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Assessment of Contractors Project Management Maturity

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ABSTRACT

In effect, concrete is broadly used as a development fabric due to the fact of its high strength-cost ratio in many applications. Concrete constructions are usually expected to provide bother free service all through its intended design life. However, these expectations are now not realized in many constructions because of structural deficiency, fabric deterioration, unanticipated over loadings or physical damage and accordingly civil structures like buildings, dams, bridges and so forth are subjected to non-stop deterioration over the years. This extent of injury or deterioration appreciably relies upon on the quality of materials and workmanship at every the building stage. The deterioration of structures can be a result of a number elements which include hearth damage, frost action, chemical attack, corrosion of steel and so on at some point of the lifestyles span of the structure. The investigation of soundness is therefore vital for discovering the existing serviceability of the structure and its scope for future developments or for the trade in its utilization.

Such an investigation can be carried out using the following methods: a) Visual examination b) Non Destructive Testing c) Partial Destructive Testing. Besides, it turns into fundamental for structures hit by means of an earthquake, a bomb blast or any other calamity. In general, Soundness estimation to be finished for buildings which are crossed over 15 years of age.

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1. INTRODUCTION

The development industry plays sizeable role in the financial system of developing countries. For example, in many creating countries, essential building things to do account for about 80% of the total capital assets, 10 percent of their GDP, and extra than 50% of the wealth invested in fixed assets. In addition, the enterprise provides excessive employment opportunity, probable subsequent after agriculture. Despite the construction industry's huge contribution to the economy of developing nations and the indispensable function it plays in those international locations development, the performance of the industry still stays commonly low. As (Idoko, 2008)noted, "…many tasks in creating countries stumble upon significant time and cost overruns, fail to recognize their intended benefit or even totally terminated and abandoned earlier than or after their completion"

1.1. Project and Project Management: Definition

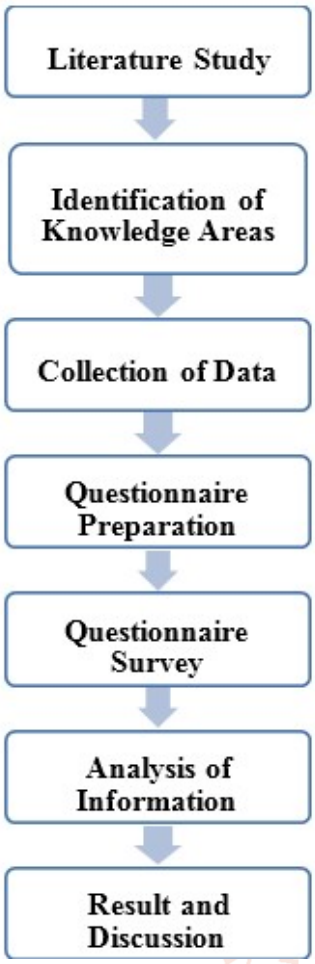
A challenge has a defined scope, is limited by way of restricted resource, involves many humans with extraordinary ability and, commonly steadily elaborated in the course of its life cycle. [(Stanleigh, 2007), (Cleland & Ireland, 2002), (Wheatley)] .Similar to the case for project, many and specific definitions have been given for mission management. Summarizing these definitions this lookup defines Project administration as: The utility and integration of current administration and mission management knowledge, skills, equipment and techniques to the normal planning, directing , coordinating ,monitoring and manage of all dimensions of a assignment from its inception to completion, and the motivation of all those involved to produce the product ,service or result of the task on time, inside licensed cost, and to the required pleasant and requirement, and to the pleasure of participants.[(Chartered Institute of Building , 2002), (Fewings, 2005), (Carmichael, 2004)].Project administration deals in the main with coordinating resources and managing people and change. Generally "Managing a undertaking includes: Identifying requirements, Establishing clear and attainable objectives, Balancing the competing needs for quality, scope, time and cost; Adapting specifications, plans, and strategy to the one of a kind concerns and expectations of the various stakeholders" (Project Management Institute (PMI), 2004). Further, Pareto's 80-20 rule (the regulation of the necessary few), is pretty applicable in managing projects, consequently efforts want be focused on few and important or necessary objects (Carmichael, 2004).Nine core information areas of challenge administration are identified in PMBOK.

2. RESEARCH METHODOLOGY

Literature study and the study of several references were done in order to get the parameters related to project management in construction.

The flow chart below represents the methodology adopted for the study.

