GISLab (UK)

School of Computing and Mathematical Sciences
Liverpool John Moores University, UK

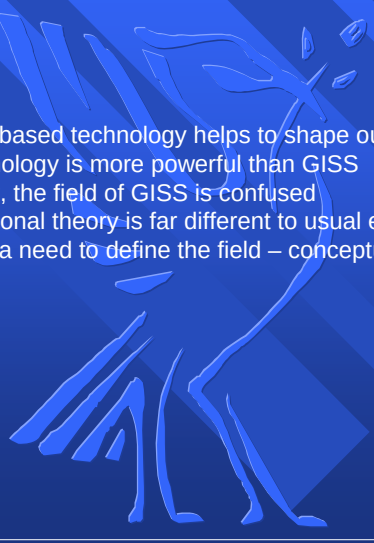
Dr. Michael Francis

Keynote Presentation

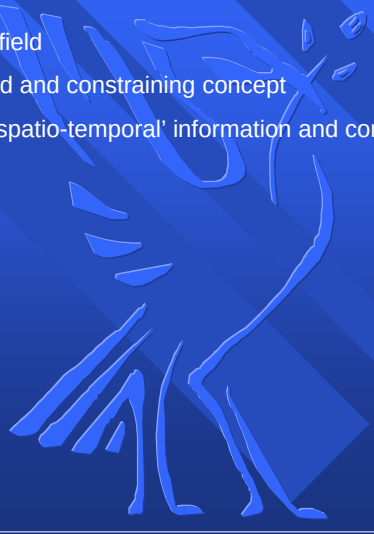
GISS: Bringing it Down to Earth

1. Theory issues
2. Trends
3. Controversial ideas
4. Future directions

Theory Issues



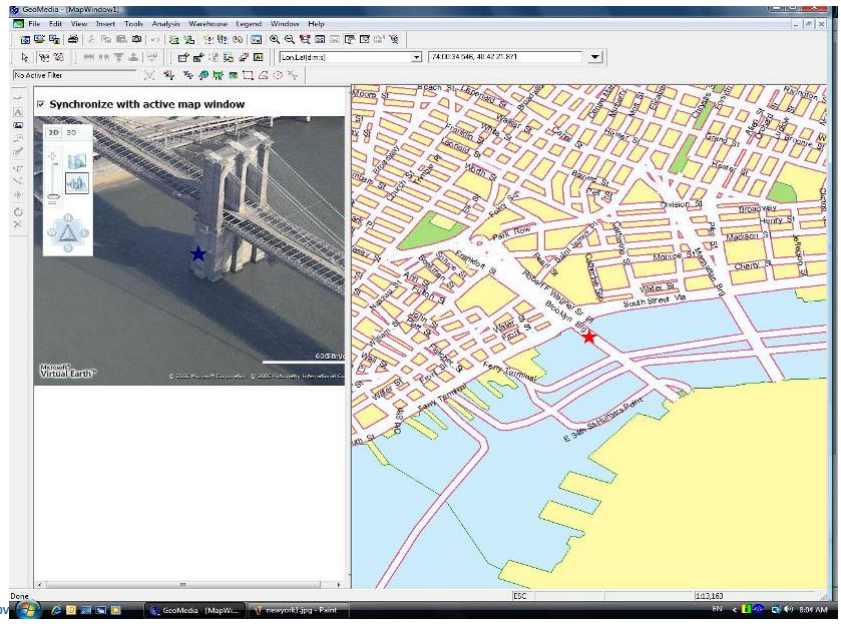
- Science-based technology helps to shape our lives
- No technology is more powerful than GISS
- However, the field of GISS is confused
- Conventional theory is far different to usual experience
- There is a need to define the field – conceptual cleansing



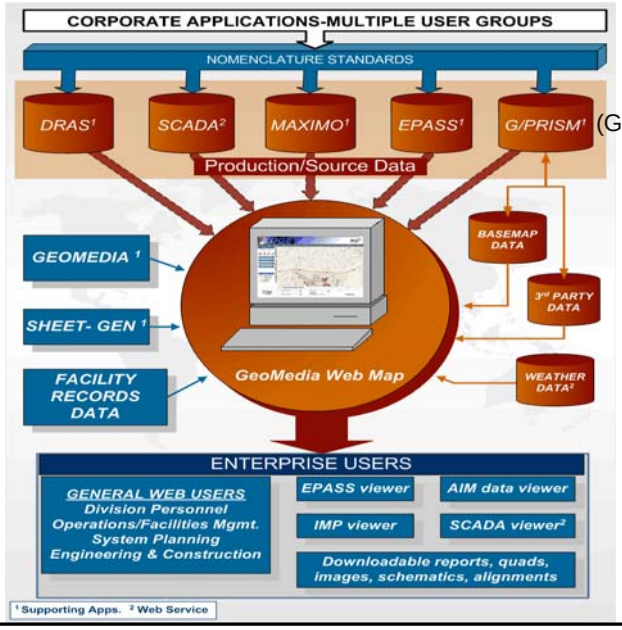
- Trends
- Dynamic field
- GIS: dated and constraining concept
- Move to 'spatio-temporal' information and computing

- Controversial ideas
- Proprietary GIS development: damaging
- Move away from fundamental research at a cost!

