

London Decision Quality Conference 2018



The London Decision Quality Group, European Decision Professionals Network and Society of Decision Professionals are convening a multi-industry conference in London this year, under the theme.

“Decision Quality: Making Good Outcomes More Likely”

Behavioural science suggests that human nature favours decisions that satisfy (*eg just meets threshold targets*) rather than those that optimise. Often, value gets left on the table and worse still, may get destroyed, particularly when risks & uncertainties are involved.

This conference provides you with access to the knowledge and experience of internationally recognized Decision Professionals, who can help you master practical approaches which deliver quality decisions, thus enabling you to optimise rather than just survive.



The conference is followed by a short course on
“Leading Decision Quality”
sponsored by the Society of Decision Professionals.

Location: Geological Society London, Burlington House, Piccadilly, Mayfair, London, England, W1J 0BD

Dates: **Conference:** 5th & 6th November 2018 –
Short-course: 7th November 2018

To Register: www.edpn.org/wp/?page_id=571

DAY 1:

Monday 5th November

Appropriate
Frame

Creative,
Doable
Alternatives

Meaningful,
Reliable
Information
& Ranges

Clear
Decision
Criteria &
Trade-offs

Logically
Sound
Reasoning

Commitment
to
Action

8:15 *Registration*

9:00 *Welcome*

9:15 **What is DQ & why it is important?**

Carl Spetzler, CEO Strategic Decisions Group

10:15 *Break*

10:45 **Implementing DQ in BP**

Russell Smith, VP Global Concept Developments – Global Projects Organization, BP

11:15 **Defining an Appropriate Frame for Decision-Making: What problem are we trying to solve? What's the best way of going about that?**

Dr Cath Bishop, Olympic Rower, Leadership Consultant & Speaker

12:45 *Lunch and Software Roadshow*

14:00 **Avoiding Common Pitfalls of Designing Creative, Doable Alternatives**

Jeremy Brann, Head of Economic Excellence, Shell Exploration & Production

14:30 **Data Science and Decision Analysis as two complementary perspectives: A case study from AstraZeneca**

Jim Weatherall, Head of the Advanced Analytics Centre, Global Medicines Development, AstraZeneca

15:00 *Break*

15:30 **Understanding corruptions in your thinking and decision making – Mitigating cognitive biases**

Dominic Brittain, Principal at Dominic Brittain and Associates
Alison Nurton, Associate at Dominic Brittain and Associates

17:30 *Close*

18:30 - 21:00 **Reception** - Drinks, canapes and bowl food will be served at
The Royal Institution, 21 Albemarle Street



DAY 2:

Tuesday 6th November

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9:00 *Introduction*

9:15 **Be Clear About Your Goals**

Reidar B Bratvold, Professor of Decision and Data Analytics at the University of Stavanger and the Norwegian Institute of Technology

10:15 *Break*

10:45 **Logical and correct reasoning: When your only tool is a hammer, everything looks like a nail**

Ellen Coopersmith, Founder, Decision Frameworks

11:30 **Commitment to Action: To decide or not to decide...**

Ray Riddoch, Managing Director UK, Senior Vice President Europe, Nexen Petroleum U.K. Ltd

12:15 *Lunch and Software Roadshow*

13:30 **Solving a real problem**

Johannes Solzbach, Clustermarket; Barrie Rooney, Trozon; Charles Kirby, Dynium; Mark Weber, Grazer

15:00 **Embedding DQ: Panel session**

Panel includes: Colin McGill, Appraisal General Manager for Portfolio and Regions, BP; Craig Paveley, VP UK Developments, Nexen Petroleum UK; Jim Weatherall, Head of the Advanced Analytics Centre, Global Medicines Development, AstraZeneca

16:15 *Wrap up*

16:30 *Close*

SHORT-COURSE:

Wednesday 7th November , 9:00-17:00

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“LEADING DECISION QUALITY” –

Sponsored by the Society of Decision Professionals

The Society of Decision Professionals is proud to sponsor a very special leadership course offering to the European community. Past SDP presidents and decision professional fellows, Carl Spetzler, president of Strategic Decision Group and Ellen Coopersmith, president of Decision Frameworks have joined forces to provide this opportunity. Two key topics will be covered with interactive, facilitated discussions as concepts are shared for a uniquely focused and eventful day. This workshop is designed for an eclectic group: leaders wanting to hone their decision skills, and decision professionals looking to broaden their impact on their organizations and DQ management championship.

