

DECISION LINE

PRESIDENT'S LETTER

Summer Highlights



Funda Sahin, University of Houston

Greetings Friends and Colleagues, I hope you are enjoying the summer and having well-deserved break following a busy academic year. The DSI Executive Committee and the Board of Directors are working very hard to improve the Institute in various ways. I'd like to update you on the progress of a couple of these initiatives as well as other DSI activities.

As I mentioned in my previous letter in Decision Line, first and perhaps the most important task facing the Institute is defining a clear strategy and aligning the organizational and governance structure of the Institute so that they support DSI's Mission and Strategies. The lack of a focused strategy was a major finding in the recent organizational audit. The audit also pointed out the limitations of the current governance structure in accommodating the realities of 2016. In order to address some of these issues, the Board of Directors had a Facilitated Strategic Meeting (strategic retreat) for a day and a half in Houston on June 12th-13th. The retreat was very productive with honest and at times, difficult discussions, but always with DSI's best interest at heart. The Board agrees that DSI's competitive advantages and relevance has declined over the years as DSI has attempted to be everything to everybody and failing to capitalize on its inherent strengths. Given this reality, the majority of the Board discussions focused on redefining DSI's focus given its current strengths, weaknesses and the evolving environment. The Board agreed in principle on a redefined mission for the Institute. However, there is still a lot of work that needs to be done before the revised mission, vision, new strategies, action plans and the governance structure to support it can be formalized. The Executive Committee will meet again this August in Fort Worth to finalize the details prior to presentation to the Board and ultimately to the membership.

Dr. Vijay Kannan recently completed his term as Editor-in-Chief of DSJIE and is moving on to greater administrative

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DECISION LINE

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News Items: Send your news items and announcements to the editor at the address below.

Advertising: For information on agency commissions, annual contract discounts, and camera-ready copy, contact the managing editor. Market-place classifieds (job placement listings) are \$60 per 50 words.

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Website: Decision Line feature articles and more information on the Decision Sciences Institute can be found on the DSI website at www.decisionsciences.org.

Editor: Maling Ebrahimpour, College of Business Administration, The University of Rhode Island, 7 Lipptt Road, Kingston, RI 02881; mebrahimpour@uri.edu

President: Funda Sahin, University of Houston

Interim Executive Director: Johnny Rungtusanatham, The Ohio State University, Columbus, OH 43210; rungtusanatham.1@osu.edu

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March 2016 issue February 10th
May 2016 issue April 10th

Vision Statement

The Decision Sciences Institute is dedicated to excellence in fostering and disseminating knowledge pertinent to decision making.

Mission Statement

The Decision Sciences Institute advances the science and practice of decision making. We are an international professional association with an inclusive and cross-disciplinary philosophy. We are guided by the core values of high quality, responsiveness and professional development.

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MALING EBRAHIMPOUR, EDITOR, University of Rhode Island

Decision Lines Feature Editors:

Dean's Perspective, Maling Ebrahimpour,
University of Rhode Island
mebrahimpour@uri.edu

Doctoral Student Affairs, Varun Grover, Clemson
University,
vgover@clemson.edu

Ecommerce, Kenneth E. Kendall, Rutgers, The
State University of New Jersey
ken@thekendalls.org

From the Bookshelf, Kirsten M. Rosacker,
Minnesota State University-Mankato
kirsten.rosacker@mnsu.edu

In the Classroom, Kathryn Zuckweiler,
University of Nebraska at Kearney
zuckweilerm@unk.edu

Analytics and Data Science, Subhashish
Samaddar, Georgia State University,
s-samaddar@gsu.edu

Information Technology, TBA

In the News, Yolanda Matthews, Decision Sciences
Institute
dsi@bauer.uh.edu.

International Issues, Minoor Tehrani, Roger
Williams University,
mtehrani@rwu.edu

Membership Roundtable, Gyula Vastag,
National Szechenyi University
gvastag@gmail.com

Supply Chain Management, Daniel A. Samson,
University of Melbourne, Australia
d.samson@unimelb.edu.au

Research Issues, Mahyar Amouzegar, Cal Poly
Pomona
mahyar@cpp.edu



Maling Ebrahimpour
is Professor of Supply Chain
in the College of Business
Administration at The Uni-
versity of Rhode Island. He is
an active researcher and has
authored or co-authored over
100 articles that have been
published in scientific journals
and proceedings. Most of his work focuses on various
issues of quality in both service and manufacturing
companies. He received his PhD in business admin-
istration from University of Nebraska-Lincoln and
has served on the editorial review board of several
journals, including *Journal of Quality Manage-
ment*, *Journal of Operations Management*, and
International Journal of Production Research.
mebrahimpour@uri.edu

President Sahin in her letter states that during the last few months the board has been at work and looking at the fundamental of the organization, its strength, weakness and other factors in light of ever changing environment that Decision Sciences Institute operates. The work is not done and the discussion will continue with the focus on revising vision, mission, strategy and action plans. Please read her letter and send her your comments or send them to me and I will be more than happy to share them with her and publish your comments and her response in the future issue.

If you are interested to play an active role in governing the Decision Sciences Institute, please read the announcement about the "Call for Nominations." I encourage all of you to take this seriously as we cannot improve if you do not participate. Please nominate yourself or someone who cares about this organization and would like to make DSI an even greater professional organization.

Program Chair for the DSI Annual Conference in Austin, Sri Talluri has been working hard to build a program that is unique, exciting, and relevant. New tracks such as Decision Making in Practice, Humanitarian Operations and Logistics, Risk Management, Social Issues and Sustainability, Business Analytics, Social Network Analysis and much more have been devised to meet the demand from our membership. Please read his update for more detail.

If you are a junior faculty, please ask a colleague or your doctoral mentor to nominate you for the prestigious **Carol J. Latta Memorial DSI Emerging Leadership Award for Outstanding Early Career Scholar**. If you are a mentor or know of young and upcoming scholars, please nominate them for this award. The section on Carol J. Latta Memorial DSI Emerging Leadership Award for Outstanding Early Career Scholar describes the process and dateline for applications and nominations to be sent to the DSI Home Office.

In their article, Professors Benli and Chong, provide an interesting look at developing a model for Consensus-Based Group Decision Making which is based on the

premise that each member of a group amenable to the following concept: "I am willing to compromise, but I don't want anybody in the group, including myself, to win or lose by too much compared to others." Please do read this intriguing article. It may help you to bring consensus to the members of your team.

A list of latest research articles published by Decision Sciences Journal of Innovative Education (DSJIE) is provided. In addition, DSI has announced that Dr. Vijay Kannan who served his term as the editor of DSJIE has decided to relinquishes his role as November 1st, 2016. The new Editor is Dr. Matthew Drake. Thank you Vijay for many years of outstanding service. We welcome Matthew at the helm of DSJIE. Best of luck to you both.

Professor Emeritus Paul C. Nutt in his article titled "On Doing Useful Decision Making Research," discusses what it takes to do meaningful research in the area of Decision Making (DM) and offers several ideas on how to conduct research in DM area.

Professor Kristen M. Rosecker has done a great job writing her review of the "Shoe Dog: A Memoir by the Creator of Nike," which is authored by Phil Knight. The book is about the journey of one entrepreneur who made it and in the process of reading the book, you find highlight of Phil Knight's life, struggle as an entrepreneur, and what it takes to be a true entrepreneur.

This issue of Decision Line ends with two announcements: 1- An open letter to all members by President Sahin, announcing the New Decision Sciences Journal of Innovative Education Editor. 2- Call for Nominations of Fellows of the Decision Sciences Institute.

I encourage you, our reader, to share your opinions, ideas with us by writing and sending it to me at mebrahimpour@uri.edu, or you may send it to the feature editors as shown on this page.

I am looking forward to reading your articles for inclusion in Decision Line.

Maling Ebrahimpour, PhD
Editor ■

Call for Nominations to the Board of Directors

The Decision Sciences Institute invites nominations for the following positions to serve on the Board of Directors of the Institute, beginning [April 1, 2018](#):

- 2018-2019 President-Elect
- 2018-2020 Treasurer
- 2018-2020 Vice President for Global Activities
- 2018-2020 Vice President for Member Services
- 2018-2020 Vice President for Professional Development
- 2018-2020 Vice President for Euro-



pean Division*

* **Note:** Nominations for these two positions will be forwarded to the nomination committees for the appropriate Division

Eligibility

To be eligible, a nominee must be a current member of the Institute in good standing with expertise and/or experience relevant to the Board position of interest.

