project management diamond, with cost, time, scope and quality the four vertices and customer expectations as a

central theme (Figure 2.4). No two customer expectations are the same so you must ask what their expectations are.



Figure 2.4: The Project Management Diamond

2.3.2 Project Management Institute (PMI)

The Project Management Institute (PMI) was founded in 1969, it functions as the leading global association for the project management profession that aid them to and understand project management as a discipline and a professional service. PMI has been at the forefront of working with business to create project management standard tools. PMI offers a range of services to the Project Management profession such as the development of standards, research, education, publication, networking-opportunities in local chapters, hosting conferences and training seminars, and maintaining multiple credentials in project management. PMI acts as a professional learning centre

and offers Project Management Professional (PMP) and Certified Associate in Project Management (CAPM) certification.(Uhlir.P, 2013; Alam et al;Mengel et al., 2008 ; Knoepfel. 1989)

2.3.3 Project Management Body of Knowledge (PMBok)

This project management method has been developed in 1987 by the PMI organization and outlined in an ANSI standard (IEEE Std 1490™-2003) and the book ‘A guide to the Project Management Body of Knowledge’ (PMBok) (2000 edition). PMI defines project management as *“the application of knowledge, skills, tools and techniques to a broad range of activities in order to meet the requirements of a particular project.”* Project managers contribute to quality, efficiency and business results across the enterprise. The (PMBOK) is a collection of processes and knowledge areas generally accepted as best practice within the project management discipline based on PMBoK method. PMBOK recognises 5 basic process groups and 10 knowledge areas typical of almost all projects.

The 10th knowledge area being Project Stakeholder Management was introduced in the latest edition of PMBOK (5th Edition). The basic concepts are applicable to projects, programs and operations described in Appendix A.

2.4 Definition of Project Success.

Project success is a strategic management concept where project efforts must be aligned with strategic project management which has been comprehended as a critical issue for project success (Atkinson, 1999). There are various perspectives of describing project success. Among the more widely spoken about is the traditional Iron Triangle (cost, time, quality) proposed by Atkinson (1999) which has been the measuring tool for assessing project performance and success. These basic criteria (i.e. cost, time and quality) are easy and timely to measure yet evolving and developing by learning from the past mistakes and by adopting the best-believed practices appropriate for continuous improvement. Hence, there is no defined or fixed set of project success criteria. Many authors including (Shenhar et al., 1997; Rodrigues and Bowers, 1996 and Dweiri, 2006) all agree that the Iron Triangle should be used as success criteria, but not exclusively. According to Shenhar et al. (2001) traditional criteria (i.e. cost, time and quality) were not really one homogeneous dimension that meets the project specification. Since then, project success has been analysed from a few dimensions. For example Shenhar (2001) talked about the second dimension of project success which is aligned to continuous improvement that emphasised on productivity and benefit to the end users and other stakeholders. The structure was called The Square Route project success criteria, that is measuring the project success in terms of the traditional iron triangle (cost, time, quality), in terms of the information system, benefits of the final product with respects to the organization, and the benefits of the same according to the stakeholder

community. Third dimension is the direct and immediate benefit of the project focus on the organization about preparing the organization's processes, operations, and infrastructure for future challengers, threats and business opportunities (Sidenko, 2006). The fourth dimension involve in developing opportunity for future innovation and business. All four dimensions are dynamics of the success assessments that varies with time. The first dimension can be assessed in short-term. The second dimension can be assessed after a medium time that involves project managers and customer. Finally, the third and fourth dimensions can be assessed after a longer time as post-delivery that allies as are indirect beneficial to stakeholder community. The four dimensions as proposed by Shenhar et al. (2001) on project success are as described in Figure 2.5. These four dimensions are time dependent i.e. the first dimension is the period during project execution and right after project completion. The second dimension can be assessed after a short time, when the project has been delivered to the customer. The third dimension can be assessed after a significant level of sales has been achieved (one to two years). Finally the fourth dimension can only be assessed three to five years after project completion.

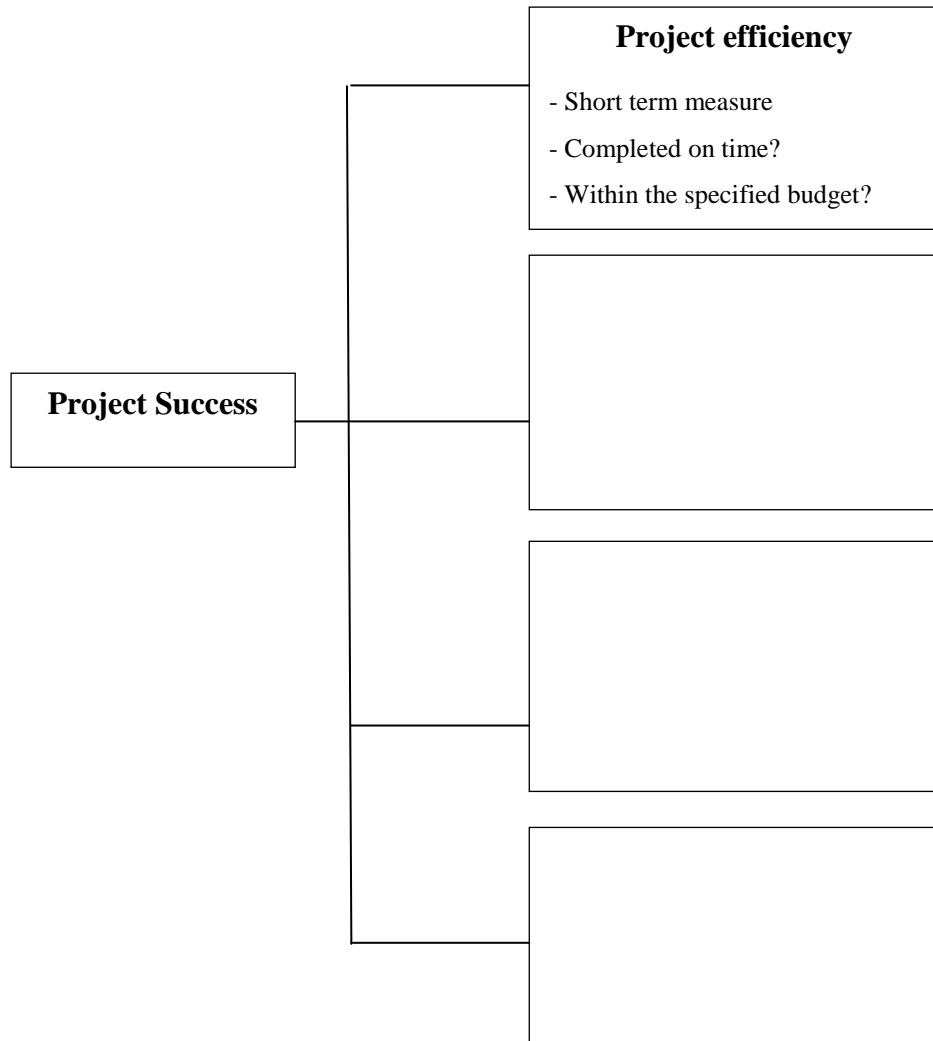


Figure 2.5: The four dimensions of project success (Shenhar et al., 2001)



Figure 2.6: project success definitions.