Everyday Decision Quality Leaders and Project Managers

Morning session

Leaders and project managers from all walks of life make important decisions on a regular basis, many of which cannot wait for formal, time intensive processes. To address this unmet need, we take the six essential elements of Decision Quality and ground today's leaders in how to apply them quickly with guides, tools and awareness to enable informed decisions. The goal is a rapid, quality way of thinking. The result is transformational leadership able to utilize Decision Quality BIG and SMALL.

Becoming an Effective Decision Leader with Decision Makers that Outrank You

Afternoon session

The second part of the day focuses on effective facilitation of decision maker conversations. As leaders of strategic decision projects, we face many challenges in driving to Decision Quality with Decision Makers that usually outrank us. We have to build conflict management skills and facilitation techniques that can be deployed in the moment. We have to speak truth to power – but in a way that our truth can be heard. We have to overcome biases and deeply held beliefs. We have to redirect advocacy into productive generation of alternatives and finding the best among those alternatives. In this session we will learn best practices based on many decades of experience, success and lessons learned.



EVENING RECEPTION:

Monday 5th November, 18:30 - 21:00

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Drinks, canapes and bowl food will be served. Guests will be welcome to explore the Faraday Museum on the lower ground floor

The Royal Institution, 21 Albemarle Street, London, W1S 4BS



You will be our guest at a drinks reception at The Royal Institution (Ri) on Monday night.

An imposing building with a neoclassical facade positioned in the heart of the affluent district of Mayfair, named after the 'May Fair' that was held here until 1764.

Founded in March 1799, with the aim of introducing new technologies and teaching science to the general public, the institution began its life in a single room with a garden and, as it quickly grew, the property was gradually extended, developed and improved. Now in the same location, but over 200 years later, the ethos and objectives for the institution remain the same.

The building has seen countless eminent figures from the world of science pass through its doors and also been the home of famous scientists, such as Michael Faraday, who have helped shape the modern world. The Michael Faraday Laboratory, a complete replica of Faraday's former workspace, is in the basement, alongside a working laboratory in which Ri scientists can be observed researching their current projects.

Today, the Ri continues to promote and communicate science to the general public, holding a rolling programme of talks and demonstrations in its lecture theatre.



What is DQ and why is it important?

Carl S. Spetzler, CEO and Chairman, Strategic Decisions Group

DQ is such a powerful framework for the creation of value that many decision professionals speak about their “conversion experience”. We adopt DQ as our lens for addressing virtually all decision situations. As decision professionals we bring our expertise to specific decisions, to the design of decision processes, to the training of decision makers, and to developing organizational capability that makes DQ part of the culture. Carl will share some highlights of his five decades of bringing DQ to many decision makers and organizations.



Implementing DQ in BP

Russell Smith, VP Global Concept Developments – Global Projects Organization, BP

BP employs DQ in two key areas: the sub-surface, particularly to justify data acquisition and in projects; this latter area is the focus of this talk. BP’s Global Project Organization (GPO) is focused on delivering safe, cost effective and competitive projects for the upstream business – we typically deliver 5-8 major projects per year.

The Global Concept Development group (GCD) inside GPO is responsible for helping choose the portfolio of future opportunities that BP will develop and for creating the most competitive concept for each selected opportunity. This talk will describe how BP uses Decision Quality to help with both these areas.

BP has found determining the main decisions a project needs to make is the key to developing workplans and ensuring that integrated teams remain focussed on producing the optimum value. Using Business Framing has proved a powerful way of determining these key decisions. Moreover, inviting partners and government agencies into these workshops has been key in gaining alignment from the start of the process.

