Risk Management in Projects

Second edition

Martin Loosemore, John Raftery, Charlie Reilly, Dave Higgon



Contents

List of tables	Х
List of figures	xi
Foreword	xiii
Preface	XV
Acknowledgments	xvii

1 Risk and uncertainty in projects

1.1 <i>Introduction</i> 1	1.1	Introduction	1
---------------------------	-----	--------------	---

- 1.2 Background A new era of risk 4
- 1.3 Risk in the construction process 6
- 1.4 Risk management terminology 8
 - 1.4.1' Risk 8
 - 1.4.2 Risk and uncertainty 9
 - 1.4.3 Probability and consequence 10
 - 1.4.4 Probability and imminence 11
 - 1.4.5 Risk and opportunity 12
 - 1.4.6 Objectives 14
 - 1.4.7 Responsibilities Voluntary and involuntary risks 15
- 1.5 Risk management maturity 16
 - 1.5.1 Characteristics of risk-immature organisations 16
 - 1.5.2 Risk-mature organisations 18
- 1.6 Diagnosing risk management maturity 21
- 1.7 The increasing importance of community consultation and managing risk perceptions 23
- 1.8 Contemporary debates in risk management 26
 1.8.1 Rationality and risk quantification 26
 1.8.2 The risks of rationality and risk quantification 28
- 1.9 The risk and opportunity management process 29
- 1.10 Conclusion 31

1

vi Contents

2 Risk and opportunity identification

- 2.1 Introduction 32
- 2.2 The role of contracts in risk and opportunity identification 32
- 2.3 Understanding your objectives 33
 - 2.3.1 Obtaining organisational commitment 34
 - 2.3.2 Conducting stakeholder analysis 34
 - 2.3.3 Consulting stakeholders 36
 - 2.3.4 Identifying and ranking stakeholder objectives 40
 - 2.3.5 Identifying key performance indicators (KPIs) 42
- 2.4 Risk identification techniques 43
- 2.5 Proactive risk identification techniques 44
 - 2.5.1 Employing and using creative people 44
 - 2.5.2 Creativity training 45
 - 2.5.3 Organisational characteristics 46
 - 2.5.4 Idea elicitation techniques 49
- 2.6 Reactive risk identification techniques 63
 - 2.6.1 Risk inspections 63
 - 2.6.2 Bug listing 63
 - 2.6.3 Risk review meetings 64
 - 2.6.4 Industry information 64
 - 2.6.5 Automatic sensors 64
 - 2.6.6 Incident investigations 65
 - 2.6.7 Performance appraisals 65
- 2.7. Conclusion 65
- 2.8 Case study Risk in joint ventures 65
 - 2.8.1 Project history and scope 66
 - 2.8.2 Project stakeholders 66
 - 2.8.3 Establishing a risk identification team 66
 - 2.8.4 Organisation 67
 - 2.8.5 The risk identification process 69
 - 2.8.6 Conclusion 70
- 2.9 Case study Responding to a bomb threat 70
 - 2.9.1 Background 71
 - 2.9.2 Stakeholder analysis 71
 - 2.9.3 Risk identification 72
 - 2.9.4 Risk analysis 75
 - 2.9.5 Risk control 84
 - 2.9.6 Conclusion 84

3 Risk and opportunity analysis

- 3.1 Introduction 85
- 3.2 -Quantitative risk analysis 86

- 3.2.1 Probability 86
- 3.2.2 Expected monetary value 90
- 3.2.3 Risk attitude 91
- 3.2.4 Measuring risk exposure Quantitative risk analysis techniques 95

/

- 3.2.5 Risk management software 115
- 3.3 Quantitative versus qualitative risk analysis 119
- 3.4 Qualitative risk analysis 120
- 3.5 Semi-quantitative risk analysis 124
- 3.6 Conclusion 126
- 3.7 South China land reclamation 126 3.7.1 Project scope 127 3.7.2 Analysis 128
- 3.8 A bridge over the Thames 129

4 Perceptions of risk

- 4.1 Introduction 133
- 4.2 The psychology on risk 134
- 4.3 Personal and reporting bias 134
 - 4.3.1 Personal bias 135
 - 4.3.2 Reporting bias 146
- 4.4 Eliminating personal and reporting bias 149
- 4.5 Conclusion 150
- 4.6 Saying what you think 152

5 Risk response, crisis management and recovery

- 5.1 Introduction 155
- 5.2 To do nothing 155
- 5.3 To do something 157
 - 5.3.1 Risk avoidance 157
 - 5.3.2 Risk reduction and elimination 157
 - 5.3.3 Dealing with residual risks 158
 - 5.3.4 Mechanisms for sharing risks 163
- 5.4 Implementing, monitoring and reviewing risk and opportunity responses 177
 - 5.4.1 Implementation 177
 - 5.4.2 Monitoring 178
 - 5.4.3 Risk reviews 179
 - 5.4.4 Learning 179
- 5.5 Crisis management 179
 - 5.5.1 Crisis management planning 180
 - 5.5.2 Disaster committees 181

133

155

- 5.5.3 Conducting crisis audits and creating crisis portfolios 181
- 5.5.4 Establishing monitoring systems and standard operating procedures 181
- 5.5.5 Creating a command centre 182
- 5.5.6 Security 182
- 5.5.7 Developing a culture of collective responsibility 183
- 5.5.8 Public relations 184
- 5.5.9 The media 184 5.5.10 Training 185
- 5.5.11 Post-crisis management 186
- 5.6 Recovery Business continuity management (BCM) 187
- 5.7 Conclusion 189
- 5.8 The Sydney Airport rail link 189

 - 5.8.1 Introduction 189 5.8.2 Project summary 190
 - 5.8.3 Project benefits 190
 - 5.8.4 Project history and organisation 191
 - 5.8.5 Financing 192
 - 5.8.6 The allocation of risks 193
 - 5.8.7 The allocation of benefits 193
 - Conclusion 193 5.8.8

6 Developing and implementing a successful risk and opportunity management system

6.1 Introduction 198

- 6.2 The informal approach 198
- 6.3 The formal approach 198
 - Creating and communicating a risk and opportunity 6.3.1 management policy 199
 - 6.3.2 Creating and implementing a risk and opportunity management system 200
 - Building a risk and opportunity management ethic 6.3.3 into corporate culture 206
- 6.4 Conclusion The risks of risk management 207
- 6.5 Multiplex Facilities Management's new Risk and Opportunity Management System (ROMS) 208
 - 6.5.1 The start of MFM's journey 209
 - Auditing MFM's existing approach to risk and 6.5.2 opportunity management 210
 - 6.5.3 Clarifying objectives 212
 - 6.5.4 A risk and opportunity management policy 213
 - 6.5.5 Establishing a unique approach to risk and opportunity management 213

198

6.5.6	The end result 223
6.5.7	Implementing the ROMS 225
6.5.8	Training 229
6.5.9	ROMS audits 231
6.5.10	Support structure 231
6.5.11	The benefits of the system 232
6.5.12	Conclusion 234

Appendix A Risk management maturity level checklist	236
Appendix B A checklist of common risks and	
opportunities in construction projects	242
References	248
Index	255