Exemplar 1:
GeoVUE Then GENeSIS
(GENerative e-SocIalScience)

Infrastructure to Explore Geographic Systems through Models and Maps

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Outline

E-Social Science as Architects, Planners and Geographers might perceive it, but introducing ideas of more general social import

Four Examples:

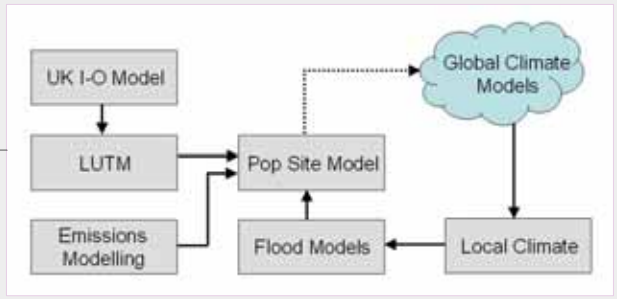
- Symbolic Modelling: Land Use Transportation
- Iconic Modelling: Virtual London
- Representation and Data Modelling: Web2, Online Maps, Online Data and Crowdsourcing
- Representational Modelling: Fine Scale Motion and Sensing

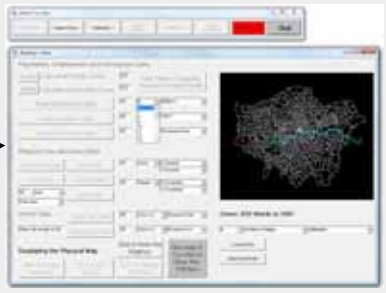
Next Steps: Web 2.0 Simulation and Beyond

My first example: how do we model the city symbolically, mathematically.

Let me explain what we are doing about simulating the impact of climate change on London as part of the Tyndall Centre's research on cities. I talked about this yesterday but I wll quickly sketch it and show the model running

We are building a land use transport model as part of a process of integrated assessment. The key issue is that the model is interactive, immediate, visual and communicates ideas to other professionals involved in the process.





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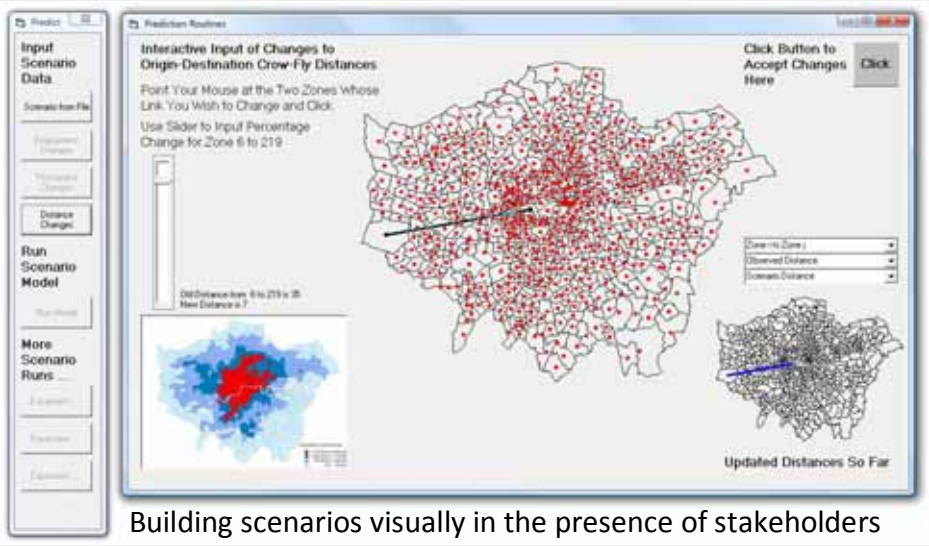
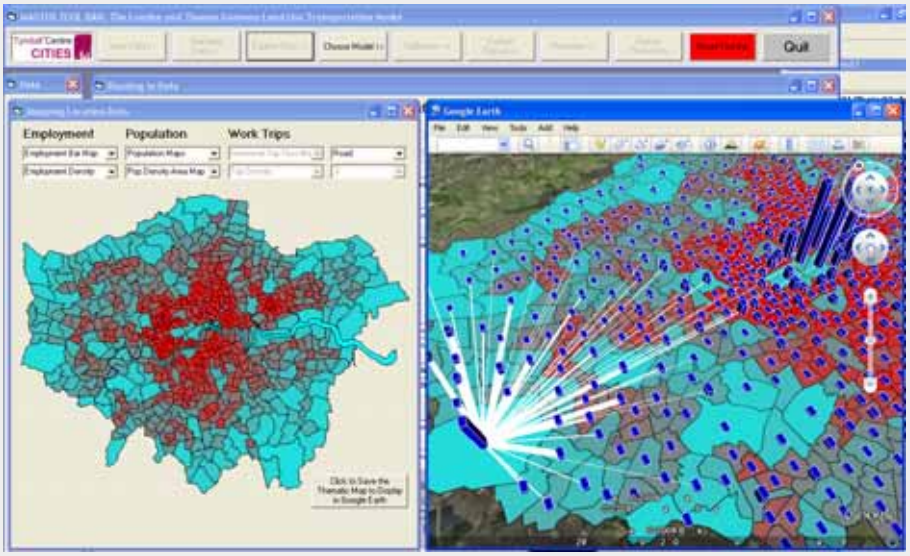


