

ESRI Insurance Solutions
Geographic Thinking for Insurers – managing risk, exposure and capital allocation

Mike Cooper, Head of Business Solutions ESRI (UK)

General Insurance - challenges

- § Climate change
- § Regulation and good corporate governance
 - § Solvency 2 (Prescribed reserve ratios)

"As we move towards a Solvency II regime, insurers' ability to measure and report these items on a continuous basis will be key and will require considerable investment across the industry"

Phil Smart Partner, Head of Insurance Technical Advisory KPMG
Survey of European insurers' reports at half year 2008

General Insurance - challenges

- § Consolidation
 - § Reducing overheads releases capital = ability to write new business
 - § Business re-engineering (Automation drives cost savings)
- § Specialisation and segmentation
 - § Targeted growth
 - § Technical excellence

"An awful lot of people are living only a foot above high water and do not know it."
Jim Titus, US Environmental Protection Agency, June 2001



www.esriuk.com

Source: Wikipedia

UK historic events

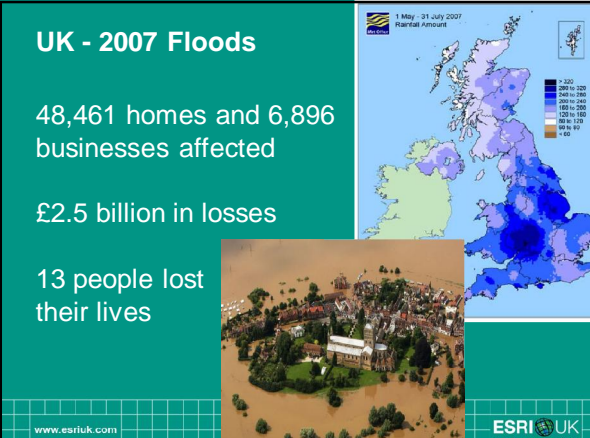
Fatalities (Estimated)	Event	Date
2,000	Storm Surge Bristol Channel	30 January 1607
8,000	Storm English Channel	26 November 1703
20,000	Eruption Laki Volcano Iceland	1783 - 1784
220	Snow Great Blizzard of 1891	9 March & 13 March 1891
307	Storm Surge North Sea Coast	31 January to 1 February 1953
2,139	Heatwave European heat wave	4 to 13 August 2003
13	Floods Tewksbury, Sheffield and Hull	Summer 2007

UK - 2007 Floods

48,461 homes and 6,896 businesses affected


£2.5 billion in losses

13 people lost their lives




www.esriuk.com

Critical Infrastructure at risk

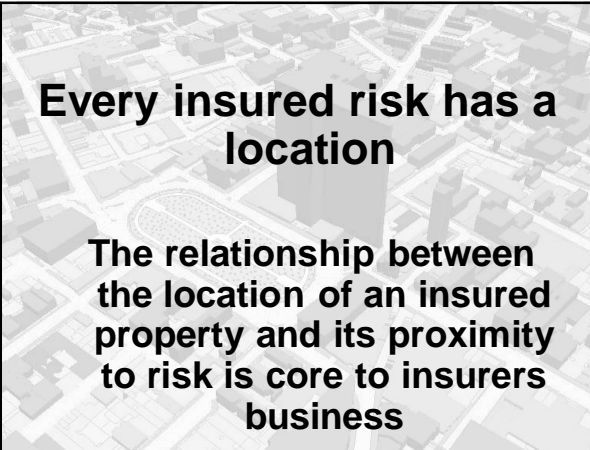


- >1000 power stations and substations
- 1145 water and sewage treatment works
- 512 railway stations
- 1028 care homes
- 1796 schools
- 834 ambulance, police and fire stations

www.esriuk.com 

Every insured risk has a location


The relationship between the location of an insured property and its proximity to risk is core to insurers business



The geographic advantage

- § GIS - a core business competence for insurers
- § Modelling and management of risk
 - § **Precision** in proximity of insured property to many perils
- § Management and allocation of capital
 - § Exposure management for any given location/geometry