GeoMedia With Microsoft Virtual Earth
Desktops consuming Web services

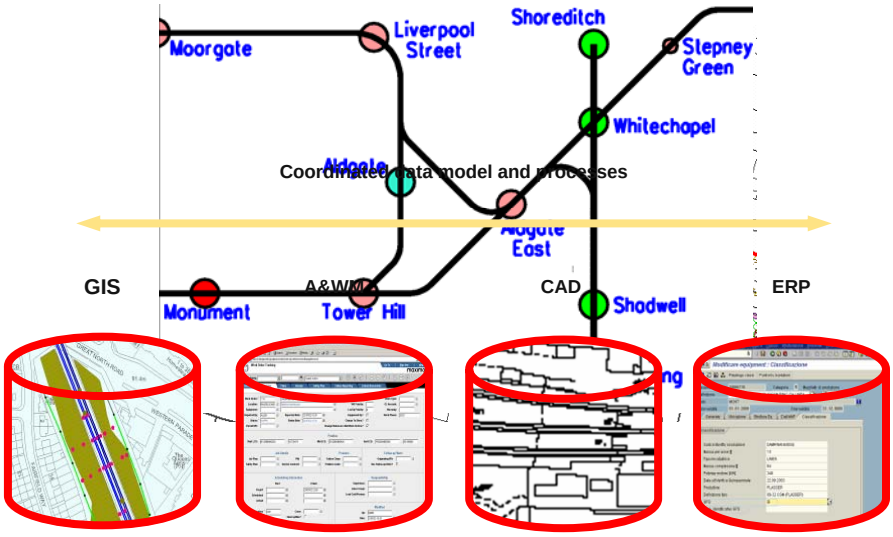


A contemporary hybrid business architecture
Dynamic data re-purposing and fusion

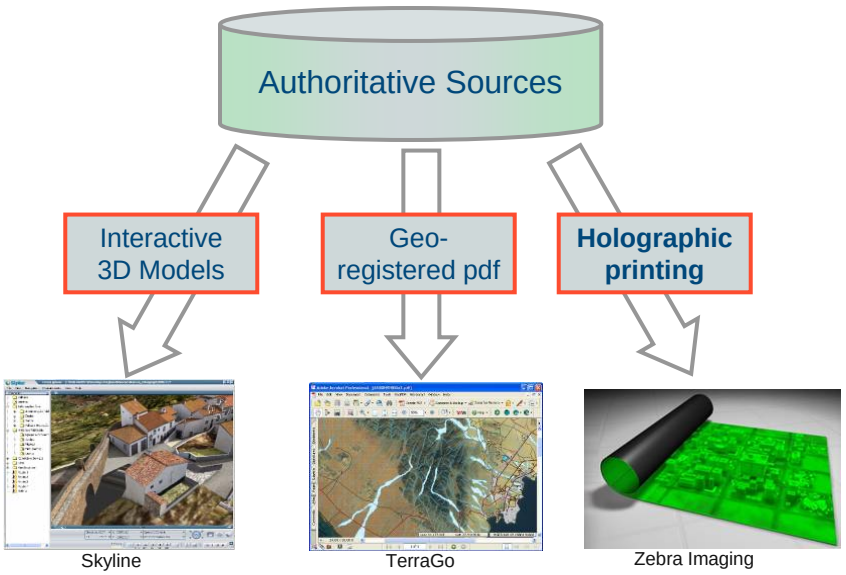


(G/Tech)

