A Talk to the PASCO Corporation, Tokyo, September 11th 2011

Urban Models and Planning Support Systems

New Tools for Planners in an Online World

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Outline

- **The Argument, The Issues**
- **Changes**: Technology and Policy
- **Classifying PSS**
- **Four Exemplars**
  1. Land Use Transportation Models – Long Term Scenarios – Visualizing Complexity
  2. Visualizing and Communicating Local Issues Virtual City Models
  3. The Web, Grid, Cloud – Sharing, Disseminating, Crowd Sourcing, Participating
  4. High Level Web and Hand-Held Interfaces, Sensing and Apps
- **Futures** – Online Collaboratories

The Argument, The Issues

PSS … a loose assemblage of computer based tools informing 'planning': Harris's 1989 definition

Technological change: diversification,

Policy change: fragmentation, 'wicked problems'

Visualization and communication

Brail's 2001 definition: 'coupling analytic tools and computer simulation models with visual displays'

Changes: Technology and Policy

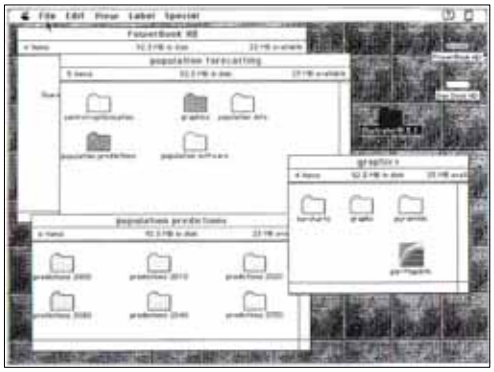
Technology first

Miniaturization: hardware: Moore, Metcalfe, Gilder

Visualization: graphics: Windows

Communication: the web: Mosaic, Netscape, IE

Graphics in the mid 1990s: the prospect then and now …..



A Desktop PSS for Population Forecasting
on a Mac circa 1993 ↑

A Web-based Feed of Real Time Traffic Data
In San Diego circa 1995 →

VR Environments Theatres, Caves, Immersion, Tablets, Phones, All Kinds of Embedded Devices

The Web and the Grid – Collaboratories, Clouds

Software: specific and generic programs

Iconic and Symbolic Modeling

Layer upon layer of Software

Policy Next: The planning process

Define Problem → Set Goals → Analyze Data → Generate Plan → Evaluate Plan → Choose Plan → Implement Plan

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The loosening of this process - fragmentation

Diversity of what is being planned – the city system and the lack of consensus over theory

Classifying PSS

High-Level Tools v Low Level Tools: LUTM, GIS, ABM v Spreadsheets; Synthetic Tools

Specific Softwares v Generic: Toolkits, Packages, One-Off Programs, Coupled Tools

Tools for Different Scales: New Tools as Apps

Tools Based on Different Methods: Iconic, Mathematical, Visual, Logical etc

A Classification of PSS

	Spatial	*aSpatial*
Specialist	e.g. LUTM	e.g. Expert Systems, AI Software, ABM
Generic	e.g. GIS, *Google Maps*, *Earth* etc.	e.g. Spreadsheets, Math Stat Software, Dbases

The left column represents the key focus for spatial planning

Classification by Scale and Type of Planning

Exemplars

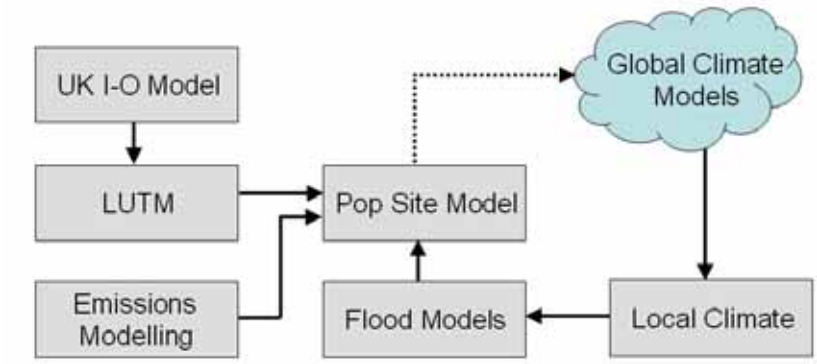
1 Land Use Transportation Models – Long Term Scenarios – Visualizing Complexity

