



NEWSLETTER

Issue 20

March 2021

President's Message

By Leslie Lippard and Eyas Radaad

Moderator: As many of our members know, the SDP is in the middle of a multi-year process of transition from a small organization to one that is larger and broader—still focused on Decision Analysis, but with a big tent that welcomes practitioners from a larger pool of industries, those who have a background in big data and analytics, and those from a variety of decision analysis backgrounds. For this issue of the newsletter, we asked Leslie Lippard (current President) and Eyas Raddad (current Vice President/ President-elect) to respond to a few questions about this transition. Read on to learn more about their perspectives:

Moderator: What is driving this transition? Why is it the right thing for the SDP?

Leslie: When I joined the board, Ellen Coopersmith was president. The SDP was in extremely fragile shape, although I understand that it was a lot better than it had been previously. We had debt. We completely depended on DAAG to fund our operations. Our membership census was low and tended towards older people. A large share of our members came from the O&G industry, and that industry was experiencing a giant contraction driven by low oil and gas prices. In my mind, that is where the seeds of this transition began. Our vision—an organization to support those who practice DA—hasn't changed. But we have a much clearer view of what is needed to create a sustainable organization that can realize that vision.

Eyas: Once we emerged out of a challenging spot successfully, SDP experienced a change in the strategic frame. The decision opportunity for us now builds on the rapidly changing decision support industries and the growth of data science as the new competitive frontier. Although decision analysis is uniquely qualified to grow data-driven capabilities in various industries and organizations, we were largely left in the dust of the new kid on the block: data science and artificial intelligence. Furthermore, our tools and methods have an immense untapped potential in a wide range of industries. SDP can help decision professionals ride the wave of data science and AI successfully, and steer the wave to more valuable outcomes.

Moderator: What do you see as the largest opportunities presented by the transition? What are you most excited about?

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Eyas: Engaging decision makers or their surrogates, and attracting a new generation of decision scientists who are well-versed in data science, are among the most exciting opportunities for SDP future.

Leslie: One thing that I am very excited by is that our community of Decision Analysts is growing. DA has become the standard by which decisions are made in a handful of companies, and many more organizations have internal DA capability than they did when I entered the field. There is an ecosystem of consultants and tool vendors and thought leaders that is also growing. There are non-profits that are doing amazing work. And there are a lot of young people joining our ranks! All of this is an opportunity for our organization to grow, to serve a more diverse community with a diverse set of needs.

Moderator: What barriers are we encountering? What barriers do we anticipate?

Leslie: To be honest, the biggest challenge that I see is that most of our initiatives take several years to decide on, to implement, and then to see through to fruition. Aside from our wonderful executive director, we are a volunteer organization. We have a lot of people doing a lot of things, but coordinating volunteers is more challenging than coordinating a paid, full-time staff. As the president, your term is 1 year, but you need to have a multi-year perspective, and be willing to start things that you know will not be anywhere close to finished in your term. You must prioritize and execute on past initiatives—a very hot topic right now is that we have 6 very healthy local chapters. We initially moved to a chapter model because we thought it would provide a better experience for members and could support local events. The pandemic put a lot of that on hold, of course, but we need to keep it on our radar.

When Pat Leach was president, we had a big push to improve the website. Not only do we want the website to better support our members and our chapters, but there is a tremendous amount of content out there. We were about ready to commit to a major overhaul when the pandemic hit, literally weeks before DAAG 2020. We ended up putting off the website initiative as we pivoted to an online DAAG, but the need is still there.

Inclusion in our community is a passion of mine, and I'm proud of the efforts that our DAAG coordinators are making this year to support that. Obviously, inclusion is not a one-and-done kind of thing—it will take continued efforts over a scale of years to see the needle move to where it should be. This is part of why I think the VP/President-Elect structure we have is so important because it helps to create continuity.

I feel so lucky to have Eyas as the VP this year because he is contributing tremendously to how I've thought about our priorities for this year, and to have had Pat Leach as a mentor last year. SDP in general is lucky that many other past presidents are still very active and will continue to be great resources, coaches, and cheerleaders.