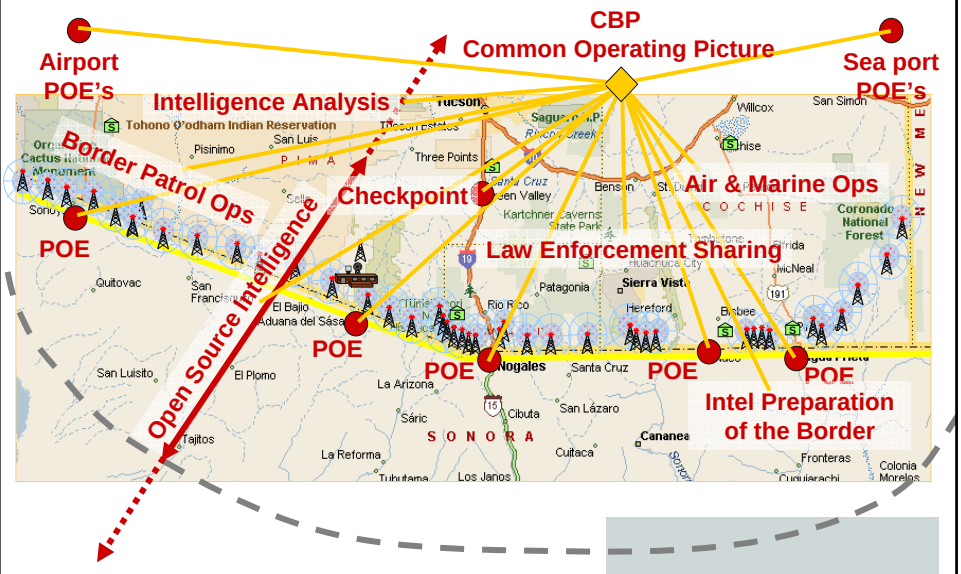
Integrating information and dynamic, data-driven rendition



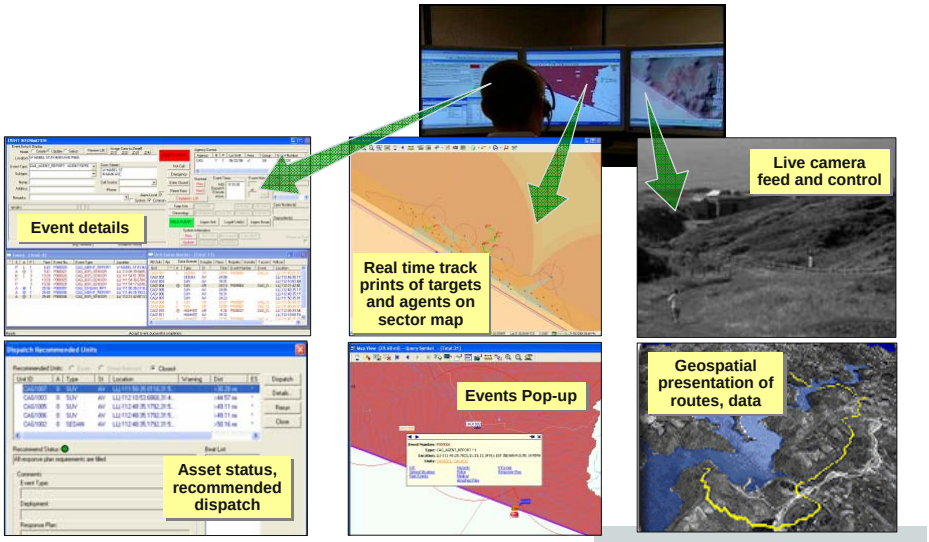
New ways to publish data



SBInet Scope



Border Station Operators have Full Visibility, Decision Support, and Control

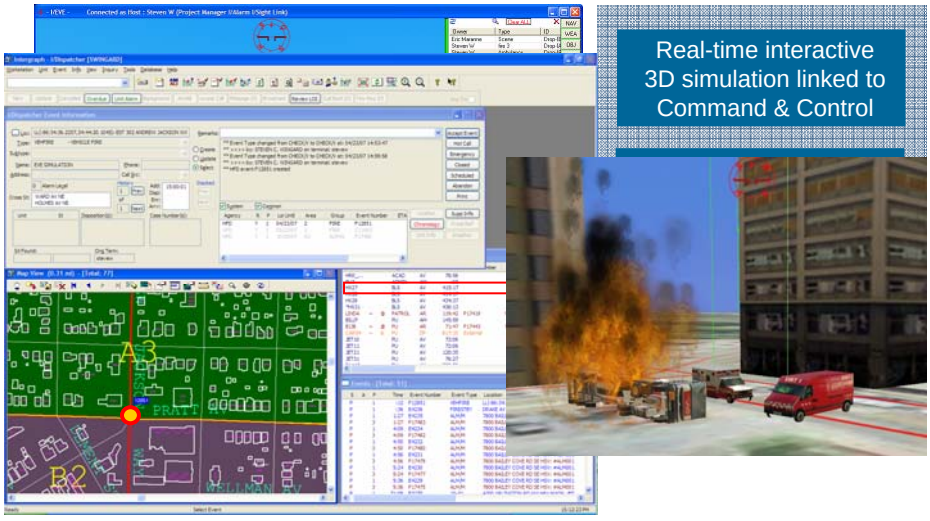


Streamlined Presentation of Situation with Context Enables High Productivity in the Station

