Program Management of Technology Endeavours
This page intentionally left blank
Program Management of Technology Endeavours

Lateral Thinking in Large Scale Government Program Management

Ali M. Al-Khouri
Contents

List of Figures xii
List of Tables xiv
Foreword xvi
Robert Kaplan and David Norton
Preface xvii

1 Introduction 1
  1.1 Introduction to the book 1
  1.2 Objective 3
  1.3 What are portfolios, programs, and projects? 4
    1.3.1 Relationships among portfolios, programs, and projects in an organisation 5
  1.4 The importance of portfolio, program, and project management 6
  1.5 Program and project management practices – Government vs Enterprise 7
    1.5.1 ‘Accidental project managers’ – survey details on public-sector projects 11
    1.5.2 Project management implementation – observations from the government sector 12
  1.6 Project management standards for government technology endeavours 13
  1.7 Definition and classification of programs and projects – small, medium, and large 15
  1.8 The structure of this book 16
  1.9 Conclusion 16

2 Project Management Philosophy 18
  2.1 Project management overview 18
    2.1.1 Need for project management 19
    2.1.2 Why does project management matter? 21
  2.2 Research in project management 24
    2.2.1 Project management in practice 25
    2.2.2 Popular project management methodologies and standards 25
2.3 Typical project life cycle .................................................................................................................. 26
2.4 The life of a project manager .............................................................................................................. 27
2.5 What is a project management office? ................................................................................................. 31
   2.5.1 What is the purpose of a PMO? ..................................................................................................... 32
   2.5.2 Do PMOs and project managers play the same role? ................................................................. 34
2.6 Project interdependencies .................................................................................................................. 37
2.7 Alignment of projects within overall program benefits ................................................................. 38
2.8 Conclusion ........................................................................................................................................ 40

3 Program Management Philosophy and the Importance of a PgMO .................................................... 42
   3.1 Program management overview and common misconceptions .................................................. 42
   3.1.1 Identification and definition of a program ................................................................................. 43
   3.1.2 Program management and project management ................................................................. 45
   3.1.3 Some common misconceptions ............................................................................................ 48
3.2 Program manager’s role and attributes ......................................................................................... 49
3.3 Research in program management ................................................................................................. 52
   3.3.1 Program management themes ............................................................................................... 54
3.4 Program strategy alignment ............................................................................................................ 56
3.5 Program benefits and business value management ........................................................................ 59
   3.5.1 Benefits realisation plan ........................................................................................................ 61
   3.5.2 Delivering program benefits ................................................................................................ 62
3.6 Program stakeholder engagement .................................................................................................. 62
3.7 Program governance ......................................................................................................................... 65
   3.7.1 Phase-gate reviews ................................................................................................................ 67
   3.7.2 Periodic ‘health checks’ .......................................................................................................... 67
   3.7.3 Program governance board .................................................................................................. 68
3.8 Typical program life cycle ................................................................................................................ 69
3.9 Common program management challenges and means to overcome them .................................. 70
   3.9.1 Human resources .................................................................................................................. 70
   3.9.2 Quality ..................................................................................................................................... 70
   3.9.3 Communication ...................................................................................................................... 71
   3.9.4 Information ............................................................................................................................ 71
   3.9.5 Risk ......................................................................................................................................... 72
   3.9.6 Change and stakeholder alignment ....................................................................................... 72
   3.9.7 Integration .............................................................................................................................. 72
3.10 Importance of the program management office ............................................................................. 73
   3.10.1 Do PMOs and PgMOs mean the same? ............................................................................... 74
   3.10.2 Role of a program management office ............................................................................... 76
3.11 Program monitoring and control 79
3.12 How do PgMOs succeed? 81
3.13 Conclusion 85