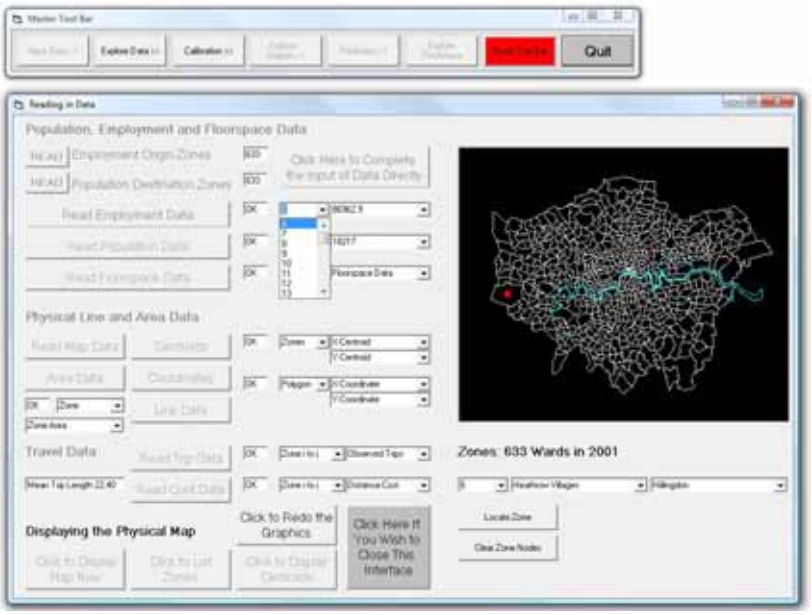
2 Visualizing and Communicating Local Issues Virtual City Models

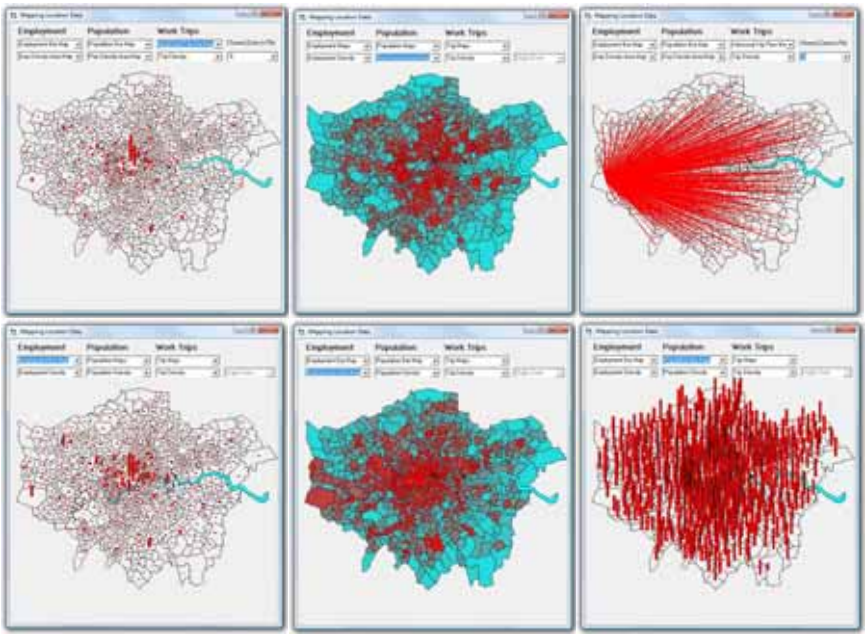
3 The Web, The Grid – Sharing, Disseminating, Crowd Sourcing, Participating

