Looking ahead to 2009-2010 Board Objectives

by Ram Narasimhan, President, DSI

In this letter, I would like to communicate the DSI Board objectives for the year 2009-2010. The first, and perhaps the most important objective, is to coordinate and appoint the next editor of the Decision Sciences journal. The term of the current editor, Vicki Smith-Daniels of Arizona State University, is ending in June 2010, and the new editor will assume the editorship starting July 1st. The journals of the Institute are central to the way DSI provides value to its membership. It is important to preserve and enhance their reputation among academics.

The process for selecting the next editor is in place. Upon the recommendation of the Board, a sub-committee of the Publications Committee, chaired by Manoj Malhotra of the University of South Carolina, will conduct the search. The Board has also decided to appoint a subcommittee of the Board to coordinate the search. I am confident that we will be able to appoint a scholar with an excellent research reputation when the editorship of Vicki Smith-Daniels ends.

The second objective that the Board will be pursuing is greater internationalization of the Institute. This objective comports well with one of our strategic priorities—growing the membership. This objective will be pursued by ensuring the following:

- Greater participation from international scholars in the Institute’s annual meeting. International participants will be invited to organize special sessions, and there might be special events at the meeting to recognize international participants. This constituency represents a growth opportunity to the Institute. Both 2009 Program Chair Maling Ebrahimpour of Roger Williams University and 2010 Program Chair Morgan Swink of Michigan State University are trying to increase participation of international attendees;
- Greater presence in the Institute’s journals as editorial board members; and
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FROM THE EDITOR

KRISHNA S. DHIR, Editor, Berry College

In the current issue we have a number of fine essays and items to keep you busy for a while. In his first President’s Letter, our new DSI president, Ram Narasimhan of Michigan State University, describes seven objectives to be pursued by the Institute during 2009-2010. No doubt, through these efforts the Institute will continue to build on its four decades of distinguished history and provide our members with enhanced value.

The feature article is by Lisa T. Stickney of University of Baltimore. She reflects on how the process of decision making and its outcome are influenced by emotions. Taking cues from other disciplines that, too, investigate the human judgment process, she observes that moods and emotions are “essential components of rational decision making.” She would like to see future research address “the role of affect in both analytic and analytic processing.”

In the International Issues feature column, James Beckman of the Fulda University of Applied Sciences in Germany presents an interesting perspective on opportunities offered to our readers by academe in the European Union. As a first step, he urges us to experience overseas education for a semester to gain a deeper understanding of such opportunities. This enlightening essay describes how universities in Germany differ from their counterparts elsewhere.

Research Issues feature editor Miles Nicholls of RMIT University offers us an introduction to Mixed-Mode Modelling. In his words, this modelling approach brings “together the ‘soft’ and ‘hard’ sub-models which then, through an heuristic solution process (which is itself ‘soft’), arrives at a ‘best practice’ solution to the problem at hand.” He would like readers to come forth with essays describing other lesser-known approaches being applied to problem solving.

In the eCommerce feature column, Ken Kendall of Rutgers University discusses Mac appeal. Macs “do everything that Windows computers do—and more,” he writes. He likes the fact that Macs are less virus-prone and goes on to describe many other capabilities of Macs. He would like you to be alert to a cultural shift that might be underway. As he states, “Observe your students. They may be leaders in innovative technology adoption.” Indeed, he has got my attention!

In the Production/Operations Management feature column, Clay Whybark of the University of North Carolina, Jack Wacker of Arizona State University, and Chwen Sheu of Kansas State University provide an overview of an international manufacturing survey that has evolved over more than two decades. Their essay is a brief report on an exciting and extensive ongoing study. They invite you to join them in their exploration.

In the Deans’ Perspective feature column, Gregory Parnell of the U.S. Military Academy offers a novel overview of decision analysis. Learn about the “Willie Sutton Theory of Operations Research!” He offers a visual presentation in which four main dimensions of decision analysis, some key concepts, along with some most commonly used techniques, are all displayed in a single chart.

In the last issue I mentioned that Peter Ittig of the University of Massachusetts of Boston was stepping down as the feature editor of “From the Bookshelf” after an outstanding eight-year tenure. During this period he kept us abreast of exciting and wide-ranging books. We will miss his presence on the editorial team. The feature column will be taken over by Vijay R. Kannan of Utah State University. I am most grateful to Prof. Kannan for his willingness to take on this responsibility. Please welcome him to the Decision Line editorial team.

We hope you will enjoy the news and views presented in this issue. As usual, we look forward to hearing from you. Please do let us hear from you with suggestions and comments. Happy reading!

Krishna S. Dhir

is the Henry Gund Professor of Management at Berry College in Mount Berry, Georgia. He earned his PhD from the University of Colorado at Boulder, MBA from the University of Hawaii, MS in Chemical Engineering from Michigan State University, and a BTech from the Indian Institute of Technology – Bombay. He has published in numerous journals, including Applied Mathematical Modeling, Corporate Communications: An International Journal, Decision Sciences, IEEE Transactions on Engineering Management, International Journal of the Sociology of Language, and Journal of Information and Optimization Sciences. His has received various DSI awards, including Dennis E. Grawoig Distinguished Service Award in 2008, WDSI Distinguished Service Award in 2009, Best Theoretical/Empirical Research Paper Award at the 1993 Annual Meeting in Washington, DC, and Best Application Paper Award at the 1999 International Meeting in Athens, Greece. The Penn State Harrisburg awarded him its 2001 James A. Jordan Jr. Award, and 2000 Provost’s Award, both for teaching excellence.

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Affect and Decision Making

by Lisa T. Stickney, Merrick School of Business, University of Baltimore

Intellect is to emotion as our clothes are to our bodies; we could not very well have civilized life without clothes, but we would be in a poor way if we had only clothes without bodies.

[Alfred North Whitehead]

Sixteen years ago, Fineman (1993a) called for a more contextualized view of affect and emotion in research. Among the questions he asked were how are decisions and decision making impacted by people’s emotions, and how does affect alter or guide the decision path? Few have attempted to answer his questions. Instead the prevailing view is that emotionality is the antithesis of rationality. In addition, organizations, places where decision making routinely occurs, have been viewed as fundamentally rational places with emotional displays considered unacceptable and disruptive (Ashforth & Humphrey, 1995). Both of these beliefs are inaccurate. Organizations are not bastions of reasoned discourse, but “emotional arenas” (Fineman, 1993b), and the myth that organizations are rational places devoid of affect can impede effective decision making. As for the link between reason and affect, it is much closer than many think. Neurobiological research demonstrates that affect is an essential component of rational decision making. The ventromedial prefrontal cortex is the part of the brain that is home to affective reactions. When damaged, individuals consistently make poor decisions or no decisions, suggesting that emotionality and decision making are inexorably intertwined (Damasio, 2005). In the words of LeDoux (1996), “cognition is not as logical as it was once thought, and emotions are not always so illogical” (p. 35). This brings us back to Fineman’s (1993a) basic question: How does affect influence decisions and decision making?

Before taking a closer look at the relationship between affect and decision making, we need working definitions for the terms associated with emotionality. The definitions used in this article are fairly standard and accepted in the emotion literature. Affect is a generic label that encompasses both moods and emotions. Moods are low-intensity, relatively enduring feelings usually without a known antecedent, while emotions are more intense, short lived, and have a clear cause. Both moods and emotions are relevant to decision processes in organizational contexts because they have the potential to influence judgment and decision making in organizations. Emotions can have a direct effect on decision making because they come with an awareness of their origin, so a response can be consciously planned. Moods are important to study because their effects are often subconscious. Thus, emotions and moods may infuse bias into the decision-making processes.

The Effect of Affect in the Decision Process

Affect and affective states have the ability to influence the decision-making process. Most would associate affect with a more intuitive, nonanalytic processing style, one characterized by faster, less effortful evaluation of information and greater reliance on stereotypes, schemas and heuristics. However, affect can influence analytic processing, too. An analytic processing style involves an effortful, deliberate, and meticulous scrutiny and evaluation of information (Moons & Mackie, 2007). Individual affective states can influence decision making by affecting perceptions or providing information in information processing, or as a result of an anticipated affect arising from a decision.

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Decision Line, May 2009
Affect helps individuals perceive their environment and provides information about it. Moods have been shown to influence how people think and evaluate situations, and how they perceive other individuals’ intentions and behavior (Forgas & George, 2001). Darwin and other evolutionary psychologists argue that emotions developed over time and serve a purpose: to aid in survival. Fear protects us; disgust helps us avoid potential dangers such as rotting food that can make us ill. Excitement is helpful in situations that require energy and initiative, and jealousy helps protect our genetic lines (Cosmides & Tooby, 2000). Another view of affect-as-information comes from a more contemporary, utilitarian perspective of emotions. Negative emotions signal the existence of a problematic situation, while positive emotions involve an appraisal that goals or standards are being met (Parrott, 2002). From a perception and information perspective, moods and emotions reflect an assessment of our present circumstances. They influence how we perceive our environment and provide information about it, which is used in decision making.

In addition to influencing perceptions and providing information, affect can influence processing in decision making. This can happen in one of several ways. One study examined the conditions under which affect is likely to influence decision processing. Situations that involve high complexity, ambiguity, and uncertainty requiring extensive processing are ones in which important managerial decisions occur. Ironically, George and Jones (2001) showed that these are the very conditions found to be most influenced by individual affect.

Affective influence can be seen in the selection of processing strategy employed. Research suggests that those in negative moods process information differently than those in positive moods. As Schwarz (2000) noted, experimental research shows that individuals in a happy mood are more likely to use a “top-down” strategy that relies on heuristics and pre-existing knowledge while paying little attention to details. By contrast, those in a sad mood have a greater propensity to employ a strategy that involves considerable attention to details and little reliance on pre-existing knowledge (Schwarz, 2000). Also, contrary to many beliefs, a specific emotion, anger, does not necessarily override people’s ability to be rational. Moons and Mackie (2007) found angry individuals process information analytically and used heuristic cues when needed to further the decision-making process.

An individual’s affect at the time of information processing is another mechanism by which affect can influence the decision process. Information used in the decision-making process can be limited by an individual’s recall because individuals are more likely to recall information that is congruent with their current feelings (Schwarz, 2000). Also, the presence of some emotions at the time of appraisal has been shown to be associated with appraisal tendencies. For example, Learner and Keltner (2000) found that fearful individuals tend to make pessimistic judgments, while angry individuals make optimistic judgments. In analytic processing, mood has been shown to affect the evaluation of options. Those in a happy mood were more likely to overestimate the likelihood of a positive outcome and underestimate the likelihood of a negative outcome, while those in a sad mood exhibited opposite behaviors (Johnson & Tversky, 1983; Nygren, Isen, Taylor, & Dulin, 1996).

Finally, no discussion of the influence of affect on the decision process would be complete without mention of the effect of anticipated affect on decisions. Specifically, regret can influence the decision process. When individuals anticipate regret, they are more likely to favor inaction over action because people are more likely to regret acts of commission than omission (Schwarz, 2000). Also, in an ethnographic study, Maitlis and Ozcelik (2004) found that managers avoided making decisions when facing situations in which they anticipated strong negative feelings, namely, apprehension and anxiety. Situations likely to create this dynamic were characterized as being highly sensitive, ambiguous, and nonurgent. However, a secondary problem is that the managers’ failure to act evoked strong affective responses in other organizational members, ones unrelated to the original situation. The recursive interplay of negative emotions and actions created a situation Maitlis and Ozcelik (2004) refer to as a toxic decision process. Toxic decision processes generate widespread negative emotions, and they are often prompted by inaction in the decision-making process. Emotions are spread through a common phenomena known as emotional contagion, which is the tendency of individuals to “catch” other people’s emotions. The process is complex and may have physiological origins (Hatfield, Cacioppo, & Rapson, 1994). Also, there is some evidence that negative emotions transfer faster than positive ones (Joiner, 1994; Sullins, 1991).

This is particularly important because when emotions spread quickly through an organization, they can influence decisions, the decision-making process, and individual behaviors.

Concluding Comments
As discussed, affect has the potential to influence the decision-making process in a number of ways. However, the potential may or may not be realized depending on the individual and the organization. Individuals need to understand that effective decisions require an optimum mix of cognition and emotion regulation (Ashkanasy, Härtel, & Zerbe, 2002). Emotion regulation begins with an awareness of an individual’s affective state and the impact it may have on decisions, behavior, and other organizational members. The ability to perceive, identify, understand, and manage emotions is known as emotional intelligence (Mayer, Salovey, Caruso, & Sitarenios, 2001). Emotional intelligence involves employing a broad set of social skills that involve empathy, time management, teamwork, and decision making (Goleman, 1995). It can help people understand that affect
and affective states, even negative ones, can be useful and desirable. Managers interested in effective decision making need to consider the role of moods and emotions in organizations and, if necessary, provide training in emotional regulation.

At the organizational level, there must be an awareness of the information provided by affective states and that moods and emotions can and do exist in the organizations at both individual and group levels (Bartel & Saavedra, 2000). The potential of these affective states to influence the decision-making process is at least in part dependent on the organizational climate. Organizations that recognize and support employees and encourage employee discourse are likely to reap the benefits in terms of improved organizational performance (Geddes & Callister, 2007), and that performance begins with the decision process. Supportive organizations realize that affective states are a part of organizational life and encourage exploration of the situations that produced the emotions and moods. These organizations are the ones whose managers would be least likely to avoid decision making in fear of negative, anticipated emotions (Maitlis & Ozcelik, 2004), and they would be likely to avoid decision making in fear of collective construction of work group moods. Administrative Science Quarterly, 45, 197-231.


The EU and DSI: From Understanding to Collaboration

by James Beckman, Fulda University of Applied Sciences (Germany)

This comment reflects the past efforts of three persons, as indicated in the acknowledgements at the end of the article. However, it comes primarily through my experience, an American whose disparate education and professional life should perhaps be outlined. Such variety may not be uncommon among our membership. As Clay Whybark was quoted recently in an extremely enlightening article in this publication, “The Institute has effectively incorporated what we think are important elements of managerial thinking” (Christodoulidou, 2008). DSI Past President Norma Harrison has added her support of an international aspect to our organization (Harrison, 2008).

