
MULTIOBJECTIVE DECISION ANALYSIS USING SPREADSHEETS

US MARINE CORP, QUANTICO, VA

ORSA CEP 02-704

7-11 January 2002

SYNOPSIS: This course presents the methodology and art of multiobjective decision analysis. Decision analysis is the appropriate technique for hard problems involving complex value tradeoffs, significant outcomes, and major uncertainties. Spreadsheet modeling is used extensively in the course. Military decision analysis applications are emphasized.

The course objectives are:

- Understand and apply Value-Focused Thinking principles
- Understand and apply the multiobjective decision analysis approach
- Understand the assumptions made for multiobjective value and utility models
- Identify and formulate a problem as a multiobjective value or utility model
- Use decision analysis and Value-Focused Thinking techniques to generate alternatives
- Understand the use of scenario planning in alternative generation
- Use spreadsheet multiobjective value and utility models to evaluate alternatives
- Use spreadsheet models to perform sensitivity analyses to critical parameters
- Be able to clearly and concisely present the decision analysis results to senior DoD Decision-makers

Topics to be covered include: Structuring multiple objectives; Developing future scenarios; Using Value-Focused Thinking to identify decision opportunities; Developing alternatives for analysis; Multiobjective value analysis with spreadsheets; Quantifying uncertainty in decision analysis; Multiobjective utility analysis with spreadsheets; Value model development lessons learned; and Presenting decision analysis results to senior decision-makers.

TEXTS: Participants will receive bound copies of the course materials, the text **Strategic Decision Making: Multiobjective Decision Analysis with Spreadsheets**, Kirkwood, C. W., Belmont, California: Duxbury Press, 1997 and a diskette containing spreadsheet macros for Decision Analysis techniques.

GREGORY S. PARNELL: Dr. Gregory S. Parnell is the Class of 1950 Chair of Advanced Technology and Associate Professor of Systems Engineering at the United States Military Academy at West Point. He teaches Decision Analysis, Systems Engineering and Operations Research. He is also Director, Decision Analysis Practice for Toffler Associates®. His research and consulting involves strategic planning, research and development (R&D) portfolio analysis, and resource allocation decision-making. Dr. Parnell served in a variety of Air Force R&D management, operations research, and teaching assignments. He retired from the Air Force as a Colonel. Dr. Parnell received his Ph.D. in Engineering-Economic Systems from Stanford University. He was president of the Military Operations Research Society (MORS), an organization with over 3000 members. He is the editor of *Military Operations Research*.

ADMINISTRATIVE INFORMATION

PURPOSE: The ORSA CEP was initiated to support the OPMS Functional Area 49 Program and now supports the overall Department of Army analytical effort by providing instruction in highly demanded and used ORSA techniques in DOD.

PLACE: Class will be held in Room 251, Marsh Center Building, MCB Quantico.

ELIGIBILITY: Military Officers who possess OPMS Functional Area 49 (ORSA) and civilian GS-1515 analysts. A graduate degree in ORSA or ORSA-related field is preferred. This is a special offering being conducted for the US Marine Corp, Quantico, VA. Others may attend on a space available basis.

CLASSIFICATION: All material will be unclassified. A Picture ID will be required.

FUNDING: All costs for the course, to include registration and issue materials, have been paid. Travel and TDY payments for all personnel must be made by the attendee's parent organization.

APPLICATION: Personnel desiring to attend should apply via their Training Officer through the Army Training Requirements and System (ATRRS), Course Code ALMC-SE, 02-704.

POINT OF CONTACT: Further information may be obtained from the ORSA CEP course director at DSN 539-4249/4226, commercial (804) 765-4249/4226, e-mail orsacep@lee.army.mil.
