

THE SCIENCE OF BETTER AT THE HEART OF ANALYTICS

# INSIDE O.R.

NOVEMBER 2014 NO 527



## COUNTERFEIT GOODS

:: INSIDE THIS MONTH :: :: :

YOUR FLEXIBLE FRIEND  
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ANALYTICS FOR HIRE!  
IOT STANDARDS

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# EDITORIAL

**JOHN CROCKER**

This month's theme seems to be one of communication. There is nothing deliberate or planned in this, but it is an aspect of O.R. that is receiving a lot of attention at present not least because our Society is slowly shrinking, in terms of membership numbers. Having said that, our social media presence seems to be growing – more people have connected to the Society's LinkedIn Group than there are members. Facebook and Twitter are also attracting increasing numbers. This year, we have made membership free to fulltime students – the problem then is convincing them to stay after their courses have finished. At the other end of the scale, some analysts who move out of O.R. into more senior management positions (such as Richard Cousins – see News in Brief) may feel that they are no longer involved in O.R. and yet, these are the people who are most likely to make use of services of their O.R. teams.

There have been a number of initiatives recently that have been aimed, if not primarily, certainly as a major by-product, at making O.R. better known. The roles of Louise and Felicity are both very much aligned with spreading the word. The Making-An-Impact Days at recent conferences have also been aimed at improving communications between academics and practitioners. In OR-30 (*ibid*), John Sussams suggested that it typically took some twenty years for research to find its way into practice. Graham Rand's article '*Impact*' (*ibid*) is about a new publication that the Society is about to launch which will hopefully ensure that this gestation period is greatly reduced. It is doubtful that many practitioners read many, if any, papers published in *JORS* (or indeed *KMRP*, *JOS*, *EJIS* or *HS*) – the titles seem to bear little relation to real world problems and the maths is often unintelligible to anyone who has not just graduated. By concentrating on the types of problem a piece of research might be used to solve, *Impact* should provide practitioners with a useful source of information that should not tax our brains unduly or take up too much of our time. By using professional writers, it is also hoped that the articles will be much easier and more enjoyable to read.

In the articles on the Third Sector and Pro Bono you will see that none of the projects, so far, have led to a 'hard' O.R. solution – i.e. none has resulted in building a mathematical model. In most cases, the problems have been resolved by using facilitation, sometimes leading to some form of cognitive mapping. Indeed, this year's President's Medal was awarded to a team for their work towards the Munro Report, which was again best described as 'soft'. Could it be that O.R. is turning soft in its old age?

At the other end of the scale, Ben Atkinson is looking for some cheap, easy-to-use software that he can use with certain types of polynomial expressions so maybe there is still some hope for us diehards after all.

I believe there may still be a few places at this year's Blackett Lecture, please look out for the fliers.

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# ANALYTICAL THINKING

**NIGEL CUMMINGS**

At OR56, Dame Ursula Brennan, Permanent Secretary at the Ministry of Justice provided the closing plenary entitled 'The need for analytical thinking in policy development'. As 'a passionate believer in data and analysis and research and evidence in government', Dame Ursula provided the perfect closing plenary.



Dame Ursula Brennan

After a long and varied career in various branches of the Civil Service, Dame Ursula believed that it was not always clear that the Civil Service made the best use of data and analysis across Government.

Only recently 'gaps' had been recognised in the abilities of policy makers to understand and manage information. Analytical teams were not always engaged early enough by policymakers and perhaps as a result of this, information was all too often presented in ways which did not help the decision making process.

In view of these gaps there has been an emphasis in recent times to make better use of analytical teams, to grow the data and analysis skills of the policy profession, and to, 'really reinforce the importance of analytical thinking'. The government had already published guidance to this effect to illustrate how analysis could play an important role in the early stages of the policy cycle through to the development of policy. Analytical thinking was vital to assist in the clarification of requirements and objectives in policy-making. Additionally it played a key role in stimulating creative thinking to identify potential policy options.

Dame Ursula then said there was a tradition in government, of placing some tasks into third-party organisations, by too often

opting for the cheapest solution not the best. This is changing: government departments now work more closely with analysts to determine the most effective solutions provided by external contractors. This was not without its complications though.

In the course of her plenary Dame Ursula presented a selection of case studies which illustrated how the use of O.R. techniques could assist the policy making process. The examples given, focused on problem structuring methods from national, sub-regional and local levels.

One example concerned a 'linked data' case study about the London riots of 2011. Disturbances began on 6 August 2011 after a protest in Tottenham following the death of Mark Duggan, a local who was shot dead by police on 4 August. The protest quickly escalated to a series of riots which persisted until 11th August. A large amount of data-sharing took place in record time between DfE and DWP. Analysis of this data allowed for a rapid understanding of the socio-economic backgrounds of those involved. The Home Office collected arrest information from the 10 police forces experiencing the most extensive disorders and by early September these forces had arrested almost 4000 people. (*This work received a Civil Service Award and a Royal Statistical Society award.*)

Another example involved the collection of fines from offenders who had multiple separate accounts. Some 380,000 duplicate accounts were identified by using text matching with various algorithms. Consolidation of these helped to reduce work for the enforcement teams involved, improved the collection of fines and maximised time spent chasing recoverable debts.

In closing, Dame Ursula said. 'We had come an awfully long way from the era when research and analysis was something that specialists did. [...] one of the great things about bringing people together is that they have new and interesting ideas. [...] working with analysts is [...] exciting, because it is always making me think even when it might not provide exactly the answer to the problem, but it sparks off something where you can help me in a way that I didn't realise was possible before.'

Dame Ursula talked about many examples where the use of analytical methods had made a difference. A video of her presentation is now available on the OR Society website.

## Every Little Helps

Tesco has appointed Richard Cousins as a non-executive director. Richard is a member of the advisory board of Lancaster University Business School. He also holds a BSc in mathematics from Sheffield University and an MA in Operational Research from Lancaster University.



Richard is well known for his involvement in Compass the FTSE 100 catering group which was arguably facing even greater problems than Tesco is today. A series of profit warnings had dented the shares and the company was embroiled in allegations of corruption.

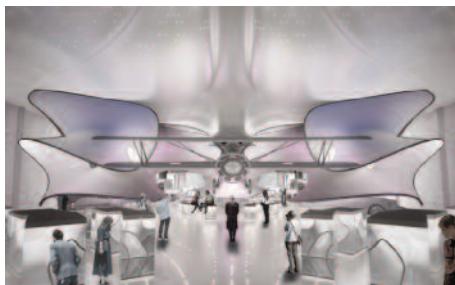
Richard set about scrapping layers of management and eliminating incentive schemes that motivated divisional bosses to focus on sales rather than profits and cash flow. His no-nonsense strategy of controlling capital expenditure and working capital may well be Tesco's salvation. More information about Richard Cousins is available at: <http://bit.ly/1CpYE1X>

## NHS PhD Studentship

A new PhD studentship supported by NHS in South Devon and Torbay Hospital is now available. EU/UK level fees will be paid, together with a tax-free maintenance grant of £13,863 per annum for three years (at 2014/15 rates). PhD studentship to start January 2015. Dates for interview 10th November 2014 in Torbay. The student will be based at the Centre for Innovation and Service Research (CISR), University of Exeter Business School. Further details can be found here: <http://bit.ly/1stPOxA>

## New Mathematics Gallery

The David and Claudia Harding Mathematics Gallery due to open in 2016 will form part of the Science Museum, in South Kensington. David Rodney, of 'Code Breaker' exhibition fame has been appointed its first curator. The gallery has been designed by Zaha Hadid Architects who recently designed the 'Collider' exhibition.



Secretary of State for Culture, Media and Sport, the Rt Hon Sajid Javid said, 'Mathematics is an absolutely vital part of a rounded education. So it is great news that the Science Museum is to have a new gallery, helping to bring it alive and make it meaningful for everyone.'

## Maths in Wales



**cymru**

The Welsh Assembly has said that its recent changes to education have been developed by working with businesses. The report, Step Change, said it was extremely worrying that around a third of businesses in Wales expect difficulties in recruiting people with a science, technology or maths background.

The report also calls for a vocational A-level in Wales to go alongside the academic qualification. The CBI says raising education standards must be an 'economic and political imperative'. A possible outcome of this is that Maths and English may become compulsory for post-GCSE pupils who stay in education until they are 18.

More information on: <http://bbc.in/1zdaUqk>

## Analytics is mandatory

According to a new survey from Robert Half Management Resources, 61% of Chief Financial Officers (CFO) said expertise in business analytics, such as business intelligence and data mining, is mandatory for some or all of their accounting and finance employees. Paul McDonald Senior Executive Director for Robert Half said 'the ability to identify and interpret key data trends has gone from 'useful' to 'mandatory' in accounting and finance. Firms increasingly rely on their financial teams to deliver strategic guidance and data-driven recommendations. This demand will only accelerate as companies are able to tap into greater volumes of information.'

A recent survey among CFOs indicated that only 9% felt that analytics skills were not necessary.

More information on this survey can be found at: <http://bit.ly/1CHHuPf>

## A-level reform threatens maths uptake

Government advisers on A-level reform have warned that de-coupling the AS level from the A level could 'seriously damage' the uptake of mathematics. The move has been opposed by teachers, academics, and leading universities.

The A-level Content Advisory Board (ALCAB) said that a move to the traditional A-level, with examinations only taken at the end of a two-year course, could threaten the recovery in numbers which this year has seen maths overtake English as the most popular A-level for the first time.

# IN BRIEF

05



Professor Richard Craster, Professor of Applied Mathematics, Imperial College, warns that a decrease in the uptake of A-level maths, particularly Further Maths, would mean that disadvantaged students had less chance of getting into the very best universities.

More info can be seen in a video on YouTube at: <http://bit.ly/1wc54I9>

## The RSS Data Manifesto

'What steam was to the 19th century, and oil has been to the 20th, **data** is to the 21st. It's the driver of **prosperity**, the revolutionary resource that is **transforming** the nature of social and economic activity, the **capability** that differentiates successful from unsuccessful societies. The Data Manifesto of the Royal Statistical Society is aimed at helping government understand what it can do to **make the most** of the data opportunity.' The Manifesto goes on to set out a number of guidelines that are intended to improve policy making, democracy, trust and prosperity.

## Local O.R.

The first time is Innovation - the second onwards is Tradition. 'Making An Impact' has traditions of speed networking and poster sessions. The posters offer problems and solutions. I, Ian Mitchell, Past Mayor of Amesbury (and hence of Stonehenge) have both.

Stonehenge is in the Parish of Amesbury in Wiltshire as is part of the A303, with its

queues and consequent rat-running (see <https://m.facebook.com/A303Runner>). This year David Jacques, Buckingham University, discovered evidence that Amesbury is the oldest settlement in the country, almost 10,000 years old well before Stonehenge was built or, indeed, the A303. How could this heritage be applied to the local economy?

We have hundreds of houses appearing yet shops struggle for sales. We need analytical support to help the Neighbourhood Plan for the Amesbury Community Area. OR55 set the groundwork with an exploration of options for the development of the Amesbury History Centre for a summer MSc project at Nottingham. OR56 elicited new contacts so I hope that this innovation will become tradition.

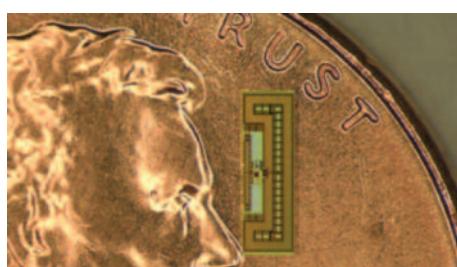
To find out more contact [IanMitch1@gmail.com](mailto:IanMitch1@gmail.com)

## Half and half

FullSIX's research, based on the responses of 7,000 shoppers, indicates that 52% do not currently buy online (i.e. they only buy in-store). It also reveals that 37% of the UK's biggest retailers have a higher digital traffic than their physical stores. Company websites, it seems, are viewed largely as shop windows, not as actual purchasing gateways. If you would like to read more about this research, please take a look at: <http://bit.ly/1w8VY7V>

## Ant-sized electronics

Research at Stanford University has led to the manufacture of a radio chip the size of an ant (see picture). These tiny chips are powered by harvesting radio signals and are small enough to fit on household gadgets.



The hope is that device-makers will use them in devices designed to function in the Internet of Things (IoT). Devices could be

used to 'silently' link CCTV systems, intruder alarms and remote emergency communications equipment. They could tell the emergency services whether there is anyone in a house that is on fire and, if so, in which room. They could also 'follow' you around the house, switching lights and heating on and off as you move from room to room; activate the 'maid' when you spill something or; monitor the contents of your refrigerator, freezer or larder and reorder stocks when they get low.

## Mobile Analytics

Kochava, a mobile analytics and attribution company based in Idaho, have hired a three-member data scientist team to help its customers avoid retargeting fraud and gain insights from the vast amounts of data needed to drive successful mobile ad campaigns. Mobile analytics technology provides brands and marketers with detailed intelligence on consumers' buying habits and where best to focus and deploy campaigns.



Two types of data scientist are being targeted: those that are involved in 'scaling' how we can record and measure data coming into servers to and from sources such as 'the cloud' and; data scientists who are more concerned with day-to-day business intelligence applications.

Related article information can be viewed at: <http://prn.to/11tpIsh>

## Into the Clouds

RapidMiner has announced the general availability of RapidMiner Cloud. A new product which is said to provide an easy, low cost way to facilitate analytics processing to the Cloud; leverage over 300

popular Cloud data services and; provide access to analytic processes anywhere in the world.

emerge and in the implementation of appropriate controls. (see: <http://bit.ly/1stQ3sy> )



RapidMiner Cloud provides a powerful new predictive analytics environment which offers its users analytics pervasiveness and 'anywhere, anytime' accessibility to Big Data. Pricing for RapidMiner Cloud starts at \$39 (around £24) per month for connectors and a repository, and as low as 39¢ (24p) per minute for processing.

More details on: <http://bit.ly/1CpZ8oF>

## ISO 28000 for supply chains

ISO 28000, the international standard for supply chain security, provides assessment of supply chain security risks, assistance in the management of new threats as they

## Right-to-be-forgotten

Apparently Google has removed 498,737 links from search results since May this year, under the European 'Right-to-be-forgotten' law which requires links to irrelevant and outdated data be erased on request. (Around 10% of these came from the UK.)

More information on: <http://bit.ly/1qbZhHu>

## The first O.R.?

According to Professor Niall MacKay, Admiral Sir Frederick Dreyer referred to '...thoroughness...in Tactical and other war Operations Research is just as necessary as in Research in material'. This was found in a document called 'A plea for the thorough study and analysis of war reports' in a file (DRYR 7/2) at the Churchill Archives Centre. Although not dated, there is strong evidence to suggest this was no later than 1931 so could very well be the first recorded usage of 'Operations Research'.

## September's IFORS News –something for everyone!

See <http://ifors.org/web/september-2014-newsletter/>

This edition is packed full of interesting items including: a practice article on Disaster Risk-Sensitive Shelter Planning in the Philippines (one of the finalist papers in the O.R. for Development Prize competition); an announcement of the winners of the Prize competition; an article on evolving application areas of O.R.; announcements of the nominees for President and Vice President of IFORS for 2016; calls for hosting the 2020 IFORS conference; details of a new journal of Strategy Science; a book review of 'Analytics across the Enterprise' (about IBM); a tutorial on O.R. for remote sensing (lots of equations included!); calls for applications for scholarships to attend Summer Schools in Hungary (June 2015) and Ecuador (Feb 2015: NB most of the lectures will be in Spanish!); and much much more – including of course details of the EURO conference to be held in Glasgow next summer!

SUBMIT YOUR  
IN BRIEF STORIES TO  
[InsideOR@theorsociety.com](mailto:InsideOR@theorsociety.com)

IN BRIEF articles compiled by  
John Crocker and  
Nigel Cummings

::::: IN BRIEF :::

WHERE ARE THEY NOW?