Later in the project, simple but effective tools such as Concept Decision Matrices and Decision Quality Scoring are used to compare options and assess the quality of our decisions. Together with the Business Framing workshops, these have delivered transparent value-based decisions that hold throughout the life of the project.



Appropriate Frame

DEFINING AN APPROPRIATE FRAME FOR DECISION-MAKING –

What problem are we trying to solve?

What's the best way of going about that?

Dr Cath Bishop, Olympic Rower, Leadership Consultant and Speaker

Defining the problem that is to be solved and clarifying the process for doing so is an essential part of every important decision and one that can often be skipped over too quickly. It is easy to begin looking for a solution and jumping to conclusions before even understanding the problem that needs to be solved.

In a complex business where parameters can change constantly and large numbers of people can be involved, establishing greater clarity over the problem that needs solving is crucial to avoid heading off in the wrong direction or in too many different directions, and to ensure that everyone understands the basic 'exam question' that is being asked of them before plunging ahead.

In this presentation, Cath will draw on her experiences as an Olympic rower, former senior diplomat and now leadership consultant to demonstrate how our mindset, assumptions and biases affect how we define a problem. This will be an interactive session that brings to life the opportunities and challenges of ensuring we have correctly identified the purpose and scope of what we want to achieve, the way in which we want to go about achieving that, which includes fully understanding the different perspectives that others can bring.

Creative, Doable Alternatives

Avoiding Common Pitfalls of Designing Creative, Doable Alternatives

Jeremy Brann, Head of Economic Excellence, Shell Exploration & Production

It has been said that decisions only exist when you have two or more alternatives to choose from. In a two-alternative example, a decision only exists if both alternatives are actually doable and aligned with problem statement objectives, metrics, and decision criteria. In life, as in business, decisions often fall prey to the perception of creative, doable alternatives when no such alternatives have been defined.

This discussion will focus on two examples of the need to identify alternatives that are aligned with objectives, metrics, and decision criteria to yield fruitful results. The first example highlights a difficult task often undertaken in personal life: helping a teenager make a high-quality decision dealing with college choices. While not an uncommon task, this example has the twist of dealing with university athletics in the United States.

The second example deals with manufacturing choices for a new technology in the oil and gas industry. The oil price crash in 2008 led to some seemingly difficult choices in the Research and Development space. Upon closer inspections, not all the decisions were truly decisions as the framing and analysis processes never truly yielded creative, doable alternatives. Supplier contracts, schedule delay risks, and previous "givens" appeared to constrain the solution space. Reframing and refocusing on "doable" alternatives helped break down barriers to project success.

The discussion will address the need to push the boundaries of creativity within the walls of doability, thereby yielding a set of truly "mutually exclusive and collectively exhaustive" alternatives. Only by ensuring a set of viable alternatives exist can true Decision Quality be achieved.

Data Science and Decision Analysis as two complementary perspectives: A case study from AstraZeneca

Jim Weatherall, Head of the Advanced Analytics Centre, Global Medicines Development, AstraZeneca

Exponentially increasing drug development costs and ever-greater pressure on healthcare budgets, along with the complexity inherent in modern clinical trial design has compelled pharmaceutical companies to reconsider their modes of operation and decision-making processes. AstraZeneca has recognised Data Science (DS) and Decision Analysis (DA) as two complementary approaches to future proof its decision-making practices.

While they have a common objective to improve decision making the starting point of the disciplines tends to be different. DA places the human decision maker at its centre while DS focuses on what data is available to feed into computerised algorithms, which ultimately act in support of a human decision maker, or perhaps enable fully automated decision making. DS is becoming progressively more widespread in pharmaceuticals & healthcare, as well as many other sectors. Examples include the use of machine learning to predict beneficial response to treatment, neural networks that are proven to be more accurate than physicians at correctly evaluating medical images, and the state-of-the-art analytical capability is used to analyse the constant real-time stream of data originating from patients' wearable devices.

AstraZeneca has combined its DS and DA capability in a single department – the Advanced Analytics Centre, recognising that the different perspectives provided by DA and DS give rise to synergies which have the potential to greatly enhance corporate decision making.