2.4.1 Project Success criteria.

Companies are increasingly using projects; keeping an eye on competition and good practice on management are essence to achieving company goals. Critical success factors are important influences that contribute to project success. So, critical success factors are the set of circumstances, facts or influences which contribute to the project outcomes. An organization is responsible to understand these success factors and develop ability to systematically and quantitatively assess these factors, anticipating possible causes and effects (Mobey and Parker, 2002).

A project success criterion begins with the initiatives taken by the project manager to the project in question. Project “success” is an important definition for managers to manage their project and meet the requirement of the stakeholders. The outcome measure whether the project was successful or not is determined by overall results that the project accomplished. Key Performance Indicators (KPI's) is a method used to measure the perspectives on what is project “success” and key role of a manager is (Sabariyah et al, 2011).

The search for factors that influence project success has been growing interest over the past decade. According to Pinto and Slevin (1987,1989), Cooke-Davis (2002), Muller and Turner (2003), Belassi and Tukel (1996) and etc, success factors are those input to the project management system that lead directly or indirectly to the success of the project or business. These success factors are characterized by four main groups by (Belassi and Tukel, 1996). These are factors relating to the project, project managers, organization, and external environment. Researches such as, Chan et al., 2002 identify a set of project success factors in an organization level; project team commitment, contractor’s competencies, risk and liability assessment, client’s competencies, end-users needs and constraints imposed by end user. Table 2.2 below gives lists of the critical success factors summary developed in the various literatures.

Table 2.2: Summary of critical success factors from literature

Critical Success Factors	Pinto & Slevin (1987,89)	Belassi & Tukul (1996)	Cooke Davies (2002)	Baccarini (2001)	Andersen et al., (2006)	Hyvari (2006)	Turner & Muller (2005,07)	Khang & Moe (2008)
Project Understanding		*				*	*	
Top Management Support	*				*		*	
Information/Communication								*
Client Involvement		*	*					
Competent Project Team					*			
Authority of the Project Manager/Leader				*				*
Realistic Cost and Time			*					
Adequate Project Control			*					
Problem Solving Abilities			*					
Adequate Resources			*					
performance and feedback	*							
Project Ownership		*		*			*	
Human Recourse								

It is obvious from the above summary that the study on project success factors is continuously improving and producing more depth and scrutiny into the finer aspects. There is a blend of project, organisation and individual variables contributing to the success in the project field (De Carlo, 2004). The profession has evolved from the focus on the traditional cost, scope and schedule towards a more holistic view of a combination of factors including organisational and individual factors. Gharajedaghi (2006) defined this combination of factors as "the product of interactions among several elements". These properties interact such that any missing factors do not spawn the expected result. In light of this definition, project success is an emergent property of the sums of the individual, project management, and organization factors. The individual must be experienced, must have knowledge of the profession, they must lead appropriately, and they must be able to anticipate events that are emerging. The project must be delivered within the defined cost and schedule, providing the requirements defined during the project execution. Finally, for success, the project must be delivered within the constraints of the organization, its culture, its politics and its structure.

2.4.2 Definition of Individual Factor

a) Tenure

Tenure or the number of years of experience in the project management field will allow the project manager to complete the initiative within the estimates of schedule, cost and scope (Wysocki, 2007). Experience and education supplies

the manager with the foundation of knowledge to build robust estimates of efforts through analogy, expert opinion, top-down, or bottom-up approaches (Nicholas, 2001). An experienced project manager will seek to propagate their experience and knowledge throughout the members working on the project. Teams will perform at higher levels if the project manager can develop a project culture of learning so that knowledge gained in the project is disseminated throughout the group (Senge, 2006). For example, an experienced project manager would be able to better resolve problems at an early stage which if undetected could lead to chronic difficulties deep into the project. Another element of experienced project managers is the ability to build a good relationship with various levels of stakeholders which is key towards project success.

b) Certification

The project management profession is composed of individuals with diverse educational and experiential backgrounds. As with other fields, such as technology, this range of knowledge has created a market for certification activities, so that some level of conferred expertise may be understood to be associated with the individual. The project management institute (PMI) is arguably the largest professional group concerned with project practices and standardization. The most common certification is that of the Project Management Professional (PMP), a credential which requires the individual to

demonstrate practical knowledge through an application and examination process (Gray& Larson, 2008).

c) Leadership Style

It appears that the project manager in most settings, who has a high degree of emotional intelligence, finds higher success rates than those managers with low levels of this trait (Müller & Turner, 2007). Neuhauser (2007) stated that the project manager has two categories of issues necessary to understand, monitor and control when managing a project, that of technical and people factors. People factors require the manager to understand and exhibit leadership (Müller & Turner, 2007; Wysocki, 2007).

Leadership experience involving project manager and top management involvement are main influence the outcome in effective management of an organization. The emphasis of leadership in project management field today are more focused on to the competence and leadership style of project manager and its contribution to project success, compare to traditional understanding which on tools and techniques that project manager could use. Thus, efficiency in top management of with leadership competence is crucial. Moreover, 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. Authority of a top management to the project leader and team 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. In human context, a project manager is required to handle people's emotions, to motivate people to work in unity under one organization culture to make sure that have concentrated on the goals of the project.(Ehsan et al., 2010)

2.4.3 Definition of Organisation Factor

a) Cultural

The way of life of particular grouped people with uniformity has been defined as a concept that represents as 'Culture'. It characterizes individuals' memberships and presence in larger group settings, which reflect "an individual's theory of what his fellows knows, believe and mean" (Foster, 1962).

Fundamental principles from an individual theory that has been implemented in societies or communities form an organized culture. These collective aspect of culture, has the ability to represent a group's characteristics as a "complex whole which includes knowledge, belief, art, law, morals, customs and any capabilities and habits acquired by a man as a member of society".Stamani (2004) describes culture conceptual of Linton (1945), as cyclical conceptual structure consists of cyclical notion of 'learning,' 'forgetting,' 'sharing' and 'transmitting as in Figure 3.A group learns, internalizes, shares and transmits a constantly evolving culture that lies on the cyclic conceptual structure of

culture to establish “the unique pattern of shared assumptions, values, and norms that shape the socialization, symbols, language, narratives and practices of a group of people” (Stamani, 2004)

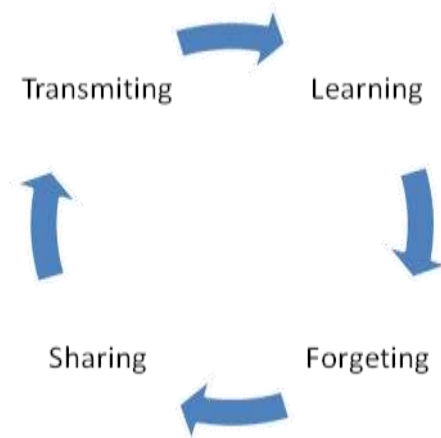


Figure 2.7. Conceptual Model of Lagerlof and Linton's Notion of Culture

Cultural issues at the organizational level are absolutely essential for organizational settings towards achieving an organization in the processes that produce systems of shared meaning that involved individual personality. These manifestations emphasis on ‘the way we do things here’ that represents distinctive patterns of cooperate behaviour include such things as idiosyncratic language, stories, ceremonies, and norms of behaviour. These analogies are most significant dimension or of the work climate and consecutively the main driving force of a business. In business organizational culture termed as unity of people in, the way they view things, their collective assumptions and opinions about work and progress. The result of their team success is a source of great effect on behaviour. (Gray. 2001)

