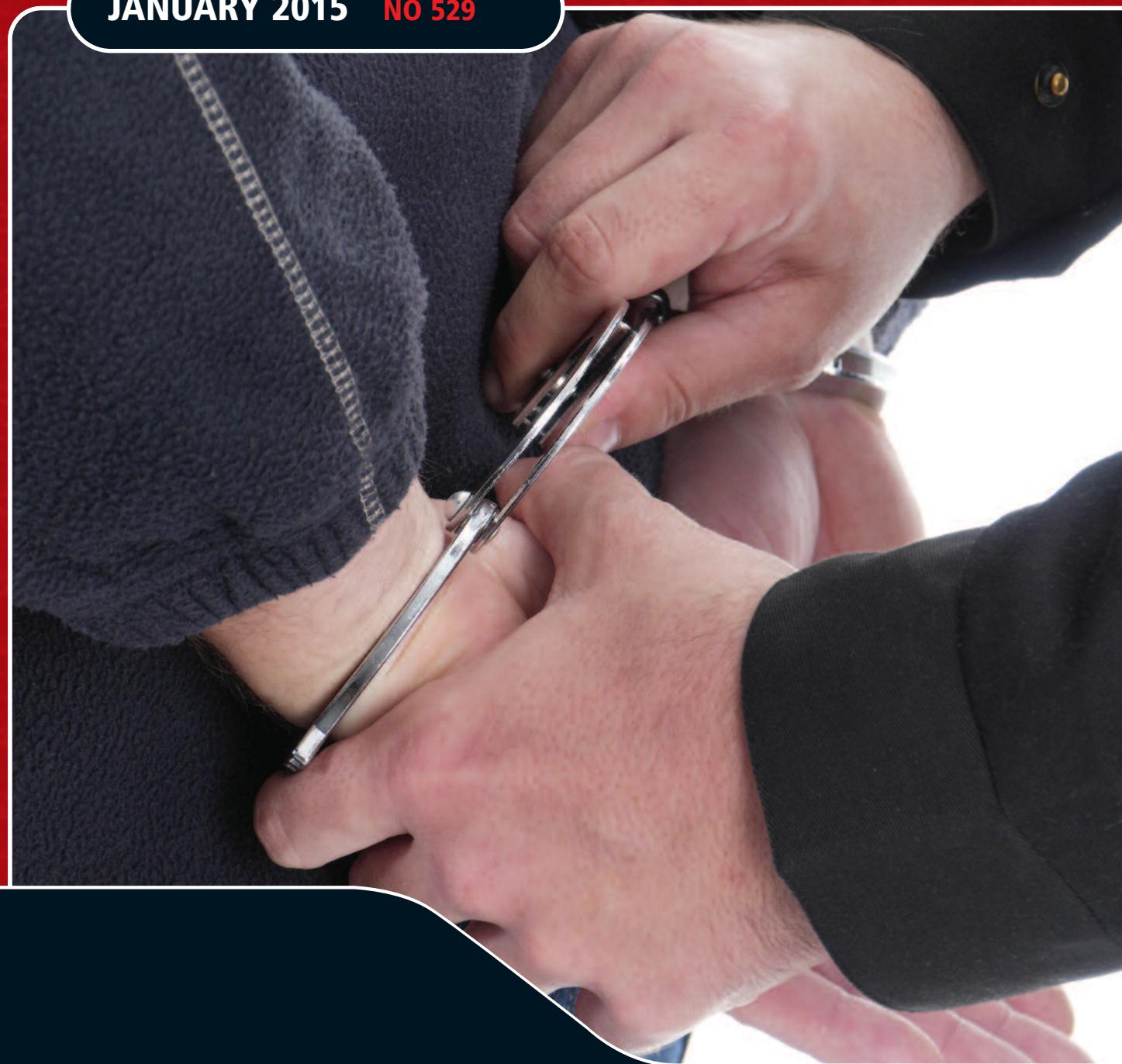


THE SCIENCE OF BETTER AT THE HEART OF ANALYTICS

# INSIDE O.R.

JANUARY 2015 NO 529



## CRIME PREVENTION METHODS

### :: INSIDE THIS MONTH :: :: :

CLOUD SECURITY

ROB DINSEY - YOU'RE HIRED!

ANALYTICS AND YOU

OPPORTUNITIES AND CHALLENGES FOR THE NHS

OR

THE OR SOCIETY

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# EDITORIAL

**JOHN CROCKER**

If I can get this written within the next few minutes there is every hope you will get your hard copy before Christmas! November and December seem to be particularly busy months in the Society's calendar. Yet again there was no shortage of students interested in finding out about O.R. and its potential as a career at the Career Day. A Yorkshire and Humberside meeting along a similar vein was also very well attended; as was a joint meeting of DSIG and SCAF held in north Bristol and a meeting of the Criminal Justice (CJ) SIG which discussed aspects of crime prevention in Kent. Grocers' hall, not far from the Old Bailey and the home of the Bow Street Runners, provided an excellent venue for this year's Blackett Memorial Lecture given by Sir Bruce Keogh on the future of the NHS and the part that O.R. has played and hopefully will continue to play in its future. This was also the event at which a number of the Society's awards were presented – it was particularly good to see Ruth Davis looking so well and in such good spirits when she was made a Companion. (If I have missed any other events, it is probably because you have not sent me any details of them – you have only yourselves to blame!)

I would particularly like to thank Alistair Morley for his letter – it is great to know that there is at least one person who has read at least one article in at least one issue of *Inside O.R.* in 2014. What is even better is that the letter was printable and, as far as I can tell, not libellous. As the home of some of the world's leading experts in modelling, optimization and forecasting (indeed, one was the recipient of the Beale Medal) surely we should be able to say something constructive about global warming and sustainability. Actually, to be fair, a team from DECC who were finalists for this year's President's Medal have, as Alistair points out, produced an open-source model which addresses these issues but it does not carry the collective weight of the Society behind it.

As if London has not got enough museums, academies, libraries and the like, a new one named for Alan Turing is being built in the 'Knowledge Quarter'. This one is aimed at promoting computing, analytics, data science and the like so is particularly aptly named. It would be marvellous if we can get a section dedicated to O.R. from the early days when it helped foreshorten WWII through the period of recovery thereafter and into the future as the foundation for evidenced-based policy making. As yet, I have not had chance to see *The Imitation Game*, Hollywood's biopic of Alan Turing although I do hope to get a copy of the DVD if and when it becomes available. By all accounts, it is a reasonable portrayal up to just before the end when for some reason it was decided to try to blacken his name by suggesting he was being blackmailed by a Russian spy, whom is supposed to have been in contact with at Bletchley Park even though this is both extremely unlikely and there is no evidence to support such an allegation, I guess that's Hollywood for you.

By the time you read this, I suspect Stewart's glass will be completely empty and have only one year left to fulfil his ambitions for the Society. Offering free membership to students certainly seems to have had effect on the numbers who have joined this year – all we have to do now is convince them that it is in their best interest to maintain their membership. If you have any suggestions, please tweet them to Stewart or just write to me.

I have resolved not to make any New Year's resolutions in much the same way as I give up abstinence for Lent but if you haven't, you could do worse than to resolve to write at least one article for your *Inside O.R.* in 2015 – I shall look forward to reading them! Have a very happy and prosperous New Year.

<OR>

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# CRIME PREVENTION METHODS

**SUE MERCHANT**

Our autumn meeting of the Criminal Justice (CJ) SIG was held at the London Mathematical Society premises in Russell Square and attracted over 25 analysts from several police forces, small and large consultancies, UCL, the Home Office and Ministry of Justice.

**Use of SSM in the CJ world.** First, Kees van Haperen from Atkins presented a summary of the methods covered in a book he has recently co-authored with Brian Wilson (out next summer) on soft systems thinking & methodology and the management of change. An SSM study showed that 'micro analysis' (using pro forma) did not include the right questions and needed common definitions of services to make it effective. Kees shared with us some of the problems that can arise when there are many political issues involved including the difficulty of gaining access to top decision makers. He stressed that the main value of SSM lay in the increased confidence of data it could bring, better understanding of the relationship between resources, threats and risks, and the provision of a robust approach to developing options for change.

**How the Home Office is building an analytics capability.** Our second speaker, Nick Manton from the Home Office's Data Analytics Programme explained to us the technical aspects of how the HO is building its analytics capability using Agile methods, with the ultimate aim of drawing sensible conclusions from its vast data banks to make communities safer and improve customer experiences. He described the use of a probabilistic matching algorithm to find duplicate records (e.g. is Ron R Jones the same person as Ronald Jones?) taking into account various factors such as passport number, telephone number etc and allowing for transposition of digits. The cleaned data would be used to highlight higher risk applications for passports and to examine unusual travel patterns to spot criminal activity, for example.

**Trial of crime prediction method in Kent police.** Mark Johnson and Graham Down from Kent Police's Corporate Services talked about Kent's trials of PREDPOL – an algorithmic approach to predicting crime which had originally been used to predict aftershocks of earthquakes. Data collected over 7 years about crimes in Kent is supplemented with a daily feed of street crimes and antisocial behaviour reports. This is used to predict crime incidence in specific grid squares and disseminated securely. Trials commenced in Dec 2012 and the whole force went live in March 2013. The results show that PREDPOL correctly predicts about 7-13% of crimes in target grid squares; this is about twice that achieved by conventional hot-spotting methods although other factors may have had an influence.

**Operational de-briefing in the Met Police.** Our final speaker, Caroline Bridgman, who has recently left the Met Police, described the methods which she had helped to develop for de-briefing

'The cleaned data would be used to highlight higher risk applications for passports and to examine unusual travel patterns to spot criminal activity, for example.'

officers who have been involved in incidents/operations particularly of a high profile. Starting with a large poster showing the most likely generic types of issue that may have arisen, officers are asked to use sticky notes to list three things that were less effective and three that were more effective. The first officer is asked to pick one of his or her points, explain it and then place it on the poster in the most appropriate area. The facilitator then asks the others if any had a similar or related point which they then explain and post. This process is repeated until all notes have been placed on the poster at which point, the participants are then asked to write another set of notes identifying what they would do differently next time plus any ideas for improvement. This is then all written up in a report that is sent to the sponsor (and, possibly the stakeholders). Caroline explained how important it was to have a senior sponsor involved who could take forward the learning, and emphasised that the process is flexible and scalable: it can be run as a series of de-briefs or as a one-off event.

Presenters' slides containing much more information should soon be on the CJ sig website.  
<http://www.theorsociety.com/Pages/SpecialInterest/CriminalJustice.aspx>

Our next event will be held at West Yorkshire Police HQ in Wakefield on March 13<sup>th</sup>. Topic: Predictive Analytics. See the CJ website for further information or contact:  
[martin.rahman@westyorkshire.pnn.police.uk](mailto:martin.rahman@westyorkshire.pnn.police.uk)

## Better late than never!

The Alan Turing Institute for Data Science, based at the British Library will be at the centre of the Knowledge Quarter in the Kings Cross – Euston area of London.



The prime focus of the Institute will be to bring together expertise and experience in tackling problems that require huge computational power. Funding for the project will come from the Department of Business, Innovation and Skills. The intention, according to a spokesman from the Treasury in London, is for work done at the Institute to benefit British companies and provide them resources to ensure that Britain leads the way in the use of big data and algorithm research.

The centre is named for Alan Turing who effectively defined the computer in his seminal paper of 1936 and who played an instrumental part together with Flowers, Wynn-Williams and others at Bletchley Park to turn this concept into a reality and, as a result, helped bring the end of World War II forward several months, thus saving many thousands of lives.

More at: <http://bit.ly/1j6CZYB>

## Cognitive Computing

Imperial College London and the University of Southampton are today announcing they are working with IBM Watson - the first

universities in the UK to do so. They will be making the cognitive computing system available to some of their undergraduates and postgraduate students for education and research.

Imperial College London will offer new courses to provide students with opportunities for hands-on learning as they work to develop cognitive computing solutions to address business and societal challenges. The partnership extends cognitive systems activities in Imperial's Department of Computing as well as in other College departments already involved in related interdisciplinary research.