Data scientists and decision analysts have been working closely together on some of the most pressing problems faced by AstraZeneca. Using advanced analytics and related methods DS maximises the potential of data by creating crucial insights. DA creates structure around the decision situation, complements data with expert opinions using rigorous elicitation techniques and leads the design & deployment of decision models.

Understanding corruptions in your thinking and decision making – Mitigating cognitive biases

Dominic Brittain, Principal at Dominic Brittain and Associates

Alison Nurton, Associate at Dominic Brittain and Associates

This interactive workshop aims to help participants understand how cognitive biases corrupt thinking and decision making, and explore techniques to mitigate their effects. At the end of the session, participants should have a good grasp of:

- The role of cognitive biases in corrupting thinking and decisions
- A concrete methodology to typify cognitive biases
- The biases participants might have
- Specific techniques to help them mitigate those biases

Participants not familiar with cognitive biases should visit www.cognitivebiassolutions.com/cognitive-bias-solutions-overview ahead of the conference.



Be Clear About Your Goals

Reidar B Bratvold, Professor of Decision and Data Analytics at the University of Stavanger and the Norwegian Institute of Technology

"If you don't know where you're going, any road will get you there". Lewis Carroll

It is impossible to choose rationally the best course of action in any given situation without having a clear idea of what the decision is intended to achieve. Therefore, an absolute prerequisite for rational decision-making is to ask, consider, and respond to questions such as: What are the real reasons behind making this decision? What do you fundamentally want to achieve? How do you define 'value' in the decision context? How will you assess or evaluate achievement? Are you clear about the priorities when there are multiple goals?

The purpose of the Clear Values and Tradeoffs dimension in the Decision Quality chain is to help define in a clear and explicit manner the decision problem that should be addressed and to stimulate creative thinking in modeling the decision throughout the decision process. Quoting Ralph Keeney, there are three primary ways that being clear about values and tradeoffs can lead to better decisions. First, it often results in a better set of objectives for evaluating the alternatives. Second, a value focus facilitates the creation of alternatives, some of which might be better than the readily apparent alternatives that have been previously recognized. Third, a value focus proactively defines decision opportunities that are more attractive to face than the decision problems forced upon us.

Objectives articulate the stated values more specifically and in a coherent manner focused on decision making. In evaluating what we want, we often find that we want multiple, often competing objectives. The mathematics of Multiple Objective Decision Analysis (MODA) is a powerful way to quantify the values, assess the tradeoffs, and evaluate the alternatives. This technique is appropriate when we have conflicting objectives, complex alternatives, and major sources of uncertainty.

In this talk, we will illustrate and discuss the relevance and practical applicability of the key concepts involved in choosing values and tradeoffs that are often missing in other approaches. We will also use real-world examples to discuss the challenges and opportunities in applying these concepts.

Logical and correct reasoning : When your only tool is a hammer, everything looks like a nail

Ellen Coopsmith, Founder at Decision Frameworks

Our goal with Decision Quality is to reach clarity of action through sound insight. This may not require full probabilistics for every decision evaluation. Rather, what we seek is an efficient means to understand the impact of the various options under consideration, only adding rigor when necessary to understand the tradeoffs. From common operational decisions to full strategic decisions, this session discusses different types of evaluation approaches and the insight they can bring to different types of decisions.



Commitment to Action: To decide or not to decide...

Ray Riddoch, Managing Director UK, Senior Vice President Europe, Nexen Petroleum U.K. Ltd

For the last few years, CNOOC Nexen's UK business has been developing its Decision Analysis capabilities in order to improve the quality of its decisions. The programme includes training of senior leaders on what a quality decision actually is, creating a cadre of local DA practitioners and changing processes to include DA tools.

However, having a good decision process is not enough – if we can't commit to action and effectively execute the decision then the "best" alternative is nothing more than potential value.

