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Predictive analytics: selling the benefits

Graham Wallace explores a key theme in Foresight Report 2020, the latest research from the Association for Geographic Information

The AGI's Foresight Report 2020 provides insight into the key issues which AGI considers will have a significant impact on the economy, environment and society – providing both challenges and opportunities – over the next five years to 2020. This latest study both observes – and as necessary – challenges the current role of GI in relation to these key issues.

One of the Report's key themes concerns the application of GI in Predictive Analytics. While the range and variety of solutions so far developed is immense, end users typically need to address the following issues:

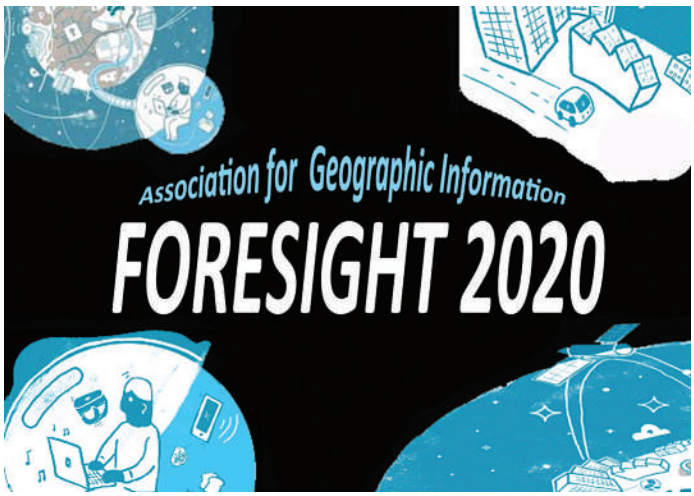
Risk management: Identify where specific types of risks may occur and what suitable steps need to be taken to mitigate them. Examples include assessing flood risk or evaluating the potential impact of chemical spills. Solutions developed against such requirements invariably seek to prioritise how and where limited investment funds can be applied to minimise the impact of any loss. Similar techniques are employed to predict the spread of diseases.

Improving workflow: Applications such as those developed for predictive maintenance aim to build a clear profile of historic events and to allocate resources to minimise disruption caused by plant or machinery failures. Such applications are often linked to routing and scheduling algorithms.

Output planning: The volume and values of outputs from activities such as agriculture, forestry and manufacturing depend on past decisions. Many GI practitioners use Predictive Analytics to draw on past experience to quantify the expected results. Such work may not always deal with tangible outputs – e.g. weather forecasting, traffic management or investment in healthcare provision – but there are many similarities in the techniques used to capture data, analyse and interpret information and to plan resource allocation.

Emergency response: Here, Predictive Analytics is used to assess the potential impact of an event such as a train derailment or an oil spillage. This could involve planning how specific locations might be accessed, how emergency response crews will be deployed, and assessing the potential impact on medical facilities. Such techniques are equally applicable to more mundane activities such as winter road gritting.

The use of Predictive Analytics was a topic considered by many contributors to the Report. The growth in data sets from Mobile Applications, the Internet of Things, satellite imagery, crowdsourcing, Big Data and remote sensing devices were regarded by many as inputs that enable resources to be targeted more effectively.



Valuable insights

What really stood out from the submissions was not the fact that there had been some remarkable successes in applying Predictive Analytics, but that there were many examples where things hadn't worked out as expected. In many ways the latter gave some of the most valuable insights into how Predictive Analytics needs to be positioned by vendors and deployed by end users.

This theme was highlighted in a number of papers relating to both public and private sector organisations. Although there were calls for "more joined-up thinking" and "greater collaboration", the reality is that while Predictive Analytics has the potential to deliver cost and efficiency savings, the GI industry needs to market them more effectively.

One of the issues for the GI community is that benefit delivery case studies are in short supply and there is a widespread need to develop financial modelling skills. Two commentators remarked on this shortfall – but it is perhaps indicative of the industry's state of maturity that there is an absence of ideas and initiatives in developing a "Breakthrough strategy" ... one that provides a clear roadmap for the more widespread adoption of GI-led Predictive Analytics.

In the end, harnessing the power of Predictive Analytics is likely to revolve around how we, as GI practitioners, promote the benefits and adapt our skill sets to move beyond worrying about data quality, standards and the performance of the technology, and focus instead on how we can improve our ability to drive Transformational Change.

For a summary of the report, or to download the full version, please go to www.agi.org.uk/foresight