The University of Southampton will engage with IBM Watson through a new Cognitive Computing module as part of its Curriculum Innovation programme which will initially be available to over 150 undergraduate and Masters' students across all disciplines.

More information can be found at:  
<http://bit.ly/1wrlSkY>

## An F1 spinoff!

Formula 1 group McLaren's in-house predictive analytics will be available for use by other industries as part of an alliance with KPMG. Expected to last at least 10-years, the McLaren F1 software will be extended by KPMG to provide real time decision making to industries outside of racing and to improve auditing and advisory services for KPMG's clients.

The McLaren service has already been employed by several large UK companies including GlaxoSmithKline, who use it to optimise the production of several of its household brands such as Sensodyne toothpaste.

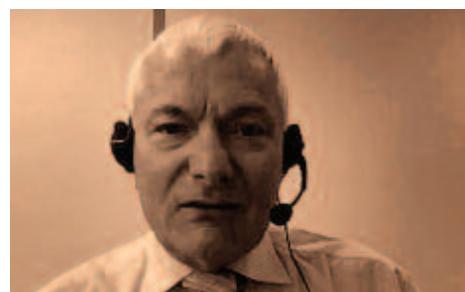
The Formula 1 software team also works with software vendor SAP, and uses SAP

Hana and SAP cloud and database software as part of its services' portfolio.

More information at:  
<http://on.ft.com/1x8Wnuh>

## You can bet on it

Betdigital, the Abingdon based creators of content and systems for online, mobile, and interactive TV based gaming platforms has appointed Professor Walter Patterson as a technical consultant. Patterson has worked for various government bodies and on international programmes; he is regarded as an expert in the field of analysis of performance data in educational systems.



Prof Patterson will oversee all of Betdigital's internal auditing and compliance requirements. An additional part of his role will be to provide support and guidance on any compliance issues that may arise in the running of the company.

## Daniel H. Wagner Prize goes to...

MIT Professor David Simchi-Levi and eight colleagues have received the 2014 INFORMS Daniel H. Wagner Prize for Excellence in Operations Research Practice for a project that utilised Simchi-Levi's Risk Exposure Index (REI) to identify risk and mitigate disruptions in the automotive supply chain.



# IN BRIEF

05

The Risk Exposure Index (REI) helps prioritise the financial impact and/or operational impact of disruptions, thus enabling companies to focus mitigation efforts on the most important suppliers and risk areas.

The Daniel H. Wagner Prize is awarded for a paper and presentation that describe a real-world, successful application of O.R. or advanced analytics.

## Nirvana?

The global financial crisis of 2008 is thought to have been the result of poor organisational culture. As a result, research carried out by the ACCA (Association of Chartered Certified Accountants) and the ESRC (Economic and Social Research Council) has generated no fewer than four reports under the general heading of 'Culture and Channelling Corporate Behaviour' that are intended to start companies, in general, and Boards, in particular, on a journey of cultural improvement.

Boards should ask themselves three fundamental questions, which are seen as basic good corporate governance:

What are the goals and purposes of the organisation?

What sort of behaviours does it wish to encourage and discourage?

How is the tone at the top set out and conveyed throughout the organisation?

More at: [www.accaglobal.com/culture](http://www.accaglobal.com/culture)

## Kamikaze?

Military suicides are an unfortunate reality encountered in all armed services around our world, but predictive analytics is being used to identify members of the military at the highest risk of committing suicide.

The new STARRS algorithm, currently employed by the US Army, but due for rollout to allies, can narrow down more than 300 factors on individuals under scrutiny and place them into graded risk categories. The study, conducted by researchers from civilian and military institutions, looked at Army hospitalisations between 2004 and 2009.

More information can be found at: <http://bit.ly/1wiqMEV>

## Markov Pioneer Dies

Eugene Dynkin, the A.R. Bullis Professor of Mathematics emeritus, died Nov. 14 aged 90. Born in Leningrad in 1924 as Evgenii Borisovich Dynkin, he was admitted to Moscow State University at age 16.



In a career spanning 7 decades he became known as a worldwide leader in probability theory, although his early career concentrated on Lie algebra. He became one of the most respected world experts in the theory of Markov processes, which describe a series of random events in which the future depends only on the present and not on previous events. His 1959 book, 'Foundations of the Theory of Markov Processes,' is still a fundamental text.

More information at: <http://bit.ly/1x8WvKI>

## Alexander Grothendieck (1928 to 2014)

Alexander Grothendieck, the famously reclusive mathematician whose area of study was the modern theory of algebraic geometry has died in France at the age of 86. Grothendieck was a leading mind behind algebraic geometry. He was awarded the Fields Medal in 1966, but refused to travel to Moscow to accept it for political reasons.



A lifelong pacifist, he withdrew from major French universities upon uncovering their military funding. In the 1980s he wrote La Clef des Songes in which he described how his contemplation of the origin of dreams

led him to conclude that there was a God. Grothendieck influenced the mid-20th century trend toward increasing generality and abstraction in mathematics. His research extended the scope of the field and incorporated major elements of commutative algebra, homological algebra, sheaf theory, and category theory into its foundations.

Alexander Grothendieck b. March 28, 1928, d. 13 November 2014.

## William Merton (1917 to 2014)

William Merton, the son of a scientist, read physics at Balliol College, Oxford where he met Lord Cherwell (Frederick Lindemann). In 1941, Merton joined the Operational Research unit at RAF Coastal Command where he worked on an early study which showed depth charges were exploding too deep to cause very much damage. He was also involved in a study which measured how much closer aircraft painted white on their undersides could get to a target U-boat before being spotted. These two studies helped increase the kill rate from under 1% to around 10%. After this, in 1943, he moved to the office of Lord Cherwell, 'advisor' to Prime Minister Churchill. After the D-Day landings, Merton made several visits to Normandy to investigate the launch sites of the V1 and V2 rockets reporting back to Cherwell who had doubted the existence of such weapons. Although Merton's early career had been in O.R., there is no evidence that he played any part in the OR Society.

A fuller account of his life was printed in The Times (20 November 2014).

## And finally... How about summer in Torbay

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 April 2015, application deadline 15th February 2015. 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/1qDzrkl>



## KM MEETS THE THIRD SECTOR

RUTH KAUFMAN ET AL

Whilst there has been much talk about the need for third sector organisations to collaborate, there has been scant coverage of how to manage the shared information and knowledge flows that underpin such partnerships.



*Moya Hoult*

The Third Sector Special Interest Group (SIG) was therefore delighted to host a joint presentation from Dr Gillian Ragsdell, Senior Lecturer in Knowledge Management at Loughborough University and Moya Hoult, Chief Officer of Charnwood Citizens Advice Bureau, describing a knowledge management application aimed at doing exactly that.

Charnwood Connect is a project spearheaded by Charnwood CAB and funded for two years by the Big Lottery, bringing advice and advocacy services in the area together into collaborative service provision. The aim is to make the best use of resources in the current environment of funding cuts and statutory service restructuring. Successful knowledge sharing is clearly key to successful collaboration.

Gillian started by tapping her head and explaining 'It's all about getting what's 'up here' into a format that can be used by an organisation. So, capturing knowledge is important because, when personnel leave an organisation, knowledge leaves with them.' She went on to discuss different strategies for managing knowledge – one that focuses on knowledge as an asset and one that emphasises social processes – and stressed that the Charnwood Connect project consciously embraces both. Gillian highlighted that Knowledge Management has changed considerably since its beginnings. 'Today we are managing knowledge in a world where there is a huge amount of information, where we connect with people in different time zones through different media, and so on... All of these changes have made Knowledge Management more exciting and even more necessary, but also more challenging'.

Gillian went on to illustrate the processes involved in Knowledge Management and, in particular, why many lessons can be learned from the ways in which the voluntary sector manages its knowledge, and the holistic approach adopted for Charnwood Connect. Picking up the story, Moya had much to say about the challenges of Charnwood Connect, and how Knowledge Management techniques had proved useful. The focus of how Citizens Advice Bureaux dealt with public problems had, she said, 'changed, considerably over the years. It used to be all about crisis management but now considerably more emphasis is placed upon preventative work'.

Moya gave some examples of changes introduced as a result of the project. The change to collaborative service provision meant that it was important to set up robust referral systems with partners, and to investigate new ways of connecting with clients. One of the most effective ways, she said, was to remind clients of their appointments by sending out appointment reminder text messages. This and the implementation of a 'Connect Card' were being tested over a three month period. Early results had been very encouraging: the text message approach for example, had resulted in reducing 'did not attend' figures considerably whilst the Connect Cards had proved to be extremely effective aide memoires for clients.

Moya also discussed the development of an IT Knowledge Hub for Charnwood Connect: an essential component of the system for sharing best practices.

Cultural differences between collaborating organisations also need to be allowed for, and Moya gave the example of the role of volunteers. Whilst volunteers are the core of a CAB service, other partners in Charnwood Connect had mainly used volunteers for 'back office' duties. All partners were being encouraged to use volunteers in 'frontline' positions. Volunteers gain valuable skills and experience whilst the organisations can benefit from an increase in resources and capacity.

The presentation had been preceded by the General Meeting of the Third Sector SIG, summarising what they have been doing since the last meeting in 2012, and flagging up some of the plans for next year, including a half-day meeting focusing on young people's services, and joint meetings with Regional Societies. Find out more about the SIG and ORS's third sector activities on the website (<http://www.theorsociety.com/Pages/SpecialInterest/ORThirdSector.aspx>) or follow Felicity McLeister on Twitter @FMcLeister



## BEALE LECTURE 2015

**Thursday 26 February 2015 - Midland Hotel, Manchester**

'O.R. research in UK universities – where do we go from here?'

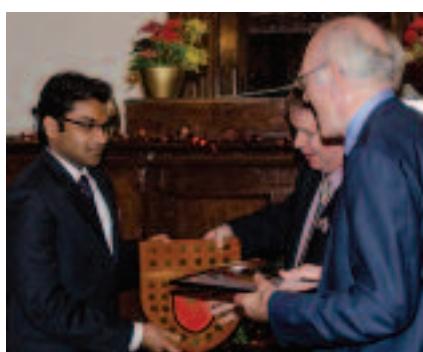
Come along and find out!



**Kevin Glazebrook** was awarded the Beale Medal in recognition of his sustained contribution over many years, to O.R. in the UK.

Ten years ago EPSRC commissioned a report *Review of Research Status of Operational Research in the UK* which was conducted in partnership with EPSRC and the OR Society. This review has exercised a potent influence on research council thinking about O.R. research over the last decade and key investments trace their origins to it.

The lecture will reflect on some of what has been accomplished over the last decade, (and what has not), along with the challenges/opportunities which face O.R. research in the academy ten years on when research impact counts. The speaker will highlight a personal connection with Martin Beale and will draw lessons from it.



**Kabir Rustogi** will also speak on his PhD paper: Scheduling with Changing Times and Rate-Modifying Activities.

Scheduling models that allow the processing times to be variable have attracted considerable attention during the last two decades. Under changing processing conditions, the actual processing times can be subjected to various effects that make the actual processing time of a job dependent on its location in a schedule. Among most well-known effects are those of learning and deterioration. My work covers most of the models traditionally considered in the literature on these effects: positional, start-time dependent, combined, cumulative, etc.

&lt;OR&gt;

## Beale Lecture 2015

**Registration for this event is now open at**

**[www.theorsociety.com/beale2015](http://www.theorsociety.com/beale2015)**

**Thursday 26 February 2015**

The Midland Hotel, Peter Street, Manchester. M60 2DS  
(Close to Oxford Road, Manchester Piccadilly and Deansgate train stations.)

**Lectures start at 3.00pm**



## LETTERS TO THE EDITOR

Dear Sir,

With respect to your musings on James Lovelocks' latest (Editorial Dec 2014), I would only say; Cheer up! We hear so much doom and gloom with relation to Anthropogenic Global Warming that it can be relatively underwhelming to actually look at the IPCC predictions rather than rely on green activists and the mainstream press to interpret them for us.