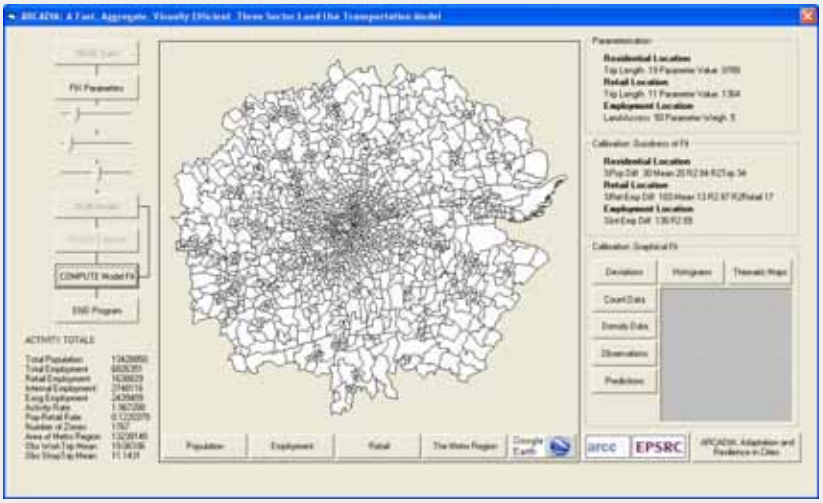
Building scenarios visually in the presence of stakeholders – a dialogue



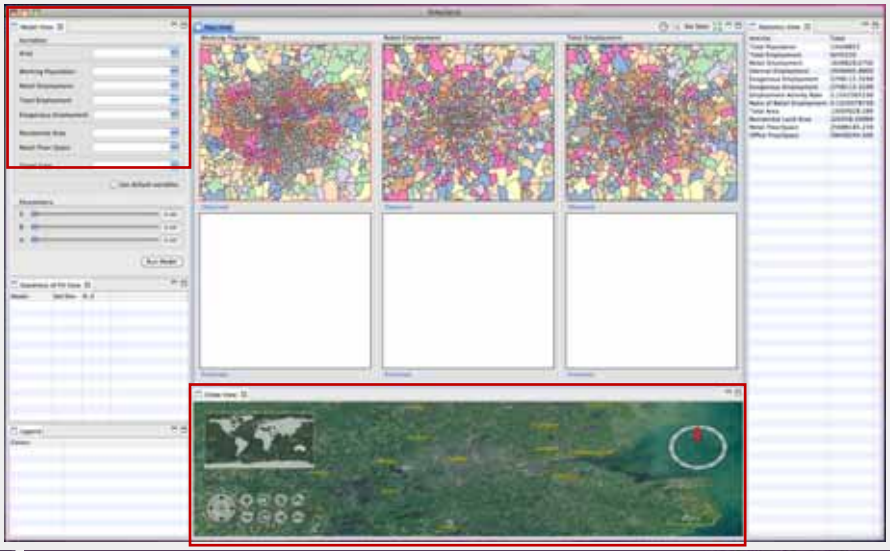
Exporting data and predictions to external software on the fly

Let me show you how all this works. The great thing about what we are saying is we can demo it.

The new model is bigger and we are developing a web 2 version all in open source software



The LTUMi Eclipse RCP can look like



My second example: how do we model the city iconically, visually.

Fifty years ago iconic models were barely conceived as very being digital but our Virtual London model is now a routine digital 'architects' model of the physical form of the city.

It is built in 3D-GIS, ArcGIS, ported in and out of CAD and Games software, into Google Earth, Second Life, and so on.

We use it as our test bed for multimedia. This is linked to much of our representational and multimedia work that I will tell you about later.

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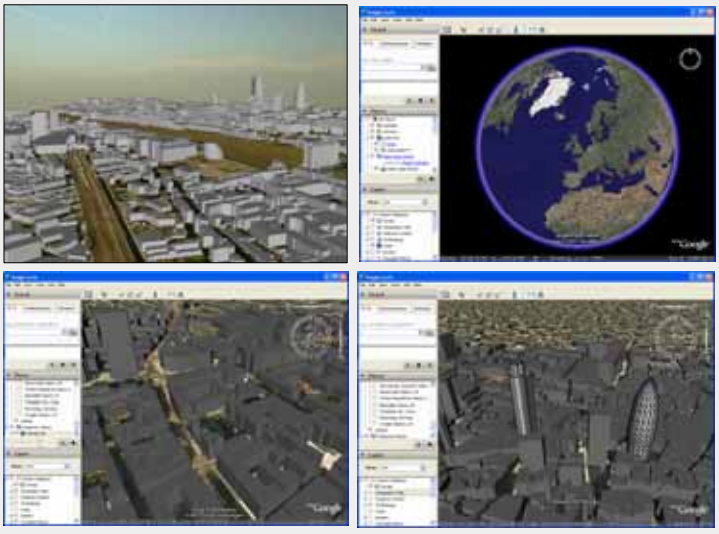
2D to 3D: GIS to CAD and back and on the web



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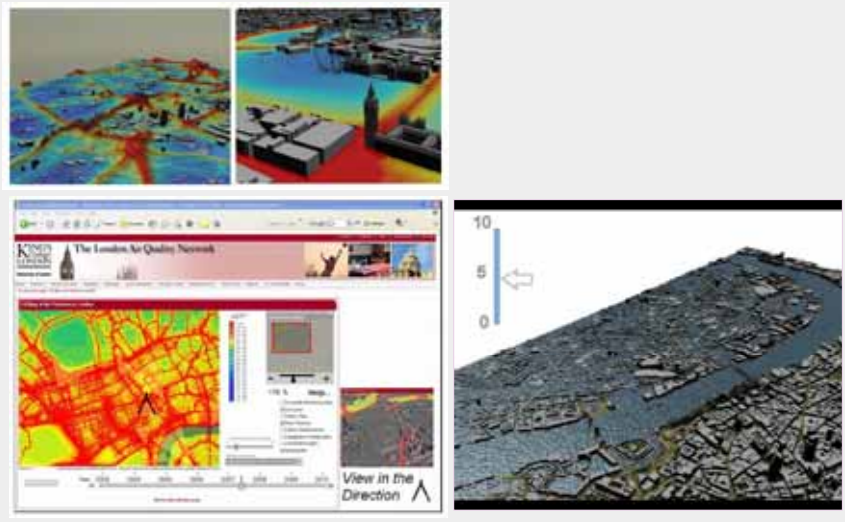

