

Preface

The recent trend in the construction industry is how to manage large and complex programs. Multiple projects being built simultaneously, as part of government or private programs, will need structured and sophisticated program management techniques in order to deliver the vast and complex building works at hand with a relatively short period. Without proper program management procedures, these often huge, complex, multi-projects can take decades to construct with draining budgets. With program management, the building works can be relatively short spanning years with significant cost reduction.

Although program management methods have been applied successfully in the USA (NASA and ARMY programs as an example), Europe (Marshall Plan), and some of the United Nation programs, there have not been literature nor research to sustain the theories behind the successful implementation of these methods nor their proper and scientific know-how. All the focus has been on project management techniques with their apparent short-folds for program constructability.

This book will look on the different program management methods, ranging from simple decision-making techniques and statistics analysis to the more complex linear programming, and how program managers, directors, clients, stakeholders, contractors, and consultants can benefit from the availability of these different techniques. The book is unique in a way as it looks on how to apply new and developed techniques to optimize for the delivery of programs mainly in the field of artificial intelligence especially knowledge-based systems and genetic algorithms.

The author's unique experience in complex management, program management, and his past research and studies in analytical analysis and mathematical modeling and artificial intelligence has induced him to write this book to well inform readers about the different techniques that can be applied for future program execution.

No doubt indeed, the future of the construction industry will be in how to execute programs, especially the Middle East war torn areas such as Syria, Libya, Iraq, and now Yemen. As well, African countries and Asian countries will need to be able to execute well-managed programs to build their infrastructure with limited time and constraint budgets.

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and Optimization Techniques

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