Nomination Package

To nominate an individual or to self-nominate, please submit a nomination package to include the following mandatory pieces of information:

1. Name, affiliation, and contact information for the nominee
2. The Board position for which the

nominee is being nominated

3. The nominee's CV

4. A nomination letter on university, company, or personal letterhead stating the nominee's qualifications and attesting to the willingness of the nominee to attend 3-4 Board meetings in person if elected

Submission and Deadline

The nomination package should be emailed to info@decisionssciences.org with **Board of Directors Nominations** in the subject line. Once received, a confirmation email will be sent to the nominator and nominee to acknowledge receipt. **All nominations are due by 5:00 pm CST on October 1, 2016.**

Submissions past the deadline and incomplete submissions will not be considered. ■

Carol Latta Award

Carol Latta Memorial Award for Outstanding Early Career Scholarship

Deadline: August 31, 2016

Award Information

The Carol Latta Memorial Award for Outstanding Early Career Scholarship recognizes a scholar in the early stages of his or her career in the field of Decision Sciences and who has contributed to the Institute and its goals over the recent past. The award is presented at the Annual Meeting of the Decision Sciences Institute in November 2016. The awardee will receive a plaque and a \$500.00 honorarium.

Eligibility

To be eligible:

- A candidate being nominated must be a current member of the Institute in good standing who received his or her terminal degree (e.g., Ph.D., DBA, etc.)

within the past five (5) years.

- The nomination should come from a faculty member or academic administrator who are also members of the Institute in good standing (no self-nominations).
- The nomination must include a recommendation letter on official university letterhead and a current curriculum vita (CV) of the candidate.
- The recommendation letter (no more than five pages) should explain why the candidate deserves to be recognized in terms of (a) impact of scholarship on the field of Decision Sciences, (b) excellence in teaching in the field of Decisions Sciences, and/or (b) contributions and service to the Institute.

Submissions

The nomination letter and candidate CV should be emailed to info@decisionssciences.org with **Carol Latta Memorial Award for Outstanding Early Career Scholarship** in the subject line. Once received, a

confirmation email will be sent to both the nominator and the candidate to acknowledge receipt.

Deadline

All nominations must be received by August 31, 2016.

Selection Committee

The Selection Committee includes the:

- Immediate Past President (Selection Committee Chair)
- VP for Member Services
- VP for Professional Development
- VP for Global Activities
- Recipient of the previous year's award

Decision Sciences Institute
C.T. Bauer College of Business
334 Melcher Hall, Suite 325
Houston, TX 77204-6021
Office: 713-743-4815
Fax: 713-743-8984 ■

CONFERENCE CHAIR: Sri Talluri, Michigan State University
ASSOCIATE CONFERENCE CHAIR: Jennifer Blackhurst, University of Iowa

47th Annual Meeting

TEXAS
•••••

November 19 - 22, 2016

Update on 2016 DSI Conference, Austin, Texas

Welcome to Austin, Texas, for the 2016 Decision Sciences Institute Annual Conference! The theme for this year's conference is **Effective Decision Making in Uncertain Business Environments: Strategies, Practices, and Techniques**. The conference dates are **November 19-22, 2016**. We are continuing with the two-pillar format for this year focusing on research and education & professional development pillars. We have received a record number of more than 1000 submissions for the conference. Some of the new tracks we are adding for this year's conference include:

Decision Making in Practice
E-Commerce Technologies and Strategies
Humanitarian Operations and Logistics
Risk Management
Social Issues and Sustainability
Teaching Innovation
On-line Degree Programs & Execution

In addition, we are organizing workshops on topics such as:

Business Analytics
Social Network Analysis
Behavioral Research and Experimentation
The Structural Estimation Approach and its Applications in Operations Management

We have two keynote speakers:

Professor Sunil Chopra, Northwestern University

Sunil Chopra is the IBM Distinguished Professor of Operations Management. He was also Interim Dean of the Kellogg School of Management at Northwestern University from 2009-2010. From 2006 – 2009, he served as Senior Associate Dean: Curriculum and Teaching. He became a faculty member of the school in 1989. Previously he was an Assistant Professor

at the Stern School of Business Administration at New York University. He has a PhD in Operations Research from SUNY Stony Brook.

Professor Chopra's research and teaching interests are in Operations Management, Logistics and Distribution Management, design of communication networks and design of distribution networks. He has co-authored the books *Managing Business Process Flows and Supply Chain Management: Strategy, Planning, and Operation*. Both books are published by Prentice Hall and are used at several of the top business schools to teach Operations Management and Supply Chain Management respectively. The Supply Chain Management book was awarded the best book of the year for 2002 by the Institute of Industrial Engineers (IIE). Professor Chopra has won several teaching awards at Kellogg.

He has been Departmental Editor for the journals that include *Management Science* and an Associate Editor for the *Decision Sciences Journal, Manufacturing & Service Operations Management and Operations Research*. His recent research has focused on risk management in supply chains. He has also studied distribution systems in a variety of companies trying to identify market, manufacturing, and product characteristics that drive the structure of a supply chain.

He has consulted for a variety of firms including Boise Cascade Office Products, GE Capital, W.W. Grainger, Motorola, Intel, and Sara Lee.

Chuck Holland, Vice President Engineering, United Parcel Service

Charles (Chuck) Holland has been a Vice President of Engineering for UPS since August 2004. UPS is the World's largest package delivery company and a global leader in supply chain services with 2008 revenues of \$51.5 billion. UPS serves more than 200 countries and territories

with over 400,000 employees.

During Chuck's time as a Vice President of Engineering, he has held positions in Supply Chain Solutions, Technology, and Industrial Engineering.

Prior to his current position, Chuck was the Industrial Engineering Manager for the Northwest Region Operations of UPS. He previously served as Portfolio Manager in Project Management for UPS technology projects. Chuck has held multiple operations and engineering management positions in the UPS organization throughout the United States.

Chuck began his UPS career in 1976 while attending The University of Toledo. He has a Bachelor of Science in Industrial Engineering. Early in his career, Chuck was assigned to UPS's Air Operations to develop the procedures, methods and measurement for UPS's new Next Day Air Service. He was responsible for opening large Hub locations in Toledo Ohio, Columbus Ohio, and Austin, Texas. Chuck has been responsible for major technology projects such as, the DIAD used by the UPS delivery driver and the PFT system used to properly load and dispatch the delivery drivers, Telematics, and driver route optimization. ■

Consensus-Based Group Decision Making¹

by Ömer S. Benli and Philip S. Chong, College of Business Administration, California State University

Introduction

"In virtually all [complex] decision processes, there are various actors (decision makers) who represent individual subjects (persons, countries, companies, etc.) and their respective interest groups. To reach a meaningful decision, opinions of all such actors must be taken into account or a given decision may not be implemented. Ideally, a decision would be made after a consensus between the parties involved had been attained. So consensus is a very desirable situation."[5] *In consensus decision making every member of the group "must be flexible and willing to give up something to reach an agreement."*[1] *Thus, the basic premise for each member of a group revolves around the following concept: "I am willing to compromise, but I don't want anybody in the group, including myself, to win or lose by too much compared to others."*[2] *The problem, therefore, is developing a workable consensus policy.*

A Consensus Model

Let $i = 1, \dots, m$ be the index of available policies; $j = 1, \dots, n$ be the index of the members of group; and q_{ij} be the payoff to member j according to policy i . The sum of payoff, $\sum_{j=1}^n q_{ij}$, to all members of the group, for all policies $i = 1, \dots, m$ add up to total amount of resources, a constant.

A consensus policy can be constructed as a convex combination of available policies, $i = 1, \dots, m$, such that the payoff to member j is $x_j = \sum_{i=1}^m \alpha_i q_{ij}$ where

$$\sum_i \alpha_i = 1; \alpha_i \geq 0, i = 1, \dots, m.$$

α_i is the multiplier associated with each policy i in constructing the consensus policy. The "regret" of player j , when the consensus policy is adopted, is defined as $r_j = b_j - x_j$, $j = 1, \dots, n$, where $b_j = \max_{i=1 \dots m} q_{ij}$ is the best policy for player j among all possible policies $i = 1, \dots, m$. The variance of regret of compromise policy is proportional to $\sum_j r_j^2$. Thus, in order to minimize variance of regret, it is sufficient to minimize $\sum_j r_j^2 = \sum_j (b_j - x_j)^2$. That is, the members of the group could arrive at a consensus by computing a

policy, which is the optimal solution to the following quadratic program:

An Example: Budgeting in an Academic Institution

The application of this model is not too far from professional life of academicians. For example, consider the reallocation of annual budget amongst departments in a college of business administration. This case involves three policies that were proposed by the five department chairs (members of the group). The five departments are Accountancy, Finance, Information Systems, Management, and Marketing, indexed $j=1$ through $j=5$, respectively. The first of the three policies ($i=1, \dots, 3$) considered, A, gave equal weighing to three criteria based on two year (four semester) historical data: Full Time Equivalent Students (FTES), Full Time Equivalent Faculty (FTEF), enrollments. The second policy, B, was identical to the first, except the time period considered was two semesters, weighed equally. The third policy, C, only considered FTES and FTEF, each weighed equally with equal weighing for the most



Omer S. Benli

is Associate Dean of the College of Business Administration and Professor in the Department of Information Systems at California State University, Long Beach. His areas of research interest are

logic-based methods in optimization and analysis & design of supply chain & logistics systems. He has extensive applied research experience in both industry and governmental organizations. His recent work includes projects for Strategic Mobility-21, California Transportation and Logistics Institute, Northrop Grumman Corporation, and Institute for High Performance Planning. He is currently the Vice president and Program Chair-elect for Western Decision Sciences Institute.



