informs DECISION ANALYSIS SOCIETY

DECISION ANALYSIS TODAY

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The newsletter of the INFORMS Decision Analysis Society

Inside:

President's Letter

Jason Merrick

Dear DAS Members,

We have a lot to celebrate in the Decision Analysis Society. The winners of three of our awards have been announced. I would like to congratulate Bhavani Shanker Uppari from INSEAD, and his advisor Sameer Hasija, for winning the Student Paper Award with their paper "Modeling Newsvendor Behavior: A Prospect Theory Approach". The publication award this year goes to Neil Stewart, Stian Reimers, and Adam Harris for their paper "On the Origin of Utility, Weighting, and Discounting Functions: How They Get Their Shapes and How to Change Their Shapes" that appeared in the March 2015 issue of *Management Science*. Congratulations to the three authors! My first exposure to decision analysis

was Simon French's book *Decision Theory: An Introduction to the Mathematics of Rationality*. I was very pleased to hear that Simon is the winner of this year's Ramsey Medal; he has really put British decision analysis on the map. The finalists for the Practice Award will present at the INFORMS Annual Meeting in October and the winner will be announced in the awards session. These winners and finalists remind us that the future, present, and foundations of decision analysis research and practice are strong.

The Advances in Decision Analysis conference in June was a great success. The conference, held in Austin, included a great set of talks on diverse topics. In the three research incubator sessions, eleven PhD students received some great constructive feedback and ideas from the discussants and the audience. Jim Dyer of the University of Texas gave the research keynote, looking back at his work and challenging some his (and my) assumptions. Bill Klimack of Chevron laid out some challenges for the research community from the practitioner's viewpoint. Jim's extensive research career and strong interest in practice really complemented Bill's deep experience in practice and fascination with research. The audience was left with a lot to think about. In other talks, Elisa Long examined the decision whether to undergo medical procedures given the results of genetic tests, asking the poignant question "Was Angelina Jolie right?"; Bo Cowgill reported on an industry test of machine learning for resume screening, finding that the algorithm identified great candidates that human screeners had overlooked; Jack Soll offered new ways to diagnose and understand over-precision in human judgments; and Enrico Diecidue took another big step towards understanding preferences over gambles where uncertainty is resolved and payoffs occur over varying timeframes.

It was a great conference and I would like to thank the conference chairs Casey Lichtendahl and John Butler, along with Yael Grushka-Cockayne, for their hard work in making ADA 2017 such a great success. Yael will be stepping down as the society's Secretary/Treasurer after five years of incredible service. Yael has been the foundation of all that has happened in DAS in that time, including both offerings of the Advances in Decision Analysis Conference and the 50th Anniversary Gala, and I would like to offer her my deepest gratitude both personally and on behalf of the society. We are lucky enough to have Melissa Keeney stepping into this critical role, so the society is still in good hands!

The DAS council is starting some new initiatives. We want to offer more mentoring and support to PhD students as they start their career in either academia or practice. The research incubators were the first step in this direction, but you will see more opportunities like this in the future. We also want to build bridges to other fields. DAS has strong links to homeland security and to energy and the environment. We will be working to catalyze more work at the intersection of decision analysis and operations, supply chain management, analytics, and data science. We would like your ideas for helping PhD students in decision analysis start their careers and engendering applications of decision analysis in other fields. We are also starting planning for ADA 2019 and considering a possible European venue. We will have more to announce at the Annual Meeting in Houston in October, but your ideas are very welcome as are volunteers.

In previous columns, I have highlighted some fundamental research that can have a significant impact on practice, looking at Casey Lichtendahl and Yael Grushka-Cockayne's work in aggregating probability and quantile forecasts, and some decision analysis research that is having an impact in other fields, focusing on Melissa Kenney's work in climate change decision-making. In this column, I would like to feature some work in practice that is leading to interesting research. Saurabh Bansal was Jim Dyer's PhD student

at UT Austin before joining the faculty at Penn State. As I mentioned above, Jim has always seen the value of practice in driving research ideas and Saurabh has followed that model in his career.

Saurabh was approached by Dow AgroSciences to help improve their expert forecasting for new hybrid seed varieties. The company must determine the acreage of each seed variety of corn and soybeans to plant to produce seeds to sell to farmers. The yield of each new variety is uncertain and is estimated using expert forecasts who consider the yield data for the seeds that were combined to make the new variety. Saurabh, and his colleague Genaro Gutierrez, developed a method to take the quantile judgments of the experts and estimate the parameters of the yield distribution. This work and the new forecast combination method is outlined in the recently accepted paper entitled "Using Experts' Noisy Quantile Judgments to Quantify Risks: Theory and Application to Agribusiness" that is available in Articles in Advance at *Operations Research*.

As all good decision analysts know, obtaining good probability estimates is a good first step, but we also must consider the decision itself, particularly with portfolio problems like this one. Saurabh worked with Mahesh Nagarajan from the University of British Columbia to develop a portfolio optimization for this $800 million decision. Dow uses one production cycle in North America followed by a second and more costly cycle in South America. This mitigates risk if the North American yield is low and allows for production flexibility, but increases the complexity of the decision. In another recent paper in the latest issue of *Operations Research* (volume 65, issue 4) entitled "Product Portfolio Management with Production Flexibility in Agribusiness," Saurabh and Mahesh show that sequential production is less costly than single cycle production given sufficiently high profit margins. The application of the forecast aggregation and portfolio optimization at Dow led to a 6-7% reduction in production investments, a 2-3% increase in profits, and (perhaps more importantly to me) two interesting papers to read.

While we have much to celebrate, we also received some sad news this summer. Rex Brown was one of the founders of the society and served on the first council from 1981 to 1982. Rex passed away at the end of July. I did not know him personally, but you will find an article written by those that knew Rex best on page 5 of this newsletter. Without the efforts of Rex and all those who founded and grew the Decision Analysis Society, our field would not have this great forum for discussion and many of us would not have access to the great community of academics, practitioners, and students. I offer my personal thanks to all those who have served the society since its founding, but today particularly to Rex.

Jason Merrick

Virginia Commonwealth University

Letter from the Editors

Debarun Bhattacharjya and Cameron MacKenzie

Dear reader,

The September *DA Today* newsletter is always full of exciting announcements, and this newsletter is no different. There are four candidates for the DAS council: Léa Deleris, Janne Kettunen, Eva Regnier, and Mazen Skaf. You can read their position statements and bios in this newsletter. Please be sure to vote, and you will receive instructions from INFORMS in that regard soon.

The INFORMS Annual Meeting will be held from October 22-25 in Houston. You will find the schedule for the DAS cluster in the newsletter, and we encourage you to make plans to attend the meeting if you have not done so already. Thank you to the co-chairs—Andrea Cadenbach and Saurabh Bansal—for organizing the DAS clusters. One of our society's members, Bill Klimack, is also the chair of the Annual Meeting this year.

The newsletter announces several DAS awards that will be presented at the Annual Meeting. Congratulations to Simon French, the recipient of the Ramsey Award; Bhavani Shanker Uppari, the winner of the Student Paper Award; and Neil Stewart, Stian Reimers, and Adam Harris, the winners of the Publication Award. There are three finalists for the DAS / SDP (Society for Decision Professionals) Practice Award: Eva Lee, David Echeverría Ciaurri, and Valentina Ferretti, who will each present their research during the INFORMS Annual Meeting; a winner will be announced at the meeting.

We are also saddened by the death of Rex Brown, and Jonathan Barron's column celebrates Rex's contribution to decision analysis and remembers his passion for making our discipline relevant to practitioners' decision problems. As part of the newsletter's regular features, Pat Leach's "DA Practice" column examines how culture impacts the practice of decision making and framing in different countries. In the "Ask DAS" column, Florian Federspiel and Allison Reilly recount their interviews with Chris Spetzler and Frank Koch on the Decision Education Foundation's mission to teach decision analysis to high schoolers. Mavis Wang and Shijith Kumar in "DA Around the World" examine analytics and decision making at universities in India. Finally, the newsletter contains abstracts for the most recent issue of the *Decision Analysis* journal and announcements about the SDP annual conference in April.

We thank all the column editors for their excellent contributions; the newsletter functions primarily due to their efforts. We welcome any suggestions about the newsletter—please feel free to send us a note if you have any ideas and thoughts for future issues.

Happy reading,

Cameron and Debarun

Rex V. Brown: A Colleague and Friend

Jonathan Barron (barron@upenn.edu)

Rex Brown (1933 – 2017)

Rex V. Brown, an early and long-time contributor to decision analysis, died from pancreatic cancer on July 25 this year, at the age of 83. In character, he did a personal decision analysis to persuade his doctor to do diagnostic tests when symptoms first began in 2011. These tests led to treatment and a remission of the cancer. Sadly, the remission was not permanent.