The two middle-of-the-road scenarios (RCP4.5 and RCP6) predict modest temperature rises of about 2C over the next hundred or so years (some of which has already happened). Most of the added heat goes into northern hemisphere winters, and negative effects don't really outweigh positive until mid-century. Even in the longer run, the net economic damage is approximately merely equivalent to about one small recession over that time-span. That is over an order of magnitude of damage less than, say, World War 1 and 2. Given that civilization, let alone humanity, survived those calamities one might suggest a certain sangfroid may be retained.

Anyhow, none of this calls for refrigerated termite-cities, when modest adaptation and resilience spending closer to the era of harm is probably the social optima. It should, however, raise questions about current policy to pay very large upfront costs to mitigate very modest future harm. This is especially so when the burden of such policies disproportionately immiserates large numbers of the world's poor *right now*.

As an aside, may I commend the OR conference Presidents' Medal presentation from DECC as a surprisingly honest, if imperfect, work-through of long-term sustainability issues. Unfortunately modelling in this area is so often subject to green ideological abuse of engineering, agronomy, and basic economics that the honest efforts don't get the praise they deserve.

Yours sincerely,

Alistair Morley  
65 The Beacons,  
Stevenage  
Herts  
SG1 6EB

Dear Alistair

You raise an interesting point: has the IPCC work been misrepresented and, if so are we wrong to try to reduce CO<sub>2</sub> (and other greenhouse gas) emissions in order to prevent global warming becoming a serious threat to human and ultimately wet-carbon life. Lovelock says we should let the Earth (or more precisely Gaia) sort this out on the assumption that what is best for Gaia is best for humanity and, that we are more likely to do more harm than good by interfering in this process. Unfortunately, the existence, or otherwise, of Gaia is unprovable and, even if it does exist, we have no way of knowing that it has our best interests at heart.

As O.R. scientists what should our role be in this debate? Can we help improve the IPCC's models and hence forecasts? The DECC model does appear to be very good but is that the best we can do? If we wait long enough, we will not have to do anything but, again, is that the best use of our collective knowledge?

**John Crocker, Editor**

<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>



## CLOUD SECURITY

**NIGEL CUMMINGS**

This is regarded by many as an oxymoron but help is on its way.

Clouds allow vast quantities of data to be made available to anyone who may be interested in it. Unfortunately, not all owners of data may wish to be so free and easy with it. There are also many regulations about what information can and cannot be freely exchanged across borders.

While public cloud computing provides an ideal, 'ready-made' platform for collaboration due to standardisation of connectivity via the internet, information privacy and security remains a challenge to address. Organisations around the world, and these include governments not just commercial enterprises, have experienced security breaches and data loss when utilising cloud-based resources which require the internet as a conduit for data transfer.

Some of these breaches are due to the actions of employees, intentionally or otherwise. Whichever is the case, risks are significant. Cloud services are provided by third-party organisations for the most part. Bearing this in mind it is no surprise therefore that some third-party resources are rolling out new security paradigms in an effort to calm the nerves of company executives who, quite simply, do not trust cloud-based computing services with their precious data.

CloudMask is one of the most recent security products available to cloud computing users, but more will follow. CloudMask allows organisations to securely collaborate in the cloud. The solution it provides is that of masking data and encryption from creation and throughout its entire end-to-end lifecycle. Data is encrypted before it is transmitted to the cloud so the stored data is encrypted and anyone accessing it will only get encrypted data. Only the originator and anyone who has been given access to the key will be able to decrypt it and hence read or use it. Decryption will take place within the confines of the users' systems.



Provided no one finds a 'P' solution to the 'NP-hard' problem of factorizing large integers, the data should remain secure (at least, so long as no one gains access to the key).

By using masking systems and strong encryption, organisations can solve the following issues:

Data protection - because data is inspected at creation and the appropriate type of protection is applied based on organisational policy.

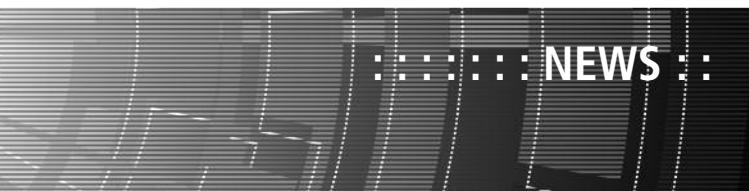
Compliance - the zero trust model allows businesses to achieve regulatory compliance including EU Data Protection Directives, UK Data Protection Act and other industry specific regulations.

Data residency – because data is masked by the user at the point of creation and not accessible as meaningful data throughout its journeys to and from the cloud irrespective of boundaries, only the user can allow access to the data.

<OR>

## CONFERENCE NEWS

|               |                    |              |                                    |               |   |
|---------------|--------------------|--------------|------------------------------------|---------------|---|
| <b>EVENT:</b> | Beale Lecture 2015 | <b>DATE:</b> | 26 February 2015                   | <b>VENUE:</b> | Midland Hotel, Manchester   |
| <b>EVENT:</b> | EURO2015           | <b>DATE:</b> | 12 (welcome),<br>13 – 15 July 2015 | <b>VENUE:</b> | University of Strathclyde, Glasgow                                |
| <b>EVENT:</b> | YoungOR 19         | <b>DATE:</b> | 22 – 24 September 2015             | <b>VENUE:</b> | Conference Aston Marketing Suites,<br>(CAMS), at Aston University |



# EURO COMES TO THE UK

**RUTH KAUFMAN**

Two years in every three, EURO – the European Federation of OR Societies – holds a conference. The EURO conference is ten times the size of the annual OR Society conference. That's ten times the energy, resource, and scale of activity. And EURO2015 is being held in the UK - specifically, 12-15 July, at the University of Strathclyde in Glasgow.

This is a really exciting opportunity for UK O.R. Anybody who has been to a recent OR Society conference knows that we have been successfully integrating practice and research, practitioners and academics. We expect fertile interaction between academic professionals at a scientific conference – the UK conferences have extended that to the whole O.R./analytics community, whether academic or practitioner. The ambition for EURO2015 is to replicate this success.

You can find conference details at [www.euro2015.org](http://www.euro2015.org). There are over 150 streams, ranging from the deeply theoretical to the practical and pragmatic. And we have started to plan the EURO equivalent of 'Making an Impact – the practitioners' day', with the ever-popular speed networking, tutorials, workshops and other participative sessions aimed at helping practitioners to become more effective.

All attendees at our EURO2015 conference will be required to register online as a member of EURO even those not giving a paper. If you are already a member of EURO you can use your existing EURO login details to access the system. Membership is free.

To submit a title/abstract, or to register to attend the conference, please go to [www.EURO2015.org](http://www.EURO2015.org). Click on Streams and Stream Organisers to see the full list, or click on Abstracts and take the option to submit an abstract. Use the Registration heading to register to attend the conference.

Instructions are on the website, but if you aren't sure which is the best stream for you, contact Phil Jones [prjones@dstl.gov.uk](mailto:prjones@dstl.gov.uk) who is a member of the Programme Committee, as well as the organiser for the areas of 'soft O.R. and problem structuring methods' and 'Practice of O.R.'

Or if you have ideas for participative activities you would like to see in the Practitioners' Sessions, or would like to help organise that part of the programme, please contact me: [r.a.kaufman@lse.ac.uk](mailto:r.a.kaufman@lse.ac.uk).

In any case: put the dates in your new diary, keep an eye out for news of developments, and plan for the long summer days of Glasgow next July.

## EURO SUPPORT FOR NATCOR BURSARIES

Sarah Fores, EURO Manager

NATCOR, a National Taught Course Centre in Operational Research, delivers taught courses in the UK to PhD students on a number of different topics in O.R. Please see the NATCOR website for more details: <http://www.natcor.ac.uk/>

**EURO is pleased to announce the availability of a limited number of bursaries for PhD students to attend NATCOR courses.** <http://www.euro-online.org/web/pages/1568/natcor-bursaries>

The NATCOR course fees and accommodation (typically bed and breakfast) will be funded by EURO for successful candidates.

Applicants must be PhD students, from one of the EURO member countries or studying in one of the EURO member countries. (see <http://www.euro-online.org/web/pages/1457/member-societies>). Applicants must have good English Language skills as all NATCOR courses will be in English. Preference will be given to students in their first or second years but all are welcome to apply. Preference will also be given to applicants who have not previously received support from EURO for NATCOR or other PhD schools.

To apply for a bursary candidates should submit the application form ([http://www.euro-online.org/media\\_site/forms/NATCOR\\_App.doc](http://www.euro-online.org/media_site/forms/NATCOR_App.doc)), their curriculum vitae (including their academic track record), a letter outlining their motivation to attend, and a letter of recommendation from their supervisor to the Vice President 2 of EURO: Prof. José Fernando Oliveira, [VP2@euro-online.org](mailto:VP2@euro-online.org)

## Important Dates

Deadline for applications: January 18, 2015



## 27<sup>th</sup> European Conference on Operational Research

12-15 July 2015  
University of Strathclyde

**EURO**  
The Association of European Operational Research Societies



### CALL FOR PAPERS and REGISTRATIONS!

**ABSTRACT SUBMISSION + REGISTRATION IS OPEN - Go to [www.euro2015.org](http://www.euro2015.org)**

The next European Conference on Operational Research, EURO2015: Operational Research in Practice, will take place at the University of Strathclyde in Glasgow. It is the place to present your work and find out about other cutting edge ideas emerging from the Operational Research community. Glasgow is a very lively city, and we have a great social programme to look forward to.

Researchers, academics, practitioners, and students interested in any branch of Operational Research, mathematical modelling or economic analysis are invited to submit abstracts or organise sessions. The deadline for abstract submissions is March 16, 2015, but if you are interested in organising a session then you should contact the Programme Committee by emailing to euro2015@mci-group.com. More information is on the website (above), including details of the main topical areas, the Programme and Organising Committee members, and details of how to submit your abstract.

### EVENT DEADLINES

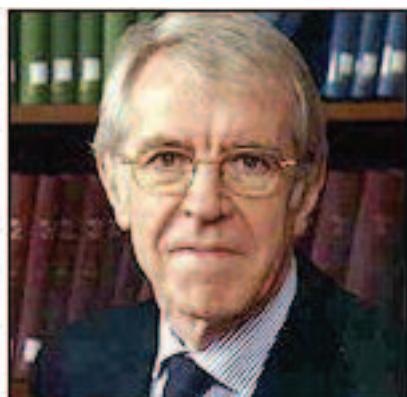
**Abstract Submission Deadline**  
**Early Bird Registration Deadline**  
**Registration Deadline**

**Monday 16 March 2015**  
**Monday 20 April 2015**  
**Friday 08 May 2015**

### PLENARY SPEAKERS



*Mr R. Tyrrell Rockafellar*  
University of Washington, USA



*Sir Alan Wilson*  
University College London, UK



*Prof. M Grazia Speranza*  
University of Brescia, Italy

'Convex analysis stochastic programming and finance'

'Public policy & governance sustainable cities'

'Trends in transportation and logistics'



# HAPPY NEW YEAR!

## Here's what's ahead for Learning and Development in 2015

*Programme of approved courses in O.R. and Analytics*

|                  |   |
|------------------|---|
| 5 March          | Facilitation Skills   |
| 10 March         | Essential O.R. Skills for Practitioners                               |
| 10-11 March      | The Collaborative Approach to Simulation Model Building               |
| 11 March         | Organising and Presenting Data In Excel                               |
| 12 March         | Improving Quality and Performance with the public sector scorecard    |
| 25 March         | Using Soft Systems Methodology  |
| 26 March         | Practicing Soft System Methodology                                    |
| 30 March-1 April | Simulation: A Practical Guide to Developing and Using Models          |
| 20-24 April      | Introduction to O.R. I  |
| 6-7 May          | A Strategic Choice Approach to Problem Structuring                    |
| 12 May           | Designing Performance Measurement Systems using Analytics             |
| 13 May           | Using System Dynamics in your organisation                            |
| 19 May           | Decision and Risk Analysis  |
| 20-21 May        | Supporting Strategy   |
| 2 June           | The Science of Data Visualisation                                     |
| 3 June           | From Big Data to Open Data  |
| 4 June           | Actionable Intelligence   |
| 24 June          | How to engage key stakeholders in your project                        |
| 2 July           | Performance Management with DEA                                       |
| 14 July          | Data Mining: Techniques & Applications                                |
| 15 July          | Data Mining: Advanced Data Mining                                     |
| 16 July          | Introduction to measuring and demonstrating impact in complex systems |
| 9-10 September   | O.R. and Supply Chain Management                                      |
| 17 September     | Process Optimisation and Anti-Fragility: Friends or enemies           |
| 21-25 September  | Introduction to O.R. II   |
| 6 October        | Introducing Social Media for Researchers and Consultants              |
| 27 October       | Practical Process Improvement using Lean and Six Sigma                |
| 28-29 October    | Managing Successful Analytical Projects                               |
| 3-4 November     | Agent Based Modelling: What, When & Where                             |

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



## CAREERS OPEN DAY 2014

**LOUISE ALLISON, STRATEGIC PROJECTS MANAGER**

Thank you to all of the exhibitors and everyone who attended the Careers Open Day in November, you made the day a success!



