

Evaluating the Impact Level of Management Errors in Construction Project

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Abstract- Construction Management is the art of directing and coordinating human and -material resources throughout the life of a construction project. Errors occur everywhere and research into inaccuracy has become an important area of study. Managers make errors, and the effects include poor safety, reduced quality, increased cost and decreased profit. In this paper efforts are made to establish complete analysis of 20 papers published related management errors in construction. This paper discusses different research papers, articles, case studies that have been published in this field. This research paper gives an idea to reduce management errors in future construction project.

Indexed Terms- management errors, human errors, construction failure

I. INTRODUCTION

Everybody makes errors from time to time. Technical errors occur when a person fails to correctly carry out a procedure and are relatively easy to identify. Management errors are usually rather more difficult to identify and correct when recognized.

People can make errors at any time, regardless of their level of skill, experience or training. Human performance depends on both physical and psychological factors which cause them to act differently in different situations and different environments. It is not at all easy to give a general definition of error.

II. CONSTRUCTION MANAGER DUTIES AND RESPONSIBILITIES

In simple words, construction managers are the ones who are responsible for the project to proceed according to the existing plan. The primary mission for construction managers is to manage their project

in a way that will ensure its completion on the agreed budget and time. Furthermore, they should make sure that the whole project is complying with the set building plans, codes and other regulations.

As CMAA reports, a construction manager has up to 120 different responsibilities during the execution of a building project. These 120 responsibilities can be divided into the following categories:

- Set the budget and run cost assessments.
- Plan the work time schedule.
- Select the right construction methods and strategies for their project.
- Maintain a close and good relationship with the clients.
- Negotiating contract agreements with workers and other project agents.
- Take good care of the workers on site.
- Work together with the numerous consultants of the project.

III. CONSTRUCTION RISK MANAGEMENT

It is no secret that construction projects and risk are going hand and hand. With that in mind, a solid construction risk management plan is seen as a must-have. Nevertheless, in order for a risk plan to be successful, the project team has to be familiar with the different types of risk that might emerge along the way:

- Low or negative margins combined with a high risk of profit.
- Health and safety risks.
- Project disputes.
- Budget overruns and substantial delays in the completion of a project.
- High rework rates.
- Need to generate a high ROI based on the funds invested in the project.

- Lack of transparency or miscommunication across the supply chain.
- Data breach.
- Bureaucracy and heavy administration demands.
- Unforeseen factors such as extreme weather phenomena and social turmoil.

The above risk factors manifest why construction is such a tough industry and why investing in communication between the various stakeholders while monitoring closely the development of the project is crucial. A common practice for keeping up with risk in construction is the introduction of a 10% contingency to cover risk. But that doesn't always work given the fact that unpredicted sources of trouble can always emerge in the course of a project

IV. SCOPE AND OBJECTIVE

The objective of this paper is to study various literatures about management errors using questionnaire survey and identify the key parameters that affect the quality in construction and to reduce the defects in construction.

The Scope of this paper includes:

- To identify the factors affecting construction management.
- To study the management life cycle.

V. LITERATURE REVIEW

A literature review is a detailed report of information obtained from the literature that is related to our topic of study. The review describes, summarize, evaluate and clarify this literature. It gives a base for the research and helps in determining the nature of the study. This section represents the review of literature collected from various journals and articles that are most relevant to the study.

1. The Management Of Construction Failures And Defects : Andy Atkinson(1997)
 - This paper reports a study of 23 housing projects constructed by two house building companies in the UK. A statistical analysis was conducted of "individual", "managerial" and "external" factors compared with dependent variables of cost, times and levels of defects for the projects. Significant relationships were not generally noted between

factors and dependent variables. There was a correlation between the senior managers 'a priori' ratings for their site managers and out-turn project performance.

2. Project Management Knowledge And Skills For The Construction Industry : Achara Khamaksorn(2016)
 - This report seeks to answer to question: How to develop and implement project management knowledge and skills in the construction industry. The method used to answer the research question is analysis of the ways for developing and implementing the construction project.
3. Errors, Defects and Safety Control at Construction Stage: A.Kh. Baiburin(2017)
 - This paper describes the failure of the structure as overlapping events in the form of the defects of construction and used materials, load variations and human errors. Based on the modeling of a hazardous situation when there is a critical defect and based on the calculation of its threat rating it has been proposed to establish the significance of the defects. The model allows predicting hazard, reducing the likelihood of accidents, and improving methods of building control.
4. Delay Analysis Methods And Factors Affecting Their Selection In The Construction Industry In Gaza Strip : Asmahan Jubeh(2008)
 - This paper aims to survey the commonly used DAMs and todetermine the factors that influence their selection according to contactors and consultants perspectives in Gaza Strip. A total of 100 contractors and consultants were approached, of which 33 participated. The results indicated that, the most commonly used DAM in Gaza Strip is "As-planned vs. As-built" This paper stressed the importance of obtaining full records throughout the project life cycle in order to assist the disputed parties to select the appropriate DAM that gives relatively correct results. Training courses covering delay analysis methods and their requirements are recommended.
5. The Role Of Early Detection Of Human Errors In Building Projects : B. Larsson(2001)