Born in London, he barely survived the blitz during the War. He attended Queens College, Cambridge University, where he studied economics and anthropology, then received a DBA from Harvard Business School, where he described himself as a "junior member of the original Raiffa-Schlaifer team." He remained there until 1970, when he began to work as a decision analysis consultant. In 1968 he received the Oswald George Prize in Applied Statistics for his work on the credibility of estimates, published as "Research and the Credibility of Estimates: An Appraisal Tool for Executives and Researchers" (1970).

Eventually, he and two others founded Decision Analysis Consortium (DSC), which he finally sold in 2000. Over the years, he accumulated many examples of real-life analyses, which fill his various publications. (See Brown, 1989, 2009, 2012, 2015, for references to many of these, plus reflections on his interests and ideas about how to help people make better decisions.) He also spent time in various academic positions, most recently, and for the longest period, in the School of Public Policy at George Mason University, near his home in Reston, VA.

Apparently his applied work was successful in many ways. The cover story in The Illustrated London News (October, 1987), about "Why the superpowers need this Englishman" described him as "The éminence grise of the American government." It began, "The Russians have been interested in Rex Brown. They have tried to suborn him with comely women, they pester him to attend scientific conferences in Russia ... It all seems a little extreme when you consider Dr. Brown is simply an academic with a gift for logic and a taste for psychology. But the Russians know that Dr. Brown has blended these two disciplines into the practical new science of decision analysis which is of acute importance to defense development and the whole management of American society." (If only ... I'm tempted to think.) The article describes his work on several top secret projects, without revealing the secrets of course.

Rex's books include: *Rational Choice and Judgment: Decision Analysis for the Decider* (2005); *Decision Analysis for the Manager* (1975, with Andrew S. Kahr and Cameron Peterson); and *Teaching Decision Making to Adolescents* (1991, co-edited with me). He was a founding council member of the Decision Analysis Society.

Up until the last month of his life, he was putting the finishing touches on his last book, *The Art and Science of Making Up Your Mind: Decision Theory for the Everyman*. He learned a week before his death that it would be going into production (Taylor and Francis).

As I look over his publications, I see his work as characterized by two themes: making decision analysis useful to clients of the sort he worked with; and developing a form of "personal decision analysis" to help real people make real decisions.

In the course of grappling with these issues, he would often come up with what I thought were stunning philosophical insights. For example, his 1993 paper is written almost as a piece of advice for practical decision analysts. Yet for me, at the time and still, it contained the solution to a problem that had nagged at me since I began to study probability theory: how to incorporate the idea of "true probability" into a personalist theory of what probability is (a theory I found convincing, but which made it difficult for me to communicate with others, because I always thought that the "true probability" of anything was 1 or 0).

I came to know Rex when he visited me at home shortly after my first book was published (*Rationality and intelligence*, 1985). He said that he wanted to spend the latter part of his career on the project of making decision analysis, or at least its basic concepts, useful to ordinary people and teaching them to use it, and he wanted me to help. This led to a grant, the development of a curriculum for high schools and lower age groups (in collaboration with Kathy Laskey, who was then employed at DSC), and an edited book (Baron and Brown, 1991).

Both of us, in different ways, continued to believe in the value of conveying basic principles of decision analysis to students. I incorporated these ideas into my textbook (*Thinking and Deciding*) and into my teaching, where I routinely asked students to carry out a couple of simple decision analyses for real decisions. Despite the lack of formal evaluation of the effectiveness of such instruction (which was never done on my course, or any other course in my department, on any measure except teacher ratings, for that matter), anecdotes abound of the value of such everyday applications, many of which are included in Rex's later books. I hope I am not the only person left who believes that Rex had it right, and that the problems of improving everyday decisions are largely the result of institutional issues, such as the lack of teachers qualified to teach these subjects, and the absence of questions about decision making on important tests, such as achievement tests in mathematics.

Rex proceeded to write more books. The last book, which I tried to help with (but did not have enough time to really help) is full of Rex's insights and could be useful to a much more sophisticated audience, as well as its intended audience.

Rex was a character. A wonderful character. Open, with a self-deprecating sense of humor, curious, and full of surprises. Everyone has anecdotes about him. He was loved by many and will be missed, not just by his wife Dalia, his four daughters, and his grandchildren, but also by his collaborators and others who knew him throughout his life.

A personal obituary with some of the anecdotes: http://karenbrownreports.org/?cat=39

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Upcoming Conferences

October 22-25, 2017
INFORMS Annual Meeting
Houston, TX, USA
http://meetings2.informs.org/wordpress/houston2017/

December 10-14, 2017
Society for Risk Analysis Annual Meeting
Arlington, VA, USA
http://www.sra.org/2017-annual-meeting

December 3-December 6, 2017
Winter Simulation Conference
Las Vegas, NV, USA
http://meetings2.informs.org/wordpress/wintersim2017/

January 24-26, 2018
The 7th International Conference on Operations Research and Enterprise Systems
Madeira, Portugal
http://www.icores.org/

April 11-April 13, 2018
Annual Conference of the Society of Decision Professionals (SDP): Decision Analysis Affinity Group (DAAG)
Vancouver, Canada
www.decisionprofessionals.com

Nominations for DAS Positions

Candidates for DAS Council

Léa Deleris

Position Statement: First of all, I am delighted and honored to be nominated to run for the DAS council.

I stumbled upon decision analysis while doing my Master of Science at Stanford and found it so compelling in its relevance to life situations whether personal or professional, mundane to serious, that I embarked on a PhD there. I also love its diverse facets, it is a field that draws from mathematics, economics, psychology, social sciences, computer science, and management. Through my career at IBM Research, I have been able to teach and convince others of its benefits but I have also been made more aware of the difficulties of making Decision and Risk Analysis models used regularly in a work environment. Access to input information (experts, data) is not as simple as the proponents of Big Data make it sound. Also, both decision makers and constraints under which they operate are moving targets, making modelling and adoption challenging. However, as a researcher, this has inspired numerous research questions, many more than I have had time to address.

My perspective for the Decision Analysis Society is to keep focusing on reaching out to the practice side of the discipline, with the purpose of understanding what is impeding a wider adoption of our concepts and approaches, and formulating new research problems that address them. I believe there are many interesting academic investigations that can be inspired by real life applications, investigations that practitioners can rarely carry out due to time constraints. Of course, such problems may not fit neatly into our current view of Decision Analysis research. Thus we need to find ways to further encourage researchers to step out of their comfort zone.

Another priority for the discipline to stay current and useful is to embrace the current trend towards Artificial Intelligence and, with it, the importance given to data-driven approaches. I believe that model and expert driven techniques will not become in any way obsolete though there are many opportunities to leverage available data (whether structured or unstructured) for decision and risk modelling. As a community we should reach out to other fields and investigate whether recent modelling approaches are meaningful for decision analysis research. One example that I have in mind would be to look more closely at deep learning; another would be to explore how we could make use of social data (e.g. twitter, Facebook) in decision analysis.

I believe both efforts—being inspired by practice and further efforts towards other disciplines—should come initially from academic research which has the luxury to be able to ponder over problems and seek more general solutions than practitioners in the midst of a consulting engagement. One simple step, among

others, is to dedicate sessions at conferences for New Topics in Decision Analysis and schedule it a convenient time to ensure many members of the society can attend.

Profile and Biography: I currently manage a team of 10+ researchers and software engineers working on a diversity of projects that seek to make use of artificial intelligence and natural language processing to support decision making in a variety of situations including social care, health care, chemistry but also sales management. I am also the manager for the Irish team of the Debater project, which focuses on computational argumentation.

My personal research interests lie in decision theory and risk analysis. Currently, my work presents a mixture of applied and conceptual work, including bridging Natural Language Processing and Decision Analysis and mixing AI and Decision Analysis to provide decision support in behavior change. In the past, I have been involved in defining risk analysis models in the context of enterprises such as supply chain risk, process model risk modeling, and distributed elicitation of expert opinions. For instance, I have worked on the problem of defining the long-term maintenance plan of oil platforms for Statoil, a Norwegian oil producer. I have also worked in the healthcare domain, looking at leveraging the academic literature to build risk models and building vulnerability models to support social care workers in eldercare services.

I received M.S. degrees in Economic Systems from Ecole Polytechnique (France) in 1999 and in Management Science and Engineering from Stanford University in 2001. I joined IBM Research in 2006 just after graduating from Stanford University with a PhD. in Management Science and Engineering.

