



**A PARADIGM FOR MULTIPLE ATTRIBUTE DECISION  
MAKING RELATED TO RISK MANAGEMENT IN DESIGN  
STAGES OF CONSTRUCTION PROJECTS**

By

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بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

وَضَعُوهَا فِي يَدَيْكُمْ  
وَلْيُرَاقِبُوا الْعِلْمَ دَرَجَاتٍ

صِدْقَةُ اللَّهِ الْعَظِيمَةِ

عمرة المعالجة / الآية: 11

## **DEDICATION**

I dedicate this Research to everyone who support, help, give advice and encourage me to reach to the best level in this Research; I also dedicate this research to my parents and all my family members.

The most important person in my life is my wife; I also dedicate this research for her, thank you for love, support, and confidence and hope that she gave me, I would like to dedicate this research to my lovely and life sunshine my son and my daughter.

I wish this work will be proud spot in their life.

I hereby dedicate this research to all my friends and beloved people who helped me in this work.

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## LIST OF ABBREVIATIONS

<b>ITEM NO.</b>	<b>ABBREVIATIONS</b>	<b>WORDS</b>
1	ANOVA	Analysis Of Variance
2	BI	Business Intelligence
3	CBR	Case-Based Reasoning
4	DSS	Decision Support System
5	EIS	Executive Information System
6	ETA	Event Tree Analysis
7	FMCDM	Fuzzy Multiple Criteria Decision Making
8	FTA	Fault Tree Analysis
9	ICT	Information and Communication Technology
10	IRMS	Integrated Risk Management System
11	OLAP	Online Analytical Processing
12	PMBOK	Project Management Body of Knowledge
13	PRAM	Project Risk Analysis and Management
14	RFP	Request for Proposal
15	RI	Relative Important Index
16	RM	Risk Management
17	RMDSS	Risk Management Decision Support System
18	SWOT	Strengths, Weaknesses, Opportunities, and Threats

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**ABSTRACT**

Risk management (RM) is accepted as one of the critical success factors for construction projects, project participants generally do not have sufficient knowledge pertinent to risk management concept and the number of risk management support tools which facilitate the process is rather low. In order to facilitate risk management activities, decision support tools that will enable risk identification, analysis and response strategy formulation should be developed.

The effect of risk management deals with Cost saving and time performances to all parties who are involved in a construction project, that is owner, consultant, contractor, The main causes of disputes in construction projects involve delay and failure to complete the work in the specified cost and time environments.

Based on complex problems they tend to make efficient questionnaire consist of thirty- one factors to obtain perfect information in two wise frequency and severity to each factor and analyzed them by statistical ways (SPSS version 16) to acquire ten extracted factors, then risk matrix analyses were be used to obtain most important three factors extracted from advance questionnaire based on impact and probability dimensions. The main objective of the research is to place risk management within the decision maker's priorities and to benefit from decision support systems to create proactive scenarios for project activities to avoid falling into these risks.