1. **Please describe the type of market research you do for GM and how your background and experience as a social scientist influences your work.**

I have been employed at GM since 1978. My marketing research work includes:

(1) **Estimating the change in product demand given changes in product prices.** *This work draws heavily on conventional economics.*

(2) **Grouping products into segments (e.g., small, mid-sized, etc.) based on which products customers consider comparable.** (This addresses questions like: `do people first decide they want a vehicle made by a certain manufacturer and then shop among the available vehicles made by the manufacturer or do they first decide they want a mid-sized vehicle and then look across manufacturers in determining which mid-sized products they will consider. *It is based on psychological work on how individuals decide which items are similar.*

(3) **Grouping customers into segments** (e.g., lower income people with large families, people who want some style but are price-sensitive, people who are want a vehicle that conveys status, etc.*) This draws mainly on the socioeconomic literature about the different social classes in America, their needs for a vehicle (if they have large families or need towing capacity) as well as whether they view the vehicle as merely a means of transportation, an expression of personality or status, or something they want to enjoy.,*

(4) **Modeling demand for products** as a function of all the major attributes of the product: performance, comfort, appearance, price, etc. *This draws mainly on the economic and statistical literature.*

(5) **Modeling the decision process by which customers**

(5.1) Become aware of a product: (How much can advertising affect awareness?) *This works draws heavily on psychology.*

(5.2) Come to seriously consider the product: (Given the hundreds of products available, what are the simple criteria people use for winnowing the set of choices down to a manageable set of choices? Do they screen out vehicles with a poor image for quality, a poor image for environmental-friendliness, etc?) *This draws on the psychological and sociological literature on how products acquire an image and reputation.*

(5.3) Come to shop for a product (Do people visit a lot of dealers or a few? How much does the increased availability of information on the internet affect the shopping process?) *This is an economic/psychological question.*

(5.4) Come to buy the product. (What kinds of products should a dealer have on their lot to maximize the chances of having what the customer needs? What kinds of financial offers are more attractive in sealing the deal? How should dealers determine how best to approach each customer since some customers are very detail-oriented, others are more holistically oriented?) *Some of these questions draw on economics, others draw on areas of psychology that are still being researched.*

(6) **Modeling the impact of advisor recommendations** on the products customers seriously consider. (Recommendations come from the internet, consumers report and other magazines, automotive magazines, word of mouth, etc.) *This is still an area of considerable research by psychologists and marketing researchers. What sources of information do people trust?*

(7) **Understanding the differences between work practices in different dealerships** and how those different work practices lead to better or worse dealer performance. In this kind of problem, the dealership is often treated as a special `culture' which is studied using adaptations of methods in *cultural anthropology*.

2. What has social science research revealed about factors that influence an individual's vehicle purchasing decisions? What questions remain unanswered? Have you looked specifically at the issue of fuel economy?

    (1) Developments in economic and psychological methodology on models predicting individual choices and how those models can be best estimated have been central to modeling customer demand. The economist, McFadden, was awarded a Nobel Prize because of his central role in creating many of these models. The mathematical psychologist, Duncan Luce, received the National Medal of Science for his role in creating the building block that led to McFadden's work. These models help GM understand, for example, the relative importance of quality, performance, roominess, fuel economy, and price in affecting a customer's chance of buying a vehicle. We also employ direct assessment techniques for trying to assess customer willingness to pay for these attributes (as well as for specific features like Onstar.) Conducting these clinics is based on methodologies developed in psychology. The company also conducts massive surveys and, once again, psychological theories about how questions should be asked in surveys have been very important.

    (2) The whole question of how the Internet has reshaped the purchasing process is a very active area of current research --- to which noone has yet developed a definitive answer. Does the internet shape customer preferences to focus on attributes that are more communicable on the internet (e.g., cost and quality ratings) versus less communicable attributes (like vehicle styling and the interior comfort of its seats)?

    (3) I myself have not specifically looked at the issue of fuel economy.

3. How are recent breakthroughs in research incorporated into marketing or business strategies? What role might the National Science Foundation play in building bridges between academic social science researchers and government and industry policy makers?