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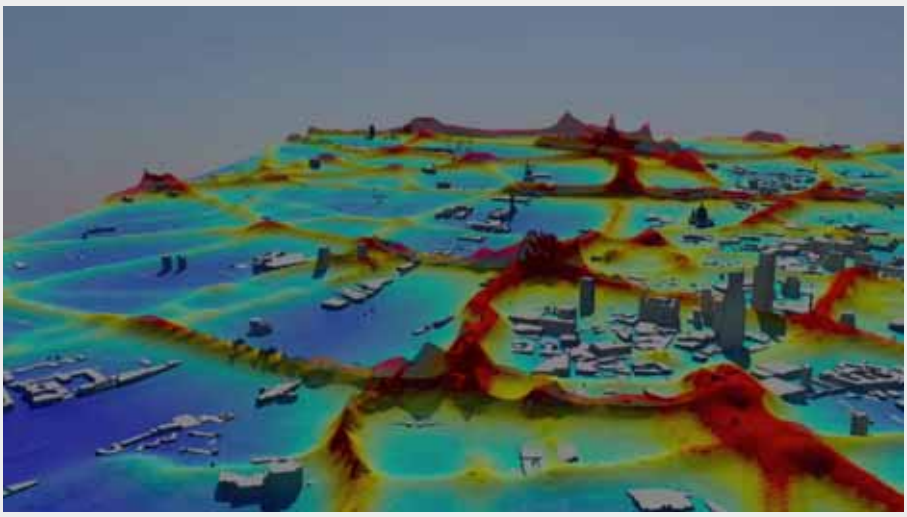

movie

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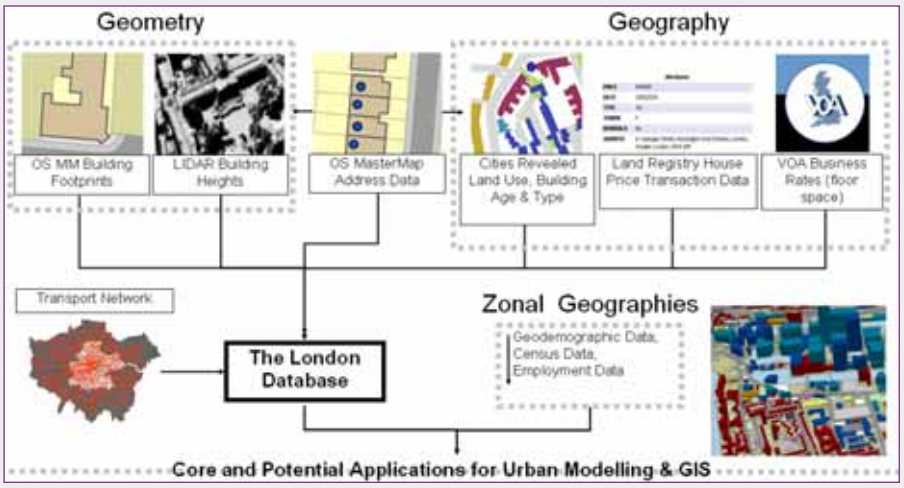
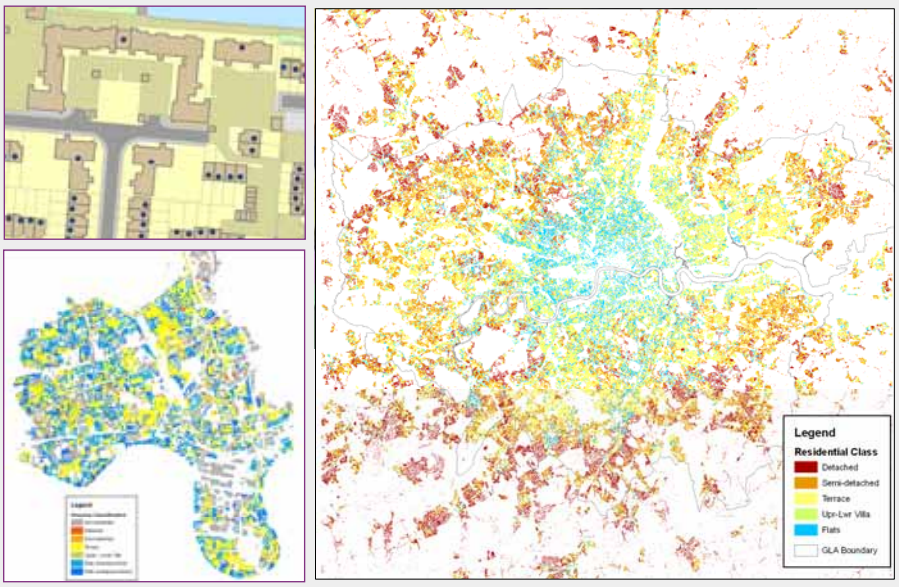
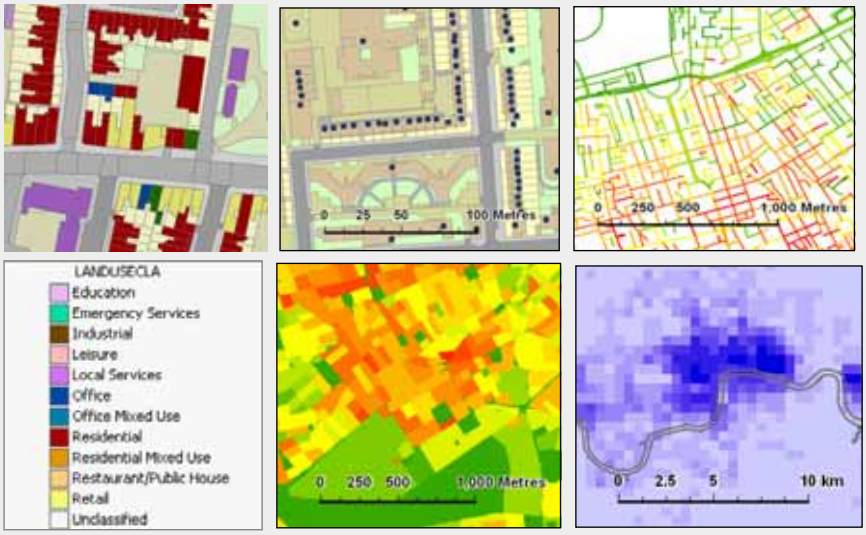
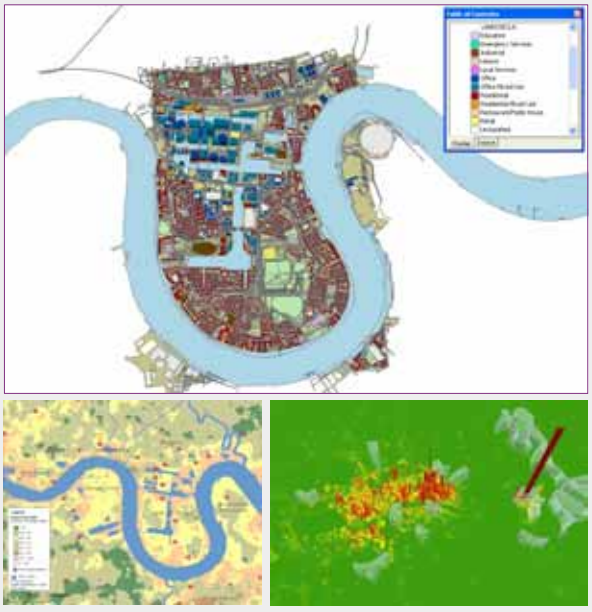
From geometry to geography and back – populating really large spatial data bases and using the model as a visualisation tool for analytic purposes







