ResearchGate

See discussions, stats, and author profiles for this publication at: https://www.researchgate.net/publication/315098502

Assessing Project Management Maturity in Africa: A Ghanaian Perspective

Article *in* International Journal of Business Administration · November 2013

DOI: 10.5430/ijba.v4n6p41

CITATIONS
24

READS
3,551

2 authors:

Daniel F. Ofori
University of Ghana
26 PUBLICATIONS **892** CITATIONS
SEE PROFILE

Eric Worlanyo Deffor
Ghana Institute of Management and Public Administration
11 PUBLICATIONS **197** CITATIONS
SEE PROFILE

All content following this page was uploaded by Eric Worlanyo Deffor on 14 September 2017.

The user has requested enhancement of the downloaded file.

Assessing Project Management Maturity in Africa: A Ghanaian Perspective

Dan Ofori[1] & Eric Worlanyo Deffor[1]

[1] Department of Organization and Human Resource Management, University of Ghana Business School, Legon, Ghana

Correspondence: Dan Ofori, Department of Organization and Human Resource Management, University of Ghana Business School, P. O. Box LG 78, Legon, Ghana. E-mail: dofori@ug.edu.gh

Received: May 30, 2013 Accepted: September 11, 2013 Online Published: November 7, 2013

doi:10.5430/ijba.v4n6p41 URL: http://dx.doi.org/10.5430/ijba.v4n6p41

Abstract

The level of project management awareness and recognition of the standards and knowledge sharing among professionals is on the rise. Despite this many projects continue to fail. Ameliorating project failure requires project management maturity among practitioners. Project management maturity is the progressive development of an enterprise-wide project management approach, methodology, strategy, and decision-making process. To ascertain the level of maturity among project oriented organisations in Ghana the following research questions were raised: Is the concept of PM maturity understood in Ghana? What are Project Management Maturity levels in Ghana? What maturity models are in use? Are there differences in project management maturity levels in industries in Ghana? The study was exploratory in nature and utilized a questionnaire survey method to collect data on project management Maturity in Ghanaian organizations. Purposive sampling was used to select a sample of 200 managers from different economic sectors. The findings showed that differences exist in the current project management maturity levels across each phase of the project life cycle for all organisations. The study also showed that most of the practitioners expect their respective organisations to attain higher levels of project management maturity (PMM) albeit at various levels. Organisations operating in the non-profit (NGO) category exhibited relatively higher levels of maturity compared to the other categories of organisations in all the five phases of the project management life cycle. Firms in the public sector of Ghana recorded low levels of maturity in most of the phases of the project management life cycle. This may be attributed to the low level of project management expertise in the sector, with possible dire consequence to the country's development since the public sector accounts for a large percentage of projects executed in Ghana. Overall, the findings seem to indicate that project management maturity occurs in phases; PM maturity does not occur as an event but is an ongoing process that is interlinked. The implication therefore is that organisations cannot claim to be mature in one area and neglect the other; it becomes imperative for project implementing organisations in Ghana to strive to attain maturity in all the five phase of the project management life cycle in order to attain the full benefits of the projects they implement.

Keywords: project management, maturity, Africa, Ghana

1. Introduction

The Project Management Institute [PMI] (2008) defines project management as the application of knowledge, skills, tools, and techniques to project activities to meet project requirements. It can also be defined as a general purpose management tool that can bring projects to successful completion and to the satisfaction of the project stakeholders (Hutson, 1997). Generally, the concept of project management has been recognized as a formal structured approach to execute projects; additionally, it is recognized as a well respected managerial discipline and has been proven to be critical for organizations to achieve goals through managing projects (Hillson, 2003), (Bocquet et al., 2007), (Pitagorsky,2001).

Projects remain the instruments of choice for policy makers, governments and international development partners to mitigate developmental challenges in most countries in Africa. Yet, paradoxically, the poor performance of projects and the disappointment of project stakeholders and beneficiaries seem to have become the rule and not the exception in contemporary reality. Indeed, projects have been used extensively in Africa as a tool for economic development. However, as Ika et al. (2012) note, projects in Africa have performed poorly and project stakeholders and

beneficiaries seem have been disappointed in equal measure. The applicability of project management within establishments such as government agencies and private organisations cannot be over emphasized. Today, most businesses have integrated project management in their everyday business activities aimed at delivery quality services on schedule at minimal cost.

According to Webster's dictionary; the word maturity "is the state or condition of being mature, ripe, fully developed and approaching perfection" (Walker et al., 1995). Project management maturity can be viewed as the progressive development of an enterprise-wide project management approach, methodology, strategy, and decision-making process. Specifically, the concept according to the Project Management Institute (PMI©) is "the degree to which an organization practices organizational project management," whereas the Organizational Project Management Maturity Model (OPM3©) defines maturity "through the existence of best practices," where best practice is "an optimal way currently recognized by industry to achieve a stated goal or objective" (PMI, 2003).

1.1 Objectives and Key Questions

The level of project management awareness and recognition of the standards and knowledge sharing among professionals is on the rise. Despite this many projects continue to fail. Most project failures are a result of organizational failures, which accounts for 59% of the problem (PWC, 2004). In recent times the World Bank's private arm, the International Finance Corporation discovered that only half of its African projects succeed. In an independent rating, the Independent Evaluation Group (IEG) claimed that 39% of World Bank projects were unsuccessful in 2010 (e.g. Chauvet et al., 2010). This situation was attributable to imperfect project design, poor stakeholder management, delays between project identification and start-up, delays during project implementation, cost overruns, coordination failure, etc (Youker, 1999; Kilby, 2000; Ahsan and Gunawan, 2010). Similarly, PriceWaterHouseCoopersin a 2004 global survey found that 50% of business projects failed, and only over 2% achieved 100% success (PWC, 2004). Notwithstanding these stated problems, there is a growing base of research that supports a relationship between higher levels of maturity and improved organizational performance. For instance a PriceWaterHouseCoopersstudy (PWC, 2004) suggests that, project management maturity has a positive influence on performance. Also, Pennypacker et al., (2006) claim that the higher the maturity level, the better the performance in all observed areas of the organization, and their study suggested further that 30% of mature organizations showed more than 25% improvement when compared to less mature organizations.

In another survey KPMG (2005) found that governance, prioritization and investing in people benefits overall organization project management maturity. The study further revealed that projects are executed in a rate of; ad-hoc 78%, informal 39%, standardized 47%, strong and leading practice only 7% (KPMG, 2005).The story does not seem to be any different in Ghana. Indeed, in Ghana, whilst an average of US$ 1 billion a year is spent implementing public sector projects, research shows that the nature of Ghanaian projects and programmes have been nothing to write home about (Ofori, 2006). Although in Ghana, the promulgation of the Public Procurement Act, 2003 (Act 663) (Public Procurement Authority, 2010), and the enforcement of the regulations thereof, has vastly improved the execution of projects, problems still abound. Ofori (2006) postulated that how projects are managed [the nature of project management]; the form project management takes [what project managers do]; and the project management approaches [the tools and techniques used] all contribute to project management failure in Ghana. Awuah (2008) noted that cultural issues related to deferment, hierarchy, notions of respect, taboos and other aversions often impact project management negatively. Together these challenges in project management have had an impact on the overall quality and success of projects in Ghana.

Amponsah (2010) also identified the weak nature of project ethics as a contributory factor in project failures in Ghana. These ethical issues include the lack of effective project management techniques, ineffective monitoring and evaluation, lack of user involvement, inadequately defined task, unrealistic requirement, improper definition of specification, and improper feasibility (Amponsah, 2010). In the area of public housing projects project success has been a major problem in Ghana (Konadu-Agyemang, 2001; Ahadzie, 2010). To this Adinyira et al., (2012) argues that the foremost challenge has always been the ambiguities associated with assessing success on such projects and until this is resolved, it will be very difficult to accurately monitor and anticipate project outcomes effectively.

However, as organisations and nation states projectise more of their activities, the demand for more projects will grow. If these projects are to reap the anticipated benefits for stakeholders and beneficiaries alike, there must be a paradigm shift. The growth in the use of projects will spawn a consequent growth in the demand for project managers. What would managers and organisations need to do differently? There would be the need for project managers and their organisations to exhibit maturity in the management of their projects. The maturity of project

personnel is important as they are seen to have a major impact on project performance and by extension business performance (Crawford, 2005).

The plethora of bottlenecks associated with project management in Ghana brings into question the level of project management maturity in Ghana – which in turn gives rise to the following research questions: is the concept of PM maturity understood in Ghana? What are Project Management Maturity levels in Ghana? What maturity models are in use? Are there differences in project management maturity levels in industries in Ghana? Do organisations perceive any benefits/challenges with using PM maturity approaches? The study therefore seeks to achieve the following objectives: determine the level of project management maturity in Ghana using a selected number of industries; examine the level of understanding of the concept of PM maturity; perform a detailed component level comparison of project management maturity between selected industries in Ghana.

1.2 Statement of Hypothesis

The hypothesis underlying the study is stated as follows: "there is a relationship between current maturity level and expected level of maturity within each category of organisation." This is repeated for each of the phases of the project management life cycle. .

2. Literature Review

2.1 Project Management (PM)

A project is a series of multi-functional activities and tasks that have a specific objective to be completed within certain specifications, defined start and end dates, funding limits, and consume human and non-human resources (Kerzner, 2006). Project management on the other hand is defined as the use of knowledge, skills, tools, and techniques in project activities needed to meet project requirements (PMI, 2008). It is also the discipline of planning, organizing and managing resources to bring about the successful completion of specific project goals and objectives (Chatfield, 2007).

Project management is therefore applicable to any organization who has core objectives of improving scope, quality, schedule and cost (Hutson, 1997). The use of project management within organizations allows management define the requirement of work, establish the extent of work, allocate the resources required, plan for the execution of the work, monitor the progress of work and adjust deviations from the plan to be implemented. PM is concerned with on-time delivery, within-budget expenditures and appropriate performance standards. This is in the context of the short-term life of the project development and delivery. Today, projects are seen as far more than the solving of technical problems; they are also avenues for mastering business and change (Alis, 2009).

The benefits derived from implementing project management have been documented variously (Hutson, 1997; Harrison 1992 and Raul 1997) and in many industries, project management has already become both a central activity and the third element of organizational management systems that is bringing balance, harmony, and success in global organizations. This, according to Soderlund (2002); has spurred on the demand on project management research topics that can link project management's value to project environment and organizational management aspect. To sustain success however, requires that the business is not broken into projects only, but also that each project is well managed. By segmenting work into defined and bounded projects, corporate management can bring a focused and dedicated effort to bear on each task (Holmes & Walsh, 2005).

In general the benefits derived from project management may range from financial, marketing to technical, but this will tend to be of a long-term nature, oriented towards the expected total life span of the completed project (Munns, 1996). In the case of construction projects Munns & Bjeirmi (1996) noted that the benefits could be extended over 50-100 years, depending on the anticipated building life. In other words, the benefits derived from project management increase in proportion to how well project management processes are used. A well-executed project will be completed on time and within its approved budget. A well executed project will deliver higher product quality by managing the time to design and test the new product. It will provide great satisfaction to its team, and it will meet (or exceed) the customers' expectations (Holmes & Walsh, 2005).