    (1) The previous models assume that individuals are rational. Research in both economics and psychology (e.g., the Nobel-Prize winning work of economist, Vernon Smith, and psychologist, Daniel Kahneman as well as Herb Simon) has strongly undermined that perspective. This suggests that the entire

paradigm may potentially have to be rethought on the basis of a psychologically sounder understanding of human behavior.

(2) There are clearly some success stories in industry/university collaboration as well as many more stories of non-success. The fact that a paper gets published in a journal which cites industry support and funding for the project definitely provides no guarantee that the research was ever used (or even looked at) by the sponsoring company. However the Edelman competition of the Institute of Operations Research and Management Sciences provides many examples of clearcut successes where universities were often involved. We need to learn from these and other success stories.

It would be wrong to say that NSF has not already built some bridges between university and industry. The Decision Risk and Management Sciences Program of the National Science Foundation, when I was a program director there, had a program that was explicitly concerned with funding research with matching support from industry. NSF also has small business initiation grants that are explicitly focused on trying to encouraging technology. I administered some of those grant proposals and felt that this program was also very useful. (This is probably also true for other NSF programs with which I am not directly familiar.) We need to look at these existing programs, understand both what is successful about them and what is less successful about them, so that we can strengthen the bridges which NSF has already tried to build.

(3) Here is another thought: We might imagine moving to a model where a person with an endowed chair by a certain company would be committed to physically spending a certain number of days a week on-site in that company's location or on-site at the location of a consortium where industry practitioners would have direct access. Currently endowed chairs are mainly housed in universities where their occupants are more removed from the specific needs to industry. While it's important to have some time spent in isolation from the practical problem --- in order to think about it --- it's also important to have some time spent directly involved in the practical problem. A practical problem is frequently not something that can be communicated from an industry person to an academic with a short e-mail. And even when it is successfully communicated by e-mail, the academic solution to that problem often turns out to be too late and too complicated to address the real practical issue. The Center for Naval Analysis used to have a program (and might still have a program) where researchers were rotated between the research labs to work onboard a ship in order that they retain a real feel for the needs of industry.

So a lot has been done to build bridges and NSF deserves high praise for its accomplishments. But there is more that could be done.

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CAREER SUMMARY **A Dominican Lay Scholar with extensive experience in developing, applying and managing statistical, decision analysis and operations management models.**

WORK EXPERIENCE

2007-Present GM Technical Fellow
Operations Research Group…….Warren, MI

2006-2007 GM Technical Fellow
Vehicle Development Research Laboratory…….Warren, MI
Received Award for Best Decision Analysis Publication.
Supply Chain Design**:** Determined how GM's supply chain should react if GM had a sudden need to add production of a foreign vehicle at an existing plant (Part of Global Flex initiative).
Product Development: Quantified Impacts of late engine changes using design structure matrix and workload model. Reanalyzed models relating vehicle attributes and customer attributes
Developed an alternative approach to robust design optimization based on decision analysis

2003-2006 GM Technical Fellow
GM NA Product Development Center…….Warren, MI
Health Care Costs**:** Worked with corporate strategy to model the drivers of GM's health care costs. Results led to reductions in brand drug coverage, initiatives on coordination of benefits and other efforts.
Product Development: Modeled GM's new product development process to identify sources of cost and waste. Particularly targeted opportunities for reducing rework. Led to initiatives focused on reducing product content change.
GM Proving Grounds…….Milford, MI
GMNA Award for Creative & Incredible Performance in Engineering Design
Updating GM problem remediation tools (e.g., control charts) and testing by applying to root causes various product problems(fuel caps, fuel pumps, rattling, ignition switches, blower motors)
Using Statistical Analysis to Properly Target Welcome Call Initiative. Helped specify when calls would be made and the vehicles to be emphasized.
Received 2004 Chairman's Honors Award (savings>$360M/yr) and currently exceeding $1B.
GM Global Engineering Center…….. Pontiac, MI
Used influence diagrams to identify the key drivers of GM warranty costs.

