

# Project Management Maturity in the Construction Industry of Developing Countries



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## ABSTRACT

This research has studied the maturity of PM in the construction industry of developing countries; in the course, the research has also identified two major gaps in the existing maturity models and, proposed a PM maturity model to address the gaps and adapt it to the developing countries context. Using the model, maturity assessment of contractors in India is undertaken and, low level of PM maturity (Informal practice of the basic processes) is found. Further, the research found ISO certified contractors' PM maturity to be higher than those which are not. Similarly, the PM maturity of contractors which took part in Capacity Building Program is found to be higher than those which did not take part. Likewise, Road contractors PM maturity is found to be higher than Building contractors. Moreover, the research found higher maturity level for material, procurement, cost, financial, time, and human resource management. Risk and safety management are found to be the least matured PM areas.

**Keywords:-**Maturity, Construction Industry, Capital assets.

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## I. INTRODUCTION

The construction industry plays significant role in the economy of developing countries. For example, in many developing countries, major construction activities account for about 80% of the total capital assets, 10 % of their GDP, and more than 50% of the wealth invested in fixed assets. In addition, the industry provides high employment opportunity, probably next after agriculture [ (Ofori, 2006), (Jekale, 2004)<sup>1</sup>]. Despite the construction industry's significant contribution to the economy of developing countries and the critical role it plays in those countries' development, the performance of the industry still remains generally low. As (Idoko, 2008)noted, "...many projects in developing countries encounter considerable time and cost overruns, fail to realize their intended benefit or even totally terminated and abandoned before or after their completion ...". Moreover, the development of the construction industry in developing countries generally lags far behind from other industries in those countries and their

counter parts in developed nations. Generally, as [ (Ofori, 2006) & (Jekale, 2004)] concluded, "The construction industry in developing countries failed to meet expectations of governments, clients and society as a whole"

The major contributions or significance of this research are:

1. The maturity assessment result of this research can be used as initial benchmark information in prioritizing and designing improvement action. Further the same result can also be used as a baseline to compare the success of or impact of future improvement efforts.
2. The proposed model and its questionnaires can be used in assessing maturity of construction PM. In addition, the proposed model can serve as a guide in implementing PM and designing improvement effort.
3. It has identified gaps in the existing maturity models for further refinement of those models.

4. It has assessed impact of recent PM development efforts and the impact of ISO certification in helping contractors PM maturity.
5. Revisited concept of maturity and attempted refining the concept

This research is descriptive research as it tries to describe the current status of PM practice in the construction industry of India. For this research, from different data collection method, paper survey was used primarily because of its lower cost and time and convenience to include large sample size. Even though, a case study known to give detailed information and better insight ;it was not used in this research as it takes substantial time and resources ,further difficulty of selecting representative cases and difficulty of generalizing results were also additional reasons for not using case studies. Generally three surveys were conducted in this research; the first solicits opinion from practitioners and academicians as to the relative importance of the practices identified through literature review for the construction PM knowledge areas covered in the research. The second questionnaire also solicits opinion from the practitioners as to the relative importance of the knowledge areas for prioritizing improvement efforts. The third questionnaire is used to assess the PM maturity of contractors based on the proposed model and a reference model

**Data Analysis:**The data analysis will be done using both inferential (correlation analysis and hypothesis testing) and descriptive statistics. In calculating maturity of knowledge areas, all practices under the goals of each knowledge areas were given equal weight. Similarly for the purpose of determining the construction PM maturity of the contractors, all the knowledge areas were considered to have equal weight, as the effort to determine a relative weight for the contribution of the different knowledge areas has failed due to absence of significant inter-rater agreement. In addition, all responses other than „yes“ were construed as „no“ in the maturity calculation. The argument for this is that, what is sought to be known is whether the practice is performed or not, and as the questionnaire was filled by a competent PM, lack of awareness of a practice is assumed to be most likely due to the non-implementation of the practice. Moreover, it was assumed that the impact of lowering reported maturity due to the above assumption will to some extent be compensated by the common self-favoring bias that occurs in self-assessment.