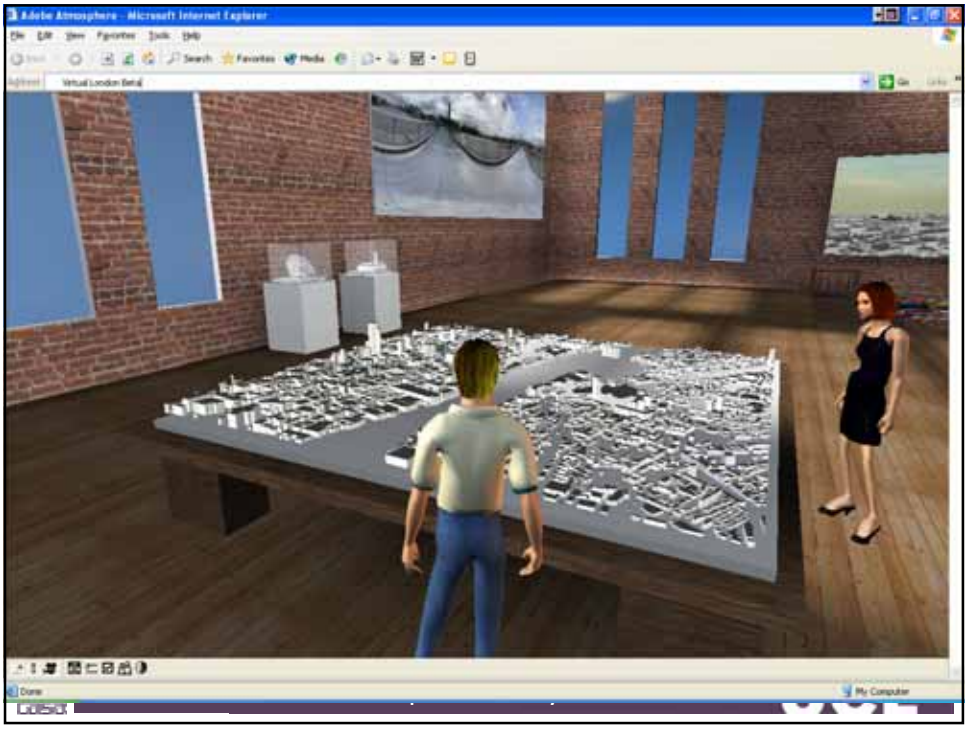
Adding Land Use, Transport and Populations and Aggregating Scales

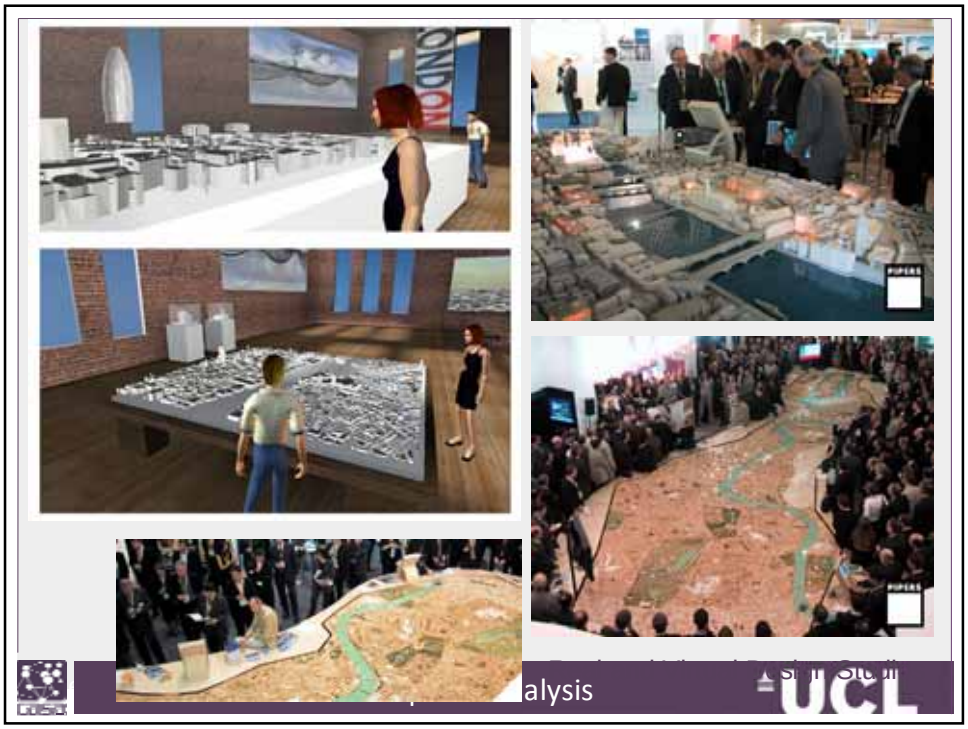


Moving it into related media

Into games engines, virtual worlds, and into back into the material world by printing the model e.g.