4 Overview of Various Project and Program Management Standards 87

4.1 The project management methodology – the standards jungle 87
4.2 Handshake between SDLC and project management for technology projects 88
4.3 Overview of PMBOK, PRINCE2, ISO10006, and ISO21500 92
   4.3.1 PMBOK 92
   4.3.2 PRINCE2 93
   4.3.3 ISO 10006 93
   4.3.4 ISO 21500 94
4.4 Comparison among various project management methodologies and standards 94
   4.4.1 Processes 95
   4.4.2 Senior management and project manager responsibility 96
   4.4.3 Focus area 96
   4.4.4 Stakeholders and customers 97
   4.4.5 Documentation 97
   4.4.6 People management 97
   4.4.7 Quality management 97
   4.4.8 Product realisation 98
   4.4.9 Supplier relationship 98
4.5 Overview of various program management standards/frameworks 98
   4.5.1 The Standard for Program Management by PMI 102
   4.5.2 MSP by OGC 103
4.6 Why do large projects fail? 105
   4.6.1 Key findings of the Gartner survey 105
   4.6.2 Underlying reasons for the failure of large projects 106
4.7 Case studies of a few failed large projects 109
   4.7.1 NASA, USA Mars climate orbiter project 109
   4.7.2 Heathrow Terminal 5, UK 110
   4.7.3 Patient Administration System, Western Australia Department of Health 111
4.7.4 HealthSMART – Department of Health (DoH), Victoria, Australia 112
4.7.5 Department of Transport shared services, UK 112
4.8 What can make large projects succeed?
   Lessons from failures 113
   4.8.1 Some steps that can help large projects to succeed 114
4.9 Remarkable success stories of large projects 118
   4.9.1 Large Infrastructure Project Success Story – Delhi Metro Rail, India 118
   4.9.2 Large Information Systems Project Success Story – VOSA Online licensing project, UK 119
4.10 From project management stepping towards project leadership 120
   4.10.1 Leadership definition 121
   4.10.2 Project management and project leadership 122
4.11 Why new standards for program and project management? 124
   4.11.1 Standards for large government projects/programs 127
   4.11.2 Stakeholder engagement 130
   4.11.3 Risk management 130
4.12 PROMOTE 131
4.13 Conclusion 132

5 Program and Project Management of Technology Endeavours 133
   5.1 PROMOTE methodology overview 133
       5.2.1 Avison and Fitzgerald’s framework 134
   5.2 Reference frameworks 134
   5.3 Philosophy 135
       5.3.1 Paradigm 136
       5.3.2 Objectives 136
       5.3.3 Domain 136
       5.3.4 Target 137
   5.4 PROMOTE and its theoretical foundations 138
       5.4.1 General Systems Theory 138
       5.4.2 General Measurement Theory 139
   5.5 Key principles of PROMOTE 140
   5.6 PROMOTE and stakeholders’ satisfaction 140
| 5.7  PROMOTE and the danger zone: people, process, and technology | 142 |
| 5.8 Working assumptions | 143 |
| 5.9 PROMOTE design model | 145 |
| 5.9.1 PROMOTE phases: phase one | 147 |
| 5.9.2 PROMOTE Phases: Phase Two | 149 |
| 5.9.3 Why a two-phased methodology? | 153 |
| 5.10 Techniques and tools | 154 |
| 5.11 Inputs | 156 |
| 5.12 Scope | 157 |
| 5.13 Outputs | 160 |
| 5.14 Practice | 163 |
| 5.15 Testing the methodology | 164 |
| 5.16 The roles of program manager and project manager in PROMOTE | 167 |
| 5.16.1 Neutral mentor | 172 |
| 5.17 Conclusion | 172 |

6 PROMOTE Processes  

| 6.1 Design and structure | 175 |
| 6.2 Senior management responsibility and support | 176 |
| 6.3 Project management life cycle | 178 |
| 6.4 Project management organisation | 180 |
| 6.4.1 Project management responsibility | 180 |
| 6.4.2 Project/program management office | 180 |
| 6.5 Project planning, monitoring, and control | 182 |
| 6.6 Performance management | 184 |
| 6.7 Quality management | 185 |
| 6.7.1 PROMOTE and ISO 10006 | 185 |
| 6.8 Risk management | 187 |
| 6.9 Customer/stakeholder focus and management | 190 |
| 6.10 Team management | 191 |
| 6.11 Consulting companies/contractor/vendor/supplier management | 193 |
| 6.12 Contract management | 195 |
| 6.13 Issue management | 197 |
| 6.14 Scope management | 198 |
| 6.15 Change management | 200 |
| 6.16 Communications management | 202 |
| 6.17 Conflict management | 204 |
| 6.18 Delivery management | 204 |
6.19 Training and knowledge management 207
6.20 Conclusion 208