The following members on the Society's mailing list have recently had their mail returned to the Membership section, presumably because they have changed their address.

Would any member who is currently in touch with them please ask them to email [Carol.Smith@theorsociety.com](mailto:Carol.Smith@theorsociety.com) advising us of their current whereabouts so that we can update our database and return to a speedy and efficient service.

Dimitrios Valsamidis  
Elliott Parsons

London  
Bristol

Baders Alawwad

Portsmouth



# Career development training

*Approved courses in O.R. and Analytics*

## AGENT-BASED MODELLING: WHAT, WHEN AND WHERE

**4-5 November, Birmingham**

**£1,150 + VAT** for OR Society members

**Hands on course**

**Course provider:**

David Buxton

This is a practical course aimed at developing expertise in agent-based modelling and simulation (ABMS). You'll gain practical experience of how to develop and implement agent-based simulation models and how to interpret the model outputs. You'll also understand how to exploit the huge volumes of new data available to add an extra level of model granularity and learn how to tell the difference between good, bad and dangerous models. You'll learn:

When and why to use the main modelling paradigms (DES, SD and ABMS); General principles and techniques used in modelling and simulation; Design methodology for ABMS; an introduction to the AnyLogic simulation tool.

## USING SOFT SYSTEMS METHODOLOGY

**13 November, Birmingham**

**£550 + VAT** for OR Society members

**Course provider:**

Mark Westcombe

A practical course for those wishing to develop expertise in applying Soft Systems Methodology (SSM). We look at the application of SSM for problem structuring within complex projects, and how to use the approach for planning the project process.

The practical skills of applying SSM; Using SSM for thinking about and planning projects; The importance of process and process facilitation; Using SSM models to improve dialogue and decision making; Direct application of SSM in the delegate's workplace

## PRACTICING SOFT SYSTEMS METHODOLOGY

**14 November, Birmingham**

**£550** for OR Society members

**Course provider:**

Mark Westcombe

This is a practical course aimed at furthering expertise and confidence in the use of Soft Systems Methodology (SSM). The course develops the skills learnt in the 'Using Soft Systems Methodology' course [Course 320] and it may be combined to form a two-day programme. Alternatively, it can be used as a stand-alone day to refresh skills or to gain feedback on using SSM.

Further practice in the application of SSM techniques; Enhanced understanding of the use of SSM in practical situations; Guidance on using SSM techniques with delegates' own work based problems; Discuss application of SSM in the workplace; Gain expert feedback on your use of SSM

## AN INTRODUCTION TO OPTIMISATION WITH FICO XPRESS

**18-20 November, FICO offices,  
Birmingham**

**£1,800 + VAT** for OR Society members

**Hands on course**

**Course provider:**

Andrew Harrison

This introductory course will enable you to gain knowledge on how to use FICO Xpress and FICO Xpress-Insight to make powerful decisions. You'll gain familiarity with optimisation models and techniques as well as the terminology used to describe them. We will provide you with an understanding of the Xpress-Mosel model programming language and familiarity with Xpress-IVE

Discover how to exploit the power of optimisation using a state-of-the-art, robust, reliable optimisation engine; Use FICO Xpress to solve ultra-large problems and gain value from Big Data; Gain hands on experience of how to formulate business problems as optimisation models and solve them using FICO Xpress; Deploy optimisation models to gain Xpress-Insight into business problems

## COMING IN MARCH 2015

- |    |  |       |  |
|----|--|-------|--|
| 5  | Facilitation Skills  | 17-18 | The Collaborative Approach to Simulation Model Building      |
| 10 | Essential O.R. Skills for Practitioners                            | 25    | Using Soft Systems Methodology                               |
| 11 | Organising and Presenting Data In Excel                            | 26    | Practicing Soft System Methodology                           |
| 12 | Improving Quality and Performance with the public sector scorecard | 30-1  | Simulation: A Practical Guide to Developing and Using Models |

**For details of all courses and to book online, visit  
[www.theorsociety.com](http://www.theorsociety.com)  
or call Jennie Phelps on 0121 234 7818**



# YOUR FLEXIBLE FRIEND

**NIGEL CUMMINGS**

'The analytics behind the day in the life of a credit card'



Andrew Jennings, FICO explained to a full auditorium at OR56 how and why Analytics has seen widespread adoption in retail banking as a means of verifying the veracity of clients, their creditworthiness and detection of fraud.

The most advanced application of analytics in banking can be found in credit card management. Today analytical models drive everything from who gets a card, under what terms, authorisation of transactions to credit to combatting fraud and providing insight into how delinquent accounts are treated.

The success or failure of the credit card operation of any retail banking corporation lies in its ability to compete on the strength of its analytical capabilities in predicting creditworthiness and allocating funds to the 'right kind of user'.

He said, 'Analytics is here and analytics is going to drive business advantage. The key thing in analytics I think you will appreciate, is modelling in a theoretical sense and then there's models and decisions and making models available to drive decisions. What we're focused on at FICO is that latter part – how do we understand the analytics that are required for a given decision and how do we

get that analytic to point the way to how the actual decisions are to be made?'

Credit cards were the single most successful personal finance product ever invented. The reasons for this were many – users liked them because they were convenient, accepted by huge numbers of businesses and allowed them to manage their finances more effectively.

But a lot of their success lay in finance companies understanding their customers and the risks involved in granting credit to them. This was never an easy task, but with analytics in place it was possible to estimate the risks involved and provide useful 'real-time' feedback during the credit card application process in milliseconds. Analytics technologies could determine from the inputs given by applicants for credit, whether or not they were risk laden and if it was safe to proceed with granting credit.

Appropriate data and building the best and most successful models required an understanding of the basics of statistical experimentation. Regulation from within the industry and operational constraints were ultimately factors that determined the value of the insight they delivered.

When applying analytics to the credit card industry it was also useful to have a 'roadmap' off the processes involved. This roadmap encompassed descriptive and predictive analytics and decision optimisation.

How do I use data to learn about my customers?  
Who are my best/worst customers?  
How do they react to the myriad ways I can touch them?  
How do I leverage this knowledge to extract maximum value from my actions?

Consideration had to be given to customer lifecycle too, analysis and the decisions associated with it did not stop at the moment credit was allocated. Decisions take place across the entire lifecycle of the customer. Managing a credit card relationship is an understanding of risk. For example, pattern analysis is being used to reveal unusual behaviours, both in individuals using credit cards and ATM's which were detected to be in use outside of their usual transaction range.

A complete video recording is available on our website.



## CIVIL SERVICE INDUSTRIAL PLACEMENT

**WALEED BACKLER**

As part of my 'sandwich degree', I recently undertook a one-year industry placement with the Department of Health and NHS England in Leeds, United Kingdom.

The main aim of NHS England is to improve the health outcomes for people in England by delivering high quality care for all, now and for future generations. I worked in the Patients and Information Directorate in the Analytical Services Team which deals primarily with data generated by patient opinion; capturing 'what patients think and feel' about the care they receive. My role was to analyse survey and other datasets in order to gain information and insight on patient experience and outcomes across a variety of clinical services. I used various [O.R.] methods including optimisation to narrow down the questions in the patient experience surveys that were the most likely to inform us of the qualities in a hospital environment etc. My team also undertook predictive modelling so that we could forecast the number of patients that would make use of online services in the coming months. This includes being able to book appointments as well as being able to order repeat prescriptions online. Using statistical packages such as SPSS I was able to undertake complex multivariate analysis to investigate relationships between variables within and between our core datasets. I also specified and created tools based on user requirements which allow our customers to understand trends in the data more easily and to identify outlying results (both positive and negative).

Some of these tools are published on the NHS England website (for example, <http://www.england.nhs.uk/ourwork/qual-clin-lead/place/>) as public-facing free to use resources for anyone interested in the data. The tools that I have developed have also been distributed to co-workers from within and outside the organisation, and have become a valuable resource for colleagues working in the area of patient experience and outcomes. I also witnessed with fascination

the use of O.R. in several other analytical teams including the construction of models to reduce inpatient waiting times. In addition to advancing my knowledge of O.R. methods and statistical analysis, the placement has given me strong skills in problem-solving, time management and writing succinctly. As a result of my usefulness to the team I have been asked to stay on part-time during my final year of university and hence, I am now working two-days a week in NHS England.

There were a lot of development opportunities in NHS England. I had the opportunity to take an active part in the latest Patient-Led Assessments of the Care Environment (PLACE) at Leeds General Infirmary. This allowed me to interact with patients and front-line staff to see the bigger picture and understand the significance behind all the work that analysts do. I now recognize that one small piece of analytical work can affect policy decisions, which in turn can affect the level of care that patients receive.

I enjoyed my placement for many reasons including the fact that I have been able to work in many different areas of patient experience. For example, one day I was working on the inpatient survey while the next, I was working on patients' personal health budgets. Finally, I have enjoyed working in the Department of Health / NHS England especially since all members of my team were focused and dedicated to their work. This experience will certainly benefit me for the rest of my degree and future employment. I would wholly recommend the Department of Health / NHS England to anyone looking for an interesting and rewarding placement full of opportunities and diversity.

<OR>

## MAKE SURE YOUR CONTACT DETAILS ARE UP-TO-DATE

Contact Carol Smith  
[carol.smith@theorsociety.com](mailto:carol.smith@theorsociety.com)  
 or go online to [www.theorsociety.com](http://www.theorsociety.com)  
 log on and click 'My Contact Details'



# HANDING OVER THE BATON

**JOHN FRIEND**

## The next stages in our Society's Public Policy initiative

At this year's OR Society conference at Royal Holloway, a new stream on 'O.R. in Public Policy' was organised by Rob Solly of Dstl. This gave me a welcome opportunity to report, in a reflective yet forward-facing spirit, on my recently completed charitable project on 'The Future Policy Influence of O.R.'

That short project actually finished in June, with a high-profile event at the Royal Society on 5 June, followed by a more modest final open meeting on 26 June. The second meeting was chaired by our President, Stewart Robinson, and reported by Nigel Cummings in the September issue of *Inside O.R.* The more ambitious Royal Society event, entitled 'Shaping Choices in Public Policy – a Problem Structuring Approach' was sponsored jointly by our Society with the Policy Profession Support Unit within the Cabinet Office, and with Cambridge University's new[ish] Centre for Science and Policy.

We planned this event through a subgroup of the multi-disciplinary group that had been formed to guide my charitable project. This task group brought representatives of the Government O.R. Service and Dstl together with some enthusiastic consultants and academics, and met several times in London between January and May. Rob Solly was able to draw on his impressive network of connections among groups and individuals within the civil service who have been working towards the improvement of policy processes in government. Also, he was able to call on a distinguished panel of speakers in order to attract to the afternoon's programme a full house of senior civil servants and other contributors to public policy processes. A poster display was used to present for discussion several impressive recent instances of the use of problem structuring methods in different policy settings. On the day, and also from the feedback afterwards, the vibes were good. So now please watch this space for further developments.

I myself am now coming to the close of a long career of over half a century in O.R. – much of it spent with the Institute for O.R. (IOR) which was set up in 1963 as the outcome of an earlier policy initiative by our Society's Council. I now have a clear sense of finally being able to let go of the baton, leaving it in the capable hands of Rob Solly and his colleagues in a new OR Society Special Interest Group in Public Policy. Our new SIG may well follow the suggestion from the Society's Board of tacking the word 'Design' onto the end of its name to make clear where its main thrust lies. Rob and I seem to have been running hard side by side clutching the baton since January; but now I feel that I have finally been able to let go and collapse, gasping for breath, at the side of the track. About time too, now that I am in my 84th year, with various family members telling me it is time I packed it in. I hope I will still be able to make occasional contributions from the sidelines for a few years to come, but at least I shall have stopped running.

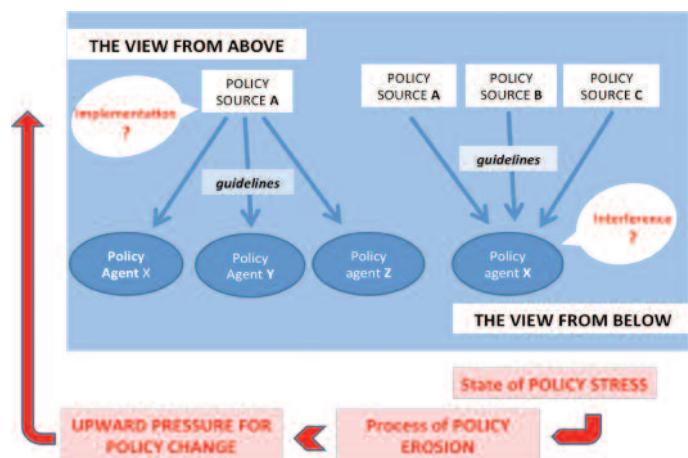
The more people from younger generations can now join in the relay race, the happier I shall feel. Our new SIG offers an interface between O.R. people within and outside the government service, to address an opportunity which could hardly be more important or exciting. Rob Solly – as organiser of the public policy stream at OR56 and Chair of the new SIG – joins me in hoping that we can soon find an energetic co-chair from outside government, in keeping with the spirit of partnership that underpins the venture.

You will find the slides from my keynote talk at OR56 on the Society's website at

[www.theorsociety.com/DocumentRepository/Browse.aspx?CatID=1](http://www.theorsociety.com/DocumentRepository/Browse.aspx?CatID=1). A full paper should follow shortly, supported by copious web and literature references. The theme of my talk was that we in O.R. can now produce plenty of evidence that we have a significant and indeed a leading role to play in the *design* of public policies, as well as in providing analytical support. This evidence is now widespread, at all levels from the local neighbourhood to the international stage, you will find some of it by following the web link quoted above. One caution however: much depends on our capacity to learn from other communities of practice and research who have different kinds of insight to offer, from local as well as central perspectives of public policy processes.

I believe that we in turn have valuable insights to offer to such people. One example lies in the concepts of *policy stress* and *policy erosion*, illustrated below in a copy of my slide showing a view of dual perspectives of policy change. I have found that most practitioners in the public service recognise this kind of picture instantly, as the presence of multiple sources of public policy is so familiar to them; but there are very few who think of drawing structural diagrams to convey meaning rather than struggle to express their thoughts in words alone.

<OR>





## INVITATION TO THE FIRST MEETING OF THE PUBLIC POLICY DESIGN SPECIAL INTEREST GROUP

The OR Society's newest special interest group (SIG) aims to advance interest in, and the use of, O.R. in improving public policy design at local, regional, national and international levels.

Our meetings will be designed to develop initiatives and cross-fertilise ideas by bringing together a wide range of interested parties, including:

- O.R. practitioners from GORS and Dstl supporting UK central government;
- OR Society members supporting local and regional government;
- researchers and teachers in academia;
- other professions that are active in supporting public policy, including designers, social and political scientists;

- those charged with developing public policy;
- those with parallel interests in other European countries and other continents.

The inaugural meeting of the Public Policy Design SIG will take place at the OR Society's Birmingham office (Seymour House, 12 Edward Street, Birmingham, B1 2RX), from 2.00 pm to 4.30 pm on Monday 1 December. Refreshments will be available from 1.30 pm and any early starters are welcome to join us for lunch from 12.00 pm just around the corner in the Prince of Wales pub (84 Cambridge St, Birmingham, B1 2NP).

&lt;OR&gt;

## RESOURCEFULNESS

**JOHN CROCKER**

The WORDS AGM this year was slightly unusual in so far as the speaker and the Treasurer did not physically attend due to pressure of work, indeed, the very work which she described in her presentation, Professor Jo Smedley was unable to get to UWE for the meeting but 'attended' instead via Skype.