Philip S. Chong

is Professor Emeritus of the College of Business Administration at California State University, Long Beach. His has published in Journals of TIMS/ORSA, Interfaces, Operations Management, OMEGA, P&IM, TQM&BE,

Management Decision, Education Management, Standards and Services, Computers and Industrial Engineering, and others. His administrative experience includes appointments as Associate Dean of the College, Department Chair of Management and HRM, and Director of the MBA program.

¹ A version of this paper appeared in the Proceedings of WDSI Annual Meeting 2012.

Table 1. Budget allocations to departments under each policy in \$1,000s.

POLICY	ACCT	FIN	IS	MGMT	MKT	SUM
A	1,204.2	1,819.7	1,851.4	1,641.2	1,138.8	7,655.3
B	1,243.9	1,876.5	1,884.9	1,537.9	1,112.1	7,655.3
C	1,192.1	1,878.7	1,938.3	1,549.5	1,096.7	7,655.3

Solution of the quadratic program (1), results in the consensus solution with corresponding multipliers are shown in Table 2.

Table 2. Consensus solution with corresponding multipliers.

POLICY	ACCT	FIN	IS	MGMT	MKT	α_j
A	1,204.2	1,819.7	1,851.4	1,641.2	1,138.8	0.51
B	1,243.9	1,876.5	1,884.9	1,537.9	1,112.1	0.00
C	1,192.1	1,878.7	1,938.3	1,549.5	1,096.7	0.49
CONSENSUS	1,189.2	1,848.9	1,894.3	1,595.9	1,118.0	1.00

Bounded Rationality

The current (actual) allocation for each department is based on year to year FTES and FTEF and is listed in Table 3, along with the model’s consensus solution.

Table 3. Actual solution arrived at by the department chairs.

POLICY	ACCT	FIN	IS	MGMT	MKT
Actual	1,225.3	1,828.3	1,872.9	1,597.2	1,131.6
CONSENSUS	1,189.2	1,848.9	1,894.3	1,595.9	1,118.0

Although the actual and consensus budget numbers are quite close, they are not identical. Next, we would like to determine which convex combination of policies resulted in the actual solution, decided by the members of the group. Due to bounded rationality of real life decision makers, the actual solution may not fall in the convex hull of points defined by the policies, and hence, it may not be possible to represent the actual solution as an exact convex combination of the policies. In order to find the solution in the convex hull of policies that is closest to the actual solution, which we will refer to as *adjusted* solution, we make use of a goal programming formulation.

Recall that q_{ij} is the payoff to group member j according to policy i . Let $d_j, j = 1, \dots, n$, be payoff to member j in the *actual* solution. The decision variables in the goal program are adjusted payoff to member j of the group, a_j , and the non-negative deficiency variables, “under-” and “over-satisfaction”, respectively, as $\{ \gamma_j, \delta_j \}$, such that for all $j = 1, \dots, n$,

$$a_j + \gamma_j - \delta_j = d_j,$$

and

$$\sum_{i=1}^m q_{ij} \alpha_i = a_j$$

That is, the convex combination of policies, α_j is equal to the *adjusted* solution, a_j minus the over-satisfaction deficiency variable, γ_j plus the under-satisfaction variable, δ_j is equal to the target value, the payoff to member j , d_j in the *actual* solution. Thus, given the actual solution that was decided upon, in order to determine, with minimal “discrepancy”, the corresponding convex combination multipliers, α_j one has to solve the following goal program:

$$\{ \text{Min}_{\alpha_j, \gamma_j, \delta_j \geq 0} \sum_{j=1}^n (\gamma_j + \delta_j) \mid \sum_{i=1}^m q_{ij} \alpha_i - x_j = 0, j = 1, \dots, n; \sum_{i=1}^m \alpha_i = 1; a_j + \gamma_j - \delta_j = d_j, j = 1, \dots, n \} \quad (2)$$

Using the actual solution in the budget re-allocation example, the optimal multipliers to this goal program is $\{ \alpha_1, \alpha_2, \alpha_3 \} = \{ 0.51, 0.00, 0.49 \}$ with the resulting discrepancy, $(\gamma_j + \delta_j)$, of \$31,187 out of a total budget of \$7,655,300, which is less

Table 4. Adjusted solution with corresponding multipliers, with actual and consensus solutions.

POLICY	ACCT	FIN	IS	MGMT	MKT	α_j
A	1,204.2	1,819.7	1,851.4	1,641.2	1,138.8	0.51
B	1,243.9	1,876.5	1,884.9	1,537.9	1,112.1	0.00
C	1,192.1	1,878.7	1,938.3	1,549.5	1,096.7	0.49
ADJUSTED	1,221.1	1,848.9	1,865.7	1,597.2	1,127.4	
ACTUAL	1,225.3	1,828.3	1,872.9	1,597.2	1,131.6	
CONSENSUS	1,189.2	1,848.9	1,894.3	1,595.9	1,118.0	

than half of one percent. Table 4 gives, in addition to convex combination multipliers, adjusted, actual, and consensus solutions, for comparisons.

On the other hand, the consensus solution was $\{ \alpha_1, \alpha_2, \alpha_3 \} = \{ 0.57, 0.43, 0.00 \}$, which seems to be quite far from the actual solution of $\{ \alpha_1, \alpha_2, \alpha_3 \} = \{ 0.57, 0.43, 0.00 \}$. In order to measure how far apart these solutions are, assuming Euclidean measure, the distance between two points $V = \{v_1, \dots, v_m\}$, $W = \{w_1, \dots, w_m\}$, in m -dimensional space is

$$\sqrt{\sum_{i=1}^m (v_i - w_i)^2}.$$

The distance between the compromise consensus solution and the actual solution is 0.66, which says that they are 38% apart (the maximum distance in a unit cube is 1.73).

Coalitions, Factions, and Cliques in Decision Making

Consensus “is often masked by behind-the-scene maneuvers involving consensus (or coalition) of subgroups, which then exert their influence (or threats) to advance the total team towards the masked consensus decision the subgroup had sought to institute. Finding the roles and motivations of parties in these behind-the-scene maneuvers is difficult.” [3] The term “*defining subgroup*” is introduced, which is a subset of members of the group. The *defining subgroup* can be a single member, a minority,

or a majority; or the entire group itself. In a group of n members, there are defining subgroups. Each defining

$${}^n C_j^n = \frac{n!}{j!(n-j)!}$$

subgroup may constitute a faction or a coalition. Its consensus solution, after adjusting to the bounded rationality of its members, may be the basis for the actual solution arrived at by the group. Therefore given the actual solution, one can “reverse engineer” in order to figure out which coalition or faction is the predominant defining subgroup in molding the group’s final decision. In [3], this is attempted by finding the defining subgroup whose consensus decision is closest to adjusted solution of the group, where closeness is measured in Euclidean sense in the space of convex combination multipliers of the policies. One can further argue that there can be more than one defining subgroup, each having differing degrees of influence on the actual solution finally arrived at by the group. In order to assess we need to find the set of defining subgroups whose convex combination define the adjusted solution. In computing this convex combination, priority should be given to the defining subgroups closer to the adjusted solution. One way of achieving this is to weigh each defining subgroup according to closeness rankings to the adjusted solution. Consider the following formulation: let

$$k = \frac{n!}{j!(n-j)!}$$

be the number of defining subgroups. Let the index $l = 1, \dots, k$, denote each subgroup ranked according to its closeness to the adjusted solution; $l = 1$ being the closest and $l = k$ being the farthest. The consensus solution of the defining subgroup l can be expressed as the convex combination of m policies. Let $[\alpha_{1,l}, \dots, \alpha_{m,l}]$ denote the corresponding convex combination multipliers that make up the columns of the following matrix:

$$A = \begin{matrix} & \begin{matrix} 11 & \dots & 1n \end{matrix} \\ \begin{matrix} 1 \\ \vdots \\ m \end{matrix} & \begin{matrix} \\ \vdots \\ mm \end{matrix} \end{matrix}$$

and the convex combination multipliers corresponding to each defining subgroup is denoted by $[\lambda_1, \dots, \lambda_k]$. Then the fol-

Table 5. The defining subgroups that make up the actual adjusted solution with their relative weights.