November 6, 2007

Simulation Integrated with Command & Control for Emergency Response Training

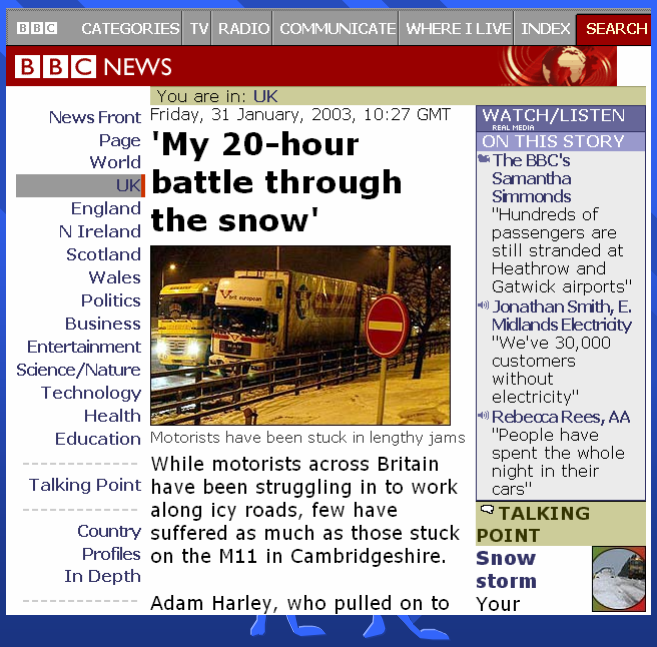
- Extended Virtual Environment (EVE)
- VRML-based virtual environment with object modeling and intelligence