7 Program Reporting and Controls 210
7.1 Program controls – the key to a successful program execution 210
7.1.1 Records management 211
7.1.2 Financial management 211
7.1.3 Schedule management 211
7.1.4 Communications management 212
7.1.5 Resource management 212
7.1.6 Technology management 212
7.1.7 Program metrics 212
7.2 Establishing the environment for successful control of large government programs 213
7.2.1 Program governance and organisation structure 213
7.2.2 Program monitoring and reporting mechanisms 218
7.2.3 Status/progress/performance reports 219
7.2.4 Feedback loops 221
7.2.5 Program/project audits and reviews 222
7.3 Program and project dashboards 224
7.4 Various program controls 225
7.4.1 Master schedule 226
7.4.2 Vendor/supplier/consultant schedule 227
7.4.3 Master budget 228
7.4.4 Cost control 228
7.4.5 Scope change 229
7.4.6 Program quality 229
7.4.7 Program risk control 230
7.4.8 Document control 230
7.4.9 Control of contracts 231
7.5 Program benefits realisation 231
7.6 Program closure 232
7.7 Perceived limitations of PROMOTE and future recommendations 234
7.8 Conclusion 236

8 PROMOTE Case Study 238
8.1 Introduction 238
8.2 National ID projects and the UAE experience 238
8.3 Identification of project director 238
List of Figures

1.1 Relationship among projects, programs, and portfolios
2.1 Key challenges and major causes of project failure
2.2 META Group study results
2.3 Project management process groups and project life cycle, PMBOK® Guide, 5th edition
2.4 Role of a project manager
2.5 Projects, programs, and project portfolios, ISO 21500
3.1 Program management environments in organisations
3.2 Program management framework
3.3 Program management themes
3.4 Elements of program strategy alignment
3.5 Strategic and operations processes within an organisation
3.6 Program life cycle and program benefits management
3.7 Influence grid
3.8 Example of a program organisation structure
3.9 Representative program life cycle phases
3.10 Sample PgMO in an organisation
3.11 Typical PgMO organisation reporting structure
3.12 Sample PgMO functions
4.1 Example of SDLC and project life cycle
4.2 Charvat’s matrix for selecting light or heavy methodology
5.1 PROMOTE methodology flow
5.2 Stakeholder identification/level of influence framework
5.3 PROMOTE methodology
5.4 Phase one of the PROMOTE methodology
5.5 Phase two of the PROMOTE methodology
5.6 Project management phases and knowledge areas based on PMBOK® Guide
5.7 Project management phases and SDLC
5.8 PROMOTE methodology consideration factors
5.9 Interaction between phases as per PMBOK® Guide, 4th edition, by PMI
5.10 Dynamic deliverables in PROMOTE methodology
5.11 Process control and improvement cycle
<table>
<thead>
<tr>
<th>Figure</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.1</td>
<td>Indicative project management processes</td>
<td>178</td>
</tr>
<tr>
<td>6.2</td>
<td>Project management work flow</td>
<td>179</td>
</tr>
<tr>
<td>6.3</td>
<td>Project management critical success factor elements</td>
<td>181</td>
</tr>
<tr>
<td>6.4</td>
<td>ISO/IEC 9126 standards characteristics</td>
<td>186</td>
</tr>
<tr>
<td>6.5</td>
<td>Risk relationships</td>
<td>187</td>
</tr>
<tr>
<td>6.6</td>
<td>Stakeholder analysis</td>
<td>191</td>
</tr>
<tr>
<td>6.7</td>
<td>Tender evaluation process</td>
<td>194</td>
</tr>
<tr>
<td>6.8</td>
<td>Factors for establishing comprehensive IT contracts</td>
<td>196</td>
</tr>
<tr>
<td>6.9</td>
<td>Sample types of changes and change control authorities</td>
<td>201</td>
</tr>
<tr>
<td>7.1</td>
<td>Sample program management office team in a large government program</td>
<td>216</td>
</tr>
<tr>
<td>7.2</td>
<td>Sample portfolio analysis from ICT projects</td>
<td>224</td>
</tr>
<tr>
<td>7.3</td>
<td>Portfolio analysis report</td>
<td>224</td>
</tr>
<tr>
<td>7.4</td>
<td>Program portfolio analysis – project landscape</td>
<td>225</td>
</tr>
<tr>
<td>7.5</td>
<td>Project status chart</td>
<td>225</td>
</tr>
<tr>
<td>7.6</td>
<td>Sample program organisation structure as per PROMOTE</td>
<td>226</td>
</tr>
<tr>
<td>8.1</td>
<td>Strategy support office</td>
<td>240</td>
</tr>
<tr>
<td>8.2</td>
<td>Emirates ID implementation plan using PROMOTE</td>
<td>250</td>
</tr>
<tr>
<td>8.3</td>
<td>Risk management process</td>
<td>253</td>
</tr>
<tr>
<td>8.4</td>
<td>Risk register</td>
<td>258</td>
</tr>
<tr>
<td>8.5</td>
<td>Risk status report</td>
<td>260</td>
</tr>
<tr>
<td>8.6</td>
<td>Risk ageing</td>
<td>260</td>
</tr>
<tr>
<td>8.7</td>
<td>Project quality management</td>
<td>261</td>
</tr>
<tr>
<td>8.8</td>
<td>Project communication process</td>
<td>262</td>
</tr>
<tr>
<td>8.9</td>
<td>Scope management process</td>
<td>267</td>
</tr>
</tbody>
</table>
List of Tables