Ian Mitchell, our Treasurer and working at BIS in London, engaged via a conference call on the telephone. As an audience, we were able to see Jo throughout the presentation. Her PowerPoint slides for the talk were activated locally by a member of the group, although it would have been possible for these to be shared online to accompany Jo's audio delivery.

Jo's talk was about resource allocation. There was a small group of employees and each located in one of five centres. There were a number of tasks that needed to be done, supported and backed-up. As with all of these problems, there were the inevitable social problems; individuals were only available at certain times, not everyone could do every job and 'A' would not work in the same office as 'B' (or, at least, not at the same time). The first question; was there sufficient person hours available to provide an adequate level of service in each of the five locations. The second, given it was feasible, was whether this could be achieved in such a way that individuals did not spend all their time changing from one task to another.

The wonders of modern science, mathematics and the skills of a seasoned negotiator produced a solution which seems to have met with approval from all concerned. Still a work in progress but operational research had undoubtedly provided a theoretical framework for ongoing dialogue.

At the meeting, besides having all the officers of WORDS present, we also had the Chair of ERC, the secretary of the publications committee, one member of the Board and four members of General Council but, alas, for all that, there were only six of us, even counting one in Treforest and one in London. One possibility we discussed was to use an online synchronous teaching (ONST) approach in future so that attendees can log in and interact from wherever they are in the WORDS area as if in an on-line lecture. An idea to explore for the future!

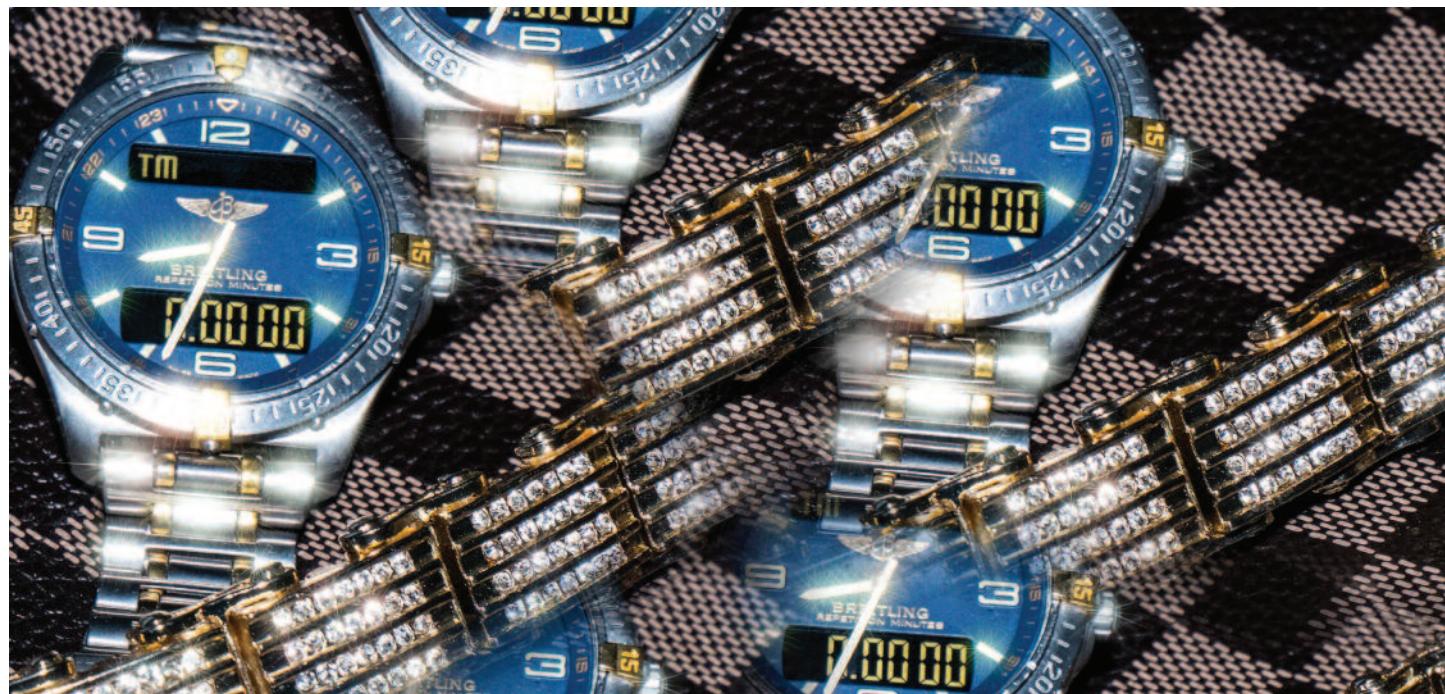
&lt;OR&gt;



# COUNTERFEIT GOODS

**NIGEL CUMMINGS**

If a 'bargain' is too good to be true, the chances are it is a fake.



Retail brand owners are plagued with counterfeit products swamping their market, reducing the overall quality of goods bearing their brand and killing profits. Counterfeit goods are the bane of retail, and brand owners often cite a lack of data about the way counterfeits penetrate the supply chain as a barrier to tackling their particular 'pirating' problem. Researchers in China are developing mathematical models to help them understand how the illicit market functions.

Sales through authorised retailers are generally safe from counterfeiters but those companies who rely on general retailers to market their goods are leaving themselves open to fraud. Make no mistake; it is not just the likes of Vuitton, Breitling, Rolex and Bulgari that suffer. Counterfeiters attack all brands no matter how humble – Nike, Adidas, Umbro, Timex to name but a few!

In their paper, *Fighting Strategies in a Market with Counterfeits*, (*EJOR* 240.1) Jie Zhang, Guangdong University of Finance and Economics, and Rachel Zhang, Hong Kong University of Science and Technology, have focussed on the general channel and looked at variables such as wholesale pricing and consumers' risk attitude towards counterfeits, as well as their loyalty towards reliable stores.

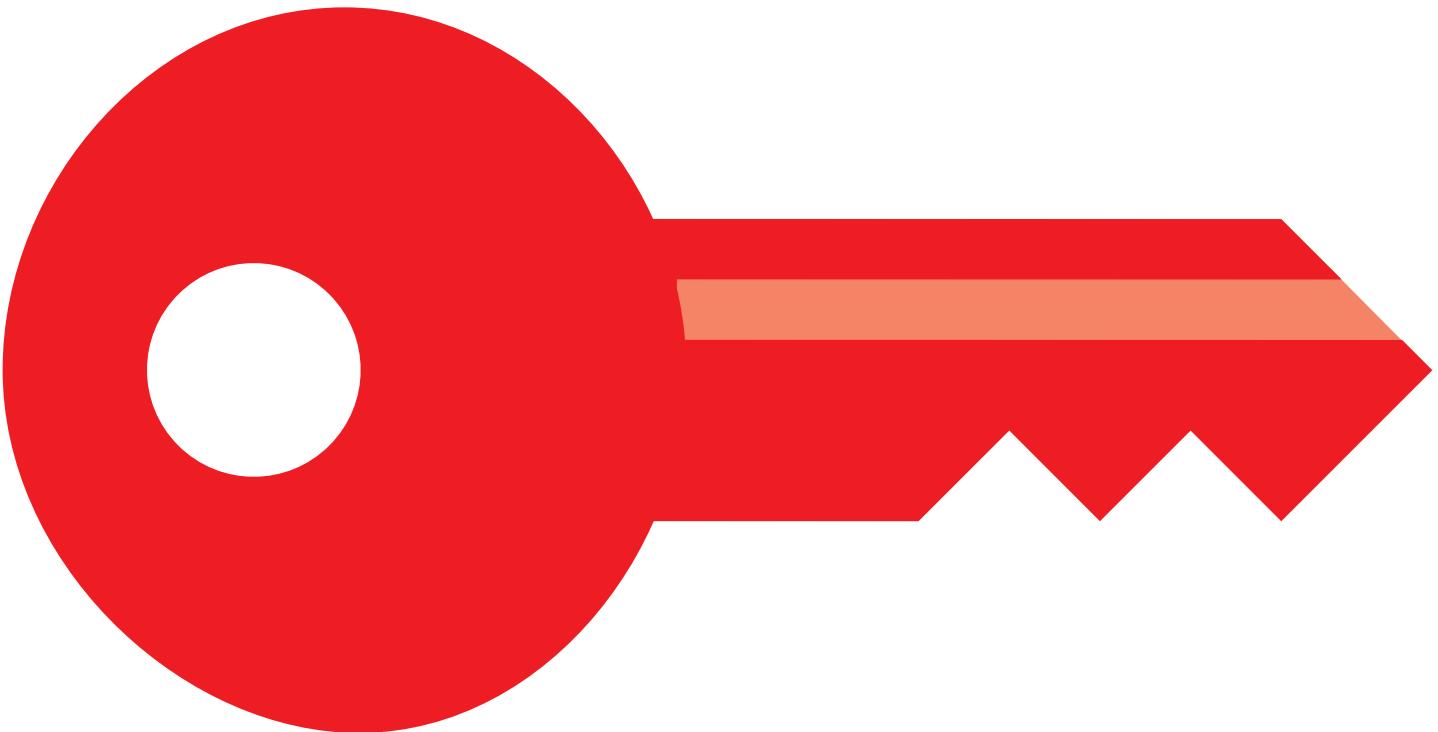
The modelling involved in this research provides insight into how counterfeits can lower the price and sales of authentic products. It reveals how general retailers will carry counterfeits as long as the quality is high enough seemingly unaware they are committing counterfeit crime.

A key finding of the modelling has also revealed that while brand name companies faced with deceptive counterfeiting may be tempted to try to control the problem by only selling through a restricted distribution channel such as manufacture-owned stores or certified retailers, this may not always be the best strategy in terms of preserving profitability.

If the quality of counterfeits is high, companies should consider selling through both the general and restrictive distribution channels as this 'enables brand name companies to reach more consumers and is still more profitable'.

The situation is different though when the brand name company is launching into a new market, as 'selling through dual channels may encourage the general retailer to sell more counterfeits in order to protect its profitability. In practice, it seems that many 'brand' companies sell their products through dual channels even if the general channel has been penetrated by counterfeits. Our analysis provides justification of such practices.'

You can access this fascinating study via:  
[http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=2472633](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2472633)



# UNLOCK YOUR FUTURE

## IN OPERATIONAL RESEARCH (O.R.) AND ANALYTICS

# O.R. CAREERS OPEN DAY

## WEDNESDAY 19TH NOVEMBER 2014

## MILLENNIUM POINT, BIRMINGHAM • 10AM TO 4PM

WE ARE PLEASED TO CONFIRM THAT THE FOLLOWING EXHIBITORS WILL BE ATTENDING:

**ACTICA**  
CONSULTING

Aston Business School

BOEING

BRITISH AIRWAYS

British Gas

Capgemini  
CONSULTING TECHNOLOGY OUTSOURCING

CARDIFF  
UNIVERSITY  
PREDICTION  
CHARTS

**CORDA**  
Delivering Successful Futures

dataTech  
analytics

**Deloitte**

[dstl]

dunhumby

Expedia

EY  
Building a better working world.

GDS  
GOVERNMENT DATA SERVICE

IBM

Lancaster University  
MANAGEMENT SCHOOL

Loughborough  
University

Nationwide  
On your side

NATS

PROSPECT  
RECRUITMENT

**QinetiQ**

SIMUL8  
CORPORATION

UNIVERSITY OF  
Southampton

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**THE OR SOCIETY**



From Andrew Miller MP  
Chairman, Parliamentary and Scientific Committee

### SET for BRITAIN 2015

Dear Scientist, Engineer or Mathematician

I am writing on behalf of the Parliamentary and Scientific Committee to alert you to a major scientific competition and exhibition in Parliament and encourage you to take part. SET for BRITAIN will be held in the House of Commons on Monday 9 March 2015 between noon and 9 pm as a prelude to National Science and Engineering Week 2015.

The day will be divided into three sessions. Applications are invited from early-career research scientists, engineers, technologists and mathematicians who wish to exhibit posters in one of the following five areas:

- Biological and Biomedical Science**
- Chemistry**
- Engineering**
- Mathematical Sciences**
- Physics**

A wide range of important scientific, engineering and mathematics institutions are lending their support to this event, including the Society of Biology, The Physiological Society, the Royal Society of Chemistry, the Royal Academy of Engineering, the Council for the Mathematical Sciences, the Clay Mathematics Institute, and the Institute of Physics. This reflects the importance we all attach to the encouragement of researchers at this stage in their careers.

Prizes will be awarded for the posters presented in each discipline which best communicate high level science, engineering or mathematics to a lay audience. The Westminster Medal for the overall winner will be awarded in memory of the late Dr Eric Wharton, who did so much to establish SET for BRITAIN as a regular event in the Parliamentary calendar. Full details of the competition and exhibition including the application form can be found on the SET for BRITAIN website at: [www.SETforBRITAIN.org.uk](http://www.SETforBRITAIN.org.uk). I very much hope that you will apply to take part yourself or will encourage your early-career colleagues to do so.

With Best Wishes

Andrew Miller MP



**IOP** Institute of Physics



**SOCIETY OF  
BIOLOGY**



The Physiological Society





#### NOTE FOR THOSE APPLYING

Applications are invited from early-stage and early-career research scientists, engineers, technologists and mathematicians who wish to exhibit posters.

Applicants should prepare material aimed at communicating high level science, engineering or mathematics to a lay audience.

Early-career researchers include university research students, postgraduates, research assistants, postdocs, research fellows, newly-appointed lecturers, part-time students and their equivalents in national, public sector and industrial laboratories, etc, and appropriate MSc students, all of whom are engaged in scientific, engineering, technological, mathematical or medical research and are achieving results.

The closing date for entries is **Friday 5th December 2014**. There will be an initial selection by the judges and you will be informed by mid-January 2015 whether or not your application to take part in the exhibition has been successful.

Full details of the competition and how to apply can be found on the SET for BRITAIN website at: [www.SETforBRITAIN.org.uk](http://www.SETforBRITAIN.org.uk)



**IOP** Institute of Physics



SOCIETY OF  
Biology



The Physiological Society





# AN INTRODUCTION TO OPTIMISATION WITH FICO XPRESS

**ANDY HARRISON FICO**

**18 – 20 November, FICO offices, Birmingham**

Solving large, complex optimisation problems can be the difference between success and failure in today's marketplace. As business problems grow in complexity, advanced solver engines are needed to tackle optimisation problems efficiently combined with flexible modelling environment that is scalable and able to adapt to the challenges of a wide range of deployment architectures.

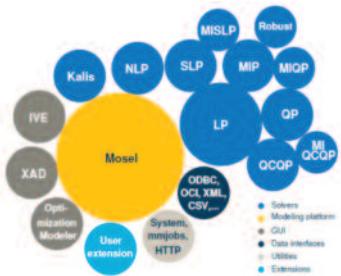
## FICO® Xpress Optimization Suite

software is a premier mathematical modelling and optimisation platform for building optimisation solutions that drive business process improvements. The FICO® Xpress Optimization Suite provides easy ways to create, deploy and utilise business optimisation solutions based on scalable high-performance algorithms, a flexible modelling environment, and rapid application and reporting capabilities for on-premise and cloud installations.

For more information on the FICO® Optimization Suite see <http://www.fico.com/en/products/fico-xpress-optimization-suite/>

This introductory course will enable you to gain knowledge on how to use FICO® Optimization Suite to make powerful decisions. You will gain familiarity with optimisation models and techniques as well as the terminology used to describe them:

- discover how to exploit the power of optimisation using a state-of-the-art, robust, reliable optimisation engine;
- solve ultra-large problems and gain value from Big Data;
- gain hands on experience of how to formulate business problems as optimisation models and solve them using FICO® Xpress; and
- deploy optimisation models to gain insight into business problems.



