

Data Mining / Technology

Driver – Technology

Related Drivers – Counter Terrorism, Collection and Storage of Personal Information, Fraud, Organised Crime, Collaborative Working Between Forces, Procurement, Police Powers, Advances in Technology, Compatibility, Information Sharing, Human Trafficking

Background

With the volume of stored information rapidly increasing, there is a need for tools to find, manipulate, synthesize and apply data effectively and efficiently.¹ Traditionally such work has been done by hand, but with such large volumes being collected, computer based approaches are being adopted. Activities such as data mining identify trends within data that go beyond simple analysis. Through the use of sophisticated algorithms, non-statistician users have the opportunity to identify key attributes.

To enable effective implementation and use of data, information must be delivered quickly and in an accessible form. Data mining in particular can be used to identify future trends or patterns.

A key policy recommendation from government paper *Building on Progress: Security, crime and justice* is to:

‘facilitate much more powerful analysis of key databases (such as identity, intelligence, DNA, CCTV and crime) which will provide agencies with information that will help to detect and solve more crimes and protect the public’²

Techniques such as data mining have the potential for enhanced detection and analysis of crime, even adding some predictive power to improve efficiency of policing and resource allocation.

One example of such a technique is GIS and crime mapping which can be used to display the spatial distribution of crime using thematic or hotspot maps. The technology can be taken one step further to develop and evaluate targeted crime and disorder reduction interventions through problem solving methodologies (Scan, Analyse, Respond and Assess)³. A Home Office Research Directorate (RDS) study found that GIS and crime mapping techniques were widespread in police forces but there was a considerable variation in the availability of resources for crime mapping and types of analyses being conducted. The study highlighted a number of areas that would benefit from further development:

- GIS and crime mapping training for analysts
- the quality of geo-coded data available for crime mapping analysis
- time (and other resources) available for analysts to enable them to focus more on explanatory problem-solving GIS analysis

- communication of products of crime mapping analysis to ensure that they are fed into appropriate decision making processes.⁴

Potential Skills Needs

Data handling and analysis skills – to identify crime hotspots and handle intelligence from many sources

IT skills – in the use of data mining software / technology

¹ [Ipsos-MORI \(2006\) *Sigma Scan: Information Management and Handling: controlling the rising flood of data that surrounds us.*](#)

² [HM Government \(2007\) *Building on Progress: Security, crime and justice.* London: Cabinet Office.](#)

³ Eck, J. & Spelman, W. (1987) *Problem-Solving: Problem-orientated Policing in Newport News*. Police Executive Research Forum: Washington D.C.

⁴ Bangs, M. & Weir, R. (2007) *The use of Geographic Information Systems by crime analysts in England and Wales*. London: Home Office Research and Statistics Directorate.