



CPM DELAY ANALYSIS METHODOLOGIES IN THE EGYPTIAN CONSTRUCTION MARKET

BY

Mohamed Magdy Ahmed Mohamed

**A Thesis Submitted to the Faculty of
Engineering, Cairo University, in Partial
Fulfillment of the Requirements for the Degree of**

**MASTER OF SCIENCE
In
STRUCTURAL ENGINEERING**

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Under the Supervision of

Prof. Dr. Moheeb El-Said Ibrahim
Structural Engineering Department
Faculty of Engineering,
Cairo University

Dr. Maged Ezzat Georgy
Structural Engineering Department
Faculty of Engineering,
Cairo University

Dr. Hesham Maged Osman
Structural Engineering Department
Faculty of Engineering,
Cairo University

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Approved by the Examining committee

Prof. Dr. Moheeb El-Said Ibrahim (Main Advisor)

Dr. Maged Ezzat Georgy (Advisor)

Dr. Hesham Maged Osman (Advisor)

Prof. Dr. Mohamed Abdel-Latif Bakry (Internal Examiner)

Prof. Dr. Ibrahim Abdul Rashid Nosair (External Examiner)

Construction Department, Faculty of Engineering, Ain-Shams University

**FACULTY OF ENGINEERING, CAIRO UNIVERSITY
GIZA, EGYPT**

2015

Engineer's Name: Mohamed Magdy Ahmed Mohamed
Date of Birth: 19-February-1986
Nationality: Egyptian
E-mail: m.magdyahmed@gmail.com
Phone: +2 0122 254 0949
Address: 10/1 Nasr Street, Maadi, Cairo, Egypt
Registration Date: 1/10/2009
Awarding Date: ____ / ____ / 2015
Degree: Master of Science
Department: Structural Engineering



Supervisors:

Prof. Dr. Moheeb El-Said Ibrahim

Dr. Maged Ezzat Georgy

Dr. Hesham Maged Osman

Examiners:

Prof. Dr. Ibrahim Abdul Rashid Nosair (External Examiner)

Prof. Dr. Mohamed Abdel-Latif Bakry (Internal Examiner)

Prof. Dr. Moheeb El-Said Ibrahim (Thesis Main Advisor)

Dr. Maged Ezzat Georgy (Thesis Advisor)

Dr. Hesham Maged Osman (Thesis Advisor)

Title of Thesis:

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CONSTRUCTION MARKET

Keywords:

Delay; Delay Analysis Methodologies (DAMs); Statistical Package for Social Science Software (SPSS); Triangulation; Qualitative Analysis.

Summary:

Delays in construction became common, forcing contractors to accept tighter schedules, together with slimmer contingency. Accordingly, the consequence is claims, disputes and arbitration. Thus, understanding how practitioners would utilize a certain DAM over another, the level of awareness, frequency of usage, complexity and success rate of each CPM DAM used by different groups in the construction market, thus, becomes essential. By means of a triangulation approach a Quantitative Questionnaire and a Qualitative Interview, and, following an analysis aided SPSS, the above was contested.

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I would also thank all my family members, friends, colleagues for their support and encouragement.

Last but not least, I would thank all the practitioners who participated in the various stages of this research for their valuable input and for making it happen.

Dedication

To my Mother, who kept on praying for that to happen,

To my Father and Sister, who gave me all the moral support and guidance,

To Grandfather's soul, my teacher and friend, whom I wish was among us to celebrate such achievement,

To my Partner in everything, my backbone and the love of my life Salma.

THANK YOU :*

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Nomenclature

ABA:	As-Built Adjusted
CAB:	Collapsed As-Built
CPM:	Critical Path Method.
DAM:	Delay Analysis Methodology.
DAMs:	Delay Analysis Methodologies.
DBB:	Design Bid Build.
DWG:	Drawing
FAR:	Federal Acquisition Regulation
FF:	Free Float.
FIDIC:	Fédération Internationale Des Ingénieurs-Conseils (International Federation of Consulting Engineers)
GM:	Global Method
HTS:	Hypothesis Test Summary
IAP:	Impacted As Planned
IFC:	Issued For Construction.
JCT:	Joint Contracts Tribunal
KWHT:	Kruskal-Wallis H Test
LDs:	Liquidated Damages
LOB:	Line Of Balance.
MWUT:	Mann-Whitney U Test
NEC:	New Engineering Contracts
NH:	Null Hypothesis
NI:	Net Impact
PMI:	Project Management Institute.
RFI:	Request For Information
RNH:	Retain the Null Hypothesis
RJNH:	Reject the null hypothesis
SC:	S-Curve
SIGN:	Significance
SPSS:	Statistical Package for the Social Sciences.
TST:	Test
TF:	Total Float.
TIA:	Time Impact Analysis
WA:	Window Analysis