

Strategy and innovation

The central intelligence atlas: how BI is going visual

Spatial analysis can help businesses advance their business intelligence strategy to gain actionable real-time and future planning insight



Posted by Chloe Green on 14 October 2015



Analysis of spatial data isn't only useful to companies with physical property and assets

Data in itself has little value other than as fuel for analytics that reveal actionable insight. In turn that drives change and optimisation to enable an organisation to achieve its KPIs.

Consequently organisations, no matter how large or small, are constantly being told to be smart with their data. Over time this message has finally sunk in, and many are now using Business Intelligence (BI) systems to drive insight from data within the organisation.

Big data has been and continues to be a challenge even to those with enterprise BI, although the rewards of filtering and analysing it rapidly are considerable, for those that get it right.

However, in August 2015 Gartner retired its 'Big Data Hype Cycle', explaining that utilising big data is now common place. BI has now become a business essential rather than a differentiating factor. It's not 'keeping up with the Joneses' anymore, it's crucial to survival. Gartner explained that its focus has now shifted towards the Internet of Things (IoT).

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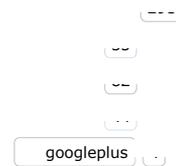


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Put simply, it's the gathering of information from devices across the business, from intelligent infrastructure to employees in the field with mobile devices and connected, GPS enabled vehicles.

All of that can generate not only big data but real time big data. Of course all of that infrastructure and those devices are out in the real world and may well be affected by the weather, traffic conditions, flood risk and geopolitical risk. Those factors have an impact on their performance and so need to be taken into account.

Since they change continuously, they become a further real time big data feed all of their own.

For example, the implications of weather for a business is currently the subject of Microsoft TV adverts, featuring Accuweather, running on the Microsoft Cloud.

The challenge, of course, is bringing together all this data; filtering it, applying analytics and creating a live visualisation of a business – delivering actionable insight on a whole new level.

While traditional BI is looking back at the more static data that a business generates – sales by area or product for a period of time for example, BI platforms are evolving to help make sense of big data.

However, once we are talking about things that exist and happen in the real physical world, there is a significant dimension that a BI system doesn't typically make use of to find essential correlations between disparate datasets – location.

Fortunately, there is a complementary enterprise technology that can fill that gap right now. It's called Enterprise GIS – Geographical Information Systems – and many businesses are waking up to the fact that visualisation using interactive digital maps and applying 'spatial analysis', as it's called, can produce significant results. Recognising this, forward-thinking BI vendors including Microstrategy and IBM Cognos are starting to embed limited GIS capabilities into their enterprise platforms.

And there's a further benefit. GIS analyses and visualises using time as well as location, and can 'play back' a visual representation of change over time. That's important because it allows prediction of what might happen in the future – so that problems can be anticipated and mitigated, resources can be more effectively deployed and assets can be maintained before they fail.

So, GIS complements BI by delivering live intelligence, presented in such a way as to enable instant and informed decisions and, also, by applying 'what if' scenarios, enabling planning for future potential events.

How is this useful?

For National Grid, accurately pinpointing people, properties and infrastructure is essential to running a safe network and delivering responsive customer service. Until recently, within its UK Gas Distribution business, maintaining reliable location information was challenging.

The staff – from engineers, to customer service operatives, to asset managers – relied on a variety of systems to do their job. More challenging still, each system used different sources of address data, referenced and searched in different ways.

Using a Geographic Information System (GIS), the ArcGIS platform, it created a 'single point of truth' for all location information in the business. This hub now provides centralised access to any datasets, from public data such as Ordnance Survey, to their own sets of addresses, roads, network assets and vulnerable customer data.

Importantly, the system constantly cleanses address data, correcting inaccuracies and removing duplicates. It gives every location a set of coordinates, for pinpoint accuracy. And it's very easy to use; users can search for information using xy coordinates, standard address formats,

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The result?

The business now has one point of reference for all activities at a site, including any work it has carried out, and a full customer history. It can even centrally log details of all stakeholders related to a particular site, from landowners to occupiers and their agents.

This helps engineers deliver better service and the business to make more informed strategic decisions. It also helps National Grid respond quickly to emergency call-outs.

As the organisation responsible for the UK-wide National Gas Emergency Service, this is business-critical. It is targeted by Ofgem to respond to uncontrolled leaks within one hour, which can be challenging, especially when people report smelling gas at places without an address, such as a field or a canal bank.

Spatial analysis isn't only useful to businesses with physical property and assets however. Mitsui Sumitomo Insurance Underwriting at Lloyd's Limited (MSIG), for example, has created a dynamic online atlas of hundreds of potential hazards that could impact insured properties and businesses around the world, using GIS. The technology enables it to monitor hazards at specific locations, ranging from tornados and wildfires to terrorist activities.

The online solution also gives the underwriters a selection of analytical tools, so they can assess distances from at-risk locations (such as airports), and test a variety of complex scenarios to make well-informed judgments when considering whether to accept a new insurance policy.

So how can this apply to other businesses?

Firstly identify all available data sources; it's unlikely that all the required data will be held in one place. By finding and pulling multiple systems and databases together, more context can be obtained.

The next stage is to consider other data dimensions, such as the locations of property and assets or inventory, that can add to the value of the knowledge already obtained.

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Now identify data available from mobile worker's devices, vehicles and infrastructure assets (like valves or substations) and bring that into the mix. Of course generally the only factor that can correlate these data feeds consistently is location.

The final element comes from external contextual data. By utilising publically available demographic data from the cloud, organisations can understand where their customers are and where else in the country - or the world - similar potential customers might be found.

These increasingly important open datasets can include information made available by central government such as flood events, live road traffic information, health data and much more.

Police forces, local councils and other public bodies are similarly making data available that can be acted on; the Open Data Institute (ODI) is one of the driving forces behind this sharing of data. The Living Atlas is also a fantastic worldwide source of spatial data – from demographics to traffic and physical geography.

Once pulled together, GIS and spatial analysis can be used to combine and visualise the data, using location as a unifying factor. The visual element is crucial as without it important correlations are likely to be missed.

Recent research by Esri UK found that over a third of British adults feel stressed, every day, due to data overload. However 66 per cent of respondees said that they find it easier to understand information if it contains maps and graphics.

visual, and now is the time to act.

Sourced from Simon Weaver, Platform Analytics Manager at **Esri UK**

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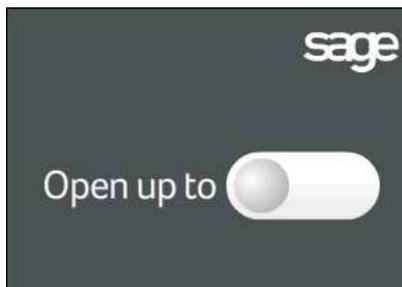


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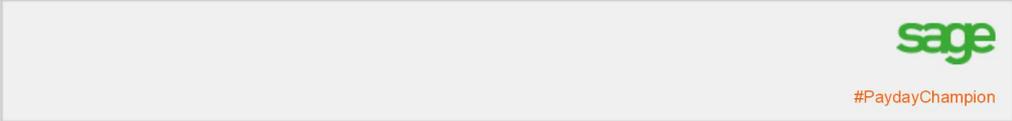
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