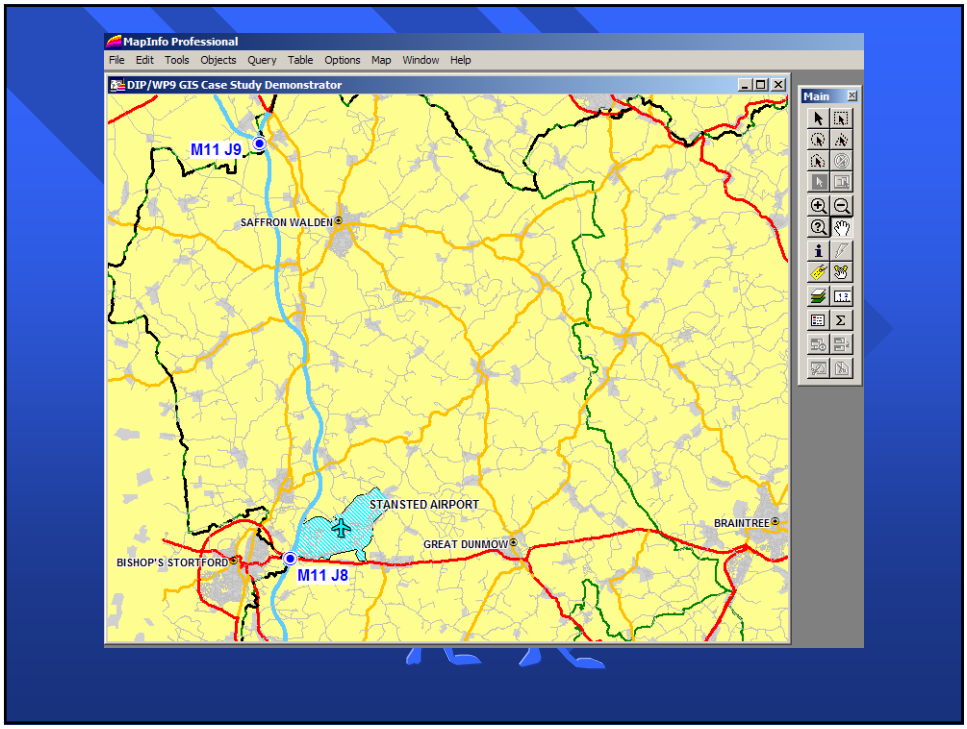


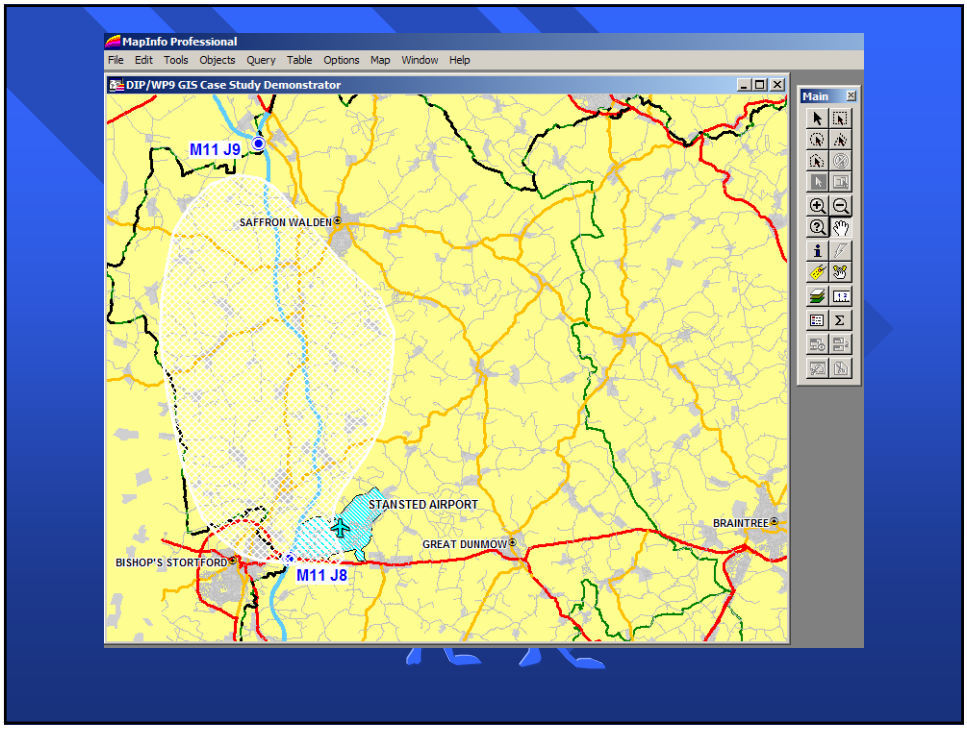
Dam Disaster

Human cost, economic cost, long term costs?