- This paper discusses the possibilities for detecting human errors in building projects earlier than they are detected today. It argues that well-planned inspections can significantly reduce poor-quality costs. Errors can be seen as chains of events, including causes, human error, defect, consequences and corrective measures. A preliminary analysis of 2879 human errors is presented in the paper. Three cases of human error are discussed in greater depth. The effects on the cost are also discussed.
6. Factors Effecting The Failure Analysis Of Construction Projects: Sk. Azeez Ahamed (2017)
 - This analysis attempts to elicit the perceptions of construction professionals by revisiting some of these critical factors causing the failure of construction projects. A triangulated data collection approach involving some questionnaires was administered to construction professionals to elicit their perceptions on the 20 factors causing the failure of the construction projects. This paper will give an overview and status of construction project management.
 7. Factors Leading To Success Of Indian Construction Companies: Mr. Abhijeet Gadekar(2013)
 - The aim of this study was to investigate the critical factors leading to construction company success. Within this context, a survey was carried out among 7 Indian construction companies which are located in the Aurangabad district of Maharashtra region of India. In this survey, top-level managers and owners of the companies were interviewed. Finally, the ranking of the critical success factors has been determined by using the Point Rating Technique. Based on the results, Cash flow management characteristics was determined as the most important factor to company success.
 8. An Appraisal Of Factors Responsible For Errors In Nigerian Construction Documents : Dosumu, O.S(2013)
 - The paper presents an empirical study of factors responsible for errors in Nigerian construction documents and aims at identifying the significant factors that are responsible for errors in the Nigerian construction documents. Information was obtained from both consultants and contractors for the purpose of comparing the significant factors identified by the two sets of respondents. Out of the two hundred and sixty questionnaires administered, eighty six were retrieved and used for the analysis of the study. The statistical methods used for analysis are frequencies, percentages and the study concludes that the consultants and management are the main factors responsible for errors in the Nigerian construction documents and that they were just not willing to blame themselves for the misfortunes of Nigerian construction documents mean item scores.
 9. Causes , Effects And Remedies Of Errors In Nigerian Construction Documents : Dosumu Oluwaseun Sunday(2013)
 - This paper is to determine the causes, effects and remedies of the errors in Nigerian construction documents. A structured questionnaire was administered on ninety consultants (Builders, architects, engineers and quantity surveyors) obtained from regulatory bodies of each profession. The causes of the errors are lack of adequate documentation, poor communication, negligence and changes to specifications among others and the effects on construction projects include project abandonment, delays, rework, dissatisfaction by project owners and lack of confidence in project consultants. The study recommends that clients should allow adequate time for the preparation of construction documents and adopt appropriate procurement method.
 10. An Overview Of Error Management Climate”,Linqing Li, 2016
 - This paper combines the latest research, summarizes the connotation and the mechanism of error management climate, and summarizes its structural dimensions. At last, the paper introduces the error management climate factors and the related empirical studies.