- Modeled the drivers of GM's JD Power Score. Results led to more headcount focused on root cause analysis.
- Developed overall warranty cost driver model.
- *Led team receiving* ***2002 GM's People Make Quality Happen Award. (Realized savings:250M/yr)***
- Developed battery warranty cost driver model. Potential Cost savings of $30M/yr identified. Company switched to more heat-resistant battery design, consistent with model recommendations. Developed models for ground warranty, brake warranty, powertrain control modules

Enterprise Customer Network…….……..Detroit, MI

- Developed model of drivers of customer loyalty to assist in formation of GM's CRM strategy

1998-2002 **Technical Director**
GM Corporate Strategy & Knowledge Development .....Detroit, MI
Provide technical support in decision analysis and marketing to strategy formulation and operations improvement projects.

- Validated and implemented algorithm creating current product segmentation.
- Used statistical analysis to identify key drivers of dealer dissatisfaction, leading to development of best practices for improving VSSM dealer relations. Subsequent corporate focus on these drivers improved GM's dealer satisfaction from worst in the industry to average
- Developed marketing modules of enterprise model commissioned by Strategy Board, including modules to value the impact of changing the number of GM product entries and to project GM's long-run share given current policies.

- Conducted statistical analyses supporting the design of GM web tool, AUTOCHOICE.
- As part of a 3-person team, guided the use of CART software for revising GM's needs segmentation.
- Developed a panel on social cycles as part of creation of New Product Concepts war room. **Team received 1998 President's Council Award.**
- Led successful Dialogue Decision Process projects in technology partnering, information technology and procurement.
- Used Enterprise Miner to prove that the current needs segmentation is more accurate than Claritas or demographic segmentations.
- Developed a 120-page overview of the approaches used by 60 major corporate strategists.

GM Vehicle Development & Technical Operations ..... Warren, MI

1993-1997 **Manager, Portfolio Planning Department**

Coordinated the review & documentation of GM's R&D projects.

- Led decision analysis on more than 50 R&D projects. Work stimulated dramatic changes in some projects. **Team received GM Award of Excellence in 1994.**
- Managed creation of a database to enable customers to access GM R&D projects more easily.
- Managed the implementation of new project budgeting system.

GM Research & Development ..... Warren, MI

1991-1993 **Manager, Management & Marketing Sciences**

Managed a team of 12 R&D professionals.

- Managed development of a model prioritizing product problems based on their impact on product repurchases.
- Developed the mathematical model that was the basis of Pricewar, a widely used GM product pricing software package.

National Science Foundation..... Washington, D.C.

1990-1991 **Director, Decision, Risk & Management Science Program**

Administered review and recommended awards of grants from a $3 million budget.

- With other grant officers, successfully lobbied for creation of a social sciences directorate at NSF.
- Awarded first grants to industry as part of NSF's private sector initiative.
- Successfully championed the funding of educational grants to teach students decision-making.
- Successfully lobbied for doubling the research budget on biotechnology social impact research.

Operating Sciences Department, GM Research Laboratories ..... Warren, MI

1987-1990 **Manager, Decision Support Systems**

Managed a diverse team of 9 professionals in marketing, intelligence vehicles and risk analysis.

- Managed development of first needs-based segmentation.
- Managed development of in-vehicle navigation system.

GM Trilby Vehicle Design Project..... Troy, MI

1985-1987 Supervisor, Mission Analysis Group

Managed a four-person team developing a mission statement for the Trilby prototype vehicle.

- Led business case analysis for proposed new vehicle.
- Developed a template specifying how the "voice of the customer" could feed into vehicle engineering.

Societal Analysis Department, GM Research Laboratories ..... Warren, MI

1982-1985 **Staff Research Engineer**

1978-1981 **Associate Senior Research Engineer**

Conducted research & consulting work in economics, finance and environment.

- Discovered the importance of second choice data in potentially segmenting products. This idea was central to the development of GM's initial product segmentation.
- Developed a model of air pollution for Environmental Activities Staff.