I have been a Research Staff Member and Manager in IBM Ireland since April 2010. One of my previous roles was to lead the Risk Management Collaboratory project. Before moving to Ireland, I was a member of the Risk Analytics group of the Business Application and Mathematical Science Department at the IBM TJ Watson Research Center. I also pursue more strategic roles within IBM Research. Specifically, I am the lead for AI research within the Dublin lab and serve as co-lead for the global team of researchers working on Decision Science.

Janne Kettunen

Position statement: Thank you very much for nominating me as a candidate for the DAS Council. I would be delighted to serve on this committee and support the well-functioning of decision analysis society's current and new activities. Since I started my academic career, I have been engaged with the decision analysis society. Initially, it meant attending and presenting at the decision analysis sessions in INFORMS conferences. From 2013 onwards, I have been chairing these sessions myself and have also contributed to the Decision Analysis Today newsletter by serving as a guest column editor for a couple of articles. In 2016, I served on the Decision Analysis journal's best publication award committee.

One of the key strengths of our field is that many of the problems we work on are practice-driven. Therefore, our work results in concrete benefits. For example, decision analysis tools and techniques are required to be developed and integrated to the project and operations management problems. Our tools and analysis help to make right decisions, improve on-going operations, and provide understanding about the risk-return trade-offs. Particularly, the use of decision analytic approaches is relevant given the big data era when lots of data is available but there is a need to make sense of it. Consequently, I would like to support the development of new activities and maintain the existing activities together with the other council members related to the following two areas:

1. Promote collaboration between practitioners and researchers. For example, a visit could be arranged during a conference for a local company to learn about their use of decision analytic approaches and new challenges. Collaboration between practitioners and researchers could also be supported by organizing a conference session that is dedicated solely for the introduction of decision analytic problems. These introductory presentations could be given by the practitioners focusing on problems that they have and for which they do not have solutions.

2. Strengthen interdisciplinary research that interfaces with decision analysis. This could be facilitated by cross-listing decision analysis sessions with related project and operations management sessions, for example. Furthermore, it could be fruitful to organize tutorial sessions on conferences in topics such as conducting interdisciplinary research in decision analysis or decision analysis and big data.

Biography: Janne Kettunen is an assistant professor of decision sciences at the George Washington University School of Business. He received M.S. from the Helsinki University of Technology (now known as the Aalto University), M.B.A. from the Hawaii Pacific University, and D.Sc. from the Helsinki University of Technology. The last three years of his doctoral studies 2006-2009, he spent at the London Business School as a visiting PhD student and a research fellow. He has served in the advisory committee for Deputy Minister of Environment Canada Paul Boothe on “Government’s GHG emissions plans, how to move forward with a regulatory approach for all major emitters”. His current research interests deal with decision making under uncertainty and risk focusing on two different areas: portfolio decision analysis and operational decision making. His research has been funded by several research grants and he has been a finalist for the Dennis J. O’Brien USAEE best paper award. In terms of application areas, his current research interests are in project management and new product development.

Eva Regnier

Position statement: I am honored to be nominated to run for the DAS Council. Like many DAS members, my degrees are in related fields, but my interest in making a difference in real-world problems drew me to the DAS community. Both its formal activities—meetings, journal, newsletter—and the community have supported me and many others. Within INFORMS, the DAS has perhaps the most collegial environment and encourages exchange and collaboration across a very wide spectrum from theoretical to very applied work, and from behavioral highly normative work. This integration helps all of us do our work better. My own formerly normative work on hurricane preparation has been influenced by behavioral decision analysis research that I've encountered through DAS friends and colleagues.

The DAS is very successful in supporting and connecting within the community, and I would be very pleased to serve and support its continued efforts. I would also emphasize increasing the visibility of recent DAS work to the community of primarily academic researchers in related fields who are not familiar with our work, and to the community of practitioners who do not yet benefit from our work, in many government and commercial sectors.

In addition, the Decision Education Foundation and others provide valuable decision analysis education resources, but there is unmet demand for resources targeted at the graduate and continuing education level. The DAS can facilitate the exchange of resources and best practices at these levels, and work to exploit newer online delivery mechanisms.

Biography: Eva Regnier is an Associate Professor in the Graduate School of Business and Public Policy at the Naval Postgraduate School. She holds a Ph.D. in Industrial Engineering and a M.S. in Operations Research from the Georgia Institute of Technology, and a B.S. from Massachusetts Institute of Technology. She teaches statistics, business modeling, risk management, and operations management. Her research and consulting integrate data into both automated and human decision processes, in particular for weather-affected decisions such as hurricane preparation. Her research has been funded by the National Science Foundation, Office of Naval Research, the Joint Typhoon Warning Center, the Marine Forces Reserve, and other Department of Defense organizations. Within DAS, she has served on the editorial board of the Decision Analysis Journal, chaired paper award committees, and served as cluster and session chair for the INFORMS annual meeting.

Mazen A. Skaf

Position statement: The DA Society and INFORMS have been my professional home for the past 22 years and have given me the opportunity to learn, contribute, collaborate, and build lasting friendships. It is an honor to be nominated to run for the DAS Council. It would be a privilege to have the opportunity to serve the Society and to give back to DAS.

I am passionate about high-quality decision-making in the private sector and public sector. Decision analysis (DA) has provided structure for my passion and enabled me to work with corporate leaders and cabinet-level executives in the public sector on transformative decisions, strategies, and policy programs that have created value for shareholders, stakeholders, and citizens. As I have learned from my teacher and dissertation advisor, Prof. Ron Howard, the best way to thank one's teachers and colleagues is to practice what they have taught us and to share the learnings with others. Over the years and thanks to DAS and the Society of Decision Professionals (SDP), I have had the opportunity to learn from and collaborate with several colleagues including Larry Neal, Prof. Ralph Keeney, Karen Jenni, Prof. Sam Bodily, Carl Spetzler, Prof. Eric Bickel, Prof. Jim Smith, Warner North, Bruce Judd, and many others. As part of my practice and the executive courses that I have taught in DA and DQ, I have practiced and shared what I have learned from teachers and colleagues with decision-makers and practitioners in various countries across North America, EMEA, Southeast Asia, and Australasia.

Our field and DAS are at an exciting as well as a critical stage: a) there is an increasing focus on decision-making in organizations; b) we are witnessing a massive increase in information and large data sets that can benefit from DA and decision analytic methods to derive insights and enable decision-making; and c) emerging innovations in decision collaboration solutions and platforms have the potential to change how decisions are made and decision agendas are managed within an organization. DAS has the opportunity to accelerate the adoption of DA and decision analytic methods and to contribute to the innovation and evolution of how DA is practiced in a highly dynamic, data rich world.

Another opportunity for DAS is to help shape the decision agenda and bring insights and a decision analytic approach (at the very least at the framing and alternatives stage) to specific societal decisions that we face at the state, national or global level across energy and renewable energy resources, climate and environmental policies, healthcare, broad resource allocation, education, and infrastructure.

If elected to the DAS Council, I would work closely with the DAS leadership and membership on the Society's goals and objectives and would seek to further advance the visibility and reach of DA and the DAS in the following ways:

1. Supporting innovation in the practice of DA and the adoption of DA methods in various solutions (including but not limited to apps, decision support solutions, and decision collaboration platforms) by highlighting and recognizing such innovations and engaging researchers and practitioners in identifying and surfacing such advancements. We can work on setting up a corporate-sponsored DAS award for recognizing highly impactful innovations in the practice of DA.

2. Working with DAS and SDP and potentially other organizations to develop a forum for shaping the decision agenda, promoting the use of DA methods and language, and bringing insights to societal decisions that we face. With the increasing complexity in various societal decisions, DAS can add significant value by bringing much needed decision analytic basics at the level of framing and alternatives of such societal decisions, and potentially focus on one or two societal decisions to make a significant impact through publications or sessions in a conference.

3. Expanding DAS membership and the international outreach. Working with academic programs and DA faculty to recruit new students and recent graduates as well as with practitioners to recruit other practitioners. Enhancing the benefits to members (particularly junior members) and facilitating the communication and collaboration among members (through professional groups on digital media, etc.)

The positive impact that DA and DA Practitioners have had on decisions that have shaped various industries and societies is inspiring and should be highlighted to enable DAS to expand its reach and continue to drive the evolution and development of the field. This is further aligned with one of the goals of INFORMS to "identify, recognize, and promote the work of our members to show the value their science and practice brings to society." DAS as the second largest society within INFORMS and with the success stories of DA has a lot to offer towards that goal.

Biography: I am a partner and managing director of Strategic Decisions Group (SDG) responsible for three key practices: energy & environment, analytics, and sovereign advisory. I have applied DA in several functional areas including strategy, corporate development, portfolio management and resource allocation, and financial risk management. I have advised clients in a variety of industries including energy, technology and communications, and pharmaceuticals. As several of my successful clients in the private sector took on cabinet-level appointments in the public sector, I have had the opportunity to work with them on transformative policy design in economic development, knowledge-based industries, job creation, resource allocation, and public-private partnerships.