1.1 Comparison of project, program, and portfolio views within an organisation as per PMBOK® Guide, 5th edition, by PMI 8
1.2 Size/time/cost complexity classification for projects 15
1.3 Size/time/cost complexity classification for programs 16
2.1 Factors contributing to serious budget and schedule overruns 21
2.2 Project manager failure factors 28
2.3 Need for an advanced PMO model 36
3.1 Differences between program management and project management 47
3.2 Functional differences in managing projects and programs 53
3.3 Examples of stakeholders 63
4.1 Various technology development and project management methodologies 89
4.2 Planning phase deliverables in system development and in project management 91
4.3 Comparison among global project management methodologies, and standards 99
4.4 Indicators found among successful, challenged, and failed projects 126
5.1 PROMOTE design elements 155
8.1 Risk management roles and responsibilities 254
8.2 Risk log design 255
8.3 Risk assignment 256
8.4 Risk prioritisation and status 260
8.5 Project quality responsibilities table 261
8.6 Communication management roles and responsibilities 263
8.7 Comprehensive project status report 265
8.8 Scope change management roles and responsibilities 268
8.9 Change report form initialisation 269
8.10 Change request justification 269
8.11 Change request impact assessment 270
8.12 Change request project impact assessment 271
8.13 Change approval 271
8.14 Change implementation log 272
Foreword

We are delighted to write a foreword to this book, *Program Management of Technology Endeavours: Lateral Thinking in Large Scale Government Program Management (PROMOTE)*, written by Ali M. Al-Khouri.

*PROMOTE* offers a 360-degree approach to technology adoption, especially by governmental entities. Governments invariably run large programs that usually encounter schedule delays and budget overruns. This book offers a solution to the problem of late-running and expensive government projects through the deployment of innovative, advanced technologies. *PROMOTE* examines the implementation of major projects by government units, drawing on a specific and powerful example of a successful implementation by the Emirates ID Authority in the UAE.

The chapters include key critical insights from several strategic government initiatives, general management frameworks, reflections, and a review of fundamental lessons learned. The book is pragmatic; it provides in-depth and accessible content that represents a major advance in the practice of program management. It will also serve as the platform for future research into this critical field.

The qualitative research described in *PROMOTE* features a critical examination of government initiatives and uses scientific methods to clarify and determine the relationships, events, and facts. Such research will aid in solving the complex problems of today; it should also provide a basis for future advances in practice and constitute the framework for the perpetual pursuit to make a better world for a nation’s people to live and prosper.

Ali M. Al-Khouri is a distinguished academic researcher and practitioner. His analysis in *PROMOTE* provides a unique insight into current developments. Under his leadership, the Emirates ID Authority was inducted into the Palladium Balanced Scorecard Hall of Fame for Strategy Execution, which is a major achievement and proves his ability to transform strategies into results. This book is thus worthy of study by academicians and practitioners alike.