TEACHING EXPERIENCE

University of Michigan **Ann Arbor, MI**
2002-present **Adjunct Professor, Industrial & Operations Engineering Department**
Taught Course in Decision Analysis

University of Michigan ..... **Dearborn, MI**
2000- 2002 **Adjunct, Lecturer, School of Management**
Taught Courses in Operations Management

Oakland University ..... **Rochester, MI**
1995- 2000 **Adjunct Full Professor, Systems Engineering Department**
Taught courses in engineering risk analysis at Oakland University campus
Taught courses at Vienna on behalf of Oakland University and Vienna Technical University

Wharton ..... **Philadelphia, PA**
1996-1998 **Guest Lecturer, Marketing**

EDUCATION

Sacred Heart Seminar……**Detroit, Mi**
2005 Master of Arts in Pastoral Studies (summa cum laude)
University of California ..... **Berkeley, CA**
1979 PhD Industrial Engineering & Operations Research. Thesis: "Studies in Mathematical Group Decision Theory" (Dr. T. Marschak). Awarded 3-Year National Science Foundation Fellowship.
1979 MBA Finance.
1977 MS Industrial Engineering & Operations Research.

Michigan State University ..... **Lansing, MI**
1976 MS Systems Science with specialty in Economic Systems.
1976 BA in Public Policy. Graduated Magna cum Laude.
1975 BS Physics. Awarded 4-Year Full Scholarship, National Merit Scholarship.

REFEREED PUBLICATIONS

(74) ``How to Make Risky Decisions Visually." *Visual Communication*, 2007.
(73) "Statistical Decision Making without Math." *Chance.* 2007.
(72) "The Rosary and RCIA". *Catechumenate*, 2006.
(71) "Econophysics and Individual Choice." *Physica A: Statistical Mechanics and its Applications.* Vol.354.pg.479, Elsevier, 2005.
(70) "Multiattribute Preference Analysis with Performance Targets." Operations Research. (Vol.5,6) Nov-Dec,2004.
(69) "Reformulating Decision Theory using Fuzzy Set Theory and Shafer's Theory of Evidence." *Fuzzy Sets and Systems.* 139, 2(October,2003), 243-266.
(68)"Determining the Appropriate Depth and Breadth of a Product Portfolio." *Journal of Marketing Research*, Spring, 2003.
(67)"Decision Rings: Making Decision Trees Visual & non-Mathematical" *INFORMS Transactions on Education*, 2002, Vol. 2, No. 3, http://ite.informs.org/Vol2No3/Bordley/
(66)"Representing Trees using Microsoft Doughnut Charts." *American Statistician*, 56,2,1,2002
(65) "Relating Value-Focused Thinking and Interactive Planning." *Journal of the Operational Research Society*, December, 2001..
(64) "Foundations of Target-Based Decision Analysis." 2002, in *Encyclopedia of Life Support Systems, EOLSS Publishers, Oxford, UK. www.eolss.net.*
(63) "Teaching Decision Theory in Applied Statistics Course." *Journal of Statistical Education.*Vol.9,#2,2001.
(62) "Integrating Gap Analysis and Utility Theory in Service Research." *Journal of Service Research.* March,2001.
(61) "Naturalistic Decisionmaking and Prescriptive Decision Theory." *Journal of Behavioral Decisionmaking.* 2001
(60) (with L.Calzi) "Decision Analysis using Targets instead of Utility Functions." *Decisions in Economics and Finance.* 23,53-74,2000.
(59) (with J.Kadane). "Experiment-Dependent Priors in Psychology and Physics." *Theory & Decision.* December, 1999.
(58)(with Dennis Blumenfeld and Mark Beltramo.) "Consolidating Distribution Centers can Reduce Lost Sales." *International Journal of Production Economics* ,1998