CLOSENESS RANKING, l	THE DEFINING SUBGROUP					β
	ACCT	FIN	IS	MGMT	MKT	
1	1	1	0	1	0	0.71
3	1	0	0	0	1	0.29

lowing linear program will provide us the desired convex combination multipliers of the defining subgroups:

$$\text{Min } \sum_{l=1}^k \lambda_l |A| = \lambda^* ; \sum_{l=1}^k \lambda_l = 1 \quad (3)$$

where λ^* is the column vector of convex combination multipliers of the policies corresponding to the adjusted actual solution.

Using the data from budget reallocation among departments, the solution of the linear program (3), provides the values shown in Table 5. Clearly, ACCT is the dominant player in the decision making, as appearing in all defining subgroups. The results show that ACCT in coalition with FIN and MGMT account for about 71% of the decision, and in coalition with MKT account for 29% of the decision, while IS did not play a role in the decision.

Summary and Conclusions

A perfect environment for complete consensus is very rare in practice. Formation of coalitions, factions, or cliques is quite common among members of a group. Given the actual decision arrived at in a particular situation, the approach presented in this article provides a way to identify the factions or cliques that mold the final decision by the group. A new idea which requires further research and development involves “engineering” a sustainable consensus based group decision making. As demonstrated in our consensus model, when the problem is viewed in game theoretic framework, the solution can be interpreted as the Nash equilibrium which we labeled it to be a “winwin” solution for the group. In other words, if the actual or final implemented solution is the “winwin” solution (or one that is close to it), we postulate the solution will be a stable and sustainable one. On the contrary, the greater the departure the actual implemented solution is from the “winwin” solution, the less stable and

unsustainable it is. Therefore, to engineer the “winwin” solution, it would be helpful to not only know what the “winwin” solution is, but also the closeness or distance of the other subgroup solutions from the “winwin” solution. Constructing a table that shows these distances from the “winwin” solution will provide us with those subgroups that are closest to the “winwin” solution. Armed with this knowledge, it will allow the dean of the college (in our case example) to know which of the department chairs to influence and how to steer the department chairs towards the actual solution that will be stable and sustainable in the long run.

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On Doing Useful Decision Making Research

by Paul C. Nutt, Ohio State University

Abstract

An appraisal of decision making research is offered noting issues posed by past work and suggestions for future work. The appraisal is drawn from a Meta analysis of decision making research efforts found in key papers and books published over the past two twenty years. A review was conducted to identify “what” and “how” questions that need be addressed. The “what” identify dilemmas that must be confronted before decision making research can progress. The how suggest ways to confront these dilemmas and overcome the difficulties identified in past efforts. The purpose is to pinpoint some failures of past works and suggest steps to can to overcome these failings. The discussion should prompt questions about past work and ways to improve the quality and utility of decision making research.

Introduction

Decision making research has a considerable history with many notable contributions. Analysis identified several research streams, and two that seem to dominate. In one type of effort researchers set out to document decision maker behavior: what decision makers do in practice. An illustration is early work by Cyert and March (1963) who found that conspicuous alternatives with powerful champions were typically adopted. Many studies followed each documenting aspects of decision maker behavior. Such studies typically identify how decision makers act and conditions under which their actions are successful, offering suggestions for practitioners. Another type of research offers ways to make a decision, such as the work of Simon (1947), March and Simon (1958), and Thompson (1967). Applications can be found in decision making and organization theory texts (e.g., Perrow, 1967; Pettigrew, 1973; Nutt, 1989; Daft, 1995).

An appraisal of these research efforts is offered, noting whether useful practice suggestions have emerged from published studies (Nutt, 2011). In this appraisal, some of the key issues confronting

researchers are identified along with potential remedies. The appraisal is drawn from an integration of the key findings in reviews found in the decision making literature including Harrison and Phillips (1991), Eisenhardt and Zbaracki (1992), Meindel, Stubbart, and Porac (1996), Papadakis and Barwise (1998), and Nutt and Wilson (2010). These reviews identify considerable diversity, which stems from how decision making has been conceptualized and studied. Many see this diversity as useful, believing that restricting or directing research would limit breakthroughs. Others note pitfalls in which each new conceptualization brings insights that resist integration, suggesting a field that has yet to mature.

Analysis suggests that decision making research has yet to identify either a coherent listing of empirically grounded prescriptions. To fashion such an integration one is confronted with a host of unique approaches. Each new effort seems to produce a new set of ideas, which further complicates the task of assimilation, instead of being focused on adding one more piece to the puzzle. The incompatibilities of ideas as well as missing pieces seem to block rather than facilitate integration. Typically research



Paul C. Nutt
 Professor Emeritus
 Fisher College of Business
 The Ohio State University
 2599 W. Choctaw Dr.
 London, Ohio 43140
 (740) 852-7635
 Nutt.1@osu.edu

moves forward with incremental efforts that gradually accumulate knowledge about how decisions should be made. Without such an accumulation empirically grounded prescriptions that offer practitioners an action plan for decision making are lacking.

With these preliminary inferences as a backdrop, some conclusions about the status of the field are offered along with recommendations for future work. The goal is to move toward an integration of past and future work with a prescriptive intent. The focus is to encourage research that informs practice, offering managers a way to increase their prospect of being successful when making a decision. This should help decision making researchers be clearer about the concepts and empirics of their research and how it fits within the broader terrain of organization theory. Two broad concerns are addressed. First, issues derived from the Meta analysis are considered that uncover limitations of past work. This is followed by ways to address these issues and suggestions for future work.

ISSUES CONFRONTING DECISION MAKING RESEARCH

The decision making literature contains a vast number of empirical investigations, descriptions, prescriptions, structuring techniques, as well as analytical tools. Despite these notable efforts, a coherent theory has yet to emerge. Some of the reasons for this state of affairs are offered, identifying issues that limit theory construction. These issues are unit and level of analysis, framing dilemmas, description pushing out prescription, conceptualizing decision making, measuring contingencies and outcomes, relationships explored, and the methodologies applied.

Unit and Level of Analysis

Researchers use either decisions or choice opportunities as their unit of analysis (Bell et al, 1998). A decision focus considers the full range of actions that arise during decision making. Choice consid-

ers how a comparison of alternatives is carried out. In addition, some research has confounded the unit of analysis with the level of analysis. Such studies investigate decisions that span a number of managerial levels (Bell et al., 1998) or mix the choices or the decisions made by CEOs, top management teams, middle managers, and department heads (Nutt, 2001c). Analysis in such research often fails to account for differences in levels or decision maker types. Confounding also results if there is a mixing of several related decisions (or choices) that make up a large organizational project under study, such as in disaster management (Weick, 2001) or large-scale initiatives (Cameron and Lavine, 2006). Decisions (or choices) are also confounded when multiple cases are drawn from several organizations, without accounting for the nesting of decisions within each organization. Although Hickson, Butler, and Wilson (2001) found these nesting effects to be minimal, failing to account for them offers plausible explanation of the findings. To deal with confounding, factors that specify who is involved, the type of decision maker (e.g., CEOs), the link of decisions to major projects, and the organization in which each decision (or choice) takes place are included in any analysis. Researchers often ignore such factors.

Framing Dilemmas

Researchers have used a variety of frames in their work. For example, in their summary of decision making research Eisenhardt and Zbaracki (1992) found that bounded rationality, power/politics, and chance were used as frames. (There are many other frames, as summarized in Nutt and Wilson, 2010). Bounded rationality draws on Dewey's (1910) notions of logical inquiry in which inquiry is called a process. Qualifications and elaborations have followed, as exemplified by March and Simon (1958), Thompson, (1967), Perrow (1976) Allison (1971). Research in this tradition has found steps such as intelligence gathering, goal setting, option search, option selection, and implementa-

tion (Nutt, 1989; Daft, 1995; Hickson et al 2003; Miller et al, 2004). Research has also documented how process steps are subject to cycling and interrupts (Mintzberg et al., 1976). However, recommendations derived from such findings are often ignored (Nutt, 1984; 2002) because processes are simplified when a decision maker is faced with conflict or a novel situation (e.g., MacCrimmon and Taylor, 1976; Janis, 1989).

Power/politics and chance have been suggested to cope with the limitations found in bounded rationality. The exercise of power and the emergence of happenstance fits ones everyday decision making experiences. Two key limitations are cited. Individuals can be rational but a collective, made up of these same people, often are irrational (Pfeffer, 1992). It is also contended that conflicts that arise in collectives are manageable (Langley, 1989), which may be difficult. It is asserted that differences can be resolved using tactics such as coalitions, cooptation, information control, and influence (Pettigrew, 1973). Managers are also believed to turn to politics when thwarted, and when faced with a power-vacuum. However, research finds that politics often prompts animosity, which slows down decisions and leads to poor results (Eisenhardt and Bourgeois, 1989). Dean and Sharfman (1996) find the pervasiveness of politics to be exaggerated.