The author studied history and philosophy of science as an undergraduate, started a sensible PhD program in economics and applied statistics, and yet integrated into his PhD program both psychological anthropology and global management—but for over more than 40 years has devoted more time to global organizational consulting than to the academy.

At the 2008 Western Decision Sciences Institute meeting in San Diego, Beckman and Marks of the California State University system presented a paper entitled “The Bologna Process within the EU: What it might mean to American higher education and the WDSI.” In it the authors discussed the efforts by the ministers of education of the European Union to both harmonize collegiate education in each of its member states and to advance some specific content areas like multiculturalism, language acquisition, more active student participation in the learning process (broadly, interactive learning and communication), research (often applied), employability, and what in the U.S. is often called “lifelong learning,” among various stated goals.

An EU Educational Agenda, or Something Larger: The Bologna Process, 1999-2008

Some months later, I have realized additional dimensions of the Bologna Process. These might be summarized as “Think global, act local,” which is an expression probably known to many readers. Whatever its origin, these four words nicely summarize the implementation of the Bologna Process.

It was obvious in 1999 in Bologna, Italy, that common degrees would make employability across national borders more easily accomplished, especially if applicants had some cross-cultural sensitivities and additional language competence. But why English? Admittedly, it is the language most used and understood in the EU, but why step on the feet of German, French, or Spanish speakers, for example? Why not Latin, spoken by the educated in the Middle Ages, and the basis for all EU languages but a few? Suggest this, and the response is always a smile and a remark such as, “English is the global language of business, government and popular culture.” Thus, it has become apparent that English was the chosen tongue because about 50 percent of the EU population understand and speak it to some extent, PLUS because of its international aspects.

Another global issue is the training of students to think and speak for themselves, individually or in groups, and in the doing of research. Such matters are the common request of global business. Such skills tend to make these students
more easily employable anywhere in the world, given also cultural sensitivity and some language competence. So much for “Think global,” since political and work organizations within the European Union want to produce university graduates who are employable by virtually all organizations around the world, not within the EU alone.

Regarding the “act local,” we consider the progress of implementing the Bologna Process among presently 27 EU members and another 19 nations, the latter largely associated with the former USSR. Each nation is progressing at its own speed, with the result that many private business schools have sprung up in countries such as Spain. It is our understanding from colleagues in that country that English will become an emphasis there by 2010, eight years after Germany, for example, began to make it an emphasis via its accrediting bodies. It is very difficult to receive accurate and specific information at the national or state level from many countries, just because this is a political process. One can start at one of the official Bologna web sites (e.g., ec.europa.eu, 2008), and then go to Google, for example, using such entry terms as “Bologna Process in Spain.” The European University Association, representing 760 universities in 45 countries, can also be consulted (2008).

Consequently, from our direct experience we shall speak of Germany and chiefly of the Fachhochschulen, or “Universities of Applied Sciences,” often abbreviated as “FH” before the name of the specific school. When the Fachhochschulen make a noticeable effort to encourage research, as with small financial grants, then the word “Hochschulen” applies. They remain “Universities of Applied Sciences,” but with more regard shown for research. For example, under a recently adopted plan in the State of Hessen (Frankfurt), a newly hired professor receives lesser pay for up to five years, approximating the U.S. model of assistant and associate professor. Research can make a difference for such promotions. However, we detect no “publish or perish” standard within the FH/HS system of 159 institutions. Thus, although these schools typically give MA/MS as their terminal degree, they are not equivalent to many American state university systems. In the U.S., it is our understanding that professors are still generally promoted on a tripartite combination of teaching, research, and service. The FH/HS system is just now showing regard for research, perhaps to gain some of the prestige of the true German research universities. (In this brief commentary we will mention the most well-known city in each of several German states, to assist location.)

The European University Association (EUA), the representative body of traditional research universities, is now accepting HS institutions. This I learned while having lunch with the new president, an Informatics professor, at the HS-Fulda, which is now an EUA member.

The FH/HS system was created by the reaction of government to the student revolts of the late 1960s, as a result of which class size was to be reduced and at least some programs and campuses were to be more practice-oriented. Thus the name “University of Applied Sciences.” These are both new institutions and recycled specialty schools.

The 109 German universities are thoroughgoing research institutions. The charge by many German businesses is that much of the education which they provide is irrelevant to immediate business needs, that is, so theoretical that applications are not apparent. In addition, the customary absence of interactive learning, additional languages, multiculturalism, and research experience makes hiring such university students rather expensive, since they must have additional training through the firm. There are notable exceptions, however.

These comments are personally derived from discussions with more than 50 German corporations, including many of the largest. The business press frequently publishes similar remarks. For those organizations that want a lifelong commitment from their new hires, the additional training is acceptable if more appropriately trained applicants are not available.

The FH/HS system indeed seems to produce less theoretically trained graduates. Together with more interactive learning, internationalization, and practical research—if it is done at a particular university of applied sciences—the hiring of these graduates seems to be advancing very nicely. It has been my experience that nearly 100 percent of my students with an internship and a practical thesis do have permanent job offers.

Why have all FH/HS not jumped aboard the Bologna train? The basic truth is that old dogs do not necessarily want to learn new tricks. Older professors may not be easily changed—forget the reference to impersonal “organizational shifts” or the need for “planning.” This is probably true also of most of our readers over 40, including the author, whose personal view is that organizations are people, with different levels of commitment, skill, and power. The author has hundreds of examples of this, academic and otherwise. In other words, “When so-and-so retires, then we can move ahead,” as one example.

As the current president of the HS/FS Rectors’ (Presidents’) Conference (Association) states, money is also an issue when we want to add incentives such as reduced course load and cash for research, overseas trips, visitations from foreign professors, etc. (Wintermantel, 2008). We must always recall that higher education is supported in Germany chiefly by the states. Students have a mostly free ride, and government education budgets are always stretched. With increasing percentages of young people seeking higher education, pressures exist just to keep up, in addition to the need to follow Bologna.

Accreditation is done in Germany by private bodies, much like AACSB does for business schools in the U.S. There is a national control agency, stronger than in the U.S., which periodically accredits the accreditors. Thus, universities may shop about a bit for the most friendly accreditation body, based on philosophy or personnel.

As regards technical education, there are also regional issues. For many years the German state of Bavaria has had the best mathematics and science scores among the German states. With Munich, Bavaria, as their hub, this suited most German technology companies very
well. However, it has just been revealed by OECD that the former East German states of Saxony (Dresden) and Thuringia (Leipzig) have done extremely well in tests by 15 year olds, even to challenging the global leader, Finland. Thus, as one examines Germany and its regions, it is best to look at particular universities, particular faculties, and particular programs. The old, great schools remain, but have been joined by both fine traditional universities and the newer HS/ FH. Yes, indeed, German higher education does act locally.

We shall now seek out schools with educational and research competences which may be of interest to readers. The entry portal is www.daad.de, the official online address of the German Federal Government’s international education and research agency.

Contacting German Universities with Decision Science Programs

If one enters with the above url, clicks “English,” then clicks on “Information for Foreigners,” and then “Course Search,” one sees that there are 66 international programs (“international” usually means English) for the BA/BS, 427 for the MA/MS, and 172 for the Ph.D. For the latter, should one specify “Engineering” and then “Engineering in General,” one has 14 choices. The first entry of the 14 is Darmstadt University of Technology Program in Computational Engineering. (Darmstadt is between Frankfurt and Heidelberg.)

Another of the 14 choices, but with a different focus in Magdeburg near Berlin, is a doctoral program at the Max Planck Institute for Dynamics of Complex Technical Systems. By clicking on “Mathematics & Natural Sciences” rather than “Engineering,” one is led to the doctorates in computer science, with another grouping beyond the initial 14.

Internships are not a part of German higher education, except with explicitly applied degrees, such as in business or the medical professions. Such internships are normally paid at perhaps 20 hours a week for $600 a month, for three to six months in the case of business. At some institutions such as the 80+ Max Planck Institutes, living expenses are available to support all better students. These Institutes are much like Woods Hole in Oceanography and the Scripp’s or Salk Institutes in Bioscience in that they do research and often provide guidance for graduate students—usually in combination with a nearby university. Normally, universities offer research and sometimes teaching assistantships.

With tuition little or nothing in Germany, there is an expectation that the doctoral research will take no more than two or three years. Someone like the author who spent five years in economics and another five years in psychological anthropology and management would be an oddity, and perhaps not tolerated. On the other hand, a quick Ph.D. and deepening post-doc would be very acceptable. The general rule in European education is that students should know their interests when they commence university, and then specialize. Very few electives are allowed in most programs, unless the electives are to specify a sub-branch of the broader discipline.

Another difference between American and European education, not just German, is that faculty members here tend to be more aloof from their students, even their assistants. Obviously, this is a generalization, but young faculty, post-docs, and Ph.D. candidates are supposed to know their goals and to possess both the competence and motivation to reach them without much assistance. Friendly visiting professors do stand out.

How Can a DSI Member Benefit from a European Contact?

We suggest a personal response to our “accidental universe.” After more than 40 years of consulting, we have noted that following one’s intuitions about what is “interesting” and “likely” can be an excellent guide. If we meet international persons, that may be a start. If we wish to surf the Internet, that can be another. One’s proclivities and sensibilities are a way to find what country, what kind of institution, and what programs might be investigated.

Should one choose the Internet, then perhaps a recollection of a Venice or Taj Mahal visit might be a clue. In the experience of the writer, it was a very appealing female tour guide in Heidelberg in July 2000 (during a global business trip) who triggered a long series of events which led to his now being in Fulda for six years, married to a Polish woman, and likely to remain in Central Europe for the duration. Such extended sequences may not be common, but lesser numbers of casual events seem to occur to each of us all the time.

One might wish to investigate overseas education for a semester. Possibly one wishes to do additional research elsewhere, or to collaborate mostly from one’s current location. We know many professors who combine overseas research or teaching with family vacations. The beer and science of Germany offers such an option.

Acknowledgements

Dean Professor Achim Opel and Professor Josef Neuert were supporters of internationalization at the Fulda Business School long before the Bologna Process was made the law of Germany in 2003. Opel is a former Fulda president, and Neuert is now at the HS-Kufstein in Tyrol, Austria, as vice president of research.

Web Resources

http://www.daad.de is the generic address for the German Federal Government International Education and Research Agency. It is largely available in English.

http://www.ec.europa.eu is the official portal of the European Commission, the administrative arm of the EU. It is more complex to navigate, just because it deals with far more than the Bologna Process in higher education.


See INTERNATIONAL, page 37
In the last Research Issues column, John Davies and Vicky Mabin wrote about the Theory of Constraints and its usefulness in solving business problems (Decision Line, March 2009). In this article, the concept of Mixed-mode Modelling is discussed as it, like the Theory of Constraints, is not as well known as some of the more traditional mathematical modelling approaches commonly used to solve real-world problems. A simple example is given to illustrate the Mixed-mode Modelling approach. I would very much like to hear from readers about any not so well-known approaches to solving problems that they might be familiar with. I welcome articles from readers which highlight other approaches to solving management science problems that are also not “mainstream.” [Miles Nicholls, Feature Editor]

Mixed-mode Modelling—What Is It and How Can It Help?

by Miles G. Nicholls, RMIT University, Melbourne, Australia

The first question to be answered is why would an alternative approach to solving a traditional production optimization problem be required? It has long been recognized that in the real world ‘optimal’ solutions for many production process problems don’t exist. The reality is that in many circumstances ‘best practice’ is what OR practitioners aim for. The reasons for this stem from many causes including the fact that data associated with production processes are often corrupted and/or missing and that the production processes themselves are sometimes not fully understood. Additionally, many processes rely heavily on the subjective input of the process workers on the shop floor, who introduce further uncertainty and unpredictability into their resultant behavior and output. The use of Mixed-mode Modelling has been utilized to help solve these types of problems. We attempt in this article to briefly define Mixed-mode Modelling and highlight its usefulness in solving production process problems. The ability of Mixed-mode Modelling to deliver significant savings to industry (very important in financially challenging times) suggests that it is worthy of greater use.

The second obvious question is … "What is mixed-mode modelling"? The term is used to describe the process of bringing together the ‘soft’ and ‘hard’ sub-models which then, through an heuristic solution process (which is itself ‘soft’), arrives at a ‘best practice’ solution to the problem at hand. Mixed-mode Modelling can encompass (at least in a general context) the combining of a group of sub-models which are either all hard or all soft. However, in this article the mixing of hard and soft models is alone considered as this is a common occurrence in practice. For the interested reader, the concept of Mixed-mode Modelling was more recently fully developed and explored by Lehaney (1996), Lehaney and Clarke (1997), and Mingers and Brocklesby (1996), and further extended and explored in Nicholls, Clarke and Lehaney (2001).

The various models (hard and soft) in a Mixed-mode Modelling problem are initially independently ‘solved’ using hard or soft solution algorithms/heuristic (as applicable), with the appropriate flow of information (and solutions) exchanged between the relevant sub-models. Often a sub-model cannot be solved until the solution of another model is arrived at and passed on (e.g., a soft sub-model which determined the amount of labor available...
would be needed for the solution of the hard production planning model). Many soft sub-model’s solutions are arrived at using consensus, expert panels, or Delphi approaches and involve the collective ‘wisdom’ of management and appropriate in-house experts. The solution arrived at will then usually be considered further by management panels who may impose their own judgement on some aspect of the solution and then send that information back to the appropriate areas for the solution process to commence again. In effect, the solution heuristic is almost always iterative. Indeed, there will normally be a range of solutions present from which management (or whatever panel approach is being used) will make the ultimate selection, thereby arriving at ‘best.’

In the Mixed-mode Modelling discussed in this article, there is no overall analytical solution technique, no optimality, and certainly no single ‘right’ answer. Additionally, the solution heuristic may well be set up so that the solution procedure is repeated at regular intervals as new and more accurate information and data become available. Figure 1 epitomizes such an approach using a modified example taken from Nicholls and Cargill (2001), where the human resources management (HRM) and production planning/scheduling (PPS) departments of a business are required to find best practice solutions to their own areas, with the PPS requiring direct input from the HRM department (i.e., labor availability). Following this, the business needs to arrive at an overall best practice, which may (as already suggested) require the alteration of the departmental solutions arrived at (a subjective iterative process).