Geographic transactions - integrated & automated

www.esriuk.com 

ESRI – the geographic approach

Infrastructure investment will be required to support sustainable growth targets in a new era of good governance practices and corporate responsibility

- § Critical systems: CRM, ERP, Content Management & GIS
- § Integrating geographic knowledge, rigour and discipline into the business architecture = Better decision making

www.esriuk.com 

A compelling proposition

- § Geography is core to and has a place in insurers everyday business

"For a moderate investment in GIS over the next 5 years RSA expect to see a substantial ROI"


Graham Heale; Property Underwriting Director RSA 6th August 2006 

www.esriuk.com 

Buncefield - December 2005

Within 3 hours we provided a number covering our exposure that 7 months on is within 8% of the loss we are sitting on

Graham Heale – Property Underwriting Director RSA 6th August 2006



Derived by ESRI UK from Ordnance Survey Data – Crown Copyright

Geographic issues



Location

Precision quality and currency of policy address and location details
Postal & Non postal
Multiple occupancy



Risk

Multiple perils
History not a definitive guide to future events
Identification of intrinsic and associated risk



Capacity

Managing and calculating re-insurance requirements
Accumulation and aggregation
Capital allocation

www.esriuk.com ESRI UK
VISUALLY THINKING

Geographic services



Location



Risk



Capacity

A STANDARD APPROACH TO THE MANAGEMENT OF SPATIALLY RELATED ISSUES FOR THE INSURANCE INDUSTRY

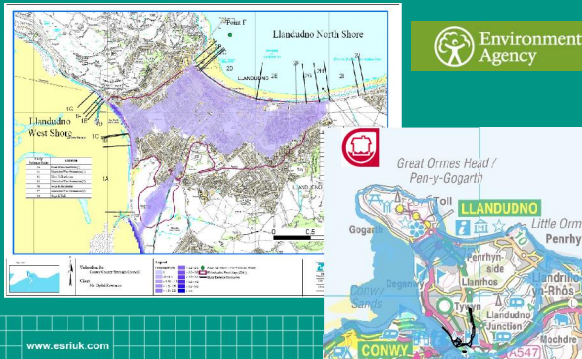
www.esriuk.com ESRI UK
VISUALLY THINKING

Why is location precision important?

- § Appropriate pricing
- § Accuracy in risk modelling
- § Accuracy of event exposure reporting
- § Claims management and handling including locating customers affected
- § Fraud detection
- § Geo marketing