(57) "R&D Project Generation versus R&D Project Selection**."** *IEEE Transactions in Engineering Mgt* . December,1998.
(56) "Keeping it Sophisticatedly Simple in R&D Management." *Engineering Economist*.1998
(55) "Stochastic Mechanics & Classical Mechanics with Finite Differences." *Journal of the Physical Society of Japan* 66,10,1997.
(54) "Teaching Precalculus Classical Mechanics instead of a Calculus-Based Classical Mechanics." *European Journal of Physics*. #5,9,1997,pg.327-333.
(53) "Quantum Mechanical and Human Violations of Compound Probability Principles:Toward a Generalized Heisenberg Uncertainty Principle." *Operations Research*.November,1998.
(52) "Filling in Incomplete Survey Responses." *Communications in Statistics: Simulation & Computation* ,26,4,1997.
(51) "Experiment-Dependent Probabilities in Quantum Mechanics & Psychology. "*Physics Essays*. 10,#3,1997.
(50)``Discrete-time General Relativity & Hyperspace." in *Il Nuovo Cimento*, 1997.
(49) (with Ron Harstad.) "Lottery Qualification Auctions." in Bayes,M(ed.).*Advances in Applied Micro -economics: Auctions*, Volume 6, JAI Press,1996.
(48) (with Jim McDonald, Anand Mantrala) .``Something New ,Something Old: Parametric Models for the Size of Distribution of Income**.** *Journal of Income Distribution*, 6,1,1996.
(47)``Relating Probability Amplitude Mechanics to Standard Statistical Models." *Physics Letters A*. 204,26 -32(1995).
(46) ``Modelling Unforseen Events with Similarity Templates Changes Bayesian Probabilities into Pignistic Probabilities. '*International Journal of Approximate Reasoning*. (1995).
(45) ``Possible Convexity of the Indirect Utility Due to Nonlinear Budget Constraints. *"Economic Letters.(*1994).
(44) `` Making Social Tradeoffs Among Lives, Disabilities and Costs." *Journal of Risk and Uncertainty*. 9,2(1994),135-150.
(43) ``An Overlapping Choice Set Model of Automotive Elasticities." *Transportation Research*. 28B,6(1994),401 -408..
(42) ``Estimating Automotive Elasticities from Segment Elasticities and First Choice/Second Choice Data." *Review of Economics and Statistics*. 3,August,1993,455-462..
(41) (with Jim McDonald). ``Estimating Aggregate Automotive Income-Elasticities from the Population Income-Share Elasticity." *Journal of Business and Economic Statistics***.** 2(1993).
(40) ``An Intransitive Expectations-Dependent Variant of Prospect Theory." *Journal of Risk and Uncertainty* . 5(1992).
(39) (with G.Hazen) ``Nonlinear Utility Models Implied by Small World Intercorrelations." *Management Science* . (1992).
(38) (with G.Hazen). ``Intertemporal Risk-Aversion and Calibration Uncertainty May Explain Violations of the Independence Axiom." in J.Geweke. *Decision-Making under Risk and Uncertainty: New Models and Empirical Findings*. Kluwer Academic Publishers , London,1992.
(37) ``The Dogit Model is Applicable even without Perfectly Captive Buyers.' *Transportation Research***.** (1990).
(36) (with G.Hazen)``SSB & Weighted Linear Utility as Expected Utility with Suspicion." *Management Science*. 4,1990.
(35) ``Discounted Longevity as a Risk-Reduction Measure." *Operations Research* 38,5,(1990),815-819.
(34) ``Relaxing the Loyalty Assumption in the Colombo/Morrison Model." *Marketing Science*. (1989).
(33) ``An Intertemporal Utility Function Concave in Gains and Convex in Losses." In *Annals of Operations Research*. (ed. By I..LaValle & P.Fishburn,1989).
(32) ``Fuzzy Set Theory, Observer Bias and Probability Theory." *Fuzzy Sets and Systems*.(1989).
(31) ``Reflection as an Explanation of Bell's Inequality Violations"*Physics Letters*(1989)
(30) ``Generating Market Elasticity Estimates Using Cross-Sectional First and Second Choice Data." *Journal of Business and Economic Statistics*(1988).
(29) ``An Additive Group Utility for a Funds Manager." *Management Science*,34,7,(1988),835-842.
(28) ``The Energy Function in Optimal Control Theory." *Journal of Optimization Theory and Applications*.57,3,1988.
(27) ``The Cost of Delayed Lottery-Resolution." *Operations Research*,36,1(1988)
(26) ``The Sum of Two Bell-Shaped Curves Can Be Sinusoidal.***"Physics Letters***(1987).
(25) ``An Intuitive Form of Non-localism for Quantum Mechanics." *Physics Letters*(1987)
(24) ``Satiation and Habit Persistence (or the Dieter's Dilemma)." *Journal of Economic Theory*(1986).
(23) ``Linear Combination of Forecasts with an Intercept:A Bayesian Approach." *Journal of Forecasting*(1986).
(22) ``One Person/One Vote is not Optimal given Information on Factions." *Theory and Decision*(1986).
(21) ``Higher Derivatives of Velocity and Quantum Mechanics." *Physics Letters* (1986).
(20) ``Comparing Different Decision Rules: A Simulation. *'Behavioral Science***(**10,1985).
(19) ``Using Factions to Estimate Preference Intensity: An Argument Against One Person/One Vote." *Public Choice*.3(1985).
(18) ``A Precise Method for Evaluating Election Schemes." *Public Choice*.2(1985).
(17) ``Relating Elasticities to Changes in Demand. *"Journal of Business and Economic Statistics*(Summer,1985).
(16) ``A Model of Risky Shift." *Organizational Behavior and Human Performance*.(December,1983).

