Decision Behaviour, Analysis and Support
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Cambridge University Press, 2009:
ISBN 978-0-521-70978-1; Paperback, 472 pp. US $65.00 £35.0

"Nothing is more difficult, and therefore more precious, than to be able to decide." – Napoleon Bonaparte

Decision making is a complex endeavor. In high-stakes settings, decision making poses an arduous challenge not only to the naïve decision maker, but also to decision makers who use sophisticated tools such as decision analysis. The goals of better understanding the psychology of decision making and improving the quality of decision outcomes are intimately connected. Understanding the biases that limit intuitive solutions can help us understand where normative theory holds its greatest benefits (Kunreuther et al., 2002).

An understanding of decision making and how to improve it requires a multidisciplinary approach - this is the key message conveyed in Decision Behaviour, Analysis and Support.

The authors bring together three approaches to decision making, the normative approach that identifies principles underlying rational decision making, the descriptive approach that explains how decisions are actually taken, and the prescriptive approach that develops ways of improving decision making, and provide convincing argument for drawing together the normative and descriptive perspectives to build prescriptive decision analysis and support. In its examination of decision support, the book draws from a wide range of disciplines that includes behavioural science, organizational studies, decision sciences, and information systems.

In the first chapter, the authors present issues, introduce general terminologies, and highlight topics that are covered in later chapters. The chapter details alternative perspectives that inform understanding of differences between decision contexts, identifies players in the decision making process, and provides an overview of the decision modeling process, thereby, setting the stage for the remainder of the book.

Chapter two focuses on behavioural studies of decision making. Based on a brief review of behavioral research, the authors conclude that the thinking and reasoning processes underlying human decision making depart from normative principles and as such are subject

Book Review
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DOI: 10.4018/jsds.2010100107
to error and bias. Their conclusion, along with insights about why these errors and biases occur, provides not only strong argument confirming the need for decision analysis and support but also provides an understanding of the kinds of support that are needed. While most of the focus is on cognitive and thinking processes that underlie human judgment and decision making, the authors have not overlooked the importance of understanding the interplay between emotion and cognition when describing how people make decisions; three streams of research outlining how affect and emotion may lead to inconsistency are presented.

The distinction and interrelationships between descriptive, normative, and prescriptive perspectives are highlighted in Chapter 3. The authors position the role of prescriptive decision analysis as helping decision makers construct preferences and uncertainties. They describe prescriptive analysis as an ongoing discussion between decision makers and the model, in which the decision makers’ judgments are elicited and their implications within the context of the model explored. It is this understanding of prescriptive decision analysis for which they highlight the need for support that comes from the use of software and information systems. The concept of a decision support system (DSS) is introduced and a categorization of different forms of decision support appropriate to different contexts is presented.

Chapter 4 provides thorough understanding of data, information and knowledge, and how each enters the decision making process. This leads to insight of how information systems can play a role in data, information and knowledge management; generic types of level 0 (data presentation) and level 1 (analysis of data) decision support systems are considered. The chapter ends with a brief explanation of how statistical inference and forecasting methods complement and fit with decision analytic methods.

Chapters 5 through 10 present a range of decision support methods that include artificial intelligence methods, operations research techniques, and decision analysis tools. The focus of decision analysis tools is on multi-attribute value models, decision trees, and influence diagrams. The coverage is quite thorough, with enough detail of mathematics to provide insight on how these models support decision making. Issue formulation and problem-solving is addressed as well, highlighting the “art” side of decision-making. Throughout these chapters, the authors are careful to explore the behavioural reasons for providing such support.

Specific issues relating to group, organizational, and societal decision making are discussed in the next three chapters. Theory, processes, analyses, and practices that may support decision making at these levels are presented. The authors acknowledge that much of their book up to this point is focused on individual decision making. This might seem misdirected given that most decisions are made in groups, organizations and society. The authors, however, argue that to understand decision making at the group, organizational, and societal levels, one must understand decision making at the individual level. Their thesis is that decision making is “the province of the individual, requiring thought, evaluation and a final set of intentionality; groups are social processes that provide contexts in which the individual members can coordinate their decisions; and organizations and society provide further levels of context for decision making.”

Chapter 14 returns the focus to decision support systems. Taxonomies of DSSs are presented, representative types of DSSs are discussed, issues related to human-computer interface design of DSSs are explored and a methodology for evaluation of DSSs is introduced. The authors end with a discussion of latest trends in decision support followed by concluding thoughts on the process of decision support in Chapter 15. A comprehensive list of references is included.

The authors acknowledge that they have written for a varied audience. Some of the material has been used in undergraduate business, computer science, economics, mathematics, and operation research courses. Other parts have been used to teach MBA students and support executive education. Some of the parts derive
from the authors’ research. The authors have done a superb job of melding all sections into a coherent whole! Each chapter begins with an introduction within which objectives in the chapter are spelled out and ends with concluding remarks and further reading. The authors guide the reader from chapter to chapter, skillfully interconnecting diverse understandings throughout the book.

The authors provide arguments for the need to take a multidisciplinary approach to decision making. Not only have they done so convincingly, they have shown how to do this and have shown the value of doing so. Decision Behaviour, Analysis and Support provides a valuable resource for all involved in the decision making process. Certainly, managers with decision making responsibilities at any level of an organization would benefit from this comprehensive understanding of the intricacies of decision science.

REFERENCES