Web GIS
&
Semantic Web Services




MapInfo Professional
File Edit Tools Objects Query Table Options Map Window Help
DIP/WP9 GIS Case Study Demonstrator
Main
M11 J9
SAFFRON WALDEN
STANSTED AIRPORT
BRAINTREE
GREAT DUNMOW
BISHOP'S STORTFORD
M11 J8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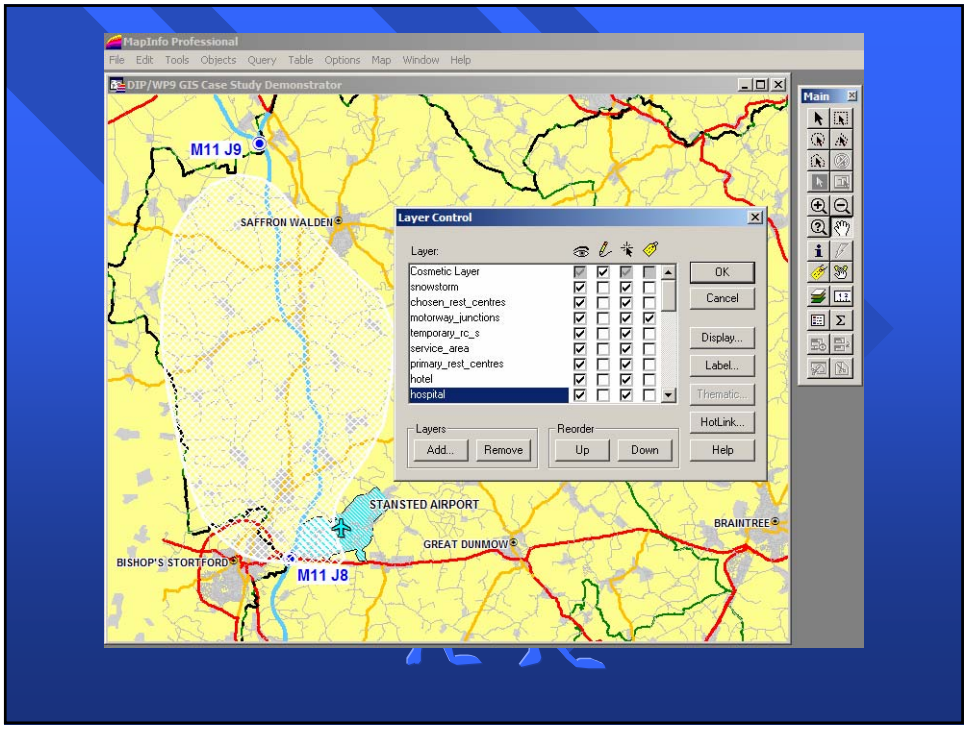
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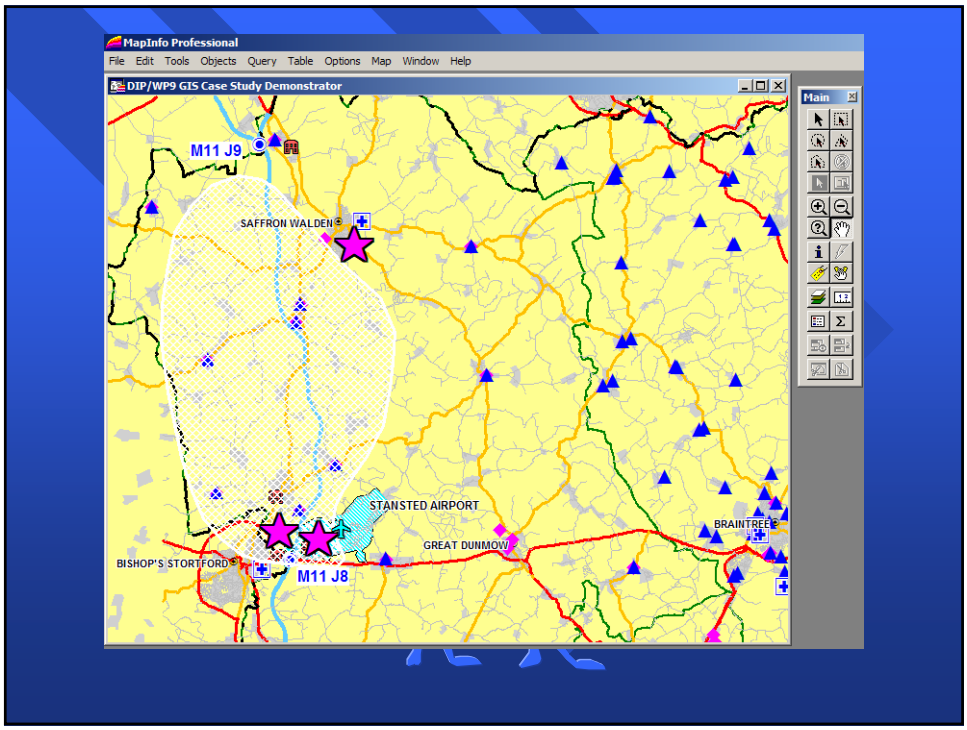
DIP/WP9 GIS Case Study Demonstrator
Main
M11 J9
SAFFRON WALDEN
Layer Control
Layer:
Cosmetic Layer
snowstorm
chosen_rest_centres
motorway_junctions
temporary_rc_s
service_area
primary_rest_centres
hotel
hospital
OK
Cancel
Display...
Label...
Thematic...
HotLink...
Help
Layers
Add...
Remove
Reorder
Up
Down
STANSTED AIRPORT
GREAT DUNMOW
BRAINTREE
BISHOP'S STORTFORD
M11 J8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M11 J8

A GIS is
MORE
than a mapping tool

Semantic
Web
Services?