In Figure 1, each of the operational areas of the PPS and HRM departments together with Management Assessment are subject to the environment (E), which would include such factors as, for example, the global financial crisis. Further, there are inputs to each of the areas as well, relating to aspects of their operations that might not be fully under their control. For example, in the PPS department, the costs of raw materials and their availability would be such examples of factors (I). In the HRM department it might be the Occupational Health and Safety Acts, Labour Laws, etc (I)). In the Management Assessment area, shareholder considerations and corporate social responsibility might be factors (I). The demand for products and their market prices are essentially the key input for the PPS department (although the prices and the range of products could also be altered by Management). With this information, PPS set out to maximize the profit using, say, linear programming (a hard model), utilizing all the relevant information they have. However, one of the major inputs to their model will be the amount of labor available according to skill sets. This part will be influenced heavily by the HRM department’s solution, where their main mission/objective (in this example) is to oversee a of y% of the company’s permanent labor force in the current year. Additionally, there will be environmental factors (E) at work here. For the HRM department, the required labor reduction will be occasioned by the use of (for example) natural attrition, voluntary redundancies, or with a more severe impact on productivity, forced redundancies. The areas of labor reduction (e.g., cleaners, furnace maintenance, etc.) would be determined in conjunction with the PPS department. The restrictions faced by HRM in achieving this objective could be that reductions in productivity should be below a specified amount, that industrial relations difficulties should also be below a specified level, and that erosion of skill sets must not occur in excess of technically established limits. In this example, the HRM department will use a soft heuristic (possibly panel consensus or the expert panel approach) to arrive at their solution (see Nicholls and Cargill, 2001, for more details). This solution (i.e., the labor availability by area) will then be passed on to the PPS department as input to their solution process as well as to management for consideration.

Management assessment (a soft ‘model’) would then be used to determine whether the overall solution obtained was the best for the business. Has the right amount of ‘social conscience’ been incorporated into the strategies developed by the HRM department in order to achieve the required reduction in the labor? Best practice is then achieved by the Management Assessment feedback being passed onto the PPS and HRM departments, and the solution process already described, iterating until management judge best practice has been achieved. In this example, the soft models associated with the HRM department and Management Assessment has triggered the need for mixed-mode modelling.

In the industry, the need for Mixed-Mode Modelling can stem from many other complex problems (other than the use of soft models) such as missing knowledge (the tacit knowledge problem [TKP]) surrounding a process and unobservable data that is key to a sub-production process (see Nicholls and Cargill, 2008, for a discussion of these problems). Both of these circumstances are present in the aluminium smelting industry and the tacit knowledge problem per se is present in float glass and the refrigeration industries. In aluminium smelting, the real-time on-line behavior of the smelting process is not totally understood and the impact that the factory floor operators have on the process can be considerable and varied, affecting production significantly for days at a time. Additionally, measuring the ‘efficiency’ of the smelting process is at best a ‘guesstimate’ since there is no way of knowing (in an industrial context) the exact amount of aluminum produced in a given time. This information is an essential input into the mathematical model of the smelting process. In the case of float glass, the TKP exists with respect to ensuring that the ripples and bubbles on the float glass are negligible. For refrigeration, the TKP centers on the design of the refrigeration unit since there is no analytical way of determining the optimal (or even ‘best’) design of the cooling distribution system and cooling space that meets the customers’ specifications and complies with refrigeration standards. The design of refrigeration systems is achieved through simulation and then the application of tacit knowledge by the refrigeration engineers in an iterative production process taking (in many instances) considerable time. The interested reader might care to see
Production Planning Scheduling with the Objective:
Max $Z_1 = f(x)$
s.t.,
$Ax \leq b; x \geq 0$

Demand for Products, Market Prices and Costs

Management Assessment and decision on individual solutions

Human Resources Management with the Mission/Objective:
Achieve $Z_2 = \text{Decrease in Labour Force by } y\%$
s.t.,
min PL, WSS\(^{a}\), etc.

Final Overall Solution for Production and Human Resources Management for year $t$

Direct Information/Resources Flow
Feedback flow (information)

Note: (a) Here min PL and WSS are levels of productivity loss and workforce skill sets that must not be not gone below and maintained respectively.

Figure 1: The Mixed-mode Modelling Approach to attaining best practice solutions.

In order to develop ‘best practice’ production and operations for aluminium smelters and minimizing the make-span for new refrigeration designs, Mixed-mode modelling comes to the fore.

Resources


At the time I’m writing this article, about one out of seven personal computers purchased in the U.S. are Apple Macs. Since our audience consists mostly of academics in business and business-related disciplines, why should we care? Industry has adopted the PC with its Microsoft Windows operating system. Doesn’t it make sense to just stick with the PC so that we academics are in line with the real world? This month’s column examines the iMac, the alternative personal computer, and OS X, its operating system. It concludes by realizing that we can all learn from our students. [Ken Kendall, Feature Editor]

Mac Appeal: Lessons Learned from Adopting New Technology

by Kenneth E. Kendall, Rutgers University

When I visited the campus of ITESM in Monterrey, Mexico, recently, I looked around the cafeteria to see what notebook computers students were using. I was surprised to see that, early in the morning, students all had PCs running Windows. Was it possible that students from the state of Nuevo León were that different from students from those in the state of Nuevo Jersey? I didn’t realize it then, but now I conclude that the answer is “no.”

When I returned to the cafeteria for lunch, I observed something completely different. Half of the students were using MacBooks.

A cultural shift is happening. Many students are deciding, on their own, to purchase Apple computer products. Maybe it is due to the success of the iPod line; maybe it is due to the success of the iPhone; maybe because it is simple to use; or could it be it is just cool?

So I thought I’d better check this out myself. After all, my wife Julie and I purchased two Apple II Plus computers in 1979 and wrote our Systems Analysis and Design textbook on it (Kendall & Kendall, 2008). (The 8th edition of the book will be out soon.) Back then each chapter had its own floppy diskette. Then I drew all of the diagrams on a Macintosh computer because the IBM PC just didn’t have the software to enable me to do so.

But then the world changed and everyone in business schools adopted the IBM PC or one of its clones. MS DOS was the only acceptable operating system for the business world.

Throughout the years, I kept upgrading computers so I could take advantage of the latest Microsoft operating system. Then came Vista. My computer was on its last legs, so I had no alternative but to buy a new computer. What I didn’t know at that time was that I was about to buy a Mac.

Not only did I buy an iMac, but Julie got one, too—and a MacBook Pro. Then we each bought iPhones. It happened that fast.

Reasons to Embrace Macs

So what is so good about Macs?

First of all, they do everything that Windows computers do—and more. The newest Macs are Intel-based, so they can run Windows either by rebooting into Windows using Boot Camp or by running a virtualization program like VMware’s Fusion. (I’ve owned my iMac for one year now and only needed two Windows programs: Quicken, and the now obsolete Hemera Photo-objects.)

Secondly, it is less virus prone. Although you may hear rumors that Macs don’t have viruses because their market

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http://www.thekendalls.org
share is too low, the real reason is that the
operating system is written so that it is
harder to install a malicious program (or
application, as they are called in the Mac
world). The code is tighter and the OS
asks the user to enter a password before
software is installed.

Additionally, most applications are
built into the system already. Spotlight,
a desktop search, is built-in. Cover Flow
lets you see the first page of documents.
A mail client, Mail, is built-in as well.
So is a great calendar program called
iCal. Photo-editing with face-matching
features, video and music creation, DVD
burning, and Web design are included
with the purchase of every Mac. I had to
buy all of these programs when I owned
a PC. Now they are free.

Fourthly, backup is built in. An
application called Time Machine backs up
your Mac hourly and keeps all of the
backups on an attached hard drive, so
you can roll back a file, a folder, or an
application to whatever time you want.

Fifthly, setup and networking are a
snap. File sharing actually works.

Additionally, it is easier to find a
file or browse through files with Quick
Look. I can browse through all of the
artwork in my book, by just moving my
mouse. Sure, you need to think “folder”
instead of “directory” and “application"
instead of “program,” but that keeps you
mentally alert. But when you want to
find Figure 16.9 but you can’t remember
what you called its working file, you’ll
wish you had a Mac.

Good programmers are writing for
the Mac, too. Microsoft Office for the Mac
is a worthwhile purchase. It contains
Microsoft Word, Microsoft Excel, and
Microsoft PowerPoint and files are easily
transferred (so far without any problems)
between the Mac world and the PC
world. I use OmniGraffle to draw both
simple and UML diagrams with ease;
OmniPlan to plan a project; Devonthink
Pro Office to scan and collect bits and
pieces for my next article; Things to get
things done; and Bento to set up a quick
database, among other software.

Another reason is that Mac applica-
tions work well with one another. I can
drag files between applications, so I
don’t need to cut them, resize them, save
them, and paste them. In fact Apple has
a unified user interface that standardizes
the menus. It goes one step further—it
includes a submenu for services. I hope
to soon include a column in Decision Line
on SOAs (service oriented architecture)
and discuss this more.

To get rid of a program, all I need to
do is drag it to the trash can. Everything
is removed, because the Apple operating
system is based on a UNIX operating sys-
tem. With Windows XP, I can uninstall a

Figure 1: On a Mac it is easy to run Windows in the virtualization mode while you are also running Mac applications like the
organizer Yojimbo.
program, but many of the bits and pieces still remain.

I find it very useful to integrate all of my technologies, so I bought a MobileMe subscription. Now we sync all of our iMacs and iPhones so that calendars, contacts, and other data is current on every one of our machines.

Switching to a Mac is easy. Going back and forth between Macs and PC is also easy. Sometimes I press the wrong key and nothing happens, but most of the time it is natural to switch back and forth.

Finally, Macs are cool. I love the design of the machine, the desktop, menu bar, and dock. For a professor teaching systems analysis and design, this clinches the deal.

**Macs in Business**

At first, business use of Macs was fraught with skepticism. Some authors, such as Oiaga (2007), dismissed the Mac operating system, OS X, and claimed it would never succeed. Others, like Ulanoff (2008), says that there is very little difference between Macs and PCs. McCracken (2009) agrees but adds that Apple is one of the World’s best software companies, adding innovative software like iLife and services like its Genius Bar.

Other writers focus on the fact that Windows runs on Macs. VMware’s Fusion and its rival virtualization application Parallels is praised by authors such as Freedman (2008) and Mossberg (2008). Others tout Mac security superiority (Hesseldahl, 2009; van Wyk, 2009). But it is becoming apparent that Macs are making an appearance in industry. The Yankee Group (2008), who surveyed 700 global IT administrators and executives, found that 80 percent of the businesses have Macs installed. Macs are becoming a part of the workplace.

Authors have begun to extol the virtues of Macs in the workplace. Nutter (2009) and Beckman (2009) talk about developers and engineers preferring and switching to Macs. Gruman (2008) extends this further by claiming that having no Macs in the workplace “is no longer defensible.” Users who bought iPods or a Mac at home are now pressuring companies to adopt Macs in the workplace. According to Burrows (2008), users are tired of the “Windows-by-day, Mac-by-night” existence.

Springer, the huge publisher headquartered in Germany, has moved its entire corporation (which is about 12,000 desktops) over to the Mac, according to Hesseldahl (2007). It was, at the time of his writing, Apple’s largest corporate adopter in Europe.

Businesses that are consumer-oriented are beginning to offer the Mac experience to their customers. Fontainebleau Resorts have installed 5,300 rooms in the remodeled Miami and new Las Vegas properties. They want to create the first paperless hotel room.

It has been noted by Whong (2009) that business owners keep their Macs longer than they keep their PCs. He also emphasizes that businesses value time savings when calculating the cost of ownership, and Macs are less prone to crashes and downtime.

Companies who adopt Apples embrace the culture and philosophy that come with it. Whong (2009) quotes the Bottlerocket Wines & Spirit founder Tom Geniesse, “I love Apple and always have. The company designs with people in mind. They provide an excellent, intuitive, and beautiful experience,’’ and he mentions that they are trying to do the same thing with the gourmet wine market. Whong also quotes Brian Raf- ter at Intermedia, a firm that provides Japanese-English translation services, as saying that Macs make “work more productive, less stressful, and a whole lot more fun.”

**Lessons Learned**

Never fear change. Moving from one operating system to another is easier than you think.

Don’t wait. Since getting iMacs, I’ve been more prolific than ever before. Writing is fun again, and it is a lot easier. I can try to explain this in terms of files and folders, but in the end, I really can’t say. I just know that I’m getting my research out quicker.

Realize that operating systems are not just lines of code; they are defined by philosophies, values, and principles. Choose one that fits yours.

Observe your students. They may be leaders in innovative technology adoption.

**Conclusion**

I love my iMac, my MacBookPro, my iPhone, and my ability to sync all of my data among these devices. I won’t part with them.

Does this mean, then, that I’m through with Microsoft? No, not at all. I use Microsoft Office daily and plan to use it into the foreseeable future.

What about operating systems, am I finished with Windows? No, not by any means. I’ll get Windows 7 and enjoy using it as well. But it’s likely I’ll use it on a Mac.

References


See ECOMMERCE, page 13
The Evolution of an International Academic Manufacturing Survey

by Clay Whybark, University of North Carolina; Jack Wacker, Arizona State University; and Chwen Sheu, Kansas State University

The Global Manufacturing Research Group (GMRG) is a multi-national community of researchers dedicated to the study and improvement of manufacturing supply chains world-wide (www.gmrg.org). A major part of its effort has been the collection and analysis of empirical data gathered directly from manufacturing firms. Over the past 20+ years, new manufacturing issues have arisen, the operations management research community’s understanding of questionnaire design and data collection methods have improved, and empirically based academic research has expanded. As a consequence, the GMRG questionnaire has been revised three times. In each instance an international group of researchers was involved in the effort. This article describes the evolution of the GMRG survey. Table 1 summarizes the GMRG survey periods, data collection results, and related theoretical background since 1986.