2.2 Project Management Maturity

2.2.1 The Concept of Maturity

The concept of maturity, in general, has been the subject of a tremendous number of studies, and this concept evolved into what is now known as maturity today (Dinson, 2003). In Webster's dictionary the word maturity is defined as "the state or conditions of being mature, ripe, fully developed, and approaching perfection". In other words maturity is the quality or state of being mature. Going by Webster's definition therefore the concept of

maturity to an organization might refer to a state where the organization is in a perfect condition to achieve its objectives (Walker et al., 1995). It can be viewed as a progressive development of the Project Management approach, methodology, strategy, and decision-making process; i.e. an organization's level of achievement with consistent methods and reproduction of project management deliverables. The Project Management Institute (PMI©) defines organization project management maturity as "the degree to which an organization practices organizational project management," whereas the Organizational Project Management Maturity Model (OPM3©) defines maturity as the existence of best practices, where best practice refers to "an optimal way currently recognized by industry to achieve a stated goal or objective" (PMI, 2003).

On the other hand, Kerzner, (2004) defined maturity in project management as the development of systems and processes that are repetitive in nature and provide a high probability that each project will be a success. Ibbs, Reginato & Kwak (2004, p. 1216) explained it is the sophistication level of an organization's current project management practices and processes. These definitions notwithstanding Andersen & Jessen (2003, p. 457), indicate that in the real world one cannot find a fully matured organization; in that, no one has reached the stage of maximum development and no one will. Nonetheless Al-Ahmad (2009) cited studies by (Arzymanov, & Cooke-Davies, 2003), (Scherlock, 2006), (Barber, 2004), (Jung & Wang, 2006) that performance, competence, and customer satisfaction are the main constituents of a mature organization. The higher the maturity levels of an organization, the better its performance in all observed areas (Pennypacker *et al.,* 2006). Their study suggests that 30% of mature organizations showed more than 25% improvement when compared to less mature organizations (Pennypacker, *et al.,* 2006).

An exploratory survey of project management in Indonesia by Bay and Skitmore (2006) suggested that project management has matured as a discipline in the country; this was an empirical follow up investigation to an earlier study cited by Alis (1996) suggesting that project management was a relatively new concept in the country. Overall, the results confirm that project management methodologies have not yet been used most effectively in Indonesia. In addition, responses from those employed by different organizations indicated that currently only Financial Institutions, Consultants and Manufacturers have reached maturity although all are expected to do so in the future. Unexpectedly, no significant differences were found between maturity levels for the various stages of the project life cycle (Bay and Skitmore, 2006).

2.3 Organizational Project Management Maturity

Organisational project management is described by Saures (1998) as the organization's receptivity to project management. This description was further expanded upon by Hartman & Skulmoski (1998) to capture the notion that the organization permits its project managers to do what is needed to successfully manage their projects. Largely some studies have shown that organizations that embark on improving their organizational project management maturity by following some maturity model benefit by improved project performance, enhanced marketing opportunities and a structured path to improvement (Saures, 1998). To enhance the level of project maturity some organizations adopt the approach of institutionalizing their project management processes, assessing its maturity and making incremental improvements. Other identified methods that facilitate maturity adopted by organizations, are through training, mentoring and supporting project management.

Organizational maturity can also be described as increasing the level of sharing and expanding the commonality of project management methodologies across all projects. This can be done by managing projects consistently through developing and maintaining some standards and methodologies that are shared across the enterprise and used effectively by all of the project teams it employs (Holmes & Walsh, 2005). In a longitudinal study carried out by Mullaly (2006) between 1998 and 2003 utilizing 280 to 579 organizations worldwide revealed that there was an increase in the number of Level 1 organizations, but there was a decrease over time in organizations evaluated at Level 2 or above.

According to Bay & Skitmore, (2006) it is imperative to indicate that regardless of the level of maturity an organization attains, each will measure the same things (i.e. performance of the same group of processes). Bay & Skitmore (2006) further pointed out that, what will distinguish the maturity level of one organization from the other is the score that is revealed by the measurement. By applying maturity assessment methods, Ibbs and Reginato (2002) suggest that as an organization grows in project management maturity, it obtains a better project management performance at a lower cost. A PricewaterhouseCoopers (PWC) study based on 200 respondents reported an average maturity score of 2.5. The results also indicated that 60% of the respondents wished to increase their maturity level, whilst 71% of companies wanted to increase their level by more than one step. Grant and Pennypacker (2006) revealed that as a result of a survey of 126 organizations from various industries, the median PMM level is 2 out of 5 with respect to36 of the 42 components analyzed.

2.3.1 Project Maturity Differences among Industries

To compare PMM among industries (i.e. Engineering-Construction (EC) and IS sector) Ibbs and Kwak (1997 & 2000), used the Berkeley model and came to the conclusion that there were minor differences in maturity between the most mature engineering/construction and least mature Information Systems sector. Cooke-Davies (2004) cited a study conducted on behalf of a number of the world's leading pharmaceutical R&D companies which found differences between the ways project management was practiced in different industries. For instance the study found out that the most highly developed project management models (which might be said to equate to a measure of project management maturity, although the methodology did not involve a maturity model) were found in the petrochemical and defense industries. Other industries (Pharmaceutical R&D, Construction, Telecommunications, and Financial Services) displayed some interesting differences in practice, but did not score as highly as the two leading industries (Cooke-Davies & Arzymanow, 2002). A different study carried out by Pennypacker & Grant (2003), using the PM Solutions model concluded that the differences in maturity among different industry sectors were not significant.

To further explain the difference in PMM among industries Cooke-Davies (2004) stated that it is not enough to look at differences among industries but also to consider the differences that may arise as a result of the projects that are undertaken by each organisation. A large segment of the literature has concentrated on specific types of projects, such as construction (Miller & Hobbs, 2000), engineering and new product development (Cooper, 1994). To assess the relationship between PM maturity and project performance among or across industries Kwak and Ibbs (2000) proposed a solid quantitative benchmark.

2.4 Project Management Maturity Models

Maturity models are frameworks that are used to transform an organization from being less organized, less standardized and less documented into an organization achieving higher standards with greater consistency. They can also be used as a framework to guide improvement efforts of an organisation (Jugdev & Thomas, 2002), (Cleland & Ireland, 2002). To ensure organizational success in the global business environs, it is necessary that organisations attain a high standard of performance. Project management as an area is not exempt from such success criteria; hence there is the need for project managers to learn best practices to achieve the excellence in project management (Kerzner, 2001).

Historically, maturity and performance capability measurements were first introduced in production facilities as measures of total quality and continuous improvement. The concept is built on the Deming, Juran, and Crosby quality paradigm which states that "Quality products are a result of quality processes" (Chrissis, Konrad, & Shrum, 2003; Paulk et al, 1993). A careful study of these maturity models reveals that the models vary from one another in terms of the concepts they embody as well as the suggestions they pose as to how the path of maturity looks like. It is worth indicating that these different maturity models for project management (PM) may define maturity differently and measure different things to determine maturity (Man, 2007).

The Capacity Maturity Model (CMM©) was introduced later to further enhance the concepts in 1993 as cited by (SEI, 2002 & Jha & Iyer, 2007). In recent times these concepts were adopted by project management associations, academics, and practitioners fusing the concept with Project Management; resulting in Project Management Maturity models used worldwide. Ibbs & Kwak (2002) in their work indicated that variously PM maturity models have been introduced to improve organizations' PM effectiveness. For instance in 1993 McCauley (1993) presented the concept of a maturity map for implementing project management skills and process improvements in the organization. The majority of maturity models generally consist of the description of maturity levels, model of Processes to be assessed, Assessment tools and a model that guides the improvement path to the next level of maturity. Similarly Fincher and Levin (1997) indicated that some other PM maturity model classified maturity by using the Project Management Institute's (PMI's) PM body of knowledge areas (PMI, 2000) to provide conceptual guidelines for assessing an organizational maturity level.

In 1997, a 5-level PM process maturity (PM) model to assess and improve an organization's current PM maturity level was proposed (Ibbs and Kwak 1997; Kwak 1997). The primary use of this model was to use it as a reference point for an organization that is trying to adapt and implement PM tools and processes. This model is said to be among the two models to have received the greatest attention in the research literature (Ibbs & Kwak, 1997; Ibbs & Kwak, 2000; Kwak & Ibbs, 2000; Ibbs & Reginato, 2002). The other model of the two is the PM Solutions Project Management Maturity Model (Burns & Crawford, 2002; Pennypacker, 2002; Pennypacker & Grant, 2003). Like other project management maturity models, these were derived from the Project Management Institute's (PMI) *A*

*Guide to the Project Management Body of Knowledge (*PMBOK® Guide) (2000) areas, using a scale of maturity that combines and blurs the distinction between *capability levels* and *maturity levels* (Bay & Skitmore, 2006).

Table 1. List of project management maturity models

Capability Maturity Model for Software (SW-CMM)	Organizational Project Management Maturity Model (OPM3)
Change Proficiency Maturity Model	People Capability Maturity Model (PCMM)
Earned Value Management Maturity Model (EVM3)	Programme Management Maturity Model
eGovernment Maturity Model	Self-Assessment Maturity Model (SAMM)
ESI International's Project Framework (ESI)	Software Reliability Engineering Maturity Model

Source: (Bay & Skitmore, 2006).

Several works by (Ibbs and Kwak, 1997; 2000; Ibbs & Reginato, 2002); Kwak & Ibbs, 2000) established the hypothesis that there is a correlation between higher maturity scores with higher levels of predicted project performance. Their study further explained that, investment in project management increases an organization's project management maturity standing and this improvement results in enhanced project performance which can translate into some cost saving among other benefits. Despite the common assumption that organizational project management maturity improves project management performance, there is however very little evidence in recent literature that offers support to this argument Yazici (2009). This notwithstanding Al-Ahmad (2009) indicated that some studies by (Ashrafi, & Hartman, 2003) concluded that there was some link between high performing organizations and increased maturity.

Also, Jiang et al, (2004) in their work on CMM confirmed that there is a direct link between process management maturity and project performance. Additionally, a survey conducted by PriceWaterHouseCoopers in 2004 using a total of 200 respondents in 30 countries concluded that the greater an organization's project management maturity (PMM), the greater the positive impact it has on its overall project performance. It is important to add that there is no one optimum level of maturity that is appropriate for every organization (Wheatley, 2007). Another important variable of interest when it comes to organizational project management maturity is competence. This is seen as the foundation of maturity in most instances. Competency in project management is attained by the combination of knowledge acquired during training, and skills developed through experience and the application of the acquired knowledge (Edum-Fotwe & McCaffer, 2000). However, Al-Ahmad (2000) holds the view that it requires a lot of time for a company to reach the level of competency. For instance an organization must first master a process and then become capable to transmit the acquired knowledge among its members through cohorts.