Eyas: What Leslie shared is a great summary of our challenges and operational opportunities. I look forward to continuing on the path of increasing our professional capacity to enable our ambitious agenda, and advancing inclusiveness, on the path that started with my predecessors!



President's Message, continued from page 2

Eyas (cont.): SDP governance has two excellent design features: The VP serves as the President Elect rolling into the President role, and the outgoing President serves as an advisor and non-voting Board member. This creates continuity of direction, smooth transitions, and a strong incentive for SDP leaders to work collaboratively. This reminds us of how important the upcoming Board elections in the summer, in which a VP/President Elect, a Secretary and 3 other Directors will be elected. The President and VP typically emerge after some Board experience, and sustaining a pipeline of Board members who are engaged, visionary and passionate about SDP mission is more important than ever.

Moderator: Thank you both for this important discussion today. To close this out, If you could use only 3 words to sum up the transition process, what would they be?

Leslie: Necessary. Evolutionary. Opportunity.

Eyas: Growth. Purpose. Impact.

Upcoming Events



**SOCIETY OF DECISION
PROFESSIONALS**
Clarity & Insight for Decisive Action

[DAAG 2021](#)

April 14 – 16 , 2021

Webinars:

None currently scheduled



Better Health through Better Decisions.

Save the Date!

[SMDM 43rd Annual Meeting:](#)

Toronto, ON, Canada

October 17 - 20, 2021

The meeting theme is *Individual and Society in Health Care Decisions*

Meeting co-chairs: Negin Hajizadeh, MD, MPH and Victoria Shaffer, PhD

Do you know of upcoming professional events that might be of interest to other SDP members?
If so, please email the SDP newsletter at newsletter@decisionprofessionals.com

Useful Links

The SDP Board has posted the Society's Bylaws and Policy and Procedure Manual, which can be found at: <http://www.decisionprofessionals.com/about/governance>

A listing of courses in decision analysis available to SDP members is at:
<http://www.decisionprofessionals.com/courses/training-program>





Member Spotlight: Brian Putt

Brian Putt is one of the founders of the Decision Analysis practice at Chevron. He earned his Masters Degree in Operations Research from Stanford in 1972 and went to work for the government. He went to Chevron in 1975 and in 1992 found like-minded people in Larry Neal and Frank Koch. They worked to develop Chevron's DA function, ultimately integrating it with the famous "Chip Dip" process (CPDEP: Chevron Project Development and Execution Process). He left Chevron in 2016.

DA took off at Chevron after some key endorsements by leaders and is now recognized as one of the premier DA cultures in the world.

Founding, training, and guiding the DA Community and culture at Chevron is his crowning accomplishment. Not only was there a corps of 230 full-time DAs when Brian left, but George Kirkland, former Vice-Chairman of Chevron, said that Decision Analysis is part of Chevron's DNA. Every manager and most employees are exposed to or required to understand the value that DA delivers. It is impossible to know the causality precisely, but Chevron has certainly been among the top performing oil companies since DA took root.

Brian prefers to be involved early—before minds are made up—so he can help frame and shape the process. Once the frame is set, he likes to then dig in with the SMEs rolling up his sleeves and working on quantitative models.

He also stresses the importance of model validation. He noted that, to his surprise, both managers and modelers were thrilled to have it. Part of the success with the modelers was that the feedback was objective, neutral, and observation-based.

Among key lessons learned is the importance of explaining analyses as simply as practical. Sometimes you get one shot, and failure can halt progress for years. Trying to create lasting change is difficult in a large organization even with leadership support. Early successes, especially with non-intuitive results are important to build momentum and shift culture.

Being in the right company is important. Young, untested analysts are seldom in a position to influence the culture of a company, so being surrounded by experienced people provides tremendous support. DA as a field should reconsider its branding and mimic or perhaps embrace what data science has done to help build awareness and visibility.

Brian remains active professionally. Besides consulting, he is the Chair of Applications and Technical Support for ProbabilityManagement.org, Within SDP, he is a Director, an editor of the newsletter, Chair of the Bay Area Chapter and the CSRA interest group, and active with the certification and knowledge-sharing councils. He maintains his own YouTube channel, and keeps active in Boy Scouts. Obviously, Brian believes in giving back. Be like Brian.