The First GMRG 1.0 (1986-1989)

With the help of the Korea Productivity Center, Clay Whybark (University of North Carolina) and Boo Ho Rho (Sogang University) developed the first GMRG survey in the mid-1980s. The primary purpose was to learn what manufacturing practices were in use in different countries. Secondary objectives included learning whether a common international survey could be developed and creating a global research community. Given the academic and industry interest in techniques like just-in-time (JIT) and material requirements planning (MRP), the questionnaire was based on the Vollmann, Berry, and Whybark (1984) manufacturing planning and control framework. Ultimately, researchers in 10 countries provided data from 600 companies.

Research based on data from the first survey was collected and published in a book edited by Whybark and Vastag (1993). The data from the first survey were freely distributed and bundled with the book in order to increase the global research community. The international academic community participation in the use of the first questionnaire data was widespread and significant. Among the contributors to the book were:

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<th>Contributor</th>
<th>Institution</th>
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<tr>
<td>Danny Samson</td>
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<td>Benito Flores</td>
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<td>Arturo Macias</td>
<td>University of the Americas, Mexico</td>
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<td>Karen Brown</td>
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<td>Cheng Zhong</td>
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The first questionnaire documented manufacturing practices in the countries...
surveyed and described manufacturing practices of that era.

The Revision of GMRG 1.0 to GMRG 2.0 (1991-1997)

As the research from the first survey was being published, both industrial and academic interest shifted from the difference in practices to how the practices influenced outcomes. At the same time, the manufacturing research community had learned to use more powerful analytical tools and the GMRGers had learned valuable lessons about gathering empirical data. It became clear that revisions to the questionnaire were needed to capture the new interests and to make use of the GMRG experience. The lesson learned was that for academic research, questionnaires need to be living documents.

While plans for a second survey were being formulated, several DSI members joined the GMRG meetings (among them were Lawrie Corbett, University of Wellington, New Zealand; Basheer Khumawala, University of Houston; Sang Lee, University of Nebraska; Ram Narasimhan, Michigan State University). They and others from many countries contributed to questionnaire revisions that linked practices to outcomes, incorporated some of the new manufacturing developments, and exploited the GMRG experience. Since desirable outcomes are dependent on strategy, the competitive strategy work of Hayes and Wheelwright (1984) was the organizing framework for these additions. The group engaged in multiple debates about the trade-off between changes and continuity between versions of the questionnaire. The revisions added length, but incorporated many of the new issues and retained many of the ones from GMRG 1.0.

The second survey was conducted during 1991 to 1997, with the additional questions enabling research on a broad-based spectrum of manufacturing issues. The interest generated by the first survey, the variety of issues, and the broad participation in the development of the second survey all contributed to a high level of interest in its use. As a result, the questionnaire was very successful with data from 1,222 companies being gathered from 22 countries. Unlike GMRG 1.0, this data was not made public until those that had collected the data had been able to use it and they were able to publish numerous academic articles in journals around the world based on their research using the database.

The Revision of GMRG 2.0 to GMRG 3.0 (1998-2003)

The positive experience from the second survey was greatly influenced by the broad global participation in the survey development. Of course, new developments in manufacturing, advances in analytical methods, and developments in the academic literature were taking place during this same time, motivating the development of a third survey. This again brought up the tradeoff between consistency for longitudinal studies and dynamism to incorporate the new issues. An important lesson learned from GMRG 2.0 was that having academics from many countries involved in the revision process greatly improved the usefulness and interest in the questionnaire.

However, having a large number of international researchers involved caused the revision to include many diverse issues of individual interest. Manufacturers were concerned about environmental sustainability, ISO certification, supply chain partner relationships, lean manufacturing, and additional issues. At the same time, there was evidence that survey burnout was beginning to occur among manufacturing executives. On the academic side, journal editors and article reviewers were shifting toward more theory testing than theory development. This also necessitated revisions in the questions.

In the attempt to incorporate current issues, editors’ preferences and trends in the literature, GMRG 3.0 grew to be quite lengthy. In light of the companies’ survey burnout this substantially increased the effort required to gather data. Despite these impediments, data from some 500 companies were gathered from five countries. The data have not been made public and the publication of research results still continues.

The Revision of GMRG 3.0 to GMRG 4.0 (2007-present)

The experience with the third survey made clear that substantial changes would be needed to continue to perform successful empirical research in the new environment. The combination of survey burnout, researcher issues expansion, and the theory-testing interest of journal

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<td>600 samples (10 countries)</td>
<td>1,222 samples (22 countries)</td>
<td>500 samples (5 countries)</td>
<td>1,310 samples (22 countries)</td>
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Theoretical Framework & Issues

| Manufacturing planning & Control (Vollmann, Berry and Whybark, 1984) | Survey #1 plus Strategy (Hayes and Wheelwright, 1984) | Survey #2 plus contemporary issues (e.g., ISO, sustainability, lean) | Academic Literature Module-based (e.g., Outsourcing, Info systems, Purchasing, Forecasting) |

Table 1: GMRG survey evolutions (1986 – present).
Decision Line, May 2009

Editors dictated the needs. These were, simply, to shorten the length, focus the issues, and provide a theoretical reference for each issue. The general lesson learned from GMRG 3.0 was that only a short questionnaire would generate enough responses (at least currently) to enable acceptable research results.

A committee of four agreed to oversee the revisions: Karen Brown (Thunderbird), Rob Klassen (University of Western Ontario), Danny Samson (University of Melbourne), and Chwen Sheu (Kansas State University). The result of debates by the GMRG as to how to accommodate new needs but still maintain consistency between revisions was to have two parts to the survey. The first part is a section on company demographics, manufacturing practices (to provide the consistent link between questionnaires), competitive goals, and internal performance. This section is common to all companies surveyed. The second part contains optional modules addressing specific management issues. Each module is based on a conceptual model supported by the academic literature.

There are currently four modules. They and their developers are: Manufacturing Information Systems (Patrik Jonsson, Chalmers University, Sweden; and Clay Whybark, University of North Carolina); Outsourcing (Luis Mesquita, Arizona State University); Forecasting (Benito Flores, Texas A&M; Matteo Kalchschmidt, Bergamo University, Italy; and Arturo Macias, University of the Americas, Mexico); and Purchasing (Phil Carter, Tom Hendricks, and Jack Wacker, Arizona State University). Most questions used in these modules were extracted from the extant academic literature. In addition to the developers, the questionnaire committee reviewed all modules.

GMRG 4.0 has generated considerable interest from researchers around the world. As of May 2009, the core data has 1,310 manufacturing plants from 22 countries. The optional modules have approximately the following sample sizes: Manufacturing Information Systems (900+), Outsourcing (1000+), Forecasting (600+), and Purchasing (700+). The questionnaire is theory based to empirically analyze literature-based manufacturing issues.

Conclusion

The evolution of the GMRG survey over the last 20+ years indicates that longitudinal survey instruments are evolving, living documents. They need to respond to changing realities in the population of study, newly emerging academic issues, and developments in analytical techniques. This dynamism presents a challenge to those who are interested in temporal research. For the GMRG questionnaires, the purposes have evolved from documenting manufacturing planning and control practices to testing specific theory on outsourcing, purchasing, forecasting, and manufacturing information systems. In the process of this evolution about one quarter of the questions have remained the same for the four rounds of survey.

The GMRG has always been an inclusive organization embracing researchers from countries around the world. It is not externally funded and there is no longer free access to the database. However, researchers who gather a complete representative sample of data do get access to the data for all modules for which they collect data. Come join with the group and participate in the enterprise. For more information contact Lawrie Corbett (President-elect, Lawrie.Corbett@vuw.ac.nz) or Matteo Kalchschmidt (President, Matteo.Kalchschmidt@unibg.it).

References


Submitting articles to Decision Line

Members are invited to submit essays of about 2,000 to 2,500 words in length on topics of their interest, especially articles of concern to a broad, global audience. Please send essays (including brief bio and photo) to either the respective feature editor or to Editor Krishna Dhir.

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Decision Analysis in One Chart
by Gregory S. Parnell, United States Military Academy at West Point

Why am I a decision analyst? I often tell students and colleagues that I use the “Willie Sutton theory of operations research.” According to the legend, when Willie was finally captured after robbing many banks, he was asked, “Why do you rob banks?” His classic response was, “That’s where the money is!” In most of my professional career and academic research, I have used decision analysis to inform decision makers responsible for complex resource allocation decisions involving large investments.

As a practicing decision analyst and past president of the Decision Analysis Society of INFORMS, I am frequently asked to develop a decision analysis methodology for a new application or to review a proposed methodology. As an academic and a consultant, I have learned the importance of carefully defining any discussion and using a summary chart to tell a story. In this short article, I would like to define decision analysis and describe the scope of decision analysis using one chart. Clearly this is a daunting task, and I did not stay the chart would be simple!

Figure 1 provides my view of the current scope of decision analysis, the key concepts, and the most common techniques used by practicing decision analysts. My hope is that readers can use this chart to assess their understanding of decision analysis and use the references in this article to expand their understanding of the concepts and techniques in this important and useful field.

Scope of Decision Analysis
In order to assess the potential use of decision analysis to meet decision challenges, we need a clear understanding of the concepts and techniques of decision analysis. Figure 1 provides one possible decision analysis framework to describe the major concepts and techniques. The framework begins in the middle by identifying a Decision Opportunity. I use opportunity instead of problem to emphasize that at any time we can
develop a decision opportunity and not only when we are faced with a decision problem. The framework is composed of dimensions, branches, and levels. The four dimensions are the decision (single and multiple alternative branches), the decision maker and stakeholder interaction (single and multiple decision maker branches), the value and time preference (two value preference and a time preference branch), and the uncertainty and risk preference (uncertainty and risk preference branches). The levels on each branch represent increasing complexity as we move away from the origin. The black text lists some of the most common techniques for each dimension. In limiting the chart to one page, I have had to be selective about the techniques that I have included. The references at the end of this article and the Decision Analysis Journal are excellent sources of additional decision analysis concepts and techniques.²

The Decision Dimension
The decision dimension captures three important distinctions: the type of alternatives, the number of alternatives, and the decision level of the alternatives. The type of alternative can be an existing alternative (e.g., an existing home at a specific address) or an alternative that must be designed (a new home to be designed and constructed at some location to be determined). The second distinction is the number of alternatives. For example, most of us buy one home, but we purchase a portfolio of financial investments (including our home). The third distinction is the decision level of the alternatives. The complexity of the decision changes as the level changes from organizational decisions (what products to produce or services to provide) to organizational strategy (what mission to perform) to national policy (what strategy to achieve national objectives) to international policy (what strategy to achieve international objectives). Usually, decision complexity increases as the decision level increases. In addition, at any decision level, the complexity increases as the number of decisions and the potential for new alternative designs increases.

![Decision Analysis Framework](image-url)
Four useful techniques to develop alternatives are stakeholder analysis, creativity techniques, the strategy generation table, and Value-Focused Thinking. The stakeholder analysis techniques (Parnell, Driscoll, & Henderson, 2008) used to define the problem can also be used to search for alternatives (e.g., interviews and questionnaires) or design new alternatives (e.g., focus groups). Clemen (1996) describes barriers to creativity and several useful creativity techniques. Howard (1988) uses a strategy generation table to identify decision elements, identify decision options for each element, and develop strategies as an integrated set of decision options for each decision element that span the decision space. Keeney’s (1992) Value-Focused Thinking recommends the use of values (see Value Preference Section) to develop better alternatives. Keller and Ho (1988) describe additional alternative generation techniques.

Two useful techniques for portfolio decision making are benefit-cost analysis and optimization. Phillips (2007) uses multiple objective decision analysis to model the benefit and the benefit-cost ratio to determine the order of buy for resource allocation. Kirkwood (1997) combines multiple objective decision analysis for benefits with optimization to develop optimal resource allocation plans subject to a wide variety of cost and programmatic constraints. Many additional portfolio decision analysis techniques have been used that include consideration of uncertainty and risk.

**Decision Maker and Stakeholder Interaction**

The decision maker and stakeholder interaction dimension captures two important distinctions: the number of decision makers and the level of interaction with decision makers and stakeholders. The first distinction is the number of decision makers: single or multiple. While there are certainly examples of single decision

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**The Dean’s Perspective** brings together essays that explore issues in academic leadership in business schools. Edited by Dr. Krishna Dhir, a former dean at Berry College, articles were first published in *Decision Line* (July 2003 - January 2008) and have been arranged in thematic sections (e.g., Faculty Development, Issues In Teaching, Stakeholder Engagement) so that current and future deans will find it a handy resource for guidance and inspiration.

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makers (e.g., your purpose of a car or home when you are single), most problems involve multiple decision makers (e.g., your purchase of a car or home after you are married and most business and public decisions). The second distinction is the level of interaction with decision makers and stakeholders, which can vary from interaction with representatives to decision makers (authorized to make resource decisions) to senior decision makers (C level officers of a corporation or government agency directors) to external review groups (corporate boards or national review groups). The most complexity involves multiple decision makers with senior executive and external reviews.

This dimension is colored red since ineffective stakeholder and decision maker interaction is the primary source of failure of operations research studies to support decision makers. Two proven techniques (both have been used for over 20 years) for decision maker interaction are decision conferences and the dialog decision process. Decision conferences (Phillips, 2007) are leadership and stakeholder conferences that develop requisite multiple objective decision models to enable a shared understanding, consensus decisions, and implementation commitment. Multiple decision conferences can be used to support hierarchical decision making. The dialog decision process (Spetzler, 2007) is a structured process for periodic interaction at major decision milestones with decision makers using decision analysis techniques. The process provides high confidence you are solving the right problem and enables the use of more complex decision analysis models of values and uncertainty for alternative evaluation.

Value and Time Preference

The value and time preference dimension includes three distinctions: time preference, value modeling, and preference weighting. Time preference is usually modeled using a discount rate (Clemen, 1996). Value preference begins with the identification of objectives and value measures (Keeney, 1992). Value modeling can be done with direct assessment or using value functions that model the returns to scale on the value measure (Kirkwood, 1997). Preference weights are assigned to value measures in most value models (e.g., the additive value model, the most common model). Weights depend on the importance of the value measure and the range of variation of the value measure scale. Therefore, decision analysts use swing weights (the swing refers to the variation of the weight as the value measure swings from the lowest value level to highest value level on the scale) and not importance weights. The swing weight matrix (Parnell, Driscoll, & Henderson, 2008) defines the importance and variation in the decision context to aid in assessment and communication of weights.