A study by Ibbs and Kwak (1998) involving 38 international companies also concluded that companies that have good project management capabilities and competences yield better results on their projects. However, in order to establish whether there is enough competence in an organization to reach maturity there must be a consensus on project management competencies that is comparable to project success factors, communications standards etc (Al-Ahmad, 2000). High-performing organizations are very good at satisfying clients and completing projects on schedule. Finally, customer satisfaction is considered the outcome of a well-performing organization, and it is also a requirement for defining a business as mature and healthy (i.e., successful). Many authors address the correlation of customer value satisfaction to the maturity of the organizations. This factor has become an integral part of critical success factors in projects worldwide (Cook & Garver, 2001; Pitagorsky, 2007; PMI's OPM3, 2006; Jung & Wang, 2006).

2.5 Theoretical Framework

Several frameworks or models have been proposed to assess the maturity of organisation in the area of project management. These include the Capability Maturity Model - CMM Capability Maturity Model, CMM, conceived by Software Engineering Institute – SEI (1997), largely used by the software development industry (Humphrey, 1989; Paulk et al., 1995), Project Management Maturity Model – PMMM by (Kerzner, 2000 and 2001); developed with the mind to extend the capability maturity model (CMM) to project management (Carvalho et al., 2003), and the Organizational Project Management Maturity Model– OPM3 (PMI, 2003). Beyond the PMMM by Kerzner (2000) other important models have been developed by the Center for Business Practices, ESI International Project Framework and Berkeley.

Specifically, Kerzner (2001) indicated that the PMMM model was the foundation for achieving excellence in project management. The PMMM framework comprises of five levels representing five levels of development for achieving maturity (Kerzner, 2001). Level one (1) represents common language, level 2 - common processes, level 3 – singular methodology, level 4 - benchmarking, and level 5 - continuous improvement. Within the PMMM framework an organisation is said to be mature when it reaches level 3 – singular methodology on the PMM model. However, organisations that get to levels 4 & 5according to Kerzner (2001) have attained the excellence level in project management. In another study Kerzner (2000) identified a life cycle in PMMM level 2, common processes, which could be broken into five phases: embryonic; executive management acceptance; line management acceptance; growth and maturity (Carvalho et al, 2003). This framework identified by Kerzner (2000) is adopted for this study.

3. Methodology

3.1 Research Design and General Methodology

The study was exploratory in nature and utilized a survey methodology approach for data collection. For the purposes of the study, a survey instrument was developed to provide measures of project management maturity in Ghana. Specifically, the Project Management Maturity Scale questionnaire used for this study was sourced from a study conducted in Indonesia by Bay and Skitmore (2006) to determine project management maturity. They developed the questionnaire using Kerner's Level 2 maturity assessment. Furthermore, the instrument was in two parts: the first part collected information on the demographic profile of the respondents, whilst the second part sought information on the knowledge of respondents on the maturity levels of organisations.

3.2 Sampling Technique and Sample Size

The purposive sampling procedure was used in selecting the sample for the study. These will be managers representing various organizations and sectors in Ghana. The sample was made up of 200 respondents selected from the 2012-2013 intake of the Executive Master of Business Administration (EMBA) class of the University of Ghana Business School.

3.2.1 Sample Characteristics

The EMBA class comprises managers and decision-makers of a broad spectrum of organizations ranging from banks, consulting firms, manufacturing industries, construction companies, public sector enterprises and not-for-profit organizations. Purposive sampling was used to select respondents with some knowledge of the project management practices within their organizations, based on their job position or function.

3.2.2 Method of Analysis

The study used both quantitative methods (percentages and means) to investigate and measure project management maturity in Ghana. This exploratory study utilized a survey methodology approach for data collection, with instruments developed to provide measures of PM Maturity for each category of organisation. To analyze the data, the study used the following inferential statistical tools; means, frequencies and percentages. The study also used correlation analysis to test its stated hypotheses. The results were presented in the form of tables and graphs.

4. Results and Discussion

4.1 Demographics of Respondents

The findings as presented in Table 2.0 below shows that Males formed 52 percent of the respondents where as females constituted 43 percent. A total of (4%) of the respondents did not indicate their gender. In the area of education, most of the respondents (46%) indicated they had a "Masters" degree. On the other hand some (36) percent of the respondents indicated a 1st Degree as their highest level of education. Others also indicated they had qualifications such as Post graduate Diploma and Professional Qualification with percentages of 6.5 respectively. The ages of the respondents ranged from 20 to above 50 years old. About half of the respondents, were found to be between the ages of 31-40, 23 percent were in the age group of 20-30 whilst those in the age group of 41-50 formed about 18 percent of respondents. The results also give an indication that respondents have significant levels of project management experience. The details show that about 37 percent of the respondents have about two (2) years of project experience. Some (27) percent indicated their project experience was between 2-5 years with a few of the respondents indicating they have project management experience above ten (10) years. The analysis also established that most of the organisations the respondents work for were in the 'Private Limited Liability category', this was followed by about (18) percent who were in the 'Public (State)' category, as well as 15 percent in the NGO category.

Table 2. Demographic data of respondents

Gender of Respondents	Frequency	Percent	Educational Qualification	Frequency	Percent
Male	72	52.2	1st Degree	50	36.2
Female	60	43.5	Post-Graduate Dip	9	6.5
Non-Response	6	4.3	Masters	64	46.4
Total	**138**	**100.0**	Prof. Qualification	9	6.5
			Non-Response	6	4.3
			Total	**138**	**100.0**
Age of Respondents			**Years of Project Experience**		
20-30	32	23.2	0-2 years	52	37.7
31-40	69	50.0	2-5 years	38	27.5
41-50	25	18.1	6-10	30	21.7
Above 50	8	5.8	Over 10 years	13	9.4
Non-Response	4	2.9	Non-Response	5	3.6
Total	**138**	**100.0**	**Total**	**138**	**100.0**
Marital Status			**Sector of Firm**		
Single	38	27.5	Private Limited Liability	75	54.3
Married	94	68.1	Public (State)	25	18.1
Divorced	2	1.4	Public (Quoted)	9	6.5
Separated	3	2.2	NGO	21	15.2
Non-Response	1	.7	Non-Response	8	5.8
Total	**138**	**100.0**	**Total**	**138**	**100.0**

Source: Field Data (2013)

4.2 Project Management Maturity

4.2.1 Embryonic Phase Maturity

The Project Management Maturity Scale questionnaire used for this study was sourced from a study conducted in Indonesia by Bay and Skitmore (2006) to determine project management maturity. They developed the questionnaire using Kerner's Level 2 maturity assessment. The analysis for this study was done at the organizational level. Calculated maturity levels of the various organizations were grouped from 1 to 5 where 1 indicates low level maturity and 5 very high level of maturity for each organization. The means maturity and standards deviation for each organization is presented in Table 3. The results indicated that among the four organizational categories, NGOs score an average maturity level of 3.64 out of 5 for embryonic project management phase; this was followed by Private limited liability (PLL) companies with 3.41 maturity level. The companies that obtained the least score for embryonic project management life cycle were the Public (State owned [PS]) category.

Generally, respondents from the various organizations expected the embryonic phase for the companies to improve in the future. The results show that respondents working in the NGO sector expect their company's Embryonic phase of project life cycle to improve from the current state of 3.64 to 4.11 in the future. This represents an expected increase of 0.472 on the average. On the other hand respondents working with PLL organization in expect their companies' embryonic phase to improve by 0.71 from a current state of 3.41 to 4.13.

Also, companies in the Public (State) category expect their embryonic phase to improve from a current state of 3.15 to 4.10 representing a 0.95 jump. Largely the results presented show that respondents expect their companies to improve upon their embryonic phase of project maturity by an average of 0.75. The specific details for each company's case are presented in Table 4 and Table 5 as well as Figures 2 and 3, respectively.

Table 3. Embryonic phase project management life cycle (mean and standard deviations)

Sector	Current				Expectation				
	N	Mean (M_C)	SD	Level	N	Mean (M_E)	SD	Level	M_E-M_c
PLL	64	3.418	0.944	Moderate	61	4.135	0.823	High	0.717
PS	23	3.152	1.049	Moderate	22	4.102	0.454	High	0.950
PQ	7	3.178	0.838	Moderate	9	4.055	1.184	High	0.877
NGO	16	3.640	0.645	Moderate	20	4.112	0.749	High	0.472

Source: Field Data, 2013

Note: The average of 5.00 = Highest, 4.00-4.9 = High 3.00– 3.9 = Moderate, 2.00 – 2.9 = Low, 1.00 – 1.9 = Lowest

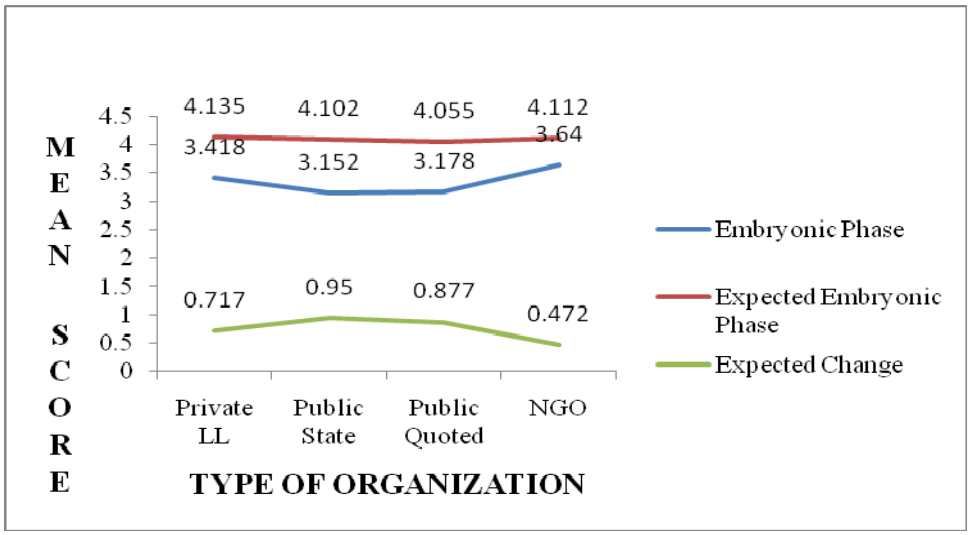


Figure 1. Project Management embryonic phase maturity levels

Source: Field Data, (2013)

