# A DECISION SUPPORTING TOOL FOR SELECTING DELAY ANALYSIS METHOD (DAM) IN CONSTRUCTION PROJECTS.

**A Thesis**

Submitted to the Department of Civil Engineering in Partial Fulfillment of the Requirement for the Degree

of

**Doctor of Philosophy**

in

**Construction Management, Civil Engineering**

by

**Elhosin Yousri Yassein Youssef Youness**

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**1 May 2024**

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# ABSTRACT

Construction time and cost overrun factors are common in construction industry in Egypt as discussed and investigated in the previous research. This research is concerned to identify time and cost overrun factors in building construction project in Egypt and drive practical measurement for choosing the best delay analysis method from the common delay analysis methods which divided mainly into:

- Retrospective delay analysis, such as CAB and APVAB.
- Prospective delay analysis, such as TIA and IAP.

Considering the delay factor, project stage, contractual specification, complexity of the project, etc. the module for this study considers the gathering data from the conducted survey as well as the expert engineers which were held on across the vast Egypt.

The most appropriate style of research for this study and its goals was mixed method which included, qualitative analysis and quantitative analysis for the collected data from the previous studies and participants respectively. Research went through many stages Data from earlier investigations were first gathered. Second, during focus group interviews with experienced engineers across all of Egypt, data were checked and confirmed. Third, information about Egypt construction sector was gathered through structured surveys of a range of participants. Finally, in order to establish the best course of action and to minimize and mitigate the anticipated overruns in building projects, the major time and cost overrun variables were addressed with specialists in Egypt's construction sector.

Construction projects commonly experience schedule delays. Therefore, determining the culpability of contract participants with accuracy has drawn a lot of attention. Delays in the building timeline have been analysed and measured using a variety of techniques. Finding a single delay analysis technique that is acceptable to all project participants, appropriate for all delay scenarios, and provides the necessary accuracy while requiring a manageable amount of labour is challenging. This study uses a condensed approach to select the appropriate delay analysis method.