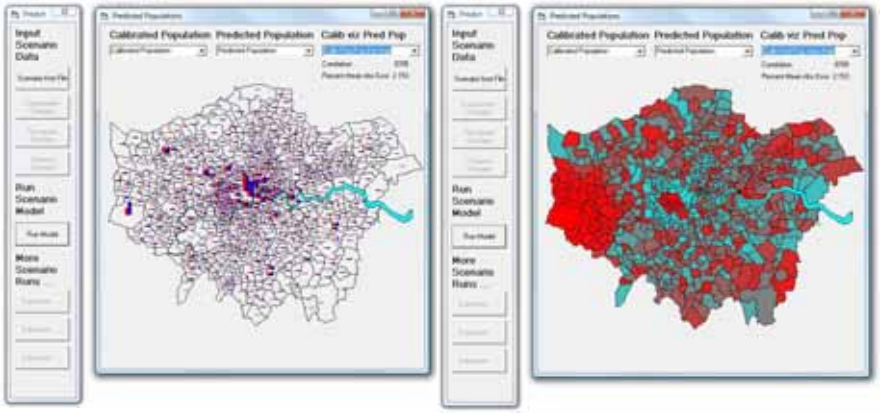
4 High Level Web and Hand-Held Interfaces, Sensing and Apps

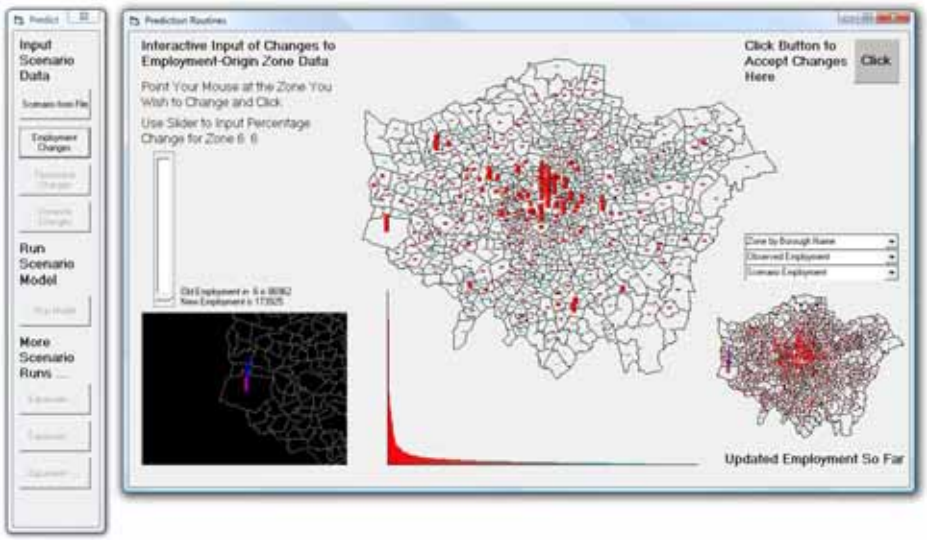
Exemplar 1: Land Use Transportation Models – Long Term Scenarios – Visualizing Complexity