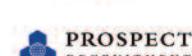
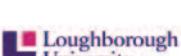
Once again we had a record number of exhibitors (30), with a few new faces, showcasing the diverse options available to someone looking to make their career in O.R. The turnout also demonstrates the demand for analytical graduates and how important O.R. skills are to organisations.

The attendees are asked to complete a feedback questionnaire to help us improve the event. As an incentive we offer an Amazon gift

voucher for two people picked at random. I'm pleased to announce that this year's winners are Rushan Bau Yonga from Cardiff University and Arron Dalvair from Handsworth Grammar School. Thank you to everyone for their feedback, your comments are very useful.

&lt;OR&gt;

**The 2014 exhibitors were:**





## PRESIDENT'S MEDAL 2014

### NIGEL CUMMINGS

One of the highlights of our national conference which was held this year at Royal Holloway, University of London, is the President's medal presentation session in which the selected candidates are given the opportunity to present their work to a full auditorium as well as the selecting committee.

The first presentation was given by Tom Counsell for the Department of Energy and Climate Change, it concerned the global calculator: the world's most comprehensive open source model of global land, food, energy and climate systems. Tom told us that the global calculator was a user-friendly model of the world's energy, land, food and climate systems in the period up to 2050. Can the Earth support 9 billion people all living a western-style life? If so, what changes will we need to make and how best can government money be spent to achieve this. He demonstrated its use as an interactive scenario testing tool which showed the likely effects of different policies.



**Tom Counsell, The Department of Energy and Climate Change**

The tool he said, had been developed as an open source model with the model, documentation and source code being published freely. The model was able to include all global greenhouse gas emissions from electricity generation, transport, buildings manufacturing, food production and land use up until the year 2050. It was also able to show the impact of the users' pathway on the climate system, according to the latest climate science from the IPCC. Essentially, it is a global version of the model that David MacKay demonstrated in his Blackett Lecture in 2012.

The third presentation given by Russell Hodge and Gráinne McDonagh of Capgemini was entitled 'Linear asset decision support (LADS). Keeping O.R. Analytics on track for Network Rail engineers'.

Network Rail owns and operates Britain's rail infrastructure and

accounts for an estimated 1.3 billion journeys per year. With so many journeys across the network it is essential that Network Rail has the tools and capabilities needed to maintain extremely high levels of service. The 'linear asset decision support system' (LADS) was developed to assist Network Rail engineers in making better, more informed decisions about how they manage UK railways.

Russell and Gráinne's presentation illustrated how Network Rail currently collects huge volumes of complex track data using methods such as specialist measurement trains and more traditional track inspections, but there was it seemed, always room for improvement and one of Network Rail's key challenges had been in gaining an understanding of how to leverage data to enable engineers on the track to make more informed decisions.



**Russell Hodge and Gráinne McDonagh of Capgemini**

Capgemini worked with Network Rail to develop the LADS system for their track assets using advanced statistical algorithms for data alignment and predictive elements which could calculate and display predicted track degradation rates. As an addition to these data transformation processes the tool was also designed to handle large volumes of data of many different types. It also had to be available in desktop and mobile versions to ensure the information is available visually to allow the engineers to interpret and act upon it.

The resulting model ensures the engineers are doing the right work at the right time and importantly, in the right place. This has resulted



in fewer asset faults and failures and led to increased asset availability and an improved service for Network Rail customers – the rail operators and ultimately the passengers.

The second presentation was given by David Lane (Henley business School), Elke Husemann and Eileen Munro (LSE). This sterling piece of work won the President's Medal award which was presented at the Blackett Memorial Lecture (November 2014) which was held at the Grocer's Hall, Princes Street, London EC2R.



**Eileen Munro (LSE) (Left), David Lane (Henley business School), Elke Husemann**

The citation for the work reads... 'The winner of the OR Society President's Medal for 2014, for the submission judged to be best practical, implemented, application of O.R., goes to David Lane (Henley Business School), Eileen Munro (LSE) (left) and Elke Husemann, for 'Using Systems Thinking to Undertake a Review of Child Protection in England.' The work formed a central part of 'the Munro Review' (Munro, 2010, 2011a, b), a high-profile review of state-managed child protection activities in England, conducted for the Department for Education.

Child protection in England encompasses a wide range of services which aim to secure the safety and welfare of children and young people. This includes, for example, the provision of foster care and adoption services, and support for families. The child protection system is also responsible for the investigation of possible cases of child maltreatment and intervention in such cases.

Drawing on the field of system dynamics, causal loop diagramming was used to map the sector. Among the evidence used in support of the map were published research, expert interviews, and comments from relevant professions (e.g. health, social work, judiciary). This systems mapping unearthed a prescriptive approach to child protection that contributed to a culture of compliance.

A second phase of work used group model building to examine the functioning of the sector. A group of professionals and experts worked over a number of sessions and created a large and complex systems map of current operations. By considering the causal mechanisms that were in operation, it became apparent that the sector was in the grip of a set of reinforcing effects, positive feedback loops or 'vicious circles'. The map was subsequently used to give structure to the issues the review had to address and ultimately provided an organising framework for the recommendations that were made. Of the 15 recommendations in the report, ten were accepted in full and five were accepted in principle.

Using systems thinking and causal loop diagrams the work addressed a vital area of public policy and it had a major influence on the recommendations of the Munro Review. That influence continues through on-going changes in government policy for child protection. The work was therefore judged a worthy winner of the President's Medal for 2014.

Congratulations, Elke, David and Eileen!

&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)



## BEALE MEDAL 2014

### NIGEL CUMMINGS

The winner of the 2014 Beale medal is Professor Robert Fildes. Although well known in the O.R. community for the depth and breadth of his work in statistics and forecasting, the Beale award provides formal recognition of his sustained contribution to Operational Research in the UK.



*Robert with his wife, Sue, and daughter, Louise*

The citation for Professor Fildes reads:

Robert Fildes is a Distinguished Professor of Management Science in the Department of Management Science at Lancaster University Management School.

Following a first degree in Mathematics at Oxford and a PhD in Statistics at the University of California, Robert joined the staff of Manchester Business School as a lecturer in 1971. He became a Senior Lecturer in Business Forecasting in 1979 and in 1990 moved to Lancaster to take up a Professorial post. At Lancaster, Robert has been Head of the Department of Management Science for more than one term of office and has been the Management School's Associate Dean for Research.

Robert's notable contribution to the development of Operational Research is in the area of forecasting where he is an acknowledged international expert. He was a key contributor in early forecasting competitions that have had significant influence in the development of theory and practice. Two early influential contributions were published in *JORS*, the first on time series (1979) and the second in 1985 on econometric forecasting from an O.R. perspective. This focus on the relationship of forecasting to O.R., both in theory and practice, has been revisited, again in *JORS*, in an attempt to encompass the dramatic developments of the previous 30 years. Robert is a past president of the International Institute of Forecasting (IIF). He was co-founder and editor in 1981 of the *Journal of Forecasting* and in 1985 of the *International Journal of Forecasting*.

He has made extensive contributions to the literature through books and articles. A list of his publications can be found in <http://www.lancaster.ac.uk/lums/people/all/robert-fildes/>. Much of his work has been on research for forecasting in a business environment with links to important business decisions concerning areas such as stock control and the adoption of new technologies. In recent years, he has turned his attention to the important topic of climate forecasting, where his research work (with colleague Nikos Kourentzes) has shown the large simulation models used in developing the IPCC's view of global warming could be improved for decadal forecasting by simple statistical models: this suggests the climate models are mis-specified.

Robert has always been concerned that the best forecasting methods are applied and are used in practice. He is Director of the Lancaster Centre for Forecasting, which is involved in training courses and consultancy for many different organisations where the aim has been to take the latest research ideas and test them in practical situations (<http://www.lancaster.ac.uk/lums/forecasting/>).

Robert's great concern for practice has extended more generally than just in his particular area of expertise in forecasting. In the mid-90s he was joint leader of a survey of practitioner O.R. groups in the UK (Success & Survival of O.R. Groups, SSOR), which was sponsored by the OR Society and is probably the most comprehensive such survey ever carried out. The work led to several influential papers in *JORS* and *Interfaces* as well as a diagnostic tool for assessing the effectiveness of an O.R. group which was applied successfully to some Government O.R. groups. More recently he has been involved in a global survey of O.R. practice, sponsored by IFORS, which provided an up to date snapshot of key characteristics of practitioners and the tools that they use.

Robert has been a regular supporter of OR Society activities, starting in 1979 with his work with the then forecasting study group which supported the publication of a bibliography he compiled. He was Vice President of the Society from 1995 to 1997.

Over the course of his long career, Robert Fildes has made an outstanding contribution to the development of Operational Research in the UK and is a worthy recipient of the Beale Medal. Another outstanding contribution to O.R., this time jointly with the help of his wife, Sue, is their daughter Louise, winner of the 2013 President's Medal.



# YOUNGOR 19 – MAINTAIN A COMPETITIVE EDGE!

**HILARY WILKES, CONFERENCE ORGANISER**

**When?** Tuesday, Wednesday, Thursday - 22, 23, 24 September 2015

**Where?** Conference Aston Meeting Suites (CAMS) at Aston University Business School, Birmingham. B4 7ET

**Who for?** *The conference to be at for those whose O.R. careers are less than ten years in duration!*

**Why attend?** **Maintain a Competitive Edge.** Learn how O.R. has delivered results elsewhere and stay at the forefront.

**Encourage Critical Thinking.** Attend keynotes and plenary sessions from leading O.R. practitioners and academics.

**Acquire Consulting Skills.** Learn about soft skills essential for O.R. work in practice.

**Promote and Market** your own and your organisation's skills, give a case study talk. Disseminate results of resent research projects to users of O.R. techniques in practice.

**Expand your O.R. Toolkit.** Find out about diverse and varied ways and environments in which O.R. is used and learn new techniques to develop your career.

**Improve your O.R. Network.** Gain potential customers, meet practitioners for joint ventures, see first-hand demonstrations of O.R. software, make contacts for career moves.

**Be Inspired.** Link techniques and applications presented - apply them to daily work.

**Make an Impact.** Learn how practitioners overcame difficult problems in their work. If you are an academic, learn where your research makes the biggest impact on practice.

**Promote Research Areas and Interests** give an introductory tutorial. This is an excellent opportunity to pass your knowledge on. We welcome practitioner led tutorials!

**Take part** Why not run a Stream or Sponsor and/or Exhibit? Contact our Chair, Vicky Forman, at [vicky.forman@llamasoft.com](mailto:vicky.forman@llamasoft.com) or Hilary Wilkes at [hilary.wilkes@theorsociety.com](mailto:hilary.wilkes@theorsociety.com), asap.

This is a highly popular conference for those whose O.R. careers are less than ten years in duration. This event offers a great opportunity to gain experience and present a paper in front of a friendly audience. Presentations will be on a wide variety of areas, including traditional O.R., lean management, knowledge management, and so on. [www.theorsociety.com/YOR19](http://www.theorsociety.com/YOR19)

&lt;OR&gt;



Aston Business School



Conference Aston Meeting Suite



Conference Aston Accommodation



## ROB DINSEY – YOU'RE HIRED!

**NIGEL CUMMINGS**

Lawrence Cable at IPL kindly forwarded an item concerning the value of business analysis. Written by Rob Dinsey, Business Analyst at IPL, the case Rob makes here, may provide useful pointers for business leaders nationwide.