Decision making in the chance frame is seen as the accidental connection of a choice opportunity (the call for a decision) with a fortuitous solution, which is seen as a "garbage can" (Cohen et al., 1972). In the garbage can, choice situations, ideas that a zealot believes to be useful, concerns, and people looking for action meet due to chance. A solution must be conspicuous and have the support of the right people before it is adopted (Cyert and March, 1963). The chance frame contends that distracted decision makers connect a solution with a problem to appease stakeholders (Carley, 1986; Masuch and LaPotin, 1989). Timing and luck make

up the key ingredients.

To make matters worse, these frames are self-fulfilling. Look at a decision as a process with unfolding steps and one sees a process with steps. Look for politics or chance and they appear as well (Harrison and Phillips, 1991). This suggests that a frame offers a perspective to examine decisions (or choices) and that no single perspective is best. One way to cope, according to Eisenhardt and Zbaracki (1992), is to merge frames. Merging the more powerful frames of politics and bounded rationality may be feasible. This calls for studies that account for both a rational perspective, which uncovers cognitions, and a political perspective, which reveals the social context.

Prescription/Description Conflicts

Some research stresses description, hoping to uncover a rich commentary on the events, motivations, and circumstances surrounding a decision (or choice). Other efforts concentrate on prescription seeking to formulate guidelines for action taking. As with most management topics, decision making research can be focused either descriptively or prescriptively. Judging from the streams of work reviewed, contemporary researchers prefer to deal with decision making from a single perspective. This often leads them to become a strident proponent of one approach, and oppose all others. A cursory look at what is being published finds a decided shift toward description and little if any prescription. Prescriptive efforts are dominated by the consultant industry, with little research backing.

The preference to publish description has limited the scope and impact of decision making research. Description and prescription represent two sides of the “same coin” (Nutt, 2004). Prescription calls for the researcher to identify frameworks, tactics, and the like to test them to see if they produce something of value for practice. Description deals with use. How many people act in a certain way, how many subordinates get involved, what is the skill level of key players? One

informs the other. Theory that denies or invalidates one or the other is incomplete. Identifying actions that lead to success provides a key piece of the puzzle. Practice is also informed by noting whether a prescription is followed, and how. A more balanced approach is needed that embraces both side of the coin.

Conceptualizing Decision Making

Decision making research gets its direction from the frame selected to guide the effort. The frame points the researcher down a particular path and suggests how key factors can be imaged. A different frame will create a different conceptualization. This is because the frame provides a perspective that shows how the actions taken by a decision maker will be codified. Different actions would be sought (and then measured) if a researcher sets out to uncover the steps suggested by bounded rationality, how a decision maker reacts to chance events, or what was done in a negotiation. In each case, the frame dictates what kind of action-taking steps will be codified. Investigations seldom look beyond a frame to allow, in the above examples, emergent or chaotic features of a process to emerge.

In addition, researchers were found to approach a decision making study very differently. Some draw on philosophy of science (e.g., Dewey, 1910) to gain insight into how decisions should be made. This has lead to prescriptions (e.g., Simon, 1977; Perrow, 1967; Thompson, 1967; Nutt, 1989; and Daft, 1995). There have been many such efforts, which have prompted some to seek hybrid processes that integrate procedural elements, seeking an underlying process (e.g., Havelock, 1973; Nutt, 2004). Another kind of effort investigates what decision makers do, looking for underlying logic (e.g.; Witte, 1970; Soleberg, 1970; Mintzberg et al, 1976). Such studies have examined decision maker action taking with on-site observation, interviews, and surveys to uncover the procedures used in practice (e.g.; Nutt, 1984; Fredrickson, 1985; Hickson et al, 1986, 2003; Dean and Sharfman, 1996;

Miller et al, 2004).

In other decision making studies the aim is to document “process”. A researcher looks for steps that were followed to make a decision (Bell et al., 1998). Others go further, looking for steps that were overlooked which seem essential (Nutt, 1984). Still other research combines prescriptive and behavioral perspectives to uncover what decision makers do and how this deviates from recommendations (Nutt, 1999). Still others add cognition (Ragagopalan et al., 1998) and measure process features (Hickson et al, 1986). The first asserts that cognition determine the kind of action undertaken, the second that process feature dictates what action was taken. All this leads investigators to treat process very differently. Researchers rarely specify action elements in a way that facilitates integration.

The typical research effort identifies some process features, or motivations, but not how decisions were made. For example, Dean and Sharfman (1996) classify a process by procedural features such as rationality (systematic collection and interpretation of information), political behavior (using power), and flexibility (adaptability). Hickson et al. (1986) use process descriptors such as sporadic (with delays and negotiation), fluid (formalized process), or constricted (restricted to a very small number of senior executives). Fredrickson (1985) classified process by its comprehensiveness. Bell et al. (1998) identifies rational, comprehensive, political action, and sub-unit involvement processes. Others treat process as coalition formation or social process control and focus on measuring decision maker attributes such as tolerance for ambiguity, uncertainty, or risk aversion (Poole and Van de Ven, 2004). Although interesting, such research efforts say little about how decisions are and should be made. Classifications, such as comprehensive, analytical, or political, fail to explain how a decision maker acts comprehensively, conducts analyses, or engages politically. They characterize the process not the actions that take place within it.

Research is needed that treats decision making as an action taking process that embraces activities such as intelligence gathering, formulation, search, and implementation, as well as evaluation and choice, and allows for emergent ideas and messy recycling among key ideas such as formulation and search to be observed.

Contingency Theory

Contingency approaches dominate management theory. Justifications stem from assertions about plausible outside influences (Hitt et al, 2009). Today countless contingency models can be found in organizational behavior textbooks. Typically, the contingencies specify boundary conditions indicating when a particular kind of process is preferred. The review suggests that researchers often fail to test contingencies. Seldom are both process and contingency factors assessed independently and as a statistical interaction (Nutt, 2008). In decision making research two kinds of contingencies arise: content and context.

Content – Content identifies decisions by type. Some focus on the crucial but infrequent strategic decisions made by top managers to select core businesses offering competitive advantage (e.g., Hitt et al., 1997). This would limit a study to choices made by top management teams. Mintzberg et al (1976) in their seminal work popularized calling strategic decisions “important choices” that have long-term consequences due to the resources required and precedents set. This sweeps in many smaller scale decisions, with both top and middle manager involvement. The Bradford studies (Hickson et al., 1986) adopted this view, as have many others. As a result, researchers claim to study “strategic decisions,” but use the term loosely. Few focus on the decisions made to select a core business. Calling a decision “strategic” to suggest importance and significance is poor practice. In future work, strategic decisions must be precisely accounted for to separate out decisions that are merely costly, for example, from those that select a core business. Future

efforts must separate strategic and organizational decisions. In addition, other types, such as subjective and objective, must be identified. Subjective choices involve agenda setting, selecting topics for future decisions (Bell et al., 1998), and ethical considerations, value positions to be taken when making a decision (Nutt, 2002). Objective decisions stress action and often involve products/services, financing, personnel policy, marketing, buildings, technologies, and reorganizations (Hickson et al., 1986). Clarity about the type of decisions being addressed is essential.

Context - Context specifies the environment in which a decision is made. Both internal and external environmental factors can influence what is decided as well as how a decision is made (e.g., Thompson, 1967; Perrow, 1967; Bell et al., 1998). Internal factors include surprise, confusion, and threat (March and Simon, 1958); organizational features, such as approaches to communication and control and resistance to change (e.g., Nutt, 2002) as well as decision importance (Bell et al., 1998), complexity (Nutt, 1998b) and uncertainty (Thompson, 1967). Decision-maker attributes such as the propensity to take risks, tolerance for ambiguity, creativity, decision style, intelligence, need for control, power, experience, education, and values have been suggested (Bell et al., 1998). External factors include organizational differences, such as public or private (Hickson et al 1986; Nutt, 2002), as well as prevailing economic conditions (Bell et al., 1998). Context, like content, may influence outcomes so key indicators of the situation in which a decision was rendered is needed in future efforts.

Decision Outcomes

Decision outcomes are multifaceted often making them both difficult to specify and precisely measure. Relevant measures document benefits, and whether the benefits can be justified given the cost, disruptions, and distractions required. Documenting benefits is notoriously difficult (Hickson et al., 1986; Nutt, 1986; Bell

et al., 1998; Papadakis and Barwise, 1998; Hickson et al, 2003; Miller et al, 2004). Benefits can take many forms, such as determining changes in people’s behavior and interpretations (Bryson et al., 1990), measuring process (timeliness, commitment, and learning), features of action-taking, such as the scope of negotiations (Hickson et al., 1986), and indicators of success (Nutt, 2002). Surrogates are often used because managers are unwilling to release benefit and cost information fearing personal threats or losses in competitive advantage. Researchers must push future outcome measures toward documenting benefits realized and costs incurred.