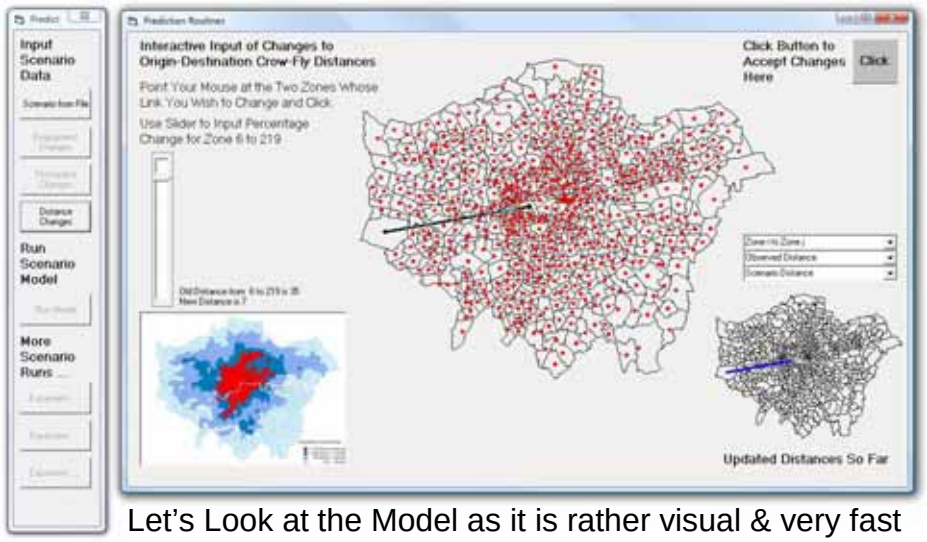




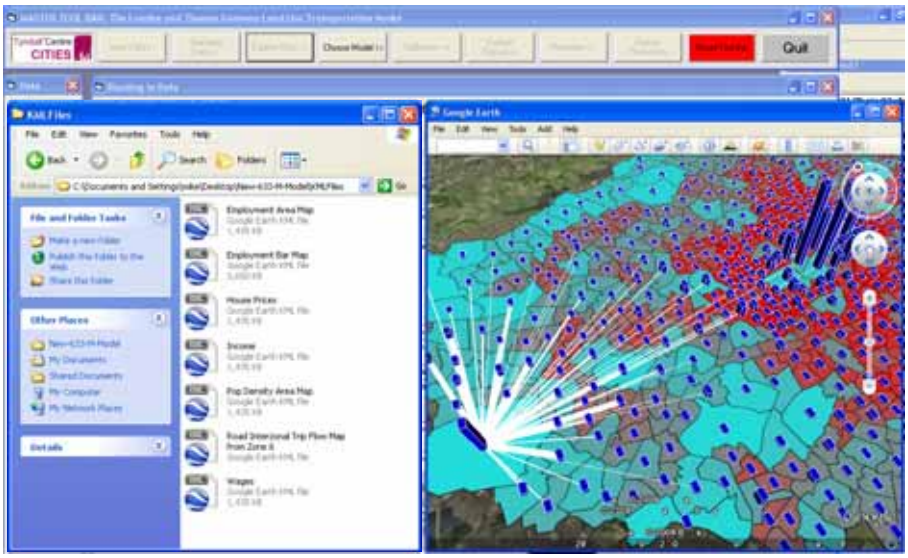



Input Scenario Data
Run Scenario Model
More Scenario Runs ...
Calibrated Population
Predicted Population
Calib viz Pred Pop