11. Causes Of Errors In Construction Contract Documents In South Western, Nigeria : G. I. Idoro(2017)
- This study aims at investigating the frequent causes of errors in construction contract documents. A mixed method (questionnaire survey and interview) research approach was used for the study. The respondents for the study (selected with two-stage stratified - random sampling technique) consist of 86 consulting and 98 contracting firms that have been engaged in building projects that have more than one floor between 2012 and 2015. Fifty-one (51) interviews were also conducted with contractors, project managers and consultants on the projects they were involved on and that provided further necessary information for the study. The study found that the causes of errors in contract documents comprise of frequent design changes by clients, lack of adequate time to prepare documents and design management experience among others. The study recommended that the errors identified should always be prevented from occurring if cost and time overrun are to be minimized.
12. The Adequacy Of Contractual Provisions In Managing Construction Failure In Malaysia : Mohamad Ibrahim Mohamad(2012)
- This Paper deals the Majority of the respondents shared similar ideas about the lack of adequacy for contractual provisions. Either engineers or non engineers are giving strong agreement based on the results except for certain factors. Decreasing the project quality and increasing the project cost are two main effects due to limitations in the contractual provisions during the construction period. From the survey, certain questions are agreed mostly by non engineer group based on their professional point of view; in contrast to the practitioners in construction industry who are directly involved in managing construction failure. Thus, the survey also shows that most of the respondents agree, there are limitations when using the contract documents.
13. Magnitude Of Construction Cost And Schedule Overruns In Public Work Projects : Pramen P(2013)
- This study analyzed 363 Clark County Department of Public Works (CCDPW) projects to determine construction cost and schedule overruns in various types and sizes of the projects. The sample projects were constructed from 1991 to 2008, with a total construction cost of \$1.85 billion, equivalent to 2012 cost. A one-factor ANOVA test was conducted to determine whether construction cost and schedule overruns significantly varied based on types and sizes of the projects. The study showed that large, long-duration projects had significantly higher cost and schedule overruns than smaller, short-duration projects.
14. Improving Transparency In Construction Management: A Visual Planning And Control Model : Denise Ann Brady(2017)
- The purpose of this paper is to discuss a production planning and control model known as the Lean construction management (LCM) model, which applies a number of visual tools in a systematic way to the planning and control process. Design Science research is adopted for this investigation, which analyses the original development of the model and reports on its testing and refinement over different types of projects. The main findings are related to the benefits of visual management in the construction planning and control process, such as maintaining consistency between different planning levels, so that feasible execution plans are created; control becomes more focused on prevention rather than correction, and creates opportunities for collaborative problem solving.
15. The Human Factor As A Cause Of Failures In Building Structures : Terezie Vondrackova (2017)
- This paper aims the human factor is a concept that is increasingly encountered both in the professional workplace as well as in the media. It is a "set of characteristics and the abilities of a human being, mainly psychological and physiological, that in some way in a given situation affects the performance, efficiency and reliability of the system of work. Occupational safety and health is a very broad field that involves extensive regulations, standards, laws,

etc. If it is in any way possible to eliminate risks and protect human health and life, it is necessary to develop this sector and strive for the greatest fulfillment of its objectives.

16. Identification Of Critical Construction Delay Factors: Ashwini Arun Salunkhe(2014)

- The purpose of this study is to logically explore the delay factors of project and how these can be avoided or controlled. With the help of detailed literature review and interviews the construction delay factors were grouped into seven categories, which will give the parameters that could have direct effect on success of project.

17. Improving Construction Management Practice In Saudi Arabia With The Last Planner System: A Case Study : Abdullah O. Alsehaimi(2013)

- In this paper evaluates the effectiveness of implementing the Last Planner System (LPS) to improve construction planning practice and enhance site management in the Saudi construction industry. To do so, LPS was implemented in two large state-owned construction projects through an action research process. The data collection methods employed included interviews, observations and a survey questionnaire. The paper also describes barriers to the realization the full potential of LPS, including the involvement of many subcontractors and people's commitment and attitude to time.

18. Construction Project Management In India: Atul Auti(2008)

- The aim of this paper, therefore, is to investigate the current level of application of project management and the obstacles that have prevented its introduction in the Indian construction industry. A small questionnaire survey is reported that was conducted in early 2007. This produced a sample of 51 respondents from four different construction industry disciplines i.e. architect (21), engineer (19), project personnel (9) and building surveyor (2). The responses and suggestions provided by the returns are studied and reviewed. A large majority of respondents agreed that the construction industry lacks a structure or pattern; that tools

such as project management can provide the structure needed; and with the help of this structure the industry should be able to overcome the problems involved in increased modernization and transparency and be better prepared for future challenges.

19. Project Management Practice And Its Effects On Project Success In Malaysian Construction Industry : N A Haron(2008)

- The aim of this study is to identify the critical success factors (CSFs) and the extent of use of project management practice which affects project success, especially during the implementation stage. Data were obtained from self-administered questionnaires with 232 respondents. A mixed method of data collection was adopted using semi-structured interview and questionnaire approach. The result of the analysis of data obtained showed that new and emerging criteria such as customer satisfaction, competency of the project team, and performance of subcontractors/suppliers are becoming measures of success in addition to the classic iron triangle's view of time, cost and quality.

20. Organizational Error Management Culture And Its Impact On Performance: A Two-Study Replication : Cathy Van Dyck(2005)

- The papers argue that a high-organizational error management culture, conceptualized to include norms and common practices in organizations. Organizational error management culture was positively related to firm performance across 2 studies conducted in 2 different European countries. On the basis of quantitative and qualitative cross-sectional data from 65 Dutch organizations, Study 1 revealed that organizational error management culture was significantly correlated with both organizational goal achievement and an objective indicator of economic performance. This finding was confirmed in Study 2, using change-of-profitability data from 47 German organizations. The results suggest that organizations may want to introduce organizational error management as a way to boost firm performance.

VI. CONCLUSION

In this phase of project literature survey was conducted and studied about various factors affecting management errors in construction project. Based on literature survey management errors will be identified from the questionnaire survey. According to that data analysis can be carried by Testing on Hypothesis (t-distribution). The data analysis will be done in the next phase of the project. It will be concluded that based upon the analysis of data, impact level of errors on construction management.

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