

Contents

Part I Basics

1	The Need for Another Decision-Making Methodology	3
1.1	The Need for Decision-Making Methodologies	3
1.2	Decision-Making Methodologies	5
1.3	Conclusion	6
	References	6
2	Understanding the Analytic Hierarchy Process	7
2.1	Developing a Model.	8
2.2	Deriving Priorities (Weights) for the Criteria	9
2.3	Consistency.	12
2.4	Deriving Local Priorities (Preferences) for the Alternatives	15
2.5	Derive Overall Priorities (Model Synthesis).	18
2.6	Sensitivity Analysis	20
2.7	Making a Final Decision.	21
2.8	Conclusion	22
	References	22
3	Building AHP Models Using Super Decisions v2	23
3.1	Developing a Model.	25
3.2	Deriving Priorities (Weights) for the Criteria	28
3.3	Deriving Local Priorities (Preferences) for the Alternatives	34
3.4	Deriving Overall Priorities (Model Synthesis)	37
3.5	Sensitivity Analysis	39
3.6	Making a Final Decision.	42
3.7	Conclusion	42
	References	42

Part II Intermediate

4	AHP Models with Sub-criteria	45
4.1	Introducing Sub-criteria in AHP Super Decision Models.	45
4.2	Conclusion	55
	References	56
5	Understanding Ratings Models	57
5.1	Developing Ratings Scales for the Criteria	57
5.2	Deriving the Overall Priorities (Model Synthesis).	59
5.3	Conclusion	60
	Reference	60
6	Ratings Models Using Super Decisions v2	61
6.1	Building Ratings Models in Super Decisions	61
6.2	Conclusion	70
	References	70
7	Benefit/Cost Analysis Using AHP	71
7.1	AHP Benefit/Cost Analysis	71
7.2	AHP Benefit*Opportunity/Cost*Risk (BO/CR) Analysis	73
7.3	A BO/CR Analysis Example	77
7.4	Conclusion	77
	References	78

Part III Advanced

8	Group Decision-Making in AHP	81
8.1	Working an AHP Model as a Group	81
8.2	Aggregation of Judgments Using a Spreadsheet	84
8.3	Aggregation of Judgments Using <i>Super Decisions</i>	87
8.4	Consistency in Group Judgments	88
8.5	Conclusion	89
	References	90
9	AHP for Group Negotiation and Conflict Resolution	91
9.1	Introduction.	91
9.2	Essentials of AHP Negotiation.	91
9.3	AHP Negotiation in BOCR Models	95
9.4	Conclusion	96
	References	96
10	Application Examples	97
10.1	AHP Handling of Stakeholders	97
10.2	AHP Ratings Model in Public Decisions.	99

Contents	xi
10.3 Use of AHP to Elicit Tacit Knowledge	100
10.4 Conclusion	103
References	104
Appendix A: Practical Questions Related to AHP Modeling	105
Appendix B: AHP Basic Theory	107

Practical Decision Making

An Introduction to the Analytic Hierarchy Process (AHP)

Using Super Decisions V2

Mu, E.; Pereyra-Rojas, M.

2017, XIII, 111 p. 137 illus., 85 illus. in color., Softcover

ISBN: 978-3-319-33860-6