Before joining SDG, I was a member of the start-up team and a senior director of product marketing at Rapt Technologies, a leader in web media price optimization, which was acquired by Microsoft. Prior to that, I worked at General Motors in the Decision Support Center where I supported the development of the product portfolio strategy for the company's largest division. In 2005, on a sabbatical leave from SDG, I joined my client in co-founding a biotech company and served as the Chief Business Officer of TRACON Pharmaceuticals where I directed overall corporate strategy and business development activities.

I have been active in INFORMS and the DAS for many years. I served as DA cluster co-chair in 2015 and DA Session Chair on numerous occasions. In 1999, my client Donald W. Spillman from Shell Offshore, Inc. and I received the DAS Practice award for our work in portfolio management in the deepwater Gulf of Mexico.

I graduated with a B.S. in mechanical engineering from the University of Texas and an MS and PhD in engineering-economic systems from Stanford University. In 1998, I was elected Fellow of the Stanford Center on Conflict Resolution and Negotiation. I am also a Fellow of the Society of Decision Professionals. I am a member of Chatham House and have served as a Wall Street Journal Expert Panelist

on topics related to energy. My research and work have been featured in *The Wall Street Journal*, CNBC, *Bloomberg Businessweek*, and several other publications.

INFORMS 2017 DAS Cluster

Andrea Cadenbach and Saurabh Bansal are cluster chairs for the DA track at INFORMS 2017. They write:

"We have an exciting lineup of sessions touching on various theoretical themes and applications of Decision Analysis. In addition to the Award Session on the second day of the conference, Robin Keller and Carl Spetzler are conducting two panel sessions for the DA community. Robin Keller will host Area Editors of Decision Analysis sections at various journals and discuss editors' point of view ON handling and assessing manuscripts. Carl Spetzler will discuss the evolution and adoption of Decision Analysis in Industry. The latest list of sessions follows."

Sunday				**Monday**			
A	**B**	**C**	**D**	**A**	**B**	**C**	**D**
Spatial Decision Analysis FERRETTI	Game Theoretical Models in Strategic Management XU	Decision Analysis Practice Award Talks HAMM	Developments of Utility Theory HE	Strategic Decisions KIM & KWON	Risk Attitudes CADENBACH	Decision Analysis, Game Theory, Homeland Security & Disaster Management Part I ZHUANG	DAS006 DAS Awards Session MERRICK
Decision Analytic Approaches to Green Infrastructure HUNG	Panel: The Journey to Organizational Decision Quality SPETZLER	Behavioral Decision Analysis SEIFERT	Data-Driven Bayesian Modeling BHATTACHARJYA & BAROUD	Military Decision Analysis PARNELL	Beliefs in Environmental Decision-making KENNEY	Healthcare Decision Analysis KELLER	

Tuesday					Wednesday		
A	**B**	**C**	**D**	**E**	**A**	**B**	**C**
Modeling, Decisions, and Sensitivity BORGONOVO & CILLO	Portfolio Decision Analysis MORTON, SALO & JUUSO	Panel: Meet the Editors KELLER/ BANSAL	Decision Analysis in Public Policy WELBURN	Judgments and Forecasting CHAIR	Healthcare Decision Analysis AYVACI & KIM	Statistics and Decision Analysis	Group Decision Making
Behavioral Issues in Counter Terrorism Decision MONTIBELLER & ROSSOFF	Multicriteria Decision Making ULU	Decisional Conflicts and Incentives in Healthcare AYVACI	Probability Judgments PALLEY	Decision Analysis, Game Theory, Homeland Security & Disaster Management Part II ZHUANG	Preferences and Risk Modeling	Decision Analysis Arcade	Decision Analysis Arcade

Award Announcements

Ramsey Award

The Frank P. Ramsey Medal is the highest award of the Decision Analysis Society (DAS). It was created to recognize distinguished contributions to the field of decision analysis. The medal is named in honor of Frank Plumpton Ramsey, a Cambridge University mathematician who was one of the pioneers of decision theory in the 20th century. His 1926 essay "Truth and Probability" (published posthumously in 1931) anticipated many of the developments in mathematical decision theory later made by John von Neumann and Oskar Morgenstern, Leonard J. Savage, and others.

For this award, decision analysis is defined as a prescriptive approach to provide insight for decision making based on axioms that are logically consistent with the axioms of von Neumann and Morgenstern and of Savage. Key constructs of decision analysis are utility to quantify one's preferences and probability to quantify the state of one's knowledge. There are overlapping aspects of decision analysis with other fields such as behavioral decision research, probabilistic risk analysis, and engineering and economic analyses.

Behavioral decision research addressing how people make decisions that has direct implications for improving the practice of decision analysis is a contribution to decision analysis. Models of uncertain possible consequences from scientific, engineering, and economic modeling that are useful for decision analysis are contributions.

Distinguished contributions to the field of decision analysis can be internal, such as theoretical or procedural advances in decision analysis, or external, such as developing or spreading decision analysis in new fields. Thus, the specific award criteria for evaluating potential Ramsey Medal recipients are a candidate's

- Theoretical, methodological, and procedural contributions to decision analysis
- Applications of decision analysis (including new uses and in new fields)
- Other contributions promoting decision analysis (e.g. educational and public awareness)
- Exceptional contributions to the DAS (e.g. service to society or journal)

A potential recipient need not meet all of the criteria, but contributions to each criterion are pertinent.

Prof. Simon French has been selected to receive the 2017 Frank P. Ramsey Medal.

Prof. French is Professor of Statistics in the Applied Statistics and Risk Unit at the University of Warwick. Prior to joining the University of Warwick, Professor French was Professor of Information and Decision Sciences at the Manchester Business School. He has also held academic appointments at the University of Leeds and Oriel College.

He obtained his doctorate from Oxford University in 1975, under the direction of Prof. Blake. Professor Dennis Lindley was one of his examiners. Prof. French's doctoral work focused on the application of Bayesian Kalman filters in protein crystallography. This work was an early application of Bayesian nonlinear hierarchical models and paved the way for the use of Bayesian techniques in crystallography.

Prof. French is a Fellow of the Royal Statistical Society and an elected member of the Spanish Real Academia de Ciencias. He has made numerous contributions to the theory and practice of decision analysis. This includes the publication of six books focused on Bayesian statistics and decision theory:

- *Multi-Objective Decision Making* (1983), with R. Hartley, L. C. Thomas, and D. J. White
- *Decision Theory: An Introduction to the Mathematics of Rationality* (1986)
- *Decision Analysis: Reading and Notes* (1989)
- *Bayesian Analysis in Practice*, edited with J. Q. Smith (1997)
- *Statistical Decision Theory* (2000), with D. Rios Insua
- *Decision Behaviour, Analysis, and* Support (2009), with J. Maule, and N. Papamichail

In addition to these books, Prof. French has nearly 200 other publications. He is currently editing a book entitled *Expert Judgment in Risk and Decision Analysis*.

Much of Prof. French's work has centered on expert judgment and probability elicitation, which includes highly cited work on group consensus probability distributions, Bayesian statistics, and multi-criteria decision making. After the Chernobyl incident, Prof. French became deeply involved in the field of risk communication. This led to a string of papers and work focused on nuclear and food safety. More recently, Prof. French has become interested in social decision making and democracy in the internet age.

Prof. French has been a member of the Decision Analysis Society, or its predecessor, since 1987.

The Ramsey Medal Award Committee for 2017 was Eric Bickel (Chair), Robin Keller, Jack Kloeber, Greg Parnell, and Carl Spetzler.

DAS Publication Award

The award selection committee for this year was Vicki Bier (chair), Erin Baker, Manel Baucells, and Jagpreet Chhatwal. On behalf of the committee, it is my pleasure to announce the winner of this year's Publication Award for the Decision Analysis Society:

Neil Stewart, Stian Reimers, and Adam J. L. Harris, "On the Origin of Utility, Weighting, and Discounting Functions: How They Get Their Shapes and How to Change Their Shapes," *Management Science* 61(3) (March 2015).

The publication award committee would also like to recognize one book as a finalist:

Jo Eidsvik, Tapan Mukerji, and Debarun Bhattacharjya, *Value of Information in the Earth Sciences: Integrating Spatial Modeling and Decision Analysis*, Cambridge University Press (2015).

DAS Student Paper Award

The Student Paper Award is given annually to the best decision analysis paper by a student author, as judged by a panel of the Decision Analysis Society of INFORMS. Students who did not complete their Ph.D. prior to May 1, 2016 were eligible for this year's competition.

