Predicting weather-related emergency blackspots

The STFC Hartree Centre's high-calibre data analytics capability has helped KnowNow Information Ltd create a unique data resource that aims to revolutionise emergency planning and response.

Challenge

Torrential rain, overflowing rivers, heavy snowfall – these are just some of the factors that can bring danger and disruption to households, businesses, road users and those relying on public transport. Responding to traffic accidents, flooding incidents and other emergencies is complex and resource-hungry, and the ability to predict accurately where and when they will occur has huge potential to prevent problems, protect lives and livelihoods, and cut costs. KnowNow Information wanted to combine open data generated by the emergency services, Met Office, and Environment Agency into a single, insightful repository of knowledge that would make such predictions easier to generate.

Solution

KnowNow Information won a competition which awarded them the chance to prove their open data concept through access to Hartree Centre analytics hardware, software and expertise, enabling 'mash up' and time-sorting of all the data. It also enabled overlaying of the data onto Ordnance Survey information to pinpoint the location of key infrastructure, buildings and other assets. The net result was a robust platform of evidence highlighting trends and triggers that determine the probability of specific types of emergency occurring in specific places under specific weather conditions. Focusing initially on Hampshire, this solution – known as WUDoWUD (Weather You Do or Whether You Don't) – has clear potential for roll-out nationwide and beyond.

Benefits

As well as informing resource allocation and investment decisions at national and local level, this predictive capability could enable UK emergency services to achieve major savings – potentially up to 50% of the cost of attending emergencies where, for instance, river flooding results in dangerous fords forming on roads. It will give emergency services, highways authorities, rail operators, local communities and businesses more time to take proactive measures that negate or minimise the effects of emergencies; for example, it will enable logistics companies to identify alternative routes that avoid places where flooding is imminent. Insurance companies, too, will benefit by being able to base prices, policies and products on a more accurate assessment of risk.

"The chance to work with the Hartree Centre as we pursued our passion for open data was critical to propelling our start-up forward. On top of the technical skills and equipment we needed, it gave us a perfect platform for conveying to government departments, local authorities and other organisations exactly what open data can do for them."
– David Patterson, Co-Founder & Director, KnowNow Information Ltd

Work with us

We collaborate with industrial clients and research partners on projects that create insights and value using high performance computing, big data analytics, simulation and modelling.

By combining our world-class facilities with access to our specialists and computational scientists, we can enable your organisation to produce better outcomes, products and services more quickly and cost-effectively than through conventional R&D workflows.

With our partners we are developing the next generation of supercomputing architectures and software, combining existing best practice with innovation to deliver faster, cooler and more sustainable solutions capable of meeting the challenges of data intensive computing.

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