Dr Robert Kaplan and Dr David Norton
Preface

This book illustrates the standards that the government of the United Arab Emirates (UAE) employs when implementing large programs and projects. While globally many standards may exist across industries, I strongly feel that the unique circumstances in the UAE demand special standards, methods, and practices that closely fit the requirements of large projects and programs.

When we identify a program or a project as ‘large’ (the term ‘super-large’ is considered part of ‘large’ within the context of this book), it is advisable to consider a set of factors that determine the size – specifically, the effort, uncertainty, and complexity involved in delivering the outcome (product, result, or service). Through these factors we can take into account the following: the impact of the project on an organisation’s growth, the budget, technologies, geographical conditions, communication, program or project environment, our current knowledge, the size of the application or product, and the number of people and other resources needed, among others. Depending on the performing organisation’s abilities, these factors can be categorised as primary or secondary.

In general, the larger the program or project, the harder it is to predict the behaviour of its system. As projects get larger, the number of potential inter-relations and connections between the components (i.e., sub-projects) grows in a non-linear fashion. The result of this dynamic behaviour is that the productivity of the team drops dramatically as the project size increases. Formal, highly disciplined project management techniques are mandatory for large projects. It is an established fact that large programs and projects must have a focused sponsor with high levels of power and authority to ensure their success.

This book is the outcome of my desire to see a more successful use of program and project management practices, especially for large technology endeavours across the government sector. The journey to completion of this book has been challenging, but I have never felt lonely. It feels as though the process began only a few days ago, but a lot of reading, thinking, writing, discussion, frustration, and joy have accompanied the process.

The standards discussed here are based on research that focused on the implementation of IT systems in the public sector, particularly in the
United Arab Emirates. I spent considerable time a few years ago carrying out a detailed study of the failures and complexities involved in the implementation of large government projects/programs, in particular the experience of the national ID implementation in the UAE. There were other motivating factors to carry out this study. During my two-decade career in the field of IT, I have participated in many government-focused strategic IT initiatives. Almost all the projects that I was involved with faced the challenges of keeping the cost, scope, and schedule constraints in equilibrium.

Usually, large projects/programs like the national ID implementation come with high expectations but low success rates. My study investigated the factors contributing to IT projects’ failure through an extensive review of the existing international literature. This was enriched and tested by my involvement with the UAE national ID program, surveys, in-depth interviews with senior managers from other ID card projects, and presentations and participation at many conferences on this topic.

My role in the UAE national ID program, and my involvement from the early stages, provided me with the authority and insights to undertake this task. The larger programs that I executed provided detailed qualitative information on the implementation of national ID programs. Thus, based on the literature, practical experience, observations, and feedback from practitioners, a program and project management methodology named PROMOTE (PROgram and PROject Management Of Technology Endeavours) was developed and tested for planning and implementing large scale programs/projects mainly in the governmental context. The project methodology was initially tested in the UAE and was then rolled out in the three Gulf Co-operation Council (GCC) countries. These experiences have been used as the basis to bring out a comprehensive guide in the form of this book.

The PROMOTE methodology phases were refined several times (and other phases were added) to address the problems identified in various UAE projects/programs based on the project/program management literature and experiences reported at various GCC committee meetings and from other large scale implementations around the world (which I gleaned from conferences and study visits to other countries).

It has been demonstrated that by following a formal structured methodology, governments will have better visibility and control over such large programs. The implementation revealed that the phases and processes of the new methodology supported the overall management, planning, and control of the project activities, promoted
effective communication, improved scope and risk management, and ensured quality deliverables.

I have endeavoured to include the best program and project management practices within the scope of a single book. However, professionals working at various levels across programs and projects should make their own intuitive judgments when applying the practices mentioned in this book to ensure the successful outcome of their programs and projects.

Professionals in both government and private organisations in top, senior, and middle management positions who are involved directly or indirectly in contributing to the success of projects/programs should benefit from this book while adding value to the service provided to their customers.

I recommend reading the whole text to get a detailed overview of the multifaceted challenges, global practices, proposed standards, and solutions that the book contains. However, some chapters are designed to help senior managers focus directly on the areas that they are more closely connected with, such as controlling and monitoring programs and projects.

The opinions expressed in this publication are my own and should not be regarded as reflecting the policy of any government or of the Committee of Ministers or the Council of the UAE.

Dr Ali M. Al-Khoury