The course is split into modules which will cover

- an introduction to the FICO® Xpress Optimization Suite;
- the use of linear programming to model decision problems, including the debugging of optimisation models;
- the handling of data and the development of large-scale, flexible, data-driven models;
- mixed integer programming and its use in decision models;
- the use of debugging and profiling functionality available within the FICO® Xpress Optimization Suite;
- deploying models developed using the Xpress-Mosel modelling language including deploying models into C/C++, Java, .NET and VB; and
- an introduction to developing an application with FICO® Optimization Modeler.

Each module comprises

- an introduction to concepts;
- their application using Xpress;
- project work, with hints; and
- a review of project solutions.

At the end of the course you will be familiar with optimisation methods and the terminology used to describe them; be confident about formulating optimisation models and understanding their solution; and know how to use Xpress to model and solve problems, with lots of practice.

For further details please contact [jennie.phelps@theorsociety.com](mailto:jennie.phelps@theorsociety.com) or book at <http://www.theorsociety.com/Pages/Training/Courses/2014/324.aspx>

<OR>

## REGIONAL SOCIETIES

Contact details for all regional societies and meetings past and present are listed at:

<http://www.theorsociety.com/Pages/Regional/RegionalList.aspx>



## MODELLING FOR A BETTER WORLD

**NIGEL CUMMINGS, JOHN HOLT**

As a regular reader of these pages, you will know that the OR Society has been heavily involved in working with the Third Sector. Essentially, these are the non-government, not-for-profit organisations – typically, charities.



John Holt at OR56

Due to various changes in legislation and the general state of the economy, many of these organisations have been facing increasing costs and reducing incomes so have been looking for ways of improving their efficiency. However, they are faced with the difficult dilemma of whether it is ethical or appropriate to divert some of the donations they receive to pay consultants to sort out their problems. Felicity McLeister, since 2013, has been building a team of volunteers who are willing to donate their services to help these organisations solve their problems. So far 'Pro Bono O.R.' has received 40 inquiries, completed six projects and is currently actively involved in a further eight.

The 'Third Sector O.R.: Modelling for a Better World' stream at OR56 was hosted by John Holt and Simon Pegg. Sophie Carr, Bays Consulting, described her work which produced a spreadsheet to help identify which pairs of dogs could be used for breeding to

minimise the risk of Lafora's disease. Alessandro Arbib, DECC, has been part of a team from DECC who have been helping the RSPCA determine the size of the dog population in the UK and how it is stratified. Sam McKay, Apteligen, has been working with [third sector] national care and support providers to develop a measurement and evaluation framework for assessing the impact of an innovative, community and asset-based intervention for vulnerable people that aims to improve independence and quality of life. Cath Reynolds, RNLI, described how probabilistic weather information can be used to improve operational decisions. Andrew Dobson, Independent Consultant, talked about the work he has been doing with local managers setting up a nurses' training school alongside a small, locally-run, not-for-profit hospital in a remote area of sub-Saharan Africa. Ian Seath, Independent Consultant, has done a 'quick and dirty' exercise to improve and manage the repairs' process of a housing association. Sue Merchant, also an independent consultant described how she struggled to set up and run a three hour strategic planning workshop for a charity's board of trustees. And last, but by no means least, John Holt talked about a number of freely available (and often free) tools that he had found on the internet that he is trying to bring to the attention of people in the charity domain.

If you would like to volunteer your services please contact Felicity on email: [felicity.mcleister@theorsociety.com](mailto:felicity.mcleister@theorsociety.com) Tel: 0121 233 9300

LinkedIn - Felicity McLeister

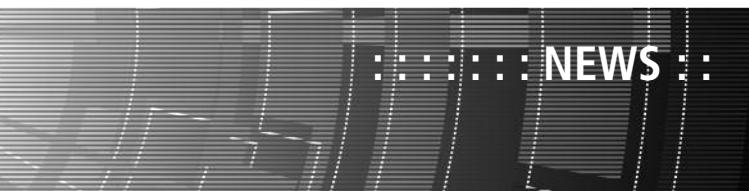
Twitter @FMcLeister

*(Please note that despite interest from abroad, the OR Society's Pro Bono O.R. initiative is only available, at present, within the UK – volunteers recruited so far have been UK based – this situation may change in future.)*

<OR>

## CONFERENCE NEWS

EVENT:	Blackett Memorial Lecture	DATE:	26 November 2014	VENUE:	Grocers' Hall, London
EVENT:	EURO2015	DATE:	12 (welcome), 13 – 15 July 2015	VENUE:	University of Strathclyde, Glasgow



NEWS

## MAKING AN IMPACT

**GRAHAM RAND**

That's probably what many of us want to do, whether in our relationships, at work, in our national life, on the sporting field, or in needy parts of the world.

UK academics have been wrestling with this concept as part of the Research Excellence Framework – the infamous REF. For some this has been a new experience as they had never before had to worry about the effects of their research. But for O.R. academics it is a familiar concern, as ours is a profession for which the *raison d'être* is to help to bring about change that is for the better.

And now the OR Society is getting in on the act: the *Impact* we are making is a magazine. Initially, *Impact* will be published twice a year, starting in March 2015, and will be free to members. But it is not aimed primarily at members. The vision is that this will be a thought-provoking, entertaining and non-technical articulation of the benefits of O.R. to society and industry. What the Society wants to do is to

- inform practitioners and managers of the practical benefits of the latest developments in O.R.;
- generate greater impact for O.R. academics;
- provide another membership benefit to help retain members and attract new members.

The main focus of *Impact* will be to present applications of O.R. and Decision Analytics to a broad audience in a clear and non-technical fashion. I have been searching for good stories to tell, and have been successful! Other features include guest columns, written by those who have something to say, and are happy to say it, articles focussing on O.R./analytic groups, and 'what can XXX do for you?', where the value of a specific technique or approach will be explained.



So what can you, as an OR Society member do, apart from eagerly await the magazine arriving through your letter box, or appearing in your mail tray at work? First, if you have done good work that will tell a compelling story of the impact that O.R. can make, please let me know. I'm looking for implemented work, with quotes from satisfied clients. You may not have to write the article, so don't be put off if that's the only thing that is stopping you telling about the impact you've made. Second, if you are head of an O.R. group, and would like to tell us about the work that you have done, again please let me know. Maybe your group is celebrating a significant anniversary, and this is an opportunity to take stock, and reflect on the impact that has been made. If you are not the head of your group, maybe you should encourage your boss along these lines!

Equally important, we want to get the magazine into the hands of those who are not members of the Society. This includes the many O.R./analytics practitioners who are not Society members. Can we send some further copies for you to distribute to other members of your group or to interested managers? Please let us know at [email@theorsociety.com](mailto:email@theorsociety.com)

We look forward to hearing from you.

Graham Rand

Editor, *Impact*

[g.rand@lancaster.ac.uk](mailto:g.rand@lancaster.ac.uk)

&lt;OR&gt;

## LETTER TO THE EDITOR

**BEN ATKINSON**

As a retired academic I continue to undertake research in various areas. Working from the comfort of home is nice but one problem I experience is access to the sort of software, both mathematical and statistical, that was readily available when I was at work. My current research involves, among other things, messing about with certain polynomial functions, but other mathematical topics are equally possible in the future. To assist with this, I would like to find an appropriate open-source computer algebra system (preferably free or at token cost),

perhaps similar to Maple. There's a long list on Wikipedia, but I'm hoping that someone can recommend a system that is relatively easy to use.

More generally, it would be nice to have a resource on the Society website that gives similar information about a wide range of O.R.-related software. Perhaps some other members would also find this useful.

&lt;OR&gt;



## Blackett Memorial Lecture

The Society is pleased to announce that the 2014 Blackett Memorial Lecture will be given by

**Professor Sir Bruce Keogh**

National Medical Director, NHS England

### Opportunities and challenges for the NHS

The NHS faces unprecedented challenges as a consequence of increasing demand, escalating treatment costs and rising expectations in a tight financial climate. Addressing these issues demands an understanding of efficiency and value in our healthcare system.

Improving clinical outcomes and patient experience of care is at the heart of what leaders and managers of the NHS are asked to do. Achieving this goal requires clinical leadership and best available clinical evidence. It also requires richer data and the expertise of the social and management sciences, including Operational Research.

The lecture will describe some examples from Prof Keogh's own experience in working in the NHS in recent years of bringing together clinicians, data and analysis to help understanding of how to improve outcomes and patient experience. The lecture will focus on examples in urgent and emergency care, where interdisciplinary collaboration between clinicians, operational researchers and economists is helping us to understand how the very complex emergency care system might respond to rising demand for services. The tools being devised to promote and reward implementation of better models of care are already producing demonstrable results for patients with major conditions, such as trauma, stroke and a range of other services.

**Sir Bruce Edward Keogh**, KBE, FRCS, FRCP, (born 24 November 1954) has been Medical Director of the National Health Service in England since 2007 and National Medical Director of the NHS Commissioning Board (NHS England) since 2013.

**Wednesday 26 November 2014**

Grocers' Hall, Princes Street, London, EC2R 8AD

[www.grocershall.co.uk](http://www.grocershall.co.uk)

Grocers' Hall is situated in the heart of the City of London in a private courtyard opposite the Bank of England. A one minute walk from Bank Station (exit 1), which is served by the Central, Circle, District and Northern Underground lines as well as the Docklands Light Railway and Waterloo and City line. Moorgate, Liverpool Street and Cannon Street British Rail stations are all just a five minute walk away.

**Lecture at 4.30 pm**

(Tea and biscuits at 4.00 pm; Drinks reception 6.00 – 7.00 pm, after the lecture)

There is no charge for attendance at this event. To register and receive joining instructions, please go online to [www.theorsociety.com/blackettlecture](http://www.theorsociety.com/blackettlecture) and fill in the online reservation form. For any queries, please contact Hilary Wilkes on [hilary.wilkes@theorsociety.com](mailto:hilary.wilkes@theorsociety.com)



# HOW I SUCCEEDED ON SOCIAL MEDIA

**FELICITY MCLEISTER O.R. PRO BONO PROJECT MANAGER**

Back in September 2013 the only social media I used was Facebook for my own personal use. Until I started my role as the O.R. Pro Bono Project Manager at The OR Society I hadn't given much thought to how vital social media could be to an individual's job role and to the wider organisation.

I started out small, I got myself a Twitter and LinkedIn account and then a few months later started a blog. Before you start it is important to determine what you want to accomplish by using social media. For me there were several reasons for using social media:

- To increase the awareness of O.R. to third sector audiences, explain what O.R. is, how it can help and that free support is available via Pro Bono O.R.
- To engage with members of the OR Society and the wider O.R. community to inform them about Pro Bono O.R. and encourage them to sign up as volunteers
- Through promotion of Pro Bono O.R. to increase the awareness of the OR Society, to increase traffic to the website, to improve member retention as well as encourage new members to join.

To succeed Pro Bono O.R. needed third sector organisations to sign up to receive support and then volunteer analysts to carry out projects.

Initially I needed to choose which social media platforms to use. Firstly I signed up to Twitter, this was really useful for sharing information about Pro Bono O.R. Although I needed to grow my follower base I knew this would take time so I used other twitter handles in my tweets such as @TheORSociety, @Reachskills, @NCVO etc. because if they retweeted my tweet I could reach their followers. I also created a hash tag #ProBonoOR which I put on all my tweets so that any information or conversations could be easily found through the search function. I decided who I wanted to follow which in my case was third sector umbrella organisations in order to keep up to date with third sector news as well as individual third sector organisations and O.R. organisations and individuals.

It is important with twitter to make the most of the 140 characters you have, it is best used for short conversations and sharing information. I try to post opinions, questions, reply to posts whilst including my hash tag, other twitter handles and links to other places like my webpage.

Next I got my head around LinkedIn. Firstly I spent time on making sure my profile was right, this is the first impression people get of you and it will be at this point people decide whether to connect or not so it is really important to spend some time on this. LinkedIn for me has been my most valuable social media tool. It has allowed me

to make connections with people that I otherwise would not have had the chance to. I joined groups which looked like good places to learn from and contribute to, such as the OR Society and a third sector sub group where I can post information about Pro Bono O.R. Through that I have made many connections with O.R. professionals. I also joined groups that were third sector related, through these I promoted Pro Bono O.R. and made lots of useful connections. As you grow your connections LinkedIn will then suggest people you may want to connect to. I have made some of my most valuable connections by this means and it has led to some really successful Pro Bono O.R. projects which benefits the organisations, the OR Society and the volunteer. LinkedIn is useful for sharing short updates, connecting with individuals and groups and sharing information and ideas. A more recent feature which I like now enables you to write longer posts and you can monitor your views, likes and comments.

Lastly I started to write a blog. Having never had any experience with blogs my first point of call was Google for some tips! I found a host site called blogger, built up my profile and got going. What I found important about blogging was to use eye catching titles to entice your reader to open the link and read further. Trying to write regularly e.g. once a week and keeping your blogs interesting is important. As well as my own stuff I often share what others have been saying. Once I write a blog I share the link on twitter and LinkedIn with a short summary to get the readers' interest. My blog is now the centre of my social media strategy where I get most engagement. As a platform I can extend what I've said in other media and provide more breadth and depth of information.

Over the last year I have learnt more about social media and I must say I think a lot of it is about giving it a go and learning as you go. I use all the social media weekly and will adjust what I post depending on my audience and the medium. Once you have your audience you need to keep them interested so I keep them updated about Pro Bono O.R. and things that are of interest in the third sector and O.R. community.

The reality is that, done effectively, social media success can be achieved in an easy, straightforward manner. The key is start small and build your social media engagement slowly.



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[www.banxia.com](http://www.banxia.com)

- **Decision Explorer®** - an ideas mapping tool used to organise and structure an individual's or a group's ideas about a problem or issue. This is a piece of software with many uses, in areas such as strategic management, risk assessment, project planning/ definition and general problem structuring. Single user licenses start from £99 + VAT.
- **Frontier Analyst® Professional** - a performance measurement tool, using Data Envelopment Analysis (DEA), to give a relative assessment of the performance of a group of business units. Used in organisations that have a network of branches/ depots or in situations where a group of similar "units" can be identified (for example, hospital wards, banks, shops, teams within a company and so on). Single user (75-unit analysis capability) licenses start from £195 + VAT.
- **Impact Explorer™** - a voting, ranking and matrix assessment tool. Groups use radio based handsets coupled with the Impact Explorer software to register their opinions or cast votes on the subject being discussed. The system supports up to 250 participants. Cost depends on the handsets being used. Prices start from as low as 31 GBP + VAT per handset. Handsets can be purchased in any quantity. Accompanying software license starts from £395 + VAT. System requires both hardware and software.
- **Interwrite™ Response** - a classroom response system. Using radio frequency or infra-red handsets, students respond to questions presented in PowerPoint, the internal question editor, or to impromptu questions asked verbally. The system can support thousands of students. Cost depends on the handsets being used. Prices start from as low as 31 GBP + VAT per handset. Accompanying software is included with the receiver kit, cost depends on the system being used. Discounts available for volume purchases of handsets.



# SPECIAL INTEREST GROUPS

## ANALYTICS NETWORK

**CONTACT:** Sayara Beg

**EMAIL:** ANChair@theorsociety.com

### Christmas Networking

**Date/Time:** Thursday, 04 December 2014 18.00 - 22.00

**Venue:** TBC

To meet fellow Data Scientists, exchange ideas, share experiences and knowledge, with some festive nibbles and drinks.

Seeking a sponsor to host this event.