SDP ANNUAL DAAG

conference & *online* workshops

2021 DAAG CONFERENCE TOPICS

- Case Studies
- The Art of Decision Framing
- Innovative Methods for Addressing Uncertainty
- Superforecasting
- Bridging Data and Decision Sciences
- Sustainability
- Decision Leadership
- New to Decision Analysis

APRIL 14-16, 2021



DAAG 2021 3 day Virtual	Early Bird Price January 15	Regular Price
SDP Member	\$385.00	\$450.00
Non-Member	\$595.00	\$650.00

REGISTER at www.daag.io

**Get Your SDP DAAG Conference Tickets
EARLYBIRD pricing expires Jan 15, 2021**

SDP DAAG 2021 Conference

KEYNOTE SPEAKER



Annie Duke

Author | Speaker
Decision Strategist

DECISION STRATEGIST

How to Decide
Simple Tools for Making Better Choices
Annie Duke

Complimentary Book to 1st 100 registrants

SDP DAAG 2021 Conference

KEYNOTE SPEAKER



ED
Rogers

ED ROGERS (RETired)
Chief Knowledge Officer
NASA Goddard Space Flight Center
2003-2020

View our WORKSHOP

* MENU *

Register for 1 or Many!

- * Ask the Better Question™ : Engaging Stakeholders for Sustainability Action
- * The Metalog Distributions 101
- * Decision Analysis Evaluation with Simulation
- * Decision Science 101, or Using Structured Thinking to Supplement Your Business Smarts
- * Data Sciences for the Decision Professional
- * Assessing Multiple Value Drivers in Decision Analysis
- * Practical and Powerful Insight from Decision Tree Analysis — An Energy Transition Case-Based Learning Experience
- * A Practical Introduction to Game Theory

2021 DAAG PRE & POST CONFERENCE



Sponsorship of the SDP ANNUAL DAAG CONFERENCE & WORKSHOPS will promote your company throughout the journey!

- We PROMOTE you BEFORE the event
- We PROMOTE you DURING the event
- We PROMOTE you AFTER the event



READY TO COMMIT? Contact us for full details on benefits & sponsor levels

EMAIL: info@decisionprofessionals.com

Sponsorship Opportunities

Join Us in Producing the SDP Newsletter

We, the editors, are actively looking for other SDP members to join us in producing this newsletter. If you are interested, please contact us. [Click here](#) to email the editors.

Emilia Silebi and Jack Kloeber
SDP Newsletter Editors



Congratulations our New SDP Practitioner Mariam Al Meer



Mariam works for Qatar Shell as an Economist and is responsible for economic evaluations and analyses supporting growth and commercial opportunities in Pearl GTL and Qatargas 4 assets. Her favorite part of the job is collaborating with multi-disciplinary teams and building strong working relationships across different functions. Fun fact: she discovered her strong passion for decision analysis during her MBA studies when she worked on a data analytics project with the Massachusetts General Hospital! In her free time, Mariam enjoys traveling, reading and spending time with family and friends.

Congratulations our new SDP Fellow Pete Naylor

Pete has over 35 years' experience in delivering consultancy, service and research projects to the upstream oil and gas industry. He is a Principal Technical Expert in Decision Analysis/Decision Quality, manages a project to strengthen decision making across Shell, and helps managers make complex decisions, taking full account of risks & uncertainties. Previously, Pete was the manager of a Special Core Analysis Laboratory, which featured reservoir condition in-situ saturation measurements. Prior to working in the oil and gas industry, he was responsible for research into large-scale steam explosions. Pete has a wife, three children, three children-in-law, four grandchildren and one dog, and he lives near Poole Harbour in Dorset (UK). He likes most water sports, cycling and spends much of his free time socialising with friends and family.



