

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	13
2.4	Deriving Local Priorities (Preferences) for the Alternatives	15
2.5	Derive Overall Priorities (Model Synthesis)	18
2.6	Sensitivity Analysis	19
2.7	Making a Final Decision	21
2.8	Conclusion	21
	References	21
3	Building AHP Models Using Super Decisions v3	23
3.1	Developing a Model	24
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 Using v3.	45
4.1 Introducing Sub-criteria in AHP Super Decision Models	45
4.2 Conclusion	54
Reference	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 v3	61
6.1 Building Ratings Models in Super Decisions	61
6.2 Conclusion	70
Reference	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	76
7.4 Conclusion	77
References.	77

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 in a Comparison Matrix	85
8.4 Aggregation of Judgments Using Super Decisions	86
8.5 Consistency in Group Judgments.	87
8.6 Conclusion	88
References.	89
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.	94
9.4 Conclusion	95
References.	96
10 Application Examples	97
10.1 AHP Handling of Stakeholders	97
10.2 AHP Ratings Model in Public Decisions.	99
10.3 Use of AHP to Elicit Tacit Knowledge	100
10.4 Conclusion	103
References.	103

Appendix A: Practical Questions Related to AHP Modeling 105

Appendix B: AHP Basic Theory 107

Index. 113

Practical Decision Making using Super Decisions v3

An Introduction to the Analytic Hierarchy Process

Mu, E.; Pereyra-Rojas, M.

2018, XIX, 115 p. 87 illus., 38 illus. in color., Softcover

ISBN: 978-3-319-68368-3