**Criminal Justice special interest group event 24th June 2013**

The latest meeting of the ORS Criminal Justice special interest group was held at the Home Office in London. The event was well attended and included representatives from police forces, the Ministry of Justice, the Home Office, the Scottish government, probation services, consultancies and academia.

The afternoon consisted of presentations from a range of delegates about projects involving operational research. The talks were very well delivered and covered: the analysis / prediction of burglaries and use of agent based simulation for crime reduction (Leeds University); offender segmentation in the National Offender Management Service (Ministry of Justice); measures of effectiveness in community based policing in the US (Cogentus Consulting Ltd); and developing a 20-year facilities master plan for York Regional Police (ORH Ltd).

**Dr Nick Malleson** from Leeds University started the talks by describing the agent based simulation he has built which predicts rates of burglary across an area of Leeds. The model is complex and integrates information in relation to houses, offenders, communities and neighbourhoods. It is agent based because it is centred on individual offenders who make decisions, given the integrated information, about which particular property to burgle. After calibration to current crime data, the model does appear to be a good prediction of the actual distributions of burglaries in the area, despite the realisation that the simulated agents were travelling further than real criminals tended to. If computational limitations, particularly runtime, could be addressed, the model could be applied to other cities such as London or Birmingham.

**Nick Addis**, also from Leeds University, spoke about how he plans to develop the model to include real life offender data. He will perform a cluster-based analysis from 50 semi-structured interviews with burglars in order to group them by behaviour and selection process. The model should improve our understanding of the patterns of offending, complement existing crime reduction initiatives and potentially act as a ‘test-bed’ for future crime reduction initiatives or even as a predictive tool.

**Richard Thorne** from the Ministry of Justice gave a talk about applying segmentation and predictive analytics to commissioning services for offenders in custody. He explained how he has grouped offenders according to three criteria: their offender group reconviction scale (OGRS) category, their offence type and their sentence length. The OGRS category is an actuarial prediction of the risk of (proven) reoffending based on factors such as age, gender and details of previous sanctions. The tool he has produced can be customised by users and allows data to be compared to similar prisons or nearby prisons. The segmented data could help to target certain groups of offenders with the most appropriate intervention programmes.

**Ian Seed** from Cogentus Consulting Ltd described a project he had worked on to measure the effectiveness of a community based information system (CBIS) for the Los Angeles Sheriff’s Department. CBIS is a software tool that assists the police with being more proactive and gives them more options than simply arresting, ignoring or moving someone on. It provides information about the following: local services, including where to send someone for food, shelter or mental health needs; incidents, such as violent crime and property crime; characteristics, including poverty and unemployment; and resources, like information regarding gangs, drug cartels and people trafficking. Ian’s task was to evaluate both whether CBIS was meeting users’ needs and also the effectiveness of the training. By analysing the behaviour of users and determining if it was desirable or not, he was able to identify areas where CBIS and the training were falling short. Although he concluded that the training was generally effective, CBIS is not being used as much as hoped in the field. A workshop was run with interested groups, which used a variety of brainstorming techniques, including creativity (e.g. using a seemingly unconnected visual aid to kick start some out-of-the-box thinking) and Triz (essentially a toolkit of solutions to problems, which can be applied to most situations on the basis that someone else has probably had the same problem in the past and already found the solution). The workshop identified potential improvements in terms of IT, people, process and organisation and a business case is currently being worked on for CBIS 2.

**Chris Polden** from ORH Ltd explained how he had developed a 20-year facilities master plan for York Regional Police in Canada to identify the optimal position of police stations for both use by the public and also in relation to police patrols. Future data was projected for population levels, incident numbers, road layout, resources and estates. A travel time model was created for the patrol vehicles and the location of the police stations optimised by genetic resource evolution (OGRE) so as to minimise the time the vehicles spent travelling to incidents. Interestingly, redrawing the patrol zones gave a significant improvement, but increasing the number of zones did not. A second model was produced to minimise the travel time for the public to police stations, taking into account that four of the stations could not be moved, although new ones could be created. Finally, the two models were combined to achieve a compromise which represented the best overall locations for the police stations. The model also gave an indication of the number of police cars which would be needed at each location in the future.

The group would like to thank Ian Newsome (West Yorkshire Police) who chaired the event, Sue Merchant (Blue Link Consulting) who organised it, John Ferrier and Jo Keefe who hosted it and, of course, the five excellent speakers.

The next meeting of the Criminal Justice special interest group is scheduled for 18 November at the Ministry of Justice in central London.

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