

Table of Contents

1	Introduction	1
1.1	My Most Difficult Decision	1
1.2	Making Tough Decisions is Not Easy	3
1.3	What is Decision Analysis?	7
1.4	The Origins of Decision Analysis	9
1.5	Why Use Decision Analysis?	10
1.6	Applying Decision Analysis	11
1.7	The General Decision Analysis Process	13
1.8	Understanding Some Basic Terminology	14
1.9	Overview of this Book	16
2	Decision Making in a Complex World	19
2.1	Why are Decisions Difficult?	20
2.2	Consequences, Uncertainty, and Ambiguity	25
2.3	A Scalable Process: Uncertainty and Ambiguity	30
2.4	Real World Decisions	34
2.5	The Role of Decision Analysis	38
3	Uncertainty and Making Choices	41
3.1	Decisions and Uncertainty	42
3.2	Measures of Merit	45
3.3	Time Value of Money	47
3.4	Dealing with Risk	50
3.5	The Certain Equivalent	54
3.6	Principles of Evaluations	56
3.7	Using Distinctions	61
3.8	Defining Possibilities	63
4	Making Compelling Decisions	69
4.1	The Decision Elements	72
4.2	Why We Have Difficulty Achieving High-Quality Decisions	79
4.3	How Do You Achieve Decision Quality?	83
4.4	The Ten Principles Of Good Decision-Making	85
4.5	How Do You Measure Decision Quality?	89
5	The Scalable Decision Process	95
5.1	Is SDP Different than Traditional Decision Analysis?	95
5.2	Structuring Phase	98
5.3	Evaluation Phase	103
5.4	Agreement Phase	107
6	Creating a Shared Understanding of the Problem	113
6.1	Framing the Problem	113
6.2	The Participants in the Process	114
6.3	Developing an Appropriate Frame	116
6.4	Creating Alternatives	121
6.5	Preparing for Evaluation	125

7	Developing a Decision Model	129
7.1	Building Influence Diagrams	130
7.2	Decision Trees	137
7.3	Computer Modeling Programs	141
8	An Introduction to Probability	145
8.1	What is Probability?	145
8.2	Probability Basics	150
8.3	Venn Diagrams	152
8.4	States of Information	153
8.5	Probability Trees	154
8.6	Reversing the Tree	156
8.7	Using and Understanding Distributions	158
9	Using Simulation to Solve Decision Problems	165
9.1	What is a Monte Carlo Simulation?	165
9.2	Why Use Monte Carlo Simulation?	166
9.3	Using Random Numbers to Simulate Reality	167
9.4	Using the Results of a Monte Carlo	171
9.5	Commercial Software	173
9.6	The Role of Monte Carlo	175
10	Using Uncertain Information and Judgment	181
10.1	Using Limited Information	182
10.2	Gathering Information	182
10.3	Uncovering and Dealing with Biases	184
10.4	Assessing Information	187
10.5	Using Probability as the Language of Uncertainty	189
10.6	Discretizing the Information	190
11	Gaining Insight Through Evaluation	197
11.1	Deterministic Sensitivity Analysis	198
11.2	Probabilistic Evaluation	200
11.3	Value of Information	203
11.4	Applying an Appropriate Risk Attitude	207
12	Getting to Agreement	225
12.1	Agreement and Implementation	225
12.2	Developing a Decision Quality Package	229
12.3	Preparing the Organization	230
13	A Thirty-minute Guide to Better Decisions	235
13.1	Company Background	235
13.2	The Process	236
13.3	Pre-Project Planning	238
13.4	Kickoff Meeting	239
13.5	Structuring Phase	242
13.6	Evaluation Phase	247
13.7	Decide on a Course of Action	251
13.8	Allocate the Appropriate Resources	252
13.9	Integrate the Course of Action	252

14	Using the Scalable Decision Process on Large Projects	253
14.1	Understanding SDP	254
14.2	Structuring Stage	257
14.3	Evaluation Stage	271
14.4	Agreement Stage	278
15	Portfolio Analysis and Management	283
15.1	Introduction to Portfolio Analysis and Management	283
15.2	Portfolio Management System Objective	284
15.3	Strategy and Portfolio Management	286
15.4	Effective Portfolio Analysis and Management	287
15.5	Creating and Testing Balance Within the Portfolio	290
15.6	Selecting the Right Portfolio Management Tools	291
15.7	Efficient Frontiers	293
15.8	The End Result of a Portfolio Analysis and Management System	295
16	Implementing the Decision Analysis Process	299
16.1	Implementing Decision Analysis	301
16.2	What is Right for Your Organization?	306
16.3	Implementation Issues	309
16.4	Real World Problems	310
16.5	Implications and Reactions	311
Appendices		
	Decision Response Inventory Exercise (DRIVE)	315
	Facilitation and Analysis Summaries	320
	Eliciting Issues	320
	Decision Hierarchy	321
	Influence Diagrams	322
	Strategy Table	323
	Assessment	324
	Decision Trees	325
	Decision Quality Radar Chart.....	326
	Glossary	327
	Answers to Selected Questions	330
	About the Author	343
	Index	345