We can show a movie of this


Adobe Atmosphere - Microsoft Internet Explorer
Virtual London Beta
Done
My Computer


LONDON
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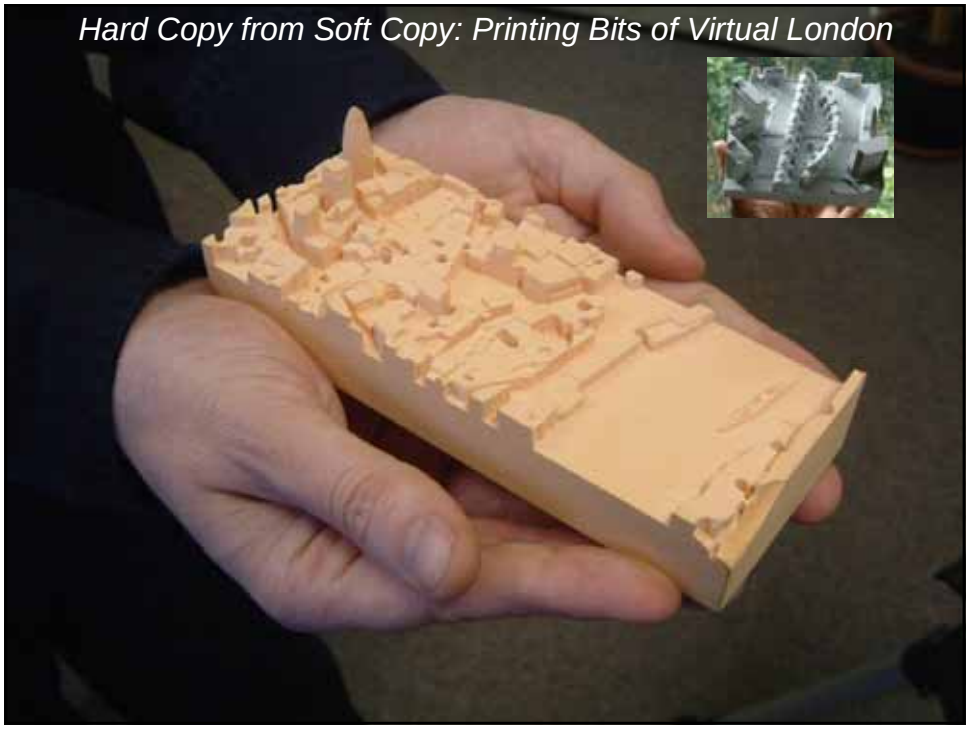
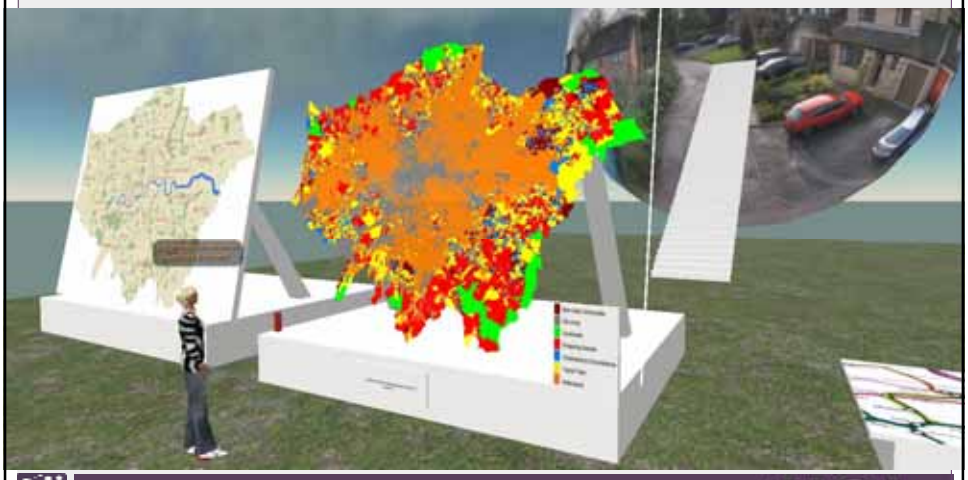
Hard Copy from Soft Copy: Printing Bits of Virtual London



Our recent forays are into ***Second Life*** where maps from our geodemographics project are being ported as 'geographic media' into these virtual worlds ……



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Let me show you some movies from our recent work with virtual worlds which we are rapidly developing for geographic information and virtual cities - worlds within world, illustrating the essential notion that geographic information, indeed any information can generate *insights into real worlds from dialogues in virtual worlds*

Second Life Basic Demo

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Second Life Build Demo

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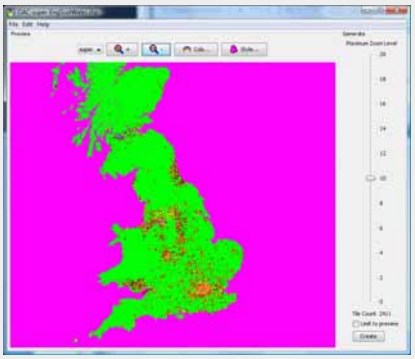
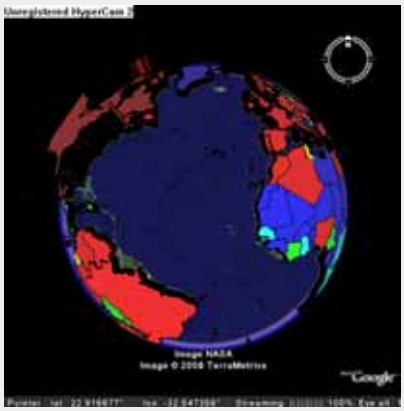
My third example: is all about representation in terms of data and maps and web 2 – how to present all of this, in Google maps and other open data



The Google Map Creator creates Google Maps websites from thematic data contained in shapefiles.It effectively layers your map on top of a Google Map or the Google Map

We can do the same sort of thing in 3D of course with ***GEarthCreator*** – the key is to convert the shapefiles to KML files – and there are many other maphacks using similar open map bases like ***Open Street Map***



From all of this we have devised an open resource for maps called ***MapTube***

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MapTube: a kind of ***YouTube*** + ***Napster***

Let me explain: every time someone downloads our software, there is a high probability they make a map.