Table 4. Organizational project maturity levels - embryonic phase

Sector	Current						Expectation					
	1.0-1.9	2.0-2.9	3.0-3.9	4.0-4.9	5	NR	1.0-1.9	2.0-2.9	3.0-3.9	4.0-4.9	5	NR
PLL	3 (4)	16 (21.4)	19 (29.3)	19 (29.3)	4 (5.3)	11 (14.7)	3 (8.8)	8 (23.5)	10 (14.7)	8 (20.5)	1 (2.9)	4 (11.8)
PS	3 (12)	6 (24)	7 (28.0)	6 (24)	1 (4)	2 (8.0)	3 (4.0)	16 (21.4)	22 (29.3)	20 (37.3)	4 (5.3)	11 (14.7)
PQ	--	2 (22.2)	4 (44.4)	1 (11.1)	--	2 (22.2)	--	3 (14.3)	5 (23.5)	8 (38.1)	--	5 (23.8)
NGO	--	3 (14.3)	5 (23.8)	8 (38.1)	--	5 (23.8)	--	3 (14.3)	5 (23.8)	8 (38.1)	--	5 (23.8)

Source: Field Data, 2013

Note: Figures in brackets are percentages, NR = Non-Response

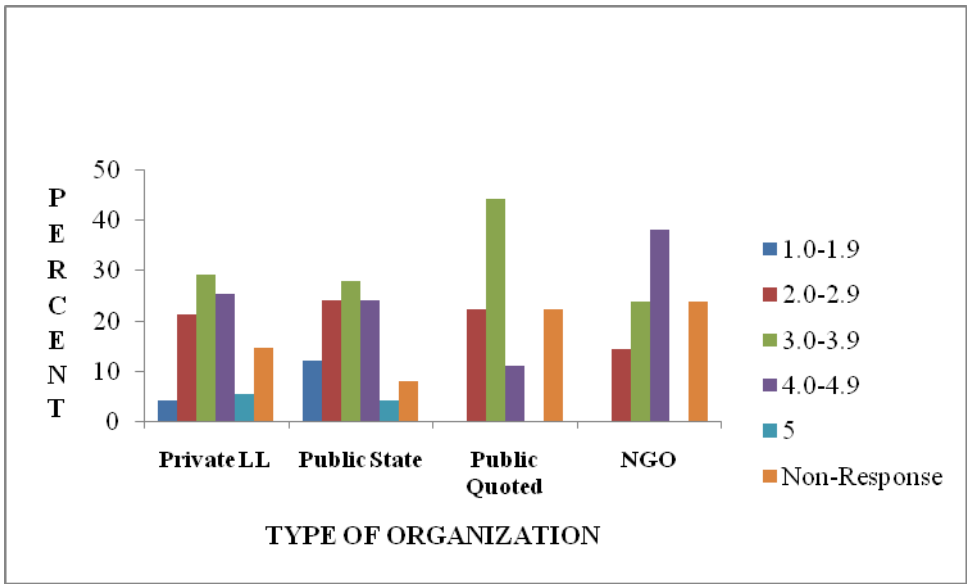


Figure 2. Current organizational embryonic phase project maturity levels

Source: Field Data, (2013)

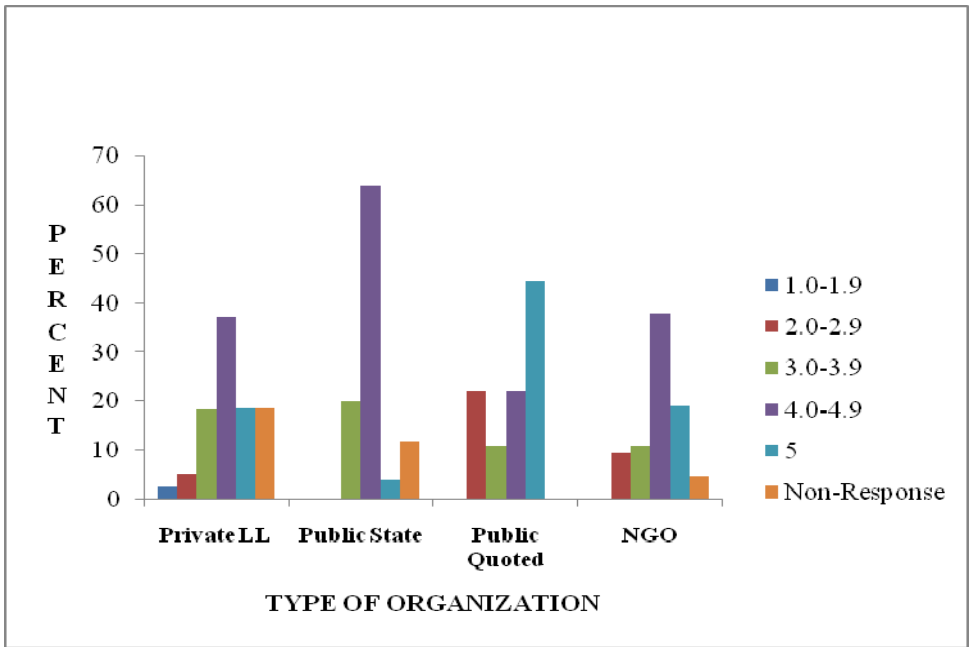


Figure 3. Expected embryonic phase organizational project management maturity

Source: Field Data, (2013)

4.2.2 Relationship between Current level of Maturity and Expected Level of PLL'S (Embryonic Phase)

Hypothesis Testing

H1 - There is a relationship between current maturity level and expected level of maturity

The results revealed that the current level of Embryonic maturity for PLL's correlated with the expected Embryonic Maturity at 0.01 significance level (Sig = 0.002) with moderate correlation in the same direction (r = 0.402). This means that if the perceived current embryonic maturity level increase by a unit it will results in a positive increase in the expected level of maturity at the Embryonic Phase of the project management life cycle. The correlation analyses showed that there was no relationship between the current embryonic level of maturity and the expected level of maturity for organization in the PS, PQ and NGO sectors.

Table 5. Correlations analysis for current and expected level of maturity (embryonic phase) PLL

		EMBRYONIC_EXP	EMBRYONIC
EMBRYONIC_EXP	Pearson Correlation	1	**.402****
	Sig. (2-tailed)		.002
	N	61	56

**. Correlation is significant at the 0.01 level (2-tailed).

Source: Field Data, (2013)

4.2.3 Executive Phase

The Executive Phase consisted of a set of four questions which respondents were required to answer. The mean and standard deviation from the responses are presented in Table 6. The results show that the NGOs had a mean score of 3.5 followed by Public Quoted companies (PQ) with mean a score of 3.4. Public (State) and Private Limited Liability (PLL) companies obtained mean scores of 3.3 and 3 respectively. On average the executive phase of project life cycle among these companies was moderately high. The respondents from these companies project that their future expectations to be slight higher than the current state. For instance, respondents from the PLL expect their company to Executive phase of the project management life cycle to improve by 0.68 on the average. Interestingly, respondents from Public (State) companies expect their company's executive phase to improve by more than one (1)

on average, specifically 1.09 and 1.02 respectively. The graphical, representation of this result is presented in Figure 4 below.

Of the respondents from the private limited liability companies, about 28 (37.3%) of them indicated their company's project management executive phase was within the range 3.0 to 3.9, some also were of the view that their company's level ranged from 2 to 2.9. A small number 4 constituting (5.3%) were of the opinion that their company's level was in category 5. About 40 percent of the respondent working with Public State companies indicated their (companies) Executive phase score was in the range 2 to 2.9, some also were of the view that their companies score was in the range 4 to 4.9. These results are presented in Table 7 and 8, respectively.

Table 6. Level of maturity project management life cycle - executive phase (mean and standard deviations)

Sector	Current				Expectation				
	N	Mean (M_C)	SD	Level	N	Mean (M_E)	SD	Level	M_E-M_c
PLL	**63**	3.369	0.880	Moderate	**61**	4.057	0.899	High	0.688
PS	**22**	3.000	1.008	Moderate	**21**	4.095	0.443	High	1.095
PQ	**6**	3.416	1.056	Moderate	**8**	4.437	0.691	High	1.021
NGO	**15**	3.550	0.606	Moderate	**19**	4.092	0.769	High	0.542

Source: Field Data, 2013

Note: The average of 5.00 = Highest, 4.00-4.9 = High 3.00– 3.9 = Moderate, 2.00 – 2.9 = Low, 1.00 – 1.9 = Lowest

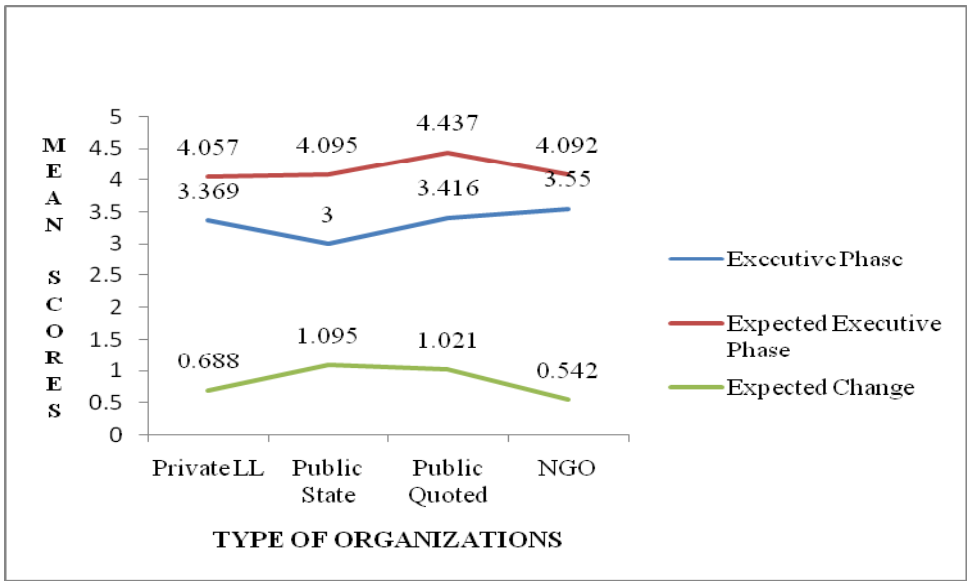


Figure 4. Executive phase project management

Source: Field Data, (2013)

Table 7. Maturity levels (executive phase) – PM life cycle

Sector	Current						Expectation					
	1.0-1.9	**2.0-2.9**	**3.0-3.9**	**4.0-4.9**	**5**	**NR**	**1.0-1.9**	**2.0-2.9**	**3.0-3.9**	**4.0-4.9**	**5**	**NR**
PLL	3 (5.3)	14 (18.6)	28 (37.3)	13 (13.3)	4 (5.3)	12 (16.0)	1 (1.3)	7 (9.4)	10 (13.3)	27 (36.0)	13 (17.3)	14 (18.7)
PS	3 (12.0)	9 (40.0)	2 (8.0)	6 (24.0)	1 (4.0)	3 (12.0)	--	--	5 (20.0)	15 (60.0)	1 (4.0)	4 (16.0)
PQ	--	2 (22.2)	1 (22.2)	3 (77.8)	--	3 (33.3)	--	--	2 (22.2)	2 (22.2)	4 (44.4)	1 (11.1)
NGO	--	1 (4.8)	9 (42.8)	5 (23.8)	--	6 (28.6)	--	1 (4.8)	4 (19.1)	10 (23.8)	4 (19.0)	2 (9.5)

Source: Field Data, (2013)