Relationships Explored

Few explore the relationship between process (action steps), context (importance, urgency, etc.), content (e.g., strategic and non-strategic; the eight Hickson types), and the costs and benefits of a decision. Several such relationships can be suggested for future efforts in which process is causal, mediating, or an outcome. For example, Butler (1998) identifies relationships among what he calls problem (content), solution (outcome), and choice (process) in which each can be a cause, an effect, or an interaction; linking them to computation, expertise, negotiation, and inspirational kinds of decisions. (Context was not considered.) Bell et al. (1998) posits a relationship in which context is causal, first influencing process and content, and then outcomes. Down stream effects are acknowledged, contending that a choice influences the host of tangential interpretations (Bryson et al., 1990) and that benefits can be delayed (Nutt, 2002). Rajagopalan et al. (1998) contend that context (made up of environmental and organizational factors) and content jointly influence decision maker cognitions and the process that is embraced, with the outcome stemming from process as well as being influenced by context and content. Some sorting out of these relationships is needed to push research forward. Future work must be clear about the relationship under study.

Methodology

Decision making research approaches have varied from qualitative to quantitative, simulation to case study, interviews to surveys. The result has created a hodgepodge of investigations with disparate findings that resist amalgamation. In this way, decision making research is similar to many areas of social science investigation that employ different paradigms, varied mother disciplines, diverse data collection methods, and unique analytical coding schemes.

Difficulties also arise when dealing with rigor and relevance. To be published, decision making research, like all of management, must stress rigor. This has moved researchers away from the study of decisions to research questions that allow investigators to focus on factors that can be operationalized and deftly measured in a single study. This has forced researchers to study tangential aspects of decision making, such as the number of participants, instead of larger questions that, by their very nature, resist precise measurements. The measure of a factor is not given by its measurability. To illustrate, a key factor in decision making is process. One way to measure process is to codify the actions taken by a decision maker. Documenting these actions and determining their consequences pose many methodological challenges and call for qualitative methods. Such methods are often rejected because the lack rigor. Embracing this challenge should be the thrust of future work. Research is called on to seek a better balance of rigor with relevance.

SOME REMEDIES

Several suggestions are offered. They include a rethinking theory-driven efforts, better ways to frame, and embracing action theory investigations. Using these ideas, some ideas are offered

Decision Making Theory

There is a long-standing push to make all management research theory-driven

(Colquitt and Zapata-Phelan, 2007). This confines research to asking whether a theory was or was not confirmed by the data collected. For decision making, researchers would be called upon to determine whether a theory, such as “do first, think first”, or see first”, offered by Mintzberg and Westley (2001), accounts for what is observed by the practice. Researchers gather data to determine whether the theory conforms to how decisions were made. This approach has several pitfalls (Hambrick, 2008). The researcher is lead to a description of what decision makers do, and away from what they should do. The description becomes an implicit prescription. Because the focus is on behavior, there is often an assumption that what is observed is useful, valuable, and desirable. In addition, there is no way to know if another approach would have yielded better results. The focus is on whether the theory fits the data, not whether the theory identifies the best way to act.

A movement away from theory-driven research is gaining support. Investigators who take stock of theories being used or promulgated, find them lacking. Others suggest that the bank of theories still to be mined is limited. Suggestions for radical change are emerging (Suddaby, 2009).

Action theory

Action-theory (Harmon, 1981), as found in engineering and medicine, offers an alternative. Action theory provides an if-then approach to action taking in which actions are sought that deal with issues of interest to managers, much like the book of signs and symptoms used by Internists that connect the signs and symptoms with possible therapies. Action theory calls for a shift in emphasis from is to ought, which is context dependent. An “is emphasis” captures what was done and ignores possibilities. An ‘ought’ approach identifies what can improve the results of action taking, as a contingency. Tools, techniques, and procedures as well as the best practices by expert practitioners are sought to deal with situations that can arise during decision making.

Action-theory combines description and prescription. On the one hand, there is prescriptive science. On the other, there is a behavioral/explanatory explanation of what a researcher observes. Prescription calls for the study of processes, tactics, and techniques and test them to see if they produce something of value in real world applications. Description deals with use. How many people act in a certain way, how many subordinates get involved, what is the skill level of key players? One informs the other. Linking the actions taken to success provides a key piece of the action-theory puzzle. This notes whether a prescription is followed and how it informs practice. To improve research, a balanced approach that integrates the prescriptive with the descriptive seems desirable.

Frames for Action Theory Investigations

Linguists use emics” and “edics” to bracket two vastly different kinds of frames for research (Pike, 1967; Nutt, 1984). An emic calls for capturing actions as they unfold and imposes little in the way of structure. The emic provides a minimal set of conceptual markers to capture the object under study. The conceptual markers are used to classify the object being observed (actions taken during decision making). This permits a rich description of the object (the decision). The investigator then studies the description to extract important identifying features and elements. The descriptions are object (decision) specific, so each is apt to offer a somewhat different description. The researcher then looks for similarities and differences among the objects (decisions), which can be done in several ways. Poole and Van de Ven (2004) call for “following the action” in the object (decision) being profiled. A sequence of actions is tracked, from beginning to end. To do this the researcher must be clear about what constitutes initiating events, beginnings, and terminating events, endings. The flow of actions is documented by identifying events and activities that occurred, finding the more significant, and determining how these events and activi-

ties unfold – their pattern. Both incidents, which are observable, and events, which are inferred, are included in the description. Events are constructions that make sense of the observed incidents by showing their importance and their flow. Each event is made up of several incidents and captures what an observer finds is needed to document a process. This can be done retrospectively, drawing on interviews and the like, or prospectively. To view prospectively, the researcher positions to observe. This requires longitudinal observation to follow a process as it unfolds, seeking to identify key features (actions) as they emerge.

The etic approach, in contrast, creates a frame with concrete conceptual markers. These markers are used to profile an object (a decision) under study. Here the object, the decision, is organized according to the framework’s conceptual markers, such as recommended steps. McKelvey (1978) calls this a “phyletic” classification as it attempts to explain of the origin of types. An etic framework can be derived in several ways. For example, Nutt (1984; 1993) derived etic frameworks for decision making research from a synopsis of the recommendations for stages and stage sequencing found in the literature, providing a structure to profile actions taken during decision making. To apply an etic framework, researchers make an after-the-fact reconstruction of the decision making process matching what is uncovered to the framework’s stages and the stage sequencing. Analysis reveals process types that adhere to the features called for by the framework.

Both kinds of studies seem needed. Each contributes complimentary insights for the development of an action theory. Both types of studies seek empirically grounded propositions in which action steps are identified that increase the prospect of success.

CONCLUSIONS AND IMPLICATIONS

The research noted in the reviews find decision making has been treated as a structure or as a process, but seldom as both.

Furthermore, there seems a reluctance to deal with process empirically. Much reported research deals with generalizations about process (its political nature or its rationality), but not its action taking steps. Decision making theories are difficult to compare and research into a given theory says little about best practices. Moving toward research designed to construct an action-theory seems needed.

The focus on “strategic decision making” that entangles strategic management with decision making needs to be rethought. In the strategy literature, (see for example, Bower, 1997), the needs for decision making research become lost in arguments about formulating strategy. This has lead Bower to argue that decision making is resource allocation, with a little problem solving. This may capture part of needed action but ignores a number of key issues. Making assessments about research needs for decision making from an appraisal of strategic management leads to a limited conception of decision making. To improve matters, use the content of a decision, strategic and non-strategic choices, as a factor in research efforts. Distinguishing between the two may suggest whether a different process is required for each decision type.

Several ideas on how to conduct decision making research were offered. Perhaps the most important is the emphasis on process. Many past efforts ignore process, apply vague descriptors with little empirical backing, or use a few select factors as proxies for process, such as number of participants. By defining process as action steps, either used in practice or inferred from prescriptions, research can uncover an empirical documentation of action steps. Empirically grounded process recommendations are needed to indicate how to make a decision that has a better chance of success, compared to competing notions and ideas. Descriptive efforts can be embraced if such efforts include a comparison of benefits that accrue when the actions uncovered in a description are followed, with demonstrably expert decision makers. Also stressed

was the importance of codifying decision outcomes and outside influences. This would allow a study of the benefits realized when the processes of various types are followed, given situational factors.

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Book Review: Shoe Dog: A Memoir by the Creator of Nike, by Phil Knight

by Kirsten M. Rosacker, PhD, CPA, CMA, Minnesota State University-Mankato - Feature Editor

Today Nike is a household word; however, that was not always the case. In the book reviewed here, Phil Knight tells his story, the enlightening and entertaining tale of a young man with no real world experience attempting and succeeding at building a world-class, international company in an evolving industry. He details the portfolio of all too common issues that face entrepreneurs including financing needs, supply chain challenges associated with inventory management, customer relationship management, and misunderstood communications between parties when negotiating/operating in an international environment. While Mr. Knight built his company in the 1960s/1970s, in an industry that did not exist at the time, the business issues he discusses and clarifies are exactly those that face today's entrepreneurs as they seek to develop their ideas into booming businesses.