(15) ``Deriving the Schroedinger Equation and Hamilton's Principle from Generalized Consistency Conditions." *International Journal of Theoretical Physics*(9,1983).
(14) ``A Pragmatic Approach to Evaluating Election Schemes through Simulation." *American Political Science Review*. 3,(March, 1983),123-141.
(13) ``A Central Principle of Science:Optimization." *Behavioral Science.* (January,1983).
(12) ``A Standard (Non-Quantum) Probability Model of Quantum Behavior." *Journal of Mathematical Physics* (9,1983).
(11) ``The Combination of Forecasts: A Bayesian Approach." *Journal of the Operational Research Society*(Feb.,1982).
(10) ``A Multiplicative Formula for Aggregating Probability Estimates." *Management Science.*(10,1982).
(9) ``Deducing Warr's Power Function." *Social Forces.* (September,1982).
(8) (with Ron Wolff). ``The Aggregation of Individual Probability Estimates. *Management Science*(August,1982).

INVITED PUBLICATIONS

(7) ``The Psychology of Individual Choice." *Proceedings of the American Statistical Association*. American Statistical Association, Alexandria,Virginia(1993).
(6) ``Murphy's Law and Non-Informative Priors." in C.R.Smith(ed.) *Maximum Entropy & Bayesian Methods*. Seattle, Washington, 1991.
(5) ``Bayesian Group Decision Theory." in B.Grofman & G.Owen. *Information Pooling and Group Decisionmaking.* Decision Research Series. Jai Publishers, London(1986).
(4) Book Review of `Rationality & Consensus in Science and Society." *Nous.(*December,1986).
(3) Book Review of Shapira. ``Risk-Taking: A Managerial Perspective.*Interfaces***.**July.1996.
(2) Book Review of Bell & Schleiffer. ``Risk-Management" *Interfaces*.Sept..1996
(1) ``Quantifying Societal Concerns in R&D Project Selection" in M.Shahinpoor & J.Weinrhach. *Environmentally Conscious Design & Manufacturing.* ECM Press, New Mexico,1996.

PROFESSIONAL ACTIVITIES

AMERICAN STATISTICAL ASSOCIATION

Program Chair, Section on Marketing in Statistics, American Statistical Association,2002-2004.
General Chair, Section on Risk Analysis American Statistical Association,1997-9
Program Chair, Risk Analysis Section, American Statistical Association,1996-7
Program Chair, Risk Analysis Section, American Statistical Association,1995-6
Member, Council of Representatives(for Risk Analysis), American Stat. Association,1994
Member, Council of Sciences, International Society for Bayesian Analysis,1994-1995
Session Chair,1987, International Society of Forecasting
Session Chair,1989, Southern Economic Association Meeting
Program Committee, International Symposium on Automotive Technology & Automation
Advisor on NSF Contract