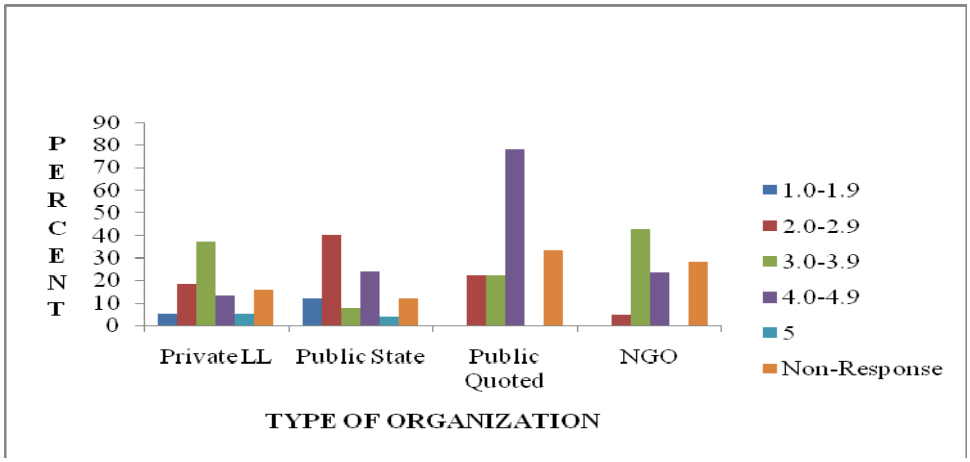


Figure 5. Current executive phase project management life cycle

Source: Field Data, (2013)

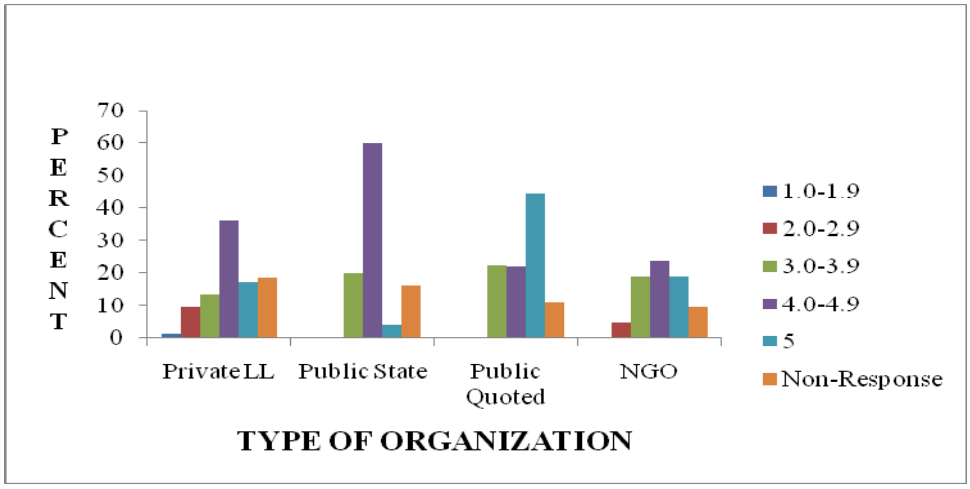


Figure 6. Expected executive phase project management life cycle

Source: Field Data, (2013)

4.2.4 Relationship between Current level of Maturity and Expected Level of PLL'S (Executive Phase)

Hypothesis Testing

H1 - There is a relationship between current maturity level and expected level of maturity

The correlation analysis for the Executive Phase show that the current level of maturity for PLL's correlated with the expected Executive maturity at 0.01 significance level (Sig = 0.004) with moderate correlation in the same direction (r = 0.385). This means that if the perceived current embryonic maturity level increase by a unit it will results in a positive increase in the expected level of maturity at the Executive Phase of the project management life cycle. The correlation analyses showed that there was no relationship between the current embryonic level of maturity and the expected level of maturity for organization in the PS, PQ and NGO sectors.

Table 8. Correlations analysis for current and expected level of maturity (embryonic phase) PLL

		EXECUTIVE_EXP	EXECUTIVE
EXECUTIVE_EXP	Pearson Correlation	1	**.385****
	Sig. (2-tailed)		.004
	N	61	55

**. Correlation is significant at the 0.01 level (2-tailed).

Source: Field Data, (2013)

4.2.5 Line Management

The results presented in Table 9 show that for line management levels of maturity among the four types of organizations, NGOs' mean scores were slightly higher compared to the others. Private Limited Liability companies obtained a mean score of 3.04 whilst companies in the PS and PQ categories obtained mean scores of 2.55 and 2.75 respectively. Generally, respondents in these types of companies expected their organisations to improve upon their line management in the project management life cycle. Specifically, PLL organizations expect their line management to improve from their current means score of 3.04 to 4.10 representing an average jump of 1.05. Respondents in PS owned organization expected their organizations to grow in Line management phase by 1.46 average score from a current low level of 2.55 to 4.02. Furthermore, respondents from PQ owned organizations expect their organization to grow with respect to line management from a current level of 2.7 to 4.00. Comparatively out of the four types of organisations used for the analysis, NGOs obtained the least leap in expected line management levels i.e. 0.90. The results also show that organizations in the PS and PQ obtained the highest jump in expected line management levels.

Table 9. Level of maturity (line management phase) – PM life cycle (mean and standard deviations)

Sector	Current				Expectation				
	N	Mean (M_C)	SD	Level	N	Mean (M_E)	SD	Level	M_E-M_c
PLL	**59**	3.042	0.919	Moderate	**60**	4.100	0.920	High	1.058
PS	**22**	2.556	0.969	Low	**22**	4.022	0.706	High	1.466
PQ	**6**	2.750	1.012	Low	**8**	4.000	1.141	High	1.250
NGO	**15**	3.166	0.843	Moderate	**17**	4.073	0.759	High	0.907

Source: Field Data, 2013

Note: The average of 5.00 = Highest, 4.00-4.9 = High 3.00– 3.9 = Moderate, 2.00 – 2.9 = Low, 1.00 – 1.9 = Lowest

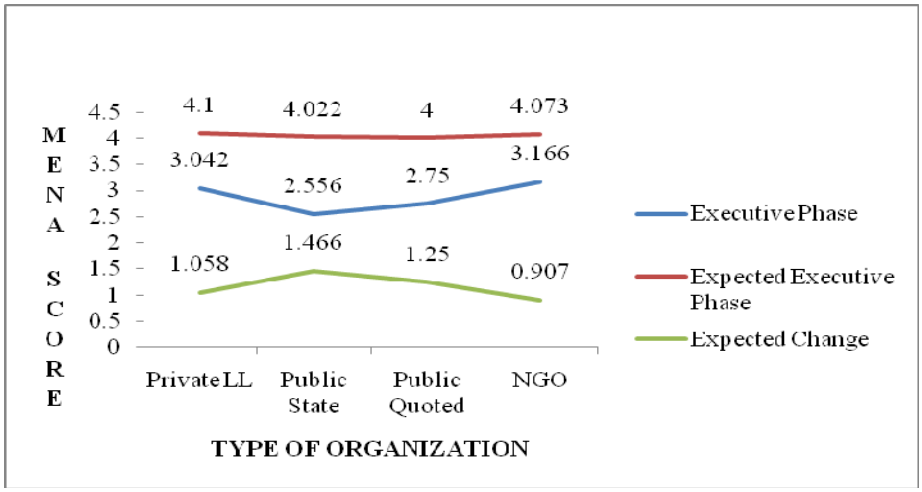


Figure 7. Project management life cycle- line management of phase

Source: Field Data, (2013)

Table 10. Level of maturity – (line management phase) – PM life cycle

Sector	Current						Expectation					
	1.0-1.9	**2.0-2.9**	**3.0-3.9**	**4.0-4.9**	**5**	**NR**	**1.0-1.9**	**2.0-2.9**	**3.0-3.9**	**4.0-4.9**	**5**	**NR**
PLL	3 (3.9)	25 (33.3)	19 (25.3)	10 (13.4)	2 (2.7)	16 (13.4)	2 (2.7)	3 (3.9)	19 (18.6)	25 (33.3)	16 (21.3)	15 (20.0)
PS	6 (24.0)	9 (36.0)	5 (20.0)	1 (4.0)	1 (4.0)	3 (12.0)	2 (8.0)	2 (8.0)	2 (8.0)	17 (68.0)	1 (4.0)	3 (12.0)
PQ	1 (11.1)	2 (22.2)	2 (22.2)	1 (11.1)	--	3 (33.3)	--	2 (22.2)	1 (11.1)	2 (22.2)	3 (33.3)	1 (11.1)
NGO	1 (4.8)	3 (19.0)	10 (38.0)	3 (14.3)	--	6 (28.6)	--	1 (4.8)	3 (14.4)	11 (52.5)	2 (9.5)	4 (19.0)

Source: Field Data, 2013

Note: The average of 5.00 = Highest, 4.00-4.9 = High 3.00– 3.9 = Moderate, 2.00 – 2.9 = Low, 1.00 – 1.9 = Lowest

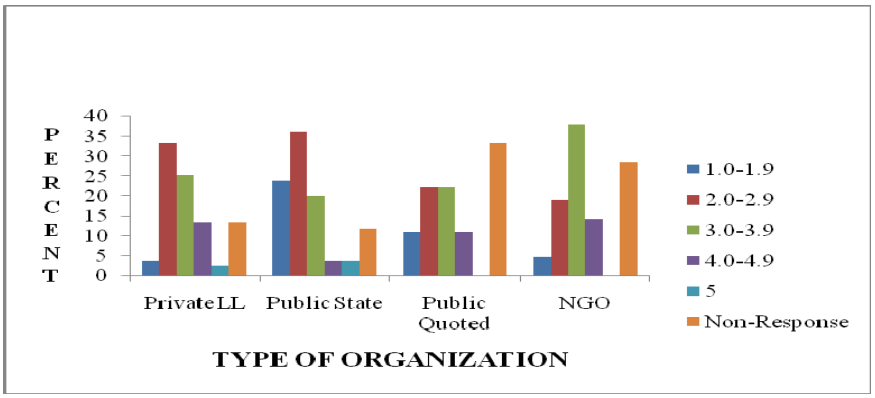
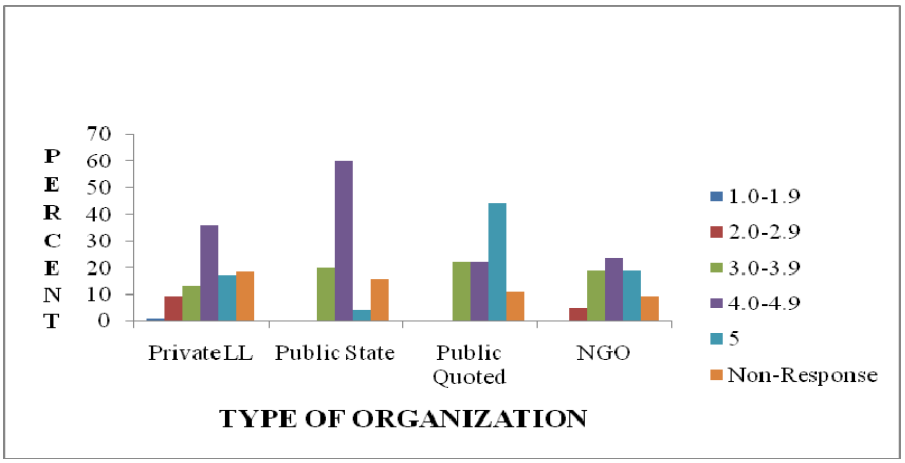


