

## IDI Publications

### *Decision and Risk Analysis*

#### Journal Papers

- Bauer, K., Parnell, G., & Meyers, D. (1999) Response Surface Methodology as a Sensitivity Analysis Tool in Decision Analysis. *Journal of Multi-Criteria Decision Analysis*, 8, 162-180.
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- Dillon, R.L., John, R. & von Winterfeldt, D. (July-August 2002) Assessment of Cost Uncertainties for Large Technology Projects: A Methodology and an Application. *Interfaces*, 32(4), 52-66.
- Dillon, Robin L., & Liebe, R.M. (March 2009) Invited Response to Cox's Comment: Improving Risk-Based Decision Making for Terrorism. *Risk Analysis*, 29(3), 342-343.
- Dillon, Robin L., Liebe, R.M. & Bestafka, T. (March 2009) Risk-Based Decision Making for Terrorism Applications. *Risk Analysis*, 29(3), 321-335.
- Dillon, Robin L., Parnell, G.S., Buckshaw, D.L., Hensley (LTC), W.L., & Caswell (CAPT), D.J. (2008) Avoiding Common Pitfalls in Decision Support Frameworks for Department of Defense Analyses. *Military Operations Research Journal*, 13(2), 19-32.
- Dillon, R.L. & Paté-Cornell, M.E. (January 2005) Including Technical and Security Risks in the Management of Information Systems: A Programmatic Risk Management Model. *Systems Engineering*.
- Dillon, Robin L., M. Elisabeth Paté-Cornell, and Seth D. Guikema, "Optimizing Resource Allocations in a Project's Development Phase: The DAPRAM model," *IEEE Transactions on Engineering Management*, Vol. 52, No. 3, August 2005, pp. 382-395.
- Dillon, R.L., Paté-Cornell, M.E., & Guikema, S.D. (2005) Optimal Use of Budget Reserves to Minimize Technical and Management Failure Risks During Complex Project Development. *IEEE Transactions on Engineering Management*, Vol. 52, No. 3, 382-395.
- Dillon, R.L., Paté-Cornell, M.E. & Guikema, S.D. (May/June 2003) Programmatic Risk Analysis for Critical Engineering Systems Under Tight Resource Constraints. *Operations Research*, 51(3), 354-370.
- Dillon, R. L., & Tinsley, C.H. (August 2008) How near-misses influence decision making under risk: A missed opportunity for learning. *Management Science*, 54( 8), 1425-1440.
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- Ezell, B.C, von Winterfeldt, D., Bennett, S., Sokolowski, J. & Collins, A.J. Probabilistic Risk Analysis and Terrorism Risk. *Risk Analysis*, Accepted: 14 January 2010.

- Ezell, B.C. & von Winterfeldt, D. (March 2009) Probabilistic Risk Analysis and Bioterrorism Risk. *Biosecurity and Bioterrorism: Biodefense Strategy, Practice, and Science*, 7(1).
- Ezell, B.C. (2007) Critical Infrastructure Vulnerability Assessment Model (I-VAM). *Risk Analysis*, 27(3).
- Ezell, B.C., Haimes, Y.Y., & Lambert, J.H. (2001) Risks of Cyber Attack to Water Utility Supervisory Control and Data Acquisition Systems. *Military Operations Research Journal*, 6(2).
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- Milke, M.W. & Guikema, S.D. (2007) Parameterized decision analysis of a single-criterion choice between a Do-Nothing Option and an Act-Now Option. *Civil Engineering and Environmental Systems*, 24(3), 179-191.
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- Paté-Cornell, M. E. & Dillon, R.L. (December 2006) The Respective Roles of Risk and Decision Analyses in Decision Support. *Decision Analysis*, 3(4), 1-13.
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- Ulvila, J.W., Brown, R.V., & Packard, K.S. (1977) A case in "on-line" decision analysis for product planning. *Decision Sciences*, 8(3), 598-615.
- Ulvila, J.W. & Gaffney, J.E., Jr. (2004) A decision analysis method for evaluating computer intrusion detection systems. *Decision Analysis*, 1(1), 35-50.
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### **Conference Papers**