Sign up here to come along:

<http://www.meetup.com/AnalyticsNetwork/Register> at -  
<http://www.eventbrite.com/e/lunch-learn-case-study-improving-patient-care-with-predictive-analytics-tickets-12855492123>

## CRIMINAL JUSTICE

**CONTACT:** Ian Newsome

**TEL. DDI:** 01924 292244 **Extension:** 22244

**EMAIL:** ian.newsome@westyorkshire.pnn.police.uk

### Autumn meeting of the CJ special interest group

**Date/Time:** Tuesday, 18 November 2014 at 13:30 - 16:30

**Venue:** London Mathematical Society, Russell Square, London

**Speaker:** various

Our next event is on November 18th at the LMS in Russell Square London from 1.30pm-4.30pm approx. We have four most interesting talks lined up this time: Crime prediction (using a system designed for predicting earthquakes which is being trialled in Kent); case studies on the use of SSM in Offender management and Policing; How the Home Office is building a data analytics capability; and Structured debriefing methods. Our speakers are Graham Down (Kent Police), Kees van Haperen (VH2 Ltd), Nick Manton (Home Office) and Caroline Bridgman (ex Met Police).

The event as usual is free but please note that no refreshments apart from water will be provided.

Please contact suerchant@hotmail.com as soon as possible if you would like to attend.

## DECISION ANALYSIS

**CONTACT:** Nadia Papamichail

**TEL:** 0161 275 6539

**EMAIL:** nadia.papamichail@mbs.ac.uk

PSM (Problem Structuring Methods) and DA (Decision Analysis)

SIGs (Special Interest Groups) joint Workshop

### 'Commonalities and Distinctions between Problem Structuring Methods and Decision Analysis'.

**Date/Time:** Monday 3<sup>rd</sup> November 2014 10:30am – 4pm

**Venue:** Loughborough University

### Programme:

10.00 – 10.30 Registration

MORNING SESSION (10.30 – 12.00)

10.30 - 10.45 Ashley Carreras (PSMSIG Chair) & Nadia Papamichail (DASIG Chair) 'Introduction and welcome'

10.45 - 11.15 Theodor Stewart (University of Manchester and University of Cape Town) 'The DA Perspective'

11.15 – 11.45 Ashley Carreras (De Montfort University) 'The PSM Perspective'

11.45 – 12.00 Nadia Papamichail (University of Manchester) 'Introduction to the practical session'

12.00 – 13.00 Lunch

AFTERNOON SESSION (13:00-16:00)

13.00 – 16.00 Interactive Session: Interview with Tom McBride (Department of Education) followed by a practical session

How do we frame and structure our client's problems? To what extent does it matter if we are PSM or DA specialists? In this interactive session, Theo Stewart and Ashley Carreras will interview Tom McBride from the Department of Education, live in front of the audience, about a specific case. The workshop participants will then be split into groups to discuss Tom's dilemma and suggest a proposal. The groups will present their ideas at the end of the session.

Please contact Nadia Papamichail (nadia.papamichail@mbs.ac.uk) to book a place. There is no charge but you MUST register in advance, by Monday 27th October at the latest. We strongly encourage you to register asap though if you are interested, because places are limited.

## DEFENCE

**CONTACT:** Noel Corrigan

**EMAIL:** noel.corrigan@baesystems.com

### CHAIR:

Alan Robinson

Chief Scientist, PCS Dept,  
 Defence Science and Technology Laboratory (Dstl)  
 Portsdown West, Portsdown Hill Road,  
 Hampshire, PO17 6AD

**TEL:** 02392 53 2839

**EMAIL:** arobinson@dstl.gov.uk

### Defence Special Interest Group

Joint Workshop Theme: 'Affordability, Value for Money and Decision Making'

**Date/Time:** Tuesday 18<sup>th</sup> November 2014 9.30am

**Venue:** The BAWA Centre, Filton, Bristol, BS34 7RG

# NOTICEBOARD

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A workshop will be held jointly by the Defence Special Interest Group and the Society for Cost Analysis and Forecasting. The workshop will be free to attend for all members of the OR Society or SCAF.

Affordability and Value for Money are some of the key elements in today's Decision Making process. Whether we are considering investment in a new capability, transition programme or optimising in-service support services – the issues remain the same.

The day-long event will start with registration at 0930, followed by a keynote address by Dr Syd Morley, Head of Scrutiny and Analysis, Ministry of Defence. This will be followed by seven papers from:

- Dr Dave Exelby, Decision Analysis Services Ltd
- Arjun Madahar, Defence Science and Technology Laboratory
- Andy Nicholls, PRICE Systems
- Andy Nolan, Rolls-Royce
- Steve Rowley, QinetiQ
- Colin Sandall, QinetiQ
- Lucia Retter and Dan Jenkins, RAND Europe.

There will be opportunities for discussion and networking throughout the day.

Lunch and refreshments throughout the day will be provided. The workshop is FREE to ATTEND for members of SCAF and the OR Society. Non-members are welcome to attend at a cost of £120.00 per delegate.

For further details please contact [ndmorrill@dstl.gov.uk](mailto:ndmorrill@dstl.gov.uk)

## PROBLEM STRUCTURING METHODS

**CONTACT:** Ashley Carreras (Chair)

**TEL:** 0116 2078224

**EMAIL:** [acarreras@dmu.ac.uk](mailto:acarreras@dmu.ac.uk)

PSM (Problem Structuring Methods) and DA (Decision Analysis)

SIGs (Special Interest Groups) joint Workshop

### 'Commonalities and Distinctions between Problem Structuring Methods and Decision Analysis'.

**Date/Time:** Monday 3<sup>rd</sup> November 10:30am – 4pm

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Please contact Nadia Papamichail ([nadia.papamichail@mbs.ac.uk](mailto:nadia.papamichail@mbs.ac.uk)) to book a place. There is no charge but you MUST register in advance, by Monday 27th October at the latest. We strongly encourage you to register asap though if you are interested, because places are limited.

## SIMULATION

**CONTACT:** Tom Monks

**EMAIL:** [thomas.m.monks@gmail.com](mailto:thomas.m.monks@gmail.com)

Martin Kunc

**EMAIL:** [martin.Kunc@wbs.ac.uk](mailto:martin.Kunc@wbs.ac.uk)

### Simulation Special Interest Group

#### Simulation in health and social care

**Date/Time:** Monday, 17 November 2014 at 9am-5pm

**Venue:** Warwick Business School

*Fostering links between simulation research, practice and the NHS.  
Nov 17<sup>th</sup> Warwick Business School*

The OR Society Simulation Special Interest Group and Warwick Business School are pleased to announce a one day seminar and workshop aiming to improve and foster links between simulation research, practice and the NHS. The event will take place on 17<sup>th</sup> November at Warwick Business School, University of Warwick.

Simulation modelling has been used widely in health and social care from modelling four hour waiting time targets in accident and emergency departments to understanding the dynamic behaviour of a whole system of care. However, simulation is still rarely used by the NHS and many healthcare professionals are unfamiliar with it. This workshop aims to explore how links between simulation research and practice can be improved.

The workshop will be divided in two parts. During the morning, speakers with extensive experience in research and practice of simulation modelling in health and social care will provide an overview of their experience through their personal work in the area. In the afternoon, there will be a simulation market place where delegates can see and interact with practitioners/researchers and engage with a selection of simulation models from health and social care. The day will finish with a panel session debating the opportunities and challenges in fostering links between simulation research and practice in the NHS.



The special interest group particularly encourages attendance of delegates from the NHS and its associated organisations and from the world of simulation practice.

Refreshments and lunch are provided. Registration costs £20 + VAT.

For all enquiries on the workshop please contact Martin Kunc (martin.kunc@wbs.ac.uk) or Thomas Monks (thomas.monks@soton.ac.uk)

For all enquiries related to registration please contact Jennie Phelps (jennie.phelps@theorsociety.com)

To book online please go to :  
<http://www.theorsociety.com/DIF.aspx?page=SimulationWorkshop>

### THIRD SECTOR O.R.

**CONTACT:** John Holt

**EMAIL:** jholt@danielholt1992.com

### Using Knowledge Management To Increase Third Sector Resilience

**Date/Time:** Monday 10 November, 12.30-15.00

**Venue:** RNLI Boardroom, 124-126 Webber St, London SE1 0QL

**Speakers:** Gillian Ragsdell, Moya Hoult

How can sharing information help build resilience in the voluntary sector? Gillian Ragsdell and Moya Hoult will be discussing their experience of a Big Lottery funded project entitled 'Charnwood Connect' to show how knowledge management practices can help to build and sustain meaningful partnerships, and, in turn, lead to increased resilience. Charnwood Connect, launched on 1st October

2013, aimed to encourage voluntary and public sector organisations to work together to achieve more for service users and service providers, building on the success of the well-established advice providers in the Borough. With collaborative working becoming an increasingly important cornerstone of the voluntary sector, it is timely to reflect on the benefits and challenges of Charnwood Connect and to share lessons from the early stages of the project.

Gillian Ragsdell is a Knowledge Management expert from Loughborough University, whilst Moya Hoult brings hands-on expertise as Chief Executive of Charnwood Citizens Advice Bureau.

This talk will be combined with the General Meeting of the OR Society's Third Sector Special Interest Group, electing a committee, Chair and Secretary. Entry is free, but advance registration is essential: <https://www.eventbrite.co.uk/e/using-knowledge-management-to-increase-third-sector-resilience-tickets-13330151843>

Tea, coffee and biscuits will be provided; please feel free to bring lunch if you wish.

Registration starts:	12.30
O.R. and Third Sector: review and discussion (Ruth Kaufman, Chair of Third Sector SIG)	13.00
Election of Officers and Committee	13.20
Knowledge Management and Third Sector Resilience	13.30
Gillian Ragsdell, Loughborough University; Moya Hoult, Charnwood CAB	
Further discussion, networking: details tbc	14.15

Meeting closes at 15.00

<OR>

## Thought Leadership Webinar Simulation, Lean and Lean Simulation

Monday 10 November 4:30pm

Stewart Robinson, Loughborough University and OR Society President, will present the inaugural webinar in the Thought Leadership Series to engage O.R. professionals and academics with key topical issues from thought leaders in the field.

To find out more and register go to [www.theorsociety.com/webinars](http://www.theorsociety.com/webinars)

## :: NOTICEBOARD ::



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# NEWS OF MEMBERS

**The Society welcomes the following new members,**

CHARLES ALPASS, Hants; MOHAMMAD ALI, Coventry; VALENTIN BERTSCH, Germany; ARISTOTLE BOUKOURAS, Leicester; NICOLA BRASSINGTON, Manchester; PRAGNESH BULA, Leicestershire; VICTOR CAVALCANTE, Brazil; RUTH CURRAN, London; MICHELLE DUNBAR, Australia; RACHEL FREEMAN, Bristol; WALLACE FERGUSON, Kent; MARK HARRISON, Lincolnshire; ANNIE HOWARD, London; MICHAEL HULME, London; BRADLEY HYLAND, Bucks; ELEFTHERIOS IAKOVOU, Greece; IAN JERRAM, Hants; MATT JOHNSON, Hants; MAX LOWE, Hants; PETER MCCULLEN, Brighton; WILLIAM MILLER, London; ALEXANDRA MISHENINA, London; ASHER ROSPIGLIOSI, Brighton; VICKRAJ RAMBURRUN, Surrey; PRANAV SANKPAL, India; ABBEY TREWENACK, Australia; DIMITRIOS VLACHOS, Greece; JODY WALSHE, Dorset;

**and Reinstated members,**

KATHRYN JAMES, Hants; MALIK KESINGTON, Birmingham; PAUL PIEROTTI, Dublin; GIOVANNI SCHIUMA, London; CHRISTINA SAVILLE, Southampton; REBECCA SMITH, Southampton; ZHAOYU ZHONG, Coventry;

**and the following student members,**

MAYOWA ADULOJU, Cardiff; FAWAZ ALANAZI, Nottingham; MOUZA AL HADHRAMI, Hull; NAOMI ALLISON, South Wales; AHMED AL-RAZAZ, Greenwich; JASMIN ANDREWS, Birmingham; RAJIB AREFIN, Edinburgh; HILYA ARINI, Strathclyde; VINH BANH, Coventry; JAMES BEALE, Bristol; ELLEN BERNI, Cardiff; SPYRIDON BONIKOS Strathclyde; GAEL BOUYER, Cardiff; BENJAMIN BRAND, Loughborough; OANA BUTA, Greenwich; MATTHEW BUTCHER, Coventry; LAURA BUTTON, South Wales; CHARLOTTE CARTER, Cardiff; DAVID CARTER, Plymouth; CHARLOTTE CHALLIS, Bristol; XIAOLAN CHEN, Hull; YOUIYI CHEN, Manchester; KAI WEN CHIN, Kent; SINYING CHUA, Coventry; YEN HAO CHUA, Manchester; PAUL CHUKWUKA, Birmingham; DANIEL CLIFFORD, Kent; ALAN CRAIG, Westminster; JOSH DADE, Cardiff; JAMES DAWES, Bristol; MUSTAFA DEMIRBILEK, Coventry; GOFAONE DIALWA, Southampton; LUKAS DOBROVSKY, Lancaster; XIAODONG DONG, Liverpool; LUCY EHRLICHER, Cardiff; MICHAEL FANNING, Coventry; DEAN FARRELL, Strathclyde; EMILY FOWLER, Nottingham; NICHOLAS FRAINE, London; DANIEL FLOWERS, Coventry; KEXIN GENG, Coventry; MING GOA, Liverpool; EMILIO GOMEZ, Edinburgh; ZOE GOODWIN, Strathclyde; JARED GORE, South Wales; MELANIE GOTTSCHLING, Kent; VARSHA GOUTHAMCHAND, Kent; DAVID GREENWOOD, Bristol; ANTONY GRIFFITHS, Middlesex; DAVID GROVES, Lancaster; ANITA GRUBB, Bristol; ZIHAO GUO, Cardiff; BRIAN GUTIERREZ, Kent; FATHIMA HANIFFA, Cardiff; SARA HASANI, London; WANYUN HE, Manchester; ANTHONY HODGSON, Hull; AARON HOEY, Coventry; ANYUE HU, Manchester; KASHIF

JALAL, Portsmouth; SHUYU JIANG, Birmingham; RICHA JOSHI, Hull; BECKY HOUSE, Cardiff; OSMAN IBRAHIM, Nottingham; ALEX IVES, Cardiff; WARREN JACKSON, Nottingham; YAN JIN, Nottingham; ANNABEL JONES, Cardiff; SOPHIA KARIM, Cardiff; CAGRI KOC, Southampton; KRISTIAN LEE, Coventry; BRODIE LEGGAT, Strathclyde; SAI LELLA, Westminster; ELLEN LEWIS, Hull; MMOLOKI LEKHUTLILE, Botswana; ANGELICA LINU, Lancaster; JINGYA LIU, Southampton; SIJIA LIU, Edinburgh; ERIC LONGOMO, Portsmouth; GUOZIN MA, Hull; GABOR MAKRAI, York; RANDALL MARTYR, Manchester; VIVEKAVARDHAN MEKALA, Westminster; REBECA MILLER, South Wales; RICHARD MOHAMMED, Westminster; SALIMEH POUR MOHAMMAD, Hull; BETSY MURIITHI, Kent; GODFREY MUSADEMBA, Coventry; LIAN NIU, Southampton; MARK O'DONNELL, Cardiff; SHANNON O'MALLEY, Loughborough; EMMANUEL OSEI-BREFO, Southampton; ANDRES OSORIO, Southampton; CALEB OWUSU-YIANOMA, Coventry; TEMENUZHKA PANAYOTOVA, Coventry; ALIX PARTRIDGE, Bristol; KRUPA PATEL, Cardiff; JOSH PEARCE, Cardiff; MARTIN PERON, Queensland; DAVID PICKLES, Westminster; DENECE POMPEY, Lancaster; SION EILIR PRYSE, Cardiff; BETHAN REEVES, Cardiff; AMY ROBINS, Bristol; AMIR RUSHITI, Westminster; NASTARAN SALILI, Westminster; OLIVER SCHAEER, Lancaster; HOLLY SHEPPARD, Lancaster; JING SHI, Liverpool; AGNESSA SHPAKOVA, Strathclyde; PETER LUBOSI SIMASIKU, Southampton; SALMA SIRKHOT, Greenwich; MELISSA SLATER, Manchester; ALEXANDRA SMITH, Exeter; LUCY SMITH, Southampton; KARAN SOOD, Sheffield; AMY SPENCER, Lancaster; SPYRIDON SPILIOPOULOS, Manchester; JULIEANNE STANZL, Surrey; BENJAMIN STEPTOE, Coventry; SEDA SUCU, Strathclyde; CHAO SUN, Edinburgh; MARIA SYMEONIDOU, Kent; HARLEQUIN TAKAHASHI, TAREK TANNIR, Manchester; KENT; SARAH TOLFREY, Kent; RARAS TYASNURITA, Nottingham; RICARDO VALENZULA, Mexico; DINESH VANGUMALLI, Manchester; JOSHUA WAIN, Loughborough; THOMAS WALWORTH, Bristol; DAZHENG WANG, Cardiff; CHEN WANG, Manchester; HUIJIE WANG, Manchester; STEFAN WASILEWSKI, Hull; KENNETH WHITE-DOWE, Westminster; ALICE WILLIAMS, Cardiff; YANYEE WONG, Lancaster; YUE WU, Manchester; XINGCHANG XU, Manchester; RAN XIONG, Manchester; QING XUE, Manchester; XIN YAN, Coventry; YANJUN YANG, Kent; AI MIN YEO, Birmingham; SELORM YEUV, Hull; HUIMIN YU, Manchester; MENGJI YUAN, Coventry; HIBA ZAKANE, Algeria; CLEMENS ZAUCHNER, Westminster; ZIWEI ZHANG, Manchester;

**Total Membership**

2352



## I USED TO BE A LURKER

**RUTH KAUFMAN, CHAIR, PUBLICITY, MEMBERSHIP AND WEBSITE COMMITTEE.**



'There are plenty of barriers to Lurker evolution: such as not wanting to add to the mass of noise on the internet; not wanting to say stupid things that may go viral; not wanting to share your views with all and sundry.'