Organizational culture is in the brains of executives and people on the floor where implementing change and boosting performance starts. The organization's culture contributes to build on shared values and ideas ensuring continuous innovative work outcomes of employees. One of the most important success factors of a project management is the performance differences between companies that compete with each other in product/service market and the way to sustain competitive advantage. This competitive advantage contributes to economic performance that directly related to performance outcomes of managing particular project with a sustainable organizational culture or their commitment to their organizations. Leadership is an important component for organizational effectiveness, and the development changes of organizational culture according to the target outcome. Thus, positive effects of leadership and organizational culture correlated to form a successful organizational commitment and team work in accomplishing task in a time frame.(Hastings et al.1995)

Project success has been shown to be positively correlated with the group of social attributes characterised as voluntarism. Therefore, Management attention should be more productively focused on creating the kind of organisational environment. “Cultural and organization” is fundamental organisational environment that underline the need for careful planning of a project. The supporting elements for project planning/organizing include organizational structures, systems, and procedures; for example incentive systems, leadership manners, reporting relationships, and communication

channels are crucial. Project organization shape involves people from different units, roles, and cultures that able to commit to the success of a project. Competence is considered critical phenomena in global market. Thus, both project team composition and project team involvement to meet competence in business sectors are among the most important elements for project success (Soja, 2006). General project management research also emphasizes the importance of personal skills and competencies in the project teams (Ruuska; Vartiainen, 2003). For organizations to be successful with the adoption of project management, they need to establish a shared set of values and beliefs (i.e. a project management culture) that aligns management and leadership aspects of project management in order to achieve the organization's business objectives. Traditionally project management is understood as regardless the role of a project manager. However, (Dulewicz and Higgs, 2003; Higgs, 2001) concluded that project managers' leadership capabilities attributes to development of competency-based framework and importance of creating a supportive organizational environment. Behaviour of a project manager attributes to the intellectual

exchange and interpersonal relationships. The manager of such a project needs to master both technological and organizational complexity. Organization and management are two key elements for sufficient planning in order to sustain all units and functions are taken to avoid risk in business outcome.

DeCarlo (2004) stated that in order to complete a project successfully, one must be sensitive to a firm's culture and "adapt the project management approach to work within your existing organizational norms" Gray and Larson (2008) stated, "Project managers have to be able to operate in several, potentially diverse, organizational cultures.

b) Politics

The PMBOK discusses the sensitivity a project manager requires in the Project Human Resource Management chapter, as an organizational environmental factor Research has found “by a margin of almost 4 to 1, successful mid-level managers acknowledge that politics and influence are vital to performing their jobs effectively” (Morris; Pinto, 2004).

2.4.4 Definition of Project Factor

The project factors consist of the variables of project cost, project scope and project schedule. They are often referred to as the triple constraint, and are the key items a project manager will track when they manage a project (Cook, 2002).

2.5 Project Success Framework

Project management framework which is designed to help users to plan and implement projects in a disciplined way so that all the relevant issues are addressed thereby maximising the chances of successful outcomes. The framework is a project toolkit and enabler, designed to help those working on projects of all sizes. The framework supports a successful outcome, whilst minimising compromise to the initial concept or idea. The project success framework postulates that the success criteria of stakeholders' appreciation, quality, time, and cost could be achieved by putting in place and implementing the success factor groups of human management, process, contract and technical, and organization are required to be in place to achieve the project (Buttler et al., 2012).

Success criteria became the benchmark to measure success or failure. Researchers define success factors as those elements that are required to deliver the success criteria. These elements are the set of circumstances, forces, facts or influences, levers, essential activities and key variables. These also include knowledge, skill, trait, motive, attitude, value or other personal characteristics essential to perform the required task. These success factors are not the basis of measurement or judgment but management inputs, systems, and (Milosevic;Patanakul, 1995) .The findings of the study (Wan Abdullah, 2010) identify eighteen (18) significant success factors that are classified under

four (4) factor groups of human management, process, contract and technical, and organization.

2.6 Developing Critical Success Factors in an Organization

The above discussions have provided the bench mark to develop project management. Nevertheless, it was found that success factors might be independent to different organization culture when applying project management techniques in countries which is thought to be unique and different in terms of culture, project management certification and economical resources. The factors that need to be taken into account in order for the project management to be successful. Importantly, leadership qualities represent one of the main key success factors of project management in an organization. (Hyväri et al., 2006) Success, in the new century, is the product of the individual, the organization and the project schemes, merging in a manner that defines the outcome. Focusing on any single area, to the detriment of the others will not achieve the desired result. The project manager must use their skills, their education and their experience within the confines of the organization to reach the outcome that is commonly unattainable, project success in the new century. The framework demonstrates the blending of the factors into an area of intersection, which define project success.

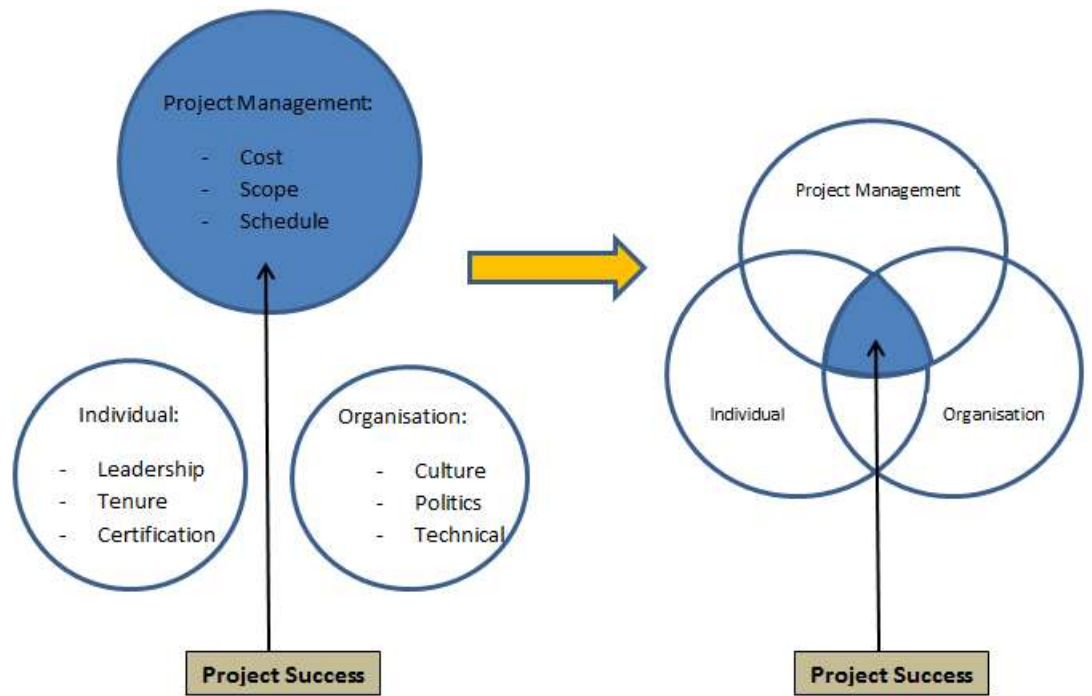


Figure 2.8: The theoretical framework of this study.

CHAPTER 3

METHODOLOGY

3.1 Introduction

Many literature and data are available in monitoring and controlling the cost, scope and schedule in the project profession which are seen as the major factors to measure project success. For many years this definition has been used, yet continues to prove incomplete, as projects continue to fail in meeting the triple constraint criteria defining projects as successful (Henrie & Sousa-Poza, 2005).