A recent episode of the *Apprentice* created controversy and sparked a media frenzy about 'Skeletongate' when Colombian lawyer Felipe Alviar-Baquero came under fire after purchasing a cheap paper skeleton and not an expensive plastic version.

The crux of the problem lay in the requirements sheet given to the candidates which, as far as the viewers could see, said only: 'HUMAN SKELETON Specifications: Full-Sized Anatomical Skeleton. Minimum 150cm tall.'

There is nothing that says it has to be made of plastic or that it has to be ready-assembled. Felipe's assemble-at-home, paper skeleton appears to meet the requirements and was very much cheaper so should have been the perfect solution.

Unfortunately, Lord Sugar had not employed a Business Analyst to compile the set of requirements. Had he done so, all this attention could perhaps have been avoided and all the extra free publicity generated by '#Skeletongate' and '#justiceforfilipe' would have been lost. Sugar's reputation as a self-styled judge, jury and executioner would also have not been enhanced.

Was this understating of the requirements a deliberate ploy to boost viewing figures or a classic case of failure to make the specifications clear, concise and unambiguous? One suspects that Sugar, or at least his minions, had not realized that one could buy a self-assemble, paper skeleton and, rather than admit that this was a very clever solution (that he had not thought of), decided to make Felipe the scapegoat. The problem is, as with most reality TV programmes, that ratings are not improved by acting sensibly, reasonably or rationally.



Rob Dinsey says:

As a Business Analyst, gathering, writing and validating clear and comprehensive requirements is a key part of what I and my colleagues do on a daily basis. This is such a clear example of the importance of what we do that I want this episode to be shown in the training provided to new joiners of IPL's Business Analysis Academy. The British Computer Society (BCS) lists the potential problems with requirements as including:

- Lack of relevance to the objectives of the project
- Lack of clarity in the wording
- Ambiguity
- Duplication
- Conflicts between requirements
- Omitting requirements

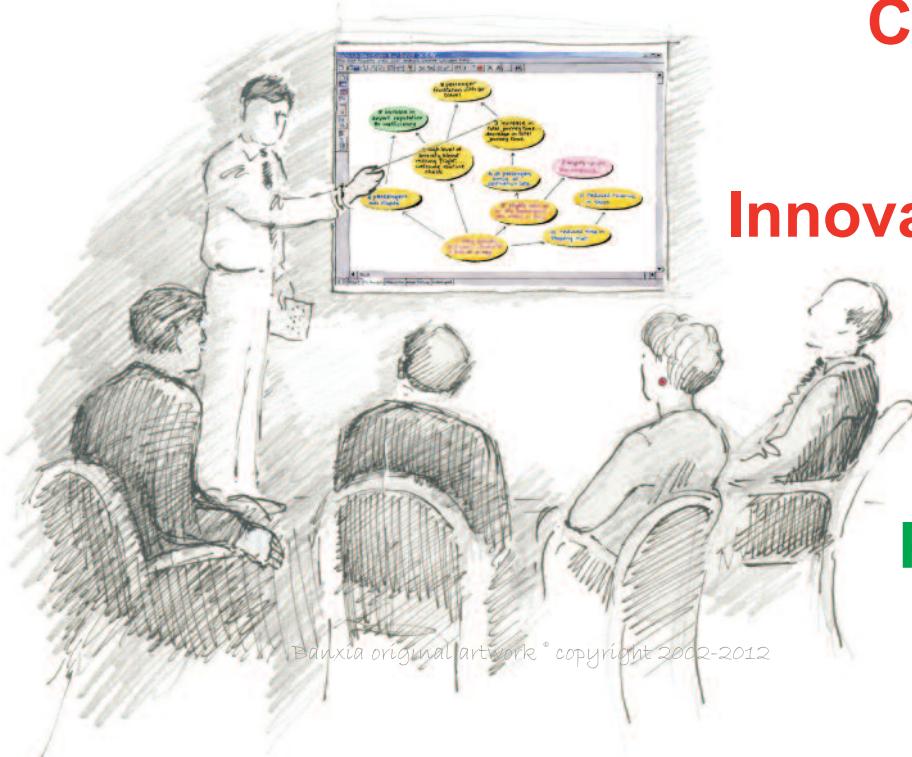
In a real project, poorly defined requirements can be even more costly. According to the BCS, over 80% of errors on information systems (IS) projects are introduced at the requirements analysis stage, compared to less than 10% during the actual development. Reducing and eliminating errors at the analysis stage should be a priority for all IS projects. A clear, concise and comprehensive requirement is much more likely to be developed correctly, able to be comprehensively tested and lead to a satisfied customer at the end of a project (and boring television, ed).

More about IPL on: <http://www.ipl.com/>

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- **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.

*“Decision Explorer® has proven to be a powerful facilitative tool. Used ‘live’ in workshops it provides a very efficient and productive means of keeping participants focussed and communicating. As a means of joint decision making, I have not found better.” Kenny Forsyth, Consultant*

- **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.

Contact us for details of any of these products.



# COMPANIONSHIP OF O.R. 2014

**NIGEL CUMMINGS**

Companionships of O.R. for 2014 have been awarded to Clive Humby and Ruth Davies.

Companionships are given in recognition of an individuals' long term support / encouragement of O.R.

Clive unfortunately, was absent from the prize giving ceremony held on the occasion of the Blackett Lecture in November 2014, but his citation reads as follows:

**Clive Humby** has over 25 years' experience in applying mathematical and statistical modelling methods to business, marketing and retail and is a persuasive advocate of the power of data.

He began his career as a programmer in Bermuda for the geo-demographics firm CACI, innovating in what has become the site location industry. Quickly rising to be CEO of CACI's UK business, Clive soon saw the value of using data to inform relevance and personalisation for customer.

After co-founding DunnHumby in 1989, Clive was responsible for customer strategy, from analysis through to the implementation of client merchandising, store operation, marketing and communication strategies. DunnHumby was the marketing firm which created the Tesco Clubcard and developed it from a basic loyalty scheme into a sophisticated tool for analysing shoppers' habits and fine-tuning promotional offers.

They sold the company to Tesco in early 2011 (for a reported £93m), remaining on the board as Non-executive Directors. More recently they are Directors of Starcount, a new social media platform, and Purple Seven, an arts sector data analytics company that helps venues, production companies and audience development bodies maximise the potential of ticketing and customer data.

Clive is engaged with education, for example as Visiting Professor at Cranfield (see <http://www.som.cranfield.ac.uk/som/p2000/People/Faculty/Visiting-Professors/Clive-Humby>) and a member of the Operational Research Society. Clive Humby is an early pioneer in areas of data analytics that are transforming our lives. He has advanced significantly the practice of the subject.

## Ruth Davies

Ruth fortunately, was present to accept her award and thankfully for all of us to see, in fine fettle. Her citation for companionship reads:

Ruth Davies has been one of the 'big names' in simulation modelling since the 1980's. Her PhD work at the University of Southampton with Keith Tocher resulted in a textbook co-authored with Bob O'Keefe entitled 'Simulation Modelling with Pascal' which



*Companionship Award  
L-R Stewart Robinson, Gavin Blackett, Ruth Davies*

later led to her Patient Oriented Simulation Technique (POST) software.

This approach uniquely enabled simulation objects to be in several queues or activities at the same time, something that at that time was not handled easily by commercial off-the-shelf packages, and thus allowed the user to develop realistic clinical models which also captured resource use and waiting times.

Ruth applied the POST approach to numerous disease areas such as end-stage renal failure, diabetic retinopathy screening and coronary heart disease, and successfully obtained grant funding from various NHS organizations and Research Councils.

Ruth is well known internationally and was a regular attender at simulation conferences. She worked at Southampton until 2003 and had been Professor of Operational Research at Warwick for six years when she had to take early retirement on health grounds following a major stroke in 2009.

Ruth has served the OR Society in various ways - for several years as chair of the Publicity and Membership Committee and as co-chair of the 2009 Annual Conference OR51.

Ruth, with her sharp academic mind, keen sense of fairness and justice and wicked sense of humour, has been profoundly influential in the careers of many students, academics and practitioners. She still enjoys life to the full and retains her strong belief that O.R. is about making practical improvements in the real world.



## STAFFORD BEER MEDAL 2013

### NIGEL CUMMINGS

There were four winners of the Stafford Beer Medal which is given in recognition of the most outstanding contribution to the philosophy, theory or practice of Information Systems published in the *European Journal of Information Systems (EJIS)* within the relevant year (i.e. 2013).

The medals were presented at this year's Blackett Memorial Lecture to:

Elmar Kutsch (Cranfield University), David Denyer (Cranfield University), Mark Hall (Birmingham University) and Liz Lee-Kelley (Cranfield University) (who unfortunately could not attend).



The citation for this award reads:

Does risk matter? Disengagement from risk management practices in information systems projects

*European Journal of Information Systems*, 22 637-649

Risk management is considered fundamental to project performance. However the authors' paper describes a study, undertaken across a wide range of organisations in which they found in practice, many project managers disengage from prescribed risk management before executing risk responses. Their analysis found five key underlying beliefs that governed project managers' risk management attitudes and actions. The aims of the Operational Research Society are to bring logical analysis to improve management and decision making. We consider that this paper could make a valuable contribution to project management practice and we commend it to Information Management professionals. The Society is pleased to award the authors with the Stafford Beer medal for 2013.

In the photograph published here, from L-R the participants are: Professor Stewart Robinson, President, ORS, Elmar Kutsch, David Denyer, and Mark Hall.

<OR>

## NEWS OF MEMBERS

**The Society welcomes the following new members,**  
GILLIAN ANDERSON, Renfrewshire; ANA COSTA E SILVA, London;  
EMMA HALL, Nottingham; IAIN HOUGHTON, Lancs; CHARLOTTE INMAN, Stafford; VASILE TEODOROVICI, Canada; AMY WILSON, Cheshire; LEANDRO SALAZAR ROSALES, Lancs;

**and Reinstated members,**  
PETER BARBER, Hants;

**and the following student members,**  
HIBA BABIKIR, London; SYARIABAH BRICE, Carmarthenshire; ALICE BROWN, Devon; MARI BUMA-A, London; RHIANNA CHELL, Cardiff;

HARRY CONIBERE, Pontypridd; JUAN DOBLAS OLMEDILLA, Coventry; CALUM EDWARDS, Worcester; AYUSHI GUPTA, London; ELLIAH HUNT, Devon; JIEQIONG LEI, Cardiff; HONG QI LIN, Leeds; CHENG LUE, Manchester; RUSTAMA KUMAR, India; FEDERICO MACCARI, Italy; SYED MAHMOOD, Lancaster; HODA SAFAVI, Birmingham; HUW ROBSON, Derbyshire; EDWIN REYNOLDS, London; LUC STULTIENS, London; MARIYA TSONEVA, Glasgow;

**Total Membership**  
2733

<OR>



## ONE YEAR IN

**STEWART ROBINSON, LOUGHBOROUGH UNIVERSITY PRESIDENT**



'Not least, it is through the continued engagement of the membership that the Society maintains its purpose and its strength.'

By the time this leader article is published I will be one year into my term as President ... and that means I will be half-way through.

How you interpret that statement depends on whether you think I am a glass half-empty or a glass half-full type person! Whichever, it seems a good time to reflect on some of the things that have happened in the last year and to consider what lies ahead for the year to come.

In reflecting on the year that has just gone, I refer to my leader article from April 2014. In that article I set out three possible ways forward for the Society: developing the analytics initiative, launching a new magazine and developing a broader network of those interested in O.R. So let me comment on each of these in turn.

We, or more precisely John Hopes and John Ranyard, ran a very successful one-day event on Developments in Advanced Analytics and Big Data in April. In the very grand surroundings of BMA House in London, an excellent line-up of speakers presented to over 150 delegates. The details of the event have been reported in these pages and the talks are available on the Society's YouTube channel. We also had significant discussion around the topic of analytics at the annual conference in September.