Common value and time preference techniques include net present value, objectives structuring techniques, value function elicitation techniques, benefit-cost analysis, value models (e.g., additive value model), and Value-Focused Thinking. Net present value is the standard technique for modeling single objectives using a discount rate (Clemen, 1996). Objectives structuring techniques, value function elicitation techniques, value models, and swing weighting are described in Keeney and Raiffa (1976), Keeney (1992), Clemen (1996), and Kirkwood (1997). Keeney (1992) and Parnell, Driscoll, and Henderson (2008) describe Value-Focused Thinking.

Uncertainty and Risk Preference

The fourth, and final dimension, is uncertainty and risk preference. The two major distinctions are uncertainty and risk. Some decision analysis problems do not require uncertainty to be considered. When we need to consider uncertainty, as we have noted, decision analysts use probability to assess their beliefs about uncertainty if they can define a mutually exclusive and collectively exhaustive outcome space. It is simpler to assess probabilities for single experts for each uncertain event, but many complex problems involve multiple experts. For long-range planning problems it is not easy to define the outcome space of the events. For these problems, we sometimes use existing scenarios, or we develop new scenarios to define the strategic planning space (Kirkwood, 1997).

The second distinction is risk preference. As we noted in the value preference dimension, value functions measure returns to scale. We can calculate the expected value of alternatives given the uncertain variables in the problem. Utility functions measure both returns to scale and risk preference (Kirkwood, 1997). Utility functions can have single or multiple objectives and are assessed using lotteries. Single objective utility functions are described as risk adverse (concave for increasing functions), risk neutral (linear), and risk seeking (convex for increasing functions) (Clemen, 1996). The exponential utility function is a common single dimensional utility function.

The important uncertainty techniques include probability elicitation protocols, Bayesian networks, multiple expert aggregation techniques, Monte Carlo simulation, and scenario development techniques including alternative futures. Probability elicitation protocols are described in many of the references including Kirkwood (1997). Bayesian networks (Pearl, 1988) are networks used to model n dimensional probability distributions and obtain inferences before and after observing events. Multiple expert aggregation techniques are described in the literature. Monte Carlo simulation can be used in conjunction with single objective (Clemen, 1996) or multiple objective decision analysis models (Parnell, Driscoll, & Henderson, 2008). Scenario development techniques are described by Kirkwood (1997) and used in large decision analysis studies (Parnell et al., 1998).

The important utility techniques include utility function elicitation techniques, decision trees, and influence diagrams. Utility function elicitation techniques are included in most decision analysis books (Keeney & Raiffa, 1976; Clemen, 1996; and Kirkwood, 1997). Decision trees are an extension of probability trees and used by Raiffa (1968). Decision trees are very flexible—they can be used to solve single and multiple
objective decision analysis problems using value or utility. Influence diagrams, developed by Howard and Matheson, are equivalent to decision trees, but have modeling and communication benefits since the diagram suppresses the details of the branches of the trees (Clemen, 1996).

Decision Analysis Software
In the past 20 years, decision analysis software has been developed to solve decision analysis problems of low, medium, and high complexity. OR/MS Today publishes a very useful biennial survey of decision analysis software (Maxwell, 2008). The software tools include decision tree, influence diagram, Monte Carlo simulation, Bayesian network, and multiple objective decision analysis tools.

Decision Analysis Applications
In the past 40 years, there have been a wide variety of decision analysis applications. Few application articles are published due to proprietary information, classified information, and lack of incentives of practitioners to publish. Good surveys can be found in Corner and Kirkwood (1991); Keefer, Kirkwood, and Corner (2004); Edwards, Miles, and von Winterfeldt (2007); and Parnell (2007). Decision analysis applications, including the use of decision analysis with other operations research techniques, are published in a wide variety of journals including those of DSI and INFORMS.

Conclusion
My objective of this article is to introduce decision analysis to you in one chart. Figure 1 provides my view of the four decision analysis dimensions, the key concepts, and some of the most common techniques being used by decision analysts to provide value to their clients. In addition, I have included references to some of the major books and literature in the field.

Hopefully, this article will be a useful reference for you the next time you are asked to apply the “Willie Sutton Theory of Operations Research!”

Endnotes

References
Wanted: Your Book Reviews

by Vijay R. Kannan, Feature Editor, Utah State University

As the new feature editor of From the Bookshelf, I would like to welcome you to the column and invite you and your colleagues, both members and nonmembers of DSI, to make a contribution. Why should you write a book review? There are many reasons why you should be motivated to contribute to the column. For example, writing a review ...

1. Provides a valuable service to DSI members and nonmembers alike—articles appear not only in the printed version of Decision Line but also on the DSI website, which has a worldwide audience.

2. Gives you an opportunity to share your insights and expertise with appreciative colleagues and fellow professionals all over the world.

3. Will get you and your institution visibility and name recognition on a global scale.

4. Allows you to demonstrate the ongoing and sustained publication record that administrators desire, even in ‘off’ years.

5. Showcases your depth of knowledge, wisdom, and writing skills in a manner that can be understood by colleagues and family members who may not understand or be motivated to read your research.

6. Gives you greater purpose in reading non-research-based literature.

7. Provides a forum and captive audience for you to speak your mind, something academics strive for.

Did I also mention that Decision Line is read by professionals in all corners of the world?

Reviews might include new books that are of general business interest, are authored by a DSI member, report on an aspect of interest in the decision sciences or higher education more generally, or compare new textbooks, to name a few possibilities. Examples of reviews can be found on the DSI website at http://www.decisionsciences.org/DecisionLine/archive.asp

Reviews can be of books you have recently read or have an interest in reading. In the latter case, I would be happy to explore obtaining a copy of the book for you from the publisher. If you might have an interest in writing for the column or would like additional information, do not hesitate to contact me.

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Happenings in the Midwest Region
by Ceyhun Ozgur, Valparaiso University, Midwest DSI President 2008-2009

MWDSI had its annual meeting in Oxford, Ohio, this past April at Miami University’s Marcum Center. Program Chair Rocky Newman put together a great program which included a tour of Miami University’s award-winning culinary services, and a first-time online proceedings of conference papers. There were a total of 28 regular papers presented. In addition, there were many abstracts presented. 70+ registrants came to the meeting including several publishing companies.

We awarded the MWDSI Stan Hardy Award, best OM paper published during 2008 in one of the top five OM journals including POM, OM, JDS, MSOM and IJPR. Editors of these journals submitted their best two articles published in their respective journals in 2008. The award selection committee, organized and supervised by Tobias Schonher, chose the best paper from those submitted and awarded this year’s Stan Hardy award. This year’s winning paper for the Stan Hardy award was co-authored by Mary J. Benner (University of Pennsylvania) and Francisco M. Veloso (Carnegie Mellon University and Universidade Catolica Portuguesa), entitled “ISO 9000 practices and financial performance: A technology coherence perspective.” This winning paper appeared in the Journal of Operations Management, and Dr. Veloso presented the paper in Oxford, Ohio.

Alpha Iota Delta, the Decision Sciences and Information Systems honor society, continues to sponsor the best innovative education award for the MWDSI conference. This year’s winners of the Alpha Iota Delta Innovative Education best paper award were four authors from Northern Illinois University led by Kathleen McFadden. They were also recognized in Oxford and given plaques and a check. The paper that won the best

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Announcing DSI’s New Journal

Supply Chain Management Research (SCMR)

The Board of Directors of the Decision Sciences Institute is pleased to announce a new journal, Supply Chain Management Research (SCMR), in the broad interdisciplinary area of supply chain management, to be published by John Wiley & Sons. Ram Narasimhan (Michigan State University) and Soumen Ghosh (Georgia Tech) will be the founding co-editors-in-chief. The primary motivation for DSI to start this journal is the fact that other than a few related practitioner-oriented journals, there is currently no top-tier, scholarly journal dedicated entirely to supply chain management. Since the volume of research and researchers in supply chain management is growing rapidly, this new journal will fulfill the need for a premier outlet for publishing high quality, scholarly research in the supply chain management domain.

The mission of SCMR is to be the premier scholarly research journal in the cross-disciplinary area of supply chain management. To pursue this mission, SCMR will publish papers of the highest quality that make a significant and substantial contribution to advancing the knowledge frontier in the field of supply chain management. Papers suitable for publication in SCMR must demonstrate:

- Methodological rigor expected from high-quality scholarly research,
- Conceptual, theoretical, and analytical soundness,
- Significant contribution towards creating new knowledge or extending existing knowledge and theories.

SCMR will seek to publish at least four issues a year. All submissions will be double-blind refereed. The editorial board will follow the department structure, with each key area having a departmental editor. The editorial philosophy of SCMR is such that empirical, conceptual as well as analytical papers will be suitable for submission to the journal. Further elaboration of the editorial policy and review system are currently being finalized. The details of the journal including the editorial board will be published on the DSI website soon. Paper submissions in electronic form will be accepted after August 31, 2009. Please direct your inquiries to one of the co-editors-in-chief.

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WDSI Visits the Garden Island of Kaua’i
by Vijay Kannan, Utah State University, WDSI Past President (2007-2008)

Western DSI recently completed its 38th Annual Meeting on the Garden Island of Kauai, Hawaii. Whether it was the lure of palm trees, sun, and sand, or the desire to escape the chill economic conditions, the meeting, chaired by Nafisseh Heiat (University of Montana, Billings), attracted almost 200 registrants, several coming from as far afield as India, New Zealand, Denmark, and Croatia. A total of 240 paper and abstract submissions were made to the meeting from 21 different countries, once again highlighting the international tradition of WDSI.

In addition to the 55 sessions, there were several meeting highlights. Alpha Iota Delta sponsored three best paper awards which were presented at the business lunch. The recipients of the Best Application Paper award were Ron Anderson and Jeffrey Richards (University of Texas, Austin), for their paper “Social Marketing Campaigns of Self-Directed Change to Prevent Drunken Driving.” The Best Theoretical/Empirical Research Paper award was given to Praveen Sinha (Chapman University) for his paper “Auditor Independence and the Likelihood of GAAP Violation.” The award for the Best Interdisciplinary Paper was given to Alan Singer (Appalachian State University) for his paper “Ethical Strategy and Classical Pragmatism.” The authors of these papers will be invited to present their papers at a special session during the DSI Annual Meeting in New Orleans in November. WDSI also sponsored the award for the Best Student Paper, which went to Thomas Norman (California State University, Dominguez Hills) for his paper “Human Resource Outsourcing: Measuring the Hidden Cost.”

One additional and significant award was made during the luncheon. Krishna S. Dhir (Berry College), a long-time and loyal supporter of WDSI, program chair for WDSI’s 31st annual meeting, past president, and resident sage, was given the Distinguished Service Award for his years of dedicated and selfless service.

Other highlights of the meeting were the three evening social events. WDSI’s tradition of fostering a warm, relaxed evening atmosphere for socializing and networking was continued with receptions on the first two evenings of the meeting and a dinner buffet on the penultimate day of the meeting. These provided opportunities for attendees to make new friends and re-connect with old ones, and to decompress after the intensity of each day’s sessions. On the subject of old friends, the meeting was also notable for its having as many as seven past presidents in attendance, including Shannon Taylor (1988-89) and John Rogers (1990-91).

The meeting also had a first--its first tooth extraction by surfboard! And the unfortunate “victim” was reminded, ‘What happens in Vegas stays in Vegas, but what happens in Hawaii follows you home so your co-workers can tease you about it.’ He did also note that the receipt for $400 for after-hours medical care should be evidence enough that the incident did not occur on “company time” lest his dean have any doubts.

The downside of such an eventful meeting is what do you do to follow it? This is the challenge for John Davies (Victoria University of Wellington, New Zealand), program chair for the 2010 meeting in Lake Tahoe (April 6-9). Given the location as a focal point for the gaming industry, the meeting could appropriately be titled “Managing Risk and Uncertainty” or “Seeking New Opportunities for Wealth Creation”! The meeting, to be held at the Hyatt Regency Lake Tahoe Resort, will feature a new track in Hospitality Management and a mini-track within the Student Paper Track on Undergraduate Student Research. For the Thursday evening event, the casino will be reserved for meeting participants so that they might collect empirical data for new research projects on game theory, risk and return, consumer behavior, and group dynamics in the gaming sector! No doubt attendees will come to the meeting motivated purely by the opportunities for new and innovative academic and practitioner research. For additional information, contact John Davies (john.davies@vuw.ac.nz). □
Institute Meetings
The 40th Annual Meeting of the Institute will be held November 14-17, 2009, at the New Orleans Marriott Hotel in New Orleans, Louisiana. Submission deadline was April 1, 2009. Contact Program Chair Maling Ebrahimpour, Roger Williams University, mebrahimpour@rwu.edu.
http://www.decisionsciences.org/annualmeeting/

The 2009 International DSI Meeting will be held June 24-27, 2009, in Nancy, France. Paper submission deadline was February 1, 2009. Contact Program Chair Minoo Tehrani, Roger Williams University, Bristol, Rhode Island, USA, mtehrani@rwu.edu.
http://internationaldsi.org/

The Asia Pacific Region will hold its 2009 Annual Meeting on July 4-8, 2009, on the campus of the China Europe International Business School (CEIBS) in Shanghai, The People’s Republic of China. Submission deadline was February 28, 2009. Program co-chairs are Tom Callarman and Norma Harrison, CEIBS.
www.ceibs.edu/dsi2009/index.html
http://www.apdsi.org

The Indian Subcontinent Region will hold its third annual conference at the lush green ASCI, Hyderabad campus on December 28-30, 2009. For more information, please contact Conf1209@asci.org.in
http://www.asci.org.in/icdigs.asp