The publications committee for this year included Emanuele Borgonovo (Co-Chair), Joe Hahn (Co-Chair), Qiushi Chen, Robert Hammond, Gordon Hazen and Canan Ulu. We received 20 submissions all of which were of outstanding quality and award deserving.

It is our pleasure to congratulate the winner of this year's publication award:

Bhavani Shanker Uppari, for the paper "Modeling Newsvendor Behavior: A Prospect Theory", and co-authored with Sameer Hasija.

The award is accompanied by a plaque and a $500 honorarium.

The publication award committee would also like to recognize two papers as runners up:

Majid Karimi, for the paper "On the Road to Making Science of 'Art': Risk Bias in Market Scoring Rules," co-authored with Stanko Dimitrov,

and

Vineet M. Payyappalli, for the paper "Deterrence and Risk Preferences in Sequential Attacker–Defender Games with Continuous Efforts," co-authored with Jun Zhuang and Victor Richmond R. Jose.

We have been honored to serve as the 2017 co-chairs of the DAS Student Publication Award and take the occasion to thank the distinguished committee members Qiushi Chen, Robert Hammond, Gordon Hazen, and Canan Ulu for their precious cooperation.

Sincerely,

2017 DAS Student Paper Award Committee Co-Chairs:

Emanuele Borgonovo
Full Professor, Bocconi University, Milan, Italy

Joe Hahn
Clinical Associate Professor
Department of Finance, McCombs School of Business, The University of Texas at Austin

DAS/SDP Practice Award

The DAS/SDP Practice Award Committee is pleased to announce three finalists. Each finalist will be presenting at the INFORMS Annual Meeting on Sunday October 22, Session D, from 1:30-3:00 pm. The presenters are:

- Eva K. Lee, Georgia Tech, Decision analytics for reducing surgical-site Infections: Application to coronary artery bypass graft patients
- David Echeverría Ciaurri, IBM Thomas J. Watson Research Center, A Methodology for Optimized Oil Well Location During Operational Drilling in Presence of Geological Uncertainty
- Valentina Ferretti, London School of Economics and Political Science, How to improve educational programs for underprivileged children? The impacts of value-focused Decision Analysis

The above are the presenters because David Echeverria Ciaurri and Valentina Ferretti represent larger teams. Congratulations to the three finalists. The winner of the DAS/SDP Practice award will be announced during the INFORMS Annual Meeting.

Announcement

Robert Bordley (Bordley_Robert@bah.com)

I have been an active practitioner member of the society since its inception (working at General Motors and then Booz-Allen-Hamilton). I would like to let people know that I was recently offered a full-time position at the University of Michigan Ann Arbor as a full professor on the clinical track (Professor of Practice). I start my position on September 1st. Before making this appointment, the Provost had my department chair send letters to faculty from many different universities for review by a faculty committee. While I don't know the people actually contacted, I am grateful for their support which played a key role in making this appointment happen.

In addition to teaching courses at the University, I am also program director for their Master's degree program in Systems Engineering and Design. I am, of course, approaching it from a Bayesian perspective and expect that systems engineering will become another one of the great success stories of decision analysis.

Bob Bordley
Professor and Program Director, Systems Engineering and Design
University of Michigan, Ann Arbor

Decision Analysis September 2017 Issue

http://pubsonline.informs.org/toc/deca/14/3

Was Angelina Jolie Right? Optimizing Cancer Prevention Strategies Among BRCA Mutation Carriers

Eike Nohdurft, Elisa Long, and Stefan Spinler

Abstract. Female carriers of a BRCA1 or BRCA2 genetic mutation face significantly elevated risks of cancer, with 45%–65% of women developing breast cancer and 15%–39% developing ovarian cancer in their lifetimes. Prophylactic surgery options to reduce cancer risk include a bilateral mastectomy (BM), bilateral salpingo-oophorectomy (BSO), or both surgeries. No comprehensive model providing recommendations at which age to perform the surgeries to optimize quality-adjusted life years (QALYs) exists. Using available clinical data, we develop a Markov decision process model of a mutation carrier's health states and corresponding transitions, including age-dependent breast and ovarian cancer risk, distribution of each cancer subtype and stage, and mortality. We convert the problem to a linear program to solve for the optimal surgery sequence that maximizes the carrier's expected lifetime QALYs under varying assumptions about individual patient preferences on postsurgery quality of life, fertility considerations, advances in cancer screening or treatment, and others. Baseline results demonstrate that a QALY-maximizing sequence recommends BM between ages 30 and 60 and BSO after age 40. Surgeries are recommended later for BRCA2 mutation carriers, given their lower risk for both cancers compared to BRCA1 mutation carriers. We derive structural properties from the model and show that when a carrier has already undergone one surgery, there exists an optimal control limit beyond which performing the other surgery is always QALY maximizing.

http://dx.doi.org/10.1287/deca.2017.0352

In Equations We Trust? Formula Knowledge Effects on the Exponential Growth Bias in Household Finance Decisions

Bryan Foltice and Thomas Langer

Abstract. Exponential growth effects play a major role in many household finance decisions. A systematic bias in dealing with exponential growth can lead to poor savings and debt decisions. In this

paper, we extend previous research on the exponential growth bias in the savings and debt domains and provide a first experimental link between these two important fields of consumer financial decision making. We develop a measure for the exponential growth bias that naturally extends over different domains and parameter settings, and we explore the ramifications of being acquainted with the basic formula of exponential savings growth. Specifically, we analyze whether such formula knowledge helps only in calculating simple compound interest scenarios with a pocket calculator or if it provides benefits that go beyond this narrow field of application. We observe that—even without a pocket calculator—individuals who know the compound interest formula provide less biased estimates for problems from the savings domain and also for slightly more complicated debt amortization problems that also build on exponential growth effects. We conclude that being acquainted with the compound interest formula provides some intuitive grasp of exponential effects that can be helpful in a broader range of household finance decisions. At the same time, we observe that too much dependence on a calculator can have adverse effects: when equipped with a pocket calculator, a number of participants, both aware and unaware of the compound savings formula, provided persistently insensible answers greater than the initial loan balance in the debt domain.

Value of Global Catastrophic Risk (GCR) Information: Cost-Effectiveness-Based Approach for GCR Reduction

Anthony Michael Barrett

Abstract. In this paper, we develop and illustrate a framework for determining the potential value of global catastrophic risk (GCR) research in reducing uncertainties in the assessment of GCR levels and the effectiveness of risk-reduction options. The framework uses the decision analysis concept of the expected value of perfect information in terms of the cost-effectiveness of GCR reduction. We illustrate these concepts using available information on impact risks from two types of near-Earth objects (asteroids or extinct comets) as well as nuclear war, and consideration of two risk-reduction measures. We also discuss key challenges in extending the calculations to all GCRs and risk-reduction options, as part of an agenda for comprehensive, integrated GCR research. While real-world research would not result in perfect information, even imperfect information could have significant value in informing GCR-reduction decisions. Unlike most value of information approaches, our equation for calculating value of information is based on risk-reduction cost-effectiveness, to avoid implicitly equating lives and dollars, e.g., using a value of statistical life (VSL), which may be inappropriate given the scale of GCRs. Our equation for value of information may be useful in other domains where VSLs would not be appropriate.

Optimal Group Size in Joint Liability Contracts

Bahar Rezaei, Sriram Dasu, and Reza Ahmadi

Abstract. We develop a model of repeated microcredit lending to study how group size affects optimal group-lending contracts with joint liability. In the setting being studied, a benevolent lender provides microcredit to a group of borrowers to invest in projects. The outcome of each risky project is not observable by the lender; therefore, if some of the borrowers default on their loan repayments, the lender cannot identify strategic default. The group will be entitled to a subsequent loan if total loan obligation is met. We characterize the optimal contract and determine the optimal size of the borrowers' group endogenously. We find that although joint liability contracts are feasible under a smaller set of parameter values than individual liability contracts, joint liability has positive effects on the borrowers' repayment amount and welfare. Our analysis also suggests that group size should increase with project risk. Furthermore, we analyze the effects of partial joint liability, less severe punishment, and project correlation on the feasibility and characteristics of joint liability contracts. Our results show that, first, although partial joint liability has a negative effect on the borrowers' repayment amount and welfare, it can increase the loan ceiling of joint liability when collusion is not as likely, or when borrowers have high discount factors. Second, less severe punishment does not affect the borrowers' repayment amount or welfare, but decreases the loan ceiling of joint liability. However, these negative effects created by partial joint liability and less severe punishment on the borrowers' repayment amount, borrowers' welfare, and loan ceiling can be offset by forming larger groups. Third, we also found that project correlation allows a higher loan ceiling in larger groups.

- **Decision Analysis Review**
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The DAS is a subdivision of INFORMS.
For information on DAS: https://www.informs.org/Community/DAS .