More has been going on behind the scenes. For the past few years the Analytics Working Group has led the way in developing initiatives in this area. Notable successes have included the Analytics Network and the annual analytics event, as discussed above. Having run its course, the working group has now been replaced by the Analytics Development Group, chaired by our Vice-President John Hopes. This group has a broader remit to advise the Board on the Society's strategy for analytics. Meanwhile, Louise Allison in her new role as Strategic Projects Manager is currently allocated to spend 50% of her time in supporting the Society's analytics developments.

Two other developments that are currently in discussion are the potential for the Society to offer the INFORMS Certified Analytics Professional (CAP) qualification in the UK, and the possible launch of a journal on analytics. What is driving these developments is the recognition that O.R. and analytics are closely aligned, that we as O.R. workers have something to offer to the burgeoning field of analytics, and that we must respond to ensure that O.R. stays at the 'top table' when analytics is discussed in the boardroom, in policy debates and in university departments.

The new magazine (*Impact*), aimed at practitioners and users of O.R., has moved ahead at a pace under the watchful eye of its editor, Graham Rand. The first articles are already complete and the first issue will be published in the spring. Details of *Impact* were reported in these pages recently and we look forward to seeing the



result of Graham's hard work, ably supported by the magazine's working party and Palgrave our publishers.

In terms of developing a wider O.R. network, the first steps were taken over the summer by introducing free student membership. I understand that this has already at least doubled the number of student members. Of course, our work with students does not end there. The aim is to keep in touch beyond their time as a student, even if, in the short-term, they decide not continue their membership of the Society. Our hope is, of course, that they will see the benefits of belonging to, and supporting, the Society that represents their subject discipline.

We also continue to develop in the social media space. We have a strong presence on LinkedIn, Twitter and Facebook. Indeed, there are more members of the Society's LinkedIn group than the Society itself (so we already have a wider network). And I keep being reminded that as President I must remember to Tweet!

There is, however, a whole lot more to do around the O.R. network. Can we generate contacts from the thousands of unique visitors to

our website every month? What about building a network around the authors who submit to our journals? Can we get in touch with the students on the more than 230 postgraduate courses in the UK with O.R. content? How can we get the *Impact* magazine into the hands of those that really need to know about O.R.? In case you were wondering what Louise Allison does with the other 50% of her time, the answer is supporting our Publicity, Membership and Website committee with its efforts to develop the strategic projects around membership and the O.R. network.

To conclude, the Society is vibrant and very active in its support for O.R. It is continuing to engage with new developments in order to further its objects: the advancement of knowledge and interest in O.R., and the advancement of education in O.R. Not least, it is through the continued engagement of the membership that the Society maintains its purpose and its strength. I look forward to the second half of my term as President.

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## ANALYTICS AND YOU

**NIGEL CUMMINGS**

The Government Digital Service is looking to establish a dedicated advanced analytics team within the Cabinet Office that identifies or creates the best big data opportunities for the public sector, to ensure the spread of innovation and best practices, and maintain common standards.

They are also working on the launch of the Open Data Institute which is intended to nurture new start-up companies that can use the massive volumes of government data. There are already over 14,000 data sets within data.gov.uk, many of which are powering or supporting newly designed applications and web services

HMRC plans to use data analytics to tackle problems associated with tax evasion and fraud, with an objective to become a leader in the use of technology and data to drive its business. The DVLA, Cabinet Office, the Department of Work and Pensions, the Home Office and the NHS all use digital technology and data analytics as a means of enabling next-generation departmental services. These particular successes have been driven by the Government Digital Service team.

Government, it seems, has big plans for updating the civil service competency framework to ensure every individual working in government has a baseline level of ability in critical thinking,

quantitative analysis and digital skills. It has plans to establish an information marketplace too, this will enable businesses and citizens to provide data to government. This will be underpinned by a code for responsible analytics to help government to adhere to the highest ethical standards in its use of data and analytics.

A report released last year by e-skills UK estimated that 69,000 big data specialists will be needed in the public and private sector by 2017, an increase of 243% on current figures. This could be good news for ORS members with analytics skills.

Currently Opinium Research is accepting applications from the public, to take part in future surveys, if this is of interest to you, please take a look at their website: <http://www.opinium.co.uk/>

More information regarding Policy Exchange surveys can be located at: <http://www.policyexchange.org.uk/>

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# IS O.R. FOR YOU?

**JANE PARKIN**

## Early career O.R.: Why do O.R? How to make the transition from University to the real world? And other important questions you'd always wanted to ask when you were a student

The Yorkshire and Humberside O.R. Group (YHORG) recently held an excellent well-attended session at Leeds University Business School on early career O.R.

There were four speakers, all in the early stages of their O.R. career, from four very different sectors: Elena Khmeleva, an academic from Sheffield Hallam University; Elina Michailidou from the consultancy EY (Ernst & Young); Tom Stephenson from the software company Simul8; and Clare Webster from the Government O.R. service, currently based in the Department of Work and Pensions. They are all keen on maths and problem solving; passionate about O.R. and its potential to help make better decisions, to improve lives and cut costs; and looking forward to developing their careers in O.R.

The projects they have worked on are varied:

Elena has modelled and forecast share prices of large oil companies in Russia, analysed TV drama viewing behaviour for BBC Worldwide, and is now happily working on the use of genetic algorithms in crew scheduling for the rail industry.

Elina has worked on a number of projects at EY including supply chain optimisation, manpower planning and geographical modelling.

A large proportion of Tom's work is for the NHS looking at flows through hospitals and helping decisions on how best to invest money; he also does work for pharmaceutical companies and for health organisations in the USA.

Clare has worked on primary medical care looking at changing policies to improve the efficiency and effectiveness of GPs, piloting the new NHS 111 phone line, designing and evaluating pilots for the new Universal Credit, and is currently working on DWP estates: how much estate does DWP have? how best to utilise this? where should job centres be located?

The session attracted a large audience, almost 2/3 of whom were students, and their questions to the panel came thick and fast:

### How easy is the transition from University to work?

It's a real culture shock and requires a different mindset: instead of looking for quick answers that will get a good mark, you are involved in longer projects that will make a difference. The buck stops with you; if you make a mistake you don't just lose a few marks – you have to be accountable. It's also a shock to realise that no-one knows the right answer and no-one can give you the right data. The situation is complex; there are many connected elements and it is necessary to take a step back and use the soft side of O.R. You also need to learn on the job how to approach and interview a client.

### What are the most common mistakes made by O.R. analysts?

It's easy to use the wrong model or the wrong technique; it's also easy to get too deeply into a model and forget to step back; you need to remember you don't need to model everything. Sometimes analysts think they know everything about the problem and start to solve it without first talking to stakeholders.

### What do you wish you had studied at University?

You can get broad knowledge and skills at University but there will always be new things to learn at work. Expert Excel knowledge is useful and transferable; learn a programming language – it doesn't matter which one as it will be quick to learn a new one on the job. Universities need to focus more on soft O.R. skills.

### What was the worst decision you have made in the workplace and what was the impact of this?

Work is always checked by someone senior before it goes to clients so the worst that might happen is having to work over the weekend to rectify a mistake. Tip: don't be afraid to ask for advice, let someone know early on if you've made a mistake. Manage client expectations: it's a mistake to overstate what you can do e.g., to bill a client for two days work that actually takes five days.

### What are the modelling techniques you use most often?

Spreadsheets, macros, VBA, databases, SAS, Word, ad hoc data analysis, Monte Carlo methods, Simul8. There are always large quantities of poor quality data so data interrogation techniques are required. Also soft O.R. techniques for problem structuring.

### How well did university prepare you for communicating with clients? Could they have done more?

Presentation skills are crucial: everyone at University hates presentations and gets out of them whenever possible; get practice while you can. However there is a difference: presentations at University are usually in front of your peers which is a very different experience from presenting to clients who are often senior decision makers; you need to show that you know what you're talking about and have authority. It's also difficult to learn how to steer a meeting in the way you want it to go; that isn't learnt at University. Tip: before presenting to clients, study hard to ensure you can answer any question they might throw at you; this will help to make senior people remember you.

and, of course the hundred dollar question:

### How would you describe O.R.?

A varied toolkit including soft O.R. (facilitation, problem structuring) and Hard O.R. (modelling); a combination of all the skills of



statisticians, economists and social researchers.

Quantitative techniques: solving problems with numbers.

Using sophisticated mathematical methods to solve simple business problems.

Several of the audience commented afterwards on how impressed they were by the confidence of the speakers, how they were able to manage without any slides and deal confidently with a wide range

of questions. This shows that even early in their careers they clearly had benefitted from their experiences as O.R. professionals.

Our thanks to the four speakers and to LUBS who hosted the event and provided refreshments. The next YHORG event will be held in Sheffield in February (see Regional Events or the website for details) and will focus on O.R. in Education. It will also include the rescheduled YHORG AGM.

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## OPPORTUNITIES AND CHALLENGES FOR THE NHS

**JOHN CROCKER**

At the annual lecture in honour of Lord Blackett, a founding member of the Operational Research (O.R.) Society, Professor Sir Bruce Keogh, National Medical Director, NHS England gave an informative but candid talk about where the NHS is today and what it has to do to meet the ever-increasing demands it faces in the future.



*Professor Sir Bruce Keogh*

Sir Bruce pointed out that the NHS is one of the largest employers in the world and if it were a country, it would be ranked 11<sup>th</sup> by 'GDP'. He also displayed a slide of the Commonwealth Fund Analysis for 2014 which showed (yet again) that the UK NHS is the best in the world coming first overall and first in six of the nine categories despite coming a very lowly tenth in 'Healthy Lives'. The same table showed that all of this is achieved by an expenditure of £3,405 per capita, the second lowest. For the UK to balance its books, however, the NHS has been tasked with making efficiency savings of £30 billion over the next five years. It is in this area that O.R. will be expected to play a vital role.

Sir Bruce also produced a diagram of a conceptual model which linked the various parts of the system related to the emergency services said that this was being translated into a simulation model which would aid local planning. O.R. had, he said, already been used

to reduce the number of specialized stroke units (from 32 to 8) and the number of major trauma units to 24 both of which could be shown to have reduced the number of deaths as well as saving the NHS money.

The UK has a remarkable record for innovation; we punch way above our weight when it comes to Nobel Laureates especially in the fields of medicine and related areas. Sir Bruce gave a list of some of the inventions from the smallpox vaccination to the CT scan noting, in passing, that the work Blackett did at the Cavendish post-war led ultimately to the PET scan. For all that, though, the NHS has not been particularly good at implementation; typically it takes around seventeen years which he said needs to be cut to no more than ten.

He believes that genomics and genome sequencing will prove vital and that the NHS is in the best, if not unique, position to capitalize on this because of the way it is funded and the way the service is delivered. He also believes that data analysis and knowledge transfer will play a major role as more people catch on to wearable bio-sensors and the immense power available through their mobile phones. Continuous monitoring of one's vital signs can raise alerts that can be transmitted to one's GP who may then contact you to arrange an appointment.

The GP will be very much more at the heart of the system. The time of the lone GP is coming to an end, to be replaced by corporate practices with better data linking and greater powers possibly even employing their own specialist consultants but with evidence-based management at its heart.

Sir Bruce answered a number of questions from the audience, curiously enough, mainly from past presidents of the Society and was available to talk to the delegates afterwards.

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# Y2OR

**LOUISE MAYNARD-ATEM**

It feels like quite some time ago now, but I'd like to thank the OR Society and everyone who attended the careers days in Birmingham back in November.

It was a pleasure to give the keynote presentation for the second year in a row, and I was delighted by the positive response I received from everyone who came to talk to me afterwards. On the back of this, and given it's the New Year (hopefully resolutions haven't been abandoned quite yet), I'd like to introduce my new three part series – Getting Hired - in conjunction with Mark Chapman from Prospect Recruitment ([www.prospect-rec.co.uk](http://www.prospect-rec.co.uk)) who I met at the careers' day.

Mark is a Director of Prospect Recruitment, having originally joined the company in its fledgling years in 1979 and he has been instrumental in its growth, development and diversification. Mark's earlier career focussed on Business Analysis, Process Re-engineering and Change Management in the tour operator and, subsequently, brewing/leisure industries – frequently working with Operational Research colleagues in the latter.