Fig 2.1 Methodology



3. KEY FACTORS IN PROJECT MANAGEMENT

PMBOK recognises 5 basic process groups and 10 knowledge areas typical of almost all projects. The basic concepts are applicable to projects, programmes and operations. The five basic process groups are:

- Initiating
- Planning
- Executing
- Monitoring and Controlling
- Closing

The following are the ten knowledge areas:

- Project Integration Management
- Project Scope Management
- Project Time Management
- Project Cost Management
- Project Quality Management
- Project Human Resource
- Management
- Project Communications
- Management
- Project Risk Management
- Project Procurement Management
- Project Stakeholder Management (added in the 5th edition)

4. QUESTIONNAIRE DESIGN

This research is descriptive lookup as it tries to describe the current status of PM practice in the building enterprise of India. This survey solicits opinion from practitioners as to the relative importance of the practices recognized through literature evaluation for the 12 building PM knowledge areas included in the research.

The questionnaire has two parts. Part-I asks biographical information such as stage of PM training, years worked as PM, Part-II asks respondents to price the PM practices beneath each of the 12 expertise areas as very high, high, average, low, very low based totally on their perceived importance to the attainment of goals of each of the understanding areas.

5. SCORING MODEL FOR PROJECT MANAGEMENT MATURITY

The overall PM practice is determined by calculating the average maturity score determined for the 12 knowledge areas. In determining the overall maturity the weight (contribution) of the 12 knowledge areas is assumed to be equal. To determine the average maturity, information obtained from the questionnaire survey is analysed.

Table 5.1 Scoring Model

SCORE	LEVEL	GENERAL DESCRIPTIONS	MAIN CHARACTERISTICS
0-1	Level 1 Common Language	Organizations recognize the importance of project management and the need for a good understanding of the basic knowledge of PM and its language/terminology.	➢ None or sporadic use of project management. ➢ No Executive-level support. ➢ No investment or support for project management training.
1-2	Level 2 Common Processes	Organizations recognize the need for common processes	➢ Recognition of benefits of PM. ➢ Organizational

6. QUESTIONNAIRE SURVEY

A survey is a data gathering method that is utilized to collect, analyze and interpret the views of a group of people from a target population. Surveys have been used in various fields of research, such as sociology, marketing research, politics and psychology. The survey methodology is guided by principles of statistics from the moment of creating a sample, or a group of people to represent a population, up to the time of the survey results' analysis and interpretation. From simple polls regarding political beliefs, to opinions regarding a new product versus another, the survey method is proven to be an effective technique to gather necessary information for the advancement of science and technology.

7. QUESTIONNAIRE ANALYSIS

7.1. DESCRIPTIVE STATISTICS

Table7.1 Descriptive Statistics

		GENERA L1	GENERA L2	GENERA L3	GENERA L4	GENERAL5
N	Valid	44	44	44	44	44
	Missing	0	0	0	0	0
Mean		2.4583	2.1667	2.2083	2.2500	2.1667
Std. Error of Mean		.22505	.17720	.14719	.20189	.20560
Median		2.0000	2.0000	2.0000	2.0000	2.0000
Mode		2.00	2.00	2.00	2.00	2.00
Std. Deviation		1.10253	.86811	.72106	.98907	1.00722
Variance		1.216	.754	.520	.978	1.014
Skewness		.433	.524	.419	.331	.474
Std. Error of Skewness		.472	.472	.472	.472	.472
Range		4.00	3.00	3.00	3.00	3.00
Percentile s	25	2.0000	2.0000	2.0000	1.2500	1.0000
	50	2.0000	2.0000	2.0000	2.0000	2.0000
	75	3.0000	3.0000	3.0000	3.0000	3.0000

7.2. RELIABILITY STATISTICS

Statistical reliability is wished in order to ensure the validity and precision of the statistical analysis. It refers to the potential to reproduce the results once more and again as required. This is quintessential as it builds trust in the statistical evaluation and the outcomes obtained. There are many techniques available to scientists to decide and enhance the reliability of their experiment. For example, positive surveys might establish their reliability with the aid of asking the participants of the learn about the same or comparable questions at two specific times underneath comparable conditions.

Table 7.2 Cronbach Alpha Consistancy

Cronbach's alpha	Internal consistency
$\alpha \geq 0.9$	Excellent (High-Stakes testing)
$0.7 \leq \alpha < 0.9$	Good (Low-Stakes testing)
$0.6 \leq \alpha < 0.7$	Acceptable
$0.5 \leq \alpha < 0.6$	Poor
$\alpha < 0.5$	Unacceptable

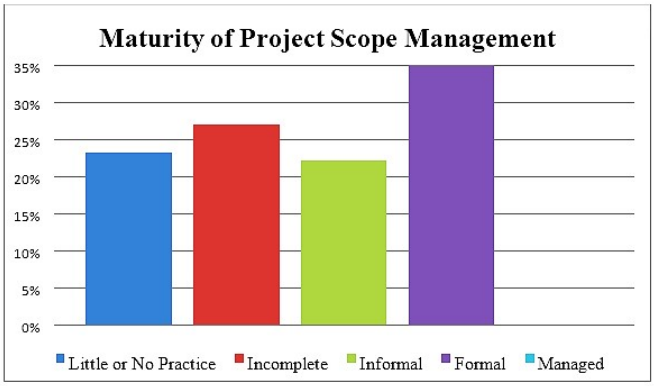
Table 7.3 Reliability Statistics Output from SPSS