Chapter News

Calgary Chapter:

The Calgary Chapter kicked off a Book Club in January. The purpose is to introduce DA related books to a broader audience, motivate ourselves to read some of the books we “just haven’t got around to reading” and share some learnings, insights, and perspectives with each other. 5 books were introduced and “Nudge”, by Richard Thaler and Cass Sunstein was selected for the next book club get together in April.

Upcoming member sessions include a mock framing workshop, facilitated by Kent Kurkholder from Decision Frameworks where we will answer the question **“How can we expand the community and activity of the SDP Calgary Chapter to create greater value through improved knowledge and awareness of decision quality?”** as well as a guest visit from University of Calgary Professor Diane Bischak addressing **“Why you have to be careful putting decision trees and simulation together”**.

Houston Chapter:

Houston has carried the momentum of the 2020 restart into 2021. Our first meeting was a round table discussion featuring DA practitioners from BHP, Chevron and Shell. It provided the opportunity for the Chapter to hear what has been going on at local companies from a DQ perspective since Covid and for the audience to provide their input. The second meeting featured Sam Saage speaking about “Chancification: Wiring your Organization for Probability.”

Our next general meetings is scheduled on March 25th with Devin Cornish speaking on *Using Data to Influence Decisions @Scale*.

San Francisco Chapter:

On March 17 we are having a panel discussion on Agile and Decision Analysis with the objective of gaining a better understand of each and how they may fit together. Our panelists are Carl Spetzler (SDG), Audrey Del Vescovo (Chevron), Himanshu Jain (Thought Agile Ltd) and Stephen Patch-Putt (Slalom Consulting). While this might be a similar theme to the London Chapter meeting, the panelists may bring different perspectives not represented in London.

Vancouver Chapter:

The Vancouver Chapter has held three remote events over the last few months:

- We held an end of year “social” from afar and discussed potential ideas for the chapter in 2021
- Lee Helmsen presented on a unique engagement process applied to inform the Giant Mine Closure and Reclamation Plan, which included a focus on participatory decision making.
- Michael Runge from U.S. Geological Survey and Patuxent Wildlife Center presented about the complexity of decision analysts reconciling and making use of multiple independent models to inform policy decisions on COVID-19

Several members of the chapter are active in preparing for DAAG as presenters or session co-chairs.



Interest Group News

Data Science Interest Group:

The data science SIG is looking for articles for discussion on the boundary between decision analysis practice and data science. Several of us publish on this topic in medium.com. If by chance you have published there, or intend to (It's a great forum BTW!), consider sharing your ideas in the SIG.

Cost & Schedule Risk Analysis Interest Group:

After a successful year + we have had trouble getting started again. I am happy to facilitate another round, but there has to be interest. Anyone interested in learning about Cost and Schedule Risk (CSRA), both the reasons for and how to do it, should contact Brian Putt (Brian@ThePutts.com). For many companies and projects, CSRA is “low hanging fruit” to make adjustments in how to accomplish a project to either lower costs or improve the schedule. I have readymade Excel models that can accommodate a reasonable number of activities that consider both schedule and cost uncertainty.

Scenario Planning Interest Group:

The interest group on Scenario Planning meets every Thursday of the month, at 10 AM PST. Usually some 6 - 10 participants join the session. The content of the meetings varies. We may have a presentation by one of the group members, or we may discuss some example of a set of scenarios, for example related to the Covid situation. In February we had a guest speaker: an interesting presentation by a Professor in Scenario Planning from the Colorado State University.

Most participants have limited or no background in Scenario Planning and have joined to learn about it. This implies that the offers for presentations by participants are limited but nevertheless we have good discussions.

If there is interest to join: send an email to henk@navincerta.com



Council Focus

Membership & Communication Council:

The Membership and Communication Council has been actively following up in response to the feedback we received from our member survey last fall. We have also had several conversations with folks who provided us with their contact information and invited us to reach out to them. We learned a lot and have made inroads in developing new collaborative relationships on a few fronts, not the least of which is the SDP Newsletter.

Since its inception over four years ago, the SDP Newsletter has been produced by the efforts of two editors. In the past couple months, the editing team has grown to five. We enthusiastically welcome the editorial team Antonio Fernandez, Tony Kenck, and Brian Putt who join Jack Kloeber and Emilia Silebi. The table below shows the newsletter section assignments.

