



# Using GIS to reduce the risk of insurance losses

Insurance group Allianz is using Cadcorp SIS – Spatial Information System software in its accumulation and perils management and reporting processes in order to help underwriters correctly assess risk and set appropriate premiums.

Like any business, the principal aim of a successful insurance company is to maintain or increase its profitability in order that it can grow its business, provide a return for its shareholders and maintain favourable working conditions for its employees. So in order for them to avoid exposure to claims that could result in excessive losses, insurance companies need to fully appreciate the risks they are taking on when writing new business or even retaining existing business.

Allianz Insurance is one such company that is successfully avoiding excessive risk – and reaping the financial benefits of this for its shareholders, policyholders and employees alike. Among the tools it uses to do this is the latest in geospatial information processing technology, in the form of Cadcorp SIS – Spatial Information System software.

Allianz Holdings plc owns the principal insurance operations of Allianz SE in Great Britain. Through its subsidiary companies, Allianz Holdings is one of the country's leading general insurance groups, operating through several regulated insurance companies organised into retail and commercial divisions.

With some £600 million of gross written premiums, or revenues in 2008, Allianz Retail provides a wide range of personal lines insurance products that are made available through brokers, retailers, affinity partners, veterinary practices and direct sales.

Meanwhile, Allianz Commercial comprises a commercial lines insurance business and an engineering insurance and inspection business and had revenues of some £900 million in 2008. It provides a full range of commercial insurance products to a range of clients, from sole traders to large commercial organisations. The business is distributed principally through intermediaries but there is an increasing amount of business sold direct. In its commercial lines business, Allianz is among the top five insurers in the UK market.

## Understanding risks

A decision on whether or not to provide insurance cover for a client, or potential client, and the level of premium the cover will attract relies to a great extent on the application of Allianz Commercial's recently enhanced accumulation and perils management and reporting process. This applies particularly to the insurance of buildings and other commercial properties and is the main area in which Cadcorp SIS is used by Allianz.

“Put simply, accumulation management involves knowing where the individual premises for which we are providing insurance cover are located”, explains Russell Corbould-Warren, business systems manager, Allianz. “The information is based on Royal Mail postcodes and therefore enables us to identify postcode areas in which we have an accumulation of insured risks in the form of individual premises, irrespective of who owns those premises.”

This is then combined with other information, such as flood risk areas, contaminated land, areas at risk of terrorist attack and other types of risk. This information is obtained via government bodies such as the Environment Agency, as well as other public and commercial organisations, such as Ordnance Survey. The knowledge provided by this combination of accumulation and perils information enables Allianz to analyse not only where its insured risks are accumulating but its exposure to risks in any given area.

Cadcorp SIS is the key to this knowledge. A ‘hazard risk/perils’ database has been generated which comprises postcodes and their hazard ratings on a scale of 1 to 5. This data is stored in an Oracle database hosted on Allianz's intranet server. Cadcorp SIS is used to analyse the various risk levels against postcodes and to produce a hazard rating for an individual postcode.

In practice, the system enables underwriters to make decisions using up-to-date information on risks, rather than having to assess the risk themselves.

By simply logging onto the server over the Allianz intranet they can enter the postcode of the area in which they are interested and define their search using a simple, wizard-driven user interface.

This enables Allianz' underwriters to quickly find out the level of risk a specific property attracts and to arrive at the appropriate premium. If required, a percentage up-lift in the premium to cater for the risk level can be provided. If the accumulation is too high in the area in question, the system will advise the underwriter to decline the business.

The knowledge provided by the system also enables Allianz Commercial to more readily satisfy new Financial Services Authority (FSA) rules, known as Solvency 2, which require insurance companies to hold sufficient liquid assets to cover the largest losses that could arise in any one area.

### Visualising hidden risks

The new system has brought major benefits to the process of setting appropriate premiums and managing accumulating risk levels. But while it uses GIS technology in the analysis process, the information provided to underwriters in the great majority of instances is purely alphanumeric.

However, there are times when the intelligent digital mapping capabilities of Cadcorp SIS have an important role to play in the decision-making process.

For example, because of the type or level of risk associated with the postcode in which a particular property is located, an underwriter may feel it necessary, or wise, to refer the enquiry up the chain of command at Allianz for a decision.

In such cases, managers at Allianz are able to log onto any one of six virtual IBM machines on the Allianz server via the intranet and to make an enquiry, using the spatial analysis and digital mapping facilities of Cadcorp SIS. This enables them to select the postcode area in question and display it in its correct geographic location on the Ordnance Survey MasterMap digital map. They can then perform a number of spatial analysis tasks.

For example, they can draw a 'buffer' area on the map around the property in question and then interrogate the database to find out which risks fall within that buffer area. This overcomes the problem associated with postcode boundaries, which tend to follow a road centre-line or river, for example, and the fact that risks, such as flood planes, generally do not respect postcode area boundaries.

The ability to define an area geographically and to search the database for areas that fall within or adjacent to it and display them on a map means it immediately becomes clear, for example, that while a particular property may be in a postcode area with a low risk rating, it is on the edge of that area and adjacent to a postcode with a high risk rating.

Armed with this map-derived information, the manager is able to advise the underwriter accordingly.