Knight ran track at the University of Oregon under Coach Bill Bowerman developing a strong personal relationship with his beloved coach. After earning his undergraduate degree, Knight enrolled in Stanford Graduate School of Business. It was in an entrepreneurship seminar at Stanford that Knight first developed the idea of buying shoes from a Japanese company to sell in the United States. At the time most athletic shoes were made in Germany by Adidas and Puma. Knight reasoned that since "Japanese cameras had made deep cuts into the camera mar-

ket, which had once been dominated by Germans" (p. 9), a Japanese company could potentially do the same with shoes. Upon graduating from Stanford, in 1962 Knight pursued the marketing idea he had conceived in his entrepreneurship class. Believing that he needed to travel to Japan to personally interact with potential suppliers, he sought financial support from his father. His father did not fully understand the vision, as is typical with many parents of budding entrepreneurs, agreed to support his dream and mission in life.

Arriving in southern Japan, Knight shared his business plan with executives of Onitsuka Co., the manufacturer of Tiger shoes. "If Onitsuka can get its Tigers into American stores, and price them to undercut Adidas, which most American athletes now wear, it could be a hugely profitable venture" (p. 29). Before parting ways, Knight was left with the impression that Onitsuka would send Tiger shoe samples to the non-existent Blue Ribbon Sports Company and Knight would wire fifty dollars to Onitsuka Co. While the money was wired to Japan, through financing arranged with his father, the Tiger shoes did not arrive in Portland, Oregon in a timely manner. Knight sent a letter to the Onitsuka factory and received a response which indicated the shoes samples would arrive "In a just a little more days" (p. 39). Establishing clear communicating and negotiated understandings with Onitsuka Co. was initially quite difficult for Knight,



Kirsten (Kris) Rosacker, PhD, CPA, CMA

Assistant Professor of Accounting and Business Law Minnesota State University-Mankato. Kirsten teaches individual taxation and corporate taxation. Her current research interest focus on tax complex-

ity, corporate governance and project management.

an issue that would continue in spades throughout their business relationship. During the 1960's while waiting for his shoe company plan to take off, he worked as an accountant and accounting professor in an effort to maintain his and the company's cash flow. All entrepreneurs experience and have a finally honed understanding of this critical issue.

A full year after visiting the Onitsuka Co., factory (so much for "just a little more days"), 12 pair of Tiger shoes arrived. Knight shared the Tiger shoes with Bill Bowerman, his University of Oregon track coach and together they formed Blue Ribbon Sports Company. Bowerman was known for experimenting with track shoes in an attempt to improve his runner's speed. He would eventually design the waffle shoe that helped launch Nike, forever changing the athletic shoe marketplace and providing the platform upon which Nike's success would ultimately be built. The fledgling businessmen sourced Tiger shoes from Onitsuka Co., and sold them on the West Coast of the United States. Knight's sales plan focused his marketing efforts on a niche marketplace driving to track meets and selling shoes out of his car. True entrepreneurs understand and relate to this not so unique marketing plan. A natural outcome of such a personal touch was extensive interaction with his customers and a pathway for getting to know them and their desires/needs. Knight's experience underscores the very nature of the business building vocation, a fully committed and willing to do all personality that permits focused, hard work providing an opportunity, but no guarantee, for success.

The company faced many significant and critical struggles in its early days. Although the product was good and demand was strong, shoe shipments from Onitsuka were not predictable causing supply chain management issues. Financing was an ongoing concern, which can be particularly troubling for an inventory-based operation. While the company's sales expanded each year, Blue Ribbon Sports Company lacked sufficient equity

(a weak balance sheet) to support borrowing making banks reluctant to provide the funding that the company needed to finance expanding inventory stocks. "After posting eight thousand dollars in sales in my first year, I was projecting sixteen thousand dollars in my second year, and according to my banker this was a very troubling trend" (p. 77). Increased sales offer the potential for additional profits, but this trend also focuses attention on the needs for greater investments in inventory. Unfortunately, when Knight's entrepreneurial venture was in its infancy, venture capital outlets did not exist, "an aspiring young entrepreneur had very few places to turn, and those places were all guarded by risk-averse gatekeepers with zero imagination" (p. 80).

When Blue Ribbon's sales reached \$150,000 in 1968 and predicted sales for 1969 were \$300,000, Knight made the boldest and arguably most difficult of moves. He quit his outside job and began working exclusively at for the company (p. 137). Sales continued to increase with each passing month; however, gaining a predictable supply of shoes from Onitsuka was an ongoing issue with no pathway to an acceptable solution. In 1971, it became clear that the business relationship between Blue Ribbon and Onitsuka was coming to an end; however, Knight needed the companies to stay together long enough for Blue Ribbon to develop its own brand and other supply sources (p. 179). While not necessarily a common issue for entrepreneurs, this problem is not unique to Nike and their experience highlights the synergistic and evolving nature of the supply chain across time.

Knight had a difficult time justifying a large marketing budget given that the company was consistently short of cash. A contract worker, Carolyn Davidson, was asked to create a company logo that "evokes a sense of motion" (p. 180). Concurrently, several key employees spent days contemplating names for the developing company with the name Nike coming to an employee in a dream. Nike is "the Greek goddess of victory" (p.

183). Knight selected orange for the color of Nike shoe boxes, a unique statement serving to brand the company at a time when other shoes were sold in white or blue boxes. Orange helped Nike shoes to stand out. To assist with financing and address the supply chain management issues, Blue Ribbon Sports developed a business relationship with Japan's sixth-largest trading company Nissho Iwai (p. 165).

The Nike brand was introduced at the 1972 National Sporting Goods Association Show held in Chicago. The company was dealing with its new supplier and the quality of its Nike brand shoes presented at the show was embarrassingly weak, yet orders were quite high. The robust orders were traced to the strong relationships that Blue Ribbon Sports had developed with its customers. "We've been doing business with you Blue Ribbon guys for years ... we know that you guys tell the truth. Everyone else bullshits, you guys always shoot straight. So if you say this new shoe, this Nike, is worth a shot, we believe" (p. 202-203). Indeed, customer relationship development and management is critical to the long-term success of new companies and Knight had done his job in this regard.

Knight knew that athlete endorsements would be a key element in its endeavor to directly compete with and surpass Adidas. However, it was difficult for him to justify the exorbitant costs given his chronic funding concerns. In 1972, Ilie Nastase, aka "Nasty," a Romanian tennis player wore Nike shoes in tennis tournaments. Knight approached Nasty's agent to seek an endorsement agreement. The two signed an endorsement deal for \$10,000, the first of many endorsement deals Nike would complete.

Nike sales increased consistently and in 1976 the shoes went "from popular accessory to cultural artifact" (p. 284) as sales opportunities expanded far beyond the niche market where the company began its journey. The brand was now a "household word" so the company was

incorporated as Nike, Inc. (p. 285) joining the shoe brand with the company name. To meet the evolving and increasing demand, the company sought supplier sources outside of Japan. Taiwan contained many small factories which would allow Nike to “have the dominant position” (p. 286) and the company jumped at the opportunity to exploit this dominant position. Nike reported \$14 million in sales for the 1976 fiscal year. Yet, while successful beyond expectations of the founders, the company continued to struggle with cash flow.

The management team considered “going public” at several points in order to solve the ongoing cash flow issues. Finally, on December 2, 1980 Nike went public at an offering price of \$22 per share. That evening as Knight fell asleep he felt regret, understanding that he had addressed and solved all of the entrepreneurial issues that had been presented along his journey and realizing that Nike was now in a different phase of its lifecycle. He wished he could do it all again and as a true entrepreneur, Knight was at his desk before anyone else the next morning (p. 160). Phil Knight is an entrepreneurial shoe dog, someone who devotes themselves wholly to the making,

selling, buying, and designing shoes (p. 186).

This book is interesting and insightful. It highlights the life and struggles of a young entrepreneur, a person that has drive, but lacks experience. Knight details the financial, mental, and physical pressures an inexperienced business builder faces while focusing attention to the importance of a supportive family and friends. While an entrepreneur sacrifices a great deal to follow his dreams, the toll on his family and friends is also considerable and worthy of note. Most of the book (360 pages) is devoted to his personal and professional life before taking Nike public. A small portion (22 pages) describes his life after going public and reaching a position of both professional and personal success as well as financial stability. He could write another interesting story focusing his personal life after going public as the story of this evolving industry did not end in 1980, in fact it may have just commenced at that time.