Section	Editor
President's message	Jack Kloeber
Ask the Fellows	Jack Kloeber
Council Focus	Emilia Silebi
Chapter News	Emilia Silebi
Interest Group News	Emilia Silebi
Spotlight on SDP member	Tony Kenck
SDP sponsor blurb	Brian Putt
Brain teaser	Antonio Fernandez
Calendar of upcoming events	Brian Putt
Recent certifications	Jack Kloeber
Proof Read Issue	Tony Kenck

As always, if you have any questions for the editors pertaining to the newsletter, please email them at newsletter@decisionprofessionals.com.

In the coming months we look forward to presenting to the SDP Board of Directors a consolidated and comprehensive story of our findings from the survey and the ensuing conversations with folks in the weeks and months following. We believe there is a compelling story and we look forward to the Board's feedback and further guidance regarding next steps.

Ask the Fellows

In every issue, we ask our active Fellows to share their experience and wisdom with us, to answer some of the tougher questions.

Question for the Fellows: An article in OR/MS Today (pg 44, Feb 2021) discussed rebranding INFORMS away from Analytics towards the descriptive term Artificial Intelligence. Is this a Buzz word change or an improved description of what we do in INFORMS?

How many of you remember a great discussion we had 10 years ago regarding the name of our Society for Decision Professionals? Words and descriptors are important. One question that pops up from consultants, new members, and quite often even frustrated experienced members, is this: **How do you describe Decision Analysis to a mid-level executive so that it does not threaten - but informs and intrigues?**

- 1) I usually keep it simple. My stock phrase is, "It's a framework for thinking your way through complex problems. It almost always results in non-intuitive insights that help you to make an informed decision."
- 2) Keh-shiou Lew, an ex-SDG colleague, used to say "DA is all about doing something that makes sense—that is, making decisions that give you the best chance of getting what you want". I often add "Sometimes it is obvious what decision to make. Other times, it's complicated, especially in situations with a lot of uncertainty, or a lot of people who need to make decisions that are aligned towards a common goal."

This explanation usually elicits stories of frustration where people worked at cross purposes, often because they had different perspectives. That opens the door to a deeper conversation

- 3) "The objective of the activity is to provide insights for you to make the decision. The study will produce alternatives each of which will have advantages and disadvantages. A) It would be rare that one alternative is superior in all ways, so the final decision is up to you based on perhaps other information that you have that is not included in the analysis and your risk preferences." or B) "So the final decision is up to you based on perhaps, other information that you have that is not included in the analysis"
- 4) I describe DA as the way to get the right answer in the face of all the stuff that makes your head hurt. (uncertainty, dynamics, many factors, multi-criteria, ...)

I describe DQ as DA to get the right answer and all the organizational engagement to get true commitment to action around that right answer. (including the right parties to make the decision stick, conflict resolution, avoidance of mega-biases, ...)

Continued on page 12



Ask the Fellows, continued from page 10

And, today much of my consulting activity is focused on organizational transformation to ODQ (organizational decision quality) – where DQ becomes “the way we make decisions around here”. It becomes the center of their decision culture. ODQ still has DA at its center – but it is at least half organizational behavior and change management. Organizations that get to true ODQ can be recognized with the Raiffa-Howard Award.

- 5) (Quoting P. Leach and modifying) A DA approach is an efficient and effective workflow for gaining clarity about the key issues, risks, and tradeoffs so that tough decisions can be made with confidence and organizational alignment.
- 6) Asking questions can be more effective, especially with skeptics, e.g. “Why is the right decision not obvious? What is making it difficult to get everyone on the same page? A series of questions that takes people through the main areas of ambiguity and uncertainty can help people realize how poorly prepared they are to deal with them. At some point they realize they need structure and assistance. When they get to that point, they are more likely to be receptive to the messages about DA.

Our thanks to the wisdom and experience of Pat Leach, Paul Papayoanou, Carl Spetzler, Brian Putt, and Leslie Lippard (in no special order).