Figure 8. Project management life c ycle – current line management of phase

Source: Field Data, (2013)



Fiugre 9. Project management life cycle – expected line management of phase

Source: Field Data, (2013)

4.2.6 Growth Phase

The results from the data analysis indicated that organisations operating in the NGO sector received the highest mean value for the growth phase of the project management life cycle. This is represented by a mean score of 3.45 approximately. Organisations in the PLL sector received the second highest mean value of 3.09, followed by organisations in the Public [Quoted] (PQ) and Public [State] with mean scores of 2.93 and 2.89, respectively. The results as presented in Table 11 show an organisation in the NGO sector were more advanced when it comes to the growth phase of the project management life cycle. The respective standard deviations for each sector are also presented. Additionally the results presented in Table 11 show that respondents from these sectors expected the growth phase for respective organisation to improve above what pertains currently. Specifically, respondents within the PLL sector expect their organisations to improve above their current level by 1.13. Similarly respondents from the PS and PQ sectors expect an improvement in the Growth phase of their project management life cycles to improve by 1.06 and 1.04, respectively. In this category NGOs' received the lowest mean difference between their current performance and expected performance at 0.55.

Table 11. Growth phase project management life cycle (mean and standard deviations)

Sector	**Current**				**Expectation**				
	N	Mean (M_C)	SD	Level	N	Mean (M_E)	SD	Level	M_E-M_c
PLL	59	3.093	1.018	Moderate	61	4.220	0.855	High	1.127
PS	22	2.897	1.278	Low	21	3.952	0.722	Moderate	1.055
PQ	5	2.900	1.442	Low	8	3.937	1.170	Moderate	1.037
NGO	14	3.446	0.797	Moderate	17	4.000	0.810	High	0.554

Source: Field Data, 2013

Note: The average of 5.00 = Highest, 4.00-4.9 = High 3.00– 3.9 = Moderate, 2.00 – 2.9 = Low, 1.00 – 1.9 = Lowest

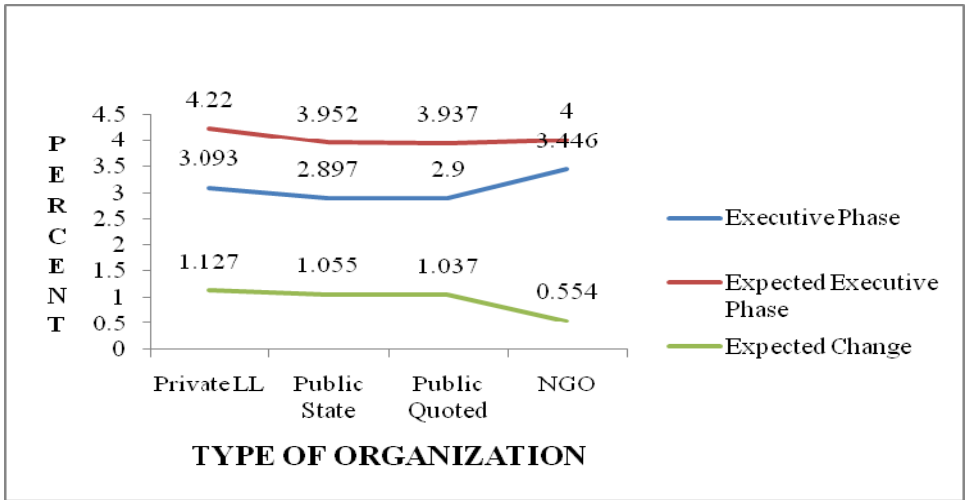


Figure 10. Growth phase project management

Source: Field Data, (2013)

Table 12. Level of maturity (growth phase) – PM life cycle

Sector	Current						Expectation					
	1.0-1.9	2.0-2.9	3.0-3.9	4.0-4.9	5	NR	1.0-1.9	2.0-2.9	3.0-3.9	4.0-4.9	5	NR
PLL	1 (1.3)	4 (5.3)	8 (10.7)	28 (37.3)	20 (26.7)	14 (18.7)	11 (12)	13 (17.4)	23 (30.6)	11 (14.6)	3 (4.0)	16 (21.3)
PS	1 (4.0)	--	4 (16.0)	14 (56.0)	2 (8.0)	4 (16.0)	6 (24.0)	5 (20.0)	7 (28.0)	2 (8.0)	3 (12.0)	3 (12.0)
PQ	--	3 (33.3)	--	2 (22.2)	3 (33.3)	1 (11.1)	1 (11.1)	2 (22.2)	1 (3.50)	--	1 (11.1)	--
NGO	2 (9.6)	2 (9.5)	2 (9.5)	10 (47.6)	3 (14.3)	4 (19.0)	--	3 (14.3)	6 (28.7)	5 (14.4)	--	7 (33.3)

Source: Field Data, 2013

Note: The average of 5.00 = Highest, 4.00-4.9 = High 3.00– 3.9 = Moderate, 2.00 – 2.9 = Low, 1.00 – 1.9 = Lowest

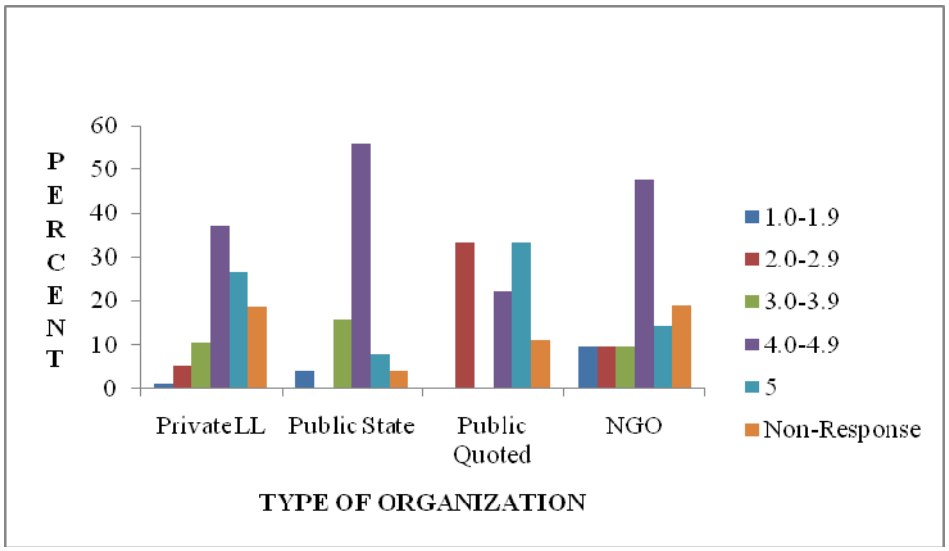


Figure 11. Project management life cycle – current growth phase

Source: Field Data, (2013)

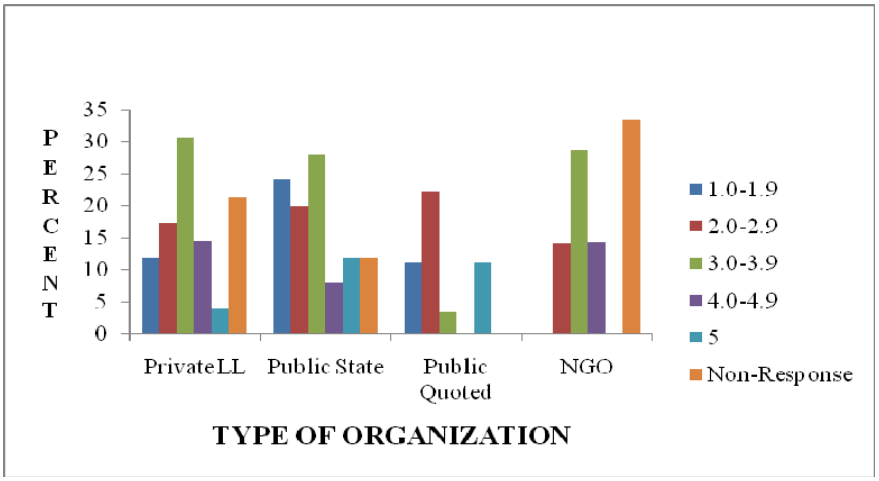


Figure 12. Project management life cycle – expected growth phase

Source: Field Data, (2013)

4.2.7 Maturity Phase

The mean and standard deviations for Project Maturity phase for each sector was calculated and presented in Table 13. From the results, it is obvious that respondents within organisation operating as NGO's were of the view that their organisations were more mature in the project management life cycle compared to the others. The results show mean score (3.35) out of 5 compared to organisations in the three other sectors which received mean scores of 3.12, 2.81 and 2.35 respectively. Also, it is observed that there was a general rise in the expectations of the respondents as to what should be the preferred maturity level for their various organisations with specific reference to project management. Even though the trend showed a positive increase in expectations, respondents in the PQ sectors expected their organisations to improve by as much as 1.51 units from a current level of 2.35 to 3.57. The other organisations were expected to have maturity levels of 4.14, 3.78 and 3.58 for PLL, PS and NGOs respectively.