The Mexico Region is still planning its next annual meeting. For more information, contact Antonio Rios, Instituto Tecnologico de Monterrey, antonio.rios@itesm.mx.
The Midwest Region held its 2009 Annual Meeting on April 16-18, 2009, at the Marcum Conference Center and Miami Inn in Oxford, Ohio. For more information, contact William “Rocky” Newman, Miami University, newmanw@mohio.edu.
http://www.fsb.muohio.edu/mwdsi2009/
The Northeast Region held its 2009 Annual Meeting on April 1-3, 2009, at Mohegan Sun in Uncasville, Connecticut. For more information contact Program Chair Kenneth J. Sousa, Bryant University, nedsi09@bryant.edu.
http://www.nedsi.org/
The Southeast Region will hold its 2010 Annual Meeting on February 17-19, at the Hilton Wilmington Riverside in Wilmington, North Carolina. Submission deadline is September 18, 2009. For further information contact Program Chair Quinton J. Nottingham, Pamplin College of Business, Virginia Tech, 1007 Pamplin Hall, Blacksburg, VA 24061, notti@vt.edu, (540) 231-7843, Fax: (540) 231-3752.
http://www.sedsi.org

The Southwest Region held its 2009 (30th) Annual Meeting on February 24-28, 2009, at the Renaissance Hotel, Oklahoma City, Oklahoma, USA. For more information, contact Kai S. Koong, University of Texas – Pan American, koongk@utpa.edu and drkks2002@yahoo.com.
http://www.swdsi.org

The Western Region held its 2009 (38th) Annual Meeting on April 7-11, 2009, at the Hilton Kauai Beach Resort in Kauai, Hawaii. For further information contact Nafisseh Heiat, Montana State University-Billings, wdsi@msubillings.edu.
http://www.wdsinet.org

Call for Papers
Conferences
The 2009 APICS International Conference & Expo will be held October 3, 2009, in Toronto, Ontario, Canada. The academic program was developed specifically for academicians to meet with colleagues and peers to discuss perspectives on the APICS International Conference & Expo’s critical topical areas. Join APICS Production and Inventory Management Journal (P&IMJ) editor Vince Mabert at the 2009 Academic Program to discuss the P&IMJ and guidelines for publication in the journal. Submission deadline for a one-page abstract is June 15, 2009, to Robert Vokurka of Texas A&M

See ANNOUNCEMENTS, page 36

Call for Papers
OPERATIONS MANAGEMENT RESEARCH: Advancing Practice through Theory

The second issue of the new journal OMR, published by Springer, has just been released and papers are now being solicited for the next volume. OMR’s purpose is to fill the growing need for a peer-reviewed journal that publishes high-quality research that is shorter and more sharply focused than articles in existing OM journals and makes a clear contribution to both the theory and practice of OM. OMR has been designed as a rigorous, double-blind peer-reviewed journal that is oriented toward fast reviews and publication. All research methodologies and all topics in the field are welcome.

Initial submissions can be in any good academic style and format but are limited to 20 manuscript pages, including figures and tables. Manuscripts should be double spaced with 12 point font and one-inch margins. You should receive at least two reviews of the paper within 8 weeks and a decision suggested by the Area Editor. The comments from the AE will explain the decision, and if a revision is requested, how to revise the paper to make it acceptable for OMR. The Editors-in-Chief of the journal are Jack Meredith and Patrick McMullen, both of Wake Forest University. For more information, please see the web site www.springer.com/12063, as well as the web-link entitled “Important Information for Authors” at the submission site www.editorialmanager.com/omra.
Since its inception in 1969, the Decision Sciences Institute (DSI) has provided a forum for disseminating knowledge and advancing the science and practice of decision making in organizations. In November 2009, we will celebrate 40 years of success as a premier society for decision-making professionals. DSI supports the advancement of high-quality research and sponsors an annual meeting for discussing new developments and generating new ideas in a cordial and affable environment that is conducive to the development of long-lasting fellowship and friendship. It is our hope that the 2009 DSI Annual Meeting will build on the success of the last 40 years and pave the way for another 40 years of fellowship and progress in the practice of decision making.

As of the writing of this message, our 40th anniversary conference is going forward as planned. I would like to bring to your attention the following:

1. The registration site is up on the website at http://www.decisionsciences.org/annualmeeting/. There are both web-based registration and a downloadable PDF file if you prefer or if your school requires paper registration.

2. If you have interesting and novel ideas that you would like to propose, please do not hesitate to let me or the appropriate track chair know about it. Some of the examples of the types of sessions that you can put together are: panel discussions, symposia, workshops, and tutorials dealing with research or pedagogical issues. We would be more than happy to entertain your ideas.

3. We are planning to have special events for this year’s conference to celebrate our 40 years of success as an organization that promotes fellowship, learning and advancing the practice of decision making. In the spirit of our celebration, I would like to invite all members to share any ideas that you might have with me. Please send me your ideas via dsi2009@rwu.edu. Let’s work together to make this conference unforgettable for everyone.

If you have any questions, suggestions, or requests, feel free to email me at the address above.

2009 Track Chairs

Accounting: Assurance and Public Accountability
Richard L. Jenson, Utah State University
Mehmet C. Kocakülâh, University of Southern Indiana

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Shaw K. Chen, University of Rhode Island

Case Studies
Rik Berry, University of Arkansas - Fort Smith
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DSS/AI/Expert Systems
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Celebrating 40 Years of Fellowship, Learning and Advancing the Practice of Decision Making

TRACK CHAIRS, see page 31
DSI’s 27th annual Doctoral Student Consortium is an engaging, interactive professional experience designed to help participants successfully launch their academic careers. We are pleased to have the sponsorship of McGraw Hill/Irwin and Alpha Delta Iota for this important event. The Consortium will take place on Saturday, November 14, 2009, at the 2009 DSI Annual Meeting in New Orleans.

Who Should Attend?
The Doctoral Consortium is offered to individuals who are well into their doctoral studies. The Consortium welcomes students from all subject areas within the decision sciences. A variety of students with backgrounds in operations management, management information systems, management science, strategy, organizational behavior, marketing, finance, accounting, and other areas will increase the vitality of the sessions. The program will focus on career goals, job search issues, research strategies, effective teaching, manuscript reviewing, and promotion and tenure, among others. Students who are interested in addressing these subjects in a participative, interactive way will enjoy and benefit from the Consortium.

Why Should You Attend?
1. Networking. Get to know some of the leading researchers and educators. Getting a job, finding collaborators, and gaining advantages in the career you are about to enter are all related to “who you know.” This Consortium is your chance to meet some of the leading researchers and educators in the field.
2. Skill development. Learn from veterans. Excellent teaching and research require practical skills in addition to content knowledge. Veterans will share their secrets to success.
3. Furthering your research. Engage with your peers and outstanding researchers. The research incubator will give you a chance to engage in a discussion of your research ideas with both your peers and outstanding researchers.
4. DSI exposure. The Consortium is a chance to “test-drive” DSI, learn about its people, it processes (such as placement services), and its opportunities.
5. Fun! Come socialize with your current and future colleagues in a city that has retained its sense of history and tradition, while carefully blending in cosmopolitan progress.

Program Content
The Doctoral Student Consortium involves seasoned, world-class research faculty from a variety of schools, junior faculty just beginning their careers, and key journal editors. All will help guide discussions in the following sessions.

Teaching Effectiveness. Harvey Brightman will return to the Doctoral Consortium for another post-retirement workshop in 2009. His sessions are simply not to be missed. Even experienced faculty members sit in on these dynamic and inspiring sessions.

Mapping Out a Research Plan. Tenured faculty mentors help participants to develop a strategic research plan for moving from the dissertation to a planned research program that will put them on a strong trajectory for tenure.

While in New Orleans for the annual meeting, you might consider taking a cruise down the Mississippi River in a riverboat.
Working in small groups, with the advice and guidance of a faculty mentor, participants will identify their areas of expertise, target appropriate journals, profile suitable co-authors, and plan a mix of publications.

**Being a Professor.** Professor Ira Horowitz, a DSI Fellow and past president, will share his insight and secret for success as a professor in academia.

**Writing and Reviewing Manuscripts.** Editors from journals in the decision sciences and related fields will describe the missions of their publications and will discuss how to craft strong manuscript submissions, how to improve the chances of getting a journal article accepted, and how to respond to reviews. Participants will also learn about how to be a constructive reviewer of manuscripts.

**Planning the Job Search.** Should you target your job search on research-oriented schools? Teaching schools? Private? Public? What’s the best way to market yourself? What makes a good job interview? This session will help participants answer these questions through insights drawn from a panel of faculty experts.

**Balancing It All.** How do you balance the demands of teaching, research and service, and manage to ‘have a life’?

**Join Us**

The Doctoral Student Consortium does more than prepare individual students, it creates a community of colleagues you’ll know throughout your career. Please plan to attend the Consortium and also encourage your student colleagues to participate in this important program. Although many participants will be entering the job market for 2010-2011, others will appreciate the opportunity to get a better understanding of an academic career and how to approach the job market the following year.

**Application Process**

Students in all areas of the decision sciences are encouraged to apply for the DSI Doctoral Student Consortium. Those wishing to be included should submit:

1. A current curriculum vita, including contact information (e-mail in particular), your major field (accounting, finance, marketing, management, operations management, MIS, management science, strategy, and so on), the title of your dissertation proposal or the title of a current research paper.

2. A letter of recommendation from your dean, doctoral program director, department chair, or dissertation chair. The letter should attest to the applicant’s qualifications and good progress in the doctoral program.

Interested students are encouraged to apply early if they wish to ensure themselves space in the Consortium. Materials should be sent to Rhonda Aull Hyde, Doctoral Consortium Coordinator, by October 1, 2009. Those who apply by this date and meet the criteria listed above will be accepted for participation. Applications received after October 1st will receive consideration on a space-available basis.

Participants must pay the regular student registration fee for the annual meeting, but there will be no additional charge for the Consortium. This fee includes the luncheon and reception on Saturday and the networking luncheon on Sunday. Although students will be responsible for all of their own travel and accommodation expenses, it is customary for participants’ schools to provide monetary support for these purposes.

Consortium participants will be recognized in *Decision Line*, the Institute’s news publication. They also receive special recognition in the placement system, special designation on their name badge, and an introduction to the larger DSI community at the breakfast and plenary session.

**Doctoral Student Consortium Coordinator**

Rhonda Aull Hyde  
Operations Research Program  
210 Townsend Hall  
University of Delaware  
Newark, DE 19716  
rhyde@udel.edu  
302-831-1324

**Track Chairs**

*Information Security*
- Janet Renwick, University of Arkansas, Fort Smith  
- Bryan Holtz, The University of Tennessee at Martin

*Information Systems*
- Marzie Astani, Winona State University  
- Asghar Sabbaghi, Indiana University, South Bend

*Innovative Education*
- Steven Yourstone, University of New Mexico

*International Business*
- Minoo Tehrani, Roger Williams University

*Knowledge Management*
- Adela S.M. Lau, The Hong Kong Polytechnic University  
- Navid Sabbaghi, Illinois Institute of Technology

*Manufacturing Management and Practice*
- Rupak Rauniar, University of St. Thomas

*Marketing: Theory Applications and Practice*
- Fahri Karakaya, University of Massachusetts Dartmouth  
- Alberto Rubio, Roger Williams University

*MS/OR: Techniques, Models and Applications*
- Greg Frazier, University of Texas at Arlington

*Organizational Behavior/Organizational Theory*
- Susan Bosco, Roger Williams University  
- Robert A. Dengler, Roosevelt University

*Project Management and New Product Development*
- Manouchehr Tabatabaei, Georgia Southern University

*Quality and Productivity*
- Lawrie Corbett, Victoria University of Wellington, New Zealand
- Laura Forker, University of Massachusetts Dartmouth

*Regional Best Paper Award Winners*
- Larry Meile, Boston College

*Service Management*
- Evan Duggan, University of the West Indies
- Sunran Jeon, North Dakota State University

*Social Issues in Information Technology*
- Michael B. Knight, University of Wisconsin - Green Bay

*Statistics and Decision Analysis*
- Atsuto Nishio, Takushoku University

*Strategy and Policy*
- Karen L. Fowler, Colorado State University-Pueblo

*Supply Chain Management*
- Mahour Mellat-Farast, University of North Carolina at Pembroke  
- Ismail Sila, University of Saskatchewan
The New Faculty Development Consortium is for faculty in the beginning years of their academic careers who would like to learn more about teaching, research, publishing, and other professional development issues. Attendance at the consortium is by application, and is limited to faculty members who have earned their doctoral degrees in a business discipline and are in the first three years of their post-doctoral teaching careers within business schools or equivalent.

The consortium will last a full day on Saturday, November 14, 2009. It will include interactive and panel sessions with faculty at varying stages of their careers and at a variety of institutions, as well as opportunities for interaction and networking with more experienced colleagues. The content of the sessions offered is intended to provide insight into the challenges and opportunities in today’s rapidly changing higher education environment. Topics may include, but will not be limited to, the following:

- What it means to be a faculty member today
- Tenure and promotion policies at different types of schools
- Becoming an excellent teacher and how to document it
- Becoming an excellent researcher in various types of environments
- The role of service
- Building an academic portfolio
- Career path strategies and professional development
- Academic ethics
- Future trends in the academy

To apply for the 2009 New Faculty Development Consortium, please complete the application form (see below or online via the DSI Annual Meeting web pages) and send it with a copy of your current vita to the NFDC Co-Coordinator. All applications must be received by October 1, 2009. Participation is limited to the first 50 qualified applicants. More specific information will be provided to those participants who are accepted for the Consortium. Each participant will be expected to register for the Institute’s 2009 Annual Meeting in New Orleans. No additional fees are charged for the New Faculty Development Consortium.

New Faculty Development Consortium Coordinator
Vijay R. Kannan
Jon M. Huntsman School of Business
Utah State University
v.kannan@usu.edu

Application for New Faculty Development Consortium
November 14, 2009 • New Orleans, Louisiana

Send in this form and a current copy of your vita to the Coordinator (see above). Application deadline: Oct. 1, 2009.