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.9190	.9191	44

8. RESULT AND DISCUSSIONS

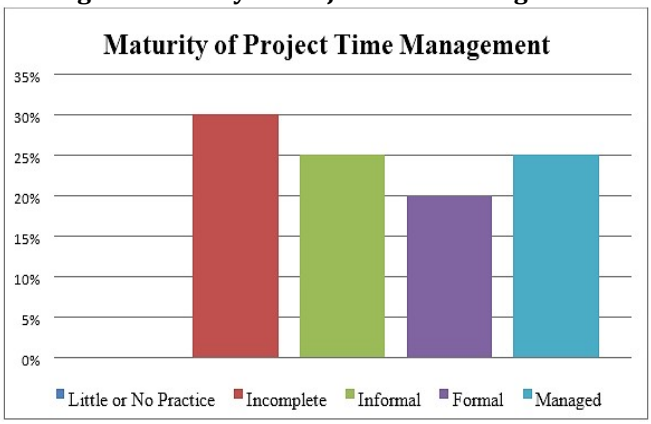
8.1. Maturity Across Pm Knowledge Areas

Fig 8.1 Maturity of Project Scope Management



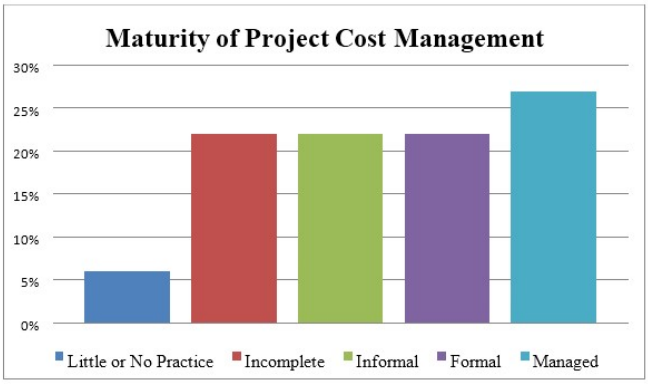
8.2. Maturity of Project Time Management

Fig 8.2 Maturity of Project Time Management



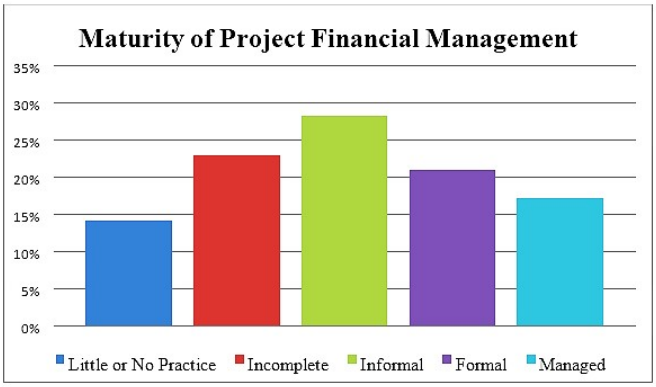
8.3. Maturity of Project Cost Management

Fig 8.3 Maturity of Project Cost Management



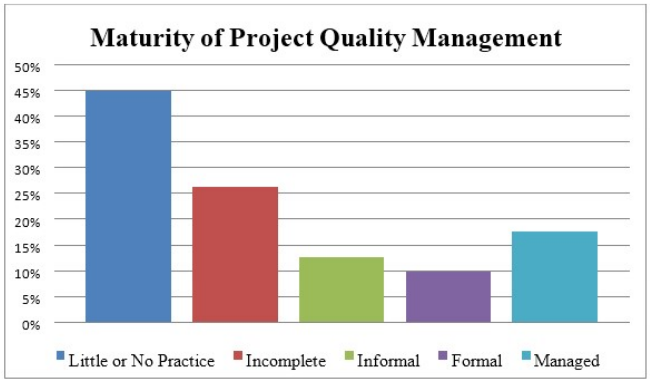
8.4. Maturity of Project Financial Management