When the project manager focuses on the correct factors, the project will be successful. However, if the manager puts in time and effort on factors that do not carry much weight to the success of the project, the possibility of success will be reduced significantly. The mix of variables to achieve success changes as the project proceeds, creating a situation where the PM needs to evolve from analytical thinking toward a holistic thinking discussed by Gharajedaghi (2006).

Success, in the new century, is the product of the individual, the organization and the project schemes, merging in a manner that defines the outcome, Gharajedaghi (2006). Focusing on any one of the three area and neglecting the other two will not achieve the desired result, i.e. project success. Therefore the Project Manager must use their skills, their education and their experience within the organization to reach this outcome. Also as suggested by

Gharajedaghi (2006) that the Project manager must understand the interrelations of the system and individual in order to understand how each contributes to the other.

This study seeks to determine, within a Malaysian based context, the extent of the importance of the mentioned factors, i.e. the organization involved, the individual leading the project and the project factors itself towards attaining success. This study is primarily conducted by using quantitative methods.

As stated by Creswell (2003), research can be framed into research objectives and questions. A total of 30 questions testing on the variables mentioned above (main) and 7 questions related to the profile of the participants (demographic) were prepared for this study. These questions were developed in order to achieve the research objectives by enabling the researcher to obtain answer to for the factors categorised below.

1. Does the organization factors of culture, politics and technical affect the success of projects
2. Do the Individual factors of the project manager, such as experience in the field (tenure), leadership style, the ability to anticipate the future, and education (certification) affect the success of projects.
3. Do the Project factors, of cost, schedule and scope affect the success of projects?
4. Does the answer provided by respondents with different demographic characteristics differ statistically with one another?

3.2 Research Design

This study is done as a descriptive study. A descriptive study normally employs to describe and interprets what is. It is concerned with conditions or relationships that exist, opinions that are held, processes that are going on, effects that are evident or trends that are developing. It is primarily concerned with the present, although it often considers past events and influences as they relate to current conditions (Best & Kahn, 1998).

According to Best & Kahn, descriptive research deals with the relationships between variables, the testing of hypotheses, and the development of generalization, principles or theories that have universal validity. In carrying out a descriptive research project, the researcher does not manipulate the variable, but observes and describes what took place and relevant to present condition.

A survey methodology employing a questionnaire is used to collect data for this study since it requires the description of the concerns. According to Fraenkel and Wallen in their book 'How to Design and Evaluate Research in Education', the major purpose of surveys is to describe the characteristics of a population. The quantitative approach is chosen since the study involves determining the influencing factors with a few variables for each factor. In order to conduct the research, the factors are analyzed from the below variables:

1. Organisation Factors: Culture, Politics and Technical
2. Individual Factor: The Project Manager's experience in the field, Leadership and Certification

3. Project Management Factor: Cost, Scope, Schedule.

The expected outcome of the study is the extent of influence or importance of these variables to the success of projects in Malaysia.

3.3 Sampling Design

This research seeks to gather data on the subject of project management success factors in Malaysia, through a survey instrument that will collect participant results in the three factors researched: (a) individual, (b) organization, and (c) project. The population studied consists of Project Managers from companies within Malaysia. The instrument questions have been designed to cover all of the variables being investigated. There are 9 variables in the research, covered in the 3 factors of organization, individual and project.

The instrument used for this study is a set of questionnaires using multiple scales which contains Likert Scale. Likert Scale asks participants to respond to a series of statements by indicating whether they strongly disagree, disagree, neutral, agree or strongly agree with each statement. Each response is associated with a point value and an individual's score is determined by summing the point values in each statement (Gay & Airasian, 2000). The questionnaire is divided into 2 sections as follows:

Section 1: Comprising of 30 questions related to the three different factors of organization culture, individual and project (schedule, scope & cost) as discussed.

Section 2: Contains seven questions related to the respondent's demographic information such as gender, professional qualification, years of experience, etc.

Questions from the Oren. A (2008) survey, altered for the Malaysian context in conjunction with additional items relevant to the sample approached was used to collect data on the variables as discussed. The 30 main questions were divided to the 3 categories of focus as per the factors that being researched as the critical factors for project success. The questions are as tabled below.

Table 3.1: The main questions testing on the variables

NO.	Question	Focus
1.	In my opinion successful projects are those that meet cost, scope and schedule	Project
2.	The work in our organisation is well defined and structured	Organisation
3.	The work in our organisation is not clearly defined not properly structured	Organisation
4.	Successful project require leadership, experienced project managers.	Individual
5.	I try to find ways to innovate to meet project success	Individual
6.	I give more importance to manage the project rather than the relationships in the project team	Individual
7.	As the project manager, I try to find different ways or approaches to meet the project goals	Individual

8.	I give more importance for the team members' relationships rather than managing the project tasks	Individual
9.	As a project manager I try to inspire the project team to meet project goals	Individual
10.	As project manager I try to find situations that would benefit both the project goals and the team's goals	Individual
11.	As a project manager it is important to maintain a warm business relationship with stakeholders.	Individual
12.	Project decisions are made at various hierarchy levels and flexible paths in our organisation	Organisation
13.	There is a selected employee group that are involved with management to make decisions in our organisation	Organisation
14.	Views of both management and the subordinates are heard and considered in the decision making process in our organisation	Organisation
15.	The project was successfully completed as per project schedule based on baseline goals and targets	Project
16.	The project was successfully completed as per overall project cost based on baseline goals and targets	Project
17.	The project was completed successfully as per project scope based on baseline goals and targets	Project
18.	More of my projects are successful compared to unsuccessful	Individual
19.	The organisation is very results oriented. A major concern is with getting the job done. People are very competitive and achievement oriented.	Organisation
20.	The leadership in the organisation is generally considered to exemplify mentoring, facilitating or nurturing	Organisation
21.	Successful projects require organisation that facilitates project success.	Organisation

22.	The management style in the organisation is characterized by teamwork, consensus and participation.	Organisation
23.	Project success depends on the scheduling tools expertise in the organisation.	Project
24.	The glue that holds the organisation together is loyalty and mutual trust. Commitments to this organisation run high.	Organisation
25.	Project Managers play the role as organisation 'glue' in team play.	Individual
26.	Project success highly depends on the management's focus on project fund acquisition.	Project
27.	The organisation emphasizes acquiring new resources and creating new challenges. Trying new things and prospecting for opportunities are valued	Organisation
28.	The organisation defines success on the basis of the development of human resources, teamwork, employee commitment and concern for people.	Organisation
29.	The organisation gives priority to project completion compared to other factors	Project
30.	As the project manager, I try to find different ways or approaches to meet the project goals	Individual

Table 3.2: The list of demographic questions

	Variables	Category
1.	Gender	Male
		Female

2.	Certified PMP	Yes
		No
3.	I am a Project Manager in the field of	Software
		Construction
		Manufacturing
		Education
		Others
4.	Organization ownership structure	Malaysian
		Foreign
5.	Experience	Greater than 1 and less than 3 years
		Greater than 3 and less than 5 years
		Greater than 5 and less than 10 years
		Greater than 10 yrs
6.	Project completion	Yes
		No
7.	Project cost	Less than RM 100K
		Greater than RM 100K and less than RM500K
		Greater than RM 500K and less than RM1 Million
		Greater than RM1 Million and less than RM10 Million
		Greater than RM10 Million and less than RM 50 Million
		More than RM50 Million

The participants numbering 50 people were randomly selected from several companies that are involved in project management activities in Malaysia. Precautions will be taken to ensure confidentiality and privacy is maintained throughout all phases of the study. The data collected will not identify any individual, unless they choose to provide identifying information for any follow-up questions that may be asked if needed.