Not a member of the English punk rock group notable for being the first group ever on Beggars Banquet Records (thanks, Wikipedia); nor a person hanging around in the shadows waiting to pounce on the weak and unsuspecting; but a social media lurker. 'Someone who joins an online community and observes, but does not participate' (thanks again, Wikipedia).

This leader is about social media. If you don't think you're interested in social media – think again. When National Treasure Sir David Attenborough says 'Twitter may seem trivial. It's not. It's hugely important'; when nearly 1.5 billion people use Facebook every month; when LinkedIn is claimed to be the recruitment route of choice for many organisations, this deserves a bit of thinking about.

Specifically, this leader is about social media engagement. It is said that for any typical social media site, around 90% of members are observers, 9% are contributors (responding to items created by others), and 1% are creators (producing original content). The numbers may be suspiciously round, but 'most', 'some', 'a tiny few' is a pretty safe summary.

What does this mean for an organisation like the OR Society, which is keen to develop its social media presence, and to use this to advance its objectives? And what does it mean for you, the reader? I'm going to address the first question first, so if you want to go straight for the self-interest part, skip to page 2.

### Good for the Society

The OR Society's social networking sites include LinkedIn (3000 members at time of writing), Twitter (1200 followers), Facebook (430 likes), a YouTube channel (36 videos), the Analytics Network Meetup group (430 members); as well as the ability for members to post to forums, blogs etc. on our own website.

Lurkers are Very Good Things for all of these sites. The terminology is fun, but misrepresentative; these are not the sort of sites where shady people hang around gathering information for their own nefarious purposes whilst giving nothing away. We have the sites because we *want* to share information – we want as many people as possible to know about the meetings we are hosting, the research we have come across, the opportunities that are available. We *want* people to learn about our community. The more people that do so, the better.



Once a Lurker, not necessarily always a Lurker. Some Lurkers simply drop out because of lack of interest. But many will evolve into active contributors – perhaps starting small, with a retweet of something that seemed rather interesting, or a private reply on LinkedIn to someone with an issue they could help with, and then building up via an occasional tweet and LinkedIn post to the full-blown creative hard stuff: regular comments on postings, weekly blogs, daily tweets.

There are plenty of barriers to Lurker evolution: such as not wanting to add to the mass of noise on the internet; not wanting to say stupid things that may go viral; not wanting to share your views with all and sundry. These are on top of the traditional barriers to participating in traditional print media or traditional physical community groups: lack of time, lack of confidence, belief that other people do it better. I know all about these barriers because I am a natural Lurker.

But for the OR Society, encouraging people to delurk (yes, there is such a word, online if not in the real world) has a big potential payoff. The OR Society is a charity that aims to promote and educate about O.R. We need to spread the word to as many people as we can. The more interesting, up-to-date, accessible material that is posted; the more O.R.-associated information that goes out into the twittersphere; the more we all share it with our own online networks; then the greater the awareness and interest in O.R., and the more difference we can make. And of course, interesting material on our sites means that more of those Lurkers are likely to hang around for longer.

### Good for self-interest

Enough of the social good; what about the self-interest? These platforms have become so hugely popular, amongst professionals and students as well as for personal use, precisely because they offer so much of value to the individual.

- You can get information and get exposed to new ideas, perfect for both academics and those in business. It's true you have to develop new ways of filtering the noise, but there is a vast amount of signal, accessible and fast
- You can connect with people and start potentially fruitful relationships all over the globe – Frances Sneddon, CTO of Simul8,

relates her delight at being widely recognised at her first ever US INFORMS conference, just based on twitter posts

- It's your chance – if you want it – to position yourself as a thought leader. Get your own blog and start sharing your views on the world

The OR Society wants its social media platforms to provide members with a new service, a new way to connect with each other, exchange ideas, share resources, without having to wait for conferences and other face-to-face opportunities.

More people engaging means more conversations, means more new people being brought in, more ideas being shared and more benefit for you, even if all you want to be is a Lurker.

So – this is a call to action. If you are a natural tweeter, a regular blogger, a frequent Facebooker, do please make your mark through tweeting with the #ORMS hashtag, retweeting OR Society material, contributing to LinkedIn and Facebook. Or join the #ThisisOR Twitter campaign, adding the O.R. brand to all that interesting analytics, data science or decision support material when you retweet.

At the other end of the scale, complete novices (Virgins and Dippers) can seek help via [www.theorsociety.com/Pages/Networking/FollowUs/GettingStarted.aspx](http://www.theorsociety.com/Pages/Networking/FollowUs/GettingStarted.aspx), be inspired by Felicity McLeister's article on page 20 of this issue, or go to [www.theorsociety.com/Pages/Probono/Probono.aspx](http://www.theorsociety.com/Pages/Probono/Probono.aspx) [scroll down the blogs]; or email [social@theorsociety.com](mailto:social@theorsociety.com) for advice or support

And if you are still a Lurker, do think about moving on. One day you too could proudly declare, like me with my 25 tweets and 31 followers so far: I am an ex-Lurker.

*The OR Society's social media strategy is under constant review and development, so if you want to make any suggestions for this, do get in touch.*

@TheORSociety

The OR Society

The OR Society

<OR>

## SPECIAL INTEREST GROUPS

Contact details for all special interest groups and meetings past and present are listed at:

<http://www.theorsociety.com/Pages/SpecialInterest/SpecialInterestList.aspx>



## 31 ISMOR – TACKLING THE BIG ISSUES

**SAM WYSS, CORDA**

At the beginning of August nearly 100 analysts from 10 countries gathered at The Royal Holloway College for the 31st International Symposium on Military Operational Research (31 ISMOR).

20 papers and 5 workshops explored themes including affordability, support to military operations, understanding 'soft issues' and new and evolving challenges for the military. A new addition to this year's symposium was a stream covering the nineteenth Annual Meeting of the Cornwallis Group, on analysis of commercial and market force roles in conflict management and mitigation. The four day symposium provided an innovative and exciting programme which participants found enjoyable and rewarding.

ISMOR is the premier international conference on military O.R. It is sponsored by Director Scrutiny from the UK MoD, and strongly supported by the Defence Special Interest Group of the OR Society. It is also supported by the Military O.R. Society of the United States of America.

This year's programme once again didn't disappoint and had a compact programme full of interesting and exciting presentations, workshops and posters. These, along with the more informal evening sessions and activities ensured all the delegates had plenty to discuss over a drink or two at the 4 day symposium.

### Tuesday

The conference started with an address from Major General Nick Pope, the Director General of Capability for the British Army. In this role he is responsible for defining the future capability requirements for the Army, and is therefore reliant on Operational Analysis (OA) to inform this requirement setting. His presentation set the scene for the conference, laying down a number of challenges to the OA community. The first session of the symposium looked at OA in the wider defence enterprise. This included papers from the UK, Sweden, and Canada.

This was followed by the theme of systems and capability which saw papers being presented from Israel and the UK.

Tuesday ended with an informal evening presentation from David Sloggett which looked at patterns of piracy around the world and where the main risks lie.

### Wednesday & Thursday

Wednesday's sessions included six papers in the Cornwallis Group session. This was the 19<sup>th</sup> Cornwallis workshop to be held since the group was founded back in 1996. In parallel to this, other workshops ran throughout the day looking at approaches to validation, portfolio management, wargaming, managing defence O.R. and a fascinating case study on Syria. For those who fancied a

change of scenery there was the option for delegates to attend a trip to Windsor to view all the sights it has to offer.

A poster session was run over lunch which included a display of about ten posters from a number of organisations both public and private. This provoked a large amount of discussion and CORDA took the prize for the best poster for '30 years of OA in the UK defence industry'. The poster looked back at how the world and hence the challenges for OA have changed and evolved over the last 30 years.



The day was wrapped up with an evening presentation from Chuck Hawkins from the United States, fascinating everyone (perhaps over a drink or two) with a short history of Chinese military operational research.



Thursday's sessions focused on analysis in practice, capability and systems and new frontiers in modelling and gaming. These presentations covered a wide range of tools, techniques and approaches along with what impact these are having on final decisions being made.

#### **Memorial Address**

Following on from a delicious symposium dinner in Royal Holloway's picture gallery, The Ronnie Shephard Memorial address was delivered by Eugene Visco, a highly experienced veteran of the US armed forces (having served in World War Two), with a subsequent distinguished career in OA, and co-founder of the Cornwallis Group. Eugene delivered an address on how O.R. made its way across the pond from the UK to the USA along with his thoughts on the role O.R. plays today.

#### **Friday**

Friday concluded the symposium with three presentations from Canada and the UK on the topic of O.R. in defence and security.

To close proceedings, Peter Starkey presented the traditional awards. The honour of Best Paper was a tie and went to two presenters. One was Andy Caldwell of Dstl, for his paper on recognising when your analysis is having an impact, and the other was Dima Kanevsky from The Centre for Military Analyses, Israel, for his paper on the dilemma of early warning against debris caused by successful ballistic missile interception.

#### **Future**

A calling notice for next year's 31 ISMOR will appear in early 2015 but it's never too early to start thinking about ideas of papers to present. So make a note in your calendar for next year's event!

Nearly all the material presented at the conference is available on the ISMOR website ([www.ismor.com](http://www.ismor.com)). Most papers from previous ISMORs are also available here.

&lt;OR&gt;

## **WIN £1000 FOR THE BEST INDUSTRY-BASED STUDENT PROJECTS IN O.R.**

The OR Society funds its annual awards for student projects from a generous bequest from the estate of Mrs May Hicks, wife of Donald Hicks, OBE, a major contributor to Operational Research and the first treasurer of The OR Society. For 2014, the prizes for the postgraduate competition will be: 1st prize £1000 plus up to two runners up of £250 each.

The entry deadline for this award has been moved back to the **end of February 2015**.

The rules for entry are as follows.

1. Entries are invited from any eligible courses. Masters courses in O.R., Management Sciences and Business Analytics are automatically eligible. Other courses should, before contemplating entry, seek confirmation of their eligibility from the Society.
2. Entries should be made by the Course Director or a faculty member acting on his/her behalf (and not by students direct). One entry per 15 students on the course, or part thereof, is allowed.
3. Projects entered should be O.R. or analytics projects carried out for a client organisation (and not, for example, desk research carried out within the university). Joint projects are allowed.
4. The initial entry should consist of the following:
  - a. a summary of not more than two pages of the project and its effects;

- b. endorsement of the project's effectiveness by the organisation which hosted the project; and
- c. an endorsement by an independent academic (e.g. the external examiner) of the project's quality.

Anonymised (as to the clients) entries will be accepted. In such cases, the endorsement at (b) should be submitted as a private communication to the chair of the awards committee.

5. The judging panel will shortlist the entries. Project reports may be requested for shortlisted entries, so a final decision can be reached on the winners. The panel may, at their discretion, make site visits or invite students to present their work.
6. Winners will be encouraged to present their work at an OR Society conference and to publish the work in one of the Society's publications. The OR Society may also publicise the winning entries through its publications and the website.
7. Entries should be submitted electronically to [gavin.blackett@theorsociety.com](mailto:gavin.blackett@theorsociety.com) to arrive **no later than 28 February 2015**.

&lt;OR&gt;



# EARLY CAREERS UPDATE

**LOUISE MAYNARD-ATEM**

This month's article is centred around two initiatives which the OR Society are undertaking to give its members career related advice and opportunities.

The first is the Annual Careers Open Day; a recurring feature in the OR Society calendar. The second is the Early Careers Advisory Group (ECAG) - an entirely new forum for members who are at relatively early points in their careers and are able to represent the views of others in similar positions to the Society's Board.

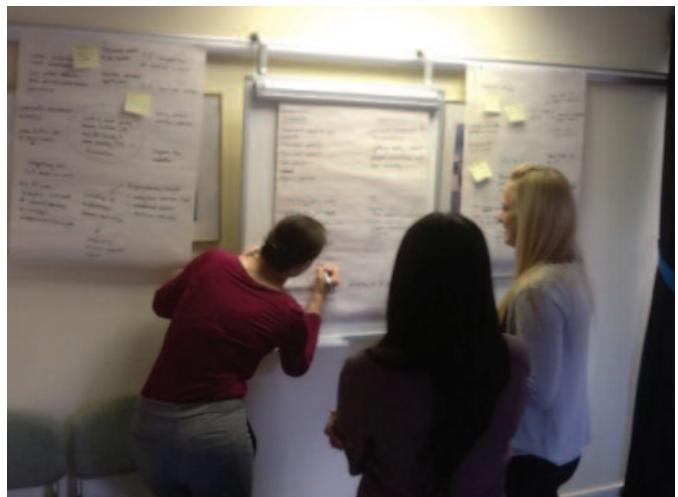
## Early Careers Advisory Group (ECAG)

Under the watchful eyes of OR Society President, Stewart Robinson, Society Secretary & General Manager, Gavin Blackett, and Strategic Projects Manager, Louise Allison, a group of relatively new members at early stages of their careers (myself included) converged on the Society offices in Birmingham to take part in the inaugural meeting of the advisory group. The aim of the group is to advise on how the Society can improve its offering to new members and those who are new to the field, in order to attract new members but also to ensure member retention. Whilst the Society still has a healthy number of members, it currently operates below steady state compared to a short number of years ago, and whilst this is to be expected given the continuing financial situation, the Board want to ensure that they are doing all they can to reverse this trend.

After giving us all some brief background information, Stewart very much handed the day over to the attendees and, in small groups, we brainstormed the following strategic areas of importance on sliding scales:

- **Visibility** - should we focus on educating managers/decision-makers of the value of O.R., or should the focus be aimed more towards the general public.
- **Methodology & communication** - quantitative v qualitative methods? Doing the analysis v communicating the analysis?
- **Reach** - should O.R. remain a 'niche' area or should we actively broaden our remit to embrace popular areas such as analytics.