In this presentation, I will talk about a number of examples as well as what I expect to see as a decision maker. I will also discuss the advantages of having regular dialogue between decision makers and the project team to ensure there is an agreed frame to make sure we are solving the right problem, we consider a range of viable alternatives and ultimately build commitment and a plan for implementation.



Solving a real problem

Johannes Solzbach, Clustermarket; Barrie Rooney, Trozon; Charles Kirby, Dynium; Mark Weber, Grazer

Start-ups are no different to any other business facing big, important choices. What may be different is that start-ups face these sorts of decisions with great regularity. Like what is our value proposition, who are our customers, how do we radically improve our product? They face these decisions in the absence of a portfolio of established products, a fat bank account, brand, or established customer base, so getting it wrong could be the end of the venture. Four start-ups will present a dilemma they currently face and ask the conference for help on approach, ideas and content or analogues. The start-ups invited for this event are:

- Clustermarket led by Johannes Solzbach; creation of a digital market place to optimise use of lab-space
- Trozon led by Barrie Rooney; a non for profit with as an aim to provide radically low cost tropical disease diagnostics with initial focus on Chagas
- Dynium led by Charles Kirby; creating the 'brains' for autonomous tractors that increase yields, target use of pesticides at lower costs
- Grazer led by Mark Weber; A Sat-Nav for Learning; a new type of learning experience for a digital world



Embedding DQ: Panel session

Panel includes: Colin McGill, Appraisal General Manager for Portfolio and Regions, BP; Craig Paveley, VP UK Developments, Nexen Petroleum UK; Jim Weatherall, Head of the Advanced Analytics Centre, Global Medicines Development, AstraZeneca

What are the benefits of embedding a Decision Quality (DQ) approach to decision making in your company? How do different companies do this, what have they found works (or does not work) and why? Why should other companies consider embedding DQ? In this session, a variety of organisations will take part in a panel discussion on these important topics and discuss their journeys and learnings.

BIOGRAPHIES



Carl S. Spetzler

CEO and Chairman, Strategic Decisions Group

Specializing in strategy development, business innovation, and strategic change management, Dr. Spetzler has developed creative business strategies for major financial institutions, capital-intensive companies, high-technology manufacturers, regulatory agencies, and public entities.

Carl works with top management and boards of directors to improve the quality of decisions. He has led numerous senior executive seminars on strategic decision and risk management topics. He is a Life Trustee of the Illinois Institute of Technology and a director of the Decision Education Foundation.

Carl is co-author of *Decision Quality: Value Creation from Better Business Decisions* (Wiley, 2016). He received the Ramsey Medal (2014) and the Pioneer Award (2018) -- the highest honors awarded by the Decision Analysis Society and the Society of Decision Professionals. He is past president and a fellow of the Society of Decision Professionals.



Russell Smith

VP Global Concept Developments – Global Projects Organization, BP

Russell leads BP's Global Concept Development (GCD) team. GCD is accountable for delivering safe, cost effective and competitive projects by informing the right project selection and concept choices in BP's global front end portfolio. Russell is also responsible for maintaining and continuously improving BP's front end projects practice and capability world-wide.

Russell has 35 years of experience in the oil and gas sector. He spent his early career in subsurface and then asset management roles for BP in a wide variety of international locations, before becoming a project leader. Russell has subsequently held senior project leadership positions for BP in the UK, Australia, Alaska, Egypt and Indonesia.

Russell holds a BSc in Geology from the University of Wales, Swansea. He is a graduate of the Stanford e-Commerce Programme, the JMW Leadership Programs, and the BP/MIT Projects Academy.





Dr Cath Bishop

Olympic Rower, Leadership Consultant and Speaker

Cath is an experienced leadership speaker and consultant who draws on her unique combination of experiences as an Olympic rower and former senior diplomat to support organisations and businesses looking to raise performance and develop effective leadership.

Cath competed at three Olympic Games, and became World Champion and Olympic silver medallist in 2004. As a diplomat specialising in conflict stabilisation, Cath was posted to Sarajevo, Bosnia, Basra and Iraq, as well as working in Whitehall leading on the UK civilian contribution to stabilising conflicts around the world.