INFORMS Society

Councilmember, Decision Analysis Society, 2002-2005.
Chair, INFORMS Award Committee for the Teaching of Practice
Councilmember, Institute for Operations Research & Management Science(INFORMS),1995.
Councilmember, Operations Research Society of America(ORSA), 1994.
Member, Management Sciences Roundtable (Member, Membership Subcommittee)
Chair, Marketing Strategy Committee, Institute of Management Sciences(TIMS),1993-4.
Co-Chair, Fall 1994 TIMS/ORSA Program Committee(Responsible for invited papers)
Member, Meetings Committee, INFORMS,1995.
Councilmember, ORSA/TIMS Decision Analysis Section(1987-1990).
Chair, ORSA/TIMS Marketing Strategy Committee(1993-1994)
Decision Analysis Cluster Chair, 1987,1994 TIMS/ORSA Meetings
Session Chair:1985,1986,1988,1992 TIMS/ORSA Meetings
Vice-President, Southeast Michigan Chapter of ORSA/TIMS,1992-1995
Secretary, Southeast Michigan Chapter of ORSA/TIMS, 1987
Co-Founder, Southeast Michigan Chapter

American Marketing Association

Review Board, Journal of Marketing
Ad Hoc Reviewer, Management Science, Jr. of Academy of Mgt,., Production & Operat.Mgt Soc, etc.

PRODUCTION & OPERATIONS MGT SOCIETY

Vice-President for Publications, Production & Operations Mgt Society(1999-2000)
Vice-President for Finance, Production & Operations Mgt Society(1995-1996)
Member, Board of Governors, Production & Operations Mgt Society(1992-1994)
Area Editor, Production & Operations Mgt Journal(1993-1995)
Member, Josephy Orlicky Operations Mgt Award Committee(1993)

GOVT. COMMITTEES

National Advisory Council on Environmental Policy--Envir. Protection Agency
Member, Pollution Measurement Subcommittee
Chairperson, Materials Accounting Data Working Party
Member, Toxic Data Reporting Subcommittee

ALUMNI ASSOCIATIONS

James Madison College, Michigan State University
Alumni Association President, 1985-8, Boardmember,1981-3,Vice-President,1984-5
Vice-Chair, James Madison College Board of Visitors, 1995-1997
Chair, Program Committee, James Madison College Board of Visitors,1997-1998

Delivered many papers at
TIMS/ORSA, International Federation of Operations Research, International Society of Forecasting, Public Choice, Bayesian Research Conference, American Physical Society, Economic Sciences & Public Choice Conference, Foundations of Utility & Risk Conference, Judgement/Decision making Conference, NBER-NSF Seminar on Bayesian Inference in Econometrics & Statistics, University of Chicago, Northwestern University, University of Michigan, University of Arizona, University of California at Irvine.
Ad Hoc Reviewer for
Physics Letters, IEEE Transactions, JASA, Mgt Science, International Economic Review, American Political Science Review, Journal of Risk and Uncertainty, National Science Foundation grant applications, Kentucky Planning Office grant applications.

Society Memberships:

Institute for Operations. Research & Mgt Science	Society for Risk Assessment
International Society for Bayesian Analysis	American Physical Society
International Platform Association	Royal Economic Society
American Economic Association	Public Choice Society
American Statistical Association	Phi Beta Kappa
Judgment/Decision Making Society	Phi Kappa Phi

FELLOWSHIPS/HONORS

National Merit Scholarship
National Science Foundation 3-Year Fellowship
Alumni Distinguished Scholarship, Michigan State University
Lilly Fellowship

Award of Excellence, General Motors R&D, for R&D Project Selection Process.
1998 President's Council Award, General Motors Corporation, for work on Portfolio Concepts Process
2002 UAW-GM People Make Quality Happen Award
2003: GMNA Award for Creative & Incredible Performance in Engineering Design
2004 GM Chairman's Honors
2006 Decision Analysis Publication Award