- **Relevance & branding** - should there be a focus on studying interesting theoretical problems and maintaining a research image? Or should we be moving towards studying real world problems and developing a more pragmatic image?
- **Education** - when should we start introducing the concepts of O.R., at an early age or wait until university level?
- **Technology & skills** - should we as Society members be concentrating on making the best use of existing technologies in order to develop 'deep specialisms'? Or should we be focussing on the newest technology, improving computing power and becoming 'broad generalists'? Is it possible to achieve a hybrid between the two extremes and if so, what would it look like?
- **The OR Society** - as members should we tend towards being more introverted and 'ride the wave of geekery', or towards being more extroverted e.g. O.R. celebrities on television (or the so called 'Brian Cox Effect').



With representatives from both public and private sector as well as academia, I felt that the day was extremely useful in terms of bringing together a range perspectives and highlighting the areas where we shared views and those where we differed.

I'd be very interested to know your thoughts/suggestions on any of the above topics that were discussed amongst the group; also what would you like to see in terms of offerings from the Society that would be useful to you in early career stages. Feel free to get in touch with me on the usual email address: [lmaynardatem@live.co.uk](mailto:lmaynardatem@live.co.uk).





### OR Society Careers Open Day

As many of you will already know, this year's careers open day will be held on Wednesday 19 November at Millennium Point in Birmingham. This day offers attendees the opportunity to meet and chat to O.R. employers, representatives from academia and other students/graduates to understand the range of opportunities that are available to you. After speaking at the event, as well as manning a stand last year, I found it really quite eye-opening to hear about the breadth of applications that O.R. was being used for and I managed to find the time to make some really useful contacts. I've recently moved roles to take up the position of operations analyst

with Dstl, which came about entirely through a chance meeting with one of the team leaders from the organisation at last year's event! In light of this, I thought I'd provide a few pointers on how best to approach the day and other events of this nature that you might attend in the future:

- **Do your research** - make sure you find out which companies and/or universities will be attending the event and look at the type of jobs or courses that they provide. Look for companies or courses that you find appealing and target those exhibitors specifically, to ensure you make the best use of your time. All of the relevant information for the Careers Open Day is available on the website.
- **Questions, questions, questions** - once you've done your research, try and compile a list of key questions that you would like answers to and make sure you pitch them to the exhibitors; ask as many questions as you like to as many people as you can fit in to ensure you get the most out of the day.
- **Networking** - you never know who you're going to meet at events like this; they might be future colleagues or maybe even line managers. Do your best to make a strong and lasting impression with exhibitors and fellow attendees alike. Finally, don't be afraid to swap contact details with the people you meet, and if you do, make sure you actually use them - reinforce the meeting with a follow-up email to try and cement the link.

I'll be speaking at this year's event once again, but this time from the perspective of being a part of ECAG, and talking in more detail about my personal experiences in O.R. and what I've learned so far. I look forward to seeing you there!

&lt;OR&gt;

## EVENTS WORLDWIDE

To see the full listing go to:

[www.theorsociety.com/Pages/NonSociety/NSEvents.aspx](http://www.theorsociety.com/Pages/NonSociety/NSEvents.aspx)



## THE ANALYTICS OF SOCIAL-LISTENING TO THE NOT-SO-VISIBLE

FAY COBB PAYTON, KAMAR GALLOWAY

Millennials (18 to 29 year olds) have been described as confident, open-to-change, digitally-connected and self-expressive.

They are significantly influencing how society lives, works, plays and defines the social networks to do so. They are debunking traditional business models, reshaping how society communicates and redefining what it means to be social – both in the physical and online worlds.

Despite these characteristics, a recent *Time* magazine cover offers a somewhat different picture of millennials. That is, they are the 'ME-ME-ME' generation, lazy, stay at home, narcissistic young adults and often described as the selfie generation. They are detached from institutions but social and digitally connected to their network of friends (Pew Research Center, 2014). Yet, the cover contains a line that warrants our attention: 'Why they'll save us all'.

If they are to save us all, we must be open to listening and mutual learning. Listening and learning can occur in the spaces and places where millennials engage. According to Pew Research Center (2010), social media is enabling millennials to create generational identities and ecosystems at a higher rate than older generations. Seventy-five percent of millennials have created social networking profiles, 62 percent use wireless Internet in the home and 14 percent are Twitter users. The Pew Research findings are based on a U.S. survey of a national cross-section of 2,020 adults with an oversample of millennials.

Even more interest is the following statistic reported by Pew Research:

*Social networking is especially popular with young women. While roughly similar proportions of young men and women have created their own social networking profile, more women (33%) than men (24%) social networking users visit a social networking site several times a day. There also are differences by race and ethnicity. White millennials are the most likely to have created a social networking profile (83%). By comparison, 71% of blacks and 52% of Hispanics have done that. But among those who have created their own profile, blacks are more likely to use these sites multiple times a day (45% vs. 25% of whites).*

This fact suggests that the millennials, in general, and those of color, in particular, are socially engaged and connected. Their engagement informs the field that they have skills and experiences that can (re)shape, support/debunk and (dis)prove any discourse (e.g., health, politics, education, social justice) via social media. To capture one such discourse, we highlight MyHealthImpactNetwork.org with Twitter username @myHealthImpact.

'Today's millennials are the current and future producers and developers of social health computing. Social matters and social analytics, particularly for voices often dampened, matters even more.'

@myHealthImpact is an online experience targeting and engaging millennials and Black college students with a focus on health awareness. The website has launched in August 2012 and is still functional. Though this demographic is often not so visible, the analytics of social computing demonstrates that much learning and listening can take place. More recent analytics shows that @myHealthImpact has over 1,000 followers with 70% between 18 and 35 years old. These are the millennials! In the past 30 days, followers are consuming health information with 329 mentions and 232 retweets. @myHealthImpact's online activity has grown over the past two years. Developing creative social and digital content is key to this growth and to keeping the users engaged and interested in the experience.

While needle-free, robotic check-ups and caregivers, sensor-adherence checks, intelligent pills are technologies that will impact health care, there will be big data generated by the users of these innovations. Yet, the social networks and the people aspects should not be overlooked. Today's millennials are the current and future producers and developers of social health computing. Social matters and social analytics, particularly for voices often dampened, matters even more.

After all, what we learn from the not-so-visible – meaning under-represented – can and will play a role in the question asked by the *Time* magazine author, Joel Stein.



## ANALYTICS FOR HIRE!

NIGEL CUMMINGS

The quality of employees you hire depends largely on an effective recruitment and selection strategy. However, the process is not always as simple as that statement implies. Employers face problems such as cost of advertising job openings and intangible obstacles such as improving communication between recruiters and hiring managers.



It is an unfortunate fact that almost half of new recruits leave within 18 months (Forbes, Hire for Attitude, Jan 2012). According to CIPD 18% of new recruits do not pass their probation or have their probationary period extended by their employer.

According to a survey by Spring Personnel, poor performance was the most commonly cited reason employees were let go (62%), followed by absence (50%) and poor punctuality (38%). Personality clashes too were mentioned in a recent CIPD survey as a reason for why employees failed probation, with 12% of respondents pointing to an argument being the main reason they were motivated to continue with or refuse ongoing contracts.

In the main though, applicants who do not possess the requisite skills for a job, but possess excellent interview skills tend to 'grab' jobs, yet they are amongst the least stable of employees. It would be helpful to recruiters and merciful to potential employees if there were methods available for separating the good from the bad.

Two categories of analysis are commonly used: recruitment analytics and talent acquisition metrics. Simple analysis and talent comparison via automatic keyword matching in recruitment started out on the internet. This made it easier to match jobseekers with vacancies, but technology has moved on and companies now try to find 'suitable' candidates by more sophisticated analysis.

Some specialist recruitment firms offering third party applicant matching services do not even look at applicant skills, experience or CVs on behalf of their clients anymore. Instead they employ games

technologies which have been designed to reveal personality traits, emotional maturity and problem-solving skills. Such 'gamification' can extract hundreds of pieces of information 'in the background' during gameplay, ready for analysis by data scientists.

This data about a game player's personality and attitude can be compared against the cultural profiles of companies seeking employees.

One 'online' game company called Knack, uses a game called Wasabi Waiter, which involves the player serving customers in a restaurant, while it analyses their gameplay and assesses their moods and desires. Every decision and choice the player makes can help to reveal true personality traits. It analyses hundreds of variables during game play such as how long a player hesitates, what part of the screen he/she touches, the moves that are made etc. The result of all this data collection is a list of 'Knacks' which are essentially the qualities that make you who you are. The 'Knack score' can indicate whether or not you are, for example, empathetic, risk averse, introvert/extrovert, cool-headed, perceptive, a quick thinker or agreeable.

Social media analysis is often employed by recruiters, and a growing number of applications companies are now offering tools such as Sprout Social and Hootsuite which scrutinise masses of social media data and spot patterns and correlations which may make or break job applicants' aspirations.

More information at: <https://hootsuite.com/>

<http://sproutsocial.com/>

<https://www.knack.it/>

<http://www.talentmgt.com/articles/analytics-for-recruiting-in-six-easy-steps>

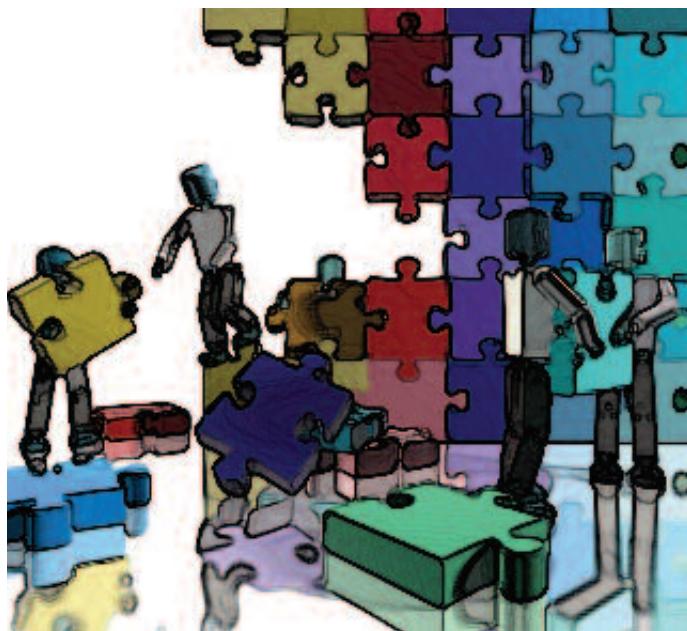
An interesting paper on talent management is available from:  
<http://bit.ly/1vLxyxH>



## IOT STANDARDS

NIGEL CUMMINGS

Ina Fried, Re/Code, recently said of the IoT (Internet of Things) standards battle, 'There's no way all of these devices will actually be able to all talk to each other until all this gets settled with either a victory or a truce. One effort will undoubtedly gain the lead, eventually everyone will coalesce and then, someday down the road, perhaps all these Internet of Things devices will actually be able to talk to one another.'



One possible winner in the battle could be the Industrial Internet Consortium (IIC) which was announced in March 2014. IIC was founded by Intel, Cisco, AT&T, GE, and IBM with the goal of developing standards specifically for industrial use of the Internet of Things. It has yet to release its specifications.

Technology companies such as Apple and Google have achieved dominancy in the smartphone market, but analysts say telecoms companies have a chance to claim roles in the development of IoT too. Matthew Howett, analyst at Ovum, recently said, 'the fragmentation and lack of technology standards could provide the biggest opportunity for telecoms operators in a fast-evolving industry already changing how people live.'

Estimates from analysts suggest the market could grow to a vast size rapidly. Gartner estimates the market will be worth about £187bn worldwide by 2020 and Cisco describes it as a '£12 trillion opportunity'. Estimates vary, but there is little doubt the market will be a large one, and most connected devices in the IoT will rely on either mobile networks or WiFi where available, such as in the home.

The provision of connections for billions of connected devices will be a big challenge, according to the European Telecommunications Standards Institute (ETSI), which sets standards for technology in the telecoms sector. The ETSI recently created the first specifications of an IoT network, allowing long-range data transmission for a few euros a year, and minimal power consumption.

Vodafone has developed a global 'subscriber identity module' (sim) chip that provides connectivity to devices that will work in any country without incurring roaming costs. AT&T and Telefónica are also said to be working on similar technologies.

According to Martin Garner at CCS . 'There are good opportunities in machine-to-machine for telcos, but they may not be easy, the major machine-to-machine deals are often on long sales cycles and are highly competitive'.

Technology groups have already seen the opportunity to set operating standards for the IoT. Google for example has launched a project called The Physical Web that will allow smart devices to interact without the need for apps. Samsung is rolling out an implementation of SmartThings, which claims to provide an open software platform to run appliances in the home and ARM has released free software which allows inter-device communication.

<OR>

Vodafone has developed a global 'subscriber identity module' (sim) chip that provides connectivity to devices that will work in any country without incurring roaming costs.



## DON'T EVEN THINK ABOUT IT

NIGEL CUMMINGS

Selling or even giving proprietary data to outside sources is not easy to detect but a Tokyo-based company called UBIC may have the answer, at least when it is done electronically.



Their *Virtual Data Scientist* (VDS) software sifts through emails to identify potential perpetrators by detecting those whose writings suggest they are either in financial difficulties or disgruntled. (How many people does the NHS employ? Ed)

When applying VDS, situations like disgruntlement with employers or finance issues would be classified as a 'developing' problem, while messages about data access that appear out of the ordinary, would get a 'preparation' classification. According to a spokesperson for UBIC. 'Cases such as information leaks do not

occur all of a sudden'. Thus applying pre-crime technology can have value in pinpointing potential sources of data leaks.

The VDS uses artificial intelligence techniques to train itself by studying and emulating the techniques of professional auditors. It can then bring those techniques to bear by scanning massive volumes of email. UBIC's approach links machine learning with analysis of big data and behavioural sciences such as psychology and criminology. This emerging field is known as behaviour informatics and it has its own IEEE task force.

VDS was used successfully in July this year when its capabilities resulted in the arrest of an engineer who allegedly stole personal data on up to 20.7 million customers of Benesse, the parent company of Berlitz language schools in Japan, to sell them for a profit. The incident was one of Japan's largest data leaks. UBIC's system currently works in Japanese only, but support for English and other languages will be added.

<OR>

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# REGIONAL SOCIETIES

## LONDON & SOUTH EAST (LASE OR S)

### CONTACT:

**Sandra Weddell**

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**EMAIL:** Sandra.Weddell@tube.tfl.gov.uk

or Martin Caunt

**TEL:** 020 7215 3317,

**EMAIL:** Martin.Caunt@dti.gsi.gov.uk

Joint LASEORS/LSE event

**Date/Time:** 19th November 2015 6pm for 6.30pm

**Venue:** London School of Economics

A mix of talks introducing practitioners, MSc/PhD students, and academic researchers.

See <http://www.theorsociety.com/Pages/Regional/laseors.aspx> for further details of speakers, timing and location.

## MIDLAND (MORS)

### CONTACT:

Jen East (Secretary)

**EMAIL:** MidlandsORSociety@live.co.uk

### How do you solve a problem like Analytics?

**Date/Time:** Wednesday, 12 November 2014 at 18.00 - 19.00

**Venue:** TBA

**Speakers:** Prof. Stewart Robinson, President of the OR Society

**Abstract:** 'Analytics' seems to be everywhere, job adverts abound, companies talk of their analytics capabilities, and the press regularly report on activities in analytics. Meanwhile, in the O.R. world, our US counterpart, INFORMS, have thrown huge resources at analytics. So how should we, as UK based O.R. practitioners and academics, respond? In this talk I shall reflect upon my own analytics journey which started in around 2006. We shall ask what is analytics? Is it just another fad or something that will stay? And we shall finish by thinking about what this means for us. Come ready to discuss your own ideas on how we 'solve a problem like analytics.'

