

A ONE-OF-A-KIND GUIDE TO
THE BEST PRACTICES IN DECISION ANALYSIS

Parnell
Bresnick
Tani
Johnson

WILEY HANDBOOKS IN
OPERATIONS RESEARCH
AND MANAGEMENT SCIENCE



Decision analysis provides powerful tools for addressing complex decisions that involve uncertainty and multiple objectives, yet most training materials on the subject overlook the soft skills that are essential for success in the field. This unique resource fills this gap in the decision analysis literature and features both soft personal/interpersonal skills and the hard technical skills involving mathematics and modeling.

Readers will learn how to identify and overcome the numerous challenges of decision making, choose the appropriate decision process, lead and manage teams, and create value for their organization. Performing modeling analysis, assessing risk, and implementing decisions are also addressed throughout. Additional features include:

- Key insights gleaned from decision analysis applications and behavioral decision analysis research
- Integrated coverage of the techniques of single- and multiple-objective decision analysis
- Multiple qualitative and quantitative techniques presented for each key decision analysis task
- Three substantive real-world case studies illustrating diverse strategies for dealing with the challenges of decision making
- Extensive references for mathematical proofs and advanced topics

The *Handbook of Decision Analysis* is an essential reference for academics and practitioners in various fields including business, operations research, engineering, and science. The book also serves as a supplement for courses at the upper-undergraduate and graduate levels.

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HANDBOOK OF
DECISION ANALYSIS

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Kouvelis, Dong, Boyalati, and Li · *Handbook of Integrated Risk Management in Global Supply Chains*

Parnell, Bresnick, Tani, and Johnson · *Handbook of Decision Analysis*

Sokolowski and Banks · *Handbook of Real-World Applications of Modeling and Simulation*

HANDBOOK OF

Decision Analysis

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Foreword

This handbook represents a significant advance for decision professionals. Written for practitioners by practitioners who respect the theoretical foundations of decision analysis, it provides a useful map of the tools and capabilities of effective practitioners. I anticipate that this and future editions will become the primary repository of the body of knowledge for practicing decision professionals.

This Handbook Is Timely

The practice of decision analysis (DA) is at a major inflection point. That high-quality decisions can generate immense value is being demonstrated again and again. Leaders of organizations are increasingly aware of how opportunities are lost by making “satisficing” decisions—that is, decisions that are “good enough.” The benefit-to-cost ratio of investing in better decisions is frequently a thousand to one. I know of no better opportunity for value creation anywhere. As Frank Koch,¹ president of the Society of Decision Professionals (SDP), has said, “Benefit to cost ratios . . . are immense simply because the added cost of doing DA is negligible. We would still be paying the analysts and decision makers without DA; they would simply be talking about different things. The incremental cost of having a better, more relevant conversation is zero, so regardless of the benefit, the ratio is infinite! Even if I throw in the cost of training and learning some software, that’s measured in thousands and the benefits are clearly measured in millions.”

Why is this huge opportunity still a secret from most decision makers? It is because we humans are wired to believe that we are making good decisions even when we leave value on the table. We are wired to be satisfied with good enough. We shape our memories with hindsight and rationalization. The burgeoning set of literature from the behavioral decision sciences documents many of our biases

¹Frank Koch in a written response to the question: What is the ROI of investing in DA based on your experience at Chevron? Frank Koch retired in 2010 after the Chevron team had been awarded the best practice award for *20 Years of DA at Chevron*.