### Benefiting the business

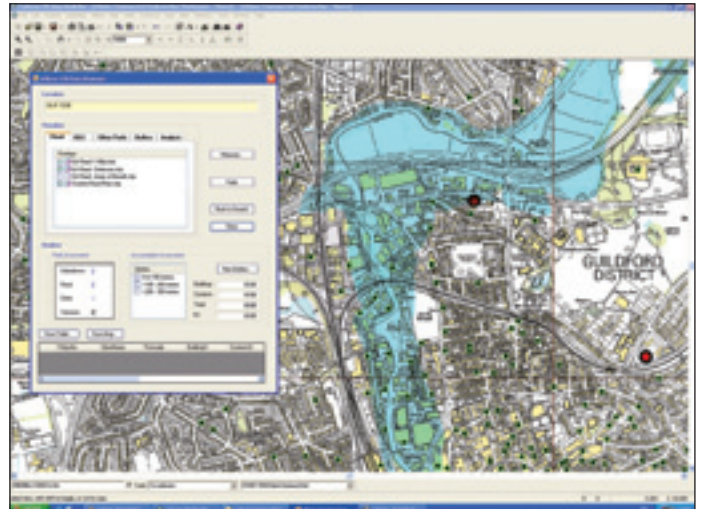
The deployment of Cadcorp SIS within Allianz is still in its relatively early stages. However, the new accumulation and perils management and reporting system using the software has brought very real benefits to the business already.

Before the new system was implemented, accumulation management reports were produced every six months. Today they are produced on a monthly basis. This means that they are more up-to-date and that when combined with risk levels, Allianz' insurance underwriters have much better information than they did before on which to base their decisions when writing new business.

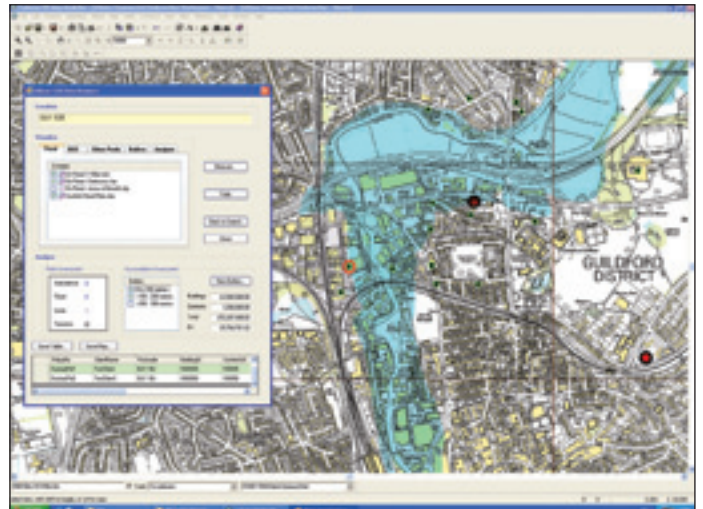
It also means that management has a more up-to-date and accurate picture of where the company's insured risks are accumulating, enabling it to make timely and appropriate decisions in order to avoid excessive risk.

However, Allianz' Corbould-Warren has plans to enhance the system in the future in order to bring further benefits. These plans involve the use of Cadcorp's GeognoSIS web-based GIS software.

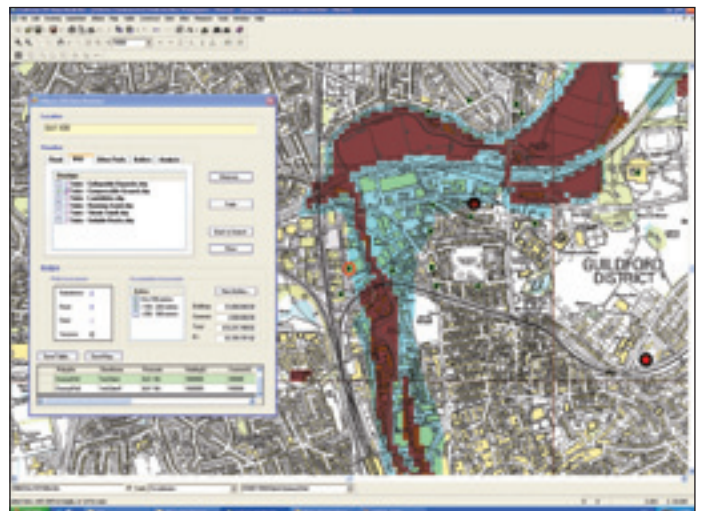
"While monthly reporting using Cadcorp SIS desktop software was a major improvement on our previous system, the use of Cadcorp GeognoSIS will enable us to move to real-time on-line accumulation management reporting," he says. "Furthermore," he adds, "it will enable us to move away from the restrictions imposed on us through using only postcode areas to identify where a building is located and enable us instead to identify the actual building in question using Ordnance Survey MasterMap and Address Layer data."



The Allianz GIS Data Browser menu. From here the user can evaluate the proximity of risks to a postcode centroid and analyse the potential hazard of natural perils.



Users can increase or decrease the buffer intervals for their accumulation assessments and can query individual risks to return details about the policy and client.



The Allianz GIS Data Browser enables the user to toggle additional overlays should further investigation be required on a particular area/risk.

So the development of Allianz' accumulation and perils management and reporting system hasn't stopped. The next step is to make full use of the latest web-based technologies in order to ensure that not only is the information needed by underwriters and management alike up-to-date but that this information is available to whoever needs it, where and when he or she needs it.

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