The survey questions will be provided to the selected participants either by hand or via email upon briefing the participants. A letter of consent is attached together with each questionnaire to ensure that the participants have a clear understanding of the purpose of the questionnaire.

3.4 Data Analysis Methodology

The survey data will be gathered similarly either by hand or returned via email. All the answers are then compiled into a dataset in Microsoft Excel that could be used in the statistical software package; Statistical Package for the Social Sciences (SPSS) to analyze in a statistical manner. The analysis is conducted using the descriptive analysis, reliability analysis, one sample t-test and ANOVA test.

The descriptive analysis was to investigate the profiles of the respondents. For example, the analysis would determine the gender percentage of the

respondents, tenure or the individuals experience in the project management field, type of industry, etc.

Considering the fact that the sample size is small, a reliability test was conducted. The results were positive with the Cronbach Alpha value for all the 30 questions in the questionnaire giving 0.82. With this consistency proven, further statistical analysis were proceeded with as detailed in Chapter 4.

CHAPTER 4

RESULTS

4.1 Introduction

This chapter presents the empirical findings based on the collected data. The empirical analyses were done using the descriptive analysis, reliability analysis, one sample t-test and ANOVA test. In this context, Section 4.2 discusses the descriptive analysis of the respondents' profile, followed by the discussion of the reliability analysis in Section 4.3. Sections 4.4 and 4.5 present the discussions of the one sample t-test and ANOVA test. The chapter summary is given in Section 4.6.

4.2 Demographic Profile Analysis

The demographic profiles of the 50 respondents were analyzed using the descriptive analysis. A total of six (6) questions were looked into in the demographic section. The first question investigated the respondents' gender characteristic. The result shows that the majority of the respondents are male (N = 41, 82%) with female being 18% (N = 9). The respondents were also asked if they are certified project management professional (PMP). The result suggest that a total of 7 (14%) respondents are having PMP qualification whilst another 43 (86%) indicated otherwise. The following question enquired on the ownership structure of the organization the respondents are working.

A total of 35 (70%) respondents indicate working in Malaysian owned organization while another 15 (30%) indicate working in foreigners owned organization. The question on the respondents' experience suggest that majority of the respondents have been working in their position between 3-5 years (N = 24, 48%), followed by those working between 1-3 years in their respective organizations (N = 23, 46%). One of the questions also investigated respondents' project completion experience. Majority of the respondents answered 'No' for this question (N = 28, 52%) while the balance said 'Yes' (N = 22, 44%). This implies that more than half of the respondents do not have project completion experience. In other words almost half of the respondents who participated in this study had ongoing or limited project management experience.

Finally, the last question asked about the cost of the project that the respondents have completed or ongoing. It is clear that majority of the respondents indicated that the project cost being lower than RM100k (N = 26, 52%) whilst the rest of the respondents indicated the cost being between RM100-500k.

Table 4.1: Summary of Respondents profile

Variables	Category	Frequency	Valid Percent (%)
Gender	Male	41	82.0
	Female	9	18.0
Certified PMP	Yes	7	14.0
	No	43	86.0
Organization ownership structure	Malaysian	35	70.0
	Foreign	15	30.0
Experience	1-3 yrs	23	46.0
	>3-5 yrs	24	48.0
	>5-10 yrs	3	6.0
	Greater than 10 yrs	-	-
Project completion	Yes	22	44.0
	No	28	56.0
Project cost	Less than 100k	26	52.0
	100-500k	24	48.0

4.3 Reliability Test

The reliability test was done on all the items produced in this study. The reliability statistics shows that the Cronbach Alpha value for all 29 items is 0.820, suggesting good internal consistency reliability for the scale with this sample.

The Corrected Item-Total Correlation value showed in the Item-Total Statistics shows that all the items returned values above 0.30. This indicates that the items are measuring what they supposed to measure in the scales. Table 4.2 presents the summary of the reliability tests.

Table 4.2: Summary of the Reliability tests

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.820	.840	30

Table 4.3: Details of the Reliability tests

	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
In my opinion successful projects are those that meet cost, scope and schedule	.498	.809
The work in our organisation is well defined and structured	.500	.809
The work in our organisation is not clearly defined not properly structured	.527	.808
Successful project require leadership, experienced project managers and an organisation that facilitates project success.	.502	.809
I try to find ways to innovate to meet project success	.752	.804
I give more importance to manage the project rather than the relationships in the project team	.520	.809
As the project manager, I try to find different ways or approaches to meet the project goals	.491	.809
I give more importance for the team members' relationships rather than managing the project tasks	.414	.812
As a project manager I try to inspire the project team to meet project goals	.549	.807
As project manager I try to find situations that would benefit both the project goals and the team's goals	.399	.812
Instructions or commands need to follow a fixed hierarchy path set in my organisation	.445	.810
Project decisions are made at various hierarchy levels and flexible paths in our organisation	.566	.806
There is a selected employee group that are involved with management to make decisions in our organisation	.377	.817
Views of both management and the subordinates are heard and considered in the decision making process in our organisation	.362	.821

The project was successfully completed as per project schedule based on baseline goals and targets	.528	.807
The project was successfully completed as per overall project cost based on baseline goals and targets	.629	.805
The project was completed successfully as per project scope based on baseline goals and targets	.522	.807
More of my projects are successful compared to unsuccessful	.532	.806
The organisation is very results oriented. A major concern is with getting the job done. People are very competitive and achievement oriented.	.322	.815
The leadership in the organisation is generally considered to exemplify mentoring, facilitating or nurturing.	.485	.809
The leadership in the organisation is generally considered to exemplify no- non-sense, aggressive, results oriented focus.	.450	.811
The management style in the organisation is characterized by teamwork, consensus and participation.	.411	.826
The management style in the organisation is characterised by individual risk taking, innovation, freedom and uniqueness.	.403	.812
The glue that holds the organisation together is loyalty and mutual trust. Commitments to this organisation run high.	.317	.822
The glue that holds the organisation is commitment to innovation and development. There is an emphasis on being on the cutting edge.	.322	.815
The organisation emphasizes permanence and stability. Efficiency, control and smooth operations are important	.320	.830
The organisation emphasizes acquiring new resources an creating new challenges. Trying new things and prospecting for opportunities are valued	.339	.837
The organisation defines success on the basis of the development of human resources, teamwork, employee commitment and concern for people.	.359	.833
The organisation defines success on the basis of having the most unique or newest product. It is a product leader and innovator.	.387	.840

4.4 One sample t-test

Once the reliability of the measures has been determined the next step involves examining the importance of the critical success factors for project management using the one sample t-test. The one sample t-test determines the importance of the factors based on the t-statistics value and the significance value (p-value). Table 4.3 presents the One sample t-test outputs.

The One-Sample Statistics table shows the mean value for each of the questions and its associated standard deviation. The mean values for Schedule (SCH) and Office Politics (OP) are 4.05 (SD = 0.59) and 3.86 (SD = 0.52) respectively.