Decision Analysis is a quarterly journal dedicated to advancing the theory, application, and teaching of all aspects of decision analysis. The primary focus of the journal is to develop and study operational decision-making methods, drawing on all aspects of decision theory and decision analysis, with the ultimate objective of providing practical guidance for decision makers. As such, the journal aims to bridge the theory and practice of decision analysis, facilitating communication and the exchange of knowledge among decision analysts in academia, business, industry, and government. *Decision Analysis* is published in March, June, September, and December by the Institute for Operations Research and the Management Sciences (INFORMS) at 5521 Research Park Drive, Suite 200, Catonsville, Maryland 21228. Please visit our website at http://pubsonline.informs.org/journal/deca.

DA Around the World

Column Editors: Chen (Mavis) Wang and Shijith Kumar

In this column we introduce Decision Analysis communities around the world with the purpose of promoting their visibility and strengthening the ties between DA researchers and practitioners across borders. In the previous issue, we saw that India has a large number of decision analysis and related jobs; additionally, we also gather that more than 70 percent of employers are from the IT and IT Enabled Services and management consulting sectors. In the current issue we briefly give an overview of how academic institutions such as B-schools in India are preparing the workforce for this large opportunity space in the decision analysis world.

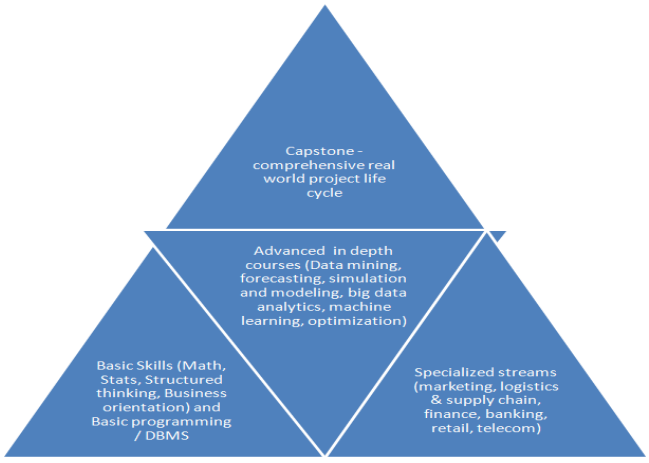
The National Association of Software and Services Companies (Nasscom) predicts that the Indian industry which employs over 50,000 people in the decision science and analytics space would require about 300,000 skilled professionals by 2020 to serve a market pegged at over two billion dollars. The largest employers in this Indian industry are the IT service providers such as TCS, IBM, Accenture, Infosys, and Genpact, followed by pure play vendors (e.g., Mu Sigma, Fractal Analytics, Blueocean) and captive centers of large firms such as ICICI Bank, Wal-Mart Labs, and Hindustan Petroleum. Having access to skilled professionals in the decision sciences and analytics field is one of the toughest challenges that the industry is facing. A recent 'think-tank meeting' on 'data science-talent' organized by Nasscom (in June 2017) emphasized the role of academia in training and capacity building in the country to develop industry ready professionals at a quick and sustainable rate.

The industry has moved up the value chain and is in the process of building resource capacity in the area of predictive and prescriptive analytics to offer solutions and services such as forecasting, simulation and optimization, natural language processing, scenario planning, and risk modeling and analysis for its clients. Academic institutions in India are building a vision to train and develop a productive young generation of data scientists and decision analysis workforce. We observe that the programs offered by leading B-schools in the decision sciences & analysis space are designed on the foundations of industry domain knowledge, business acumen and technology enabled core analytics know-how.

Being the IT hub of India, Bangalore leads with about one third of the data analytics and decision sciences firms in India. A leading program in Bangalore is offered by the Decision Sciences department at the Indian Institute of Management—Bangalore (IIM-B). With its experienced faculty members, IIM-B offers an executive program which equips participants with in depth know-how of business domain and analytics

tools to enable decision making at strategic and operational levels to address real-world business problems. The executive certificate programs offered by the leading schools such as the Indian Institute of Management, Indian Institute of Technology, ISB, Indian Statistical Institute, SP Jain School of Global Management, Great Lakes Institute of Management, and NMIMS are designed in the form of modules with some flexibility to customize the course structure based on the participants' interest and industry requirements. Most of these programs aim to be relevant by being industry oriented and collaborating with leading industry players and decision analysis technology-providers in addition to collaborating with leading global universities. Organizations such as Microsoft, Xerox, Flipkart, Deloitte, PWC, ICICI Bank, IBM Labs, and Genpact have collaborated with IIM-B, IIM-C, IIT Kharagpur, ISI, Praxis Business School, Amrita School of Business, and Aegis School of Business on various fronts—designing cutting edge courses, content creation, research collaboration, faculty exchange. Academic collaboration with global universities is also a pattern that is visible in India. GLIM collaborates with Illinois Institute of Technology, Chicago for its executive certificate program; similarly, Amrita University has a long standing relationship with the University at Buffalo offering masters and executive courses in business analytics and decision making. Most of these leading programs and courses offered (such as the ones by NMIMS and IIM-B) are well supported with technology partners, with SAS being a very common technology partner among the schools. R is also a very common technology tool, but SAS still finds its place as a prominent partner, perhaps because of the wide use of SAS by the IT majors who happen to be major recruiters in the market.

Another interesting form of collaboration is among the leading schools of India. One such program is the tri-institute, two-year program offered by IIM-C, IIT-Kharagpur, and ISI. Such collaboration allows each partner to focus on its core space in the decision sciences and analysis space according to its competence and expertise and complement each other to provide a very holistic delivery.



The shortage of skilled workforce needs to be overcome with major long-term interventions at different levels of education by designing training programs in business analytics and decision making. We now see established schools such as NMIMS offering full time undergrad, masters, and executive programs / specialized diplomas in decision sciences. Such programs have a structure to prepare future job seekers to data science positions covering basic skills like mathematics and statistics, as well as structured thinking and client orientation. These basic skills are supported by programming skills and database management courses. Further, specialized streams (such as marketing, logistics and supply chain, and finance) form the latter module structures of these programs. Data mining, forecasting, simulation and modeling, big data analytics, machine learning, and optimization form the in-depth decision making and analytics module. Most of the programs involve a capstone module embedded in solid industry-academia partnership taking the participants through a comprehensive project life cycle.

A common drawback about the education programs in India, as cited by the industry is the lack of relevance and industry-readiness. This would be serious limitation these days in this space as there is very minimal time for a person to learn on-the-job; rather the expectation is to deliver from day one. To ensure that the trained workforce lives up to this expectation, the pedagogy is designed to be most relevant by being based on real life case studies, frequent industry interactions, and practical exercises and live problems with hands on exposure.

An urgency to develop significant number of quality market ready decision analysis professionals in the near future, by 2020 can be seen in the Indian academia. The industry has also equally recognized the need for the same and has taken encouraging steps in terms of energized academia-industry interactions and collaborations. The June 2017 Nasscom think tank meeting in fact saw the industry experts recognizing the importance of mapping and standardizing industry roles which varied widely; this would enable and streamline the initiatives in training and development by reducing the employment gap in the Indian market.

DA Practice

Column Editor: Pat Leach

Culture Trumps Everything – Including Decision Analysis

We have all been in Framing workshops, and we know how they go. A good one feels like chaos for the first half, during the "diverging" stage. Ideas are thrown out, sticky notes are put all over the walls, lengthy lists of issues are collected, and people's discussions and disagreements are progressed under the guiding hand of the facilitator. The second half—convergence—is more orderly, but still requires an atmosphere of openness to divergent perspectives.

I had a conversation several years ago with a Chinese colleague about how this process needs to change in different cultures—specifically, Asian cultures. I spent four years in Indonesia during the Suharto years, which was plenty long enough to learn a few things about how to get things done there, what is acceptable and what is not, and how to behave in business meetings. My colleague, of course, knows Chinese culture extremely well, and while there are certainly differences between the two, we agreed that one shared aspect was the concept of "face." Losing face is a very big deal in Indonesia, China, and many other Asian cultures, especially if the person losing face is senior in the organization. Therefore, an open, minimally facilitated free-for-all, so common in Framing workshops in the West, would be a disaster in the East. The probability of someone's idea being shot down and them losing face is just too great (or, more likely, no one would ever shoot anyone else's idea down, regardless of how bad, because doing so would cause that person to lose face). The objectives of Framing can still be achieved, but the facilitator must use a different approach—collecting inputs individually and anonymously ahead of time, for instance, and guiding the discussion more firmly during the workshop.