As it sits on a common base – a ***Google Map*** – if they create the map of some place and someone else creates another map of the same place, it would be nice if we or they could compare them as layers

However, in the UK map bases are copyrighted – you can done for copying OS map data and it is serious –

So we ask the user not to put their map created from our software on our site, but to give us their URL where their map is and thus ***MapTube*** is a bunch of pointers to URLs - this is what it looks like with demo

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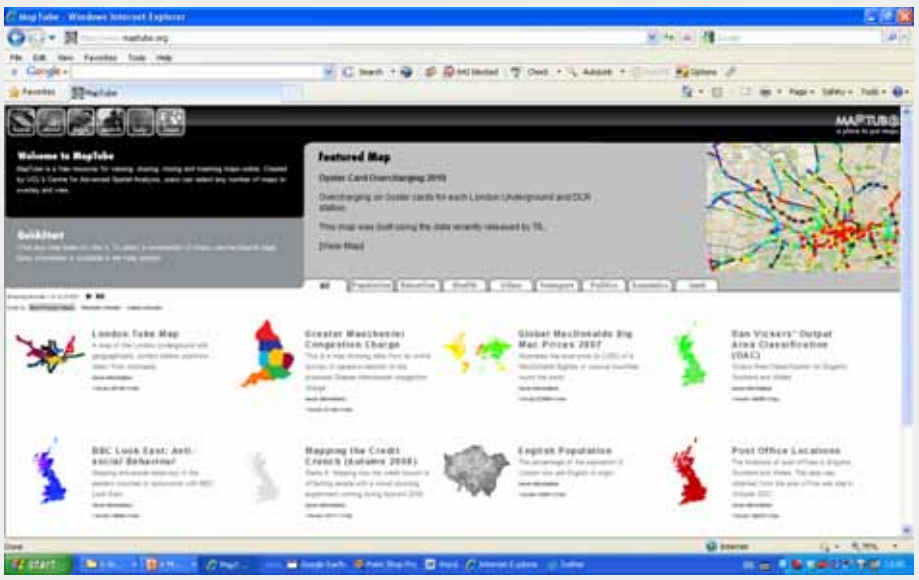
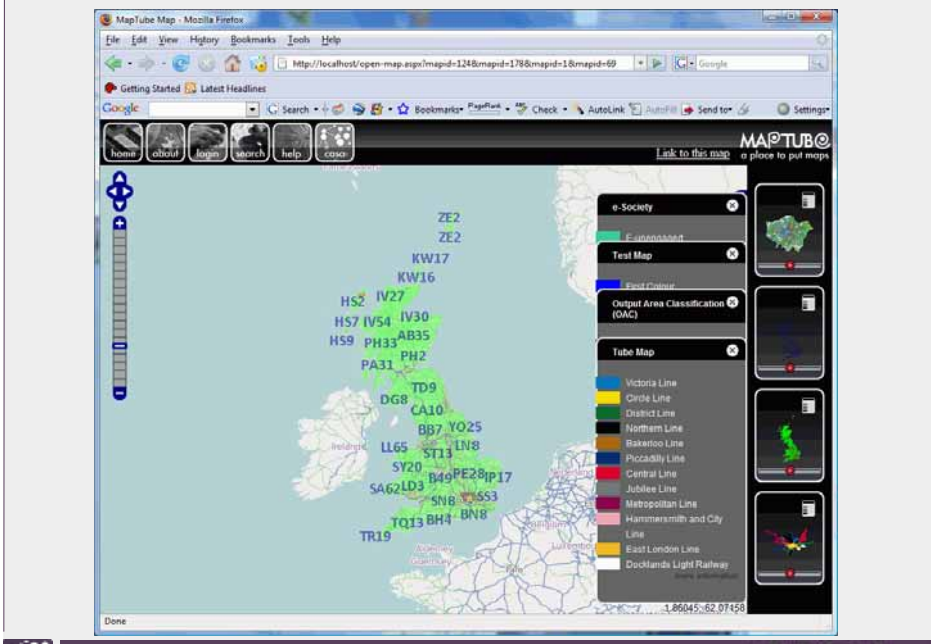
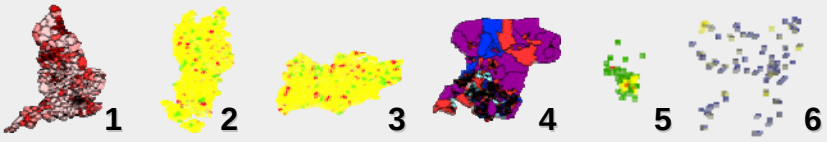


www.maptube.org

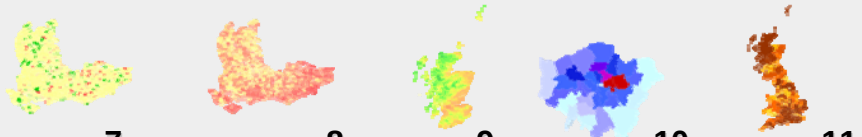


Here are some of the user map data in/on **MapTube**



1. Knife Crime Update, **2.** SC IMD Score, **3.** SEC IMD Score, **4.** PCT Obesity, **5.** NO_2 Bristol, **6.** AGFC Wildlife

The data behind the knife crimes map (1) has been in the news the last few days after it emerged that the Government had manipulated the data.