Cath now works with companies and business schools, looking at how we can use our mindset, behaviours and relationships with others to sustain high levels of performance, improve our decision making and build effective teams.



Jeremy Brann,

Head of Economic Excellence, Shell Exploration & Production

Jeremy Brann, PhD, is the Head of Economics Excellence for Shell Exploration & Production Co. in Houston, TX. Jeremy has been in the oil & gas industry for 13 years, primarily working to improve the decision-making capability of the businesses he supports.

His current global group provides Decision Analysis services to improve Decision Quality across Shell's portfolio, including the Upstream, Integrated Gas, and Downstream directorates. He is also part of the Economics Discipline Leadership team and works to improve the functional capabilities of the Economics teams across the globe.

Jeremy holds a BBA in MIS, MBA, and PhD in Operations and Supply Chain Management from Texas A&M University. He was a Microsoft Certified Programmer and Trainer. In his spare time, Jeremy enjoys playing golf, fixing cars, watching football and futbol, and spending time with his family time.





James (Jim) Weatherall

Head of the Advanced Analytics Centre, Global Medicines Development, AstraZeneca

Jim is Head of the Advanced Analytics Centre in Global Medicines Development at AstraZeneca, a diverse and global group focussed on their mission of “transforming the development of medicines through applied data science”.

He is committed to driving the application of advanced analytics as a way of unlocking the full potential of data – through data & text mining, machine learning & artificial intelligence, visual analytics, modelling & simulation, advanced statistical methods, and exploration of new technologies.

Jim is an Honorary Reader in Computer Science at the University of Manchester, and Vice-Chair of the Data Science Section at the Royal Statistical Society.



Dominic Brittain

Principal at Dominic Brittain and Associates

Dominic has over thirty years' practical leadership experience in extreme situations. By the end of his bomb disposal service in 2011, he had personally defused well over a thousand explosive devices on dry land and underwater.

He commanded the bomb-disposal unit in Hong Kong for 13 years. Over his last two decades of service, he was responsible for training and developing an entire generation of bomb-disposal leaders, from countries across the world. A core part of his approach was to help operators identify their cognitive biases, then learn to mitigate them when under intense pressure.

Since 2007, Dominic has worked as an international leadership consultant. In 2014 he designed and developed an online test to measure the cognitive biases of senior executives. Since then he has delivered workshops to clients worldwide helping them to clarify their strategic thinking through understanding and mitigating the effects of their cognitive biases.



Alison Nurton

Associate at Dominic Brittain and Associates

Alison has over 20 years' experience working in banking and commercial environments including setting up and running her own retail business. As a qualified management accountant, she is used to delivering commercial insight to drive business decisions, analysing the finest level of detail whilst keeping the bigger strategic picture in mind.

Her passion for driving positive change that continuously delivers added value led Alison to move into roles coaching other businesses. Discovering the world of cognitive bias and the effect it has on strategic decision making at a senior level led her to seek out methods to understand the types of bias facing senior managers and find ways to mitigate them.

Alison has since qualified as a member of the Hogan Independent Consultants Network and has also trained with Dominic Brittain to qualify in delivering and analysing his bespoke Cognitive Bias Test.



Reidar B Bratvold

Professor of Decision and Data Analytics at the University of Stavanger and the Norwegian Institute of Technology

Reidar B Bratvold is a professor of decision and data analytics at the University of Stavanger and the Norwegian Institute of Technology. His research interests include decision analysis, data assimilation and analytics, portfolio analysis, real-option valuation, and behavioral challenges in decision making.

Prior to academia, he spent 15 years in the industry in various technical and management roles. He is the author of the SPE book Making Good Decisions. Professor Bratvold has three times served as an SPE Distinguished Lecturer. He is the 2017 recipient of the SPE Management & Information Award and was the executive editor for the SPE Economics & Management journal. He is a Fellow of the Society of Decision Professionals and of the Norwegian Academy of Technological Sciences.