The book (ISBN-13: 978-1501135910) is published by Scribner (April 26, 2016), contains 400 pages and costs approximately \$17. ■

From PRESIDENT’S LETTER, page 1

in-Chief of DSJIE and is moving on to greater administrative responsibilities. Please join me in congratulating Vijay for a job extremely well done. The Board is finalizing the search for a new Editor-in-Chief, which will be announced soon. I would like to thank the VP of Publications, Anand Nair, and the Publications Committee for doing an outstanding job in recruiting candidates for the position.

2016 DSI Annual Conference will take place in Austin -- the Music Capital of Texas. Preparations for an outstanding meeting are in full swing. The Program Chair, Sri Talluri, and Associate Program Chair, Jennifer Blackhurst, have been working hard to deliver an outstanding program. This year the conference program team received a record number of submissions and have lined up two well-known keynote speakers: Professor Sunil Chopra of Northwestern University, and Charles Holland of UPS. In addition to continuing with the two pillar (Research, and Education and Professional Growth) format, the conference program will have new tracks and workshops on a variety of evolving topics. The meeting will conclude on Monday night with an Awards Dinner, where the best paper and competition winners will be recognized. I strongly encourage you to attend the conference and also the Awards Dinner to support your colleagues. I have no doubts that the Annual Meeting will be a great conference in a great city and you will leave Austin with a rewarding experience. Please try to recruit new colleagues and doctoral students, who don’t normally consider DSI as their primary conference and encourage them to attend the meeting in Austin and join the DSI Family. I personally look forward to an invigorating program and a pleasant visit in Austin.

I wish you all a very happy, relaxing and a productive summer. I look forward to seeing you in Austin.

Best Wishes,

Funda Sahin

2016-2017 Decision Sciences Institute
President ■

The search for DSJIE Editor is now complete. On behalf of the Board of Directors of the Decision Sciences Institute (DSI), it is my pleasure to inform you that the Board appoints Matthew Drake as the incoming Editor of the Decision Sciences Journal of Innovative Education (DSJIE). He is an Associate Professor of Supply Chain Management and Harry W. Witt Faculty Fellow in Supply Chain Management at Palumbo Donahue School of Business of Duquesne University. He holds a B.S. in supply chain management and finance from Duquesne University, an M.S. in Industrial Engineering and a Ph.D. in Industrial Engineering with a concentration in Economic Decision Analysis from the Stewart School of Industrial and Systems Engineering at Georgia Tech. His work has been published in a number of journals including Naval Research Logistics, the European Journal of Operational Research, Omega,

the International Journal of Production Economics, OR Spectrum, International Transactions in Operational Research, the Journal of Business Ethics, and Science and Engineering Ethics. He is also the author of the book, Global Supply Chain Management, published by Business Expert Press in 2012. Several of his teaching materials have been published in INFORMS Transactions on Education and Spreadsheets in Education. Professor Drake is also the author of five teaching cases that have either won or have been finalists for teaching case awards at the Institute for Operations Research and Management Science (INFORMS) and the Decision Sciences Institute (DSI). He is also the editor of two case books for Pearson / FT Press: The Applied Business Analytics Casebook (published in 2014) and Advances in Business, Operations and Product Analytics (2016). Professor Drake's official term starts on November 1, 2016. We congratulate him for his ap-

pointment and look forward to working with him.

Also, we would like to thank Dr. Vijay Kannan, the current Editor of DSJIE, for his service to DSJIE and DSI. Professor Kannan has been serving as the Editor since 2012 and has made significant contributions to advance the DSJIE journal. Despite his new responsibilities at his day time job that demands more of his time, he patiently and willingly agreed to continue to serve as the Editor until November 1, 2016. We are very appreciative of all his time and hard work for the journal and our Institute. We wish him the best in his new endeavor.

Best Wishes,

Funda Sahin
2016-2017 DSI President ■

Decision Sciences Journal of Innovative Education (DSJIE): Volume 14 No. 3

EDITOR: Decision Sciences Journal of Innovative Education, EMAIL: dsjie.editor@gmail.com

Dear DSI Member:

The latest issue of the Decision Sciences Journal of Innovative Education (DSJIE) is now available online at:

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Teaching Brief

Operations Course Icebreaker: Campus Club Cupcakes Exercise

Brent Snider and Nancy Southin

An Active Learning Exercise for Product Design from an Operations Perspective

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Manufacturing Squares: An Integrative Statistical Process Control Exercise

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Process Variability and Capability in Candy Production and Packaging

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Stock Control: Learning Inventory Concepts by Beating Levels and Winning Prizes

Brad C. Meyer and Debra S. Bishop

Conceptual Research

A Soft OR Approach to Fostering Systems Thinking: SODA Maps Plus Joint Analytical Process

Shouhong Wang and Hai Wang ■

CALL FOR NOMINATIONS OF FELLOWS OF THE DECISION SCIENCES INSTITUTE

The Decision Sciences Institute invites nominations for the designation of Fellow of the Institute. This designation is bestowed to active supporters of the Institute for their outstanding contributions in the field of Decision Sciences. The honoree will be announced and recognized at the upcoming 2016 Annual Meeting of the Decision Sciences Institute in Austin, TX.

Eligibility

To be eligible, a nominee must have achieved distinction in at least two of the following categories: (a) Research and Scholarship, (b) Teaching and/or Academic Administration, and/or (c) Service to Decision Sciences Institute. In addition, the individual being nominated should not have been nominated in the immediate prior year.

Nomination Package

To nominate an candidate, please submit a nomination package to include:

1. The nominee's CV (**mandatory requirement**)
2. A nomination letter on university, company, or personal letterhead highlighting the contributions by the nominee to at least two of the following areas (**mandatory requirement**): (a) Research, (b) Teaching and/or Academic Administration, and/or (c) Service to the Institute. Please note that the nomination letter, when referring to evidence that is not present in the nominee's CV, should attach such evidence in an appendix.

Submission and Deadline

The nomination package should be emailed to info@decisionssciences.org with **2016 DSI Fellows Nomination** in the subject line. Once received, a confirmation email will be sent to the nominator to acknowledge receipt. All nominations are due by 5:00 pm CST on October 1, 2016.

Submissions past the deadline and incomplete submissions will not be considered. ■

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MWDSI- Tentative 2017 Annual Conference Information

Location: Grand Valley State University, Grand Rapids, MI Date: April 6 - 8, 2017.

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The 2017 Annual Meeting will be held at the Pan Pacific Hotel in the heart of Vancouver, B.C., Canada. The conference organizing committee has negotiated a very competitive room rate for our participants to join us at this landmark hotel. For more information about the 2017 annual meeting, please see WDSI 2017. ■

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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.

Send nominations to:

Chair of the Fellows Committee
Decision Sciences Institute
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334 Melcher Hall, Suite 325
Houston, TX 77204-6021
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■ April 2017

April 6 - 8, 2017

MWDSI- Tentative 2017 Annual Conference

Location: Vancouver, Canada

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	Guernsey	Greenland	Aruba	Djibouti	Laos	Paraguay	Thailand
	Hong Kong	Guam	Azerbaijan	Dominica	Latvia	Peru	Timor-Leste
	Iceland	Israel	Bangladesh	Dominican Republic	Lebanon	Philippines	Togo
	Ireland	Italy	Barbados	Ecuador	Lesotho	Poland	Tokelau
	Isle of Man	Japan	Belarus	Egypt	Liberia	Portugal	Tonga
	Jersey	Korea	Belize	El Salvador	Libya	Puerto Rico	Trinidad
	Kuwait	South Malta	Benin	Equatorial Guinea	Lithuania	Romania	Tobago
	Liechtenstein	New Caledonia	Bhutan	Eritrea	Macedonia	Russia	Tunisia
	Luxembourg	New Zealand	Bolivia	Estonia	Madagascar	Saint Helena, Ascension and Tristan da Cunha	Turkey
	Macau	Oman	Bosnia and Herzegovina	Ethiopia	Malawi	Rwanda	Turkmenistan
	Monaco	Saint Pierre and Miquelon	Botswana	Fiji	Malaysia	Saint Vincent and the Grenadines	Tuvalu
	Netherlands	Saudi Arabia	Brazil	French Polynesia	Maldives	Saint Kitts and Nevis	Uganda
	Norway	Slovenia	Bulgaria	Gabon	Mali	Saint Lucia	Ukraine
	Qatar	Spain	Burkina Faso	Gambia	Marshall Islands	Sao Tome and Principe	Uruguay
	Singapore	Taiwan	Burma	Georgia	Mauritania	Senegal	Uzbekistan
	Sweden	Turks and Caicos Islands	Burundi	Ghana	Mauritius	Sierra Leone	Vanuatu
	Switzerland	United Arab Emirates	Cabo Verde	Greece	Mexico	Sint Maarten (Saint Martin)	Venezuela
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			Chile	Guyana	Montenegro		Western Sahara
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