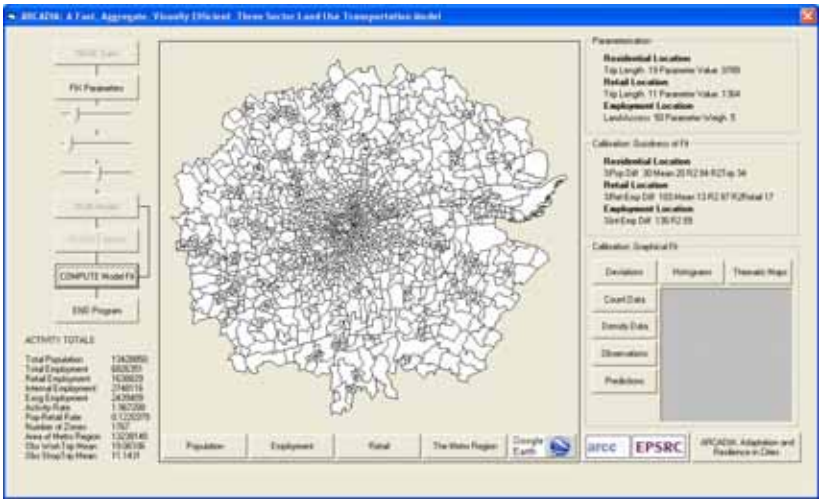




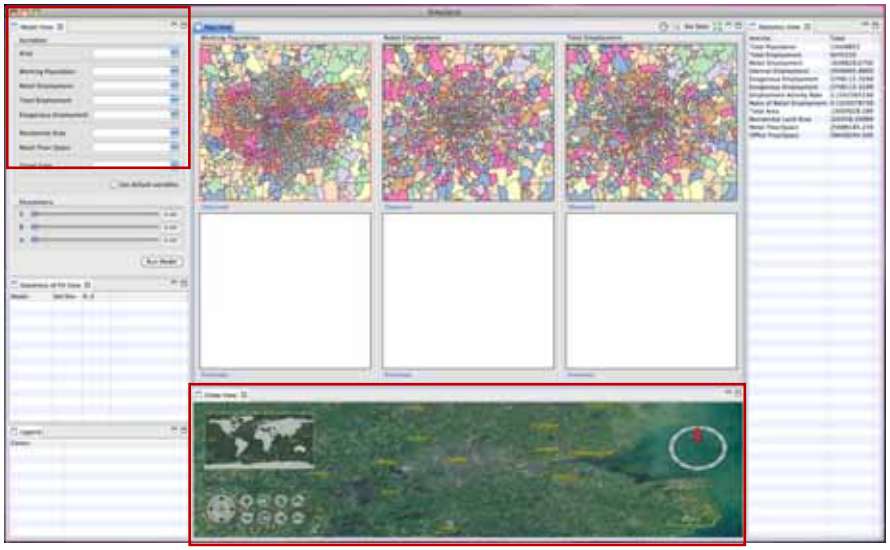
Let's Look at the Model as it is rather visual & very fast and it contains a lot of external web support



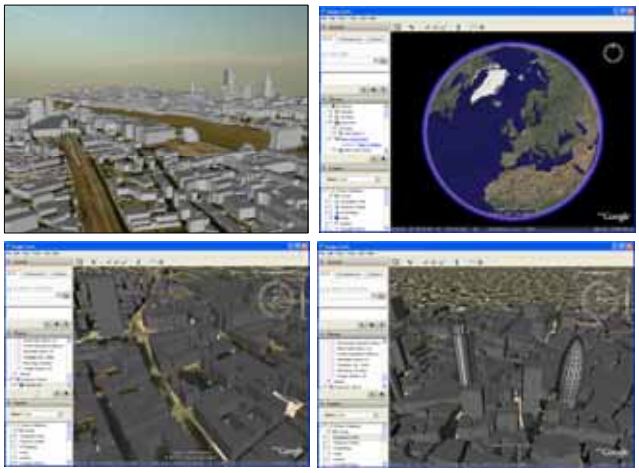
The new model is bigger and we are developing a web 2 version all in open source software