An article in the July-August issue of the *Harvard Business Review* by Erin Meyer gives an excellent framework through which DA facilitators can view the issue of national culture (or corporate culture, for that matter). Like all HBR articles, it contains a two-by-two matrix (I think they must be mandatory). The two axes are Attitude Toward Decision Making and Attitude Toward Authority. Decision Making runs from Top-Down to Consensual, and Authority runs from Hierarchical to Egalitarian. Ms. Meyer plots nineteen countries' cultures on this grid, and while there are not too many surprises (at least, not if you've traveled much), the results are still very interesting.

As my colleague and I intuited, China and Indonesia are fairly close together, clustered at the upper-right-hand corner of Top-Down and Hierarchical. Joining them in that quadrant (but not so extreme) are Saudi

Arabia, India, Russia, Mexico, France, and Brazil (I admit to being a bit surprised to find France there, but I haven't done much business in France). The opposite quadrant (Consensual and Egalitarian) holds no surprises: Sweden, Norway, Denmark, and the Netherlands. The Scandinavian countries are well-known for their egalitarian and harmonious approach to life, and the Dutch have never been shy about speaking their minds.

The other two quadrants are more interesting, combining as they do two somewhat contradictory concepts. The Western Anglo countries (U.S., U.K., Canada, and Australia) are Top-Down, but Egalitarian, (albeit not overly extreme; all four countries are closer to the matrix origin than they are to the corner). In these countries, everyone expects to be heard, to have their input—but eventually, someone decides, and that's that. From that point forward, you're expected to be a good soldier and do your best to make the strategy work.

In the opposite, Consensual but Hierarchical quadrant, we find Japan, Germany, and Belgium, although Japan is the only one in the far corner. Deference to authority is extremely strong in Japan, but major decisions are expected to be made by the group, not by an individual. This slows the decision process down tremendously, but when a decision is finally reached, everyone's perspectives and concerns have been incorporated and workable compromises have been reached. Universal buy-in is almost automatic, and the probability of the decision having to be reversed is extremely low. This is also the usual way of doing business in Germany and Belgium.

The article focuses on the misunderstandings that often result from these cultural differences, and how business executives need to modify their leadership style depending on the country in which they are operating. However, there are huge lessons for the practicing DA professional, too.

For openers, it is no mystery why DA as typically practiced had its origins in Anglo countries. One of the first things we are taught to do is find out who the decision maker is; if that doesn't smack of Top-Down, I don't know what does. In Japan or Sweden, there is no Decision Maker; the group will decide. It's worth giving some thought to how a wise DA professional should alter her approach under such circumstances. To give just one example, it would no longer be enough to discover the Decision Maker's objective(s); the objectives of everyone in the group must be considered, and trade-offs between competing objectives must be given far more attention than usual.

The DA process is also extremely Egalitarian in its approach. Seniority and rank are supposed to be ignored during the Framing process, and even during the Evaluation stage. Everyone's input is collected and considered. I can tell you from first-hand experience, this approach will fall flat in countries like Indonesia. Even highly trained engineers, scientists, and technical specialists expect to be *told* what the strategy is and what their role will be in implementing it. Asking them for their thoughts on how best to

proceed is likely to create confusion. As such, our proverbial wise DA professional will find ways to elicit input that focus on each individual's area of expertise (thus increasing their comfort with giving said input), and will protect each contributor's anonymity when eliciting more general input.

These cultural overlays also have huge ramifications on how we sell our services. In a Top-Down culture, emphasize the fact that ultimately, the boss still decides—we are in no way usurping her right to do so. In a Consensual one, emphasize the thoroughness of the decision process, the high likelihood of arriving at a decision that has everyone's buy-in. In Egalitarian cultures, we play up the fact that everyone is heard, everyone gets their say.

The toughest sell is probably in Hierarchical cultures. When people are unused to speaking their minds, when deferring to authority is the way business is done, getting honest input from the rank-and-file can be like pulling teeth. However, as I've mentioned, establishing trust and preserving everyone's anonymity can help. It may also help to phrase questions like, "If you were the boss, what would you recommend?" or "If you were the boss, how would you proceed? What information would you want to have?" Placing people in a hypothetical situation may get them to lower their guard.

The bottom line, though, is that in the world of decision analysis (as everywhere else), culture trumps pretty much everything.

Society for Decision Professionals

2018 DAAG

Annual Conference of the Society of Decision Professionals (SDP)

SAVE THE DATE | April 11-13, 2018 in Vancouver, Canada

The SDP 2018 DAAG Conference and Pre-conference SDP Workshops will be held on April 11 to April 13, 2018 at the Coast Coal Harbour Hotel in Vancouver, BC, Canada.

The Decision Analysis Affinity Group (DAAG) is an informal group of decision professionals who gathered annually since 1995 to share ideas on the application and practice of decision analysis. Their only organization structure was the committee that planned the following year's conference. Therefore the term "DAAG" is mostly used to describe both the event and the people that attend it. When SDP formed, a decision was made to neither duplicate nor compete with this practitioner conference. "DAAG" is now the annual conference of SDP, organized and run by SDP. It brings together decision professionals and decision makers from multiple industries to share ideas, successes, and failures. In addition, each year SDP organizes a day of workshops on the day prior to, and in the same location as the main conference.

DAAG is open to all and is a great opportunity to network with leading decision analysis practitioners from around the world. Attendees span the gamut of application from pharma, military, and agriculture to oil and gas. It's a great way to see what works and what's new in the hands-on application of decision analysis.

Call for papers will be announced soon. For more information, visit www.decisionprofessionals.com

Ask DAS

Column Editors: Florian Federspiel and Allison Reilly

Ask DAS: Empowering youth with effective decision skills: An update on Decision Education Foundation´s efforts in getting it done

For our current edition, we provide an update on Decision Education Foundation's (DEF) quest to empower kids with decision analytic training to help them make better decisions. We interviewed Chris Spetzler, who leads DEF's efforts, as well as Frank Koch, a DEF volunteer who teaches decision skills at Thurston High School in Eugene, OR. What follows are excerpts of our conversations with Chris and Frank, modified for clarity and brevity.

To start off, and for those not yet familiar with your work or our last conversation (see DA Today, vol. 32, no. 3), please tell us a little bit about how DEF came about, the need for integrating decision quality in broader society, as well as DEF's mission.

Chris Spetzler (CS): DEF's mission is to empower youth with effective decision skills that enhance their prospects for a better life. If we can help individuals make better decisions, they are more likely to have better life outcomes. Decision Education Foundation was founded in 2001 by leading decision professionals and academics, including Ron Howard of Stanford and founders of the Strategic Decisions Group. We focus on helping teens make the most of the decisions that will impact the rest of their life. Our approach leverages normative and behavioral aspects of decision science, integrating applied mathematics as well as psychology to address choice under uncertainty.

It's been 4 years since we last talked about your quest to improve decision skills in students. What has happened at DEF since we last talked?

CS: The big thing we've focused on recently is developing and improving our StrongStart program, and beginning to scale it up. StrongStart is a week-long academic camp for entering high school freshmen that includes a lot of fun activities to help teach core decision skills. This summer, we´ll have about 400 students and facilitators engaging with the StrongStart program.

For example, a fun team activity with Legos illustrates the importance of values in decision-making. We have student groups build Legos bridges with Legos. where each group receives slightly different instructions, so they build with different values in mind (e.g., one group is told to build tall, another to

build pretty, another group receives a combination requiring tradeoffs). When predictably different structures result, we discuss how the bridges reflected the values the teams began with – how different values lead to different decisions.

Whatever we do, we need to make our activities accessible to kids, and they need to be relevant to their lives as well. That is the way we get them motivated and interested in participating. We solve decision scenarios built around decisions students might face, such as whether to go to a party or stay home with a friend. The week-long format allows us to delve into a variety of decision skills, such as how to deal with multi-attribute decisions with conflicting objectives or use decision trees to handle uncertainty. We also spend time exploring what we call decision traps, cognitive biases like selective attention or wishful thinking that can prevent young people from thinking straight.

To deliver StrongStart, DEF partners with schools to recruit and train an instructional team. The team consists of an adult instructor and rising high school seniors who help facilitate the course and serve as role models for the freshman participants. DEF also provides materials for the course which are built around a set of videos that deliver the core Decision Quality content.

Eventually, going beyond StrongStart, we aim to develop and integrate an entire 4-year program to accompany students through high school, focused on college and career readiness. At the end of the day, we want to achieve a significant level of understanding and skill, which will require application and repetition. We would be doing a disservice to youth and adults if they walked away after a short course and felt that they were an expert.