Name: ________________________________________________
Current institution and year of appointment: ______________________
______________________________________________________
Mailing address: _______________________________________
______________________________________________________
______________________________________________________
Year doctorate earned: __________________________________
Doctoral institution: _____________________________________
Phone: _______________________________________________
Fax: __________________________________________________
E-mail: ______________________________________________
Research interests: ______________________________________

Teaching interests: ______________________________________
______________________________________________________
______________________________________________________
Major concerns as a new faculty member and/or topics you would like to hear discussed:
______________________________________________________
______________________________________________________
______________________________________________________
Have you attended a previous DSI Doctoral Student Consortium?
_____ yes _____ no
If so, when? _______________________________________

______________________________________________________
Discover a luxurious New Orleans hotel in the French Quarter, located steps from Bourbon Street, the Convention Center, downtown business district and iconic Big Easy attractions. Fresh from a recent $38 million renovation, the Marriott New Orleans French Quarter Hotel features over 1,300 guest rooms and suites, a fully equipped fitness center, updated Concierge Lounge and on-site business center. Highlights of this chic hotel in the French Quarter of New Orleans include a new lobby with stylish wine bar, Starbucks Coffee Shop, gift shop and convenient bell and concierge stands. The Marriott Hotel in New Orleans is home to the award-winning 5 Fifty 5, serving up a dining experience worthy of its French Quarter location.

For reservations at the Marriott New Orleans French Quarter Hotel and to receive the special offered group rate, your reservations must by made by Friday, October 31, and you must supply a credit card with the expiration date available from the following list: Visa, Master Card, American Express, Discover, Diners Club.

To guarantee your reservations at the Marriott New Orleans French Quarter Hotel and to receive the special offered group rate, your reservations must by made by Friday, October 31, and you must supply a credit card with the expiration date available from the following list: Visa, Master Card, American Express, Discover, Diners Club.

Note that the Decision Sciences Institute special group rate may not be available if the group room block becomes full, or after October 31, which is the cut off date for making reservations to receive the special group rate. If for some reason your plans change, you may cancel your reservation up and until 6pm of date of arrival. Should you not cancel your reservation, you will be billed for one night room charge and tax.

*At previous Decision Sciences Institute meetings, Marriott hotels have permitted attendees to reserve rooms by faxing or mailing a hard-copy form. Starting in 2008, Marriott no longer accepts a reservation using a form that contains credit card number information.

Need a roommate? Doctoral students, faculty and business leaders are often looking for someone to share a room with during the annual meeting. For online assistance, fill out our roommate match form at the url below and submit your information to DSI:

http://www.decisionsciences.org/annualmeeting/meetinginfo/roommates.asp

Marriott New Orleans French Quarter Hotel
555 Canal Street
New Orleans, Louisiana 70130 USA
1-504-581-1000
Toll-free: 1-888-364-1200
Marriott Centralized Reservations
1-888-226-2427

2009 DSI Annual Meeting Website
www.decisionsciences.org/annualmeeting/


2009 DSI Annual Meeting

2009 Professional Activities

Curricular Issues Miniconference
The Curricular Issues Miniconference provides a forum to learn from those at the forefront of curriculum innovation and improvement, and to share experiences and lessons. Separate tracks on undergraduate, masters, and doctoral programs will offer ideas and insights for those responsible for designing, teaching, and administering business education programs.

André M. Everett, University of Otago, aeverett@business.otago.ac.nz

Doctoral Student Consortium
The Doctoral Student Consortium provides a unique opportunity for doctoral students from across the U.S. and world to interact with one another and with distinguished scholars in a one-day program devoted to career development. Attendance at this consortium is by invitation based on application. All students who meet the criteria will be accepted.

Rhonda Hyde, University of Delaware, rhyde@udel.edu

Doctoral Studies Miniconference
Doctoral education is at the core of academic and scholarly development. However, very little attention has been given to the promotion, dissemination, and sharing of research that specifically deals with issues of doctoral education in curricular areas such as information systems, decision sciences, operations research and management, information technology, and information science. This miniconference will provide an opportunity for researchers to discuss new ideas on research conducted, or future opportunities for research, in doctoral studies related (but not limited) to the key curricular areas noted above. The Doctoral Studies Miniconference seeks original papers, research drafts, works in progress, and panel discussion proposals on these topics.

Paul Mangiameli, University of Rhode Island, mangia@uri.edu

Miniconference on Making Statistics More Effective in Schools and Business
The mission of MSMESB (Making Statistics More Effective in Schools and Business) is to improve the teaching and practice of statistics in schools and business. More specifically, MSMESB focuses on improving the teaching of statistics and statistical thinking, on cross-disciplinary research, on continuous improvement in business and education, and on interaction between academia and industry. We aim to encourage interaction between business faculty and others involved in teaching business statistics with professionals from industry and government, with publishers, and with software vendors. A miniconference was held at the Baltimore meetings in 2008 and that activity has lead to the establishment of a similar activity for New Orleans. The miniconference is a one-day event that will take place on Monday during the DSI Annual Meeting. We invite DSI members to submit papers and/or suggest session topics for this event, which will be organized in collaboration with the Statistics & Decision Analysis track.

Robert Andrews, Virginia Commonwealth University, randrews@vcu.edu;
Keith Ord, Georgetown University, ordk@georgetown.edu; and John McKenzie, Babson College, mckenzie@babson.edu

Miniconference on Successful Grantsmanship
Securing external research grants can significantly enhance research projects. A day-long event to be held on Saturday, November 14, 2009, the Miniconference on Successful Grantsmanship is intended to help develop interest among DSI members in obtaining external research grants and to sharpen skills in writing grant proposals so that endeavors may be more fruitful. You are invited to hear expert panelists and network with like-minded researchers.

Kristie Seawright, Brigham Young University, Kristie_Seawright@byu.edu

New Faculty Development Consortium
The New Faculty Development Consortium deals with research, teaching, publishing, and other professional development issues for faculty who are beginning their academic careers. Attendance at this consortium is by application and is open to faculty members who have a Ph.D. degree and are in the first two years of their teaching career.

Vijay R. Kannan, Jon M. Huntsman School of Business, Utah State University, v.kannan@usu.edu

Professional and Faculty Development Program
The Professional and Faculty Development Program is for Institute members in all stages of their careers, with the goal of keeping them current in their fields. The content of the program is designed to provide insight into the challenges and opportunities in today’s rapidly changing environment. We would welcome submissions of proposals that address changing needs of faculty development through professional life cycle. Submission deadline was May 1, 2009.

Krishna S. Dhir, Berry College, kdhir@berry.edu

2009 ACTIVITIES, see next page
2009 Competitions

For a listing of past DSI award winners, see www.decisionsciences.org.hallfame.htm.

Elwood S. Buffa Doctoral Dissertation Award Competition

The purpose of the Doctoral Dissertation Award Competition is to select and recognize the best dissertations written in the past year in the decision sciences area. The Elwood S. Buffa Dissertation Award, accompanied by a $1,500 prize, will be presented at the annual meeting. Applicants for this award should submit three (3) hardcopies of their dissertation in the required format directly to the Doctoral Dissertation Award Competition Coordinator by April 1, 2009. For more information concerning this competition, please contact the coordinator.

Christine Kydd, University of Delaware, kyddc@lerner.udel.edu

Instructional Innovation Award Competition

The Instructional Innovation Award Competition seeks to recognize outstanding contributions that advance instructional approaches within the decision sciences. The focus of this award is on innovation in college- or university-level teaching. Three finalists will be chosen to make presentations at the conference competition. The winning entry receives an award of $1,500, and $750 will be divided among each of the other finalists. Applicants are required to submit all contributions electronically using instructions on the conference Web site. The due date for submissions was April 1, 2009. For information concerning this competition, please contact the coordinator.

Funda Sahin, The University of Tennessee, fsahin@utk.edu

Best Paper Awards Competition

Best Paper Awards will be presented at the 2009 Annual Meeting. Categories include Best Theoretical/Empirical Research Paper, Best Application Paper, and Best Interdisciplinary Paper. At the discretion of the program chair and track chairs, outstanding scholarship also may be recognized through a distinguished paper award in a given track. Reviewers will be asked to nominate outstanding paper submissions for these awards. Nominations will then be reviewed by a Best Paper Awards review committee which will make award recommendations.

Dwight Smith-Daniels, Wright State University, dwight.smith-daniels@wright.edu

Best Case Studies Award Competition

The Case Studies Workshop serves an active role in the dissemination of new ideas with respect to case studies topics. Cases may be methodological in nature (i.e., crafted to support the learning of a specific technical skill) or integrative (i.e., designed to foster the integration of scientific approaches and analyses with real-world decision making).

M. Johnny Rungtusanatham, University of Minnesota - Twin Cities, rung0002@umn.edu

Best Student Paper Award

An award for the best student paper will be presented at the 2009 Annual Meeting. The competition is open only to student-authored papers without faculty co-authors. Reviewers will be asked to nominate outstanding paper submissions for this award. Nominations will then be reviewed by a Best Student Paper Award review committee that will make award recommendations. This is a great opportunity for students to receive recognition for their research.

Kathryn M. Zuckweiler, University of Nebraska at Kearney, zuckweilerkm@unk.edu

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Kathryn M. Zuckweiler, University of Nebraska at Kearney, zuckweilerkm@unk.edu

Technology in the Classroom Miniconference

The Technology in the Classroom Miniconference provides a forum at the DSI annual meeting for participants to share novel or innovative applications of technology in the classroom that enhance students’ learning experience. Submissions should consist of creative approaches and best practices for using course support software, multimedia, spreadsheet software, simulation software, online tutorials, or other applications of technology. We are especially interested in creating hands-on workshops in 2009 in which presenters and participants can engage in interactive discussions and demonstrations of effective use of technology and practice in the classroom. Submissions are competitively reviewed and selected for their creativity, novelty, and contribution to pedagogy and should not be duplications of material found in existing textbooks. Please send submissions (following the “Instruction for Electronic Submissions”) directly to the mini-conference coordinator by May 1, 2009.

William Johnson, Bentley University, wjohnson@bentley.edu
2009 DSI Annual Meeting

DSJIE Workshop for Interested Authors

The Decision Sciences Journal of Innovative Education (DSJIE) will offer a half day workshop at the 2009 Decision Science Annual Meeting in New Orleans (November 14-17, 2009) to help authors develop articles appropriate for submission to the journal. The specific date and time of the workshop have not yet been scheduled.

DSJIE is a peer-reviewed journal published by the Decision Sciences Institute. Its mission is to publish significant research relevant to teaching and learning issues in the decision sciences. The decision sciences include both quantitative and behavioral approaches to managerial decision making, encompassing all of the functional areas of business, including (but not limited to) accounting, business strategy and entrepreneurship, economics, finance, international business and globalization, marketing, MIS/DSS and computer systems, organizational behavior/organizational design, operations and logistics management, quantitative methods and statistics.

During the workshop, authors of pre-selected papers and abstracts will have the opportunity to work in small groups with the associate editors and experienced reviewers to develop and enhance their ideas and presentation. A maximum of 6-8 papers and 12 extended abstracts will be accepted.

Authors interested in participating in the workshop must submit an electronic paper or extended abstract no later than September 15, 2009, to Vern Francis (vfrancis@gsm.udallas.edu). The DSJIE editorial team will notify authors of acceptance to the workshop prior to the DSJIE 2009 early registration deadline (October 19, 2009).

Submitting a Paper

We seek papers appropriate for publication in DSJIE. Therefore, the paper should fit the guidelines found on the DSJIE website (www.dsjie.org) and be an empirical research paper, a case study research paper, a conceptual/theoretical article, or a teaching brief. Recall that “the mission of the journal is to publish significant research relevant to teaching and learning issues in the decision sciences.” Papers that have been submitted to or accepted for presentation at DSI 2009 or other conferences are appropriate if they fit the guidelines for DSJIE submissions.

Abstracts of submissions to the instructional innovation award competition are also welcome. The workshop is an ideal venue to work on developing a conference paper for possible publication in DSJIE.

ANNOUNCEMENTS, from page 28

University—Corpus Christi (robert.vokurka@tamucc.edu).

apicsconference.org

The 1st International Conference of Accounting, Business, Leadership and Information Management (ICABLIM 2009) will be held August 7-9, 2009, in Beijing, China, at the Beijing Friendship Hotel. The theme of the conference is “Leading to Global Frontiers.” Coordinating the conference is Lee Yao, chief editor of the International Journal of Accounting and Information Management. Submission deadline was March 9, 2009.

http://www.icablim.org/index.html

The International Conference on Emerging Operations Paradigm will be held August 10-12, 2009, at Karunya University in Coimbatore, India. Submission deadline was May 25, 2009.

http://www.karunya.edu/mba/EOP-09/index.html

The 2009 International Conference on Industrial Globalization and Technology Innovation (ICIGTI) will be held August 19-21, 2009, in Xian, China. Submission deadline is June 09, 2009.

http://icigti.org

The 3rd International Conference on Operations and Supply Chain Management will be held from July 28 to August 3, 2009, in China. In addition to plenary sessions by invited speakers (Profs. Barbra Flynn, Vicki Smith-Daniels, Aleda Roth, Vinod Singhal, Chris Voss) and parallel sessions, the program will feature (1) factory visits and city tours in Wuhan, (2) study tour along the Yangtze River to the famous Three Gorges Project, one of the biggest hydropower-complex projects in the world. Submission deadline was March 30, 2009.

http://lf-scml.baf.cuhk.edu.hk/icoscm
• Publication of articles by international scholars in the Institute’s journals.

The third objective that the Board will be pursuing is establishment of a European Region of the Institute. There are a number of participants from Europe at our annual conferences, and DSI has held several international conferences in Europe over the years. It is important for us to capitalize on the opportunity to start a European Region. Faculty from several prominent universities have endorsed the idea and are supportive of starting a European Region. This initiative comports well with the Institute’s strategic priorities of growth and internationalization. I hope to be able to announce the formation of the region at the annual conference.

The fourth objective is to successfully launch the new journal Supply Chain Management Research (for more information, see page 26) in 2010. Additional information will be posted soon on the Institute’s web site.