He holds a PhD in petroleum engineering and an MSc in mathematics, both from Stanford University, an MSc in petroleum engineering from the University of Tulsa and has business and management science education from INSEAD and Stanford University.



Ellen Coopersmith

Founder Decision Frameworks

Ellen Coopersmith is an expert in decision quality and decision analysis implementation and its practical application in multiple industries. She consults, facilitates and trains organizations across the globe, utilizing her extensive experience in strategy development, scenario planning, decision framing, facilitation and value of information.

An engineer by degree from The Colorado School of Mines, Ms. Coopersmith has specialized in decision analysis for the last 25 years. As of 2018, she's trained over 7,000 professionals while assisting companies with both corporate and project level strategic decisions. Ms. Coopersmith is the president of Decision Frameworks, a decision quality enablement firm providing consulting, training and software around the globe.

She was the 2017 – 2018 president of the Society of Decision Professionals, a published speaker on decision analysis, a Professional Engineer and SDP Fellow.





Ray Riddoch

Managing Director UK, Senior Vice President Europe, Nexen Petroleum U.K. Ltd

Ray is the Managing Director UK and SVP Europe of Nexen Petroleum U.K. Limited, a wholly owned subsidiary of CNOOC Limited.

He has over 30 years of experience in the global Oil and Gas industry, mostly in production operations but has held senior roles during extended assignments in business development, human resources, audit, facilities engineering, major construction projects and Health, Safety and Environment.

During his career he worked for Occidental Petroleum, and thereafter Elf, during which time he was an Offshore Installation Manager on two North Sea installations before assuming the responsibilities of Field Manager for the Piper and Saltire fields. Thereafter, he was appointed Operations Manager for Total E&P UK Ltd's Elgin Franklin field, which at the time was the world's largest HP/HT gas field and held this position during the design, construction, and commissioning and production start-up of the installation.

Following an international posting, he was appointed to the executive committee of Total E&P UK Ltd, as HSEA Director, where he remained until joining Nexen in 2011 as Planning and Performance Manager. Within Nexen, he moved into the roles of Regional Operations Manager and UK Operations Director, and as Managing Director in 2015.

Ray is currently the Co-Chair and a Director of OGUK, a Director of the Oil & Gas Technology Centre and the Scottish Council for Development & Industry. He is a core member of the Oil & Gas Authority [OGA] MER Steering Committee.

He also holds the position of the Prince of Wales' Scottish Ambassador for Business in the Community. He is a past Director of the Scottish Chamber of Commerce, OPITO and the Offshore Training Foundation, and a past member of the Scottish Governments Energy Taskforce, Step Change in Safety Leadership Team and the OGA Asset Stewardship Taskforce.



Johannes Solzbach

Co-founder and CEO, Clustermarket

Johannes Solzbach is co-founder and CEO at Clustermarket, an online sharing marketplace helping scientists and engineers to get easy and affordable access to equipment and services. The equipment and services listed on Clustermarket are offered by universities and other research institutions. The platform creates transparency within public and private research organisations and a link between the excellent academic science base and the industry.

Prior to co-founding Clustermarket in late 2015, Johannes worked in Corporate Finance for EY and Baader Bank. Johannes holds a Master in Finance from Hult International Business School (London & Shanghai) and a B.S. in Computer Science and Business from University of Augsburg (Germany).



Barrie Rooney

Trozon

Dr Barrie Rooney is an internationally renowned specialist on neglected tropical diseases (NTD's) and won the Innovator of the Year Award. Barrie's scientific interests are focussed on the use of biotechnology to make low cost point of care diagnostic tests for parasitic diseases affecting remote populations worldwide. Her commitment to open access research and the wider implementation of technologies is demonstrated by the recently established charity TROZON X.

Barrie previously worked for the Pharmaceutical industry before setting up the Biotechnology company ExCyte Ltd, which characterised new drug targets emerging from the human genome project. She has also worked with MSF on a range of humanitarian projects including a drug trial for Sleeping Sickness and the mapping of the disease around central African rainforests. Barrie collaborates widely with organisations such as the World Health Organisation (WHO), World Organisation for Animal Health (OIE), and manufacturing companies active in tropical medicine.