We have had a relationship with Stanford´s Pre-Collegiate Studies program where we go all the way to negotiation and game theory in a multi-week course. The Stanford courses demonstrated that motivated high school students can understand and enjoy this level of academic content, but it's hard to scale. We've also experimented with MOOCs (Massive Open Online Classrooms) to be able to reach lots of people, but it taught us we can only go so far in terms of depth while maintaining interest. The big question for us is how to achieve all of the above—scale, and depth with fidelity in a crowded education marketplace with constrained resources.

Having said all that, a basic insight from our work is that this material can be transformative. With the StrongStart program rolling out we want to make sure a core set of decision skills become increasingly integrated in schools, and remain memorable for students going forward.

When teaching decision skills, are there common surprises, favorite activities, pitfalls or insights for students?

CS: The material needs to be tailored, so that decision situations are relevant to the students. We have gotten better at working with a broader range of students and have more resources available for different types of teachers. We have to adapt or build new material when we´re given the opportunity to work in a new setting.

Generally, we learn and apply decisions skills using engaging case studies. One scenario takes place on a trek in Nepal. Participants watch a video where real students about their age faced a flood that blocked their path. Teams of students then decide what they would do: either take a risky route to

achieve their goal, turn back to Kathmandu to play it safe, or try to get a helicopter to both stay safe and achieve their goal. Kids really respond to this kind of case-based teaching—like it's reality TV and they get to decide what to do. Another situation revolves around a student's decision to focus on his education or pursue his dream to play professional football. We calculate the probability of making it to the NFL, build a decision tree to evaluate the two alternatives, and show that, given the values the student had, he made a better decision to focus on his education. Again, it's a true story where decision skills made a difference in the student's life. The students really get into it and it is impressive what they are capable of.

What are the greatest difficulties DEF is facing?

CS: Improving decision skills is a big idea. Most people don't know about decision science, that there is solid knowledge and principles to improve their decision making. When they learn about what we do, they get excited, but we also have to contend with all that is expected of schools. When we integrate our program in schools, we are typically competing with the status quo. It´s important that we can show that what we do leads to improved outcomes. We have demonstrated this with a randomized study[1] where the decision quality framework was taught within US History, and students improved both history knowledge and decision-making competence compared to the control group. When we show this to schools, this usually boosts their interest and confidence. But the bar is high—we need to demonstrate we improve results, make things easier for overstretched teachers, and that kids will like and value the experience as well. So one challenge lies in building a base of proven successes, so that we can gain momentum in terms of schools signing on, at the same time as figuring out how to replicate these successes at large. We have been working hard to create a scalable model and StrongStart is the best thing so far. This year we were able to have a veteran StrongStaart teacher run the teacher training for different schools, an advance over DEF staff running the training. We´re continually trying to learn, improve and extend the innovation cycle, and this is a big step forward.

Can you tell us more about the volunteering activities, how to get involved and what sort of support you might offer?

CS: We really want to spread the message, increase awareness, and increase our impact by getting others involved. There are several ways volunteers can help DEF, for example in connecting DEF with schools or other youth focused organizations, or by teaching themselves or *supporting an educator in the classroom.*

We recently brought DEF classes to several corporations with 1-day courses at Intel and Eli Lily for employees and their kids. They were well received, and we would be happy to offer them elsewhere. Ultimately, we´re interested in partnering not only with schools but also with corporations and non-profits, to get the message and the skills out there. We've proven the material works and that we can hand it off with a volunteer being assured of a positive experience they will enjoy and that participants will appreciate.

[1] http://www.plosone.org/article/info%3Adoi%2F10.1371%2Fjournal.pone.0045775

Talking about volunteers, Frank Koch is one of our staunch DEF volunteers, an advisory council member, and is doing great work at Thurston High School in Oregon. Why don´t you talk to him for another perspective?

After our discussion, Chris Spetzler put us in touch with Frank Koch, a long-time member of DAS, who chatted with us about his experience teaching decision quality at his local high school, Thurston High School, in Eugene, OR.

How did you get involved?

Frank Koch (FK): I've known Chris for a while. When I moved to Eugene, OR, after retiring from Chevron, he told me that there was an established DEF program already at Thurston, and encouraged me to participate. At first I worked with incoming freshmen enrolled in the StrongStart program. It's a one-week workshop to give freshman some basics on good decision making. Coming out of junior high, they're not used to making as many decisions as they do once they do when they're in high school. We also orient them to school, so they are more comfortable and ready to go on the first day.

A couple of years ago, the school's guidance counselor suggested that we put together a college and career readiness class for juniors and seniors to focus them on the big decisions, like what they may do after graduating from high school. I agreed to be a volunteer teacher for the class and, next month, I'll be teaching the course for the 5th time. It's an elective, but student get credit and a grade. Enrollment is about 30-35 students each semester.

The Fall semester we work with seniors and in the Spring semester, we teach the juniors. It essentially the same curriculum, except that in the Spring semester with the juniors they have more time to think about college and career decisions. This is the ideal group to target.

You are going to start another class in about a month. What do you plan to focus on?

FK: The curriculum is divided into three pieces. We start them on with the notion of Decision Quality by giving them some basic decision-making tools. This helps them to get in the mindset that there is actually a structured way they can think about decisions, rather than everyone telling them that they need to make better decisions but not telling them what that means. So, that is about a third of the class, and then there is about a third of the class on essay writing, which is a big part of their applications to schools and financial aid. The school's principal teaches this section. We find that this section is hard for the students, in part because they are so used to writing short text messages.

The third piece is structured around financial aid and how to apply for it. Thurston (the high school) is primarily a middle-class, blue-collar neighborhood and many of these kids will be the first generation in their family to go to college, so the families don't really have a lot of experience doing this. We spend a lot of time talking about aid packages, and how to do things like calculate what your payments will be afterward.

One way that we link the essay section of the class to the Decision Quality chain is that I talk with them about the process of getting accepted into a school. Basically, there are parallel decision tracks that take place, and we map this out. First, there are the decisions that the student makes about the school. The student is trying to get good meaningful information about school, so they know where to go, and

where they think might fit their objectives. And then there is the decision that schools make about whether to admit the student. Schools are trying to get information about the student to see whether the student meets their objectives for what the school wants in its freshman class. We talk about their essays being basic, reliable information for universities, so that the university can make the proper decisions about admissions, and students get this.

How do you get students to break down these hard decisions into manageable pieces?

FK: First, we will have students who know exactly what they want to do with their life, from college, to graduate school, to employment. And I never want to discourage them. If they really know what they want to do, that is wonderful. On the other hand, I also ask, "Have you really thought about the alternatives and where you are headed?" Ultimately it is their decision, and we just want them to think through it. On the other hand, we have students who have absolutely no idea at all what they are going to do—the classic deer in the headlight. We spend a lot of time helping them to start to figure out what they want in their life, and how they can best pursue it.

One interesting exercise we do, when talking about values and objectives, is have them write about what it means for them to go to a "good school." For most of the kids, this is the first time they've been asked anything like that. I ask them "you want to go to a good school, right? But, what does a good school mean to you?" We work with them and have them make a list and break it out. We don't do anything like an objectives hierarchy, but we do break it up into three categories: the really important things (i.e., the things that if the alternative doesn't meet this objective, they wouldn't consider it); the things that are important, but that they might trade-off; and the nice to haves.

Have you been able to follow-up with any students who have been through the program?

FK: At the end of each class, we try to get recent graduates to come back and talk with the current students, so we do get some closure in terms of how things have turned out. We've heard from a couple of students who thought they knew exactly what they wanted to do after high school and are exploring a lot more options. Unfortunately, at this time, the high school has no systematic follow-up with students about their post high school experience. The schools focus on graduation rates and performance on mandated exams. In most schools, the measurement stops once the student walks out the door the final time.

What have you learned from the students and from being a part of this program?

FK: I've certainly learned that working with students is a whole heck of a lot more fun than working with executives. The thing with executives is that you need to get them to unlearn a bunch of decision stuff—they already think they are great decision makers. The kids are a blank slate and they appreciate your taking the time with them.

But actually, one of the biggest things I've learned, and the thing I feel most strongly about, is that the biggest gap we have in education is teaching kids how to make choices in their lives. These students are totally unprepared. We tell them to make better decisions but don't provide them with any frameworks for how to actually accomplish this. When they are in this class and go home to talk to their parents about this stuff, we realize that their parents are totally unprepared, too. For many of the students, this

is the only class that they take in high school in which they learn material they will use every day for the rest of their lives.

This experience has been great fun and more people should do it. I tell everyone who is retired to teach, tutor, or at least get their foot in the door somehow, because every school needs help.

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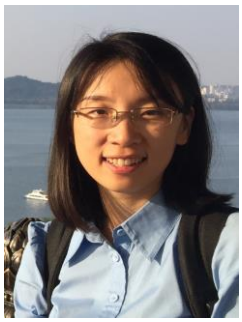

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