The mean values for Organisation Technical (OT) and Leadership (LDR) are 3.93 (SD = 0.55) and 3.88 (SD = 0.45). Finally the mean value for Organisation Culture (OC) is 4.10 (SD = 0.27). These results suggest that the answers provided by majority of the respondents are skewed toward agreeing answer for all the questions.

The One sample test table presents the outcome of the one sample statistics. The mean differences between all the categories of the questions of study (i.e. SCH, OP, OT, LDR and OC) are statistically significant at two tailed $p < 0.05$ significance levels. This means that the order of importance between the five categories or factors is statistically valid. The order of importance of the

factors is further confirmed via the t-statistics. **Organization Culture (OC)** seem to have the highest t-statistics value of 28.646 ($p < 0.05$), followed then by **Leadership (LDR)** ($t = 13.635$, $p < 0.05$), **Schedule (SCH)** ($t = 12.423$, $p < 0.05$), **Organisation Technical (OT)** ($t = 11.786$, $p < 0.05$), and lastly **Office Politics (OP)** ($t = 11.751$, $p < 0.05$). In summary the order of importance of the critical success factors for successful project management are:

1. Organisation Culture
2. Leadership
3. Schedule
4. Organisation Technical
5. Office Politics

Table 4.4: One sample statistics

	N	Mean	Std. Deviation	Std. Error Mean
SCH	50	4.0450	.59481	.08412
OP	50	3.8650	.52052	.07361
OT	50	3.9300	.55797	.07891
LDR	50	3.8817	.45724	.06466
OC	50	4.1036	.27242	.03853

Table 4.5: One sample Test

	Test Value = 3.00					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
SCH	12.423	49	.000	1.04500	.8760	1.2140
OP	11.751	49	.000	.86500	.7171	1.0129
OT	11.786	49	.000	.93000	.7714	1.0886
LDR	13.635	49	.000	.88167	.7517	1.0116
OC	28.646	49	.000	1.10364	1.0262	1.1811

4.5 Analysis of Variance (ANOVA)

Further evaluation of the data is done to identify if the responses made by the 50 respondents are statistically different for each of the five constructs. In other words an evaluation on the responses provided for each variable of different categories (i.e. SCH, OP, OT, LDR and OC) is made by looking for response differences facilitated by demographic profile elements such as gender, experience etc. Table 4.4 presents a summary of ANOVA test outcome for six (6) demographic elements.

Table 4.6: ANOVA test outputs

No.	Demographic element	Test of homogeneity		ANOVA		Finding
		Category	Sig value	Category	Sig value	
1.	Gender	SCH	0.333	SCH	0.250	No statistical difference in the answers provided by the sample respondents based on Gender element
		OT	0.665	OT	0.721	
		LS	0.609	LS	0.303	
		OP	0.188	OP	0.589	
		OC	0.941	OC	0.486	
2	Project Management Practice (PMP)	SCH	0.180	SCH	0.718	No statistical difference in the answers provided by the sample respondents based on PMP element
		OT	0.630	OT	0.959	
		LS	0.540	LS	0.381	
		OP	0.520	OP	0.420	
		OC	0.940	OC	0.940	
3	Field	SCH	0.074	SCH	0.087	No statistical difference in the answers provided by the sample respondents based on Field element
		OT	0.639	OT	0.090	
		LS	0.503	LS	0.089	
		OP	0.912	OP	0.067	
		OC	0.174	OC	0.195	
4	Organisation structure	SCH	0.226	SCH	0.929	No statistical difference in the answers provided by the sample respondents based on Organisation structure
		OT	0.506	OT	0.311	
		LS	0.510	LS	0.978	
		OP	0.329	OP	0.205	
		OC	0.878	OC	0.535	

						element
5	Project Management Experience	SCH	0.996	SCH	0.203	No statistical difference in the answers provided by the sample respondents based on Project Management Experience element
		OT	0.428	OT	0.521	
		LS	0.623	LS	0.616	
		OP	0.789	OP	0.129	
		OC	0.452	OC	0.016	
6	Project	SCH	0.752	SCH	0.640	No statistical difference in the answers provided by the sample respondents based on Project element
		OT	0.103	OT	0.335	
		LS	0.224	LS	0.916	
		OP	0.569	OP	0.929	
		OC	0.991	OC	0.343	
7	Price of project	SCH	0.527	SCH	0.937	No statistical difference in the answers provided by the sample respondents based on Price element
		OT	0.068	OT	0.349	
		LS	0.56	LS	0.273	
		OP	0.298	OP	0.281	
		OC	0.621	OC	0.899	

* $p < 0.05$

The results in Table 4.4 showcase the statistical test undertaken to identify if the answers provided by respondents with different demographic characteristics are statistically different with one another. This is done to ascertain if the opinions presented by the respondents on the five categories (i.e. Schedule, Organisational Technical, Leadership, Office Politics and

Organisational Culture) differs and if yes, the extent it differs. The result indicate that there are no difference in the answers provided by the respondents as the p-values of Test of Homogeneity and ANOVA are greater than the statistical significance value of 95% ($p < 0.05$). The result suggests that although the 50 respondents possess different characteristics, the provided responses are homogeneous amongst the sample respondents.

4.6 Chapter Summary

This chapter presented the interpretation of the results based on several statistical tests. The empirical finding suggests the order of importance of the critical success factors with Organisation Culture being the most important and Office Politics being the least important factors. The result further suggest that the responses provided by the sample respondents are not statistically different – indicating a homogenous opinion amongst the respondents. Thus generalization to the population can be statistically inferred. The next chapter presents the conclusion and recommendations.

CHAPTER 5

DISCUSSION

5.1 Introduction

One of the essential criteria in today's business management context is successful completion of work on time and within the given schedule. This entails effective project management skills which could be hampered by poor identification of pertinent factors facilitating project management effectiveness. In this context, this study examined the pertinent factors for successful project management in a Malaysian landscape. Section 5.2 presents the results discussion based from the empirical findings in Chapter 4.

5.2 Result Discussions

This study was undertaken with the aim of exploring and identifying the critical success factors for project management in Malaysia. More specifically this study explored two issues:

- a) To examine the extent of importance of the Organisation factors (Organisation Culture, Organisation Technical, Office Politics), the Individuals factor (Leadership, Tenure, Certification) and Project factor

(Cost, Schedule, Scope) as project management critical success factor in Malaysia.

- b) To examine if respondents' demographic characteristics accentuate differences of opinion related to the critical success factors.

Note that the variable 'Project' comprises of three elements: schedule, cost and scope. The collected data were analysed using three primary statistical tools – reliability, t-test and ANOVA. This section of the chapter discusses the results.

5.2.1 Reliability test

As discussed in Chapter 4 earlier, the reliability test indicates that all the items used in the study are reliable to make statistical inferences. This also suggests that the measurement approach employed to design survey questionnaire was apt and adequate. The items used in the survey are reliable to assist in achievement of the research objectives.