Charles Kirby

Dynium

Charles Kirby has a degree in Economic History from the London School of Economics, a master's in management, Innovation and Entrepreneurship from Imperial College Business School, and a degree in Electronic Engineering from Warwick University.

Charles worked on vehicle ECU communication protocols focused on fault tolerance at Warwick Manufacturing Group, and on the new FlexRay automotive networking protocol to be used by a local large volume car manufacturer. After University, Charles worked on engine ECU management and fault diagnosis at a niche vehicle developer.

Charles is from a farming background and noticed that farmers were being inundated with crop statistics from drones and satellites but lacked the autonomous vehicles to make use of the data. He founded Dynium Robot with the vision to enable any farmer to adopt fully automated farming with seamlessly integrated data collection, analytics and precision systems. This would reduce the dependency on labour, reduce the use of energy and pesticides, and implement precision solutions against diseases.





Mark Weber

Grazer Learning

Mark founded Atticmedia in 1996, building it up to become one of the UK's top 100 digital agencies. Under Mark's leadership Atticmedia rapidly specialised in digital learning and became well known for innovative and cutting edge digital learning solutions, with clients as varied as PwC, BBC and DfE.

Mark was heavily involved in BBC Janala, a mobile language learning service that reached over 25m learners in Bangladesh. Atticmedia has now been running for 21 years, and a few years ago Mark stepped aside to pursue additional interests. After a couple of years as interim digital director at Save the Children, Mark raised seed funding for Grazer Learning, a radical new social learning platform.



Colin McGill

Appraisal General Manager (AGM) for Portfolio and Regions, BP

Colin is accountable for the front end of all major projects in most of the Eastern Hemisphere, a portfolio of more than \$10 billion of projects.

Colin holds an M.A in Physics from Cambridge University, a D.Phil. in Theoretical Physics from Oxford and is a graduate of BP's Projects and Engineering Academy. He joined BP 26 years ago and has worked in a variety of technical and leadership roles across E&P.

After 5 years as a cosmologist, Colin started his BP career in the Sunbury Research Centre as a reservoir engineer, carrying out research into stochastic reservoir description and permeability upscaling.

In 1996, Colin moved to the In Salah gas team in Uxbridge and was part of the appraisal programme as a reservoir engineer. Three years later, Colin was fortunate enough to be posted to Melbourne to help look after BP's interests in the North West Shelf, before a 3 year posting to China to help with a technical/legal dispute over reserves in the Yacheng field, supplying gas to Hong Kong.

In 2003, Colin and his family returned to the UK as part of the Angola team. After a brief spell as the Angola LNG technical manager, Colin led the strategy team which devised the Angola Programme, the idea being to develop up to four projects using standardised equipment. During the following four years, Colin helped put this strategy into practice as the AGM for Select, looking after the Platina Chumbo development in Block 18, and Block 31 SE.

In 2009, Colin moved to become the VP Resource for North Africa, accountable for the production from BP's joint ventures in Algeria, and for the appraisal of a tight gas project in the Sahara. In 2013 he became responsible for helping projects enter BP's Global Project Organisation before moving to his current role in 2015.





Craig Paveley

VP UK Developments, Nexen Petroleum UK

Craig joined Nexen Petroleum in 2010 and, after a number of roles, became the VP Development in 2014. In this role he is accountable for leading development projects and asset stewardship in maximizing economic recovery and supporting exploration. His remit also includes leading strategy development and the embedding of Decision Quality into the organization.

He has a degree in Chemical and Bio Process Engineering from Bath University and started his career in facilities engineering with BP. Facilities engineering was not for Craig so he joined Shell International as a Petroleum Engineer working in Holland and then Angola.

Following Shell Craig contracted for 10 years in BG in a number of roles: Chief Production Technologist, Regional Well Engineer for UK, Bolivia, Norway, Brazil and Trinidad supporting operations and assurance. Craig then co-owned a small consultancy, eventually selling to Petrofac leading to the move to Nexen.