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- Buckshaw, D., Buede, D., Parnell, G., & Maxwell, D. *Selecting the Best Decision Method*. Presentation for the Military Operations Research Society Symposium, June 2008.
- Buckshaw, D. L. and Parnell, G. S. *Portfolio Analysis of Countermeasures and Design Options for Information System Risk Assessments*. Presented at the INFORMS Annual Conference, October 2004, Denver, CO.
- Buckshaw, D. L. *Information System Risk Assessment and Countermeasure Allocation Strategy*. Paper presented at the MORS Special Session on Decision Aids/Support to Joint Operations, October 2003, Offutt AFB, NE.
- Buckshaw, D. L. *Information System Risk Assessment*. 70th Military Operations Research Society Symposium, June 2002, Fort Leavenworth, KS.
- Buede, D.M. *Defining, Evaluating & Solving Complex Decision Situations*. Paper presented at the Fall INFORMS Conference, October 1995, New Orleans, LA.
- Buede, D.M. *Risk/Decision Analysis for Trade Studies*. Paper presented at the INCOSE Symposium, July 1995, St. Louis, MO.
- Buede, D.M. *A Normative System Application to a Political-Military Intelligence Analysis*. Paper presented at the Normative Systems Workshop, May 1995, Fairfax, VA.
- Buede, D.M. *Applied Decision Analysis: Engineering Science vs. Clinical Art*. Paper presented at the International Conference on Cybernetics and Society, 1979, Denver, CO. (397-403)
- Buede, D.M. & Wagenhals, L. *Influence Diagram Representation of Dynamic, Distributed Decision Making*. Paper presented at the Command and Control Research and Technology Symposium, June 1996, Naval Postgraduate School, Monterey, CA.
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- Cassidy, M. F. & Schimmel, B.J. *Using group techniques in evaluation*. Workshop delivered at the American Evaluation National Conference, October 1988.
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- Kobylski, G.C. & Buede, D.M. *The Use of Dynamic Decision Networks for Increasing Battle Command Situational Awareness*. Paper presented at the MORS Conference, June 2004, Monterey, CA.

- Kobylski, G.C. & Buede, D.M. *Dynamic Decision Networks: An Alternative to Dynamic Programming for Situational Awareness in a Networked Battle Command*. Paper presented at the MORS Conference, June 2004, Monterey, CA.
- Madsen, D.L., Tatman, J.A., Mahoney, S.M., et al. *Modeling an Adversary's Decision Making Process*. Paper presented at the 77<sup>th</sup> Military Operations Research Society Symposium, June 2009, Fort Leavenworth, KS.
- Parnell, G., Buckshaw, D., Liebe, R., & Mosier, R. *Using the Swing Weight Matrix to Improve Decision Analysis Studies*. Presentation at the Military Operations Research Society Symposium, June 2008.
- Shea, T.E., & Ulvila, J.W. *Allocation of IAEA Inspection Effort*. Paper presented at the 3rd Annual Symposium on Safeguards and Nuclear Material Management, European Safeguards Research and Development Association, 1981.
- Ulvila, J.W., Gaffney, J.E., Jr. & Chinnis, J.O., Jr. *Software risk metrics and tool*. Paper presented at the 8<sup>th</sup> International Software Metrics Symposium, 2002, Los Alamitos, CA.
- Ulvila, J.W. & Gaffney Jr., J.E. *A management tool for software risk and uncertainty*. Paper presented at the Planning, Budgeting, and Estimating Symposium 2001, Mt. Laurel, NJ.
- Ulvila, J.W., Gaffney, J.E., Jr. & Chinnis, J.O., Jr. *Software metrics decision support system*. Paper presented at the 5th International Software Metrics Symposium, 1998, Los Alamitos, CA. (184-192)
- Wood, T.W., Hunter, V.L., & Ulvila, J.W. *A value of information approach to data quality objectives for the Hanford high-level waste tanks*. Paper presented at the Proceedings of Waste Management 95, 1995, University of Arizona, Tucson, AR.

## **Books**

- Watson, S.R. & Buede, D.M. (1987). *Decision Synthesis: The Principles and Practice of Decision Analysis*. Cambridge, England: Cambridge University Press.
- Parnell, G. S., Driscoll, P. J., and Henderson D. L., Editors, (2008) *Decision Making for Systems Engineering and Management*, Wiley Series in Systems Engineering, Andrew P. Sage, Editor, New York, NY., Wiley & Sons Inc.,

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- Buckshaw, D. L. (2008) Use of Decision Support Techniques for Information System Risk Management. In Melnick, E. and Everitt, . (Eds), *Wiley Encyclopedia of Quantitative Risk Management*. Forthcoming September 2008.
- Dillon-Merrill, R. L., Parnell, G. S., & Buckshaw, D. L. (2009). Logic Trees: Fault, Success, Attack, Event, Probability, and Decision Trees. In Voeller, J.G. (Ed.), *Wiley Handbook Of Science & Technology For Homeland Security*. Published online: John Wiley & Sons, Inc.
- Parnell, G. S., Chapter 19, Value-Focused Thinking, (2007) *Methods for Conducting Military Operational Analysis*, Military Operations Research Society, Editors Andrew Loerch and Larry Rainey 2007, 619-656.
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- Buckshaw, D.L., Buede, D.M. & Parnell, G.A. (2004) *An Analysis of Methodologies to Create a Multiple Adversary Risk Model for Information Assurance*. IDI Technical Report 2004-01, Contract Number MDA904-02-D-0402.
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## ***Multiple Criteria Decision Analysis***

### **Journal Papers**

- Buede, D.M. (November/December 1985) Structuring Value Systems. *Interfaces*, 52-62.
- Buede, D.M. & Maxwell, D.T. (March 1995) Rank Disagreement: A Comparison of Multi-Criteria Methodologies. *Journal of Multi-Criteria Decision Analysis*, 4(1), 1-21.
- Burk, R. C. & Parnell, G. S., (May-June 1997) Evaluating Future Space Systems and Technologies. *Interfaces*, 27(3), 60-73.
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- Jackson, J. A., Parnell, G. S., Jones, B. L., Lehmkuhl, L.J., Conley, H., & Andrew, J. (1997) Air Force 2025 Operational Analysis. *Military Operations Research*, 3(4), 5-21.
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- Parnell, G., Burk, R., Schulman, A., Westphal, D., Kwan, L, Blackhurst, J., Verret, P, & Karasopoulos, H. (2004) Air Force Research Laboratory Space Technology Value Model: Creating Capabilities for Future Customers. *Military Operations Research*, 9(1), 5-17.