Prospect Recruitment is a niche consultancy specialising in the quantitative analytical arena, with their roots in the Operational Research/Business Modelling field. The combination of this market focus and their consultants' extensive knowledge of this specialist area has successfully underpinned their recruitment activities, which span the full range of private sector industry and commerce.

This month's article focuses on CV writing, including Dos, Don'ts and how to make yours stand out from the rest. Any thoughts, feedback or questions, please feel free to get in touch with me on the usual address, [lmaynardatem@live.co.uk](mailto:lmaynardatem@live.co.uk).

## Getting Hired

### Part 1 CV Writing

#### What are the top 3 do's and don'ts for writing your CV? DO

- Bear in mind that a good CV is like a good advert – there should be an equivalent to an eye catching strapline, which grabs the reader's attention and then encourages them to read more. A 'Summary', 'Personal Statement', 'Resume' or similar paragraph early in the CV is a good way of achieving this.

- Make sure that the CV is laid out and written in a manner which is easy to read. If your CV can be 'speed-read' in a under a minute, it's good. Any longer and it is likely to be put to one side or discarded.
- Consider your target audience and what you perceive they will be primarily interested in reading. So be prepared to have different versions of your CV for different target audiences.

#### DON'T

- Cram as much detail into the CV as you can. Start with the question 'what do I have that's relevant for the job', rather than the assertion 'I've got all this to offer'.
- Squeeze it in by using a small font with no spaces. But do spread it out to make it readable.
- Be tempted to use clichéd, flowery prose to impress. It won't. Be clear, be straightforward, and tell it as it is. But don't hold back and allow modesty to rule – you're the only one that can blow your trumpet, but ensure your approach and style are balanced and professional.

#### What are the most common mistakes that people often make?

- Pitching the CV such that it reads too high level, general or strategic. As an O.R. person, you are a quantitative analytical specialist and, whilst it is important to be able to put project descriptions into a high level/strategic context, the reader is also keen to learn what technical achievements were involved.
- Conversely, a CV which bores down to a level of significant granularity, with little or no reference to the 'broader issues' will not be 'marketing' you to the optimum.
- Providing confusing chronological information or unexplained gaps in the CV, so that the reader has to 'turn detective' to work out what happened, when and why. For example, leaving out dates/explanations concerning a military national service year, or a gap year.
- Not checking, re-checking and checking again for typos, errors and other 'bloopers' that just say 'I don't do attention to detail'.



## What can you do to make your CV stand out from the others?

At risk of being repetitive, it has to be: clearly laid out, in an uncluttered fashion, telling a logical story in a grammatically pleasing manner with correct spelling – so that the CV is easy and quick to read. Most hiring managers are busy people whose day job is not recruitment, so the CV is likely to be read quickly in their 'spare time'.

## How do you sell yourself and your skills if you have little to no work experience or you are changing direction (so your experience is not directly relevant)?

Both questions probably attract the same answer, which is a repeat of the above. Draw as much as you can from the advertisement to which you are responding and tailor your CV to those aspects which represent the key selection criteria.

## What should be included and excluded in your CV?

Firstly, do not be hide bound by the convention that a CV should be no more than one or two pages. Don't make it longer just to fill the space, but if in order to tell the story fully, you need to go to three pages, don't be afraid to do so. To emphasize, a three page CV well laid out with clarity and impact is much better than the same detail crammed onto two pages or less.

Then, as a general guide:

- Personal Details including name, address, contact information and nationality, including, if appropriate, eligibility for, or sponsorship required to, work in the UK
- Academic credentials. Do include degree classification and some detail on modules, projects etc (particularly important at graduate level). Also include secondary education including subjects, grades, marks for final exams etc.
- Professional qualifications and/or training
- Language capabilities (both foreign and computer) – qualify level of fluency/ability in both written and spoken word
- A 'Personal Statement', 'Summary', or similar. This is the opportunity to encapsulate your achievements, soft skills, technical capabilities, motivators and career plans in a succinct summary. It is your Strapline to grab the reader's attention
- You may care to include a 'Key Skills Summary', where you list your soft, technical and IT skills in bullet point format. A support to the Strapline if you like.
- Your Career History, usually in reverse chronological order. The reader will want to understand, in brief, your role, responsibilities and key achievements. Concerning the latter {which will probably be a project list or similar}, you may care to weave this into the Career History, or keep the latter brief and have an additional CV section, 'Key Achievements', where you can list a representative sample of projects spanning your range of experience/skills.

- When describing project achievements (whether as part of a university project/dissertation project or from employment) a good acronym guide is STAR – Subject; Tools/Techniques used; Approach adopted; Results achieved. Thus the reader learns what you've done, how you did it and what resulted – so they can take a view on the transfer potential and value of this, to the role they seek to resource.

- If you haven't already, a list of the IT 'tools' of which you have experience giving level of capability and how obtained.
- Personal interest, hobbies etc. This is important, as it's the main opportunity to give the reader insight to the 'non-professional' you.
- Referees – confirmation that these are available upon request is perfectly adequate. There's no need to list actual names and contact details

## Is there anything that O.R. recruiters look for specifically when assessing CVs?

If it is true to say that a capable O.R. person is able to offer a combination of: academic pedigree, technical expertise {both analytical and in terms of 'IT tools'}, sound business and broader organisational understanding, and the interpersonal/communication skills to weave all these attributes together and win the confidence of 'clients', then a CV which convincingly portrays this combination is the answer to the question.

## In terms of covering letters – what should they say and how long should they be?

Covering letters are often a tricky one. Because so many recruitment systems are web based and automated, there is often either no facility for including them, or there is a risk they can become separated and lost, in terms of the final reader and intended audience – the hiring manager. If a covering letter is requested, or there is an obvious facility to include one, clearly it is sensible to provide it. But don't write the equivalent of War & Peace! Something brief, succinct, informative, to the point and professional is best. It also provides the opportunity to demonstrate your enthusiasm for and specific interest in the role/opportunity in question. And it finally provides the opportunity to demonstrate your command of the written word and language.



# REGIONAL SOCIETIES

## YORKSHIRE & HUMBERSIDE (YHORG)

**CONTACT:** James Crosbie

**TEL:** 07891244594

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

**YHORG meeting**

O.R. in the Department for Education

**Date/Time:** Tuesday, 17 February 2015, 16.00

**Venue:** Department for Education, 2 St Paul's Place , 125 Norfolk Street , Sheffield S1 2FJ

**Speaker:** Chris Savoury, Ioannis Patmanidis, Tetyana Mykhaylyk

'From Norfolk Street to Monte Carlo – Forecasting the Capital Demands of the Free Schools Programme'

Chris Savoury, DfE

In this talk I will give an overview of Monte Carlo simulations, starting with what they are and why and when I like to use them. Along the way I will talk about how we used Monte Carlo simulations in the Department for Education to explore uncertainty and risk when forecasting the costs of building new schools. I will discuss (some of) the various challenges we faced along the way (from data to presentational) and we how we overcame them.

'Academy trajectories: new System Dynamics approach'  
Ioannis Patmanidis, Tetyana Mykhaylyk, DfE

The Department for Education needs an understanding of the long term trajectories for academies in order to assess the impact on the wider school system, and the delivery of school services. In this talk we will give an overview of the initial forecasting model based on the growth curve approach and discuss how, while overhauling the model, we approached the problem differently.

Tea and biscuits from 3.30pm. 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 ([jamescrosbie@hotmail.co.uk](mailto:jamescrosbie@hotmail.co.uk)) to book a place.

As the venue is a government building delegates need to book prior to attending. Please give at least two days prior notice as I cannot guarantee to have access to my email to arrange last minute requests.

<OR>

# SPECIAL INTEREST GROUPS

## ANALYTICS NETWORK

**CONTACT:** Sayara Beg

**EMAIL:** [ANChair@theorsociety.com](mailto:ANChair@theorsociety.com)

**Government's Predictive Analytics Dialogue with Industry**

**Date/Time:** Wednesday, 28 January 2015 18.00 - 20.00

**Venue:** Ministry of Justice, 102 Petty France, London

**Speaker:** Two speakers, one public sector, one private sector.

We will be hearing from a Public Sector representative who will speak on about the use of network analysis in predictive analytic models and will be seeking a speaker from the private sector, to demonstrate similar approaches using network analytics in a predictive analytic model to compare and exchange ideas.

To sign up to attend, please visit

[www.meetup.com/analyticsnetwork](http://www.meetup.com/analyticsnetwork).

If you are somebody who has experience of implementing predictive analytics models, perhaps even using network analysis, please email [anchair@theorsociety.com](mailto:anchair@theorsociety.com) to be a speaker at this event.

## CRIMINAL JUSTICE

**CONTACT:** Ian Newsome

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

**EMAIL:** [ian.newsome@westyorkshire.pnn.police.uk](mailto:ian.newsome@westyorkshire.pnn.police.uk)

**CJ sig spring meeting 2015**

**Date/Time:** Friday, 13 March 2015 Time TBC

**Venue:** West Yorks Police HQ, Wakefield

**Speaker:** Various

Our spring meeting will be on March 13th 2015 at West Yorks Police HQ in Wakefield, an easy walk from the railway station!

Speakers, topics and exact times will be announced soon but the general theme is to do with predictive analytics in the CJ environment.

Contact Martin Rahman at West Yorks Police for further information. [martin.rahman@westyorkshire.pnn.police.uk](mailto:martin.rahman@westyorkshire.pnn.police.uk)

<OR>



# AFFORDABILITY, VALUE FOR MONEY AND DECISION-MAKING

**BRIAN SPEDDING, QINETIQ**

A report from a recent workshop held jointly by the Defence Special Interest Group and the Society for Cost Analysis and Forecasting

Much O.R. supports the making of decisions within government – decisions that are often concerned with spending (or saving) large sums of money. Given the increasing need for such decisions to be informed by evidence-based analysis, it was perhaps natural for the defence O.R. community to get together with our colleagues in the cost analysis and forecasting world to debate and discuss how these analyses can best be undertaken.

More than seventy people from the OR Society's Defence Special Interest Group (DSIG) and the Society for Cost Analysis and Forecasting (SCAF) attended a joint workshop at the BAWA Centre in Bristol in November, on the theme of 'Affordability, Value for Money, and Decision-Making'. Affordability and VFM are important elements in today's decision-making processes: whether we are considering investments in new capabilities, developing a transition programme, or optimising in-service support costs, the issues are very similar.

Dr Syd Morley, a senior member of MOD's Scrutiny and Analysis organisation opened with a series of colourful metaphors – effective decision-making being like a three-legged stool; effective relationships between a client and the analysis community being akin to the captain and engine-room staff of an ocean liner and; the dangers of treating analysis like a game of dice. He gave the audience the benefit of his many years as a senior decision-maker, an analyst and now a scrutineer. As an example of changing trends within government, the increase in outsourcing of service provision means that accurate forecasting of costs is ever more important, and this is proving to be a powerful driver of the need for more complete – and accurate – historical cost data.

Dave Exelby from Decision Analysis Services Ltd presented his recent work exploring the ways in which strategic thinking can be helped by a cross-disciplinary approach to analysis. This was supported by a series of examples where a multi-disciplinary approach to decision support had been successfully used to underpin decisions about equipment acquisitions and future defence policy. A view from inside government came from Arjun Madahar of Dstl who discussed the use of a suite of tools which Dstl use to provide insights and understanding into the capability, capacity and affordability of potential military force structures to meet the needs of UK defence and security policy. Andy Nicholl of PRICE Systems talked about the difficulties of taking into account inflation and explained the pros and cons of things such as currency exchange rates and purchasing power parity factors: these are of

increasing importance because of the increased prevalence of longer project timescales and more mixed nation supply within defence.

Andy Nolan (of Rolls-Royce) got the afternoon off to a good start with a barnstorming presentation that addressed the best ways in which to handle uncertainties in the requirements of complex systems. 'Uncertainty in system requirements is like the British weather – we may not like it but we have to live with it!' RR uses Requirements Uncertainty Analysis to reduce the impact of late changes in requirements to the outcome of a project. His exposition of the different types of project manager ('green-line' ones who are blasé about project risks and 'blue line' ones who are highly risk-aware and worriers by nature), and their impact on project success certainly seemed to strike a chord with many in the audience.

