



Study on Factors Influencing Construction Process Performance

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ABSTRACT - Construction industry has complexity in its nature to do a successful project because it contains large number of parties as clients, contractors, consultants, stakeholders, shareholders, regulators and others. Various researches have tried to determine the factors that are responsible for a successful project. Performance processes are initiating, planning, executing, monitoring, controlling and closing. Some of those factors which affect the construction process performance such as cost, duration, quality, productivity, client satisfaction, health and safety and environmental factors are considered in this project. These factors are identified from literature survey and a questionnaire was prepared and given to site engineers working in various construction companies. SPSS software will be used for statistical analysis of the data acquired from the companies. Statistical analysis is done for ranking and selection of major factors contributing the construction process performance. Thus the study aims on identifying the factors which influence and enhance the process performance.

Key words - performance process, stakeholders, statistical analysis.

1. INTRODUCTION

Construction industry plays a major role in developing and achieving the goals of Society. Construction is one of the largest industries and contributes to about 10% of the Gross National Product in industrialized countries. The failure of any construction project is mainly related to the problems and failure in performance. The performance of the construction industry is affected by national economies. In the fields of architecture and civil engineering, construction is a process that consists of the building or assembling of infrastructure. Each type of construction project requires a unique team to plan, design, construct and maintain the project. If a number of construction companies of a country start neglecting the quality aspects in their projects, this also starts reflecting on the reputation of the country. Helping the construction companies to identify the critical attributes responsible for achieving the desired quality level (success factors) and also to find the attributes adversely affecting the project quality (failure factors) has been the motivating factor behind this study. In general, there are four types of construction, Residential Building construction, Industrial construction, Commercial Building construction, Heavy Civil construction.

It is realized that maximization of the success factors and minimization of failure factors will ensure the construction industry realizes its quality goals. There are so many factors which affect the construction process performance such as cost factors, duration factors, quality factors, productivity factors, client satisfaction factors, health and safety factors, environmental factors. This project aims to identify the major factors which



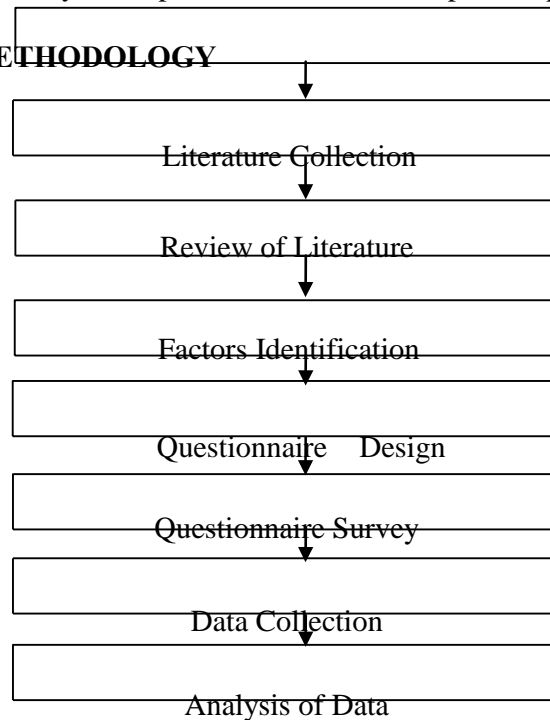
affects the construction process performance and also helps how to avoid those factors and how to improve construction process performance.

2. OBJECTIVES AND SCOPE

The objectives of the study is

- To identify and evaluate various factors affecting the construction Process performance.
- To suggest ways to improves the construction process performance

3. RESEARCH METHODOLOGY



Summary and Suggestions

4. IDENTIFICATION OF FACTORS

From the literature study of factors influencing the construction process performance, several factors have been selected which are broadly classified under 7 categories. They are

- Cost factors
- Duration factors
- Quality factors
- Productivity factors
- Client satisfaction factors
- Health and safety factors
- Environment factors



4.1 COST FACTORS

- Rework due to errors during construction
- Motivation cost
- Frequent design changes
- Fluctuation in prices of materials/equipment
- Cash flow and financial difficulties faced by contractors
- Contractors poor site management and supervision
- Lack of communication among owner and contractor
- Shortage of site workers
- Waste rate of materials
- Project over time cost

4.2 DURATION FACTORS

- Shortages of materials
- Financial difficulties of owner
- Late delivery of materials/equipments
- Labour absenteeism
- Unexpected accidents
- Lack of resources availability
- Site preparation time
- Time needed to rectify defects

4.3 QUALITY FACTORS

- Project size and complexity
- Unavailability of personals with high experience and Qualification
- Low tendency to teamwork
- Lack of motivation
- Low quality and poor availability of equipments

4.4 PRODUCTIVITY FACTORS

- Sequencing of work according to schedule
- Absenteeism rate through project
- Management labour relationship
- Number of new projects/year

4.5 CLIENT SATISFACTION FACTORS

- Leadership skills for project manager
- Information co-ordination between owner and clients
- Number disputes between owner and clients
- Number of reworks



4.6 HEALTH AND SAFETY FACTORS

- Accident rate in project
- Location of project site
- Weather condition

4.7 ENVIRONMENTAL FACTORS

- Air quality
- Noise level
- Wastes around the site
- Climate conditions

5. RESULTS FROM SPSS

FACTORS	MEAN	RANK
Frequent design changes	3.80	1
Project over time cost	3.80	1
Number of reworks	3.80	1
Shortage of site workers	3.60	2
Fluctuation in prices of materials equipments	3.60	2
Rework due to errors during construction	3.50	3
Shortages of materials	3.50	3
Unexpected accidents	3.50	3
Site preparation time	3.40	4
Lack of motivation	3.30	5
Motivation cost	3.20	6
Leadership skills for project manager	3.10	7
Project size and complexity	3.00	8
Management labour relationship	3.00	8
Number of new projects / year	3.00	8
Noise level	3.00	8
Financial difficulties faced by owner	2.90	9
Waste rate of materials	2.80	10
Late delivery of materials / equipments	2.80	10
Labour absenteeism	2.80	10
Low tendency to team work	2.80	10
Absenteeism rate through project	2.80	10
Waste around the site	2.80	10



6. CONCLUSION

Various factors influencing construction process performance are identified & based on that, a detailed structured questionnaire is prepared such as cost, duration, quality, productivity, client satisfaction, health and safety, environmental factors are considered in this project. The data collected from their response and analyzed by using SPSS software. SPSS software is used for statistical analysis for ranking and selection of major factors contributing the construction process performance. From that Frequent design changes, Project over time cost, Number of reworks, Shortage of site workers, Fluctuation in prices of materials equipments, Rework due to errors during construction, Shortages of materials, unexpected accidents, Site preparation time, Lack of motivation are the major factors which influencing in construction process performance.

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