7. Southeast IMD, **8.** Southeast IMD (LSOA), **9.** Wild Land Quality Scotland, **10.** NSSeC L8 (never worked)%, **11.** CO_2 index

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<u>Pulling pictures</u> – pulling spatial data – crowd-sourcing

We have turned all this around and basically used the system to record spatial responses to topical questions

We broadcast the questions through TV and radio and then ask users to respond and key in their post code – 7 digit in UK but actually only record postcode sector – first three or four digits

Then our server issues a request to scan the continually refreshed database and rebuilds the map on the fly so to speak, every half hour, using GMapCreator etc

We have so far looked at the credit crunch, antisocial behaviour and the Manchester road pricing proposal

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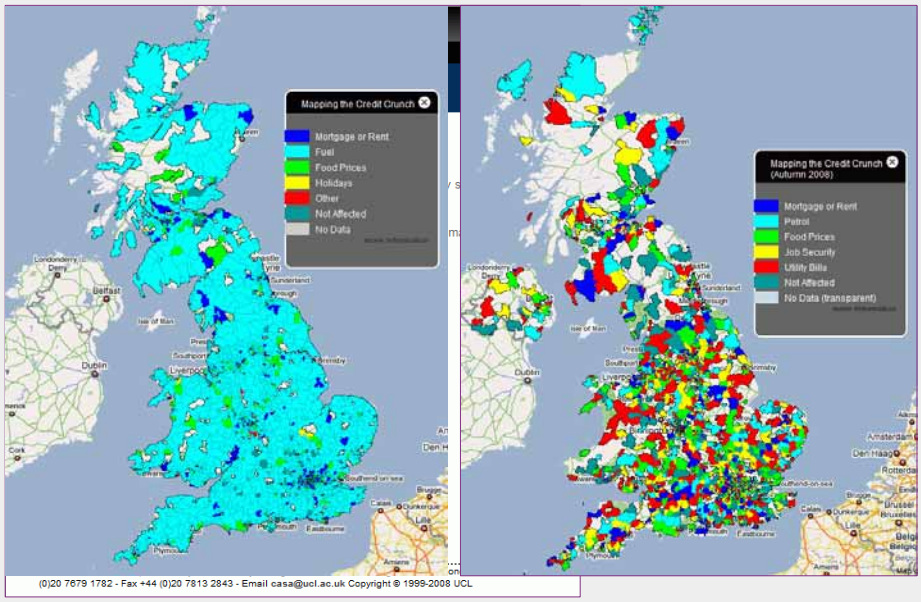
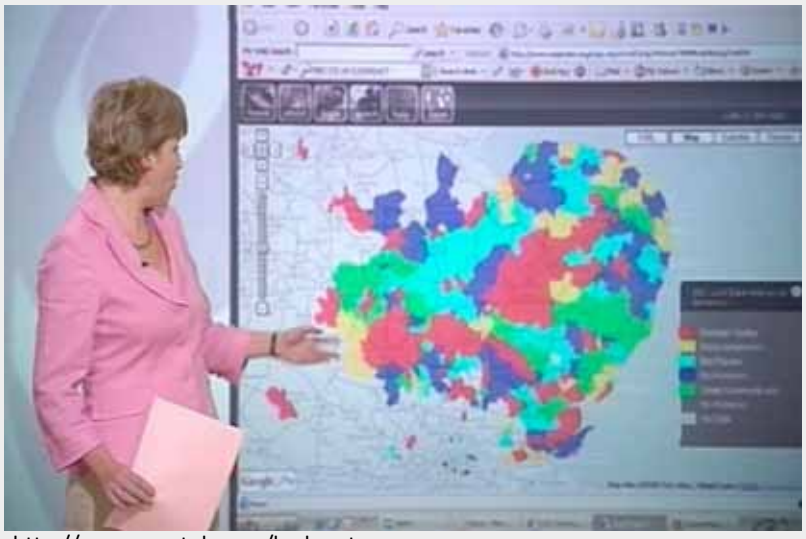