5.2.2 T-Test (One sample test)

The One sample test showcased the order of importance of project management's critical success factors used in the study, i.e. Organisation

Culture, Organisation Technical, Leadership, Office Politics and Schedule. The obtained order of importance is:

1. Organisation Culture
2. Leadership
3. Schedule
4. Organisation Technical
5. Office Politics

Being part of the Asian region, Malaysia has one of the biggest multiracial compositions in the world. The cultural mix in the country is diverse and translates down to organizational culture too. The importance placed by organizations and its employees to business culture in Malaysia is evidenced with strong mix of social and business cultures. This means that operations of business in the country are dominated by the historical and social roots and the way of life practiced by its owners. This is indeed shown in this study. The importance placed by the respondents to Organisation Culture for successful project management is seen quite clearly via the statistics (a good t-statistic value of 28.646). Project management in Asian cultural context (including Malaysia) is very much depended upon the way the managers or owners think and act. The thinking and acting of the owners or managers is influenced by their social upbringing, religion and parental guidance. All these elements translate to doing business in accordance to strong cultural norms and

platform. Hence the first ranking placed to Organisation Culture by the respondents.

The second important critical success factor is Leadership. A well known trait in the way Malaysians undertake business is by placing significant concentration of good leadership. In the context of project management, the sample respondents highlighted that leadership is the second most important element for success of project management. This implies that execution of projects in the country is dependent strongly on good leadership without which the successful completion might become risky. The consistency of leadership support for project management success is important and this is apparent in this study.

The third important factor that contributes towards the success of a project is Schedule, which is a sub-component of the Project Factors. Schedule or scheduling of projects is an uphill task often faced in any project management environment. Scheduling encompasses continual monitoring and measurement of time, milestones, people, and equipment schedules. The results clearly indicate the importance of the above mentioned in the success of a project. Properly done schedule control is pivotal as it gives the first hint that initial planning may not be going according to schedule. If a project manager is critical on the planning and execution of schedule, it is anticipated a fallback position and/or re-plan to get back on track. This will be further enhanced with a conducive organizational culture, with good

leadership. Thus, schedule is an important factor in the success of a project and is apparent in this study.

The fourth important factor is an organization's technical skills. Successful completion of project management entails deployment of technical staffs to be either part of the project team or to be part of the user. Technical skilled staffs are required to be part of the project team as their capability of facilitating technology transfer (in the event its system implementation issue) or communicating with other users to accept and adopt new technology. This is especially true in the case that project management involving major projects. This in essence should become an issue of concern for project management team or leaders.

The final important factor (or the least important factor) is Organisation Politics. Office Politics refers to the game which a person normally plays in the office for survival or due to competition. Office politics has been ranked in the last place by the respondents. This is strongly agreeable due to the fact that successful project management requires the presence of all the three factors. However office politics is not ranked important by the respondents suggesting that playing office politics for project management context is not appropriate. Hence the last factor placement.

5.2.3 ANOVA analysis

The Analysis of Variance (ANOVA) test was undertaken to determine if the respondents with different demographic characteristics have statistically different answers relative to each category in the study. As stated earlier, the demographic characteristics used in this study are; gender, certified PMP, field of project managers, organisational ownership structure, project manager's experience and project cost. The results suggest no statistical difference in the respondents' answers relative to the five critical success factors. There could be several possibilities to the homogeneity in the respondents' answers to the influence of the five critical factors of success to a project. Firstly, it could be due to the geographical horizon in which the questionnaires were distributed, whereby most of the respondents are from the Klang Valley. Secondly, the non significance also indicates that personal characteristics such as gender, PMP certification, field of a project manager and project manager's experience does not have an influence on the association between the five critical factors and the success of a project. Finally, the results also indicates that the organisational structure in terms of ownership and the project costs and extent of completion does not influence the respondents perceptions towards the factors affecting the success of a project.

Nevertheless, the empirical evidence of the ANOVA analysis indicates that the project manager's experience has a statistically significant difference in terms of Organisational Culture as a success factor. This signifies that project managers with different level of experience have differing perspective with

regard to the impact of organisational culture on the success of a project management. In conclusion, with the exception of project manager's experience, the ANOVA analysis on the demographics clearly indicates that the critical factors affecting the success of a project under analysis, i.e., Organization (organization culture and organisation politics), the individual (the project manager's experience, certification, leadership) and the project factor (schedule, scope, cost) are independent of the demographics used in this study.

CHAPTER 6

CONCLUSION AND RECOMMENDATIONS

6.1 Conclusion

The study was undertaken with the view of identifying the important factor for successful project management in Malaysia. It is well documented in the literature that the Project factors of Cost, Schedule and Scope is key to the success of projects. Nevertheless, many recent findings have also pointed towards the importance of Organisation and Individual factors. Similarly, from this study, using data from 50 respondents it was found that organizational and the individual factors are regarded as important factors for successful project management. This result implies that effective and successful project management entails diligent focus on organizational culture which could foster success. Other factors i.e. Leadership and Organisational technical skills are also important and ranked second and third, respectively. Thus strategic management and leadership of projects and deployment of right technical skills could also contribute to successful project management.

The implication of this study's findings needs to be considered with some limitations though. First the sample size is quite small – thus the possibility for obtaining homogeneous answers in the context of the second research objective. Locating and obtaining the right sample structure and size proved to

be challenging and time consuming. The time factor in undertaking this course and research project hindered seeking and obtaining larger sample responses. Second, the small data size could not lead to utilization of advanced statistical tests such as multiple regressions which could identify the magnitude of the effect of each success factor to project management success. Hence the researcher resorted to utilize common and basic statistical tests to explore the research objectives. Finally the study could not be done to extensive geographic location in Malaysia due to time and resource limitations. An extensive geographic coverage could have revealed dynamic results. Future research studies should address the mentioned limitations.

Besides the above limitations, the researcher also would like to highlight that Quality Management is not included as the success factors in the questionnaires. The researcher acknowledges that the questions in this research questionnaire lacks focus on quality management of the project and therefore could be further improved as such that the questions could focus more into details of the quality factors.

6.2 Practical Implications

The empirical findings have two main practical implications.

First, the findings suggest that an organization seeking to undertake project management would need to concentrate on having a conducive organizational

culture seen as suitable and applicable for their business. An analysis of inherent organization culture would need to be done with relevant adjustments or modifications in order to ensure successful project management. This is important because the existence of inappropriate organizational culture could lead to failed project management due to mismatch between the way business operations and its processes are executed and the actual way project management should be carried out. Rectification of cultural misfits is important based on the findings presented in this study.

Second, effective leadership is also critical to achieve successful project management, hence concerted effort need to be made to have, appoint or elect good leader who can provide continuous and sustained support for completion of project. Leadership is also essential to foster appropriate organizational technical skills which would lead to successful project management. Understanding the importance between leadership and provision of technical skill resources is necessary for organizations undertaking new or improved projects.

6.3 Theoretical implications

The primary theoretical implications derived from this study are the fact that the study provides an avenue for future research on the issue of project management in Malaysia. The utilization of critical success factors concept in the context of project management enables future research projects using specific and robust methodology.

REFERENCE

Alam.M., Gale.A , Brown.M., and Kidd.C., (2008). “ The development and delivery of an industry led project management professional development programme: A case study in project management education and success management, 26(3), 223-237.

Anderson, E.S. and Jessen , S.A (2003).Project maturity in organizations. *International Journal of Project Management*12, 457-461.

Atkinson (1999).Project management: cost, time and quality, two best guesses and a phenomenon, its time to accept other success criteria, *International Journal of Project Management*, 17(6), 337- 342.

Baccarini (2001). *The logical framework method for defining project success. Project Management Journal*, 30, 25- 32.

Blackman.R. (2003). *Project Cycle Management*. UK: Tearfund Teddington.