**STEWART ROBINSON** is Professor of Management Science and Associate Dean Research at Loughborough University, School of Business and Economics. Previously employed in simulation consultancy, he supported the use of simulation in companies throughout Europe and the rest of the world. He is author/co-author of five books on simulation. His research focuses on the practice of simulation model development and use. Key areas of interest are conceptual modelling, model validation, output analysis and alternative simulation methods (discrete-event, system dynamics and agent based). Professor Robinson is co-founder of the Journal of Simulation and President of the Operational Research Society. He is helping to lead an OR Society Charitable Project on Analytics Education. Home page: [www.stewartrobinson.co.uk](http://www.stewartrobinson.co.uk).

Non-members welcome, no charge is made. After the talk, you are welcome to join us and the speaker for a meal. For further information please contact [MidlandsORSociety@live.co.uk](mailto:MidlandsORSociety@live.co.uk)

### The use of O.R. in designing new supply chain network in Marks and Spencer

**Date/Time:** Thursday, 27 November 2014 at 18.00-20.00

**Venue:** TBA

**Speakers:** Victoria Forman, Marks and Spencers

Details to follow

### Operational Research at NATS

**Date/Time:** Wednesday, 3 December 2014 at 18.00 - 19.00

**Venue:** G8, Aston University

**Speakers:** Simon Martin

Non-members welcome, no charge is made. After the talk, you are welcome to join us and the speaker for a meal. For further information please contact [MidlandsORSociety@live.co.uk](mailto:MidlandsORSociety@live.co.uk)

### Abstract

This presentation will provide a brief introduction to NATS and a high level tour through the work of the NATS Operational Analysis department, giving an insight into this fascinating industry.

We will then focus on the area of airport capacity, discussing the range of problems for which simulation modelling of airport airside operations has successfully been applied at NATS. These include determining the impact of taxiway closures, selecting the best options for airport development and maximising the capacity of existing and planned assets.

We will cover the simulation methods used and give examples of the range of results and outputs that can be generated. We will highlight the impact and benefits of NATS simulation projects that have been carried out at home and around the world.

## SOUTH WALES (SWORDS)

### CONTACT:

Dr Jonathan Thompson.

**TEL:** 029 2087 5524 Fax: 029 2087 4199

**EMAIL:** ThompsonJMI@cardiff.ac.uk

### SWORDS Title To be Confirmed

**Date/Time:** Wednesday, 12 November 2014 @17.45 - 19.00

**Speaker:** Naomi Rowlands (BA)

**Venue:** School of Maths, Cardiff University

Naomi Rowlands from British Airways will be speaking to SWORDS on the 12th of November. Further details will be provided later.

### SWORDS Seminar and Quiz

**Date/Time:** Wednesday, 10 December 2014 @ 18.00

# NOTICEBOARD



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**Speaker:** Professor Steve Disney

**Venue:** School of Maths, Cardiff University

Professor Steve Disney will be giving a presentation to SWORDS on the 19th of December and this will be followed by a quiz and food. More details will follow later.

## YORKSHIRE & HUMBERSIDE (YHORG)

**CONTACT:** James Crosbie

**TEL:** 07891244594

**EMAIL:** [jamescrosbie@hotmail.co.uk](mailto:jamescrosbie@hotmail.co.uk)

YHORG meeting

**Early Career O.R.**

**Date/Time:** Thursday 13 November 2014, 17.00 -19.00

**Venue:** Leeds University Business School, Maurice Keyworth Building, University of Leeds, Moorland Rd, Leeds, West Yorkshire LS6 1AN

**Speaker:** Elena Khmeleva, Elina Michailidou, Tom Stephenson and Clare Webster

**Early Career O.R.**

Four people early on in their O.R. careers, working in different sectors, will speak about their educational background, their reason for choosing to work in O.R., their current employer, the work they have done so far, and their future plans. This will be followed by a panel session where the speakers will answer questions from the floor.

After completing BSc in Applied Informatics at Russian Southern Federal University, **Elena Khmeleva** moved to the UK where she

is an Associate Lecturer in Operations Management and a PhD researcher at Sheffield Hallam University. She is currently looking into the development of a Genetic algorithm for optimization of crew scheduling operations in the rail freight industry.

Following an MSc in O.R. at LSE, **Elina Michailidou** joined EY (Ernst Young) where she has been for 3 years and worked on a number of projects including supply chain optimisation, manpower planning and geographical modelling.

**Tom Stephenson** studied Management Science at Loughborough University, which taught him a lot of O.R. techniques and introduced him to SIMUL8. After this he joined SIMUL8 as a healthcare consultant and has been there a little over 2 years.

**Clare Webster** was first introduced to O.R. whilst completing an industrial placement year in the Department of Health as part of her BSc (Hons) Mathematics degree course, at Sheffield Hallam University. She has now been in the Department for Work and Pensions for over two years and has had a number of analytical roles covering areas involving welfare reform and the DWP estate.

Refreshments will be available from 4:30pm. There will be a short AGM after the talks and all are welcome to join the speakers for drinks and dinner after the event.

Please contact James Crosbie on [jamescrosbie@hotmail.co.uk](mailto:jamescrosbie@hotmail.co.uk) to book a place.

&lt;OR&gt;

**INSIDE O.R.** Published by The OR Society, 12 Edward Street, Birmingham B1 2RX, UK. Tel +44 (0)121 233 9300; fax +44 (0)121 233 0321; email (Magazine items only) [insideor@theorsociety.com](mailto:insideor@theorsociety.com) (general) [email@theorsociety.com](mailto:email@theorsociety.com). World Wide Web [theorsociety.com](http://theorsociety.com). Inside O.R. is published monthly. A PDF of each issue is emailed to members registered to receive electronic copies in the same period as the printed copy is distributed. An electronic news bulletin with adverts and short news items is issued in the intervening period. Advertising sales enquiries and advertising copy: Jennie Phelps at the above address, or email [jennie.phelps@theorsociety.com](mailto:jennie.phelps@theorsociety.com). Monthly print version mailed to members around the 25th of previous month. Copy deadline for print version: normally 10th of the previous month. Editor: John Crocker. Assistant: Jennie Phelps. Print version DTP and printing: Clarkeprint, Birmingham. Opinions expressed in Inside O.R. are those of the contributors alone and are not necessarily endorsed by The OR Society. Copyright © 2007 The OR Society. The OR Society is a trading name of the Operational Research Society, which is a registered charity and a company limited by guarantee.

**IMPORTANT:** Contributors please note. All contributions must be in four parts as follows (1) headline (approx 6 words); (2) mini-abstract (max 25 words); (3) main body of contribution (max 500 words); (4) keywords. At the editor's discretion, contributions exceeding 500 words will be shortened, serialised or published with the warning Long article. X words. Whenever possible contributions should be submitted electronically as Word files and emailed to [insideor@theorsociety.com](mailto:insideor@theorsociety.com). Illustrations should be attached as JPG, GIF, TIF or files of other common formats. Contributions submitted in hard copy must be posted to The OR Society at the address above, or sent to the Society's fax number, and be clearly marked Inside O.R. All contributions must bear the author's name and address (not necessarily for publication). All contributions accepted by the editor will be published in the print version subject to availability of space. The editor's decision on all contributions is final and no correspondence will be entered into.



## OR-30

John Crocker

John Sussams, A.T. Kearney Ltd starts his paper entitled 'The Future for Computerized Vehicle-Load Planning Systems', 'One of the paradoxes of operational research today is that if it *is* research, then it is probably not operational, and if it *is* operational, it is probably not research.' He argues that Dantzig and Ramser had shown that linear programming could be used to solve this type of problem as early as 1959 and that Clark and Wright had pretty much wrapped this up in their paper of 1963. However, in a survey carried out in 1982, although there were computer programs available that solved this type of problem, market penetration was probably no more than around 2%.

The main reason was simply that most potential users were not yet sufficiently sophisticated – few had access to computers or to a computerized order-processing system (an essential prerequisite). There were several other reasons given but one that was perhaps unexpected was 'computer systems already tried proved less efficient than manual methods'.

The main aim of the software is essentially to minimise the vehicle miles travelled by a) minimising the number of vehicles required and b) by determining the optimum route for each on a daily basis. The reality is, however, that all drivers (and hence vehicles) must be used every day and each should be given roughly the same amount of work (number of loads and distance). It was also argued that drivers prefer fixed routes and that the software was unable to

handle many of the constraints (one-way streets, variable traffic conditions, etc).

In the cases where the computer system was less efficient than manual methods, it was noted that the human route scheduler was able to relax or subtly change some of the rules and create new ones if necessary. Demand was often variable such that in order to meet the peak conditions more vehicles would be needed than during normal times. This tended to result in a relatively low average utilisation but this was often considered more desirable than taking on extra drivers temporarily or losing this business to the competition.

Sussams believed that there would be a greater take up of this software in the near future as more companies switched to computerized order processing and dedicated minicomputers (sic) for control of warehousing and transport operations.

Sussams, John (1984), The Future for Computerized Vehicle-Load Planning Systems, *JORS* 35.11, Pp 963-966 ([jors1984192a.pdf](#))

Dantzig, G.B. and J.H. Ramser (1959) The truck despatching problem. *Mgmt Sci.* 6, 80

Clarke, G and J.W. Wright (1963) Scheduling of vehicles from a central depot to a number of delivery points. *Opsn Res.* 11, 568

<OR>

## OR-20

### Professional qualifications and chartered status

One of the questions that has been raised for discussions in the last year is whether or not the Society should seek chartered status. It was decided at Council that the way to involve members in the debate on this question was to promote a series of articles in the Newsletter over the next few months discussing the advantages and disadvantages. This article is intended to start the ball rolling by outlining what I see as being involved in going for chartered status. In the next few months there will be four more invited articles by members – two broadly in favour on the idea and two essentially against it – together with one from an officer of the Royal Statistical Society which has recently introduced the Chartered Statistician qualification.

Chartered status involves the Society petitioning the Privy Council for a Royal Charter. The petition would outline the objectives of the Society, the activities it undertakes, its rules and regulations, including grades of membership and the type of qualifications necessary for each grade where this is appropriate. The petition is considered by the Privy Council, which would also seek advice from other chartered societies on our standing, before making a decision. One of the principle criteria in the decision is if it is in the public interest to bring the activity of the society within a form of public control. Many applications are unsuccessful, but those societies that are successful tend to be bodies exercising regulatory control over specific professions. The Society would therefore have to introduce professional qualifications, grades of membership and a

code of conduct if it was to stand any real chance of becoming chartered.

### European recognition

The Charter itself, apart from changing the legal status of the Society was empowered to do, but would bring the Society, especially where its regulation of the profession and award of qualifications was concerned, under the supervision of the Privy Council. This is the British equivalent of the state-regulated professions which are common on the Continent, and chartered status accordingly attracts automatic recognition in Europe – something that could become important in the future.

### Issues intertwined

It is the case that we could go for professional qualifications without aiming for chartered status, but the difficulty then is getting the worth of the qualifications recognised world-wide. On the other hand, as discussed above, we would be unlikely to achieve chartered status if we did not have professional qualifications. The two issues of qualifications and chartered status, although nominally separate, are thus in practical terms inextricably intertwined.

### Ten year leadtime

Seeking chartered status is not just a matter of a society deciding and sending off its petition the next week. Since once a Royal Charter is given it can only be changed by the Privy Council there is a need to make sure all the rules and regulations of the Society are sensible for running the Society for several decades. One society for

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example left in a clause that all past presidents stay on its council for life and now watches with fascination and indeed alarm, as the average age of its council increases inexorably. Moreover if the Society wants to award and regulate professional qualifications as part of its charter it will need to have been operating such a system for several years so that the Privy Council can be satisfied with the standard of the qualifications and the way they are awarded and regulated. The fellowship of Operational Research has been operating a set of qualifications for twenty years and it may be appropriate for the Society to develop a system that can absorb the FOR qualifications. It would be essential that the Society remain open to everyone interested in the subject and so the qualifications would need to be related to different grades of membership, so that people can still join the Society without having to aim for a professional qualification. Finally it will be necessary to ensure that our reputation among our peers is such that they can make positive recommendations to the Privy Council. If the Society decides to go for chartered status it will take at least four years in my estimation before it will have operated all these changes for a sufficient time to make submission to the Privy Council a sensible proposition. Ten years overall is a realistic estimate of the time needed to obtain full chartered status.

### Danger of being left behind

So why are these major changes being considered at this time? One reason could be facetiously put as 'everybody's doing it'. More precisely, in the last few years several Societies with related interests such as the British Computer Society, the Institute of Mathematics and its Applications and the Royal Statistical Society have successfully obtained chartered status or used their existing status to develop professional qualifications. We know of several other kindred societies that are actively considering this issue. This had led to higher profiles of these societies and a substantial increase in membership in some cases. There is a risk that professions that do not take this step could suffer as a result of being seen as having lower status.

### Independents need qualifications

Secondly the change in the structure of practitioner Operational Research groups from large in company groups to more consultancy firms and individual practitioner's means that there is more pressure on many practitioners to establish to potential clients their individual competence. As it stands with one grade of open membership there is no way the Society can assist in this area. A similar pressure comes from people who are involved with Operational Research work in other European countries, where clients are more used to seeing professional qualifications being displayed in all areas. Another pressure was highlighted in the last survey of the membership. The vast majority of members wanted the Society to promote the image of the subject both nationally and internationally. Chartered status would certainly enhance the image of the subject.

### Demand from younger members

There was also clear support from younger members for chartered status and professional qualifications. Given that such a demand exists, if the OR Society does not meet it, then sooner or later some other body will do so. This would certainly not be in the Society's interest, and might not be in the profession's interest either.

### Pros and Cons

Let me close by giving a check list of what I see as the pros and cons of the Society going for chartered status.

The advantages are:

- Enhanced status and influence of Society in the UK and Europe;
- Giving members chartered qualifications will enhance professionals standards of the subject;
- Chartered qualifications will attract more members to the Society. As open membership of the Society would still be available no present member should be put off from remaining, and there may be people who would join because they sought professional qualifications. Since non-renewal of membership means loss of qualification, one would hope members would be more likely to stay with the Society;
- It would deal with the demand for endorsement of professional competence that is growing both from practitioner and academic members;
- As a body recognised by the Privy Council, it would give the Society and its qualifications the imprimatur of official approval sought by overseas clients. Moreover, the Society would automatically be consulted by the government on any matters on which O.R. could be expected to have a view;
- State-regulated professions are much more common on the Continent. We cannot afford to wait and see if EU regulations are ever going to require O.R. to be regulated, and it would take us ten years to respond.

The disadvantages include:

- The Society will change its focus from being purely a learned Society to include the activities of a professional society;
- It will be far more difficult to change the constitution with chartered status, so the rules and regulations need to be vetted very carefully;
- There is a great deal of work involved in checking our constitution, agreeing how professional qualifications would be awarded, implementing the rules and examinations agreed, and lobbying for chartered status, and there still would be a chance it would be refused;
- The cost of all the effort together with legal fees would be quite high. Estimates by a society which obtained a charter seven years ago put the legal fees at £60,000;
- The introduction of qualifications would inevitably involve implicitly – defining O.R. If correctly handled this could bring benefits, not least by sharpening O.R.'s image, but there are risks involved. (We should not suppose that we are so very different from other professions in this, as recent discussion in the Royal Statistical Society's newsletter has shown.)

Thus it is not an easy decision to make, and if we decide to go for a charter it will be a challenge to implement the decision. However Operational Research of all people should be able to make an intelligent analysis of the decision, and I am sure the Society would successfully rise to the challenge. Of course, no decision to change the nature of the Society or its constitution or rules of membership could be taken without a vote in favour by the membership and no vote will be called before there has been a full debate on the issue. The debate is now open.

Lyn Thomas

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West London

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For an informal discussion in total confidence on any of these positions or the market in general, please contact: Teresa Cheeseman, Kate Fuller or Mark Chapman. Alternatively visit our website to view our current vacancies.

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