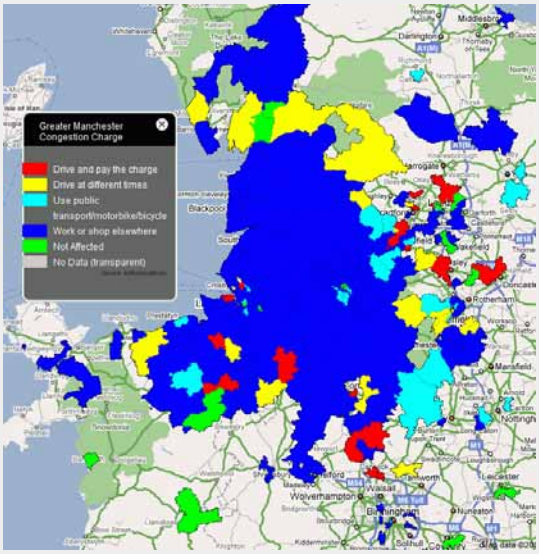
http://www.maptube.org/creditcrunch/

BBC Look East: Anti-Social Behaviour

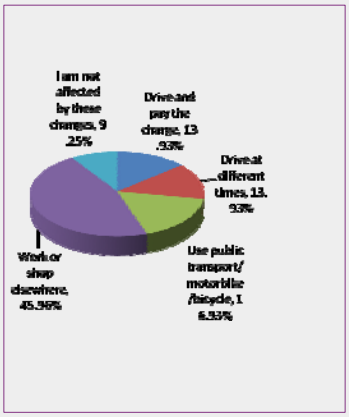


http://www.maptube.org/lookeast

Manchester Congestion Charge



15,902 responses
October to December 2008



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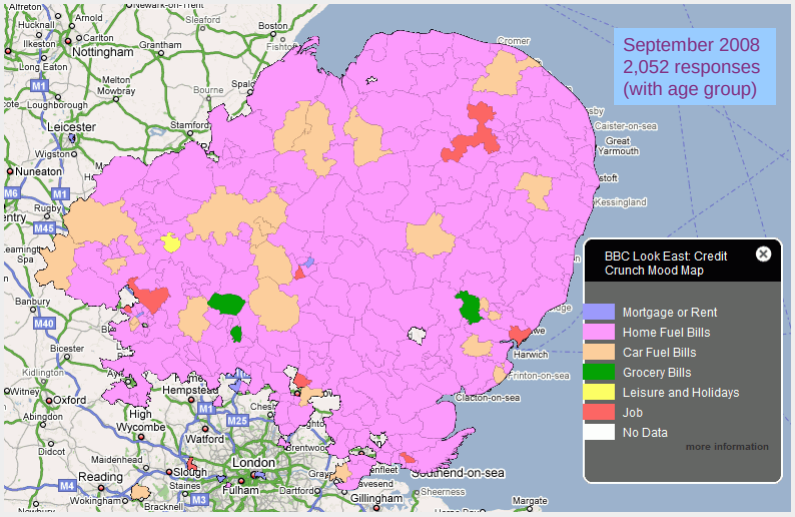
BBC Look East: Credit Crunch



http://www.maptube.org/LookEastCreditCrunch/

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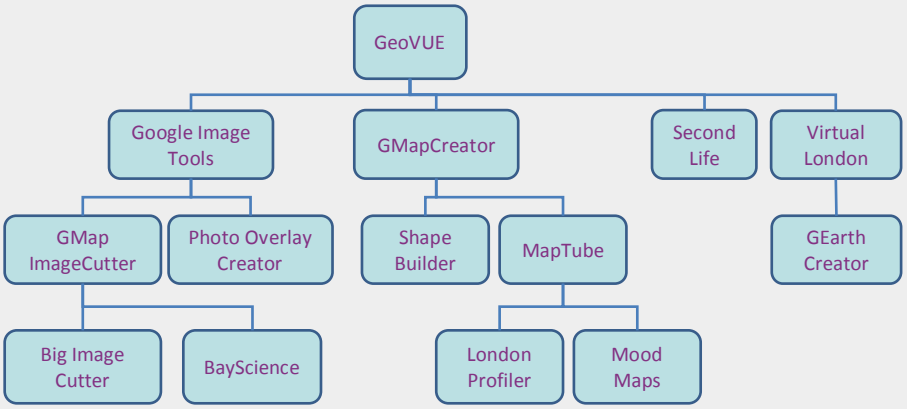
GeoVUE Family Tree



My fourth example: is representational – how to present all of this, in Google maps as we have seen and also in terms of motion, sensing

Our EPSRC CAPABLE project involves us in representing and modelling movements at the small scale, pedestrian movements, children walking to school, and using energy.

The project is about communicating these ideas to ourselves and to the wider constituency that is involved in these issues – walkability, obesity, safety.

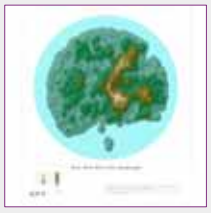
I have backups as the network here runs slow but let me try to show you these examples from our web site, first www.casa.ucl.ac.uk

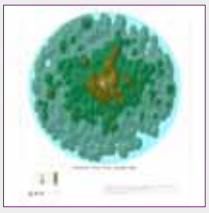
But in case I can't…

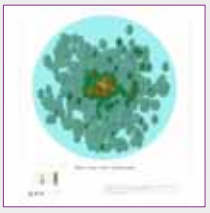
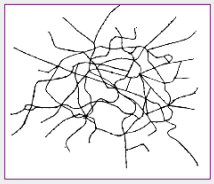
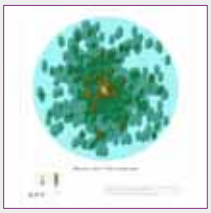
Enough of me and onto the real stuff…how do we do this stuff, how do we present and communicate it to ourselves and to others.

And like everyone else we are working with geocodes data from social networks

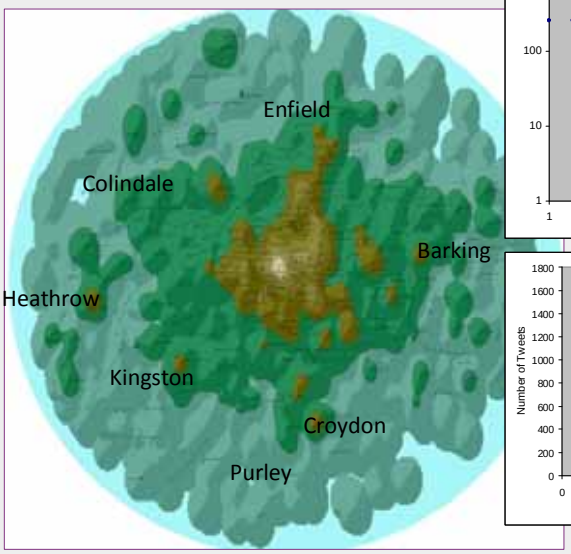
Many traffic data sets – Oyster card, Garmin GPS and so on but here we will look at Tweets – the Tweet-o-Meter

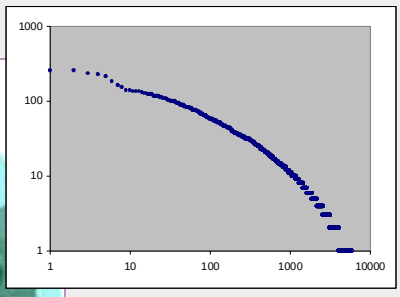

New York

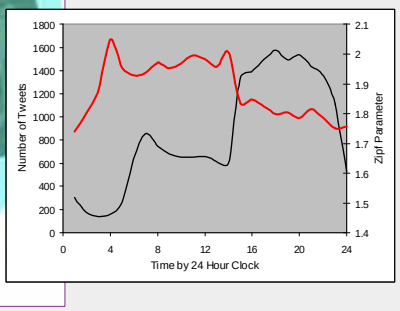

London


Paris


Moscow

London







A long talk I know

2 Minutes for Questions?

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