

# **Integrated Model for Measurement, Evaluation and Forecasting the Performance of Construction Projects**

BY

**ENG. Hany Leon Zaki Iskander**

A Thesis submitted to the Structural Engineering Department,

Faculty of Engineering at Cairo University

In Partial Fulfillment of the

Requirements for the Degree of

**Doctor of Philosophy**

in

**Structural Engineering**

FACULTY OF ENGINEERING, CAIRO UNIVERSITY

GIZA, EGYPT

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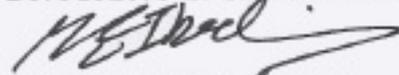
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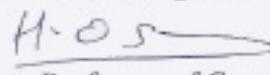
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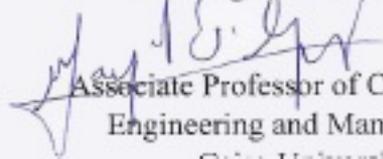
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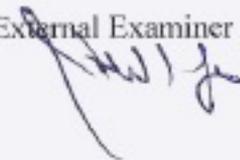


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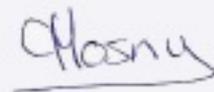


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## LIST OF ABBREVIATIONS

AC	Actual Cost
ACWP	Actual Cost of Work Performed
AFR	Accident Frequency Rate
AHP	Analytic Hierarchy Process
AICPA	American Institute of Certified Public Accountants
AICPA	American Institute of Certified Public Accountants
AIR	Accident Incidence Rate
ANP	Analytic Network Process
ARB	Accounting Research Bulletin
AT	Actual Time
BAC	Budget At Completion
BCWP	Budgeted Cost of Work
BCWS	Budgeted Cost of Work Scheduled
BPR	Business Process Reengineering
BREEAM	Building Research Establishment Environmental Assessment Method
BSC	Balanced Scorecard
C/SCSC	Cost/Schedule Control Systems Criteria
CFRI	Construction Field Rework Index
CI	Consistency Index
CII	Construction Industry Institute
CLD	Casual Loop Diagram
CPF	Cost Performance Factor
CPI	Cost Performance Index
CR	Consistency Ratio
CSPI	Client Satisfaction Performance Index
CV	Cost Variance
EAC	Estimate At Completion
EAC(c)	Estimated Cost At Completion
EAC(t)	Estimated Time At Completion
EMS	Environmental Management System
EPI	Environment Performance Index
ER	Earned Revenue
ES	Earned Schedule
ETC	Estimate To Complete

EV	Earned Value
EVM	Earned Value Management
GAAP	Generally Accepted Accounting Principles
IAS	International Accounting Standards
IFRS	International Financial Reporting Standards
ISO	International Organization For Standardization
KPIs	Key Performance Indicators
MCDA	Multi-Criteria Decision Analysis
MCDM	Multiple-Criteria Decision Making
NEI	Normalized Environmental Indicator
OSHA	Occupational Safety and Health Administration
PD	Planned Duration
PERT	Program Evaluation and Review Technique
PERT	Program Evaluation and Review Technique
PI	Performance Index
PMBOK	Project Management Body of Knowledge
PMP	Project Management Performance
PoC	Percentage of Completion
PPI	Profitability Performance Index
PV	Planned Value
QPI	Quality Performance Index
RI	Random Consistency Index
SD	System Dynamics
SFPI	Safety Performance Index
SOII	Survey of Occupational Injuries and Illnesses
SOP	Statement of Position
SPF	Schedule Performance Factor
SPI	Schedule Performance Index
SPI( <i>t</i> )	Schedule Performance Index In Units of Time
SV	Schedule Variance
TSPI	Team Satisfaction Performance Index
UK	United Kingdom
VAC	Variance At Completion