The fifth objective of the Board is to continue to improve the quality and content of the DSI annual conference. Several structural and infrastructural changes are being made by the program chairs for this year and next with a view to improving the quality and content of the sessions. The annual meetings are a means to deliver value to the membership, one of the Institute’s primary commitments. The structural and infrastructural changes that are being implemented will contribute to attaining this objective. Institute members can play a vital role in this regard by attending the sessions and by contributing to the quality of the sessions through high-quality presentations and discussions following the paper presentations.

The sixth objective is to improve the format, ease of use, and content of the Institute’s web site. I have appointed an ad hoc committee, chaired by Paul Rubin of Michigan State University, to work on this important objective. We plan to make several useful and important changes to the web site and web content prior to the annual conference.

The last objective is to emphasize the implementation of new ideas and strategic initiatives. The Board recognizes this as important to bringing about meaningful changes. Recognizing this, the Board has decided to meet in August to review progress on strategic initiatives and committee charges. Committees are being charged to provide the Board with an interim progress report highlighting action items that require Board discussion and action. I hope that continual attention to committee charges will keep all of us on track in swiftly implementing strategically important recommendations.

I intend to keep you updated on all these important objectives in subsequent columns. I feel privileged to lead the efforts of the Institute to achieve these objectives. I am pleased to note that the Board is as committed as I am to these objectives. As always, I invite the membership to stay engaged and contribute in ways that will ensure the success of our efforts. This year marks the 40th anniversary of the founding of the Institute. Let us make it a memorable year for the Institute, the academic family, to which we belong.
OFFICERS’ NOMINATIONS

The Institute’s 2009-10 Nominating Committee invites your suggestions for nominees to be considered for the offices of President-Elect, Secretary, and Vice Presidents elected at-large to serve on the Institute’s Board of Directors, beginning in 2011.

Your recommendations should include the affiliation of each nominee, the office recommended for the nominee, and a brief statement of qualifications of the nominee. If you would like to recommend persons for the offices of regionally elected Vice Presidents from the Indian Subcontinent, Southeast, Southwest and Western regions, please indicate so on the form below. These names will be forwarded to the appropriate regional nominating committee chair.

Please send your recommendations by no later than October 1st to the Chair of the Nominating Committee, c/o the Decision Sciences Institute, Georgia State University, J. Mack Robinson College of Business, University Plaza, Atlanta, GA 30303.

The Nominating Committee is most appreciative of your assistance.

Office ________________________________

Nominee’s Name & Affiliation _________________________________________________________________

_______________________________________________________________

_______________________________________________________________

_______________________________________________________________

Statement of Qualifications _______________________________________

_______________________________________________________________

_______________________________________________________________

_______________________________________________________________

Nominator’s Name & Affiliation ______________________________________________________________

_______________________________________________________________

_______________________________________________________________

_______________________________________________________________

FELLOWS’ NOMINATIONS

The designation of Fellow is awarded to active supporters of the Institute for outstanding contributions in the field of decision sciences. To be eligible, a candidate must have achieved distinction in at least two of the following categories: (1) research and scholarship, (2) teaching and/or administration and (3) service to the Decision Sciences Institute. (See the current list of DSI Fellows on this page.)

In order for the nominee to be considered, the nominator must submit in electronic form a full vita of the nominee along with a letter of nomination which highlights the contributions made by the nominee in research, teaching and/or administration and service to the Institute. Nominations must highlight the nominee’s contributions and provide appropriate supporting information which may not be contained in the vita. A candidate cannot be considered for two consecutive years.

This information should be sent by no later than October 1st to the Chair of the Fellows Committee, Decision Sciences Institute, Georgia State University, J. Mack Robinson College of Business, University Plaza, Atlanta, GA 30303.

Decision Sciences Institute Fellows

Adam, Everett E., Jr., Univ. of Missouri-Columbia
Anderson, John C., Univ. of Minnesota
Benson, P. George, College of Charleston
Beranek, William, Univ. of Georgia
Berry, William L., The Ohio State Univ.
Bonini, Charles F., Stanford Univ.
Brightman, Harvey J., Georgia State Univ.
Bufton, Elwood S., Univ. of California-Los Angeles
Cangello, Vincent*, Univ. of Southwest Louisiana
Carter, Phillip L., Arizona State Univ.
Chase, Richard B., Univ. of Southern California
Chervany, Norman L., Univ. of Minnesota
Clapp, James M., Aladdin TempRite
Collins, Rodger D., Dressel Univ.
Covey, James M., Colorado Springs
Cummings, Larry L.*, Univ. of Minnesota
Darden, William R.*, Louisiana State Univ.
Davis, K. Rocco, Univ. of Georgia
Davis, Mark M., Bentley College
Day, Ralph L.*, Indiana Univ.
Dignamu, Lester A., Univ. of Nebraska-Lincoln
Dock, V. Thomas, Maui, Hawaii
Ebert, Donald J., Univ. of Missouri-Columbia
Edwards, Ward, Univ. of Southern California
Evans, James R., Univ. of Cincinnati
Fetter, Robert B., Yale Univ.
Flores, Benito E., Texas A&M Univ.
Flynn, Barbara B., Indiana Univ.
Franz, Lori S., Univ. of Missouri-Columbia
Glover, Fred W., Univ. of Colorado at Boulder
Gonzalez, Richard F., Michigan State Univ.
Grauweg, Dennis E.*, Boulder City, Nevada
Green, Paul E., Univ. of Pennsylvania
Gross, Gene K., Georgia State Univ.
Gupta, Jatinder N.D., Univ. of Alabama in Huntsville
Hahn, Chan K., Bowling Green State Univ.
Hayya, Jack C., The Pennsylvania State Univ.
Heineke, Janelle, Boston Univ.
Hershauser, James C., Arizona State Univ.
Horowitz, Ira, Univ. of Florida
Houck, Ernest C.*, Virginia Polytechnic Institute and State Univ.
Huber, George P., Univ. of Texas-Austin
Jacobs, P. Robert, Indiana Univ.
Jones, Thomas W., Univ. of Arkansas-Fayetteville
Kendall, Julie E., Rutgers Univ.
Kendall, Kenneth E., Rutgers Univ.
Keown, Arthur J., Virginia Polytechnic Institute and State Univ.
Khurana, Richard, Univ. of Pennsylvania
Khumawala, Basheer M., Univ. of Arizona
Klein, William R., Univ. of Pittsburgh
Klein, Gary, Univ. of Colorado, Colorado Springs
Koehler, Anne B., Miami Univ.
Krajewski, Lee J., Notre Dame Univ.
LaForge, Lawrence, Clemson Univ.
Latta, Carol J., Georgia State Univ.
Lee, Sang M., Univ. of Nebraska-Lincoln
Luthans, Fred, Univ. of Nebraska-Lincoln
Maher, Vincent A., Indiana Univ.
Mallotra, Manoj K., Univ. of South Carolina
Mao, Nutu, Univ. of Illinois
Mabert, Vincent A., Indiana Univ.
Malhotra, Naresh K., Georgia Institute of Technology
Markland, Robert E., Univ. of South Carolina
McCain, Claude,* Univ. of Colorado at Boulder
Miller, Jeffrey G., Boston Univ.
Monroe, Kent B., Univ. of Illinois
Moore, Laurence J., Virginia Polytechnic Institute and State Univ.
Moskowitz, Herbert, Purdue Univ.
Narasimhan, Ram, Michigan State Univ.
Neter, John, Univ. of Georgia
Nutt, Paul C., The Ohio State Univ.
Olson, David L., Texas A&M Univ.
Perkins, William C., Indiana Univ.
Peters, William S., Univ. of New Mexico
Phillippatos, George C., Univ. of Tennessee
Raihla, Howard, Harvard Univ.
Rakes, Terry R., Virginia Polytechnic Institute and State Univ.
Reinstein, James R., Univ. of Oregon
Ritzman, Larry P., Boston College
Roth, Aleda V., Clemson Univ.
Sanders, Nada, Texas Christian Univ.
Schade, Lawrence L., Univ. of Texas at Arlington
Schniederjans, Marc J., Univ. of Nebraska-Lincoln
Schriber, Thomas J., Univ. of Michigan
Schroeder, Roger G., Univ. of Minnesota
Simone, Albert J., Rochester Institute of Technology
Slocum, John W., Jr., Southern Methodist Univ.
Solberg, Marien G., Southern Methodist Univ.
Sorensen, James E., Univ. of Denver
Sprague, Linda G., China Europe International Business School
Steinberg, Earl, Touche Ross & Company, Houston, TX
Summers, George W.*, Univ. of Arizona
Tang, Kwes, Purdue Univ.
Taylor, Bernard W., III, Virginia Polytechnic Institute and State Univ.
Trott, Marvin D., Kent State Univ.
Uh, Kenneth P.*, Univ. of Illinois
Vaznory, Andrew*, Univ. of San Francisco
Voss, Christopher A., London Business School
Wasserman, William, Syracuse Univ.
Wemmerlov, Urban, Univ. of Wisconsin-Madison
Wheeler, Steven C., Harvard Univ.
Whitten, Betty J., Univ. of Georgia
Whybark, D. Clay, Univ. of North Carolina-Chapel Hill
Wicklund, Gary A., Capricorn Research
Winkler, Robert L., Duke Univ.
Woolsey, Robert E. D., Colorado School of Mines
Wortman, Max S., Jr., Iowa State Univ.
Zmrud, Robert W., Florida State Univ.

Malhotra, Naresh K., Georgia Institute of Technology
McCain, Claude,* Univ. of Colorado at Boulder
Oden, Nunez, Florida State Univ.
Perkins, William C., Indiana Univ.
Peters, William S., Univ. of New Mexico
Phillippatos, George C., Univ. of Tennessee
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Wortman, Max S., Jr., Iowa State Univ.
Zmrud, Robert W., Florida State Univ.

*deceased

Decision Line, May 2009

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2009 Annual Meeting Registration Form • New Orleans, Louisiana • November 14-17, 2009

All attendees must register for the meeting. Conference registrations must be postmarked by October 19, 2009, to avoid a late fee of $50. After October 19, requests for cancellation refunds will not be accepted. Mail form and payment for registration to: Decision Sciences Institute, 35 Broad Street, Suite 414, Atlanta, GA 30303, fax 404-413-7714.

We would appreciate your answers to the following questions, which will help us plan this and future meetings.

1. Where will you stay in New Orleans?
   - a. Conference hotel
   - b. Hotel of choice
   - c. Other (please specify)

2. Type of accommodation:
   - a. Single
   - b. Double

3. Date of arrival:
   - a. Fri. (11/13)
   - b. Sat. (11/14)
   - c. Sun. (11/15)
   - d. Mon. (11/16)
   - e. Tues. (11/17)

4. Do you plan to attend:
   - a. Sunday’s luncheon
   - b. Monday’s reception
   - c. Tuesday’s luncheon
   - d. All?
   - e. None?

5. Interest Area (check one):
   - a. Academic Administration
   - b. Accounting
   - c. Economics
   - d. Finance
   - e. Health Care Systems
   - f. Innovative Education
   - g. International Business
   - h. Marketing
   - i. Microcomputer Systems & Apps.
   - j. IS/DSS
   - k. Managerial Problem-Solving
   - l. Organizational Behavior
   - m. Organizational Theory
   - n. Manufacturing/Service Management
   - o. Public/Nonprofit Management
   - p. Quantitative Techniques & Meth.
   - q. Stats, Decisions & Fore.
   - r. Strategic Management & Policy
   - s. Technology and Innovation
   - t. E-commerce
   - u. Other
   - v. None

6. What is your primary regional affiliation:
   - a. Asia-Pacific Region
   - b. Indian Subcontinent Region
   - c. Mexico Region
   - d. Midwest Region
   - e. Northeast Region
   - f. Southeast Region
   - g. Southwest Region
   - h. Western Region
   - i. At-Large
   - j. None

7. What is your interest in Placement?
   - a. As employer and employee
   - b. Employee only
   - c. Employer only
   - d. None

8. What was the primary reason you decided to attend the annual meeting?
   - a. Annual Meeting in general
   - b. Job Placement
   - c. Doctoral Student Consortium
   - d. New Faculty Development Consortium
   - e. Program Miniconferences
   - f. Professional Devel. Program

9. Please check if you are a member of Alpha Iota Delta and would like to be identified as such at the Annual Meeting.

Member and non-member fees for all registration categories include Sunday’s luncheon, Monday’s reception, Tuesday’s award luncheon, and the CD-ROM Proceedings (see information below about the Proceedings).

The Annual Meeting Proceedings will be produced in CD-ROM format and is included in the conference registration fee for all registered attendees. If you DO NOT wish to receive the Proceedings, please indicate below. Additional CD-ROM Proceedings can be purchased at a cost of $25 each, but must be ordered by October 1, 2009 (see form below).

- I DO NOT wish to receive the Annual Meeting Proceedings.

<table>
<thead>
<tr>
<th>Fee Category</th>
<th>Amount</th>
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<tr>
<td>Member registration</td>
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<td>Non-Member registration</td>
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<td>Student non-Member registration</td>
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<tr>
<td>Extra Tuesday’s awards luncheon(s) @ $41 each</td>
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<tr>
<td>Extra Tuesday’s awards luncheon(s) @ $41 each</td>
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</table>

After October 19, 2009 (LATE FEE)

CREDIT CARD INFORMATION: ☐ Visa ☐ MC ☐ American Express ☐ Discover

Total Amount $__________

Card No. ___________________________ Expires: ___/___

Card Holder’s Name ___________________________ (Please Print)

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Decision Sciences Institute
Application for Membership

Name, Institution or Firm

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Dues Schedule: ___ Renewal ___ First Time ___ Lapsed (circle one) U.S./Can. International
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(Student membership requires signature of sponsoring member.)
Emeritus Membership .................. $35 ........ $35
(Emeritus membership requires signature of member as a declaration of emeritus status.)
Institutional Membership ................. $125 ........ $125
(You have been designated to receive all publications and special announcements of the Institute.)

Please send your payment (in U.S. dollars) and application to:
Decision Sciences Institute, Georgia State University, J. Mack Robinson College of Business, University Plaza, Atlanta, GA 30303. For more

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Card No. ____________________________ Expires: ___ / ___
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For current news and activities, visit the DSI Web site at http://www.decisionsciences.org