#### **Research Limitations**

Due to limitation of time and resource, more reliable and informative method such as maturity assessment of organizations based on artifacts and interview, and the use of focus group in developing content of the model were not used. The research used self-administered questionnaires surveys. However, as explained in page 11 some efforts have been taken to minimize the impact.

Due to limitation of time the research adopted only PMIs standards.

#### **Nature of Projects and the Project Environment in Developing Countries**

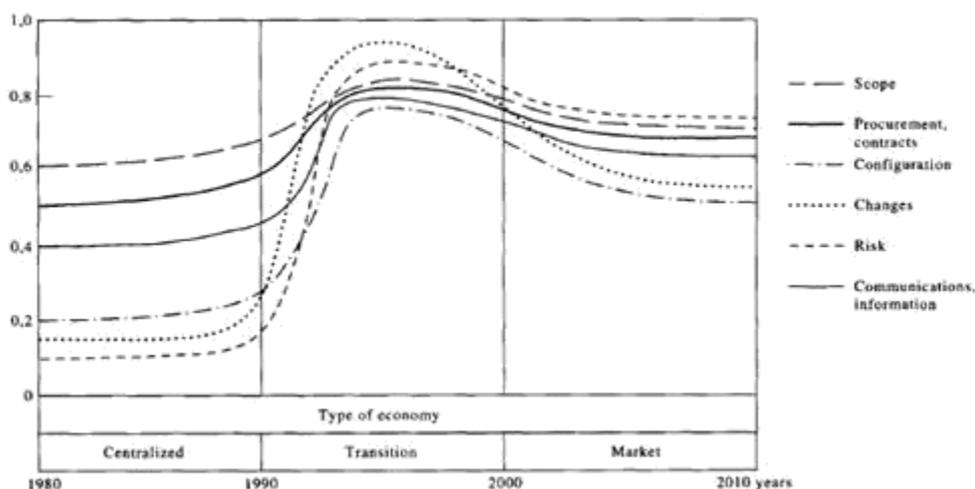
The nature of projects and the environment in which they are implemented in developing countries is different from that of the developed countries where PM is originated and developed [ (Cusworth & Franks, 1993), (Voropajev, 1998), (Jekale, 2004)]. Most Projects in both developed and

developing countries are complex and operate in a dynamic environment. However, projects in developing countries are highly uncertain, and operate in a highly unstable, unpredictable and poorly resourced environment. This poses a challenge on project manager in developing countries which is not seen by their counter parts in the developed nations. [ (Cusworth & Franks, 1993), (Jekale, 2004)]. According to (Voropajev, 1998)Project management functions(processes) that are sensitive to changes such as management of risk, procurement, contracts, scope, configuration, communications, and information are more important in managing projects in developing countries than in developed countries context (see Figure 1 ). The Project management functions less exposed to change such as management of quality, time, cost, human resources become more important in the developed economies than developing countries context. Further, according to [ (Muriithi & Crawford, 2003), (Cusworth & Franks, 1993)] management of externality of projects and the political and risk management skill become very important in the context of the developing countries.

**Table 1: Projects and the Project Environment in Developing and Developed countries**

Developing countries	Developed countries
Most projects are public owned	Most are private
Infrastructure projects dominate	More or less mix of projects
Private projects are short time	Medium time
Highly sensitive to the environment	Moderately sensitive to the environment
Complex ,uncertain ,unstable and unpredictable environment	Complex , dynamic ,relatively stable and to some extent predictable environment
Extreme scarcity of resources	Resource available at cost (constrained )
Underdeveloped private sector and forces of market	Developed private sector and forces of market
involvement of govt . in business	Market economy

**Figure 1: PM functions which are sensitive to risk factor in different economies**



## CONCLUSION

The low level of construction PM maturity found for the Grade-1 Contractors shows how poor the PM practice in the industry overall is. Thus, improvement efforts need be undertaken to improve the current condition. In this regard this research recommends the following specific actions to be undertaken.

Providing training and mentoring to the contractors to improve their PM knowledge and practice capacity. In this regard, the higher maturity found for contractors that have participated in the Capacity Building program (CBP), to some extent, shows the potential success to be gained.

Encouraging contractors to obtain ISO certification as this would help them improve also their PM capability. The high maturity found for ISO contractors, in this regard, indicates the potential success to be achieved

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