A Word From an SDP Sponsor

In every issue of this newsletter, we include a message from one of the SDP sponsors, whose support contributes significantly to the ongoing success of the Society.



Strategic Decisions Group: Celebrating 40 Years of Decision Quality

Strategic Decisions Group (SDG) is pleased to be a charter sponsor of the Society of Decision Professionals. Our firm shares SDP's mission of creating greater value for organizations, individuals, and stakeholders by bringing decision quality to important, complex decisions.

Established in 1981, the firm's four co-founders—Ron Howard, Carl Spetzler, Jim Matheson, and Jeff Foran—set out to create a new kind of management consulting firm, one that would harness the power of normative and behavioral decision analysis to help organizations choose the best course of action in the face of uncertainty, daunting complexity, competing preferences, and organizational complexity. [Read more about our work.](#)

Now celebrating its 40th year, SDG continues to push the frontiers of the theory and practice of decision consulting, motivated by the real-world issues faced by our clients. Our team of decision professionals strives to find new value, deliver superior business results, and ensure organizational alignment. We take as a point of pride that all four winners of the Raiffa-Howard Award for Organizational Decision Quality—Chevron, Pfizer, Lilly, and China Mobile—began their ODQ journey with a connection to SDG.

Equally important is extending the reach of decision quality by teaching and coaching students and practitioners. The [Strategic Decision and Risk Management certificate program](#) at The University of Texas is an example of how our education team has worked to extend the reach of DQ beyond client engagements. Not everyone has the interest or desire to become a decision professional, but anyone can learn to appreciate the elements of DQ and to demand it for their organization's decisions.

A career at SDG offers the unique opportunity to make a real difference—both on client projects and in helping to shape the firm's direction and culture. We are growing our staff in all regions and invite you to [learn more about a career at SDG](#).

Our vision? Simply this: That DQ is seen as indispensable not only in business, but also in important societal decisions. That every complex, important decision is made with the guidance of a decision professional, and that the profession itself grows in number—and in stature.

To stay abreast of our latest thinking delivered in articles, webinars, videos, and courses, [join SDG's email community](#).



Decision Making in Agriculture

by Jay Parsons, Professor, Department of Agricultural Economics, University of Nebraska-Lincoln

Agricultural producers consistently face a very challenging decision making environment. Agricultural production relies on a complex set of biological interactions with the environment in the presence of a very high level of uncertainty. Weather, in particular, presents a source of uncertainty that can quickly change a good decision into a bad outcome with potential for a tremendously negative impact on the farm or ranch business. Agricultural producers typically make decisions in a very dynamic environment with several competing short term and long term objectives in mind. This can all be very overwhelming. It often leads to several bad habits undertaken by decision makers to avoid the complexity. One habit is “seat of the pants” or instinctive decision making often explained as relying on experience. Another habit is to procrastinate until the decision becomes less complex with fewer alternative choices available but less uncertainty. A third common habit is reliance on outside experts to provide an answer or at least a “decision tool” that provides an answer. However, the expert developed this information without fully understanding the unique context in which the producer is making the decision.

Institutional risk is also a major influence on farm and ranch decision making. Institutional risk is defined as the risk associated with someone outside the farm or ranch business changing the rules of the game. U.S. agriculture is heavily influenced by the farm program policies of the U.S. Government’s Department of Agriculture (USDA). Many of these policies are known with some certainty over the five to six year life cycle of a U.S. Farm Bill. However, significant ad hoc policies are often implemented with little notice in the intervening years. For example, the trade war with China resulted in the 2018-2019 Market Facilitation Program (MFP) payments and the COVID-19 pandemic resulted in two iterations of the Coronavirus Food Assistance Program (CFAP) in 2020 and likely a third in 2021. Planting, inventory and marketing decisions affect producer eligibility to receive payments from many government programs including the ad hoc programs. Producers who proactively manage risk sometimes find themselves at a disadvantage in fully participating in some programs. For example, producers with marketing contracts were ineligible for some CFAP1 payments in 2020. The MFP payments of 2018 were based on actual production quantities produced for six crops while MFP payments in 2019 were based on planted acres for 27 crops. A producer making 2019 planting decisions with fresh thoughts in mind of how the 2018 MFP payments were distributed, would be heavily influenced toward a small subset of crops.