- Parnell, G., Metzger, R., Merrick, J., & Eilers, R. (2001) Multiple Objective Decision Analysis of Theater Missile Defense Architectures. *Systems Engineering*, 4(1), 24-34.
- Parnell, G., Conley, H., Jackson, J., Lehmkuhl, L., & Andrew, J. (1998) Foundations 2025: A Framework for Evaluating Future Air and Space Forces. *Management Science*, 44(10), 1336-1350.
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## **Books**

### **Book Chapters**

- Adelman, L., & Ulvila, J.W. (1991) Evaluating expert system technology. In Andriole, S.J. and Halpin, S.M. (Eds.), *Information technology for command and control*. NY: IEEE Press, 537-547.
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### **Conference Papers**

- Carlson, M., Parnell, G., & Trainor, T. *Assessing Security Cooperation Programs*. Proceedings of the Conference on Systems Engineering Research (CSER), Redondo Beach, CA, April 4-5, 2008.
- Cassidy, M. *Applying decision conferencing to strategic planning*. Lecture presented to the Military Academy of Portugal. Lisbon, Portugal, 2004.
- Cassidy, M. F. *Computer modeling and strategic decisions: Reconciling facts and judgments*. Presentation at the Second International Conference on Management of Technology, March 1990.

- Cassidy, M. *Maximizing value: Realizing opportunities and avoiding errors in armament acquisition*. Lecture delivered to The Portuguese Ministry of Defense, Lisbon, Portugal, 2004.
- Cassidy, M. F. *Decision Conferencing in the corporation: A rational perspective*. Presentation at the TIMS/ORSA International Conference, October 1989.
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- Harris, J. & Parnell, G. S. *BRAC 2005 Implementation*. American Society for Engineering Management 25th National Conference, Alexandria, VA, October 20-23, 2004.
- Parnell G., Jackson, J., & Kloeber, J. *New Techniques for Value Model Development: Lessons Learned from Major Value-Focused Thinking Studies*. Paper presented at the International Conference on Methods and Applications of Multicriteria Decision Making, Mons, Belgium, May 1997.
- Parnell, G. & Trainor, T. *Using the Swing Weight Matrix to Weight Multiple Objectives*. Proceedings of the INCOSE International Symposium, Singapore, July 19-23, 2009.
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## **IDI Technical Reports**

## ***Probabilistic Inference Analysis***

### **Journal Papers**

- Buede, D.M. (November/December 1988) Shafer-Dempster and Bayesian Reasoning: A Response to "Shafer-Dempster Reasoning with Applications to Multisensor Target Identification Systems." *IEEE Transactions on Systems, Man and Cybernetics, SMC-18*(6), 1009-1011.
- Buede, D.M. & Girardi, P. (September 1997) A Target Identification Comparison of Bayesian and Dempster-Shafer Multisensor Fusion. *IEEE Transactions on Systems, Man, and Cybernetics, 27 Part A*(5), 569-577.
- Fryback, D.G., Chinnis, J.O., & Ulvila, J. (2000) Bayesian cost-effectiveness analysis: An example using the GUSTO trial. *International Journal of Technology Assessment in Health Care, 17*(1), 83-97.
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- Laskey, K.B., Stanford, S. & Stibio, B. (1994) Probabilistic Reasoning for Assessment of Enemy Intentions, *IEEE Transactions on Systems, Man and Cybernetics*.
- Waltz, E.L. & Buede, D.M. (November/December 1986) Data Fusion and Decision Support for Command and Control. *IEEE Transactions on Systems, Man and Cybernetics, SMC-16*(6), 865-879. Also in Boyes, J.L. and Andriole, S.J. (eds.), *Principles of Command and Control*, Washington, DC: AFCEA International Press, 1987; Andriole, S.J. and Halpin, S. (eds.) *Information Technology for Command and Control*, New York: IEEE Press, 1991; Luo, R.C. and Kay, M.G. (eds.), *Multisensor Integration and Fusion for Intelligent Machines and Systems*, Norwood, NJ: Ablex Publishing Corporation, 1995.

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- Buede, D.M. & Waltz, E.L. (1996) Benefits of Soft Sensors and Probabilistic Fusion. In Sadjadi, F.A. (ed.), *Sensor and Data Fusion*. Bellingham, WA: SPIE Optical Engineering Press. (First appeared in the SPIE Proceedings of Signal and Data Processing of Small Targets 1989, Technical Symposia on Aerospace Sensing, Orlando, 1989, 309-320.)
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