Fig 8.4 Maturity of Project Financial Management



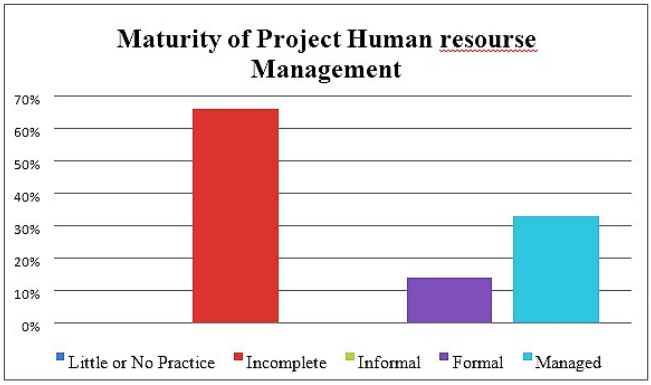
8.5. Maturity of Project Quality Management

Fig 8.5 Maturity of Project Quality Management



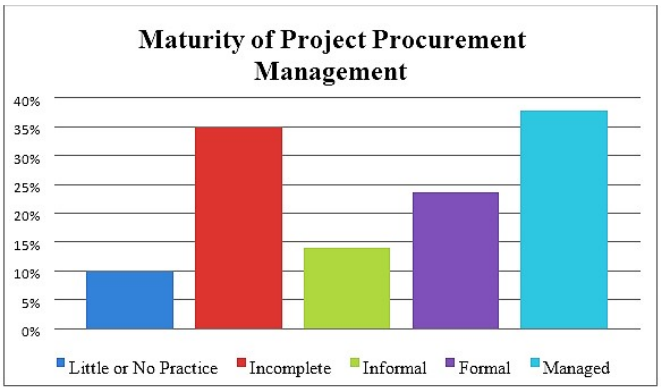
8.6. Maturity of Project Human Resourse Management

Fig8.6 Maturity of Project Human Resourse Management



8.7. Maturity of Project Procurement Management

Fig 8.7 Maturity of Project Procurement Management



8.8. DEMOGRAPHICS OF PARTICIPATING CONTRACTORS

Contractor's Category	Number of contractors in the category
Based on Ownership	
Private	**44**
Public	**-----**
Based on the contractor's major work	
General Contractors	**9**
Building Contractors	**20**
Road Contractors	**10**
Specialized Contractors	**5**
Based on Participation in Capacity Building Program	
Capacity Building Program Participant	**25**
Non-Capacity Building Program Participant	**9**
Based on ISO-Certification	
ISO Certified	**12**
In process of getting ISO	**4**
NO	**28**

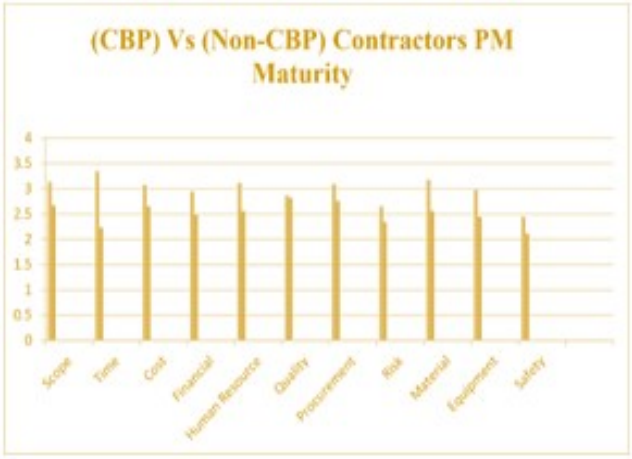
8.9. PM MATURITY ACROSS CATAEGORIES

Fig 8.9 ISO Vs. Non-ISO Contractor's PM Maturity

8.10. Capacity Building Program (CBP) Vs (Non-CBP) Contractors PM Maturity

The maturity assessment result shows that, contractors which participate in capacity building program have shown consistently higher maturity in all knowledge areas of construction management except for that of material management.

Fig 8.11 CBP Vs. Non-CBP Contractor's PM Maturity



8.11. Road Contractors vs. Building Contractors PM Maturity

Fig 8.12 Road Vs. Building Contractor's PM Maturity

9. CONCLUSION

This research had tried to assess the extent of use (maturity) of project management techniques and practices in the development enterprise of India. Further, the lookup has provided bench mark information on the contemporary status of PM practice in the enterprise for use in non-stop assessment of future improvement efforts. The low degree of construction PM maturity discovered on the Contractors shows how bad the PM practice in the enterprise standard is. Thus, enchantment efforts need be below taken to enhance the cutting-edge condition.

10. QUESTIONNAIRE

Project Management Practice Maturity Questions

10.1. Project Management Process-General

Sl. no	Description	Very high	High	Avg.	Low	Very low
1.	Recognized of needs and benefits Project Management by your Organization					
2.	Management support for Project management development					
3.	Standard Project Management processes and methodologies					
4.	Project Management training for its Project Management team					
5.	Solid knowledge base of Project managers					
6.	Application of Project Management processes, methodologies and procedures in managing projects in your Organization					

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