Decision Making in Agriculture (Cont'd)

Can farmers and ranchers learn and benefit from proactive decision making skills? Can they fully benefit from a better understanding of decision quality that leads to more consistent decision making designed to produce desired outcomes? The short answer is yes. While farming and ranching pose unique decision making challenges, an important characteristic of the resulting decision frame is the persistent presence of personal objectives. Farming and ranching is still, for the most part, a family business with long family histories of land stewardship and family values influencing the business in many ways. Understanding the importance of clearly articulated objectives, good information and sound reasoning is a very easy sell. Most producers also understand that the tendency to procrastinate or over-rely on outside expertise to deal with complexity leads to lost opportunities to implement the best alternative for their decision situation.

In many ways, agricultural producers are ripe for decision training on proactive decision making skills and decision quality concepts. Recent examples of this include interactions with cattle ranchers dealing with forecasts for dry weather and possible drought situations developing. Understanding decisions that need to be made today and decisions that can be made later and linkages between the two reveals much about the decision context. Permission to focus on objectives rather than analyzing alternatives frees up creative thought and generates possible solutions that result in more flexibility and an increase in ability to deal with the future uncertainties being revealed as outcomes.

In summary, it is difficult to imagine a more challenging decision-making environment than the environment faced by an agricultural producer. It is an area ripe for the positive influences of the decision science profession.

Brain Teaser

Congratulations to Christian Diendorfer on December Brain Teaser

The best answer received was from Christian Diendorfer who properly stated that: 8,549,176,320 contains each digit from 0 to 9 and is integer divisible by all numbers from 1 to 9 (but of course not by 0).

However, the out-of-the box answer we were looking for was the fact that the digits, from 0-9 were ordered alphabetically (eg 'e' for eight, etc) left to right.

His tie breaker was exactly correct → $45 + (45 * 1/5) = 54$.

[View December 2020 Brain Teaser and Solution Here](#)

THE MARCH BRAIN TEASER

Instructions: You can win “bragging rights” by being the first to submit the correct answer of this brain teaser to the newsletter editors ([SDP Newsletter: Brain Teaser](#)). We will announce the winner in the next issue. Our new Brain Teaser Editor is Tony Fernandez.

The Magnificent 12

You are the director for an exceptional business opportunity. You lead 12 magnificent teams of world class talented individuals equipped with new technologies. Your role is to allocate the 12 teams into the three functions below to maximize their extremely valuable production.

- 1 - Discovery Teams: perform the research and discovery function from an unlimited set of prospects. Basic discovery is 1 year with a one in six chance of success. Teams with failed prospects start over. Teams with successful prospects go through a 2-year maturation phase.
- 2 - Development Teams: each team takes a matured prospect and develops unique manufacturing facilities for it. Each product facility takes 3 years to develop.
- 3 - Production Teams: each team takes a developed facility for production, sales and marketing. Products are produced for 6 years at a fixed rate of 100 units per year, and then discontinued.

The business will last exactly 36 years, 6 for initial discovery and development and 30 production years, then decommissioned with existing production streams truncated. All teams are present the entire 36 years and can do all functions. Start them off as you deem optimal. At the end of each year you can promote teams from function 1 to 2, and/or from 2 to 3, but teams can never be demoted back. Once a team finishes their task, they circle back to the front of the queue for their respective function. Teams can be idle, but of course that is a source of inefficiency.

Question 1.) What is your allocation strategy for the 12 teams into the 3 functions throughout the 36 years to maximize production? Hint: Think best steady state allocation, then ramp-up and sunset phases.

Question 2.) Based on your above strategy, what is your estimate for mean annual production? (EV total units produced divided by the 30 production years, expressed in EV units per year)

Hint: Intuitive solutions using pencil, paper and calculator are perfectly acceptable. Well reasoned intuitive answers will be very close to the alternative of a mini-model using Monte Carlo.

Good luck!