QinetiQ were represented by a brace of talks – from Steve Rowley and from Colin Sandal. Steve reported on the design and development of a toolset to help MOD better understand the future requirements for the test and evaluation of weapon systems (a multi-billion pound undertaking). Colin described a novel approach that he has been developing called Economic Value Chains. These are flexible, intuitive and highly interactive ways of representing the impact on a system of external events, and they offer a way of clearly visualising the costs associated with different decisions.

The final presentation of the day was given by Lucia Retter and Dan Jenkins of RAND Europe who provided an overview of RAND's findings from many years of research on how to identify (and counter) different forms of bias in cost estimating and in policy-making, such as optimism bias and framing bias. They also gave examples of good practice for communicating cost estimates to decision-makers, citing the importance of understanding the historical context within which the analysis of issues and costs can be sited. The audience was reminded that cost estimates are often more in the nature of uncertain forecasts than unerring predictions.

Judging from the 'feedback', the event was informative, interesting and valuable. Given the importance of the subjects, the themes of this workshop are topics to which the DSIG and SCAF communities will doubtless return.



## OR-30

Jan 1985

John Crocker

You may recall, from last month that Samuel Johnson (this time spelt correctly) alias John Hough floated away as winner of the balloon debate at OR24. This was rather fitting as it was John who replaced Peter Amiry as the new editor of *JORS*. I had rather hoped that John would write this particular article giving his views on what he hoped to achieve as editor, to what extent he met his aims and in the longer term, how he felt this may, or may not have influenced future editors and authors. Alas, he claims to have become a grumpy old man (as opposed to a grumpy young man?) and feels any article he penned would be rather negative particularly with reference to how *JORS* has developed over the years. Actually, I suspect he saw through my thinly veiled aim which was to get him to take over this slot, at least for the period that he was editor – I guess I shall have to be more subtle in future.

John Hough had been book review editor and was, at that time I believe, still the manager of the O.R. Group of Rolls-Royce in Derby. It was around that time that RR decided to outsource its IT and, rightly or wrongly, the O.R. Group went with it. As a practitioner, albeit a highly literate one, John took the stance that *JORS* should '... [be] even more relevant to the business of operational research in today's environment. Thereby, one could hope to increase the relevance of O.R. itself to those issues and problems which it has always claimed to be uniquely fitted to address.' Peter was also a practitioner and had set himself a similar mission but editors do not write the papers and they can only publish a selection from what

they receive. It will be interesting to see, over the next few years, whether John was any more successful, I suspect not. (You may be saying to yourselves that as someone who lived through this period, was a member of the Society during this period and hence a regular receiver of *JORS*, I should already know the answer. Alas, I have to confess that although I did, at one time, have 400 issues of *JORS* in my loft, I cannot recall ever reading any of the papers contained therein until five years ago when I took on this role.)

John went on to observe, 'There are also many projects in which the genuine achievement is the surmounting of political obstacles or the removal of traditional prejudices – neither of which may be clear to independent assessors who are imagined to demand papers which have been re-dressed and sterilized in the antiseptic glare of perfect hindsight. This inaccurate view of the refereeing process results, of course, in the eventual appearance of papers from which faulty assumptions, bad analysis, inadequate data and poor project management have been purged, much in the style of most political autobiographies. [...] Learning from the experiences of others is possibly less effective than learning from our own, but it can be massively less expensive.'

Or, as someone once said, 'Learn from other peoples' mistakes, you don't have time to make them all yourself.'

As they used to say, normal service will be resumed as soon as possible.

Hough, John (1984) Editorial, *JORS* 36.1, Pp 1-2 ([jors19851a.pdf](#))

<OR>

## OR-20

**Spectator at the (alcohol-free) feast**

**Max Giddens drops in on Council**

The report of the December Council meeting comes from an interview with Maxwell Giddens, aging doyen of the O.R. community. Max was making a brief visit to Birmingham from the USA and took the wrong turn behind the convention centre when looking for Seymour House. Quite unwittingly he found himself in the Council meeting and these are his comments, not mine.

As ever I write as a man from Mars who is wholly unacquainted with the rituals of the OR Society Council. I was particularly taken with the subtle ways in which I was press ganged into this role of reporter.

The regulars seemed to know the perfect time to inspect their shoes and the inside of their brief cases, but being an American I smiled

back at the President when he smiled at me. When Mr President Smiles, you smile. Not a mistake I shall make again.

**Semi-silent majority**

The meeting was a pretty low key affair in which a few spoke a lot and a lot spoke rather less. I'm told that many of your academics are having their teaching quality assessed by roving teams of deputy dawgs at the moment. I did wonder if the semi-silent majority were an investigatory team who'd taken the wrong turning at Spaghetti Junction.

The early stages of the proceedings saw an interesting agreement which means that the President must decide in public when an issue is so contentious that it must be voted on in secret. Motion carried by acclamation. Two members of Council were needed to join the GPC (I think that's the General Purposes Committee but nobody explained the TLA). To sit on the GPC it would appear that your first

# LAST WORDS



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name would begin with V; two people were found who met this highly logical criterion (Val Belton ad Vince Hopkinson), and they were duly elected.

## Budget

The budget for 1995 was presented by a man named Ken, as it seems are all budgets in Britain nowadays. This Ken Gregory, had a trickier job than some of his predecessors as, it seemed to me, the Society's finances are in a transitional state. Buying new offices at Seymour House should have a long term payoff and the result is that some of the Society's assets are now in bricks and mortar, rather than stocks and shares. As in recent years, the ever popular journal of the OR Society pulls in the pounds by virtue of the profit sharing deal with Macmillian Press. 1995 looks to be a year in which expenditure needs to be kept under tight control but things may get easier in a year or so, though it did occur to me that all Kens say that.

The budget statement has one or two nice titbits. Some miscreants (foreigners of course) had not paid their bills at the Glasgow conference and would be BLACKLISTED, also your investment committee seem to have done a good job over the past few years – perhaps could give me some help, though I need short-term advise at my age.

## Alcohol-free

Lunch intervened, but no booze despite all the evidence about the beneficial effects of red wine and one or two councillors were clearly unhappy about this, having been lured to the meeting by the promise of an extra-special Christmas buffet.

At times like this, especially near Thanksgiving, I get homesick. Pumpkin pie, turkey and all the trimmings, plus lots of lemonade. Thus soba we reconvened for the rest of the agenda. The Society is considering whether it's important to have a royal charter (we got rid of the royals a couple of hundred years ago) and so presentation

of the pros and cons of Chartered Status will continue in the Newsletter for a couple of months.

## In-flight Publicity

Of great concern was the report of the Publicity Committee and its expenditure over the last 12 months. When I flew into the UK last week, my inflight magazine was full of articles about O.R. (Only kidding) it seems hard to interest the media in O.R., though Val Belton did report that she nearly managed to get a Scottish TV station to talk to her once. Watch out Oprah Winfrey. So it's back to DIY (actually, that's Bob Miles IY) on the PR front for 1995.

I must've had another sleep because I don't remember much of the rest. Your Education & Research Committee is experiencing an identity crisis having transferred its training activity elsewhere. They were reminded that they could keep themselves out of mischief by thinking about another video to promote the Society. Mk1 is apparently due for retirement. On the first occasion, four O.R. groups persuaded their organisations to sponsor its production for £5000 apiece. Similar generosity will be sought if a follow up is to be produced.

Oh, and I nearly forgot, the Society's new Vice-Presidents are Robert Fildes and Bill Hancock. One thing I'll say for your Brits, you usually manage to keep the workers involved with your O.R. and you don't just hand it over to academics. You'll have practitioners as Vice Presidents and President very soon and I wish that we would guarantee the same. Mind you, I'm never really sure what VPs actually do, and I can't help but think of Dan Quayle.

They were a few other things, but you've probably ceased to care by now I doubt that they'll ask a boring old-timer like me to do this again. Perhaps one of the silent ones could do it next time?

Mike Pidd

&lt;OR&gt;

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Surrey

**OR MANAGEMENT CONSULTANCY**  
**Packages £55,000 - £85,000**

Enviable opportunities for OR professionals at either Manager or Senior Manager level, to join this leading team, within a multi-skilled business modelling consultancy practice. With projects including economic modelling, forecasting, simulation, system dynamics and optimisation, you can expect significant project variety and a stimulating, collegiate work environment. Experience could include spreadsheet modelling {preferably including VBA}, discrete event simulation or object oriented model development using tools such as VB.Net, C++ or C#.

Central London based

**REPORTING ANALYST, STATISTICIAN**  
**£45,000 - £50,000**

Exciting, newly created role within a leading customer feedback research company. Our client is now, based on strong client successes, seeking a Reporting Analyst/Statistician with advanced level Excel, SQL and SSRS skills coupled with well-developed client facing ability to join their team. You will be translating client business needs into concise data driven reports and recommendations, be championing analytics across the business, whilst also producing innovative data presentation methods.

Bucks.

**CHANGE & PROJECT MANAGERS**  
**To £55,000 + Bonus + Benefits**

Following the recent merger of two technology retail brands, our client is embarking upon a number of change programmes, this in turn has created the need to recruit two analytical change professionals. With strong academic backgrounds in OR/Maths/Numeracy, coupled with change delivery and project management experience, successful candidates can expect to be shaping the future of quantitative analytical thinking within the specialist Business Change function and across the organisation as a whole.

North London

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Enviable opportunity for a recently graduated Masters Level (or equivalent) candidate to join the OR function of a specialist Supply Chain, Logistics and Inventory Management Consultancy. With a first degree in Mathematics or Statistics, you will have progressed to MSc level, or beyond, and will be able to offer an understanding of forecasting, supply chain and/or inventory planning, either from academic modules, work experience or industry.

North East

**INSIGHT MANAGER**
**c£50,000-£60,000+Bonus+Benefits**

A credible and commercially focused Insight Manager is sought by our Online Retail client. With a remit to be responsible and accountable for delivering robust Analytics and data recommendations across the business as a whole, focused upon all Online/eCommerce activity: traffic; product range; price; service and UX. Advanced OR, numerical and quantitative analytical skills, sound business judgment and well developed presentation & interpersonal skills will be required.

Herts &amp; N. London

**SENIOR BUSINESS MODELLING ANALYST**  
**£45,000 - £65,000 Negotiable DOE**

You will possess have high academic achievements (minimum 2.1 numerate degree from an excellent university) and have c four years+ business experience, at least two of which should be in a modelling role. You will need an excellent knowledge of Excel, a good attention to detail and display an innovative approach in your work. Previous experience of business modelling in a consultancy, corporate finance or research environment will be an advantage.

City of London

**INSIGHT & STRATEGY ANALYSTS – SAS**  
**To c£40,000 Neg DOE**

Excellent opportunities to join a market leader in the Financial Services sector in their growing Decision Science and Analytics team. Applications are welcomed from those with a numerate degree and proven analytical or programming experience in either a Risk or Marketing driven role, working with large datasets of consumer and transactional data. Given the team's use of SAS, working knowledge of programming in SAS is essential.

Kent

**CLAIMS ANALYSIS MANAGER**  
**To c£60,000 Neg DOE**

'Greenfield' opportunity to join a dedicated Corporate Analysis team in this new Claims Analysis Manager role that has been introduced to provide actionable insight and analysis into the Home and Motor Insurance market performance to drive improvements to claims processes and costs, and to ensure trends are fully understood by Senior Management. You will be a high calibre Analytics Professional able to demonstrate an in depth understanding of how a claims function works and performs.

Surrey

**OR ANALYSTS**  
**c£25,000 - c£45,000 + Benefits**

Our client is in the middle of driving through an exciting transformation plan to optimise forecasting and yield management and seeks additional modellers to support this programme at both Analyst and Consultant level, who can offer sound forecasting or optimisation experience, good interpersonal skills and demonstrable commercial awareness. For the junior roles fresh numerate MSc/PhD graduates will be considered however experienced candidates should be highly skilled in building sophisticated models/simulations, skilled in data manipulation and visualisation and have programming skills in SQL, MATLAB or C++.

Peterborough

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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