www.esriuk.com ESRI UK
VISUALLY THINKING

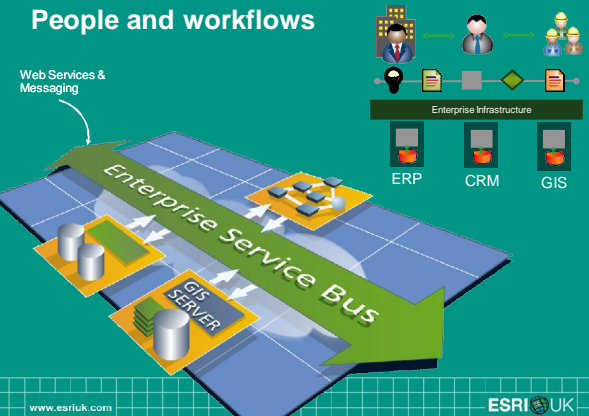
Predictive models



Environment Agency

www.esriuk.com ESRI UK
VISUALLY THINKING

People and workflows



Web Services & Messaging

Enterprise Infrastructure

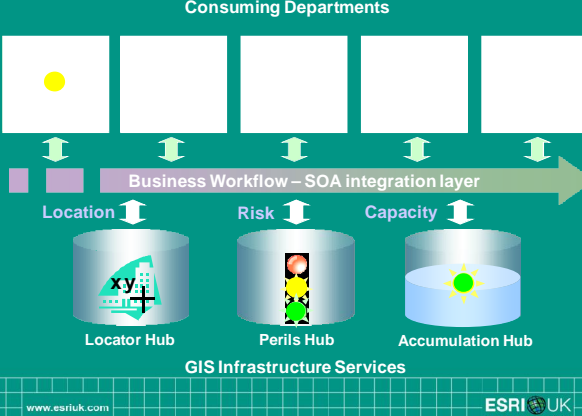
ERP CRM GIS

Enterprise Service Bus

GIS SERVER

www.esriuk.com ESRI UK
VISUALLY THINKING

Consuming Departments



Consuming Departments

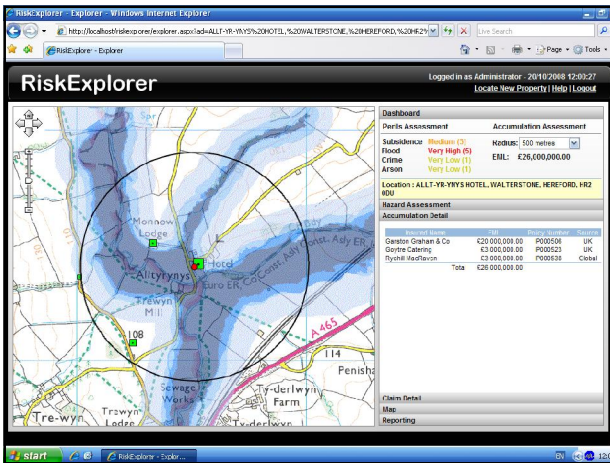
Business Workflow – SOA integration layer

Location Risk Capacity

Locator Hub Perils Hub Accumulation Hub


GIS Infrastructure Services

www.esriuk.com ESRI UK
VISUALLY THINKING



Solution performance

- § Fast
 - § automated sub second transactions
- § Reliable
 - § 99.997% availability
- § Future proofed
 - § open standards, extensible and scalable

www.esriuk.com 

Sustainable growth

Improved capital performance

- Improve the linkage between liabilities and reserves
- Minimise risk and focus on writing profitable business

Crown Copyright

Delivering efficiencies

Bottom line cost savings

- Optimised and dynamic purchasing of re-insurance cover
- Reduced cost of claims handling and fraud detection

Crown Copyright

Doing things better

Improved customer service

- Improved claims handling processes
- Writing new business is easier and faster

Crown Copyright

Regulation

Good corporate governance

- Responsible management of capital reserves
- Fast and accurate exposure reporting

Crown Copyright



A Geographic Approach

"I guess the real 'lightbulb moment' for me was the realisation that it wasn't the knowledge of topography, or river flows, or of insurance, or of GIS that actually made the difference, but it was the combining; the integrating of all that skill and knowledge, to produce something that really made a difference to the bottom line"

Graham Heale, Property Portfolio Director RSA

www.esriuk.com



26

Geographic Thinking

"Those who embrace mapping and geographical data will eventually gain a huge advantage wherever they wish to use it. That is the excitement of this technology."

Graham White, head of property and strategic accumulation management, Zurich

POST MAGAZINE 25 SEPTEMBER 2008

www.esriuk.com



26

Putting geographic science into the art of underwriting

"My goal is that at the point of underwriting, underwriters have as much information as we can give them. It's a major investment for us."

Bernard Mageean, Managing Director QBE Property
Insurancetimes 13th October 2008

www.esriuk.com



27

Consequences

The irony is, where the financial sector is taking a more responsible approach to capital management, that as more Insurers deploy geographic technology (GIS) to better manage their exposures that many properties will be identified as uninsurable

- § Social and economic cost
- § Insurers influence regards future planning and building policy will increase

www.esriuk.com



28

Storm of 1703

December 6. 1703.

WE live Ten Miles off the Sea in a direct line, and yet can scarce persuade the Country People, but that the Sea water was blown thus far, or that during the Tempest the Rain was salt, for all the Twiggs of the Trees the day after were white, and tasted very fait, as I am informed almost by every body, tho I did not taste them time enough my self, nor observe it, and that not only upon this Hill where we live facing the Sea, but in all other places within 14 or 15 miles of the Sea, as well in the Valleys, between which and the Sea are several very high Hills, as on the Hills themselves.