Butler, M. (2012). Exchanging knowledge to transform project management practices. *Management & Business Studies*, (pp29-50). Palgrave Macmillan.

Chan I.P.C., D.Scott. and Lam E.W.M. (2002). Framework of success criteria for design and build projects. *Journal of Management in Engineering*, 18, 120-128.

Cresswell,J. (2003). *Research design; Qualitative, Quantitative and mixed methods approaches* .2nd Edition. Thousand Oaks, CA: Sage Publications.

Cook.T.J.D.(2002). The real success factors on projects. *International Journal of Project Management*. 20,185-190.

DeCarlo, D. (2004). *Extreme project management: using leadership, principles, and tools to deliver value in the Face of Volatility*. 1st Edition. San Fransisco, USA: Jossey-Bass.

Do Ba Khang & Tun Lin Moe (2008). Success criteria and factors for international development projects: A life-cycle-based framework. *Project Management Journal*, 39(1).

Dullewic.V., and Higgs,M., (2003).Design of a new instrument to assess leadership dimension and styles. In: *Henley working paper HWP 0311*. Henley Management College, Henley-on-Thames, UK

Duncan,H.(2013).*An Introduction to Project Management*.

URL: <http://www.projectsmart.co.uk/introduction-to-project-management.html>

Accessed on 1st April 2013

- Dweiri F.T.(2006). Using fuzzy decision making for the evaluation of the project management internal efficiency. *Decision support systems*, 42, 712-726.
- Ehsan,N., Nauman,S., and Khan,A.M. (2010) Patterns of empowerment and leadership style in project environment. *International Journal of Project Management*, 28 (7),638-649.
- Foster,G.M. (1962). Traditiona Cultures, Intercultural Press, New York,NY.
- Fraenkel, J.R and Wallen , N.E (2006).How to design and evaluate research in Education. 6th Edition, New York:Mc Graw Hill.
- Gay,L.R and Airasian, P. (2000). Educational Research Competencies for Analysis and Application, 6th Edition,New York: Mc Graw Hill.
- Gharajedaghi (2006). Mechanisms, Organisms, and social systems, *Strategic Management Journal*, 5, 120-125.
- Gray.C.F. and Larson.E.W.,(2008). Project Management–the managerial process.4th Edition. McGraw-Hill, Irwin: London.
- Gray, R.J., (2001).Organizational climate and project success. *Management*, 19(2),103-109.
- Hastings,C.(1995).Building the culture of organizational networking: Managing Projects in the new organization, *Management*, 13(4), 259-263.
- Henrie,M.,and Sousa-Poza,A. (2005). Project Management: a cultural literary review. *Project Management Journal*, 36(1), 5-14.
- Hyvari,I. (2006). Success of projects in different organizational conditions. *Project Management Journal*, 37(4),31-41.
- Juran.J (2006). “Overcoming resistance to organizational change. Quality Safe Heath Care, 15,380-382 doi:10.1136/qshc.2006.020016
- Knoepfel.H,(1989).Cost and quality control in the project cycle. *International Journal of Project Management*, 7(4),229-235.
- Leybourne S.A. (2007). Improvisation within Management: Oxymoron, Paradox, or Legitimate Way of Achieving . Int. *Journal of Management Concepts & Philosophy* 2(3), 224-239.
- Linton,R. (1945).The cultural background of personality. Appleton Century, New York.
- Mekhilef,S., Saidur,R. and Safari,A. (2011). A review on solar energy use in industries1777-1790. in *Renewable and Sustainable Energy Reviews* 15 (4)

Misolevic,D. and Patanakul,.P.(2005). Standardized project management may increase development project success. *International Journal of Project Management* ,23(3),181-192.

Mengel.T, and Thomas.J, (2008). Preparing project managers to deal with complexity- advanced project management education. *International Journal of Project Management*,26, 304-315.

Mobey A., and Parker.D.(2002).Risk evaluation and its importance to project implementation. *International Journal of Productivity and Performance Management*,51(4), 202-208.

Morris, P.W.G.,Pinto,J.K., (2004).The Wiley Guide to Managing Project. Hoboken, NJ; Wiley.

Muller,R. and Turner, J.K (2007). Matching the project manager's leadership styles to project type. *International Journal of Project Management*, 25(1) 21-32.

Muller,R. and Turner, R. (2010).Leadership competency profiles of successful project managers. *International Journal of Project Management*, 28(5) 437-448.

Neuhauser.C. (2007).Project manager leadership behaviours and frequency of use by female project managers. *Project Management Journal*,38(1),21-31.

Ngang,C.C (2009).*Capacity Building for the NGO sector : A practical guide to programme/ project cycle management (SASDA)*. South Africa: Pretoria

Nigel J.S. (2002). *Engineering Project Management*. (3rd Ed) USA: Blackwell Science Ltd.

Oren,R.A. (2009). *Contributory success factors for projects with the project management profession: A quantitative analysis*.Ph.D. Thesis, Capella University , USA.

Philippe Ruiz, Christophe Bredillet, FaysalYatim, (2010).Project Management Deployment: the role of cultural factors. *Management*, 28(2),183-193.Pinto,J.K.andSlevin,D.P. (1988). Project success: definitions and measurement technique. *Project Management Journal*, 19, 67-73.

Pinto, J. (1996). Power and politics in project management. Newton Square, PA: Project

Rodrigues,A. and Bowers,J.(1996).A system dynamics in project management: A comparative analysis with traditional methods.*System Dynamics Review*,12(2),121 – 139.

Ruuska,I and Vartiainen,M. (2003). Crical project competences-a case study. *Journal of Workplace Learning*, 15, 307-312.

Sabariyah Din, Zahidy Abd-Hamid, and David James Bryde (2011). *International Journal of Project Management*, 29(8),1044-1056.

Senge,P.M. (2006). *The fifth discipline: the art & practice of the learning organization*. New York: Doubleday.

Shenhar,A.J., Levy.O and Dvir, D (1997).Mapping the dimensions of projects success. *Project Management Journal*, 28 (2), 5-13.

Shtub.A., Jonathan,F.B., and Shlomo,G. (1994) “*Project Management: Engineering, technology and implementation*”. Prentice Hall .

Sidenko.S.(2006).*Information technology project management : project management maturity and its effect on project success*, Master’s Thesis, John Molson School of Business, Concordia University ,Canada.

Soja,P.(2006). Success factors in ERP systems implementations: lessons from practice. *Journal of Enterprise Information Management*, 19(6), 646-661.

Uhlir,P. (2013). Out of sight, out of mind; the current state of practice, policy and technology – CODATA-ICSTI Task group, Paris (in publication).

Wan Abdullah (2010). *Project Management: Lesson learnt in KLIA project*.
[URL:www.rism.org.my/ISMDoc/SEASC2011/1-CED%20SEASC/PAPER/TS1D/TS1D_PAPER_1.pdf](http://www.rism.org.my/ISMDoc/SEASC2011/1-CED%20SEASC/PAPER/TS1D/TS1D_PAPER_1.pdf). Accessed on 1st April 2013.

Whitty, S.J.(2005). A memetic paradigm of project management. *International Journal of Project Management*. 23(8), 575-583.

Willis (1985). “An interactive scheduling technique for resource- constrained projects scheduling. Elsevier, 56(3), 370-379.

Wysocki,R.K. (2007). *Effective project management – Traditional, Adaptive, Extreme*. 4th Edition. Indianapolis , IN: Wiley Publishing .