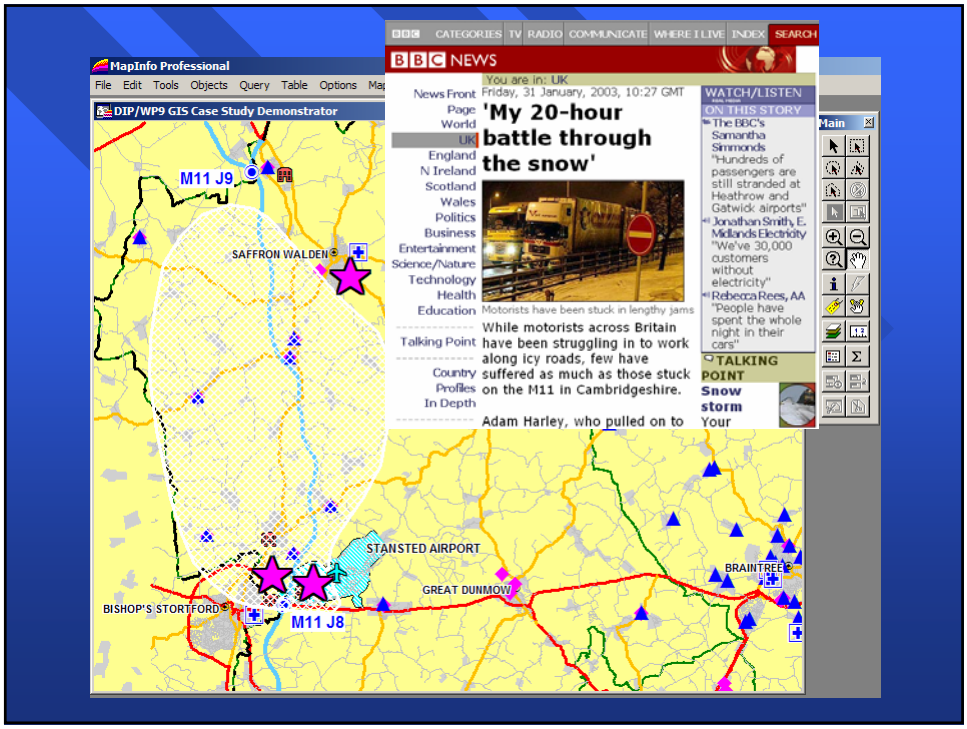
IRS-III

Services

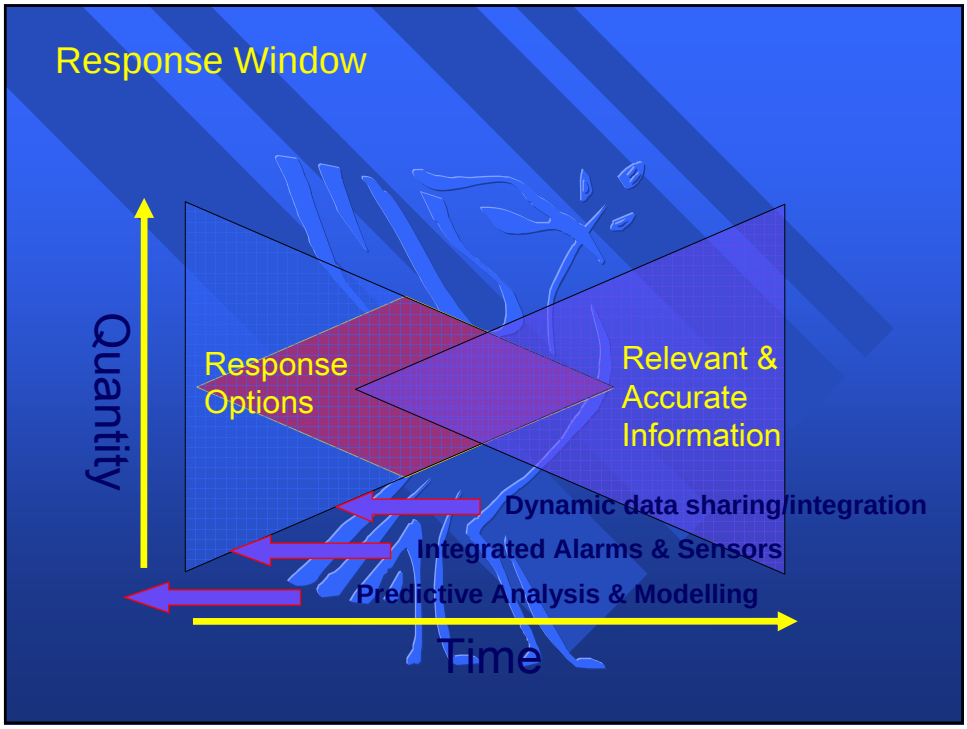
Client

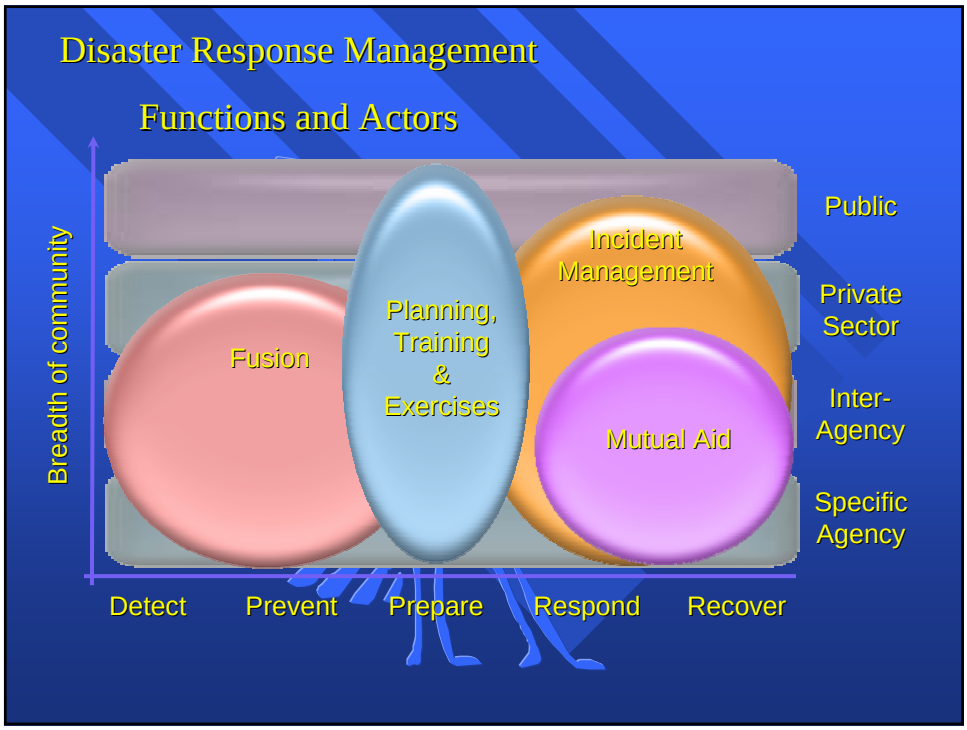
DIP WP9 Scenario:

Snowstorm Emergency Planning



- Capture user practices
- Goal oriented
- Weather spatial specifics
- Merge heterogeneous data
- etc


Response Window
Quantity
Response Options
Relevant & Accurate Information
Dynamic data sharing/integration
Integrated Alarms & Sensors
Predictive Analysis & Modelling
Time


Disaster Response Management
Functions and Actors
Breadth of community
Public
Private Sector
Inter-Agency
Specific Agency
Fusion
Planning, Training & Exercises
Incident Management
Mutual Aid
Detect
Prevent
Prepare
Respond
Recover

Command and Control

Where is … ? What is …? How is ….? When is …? Why is …? Information, information, information …

Telephone, radio, voice recorder controls

Mapping Data

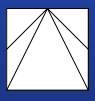
Personnel & Unit Data