Table 13. Level of maturity (maturity phase) PM life cycle (mean and standard deviations)

Sector	Current				Expectation				
	N	Mean (M_C)	SD	Level	N	Mean (M_E)	SD	Level	M_E-M_c
PLL	59	3.120	1.041	Moderate	61	4.147		High	0.944
PS	22	2.806	1.177	Low	19	3.776		Moderate	0.721
PQ	5	2.350	0.675	Low	7	3.571		Moderate	1.511
NGO	14	3.350	0.800	Moderate	19	4.118		High	0.809

Source: Field Data, 2013

Note: The average of 5.00 = Highest, 4.00-4.9 = High 3.00– 3.9 = Moderate, 2.00 – 2.9 = Low, 1.00 – 1.9 = Lowest

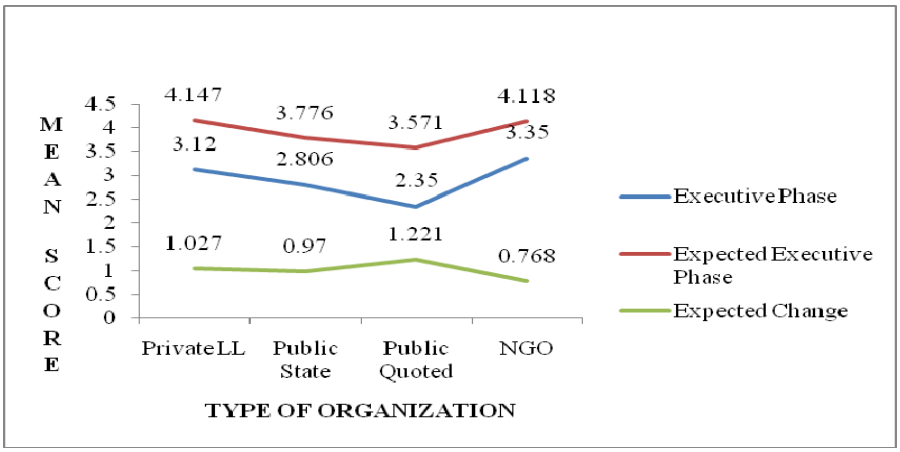


Figure 13. Level of maturity (maturity phase) PM life cycle

Source: Field Data, (2013)

Table 14. Level maturity (maturity phase) – PM life cycle

Sector	Current						Expectation					
	1.0-1.9	2.0-2.9	3.0-3.9	4.0-4.9	5	NR	1.0-1.9	2.0-2.9	3.0-3.9	4.0-4.9	5	NR
PLL	3 (3.9)	3 (3.9)	9 (11.9)	22 (30.8)	21 (28.0)	14 (18.7)	7 (9.3)	19 (25.3)	14 (18.7)	16 (21.4)	2 (2.7)	17 (22.7)
PS	--	2 (8.0)	5 (20.0)	11 (48)	1 (4.0)	--	5 (20.0)	13 (28.0)	6 (24.0)	2 (8.0)	2 (8.0)	3 (12.0)
PQ	--	3 (33.3)	--	1 (11.1)	3 (33.3)	2 (22.2)	2 (22.2)	2 (22.2)	1 (11.1)	--	--	4 (44.4)
NGO	--	2 (9.6)	2 (9.6)	8 (47.6)	5 (23.8)	2 (9.6)	--	5 (24.0)	4 (19.2)	6 (28.6)	--	6 (28.6)

Source: Field Data, 2013

Note: The average of 5.00 = Highest, 4.00-4.9 = High 3.00– 3.9 = Moderate, 2.00 – 2.9 = Low, 1.00 – 1.9 = Lowest

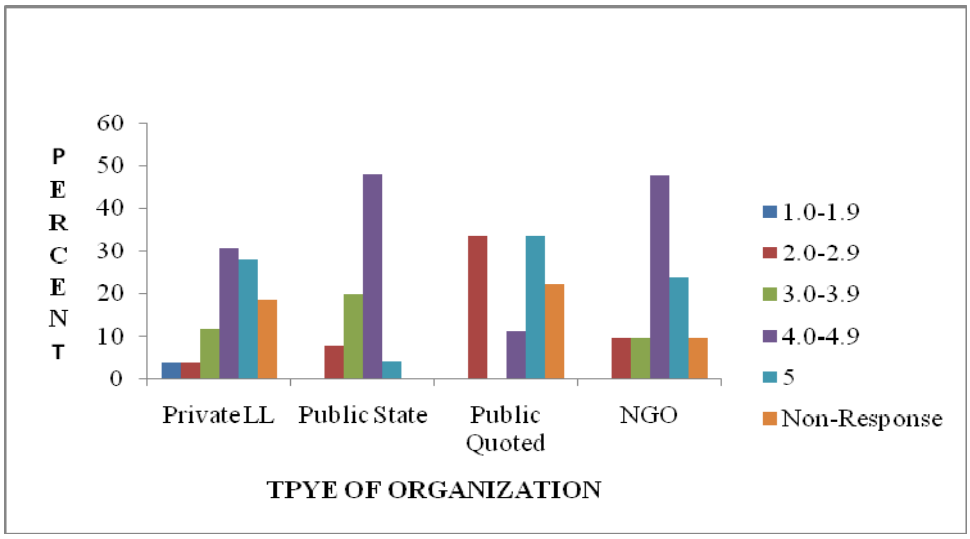


Figure 14. Current level maturity (Maturity phase) – PM life cycle

Source: Field Data, (2013)

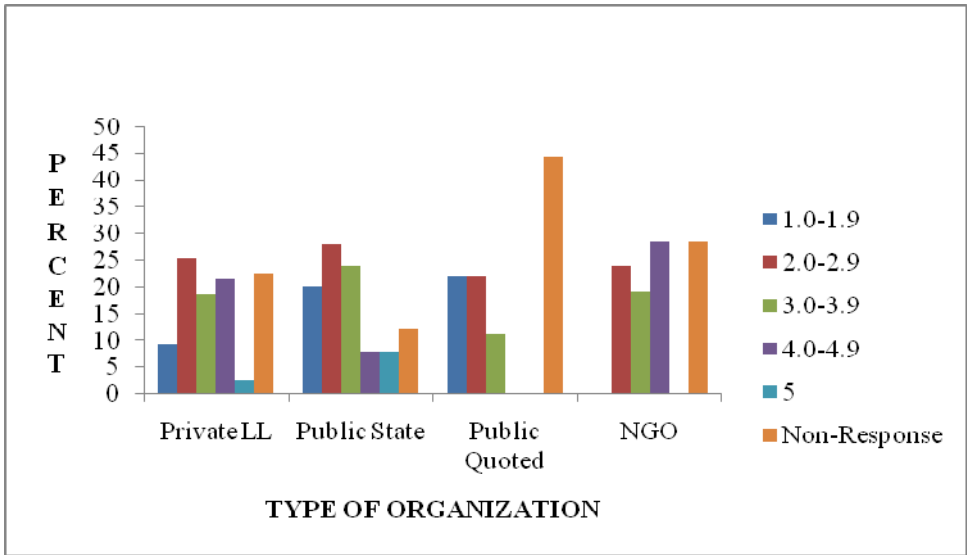


Figure 15. Expected level of maturity (maturity phase) – PM life cycle

Source: Field Data, (2013)

5. Summary

The study established maturity levels along the project management life cycle among categories of organisations in Ghana. At the *embryonic phase* although all the organisations attained a moderate level of maturity, organisations in the NGO category obtained a relatively higher mean score compared to the other organisations. The results also show that project practitioners expected their various organisations to improve upon their current embryonic level of maturity. There was a significant positive relationship between the perceived current level of embryonic maturity and the expected level of embryonic level of maturity among all organisations.

Overall, the results show that the mean scores obtained at the *line management* phase were relatively low compared to the mean scores obtained by the organisations in the *embryonic* and *executive* phase of project maturity. This notwithstanding organisations in the NGO category obtained a slightly higher score at the embryonic phase. In addition, it was noted that project practitioners from Public (State) and Public (Quoted) organisations expected their respective organisations to attain a higher level of maturity from their current low level.

The results also indicated that organisations operating as Public (State) and Public (Quoted) currently have low levels of maturity at the *growth* phase of the project life cycle. Interestingly, project practitioners in these organisations expected only a moderate level of project maturity even though the change in the mean score was high. The results for the *maturity* phase showed a similar trend as the *growth* phase of the project management life cycle. The findings also indicated that there was no significant relationship between the current level of project maturity and the expected level of project growth phase maturity for all categories of organisations.

5.1 Conclusion and Managerial Implications

This exploratory study has sought to ascertain the level of project management maturity levels among project implementing organisations in Ghana. The study adopted a survey instrument developed by Bay and Skitmore (2006) using Kerzner's Level 2 project management maturity assessment framework. Largely, the findings showed that there are differences in the current project management maturity levels across each phase of the project life cycle for all organisations. The findings further revealed that among the categories of organisations NGOs exhibited a relatively higher level of maturity compared to the other categories in all the five phases of the project management life cycle.

Secondly the study established that public sector organisations in Ghana have low levels of maturity in most of the phases of the project management life cycle. This perhaps shows the low level of project management expertise among public sector organisations in Ghana. This is quite revealing given the fact that most developmental project undertaken in Ghana goes through these government agencies. This situation perhaps might be a contributory factor to the numerous instances of public sector project failures. Most of the practitioners' expected their respective organisations to attain higher levels of project management maturity albeit at various levels. Overall, the findings seem to indicate that project management maturity occurs in phases i.e. PMM does not occur as an event but an ongoing process that is interlinked. It is important therefore for project implementing organisations in Ghana to strive to attain maturity in all the five phase of the project management life cycle.

References

Adinyira E. Botchway E., & Kwofie T.E. (2012). Determining Critical Project Success Criteria for Public Housing Building Projects (PHBPS) in Ghana. *Engineering Management Research, 1*(2). Published by Canadian Center of Science and Education.

Ahadzie, D. K. (2010). Management Practices in Ghanaian House Building Industry. *Journal of Science and Technology* (Ghana), *1*(4), 7-9. http://dx.doi.org/10.4314/just.v30i2.60533

Ahmad. A. (2009). Evaluation of Project Management Maturity: The Role of Organization Influences in the GCC Countries. Dissertation submitted to ESC- Lille University. Lille-France. Retrieved February 5, 2012.

Ahsan, K., & Gunawan, I. (2010). Analysis of cost and schedule performance of international development projects. *International Journal of Project Management, 28*(1), 68–78. http://dx.doi.org/10.1016/j.ijproman.2009.03.005

Alis, E. B. J. (1996). Characteristics That Project Management in Indonesia Must Possess to Ensure Successful Projects. Postgraduate Thesis, Queensland University of Technology.

Amponsah R. (2010). Improving Project Management Practice in Ghana with Focus on Agriculture, Banking and Construction Sectors of the Ghanaian Economy. A thesis submitted in fulfillment of the requirements for the Degree of Doctor of Project Management at School of Property, Construction and Project Management RMIT University.

Andersen, E.S., & Jessen, S.A. (2003). Project maturity in organisations. *International Journal of Project Management*, *21*(6), 457-61. http://dx.doi.org/10.1016/S0263-7863(02)00088-1

Arzymanow A., & Cooke-Davis J. Terence. (2003). The Maturity of Project Management in Different Industries: An Investigation into Variations between Project Management Models. *International Journal of Project Management,* 471-478.

Ashrafi R., & Hartman F. (2004). Development of the Smart Project Planning Framework. *International Journal of Project Management*, 499-510.

Awuah L. (2008). An Evaluation of Strategies for Achieving Competitive Advantage in the Banking Industry. The Case of Ghana Commercial Bank Limited. A Thesis submitted to the Institute of Distance Learning, Kwame Nkrumah University of Science and Technology. Retrieved November 8, 2012, from dspace.knust.edu.gh:8080/xmlui/bitstream/.../Lawrence%20Awuah.pdf?

Barber E. (2004). Benchmarking the Management of projects: a Review of Current Thinking. *International Journal of Project Management*, 301-307. http://dx.doi.org/10.1016/j.ijproman.2003.08.001

Bay, A., & Skitmore, M. (2006). Project Management Maturity: Some Results from Indonesia. *Journal of Building and Construction Management, 10*, 1-5.