Access Control

CCTV

Radio System Data

Intelligent Video

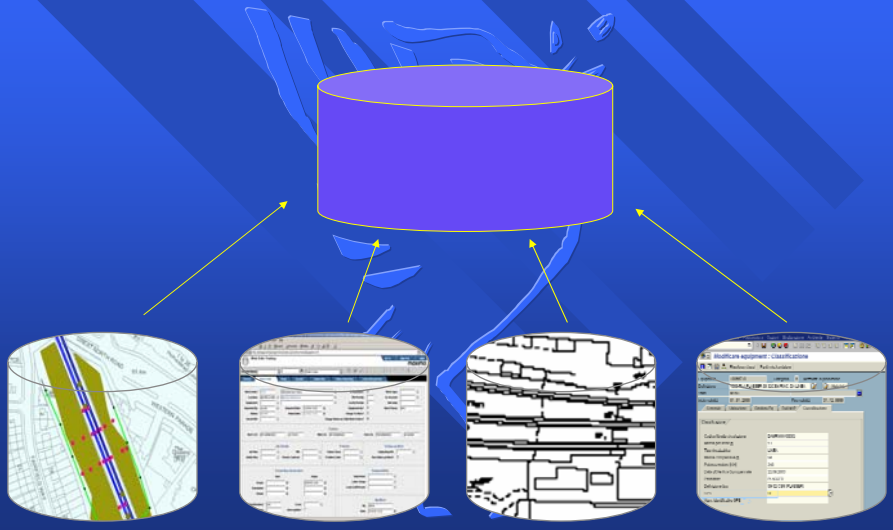


Sensor Data

Telephone Data

What's the Situation?

Integrating Information



Web services – a possible answer?

- Individual job functions in disaster response management require specific software tools – has lead to fragmented data and IT
- Integration will remove delays, errors and improves efficiency by coordinating data and processes across multiple source systems to create the actual workflow required.

- Historic response of GIS has been to import external data into the technology – expensive, takes time precludes real-time decision support, restricts functionality, difficult to setup and maintain
- Now it is possible to use web services and loosely coupled computer architectures
- Why – to simplify, to coordinate and collaborate, to ***improve*** disaster response management

Thanks Questions are Welcomed

Dr. Michael Francis