Bellcore, R. C. (1997). *Project Management Center of Excellence: How to Successfully Implement Project Management within a Company*. The 28th Annual Project Management Institute 1997 Seminars & Symposium, Chicago: Project Management Institute, pp. 585–89

Bocquet, J.C., Marle, F., & Ramirez, N.G. (2007). *Assessing Project Management Maturity: A Case Study*. Ecole Centrale Paris, Chatenay-Malabry, Fr.

Burns, J., & Crawford, J. K. (2002). Organisational project management maturity at The New York Times: Using the project management maturity model. Proceedings of the 33rd Annual Project Management Institute 2002 Seminars & Symposium, San Antonio, Texas.

Carvalho, M. M., Laurindo, F. J. B., & Pessôa, M. S. P. (2003). *Information Technology Project management to achieve efficiency in Brazilian Companies*. In KAMEL, Sherif. (Org.).

Chatfield, C., & Johnson, T. (2007). A short course in project management. Retrieved October 13, 2012, from office.microsoft.com:http://office.microsoft.com/en-us/project-help/a-short-course-in-project-management-HA010235482.aspx

Chauvet, L., Collier, P., & Duponchel, M. (2010). What explains aid project success in post-conflict situations? The World Bank Policy Research Working Paper, 5418.

Chrissis, M. B., Konrad, M., & Shrum, S. (2003). *CMMI: Guidelines for process integration and product improvement.* Addison Wesley.

Cleland, D. I., & Ireland, L. (2002). *Project management: Strategic design and implementation* (4th ed., Vol. 1). New York: McGraw-Hill.

Cook L. Robert, & Garver S. Michael. (2001). Best Practice Customer Value and Satisfaction Cultures. *American Journal of Business*, Spring, *16*.

Crawford L., Hobbs, B., & Turner, J.R. (2006). Aligning Capability with Strategy: Categorizing Projects to Do the Right Projects and To Do Them Right. *Project Management Journal*.

Crawford L. (2005). Senior management perceptions of project management competence. *International Journal of Project Management, 23*(2005), 7-16. http://dx.doi.org/10.1016/j.ijproman.2004.06.005

Edum-Fotwe, T.F., & McCaffer, R. (2000). Developing Project Management Competency: Perspectives from the Construction Industry. *International Journal of Project Management*, *18*(6), 111-124. http://dx.doi.org/10.1016/S0263-7863(98)90075-8

Fincher, A., & Levin, G. (1997). 'Project management maturity model.' PMI 28th Annual Seminars and Symp., Project Management Institute, Upper Darby, Pa., 48-55.

Grant K.P., & Pennypacker, J. S. (2006). Project Management Maturity: An Assessment of Project Management Capabilities among and Between Selected Industries. *IEEE Transactions on Engineering Management*, *53*(1), 59-68.

Harrison, F. L. (1992). *Advanced Project Management: A Structured Approach* (3rd ed.). England: Gower.

Hartman, F., & Skulmoski, G.J. (1998). Project management maturity. *Project Management*, *4*(1).

Hillson, D. (2003). Assessing Organization Project Management Capability. *Journal of Facilities Management*, *2*(3), 298-311.

Holmes S. J., & Walsh R. T. (2005). *Conducting Effective Project Management Maturity Assessment Interviews*. Integrated Management Systems (IMSI TECH), Inc., Ann Arbor, MI.

Humphrey, W. S. (1998). *Managing the Software Process*. Reading, MA: Addison-Wesley, 1989.

Hutson, N. (1997). *What Is Project Management? The 28th Annual Project Management Institute 1997 Seminars & Symposium*. Chicago: Project Management Institute, pp. 1141-2. http://dx.doi.org/10.1049/cae.1986.0015, http://dx.doi.org/10.1016/B978-075066397-7/50019-6

Ibbs, C.W., & Kwak, Y.H. (2000). Assessing project management maturity. *Project Management Journal*, *31*(1), 32-43.

Ibbs, C.W., & Kwak, Y.H. (1998). Benchmarking Project Management Organizations. *PM Network*, 49-53.

Ibbs, C.W., Reginato, J.M., & Kwak, Y.H. (2004). Developing project management capability: Benchmarking, maturity, modeling, gap analyses, and ROI studies. In J.K. Pinto & P.W.G.Morris (Eds.), *The Wiley Guide to Managing Projects* (pp. 1214-33, 1st ed.) Wiley & Sons, Inc., Hoboken, N.J.

Ibbs, W. C., & Kwak, Y. H. (1997). *The benefits of project management: Financial and organizational rewards to corporations*. Newtown Square, PA: PMI Educational Foundation.

Ibbs, W. C., & Reginato, J. (2002). Can good project management actually cost less? Proceedings of the 33rd Annual Project Management Institute 2002 Seminars and Symposium, San Antonio, TX, [CDROM]. Newtown Square, PA: Project Management Institute.

Ibbs, W. C., & Kwak, Y. H. (2000). Assessing project management maturity. *Project Management Journal*, *31*(1), 32-43.

Ika L.A., Amadou D, & Thuillier D. (2012). Critical success factors for World Bank projects: An empirical investigation. *International Journal of Project Management, 30*(2012), 105–116. http://dx.doi.org/10.1016/j.ijproman.2011.03.005

Jha, K. N., & Iyer, K. C. (2007). Commitment, coordination, competence and iron triangle. *International Journal of Project Management*, *25*(5), 527-540. http://dx.doi.org/10.1016/j.ijproman.2006.11.009

Jiang, J et al. (2004). An exploration of the relationship between software development process maturity and project performance. *Information & Management*, 2004, 279-288. http://dx.doi.org/10.1016/S0378-7206(03)00052-1

Jugdev, K., & Thomas, J. (2002a). Blueprint for value creation: Developing and sustaining a project management competitive advantage through the Resource Based View. Paper presented at the 2nd Project Management Institute Conference: Frontiers of Project Management Research and Application, Seattle, WA.

Jugdev, K., & Thomas, J. (2002b). Project management maturity models: The silver bullets of competitive advantage. *Project Management Journal*, *33*(4), 4-14.

Jung Y. J., & Wang Jian Y. (2006). Relationship between Total Quality Management (TQM) and Continuous Improvement of International Project Management (CIIPM). *Technovation*, 716-722. http://dx.doi.org/10.1016/j.technovation.2006.01.003

Kerzner, H. (1998). *Project management systems approach to planning, scheduling, and controlling*. Van Nostrand Reinhold, New York.

Kerzner, H. (2001). *Project management – A systems approach to planning, scheduling, and controlling*. Nova York: John Wiley & Sons.

Kerzner, H. (2001). *Strategic Planning for Project Management Using Project Management Maturity Models*. Canada: John Wiley & Sons.

Kerzner, H. (2004). *Project Management Best Practices: Achieving Global Excellence* (1st ed.). John Wiley & Sons, Hoboken, N.J.

Kerzner, H. (2006). *Project Management: A Systems Approach to Planning, Scheduling and Controllin*g (9th ed.). Hoboken, NJ: Wiley

Kilby, C. (2000). Supervision and performance: the case of World Bank projects. *Journal of Development Economics, 62*, 233–259. http://dx.doi.org/10.1016/S0304-3878(00)00082-1

Konadu-Agyemang, K. (2001). *The Political Economy of Housing and Urban Development in Africa-Ghana's Experience from Colonial Times to 1998*. Praegers Publishers, Westport, UK.

KPMG International. (2005). *Global IT Project Management Survey How committed are you?* KPMG International: Hong Kong.

Kwak, Y. H., & Ibbs, W. C. (2000). Calculating project management's return on investment. *Project Management Journal, 31*(2), 38-47.

Man T-J. (2007). A framework for the comparison of Maturity Models for Project-based Management. A thesis submitted to Utrecht University.

McCauley, M. (1993). *Developing a project-driven organization*. PM Network, September, 26-30.

Mullaly, M. (2006). Longitudinal analysis of project management maturity. *Project Management Journal, 36*(3), 62-73.

Munns, A. K., & Bjeirmi B. F. (1996). The Role of Project Management in Achieving Project Success.

Munns, A.K., & Bjeirmi, B.E. (2006). The role of project management in achieving project success. *International Journal of Project Management*, *14*(2), 81-87.

Ofori, D. (2006). *Problems of Project Management: Theory, Evidence and Opinion from Ghana*. Monograph. Ghana Universities Press: Accra.

Paulk, M. C., C. V. Weber, B. Curtis, & M. B. Crissis. (1995). T*he Capability Maturity Model: Guidelines for Improving the Software Process*. Reading, Massachusetts: Addison-Wesley.

Pennypacker, J. S. (2002). Benchmarking project management maturity: Moving to higher levels of performance, Proceedings of the 33rd Annual Project Management Institute 2002 Seminars & Symposium. Newtown Square, PA., USA.

Pitagosky, G. (2001). A scientific approach to project management. *Machine Design*, 78-82.

PriceWaterhouseCoopers. (2004). Boosting Business Performance Boosting Business Performance through Programme and Project Management: Belgium: PriceWaterHouseCoopers: Antonio Nieto-Rodriguez and Daniel Evrard.

Project Management Institute (PMI). (2003). Organizational Project Management Maturity Model (OPM3). Published by: Project Management Institute, Inc., Four Campus Boulevard, Newtown Square, Pennsylvania.

Project Management Institute (PMI). (2008). *A guide to the project management body of knowledge (PMBOK ® guide)* (Third ed.). Newtown Square, PA: Author.

Project Management Institute Standard Committee (PMI). (2000). *A guide to the project management body of knowledge,* PMI, Upper Darby, Pa.

Saures, I. (1998). A real world look at achieving project management maturity, paper presented to the Project Management Institute 29th Annual Seminars/Symposium, Long Beach, CA.

Scherlock C.D. (2006). *Managing Operational Risk: The Capability maturity Model.* Hoosier Banker.

SEI, CMMI-SW. (2002). *Capability Maturity Model Integration.* CMMI Staged presentation, SEI.

Skulmoski, G. (1999). Project Maturity and Competence Interface. Cost Engineering 2001, presented at 43rd Annual Meeting of AACE International Denver Co. (P11).

Soderlund, J. (2002). Building Theories of Project Management: Past Research, Questions for the Future. *International Journal of Project Management*, *2002*, 183-191. http://dx.doi.org/10.1016/S0263-7863(03)00070-X

Walker A. L. (1995). *The New International Webster's Comprehensive Dictionary of the English Language*. Naples, Fl.: Trident Press International.

Webster. *The new lexicon Webster's dictionary of the English language Edition.* NY: Lexicon Publications.

Wheatley, M. (2007). Maturity matters. *PM Network*, *21*(7), 49-53.

Yazici H. J. (2009). The Role of Project Management Maturity and Organizational Culture in Perceived Performance. *Project Management Journal*, *40*(3), 14–33, by the Project Management Institute Published online in Wiley Inter Science. http://dx.doi.org/10.1002/pmj.20121

Youker, R. (1999). Managing international development project: lessons learned. *Project Management Journal, 30*(2), 6-7.

View publication stats