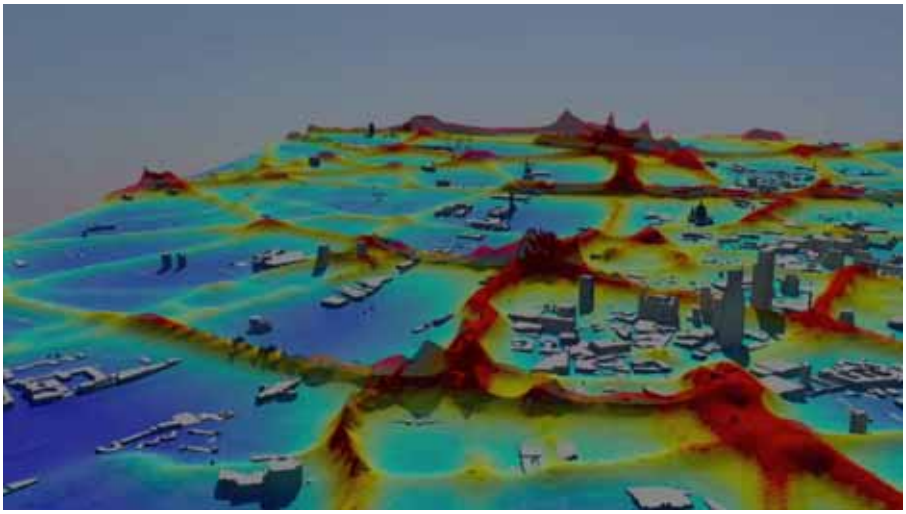
The LTUMi Eclipse RCP can look like



Exemplar 2: Visualizing & Communicating Local Issues



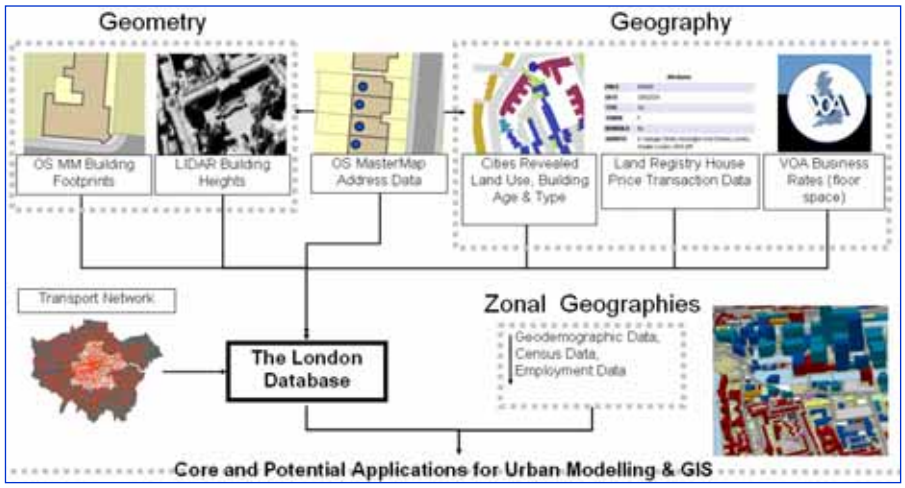
What can we do with the model, flood it, visualise land use, simulate pollution, test the impact of high buildings on the skyline ……..

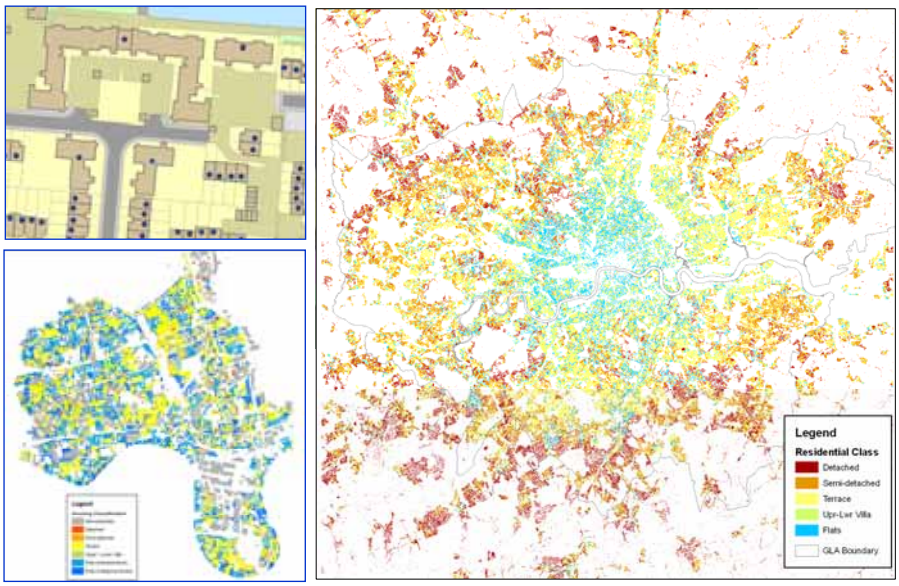


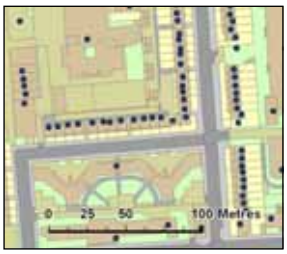
movie

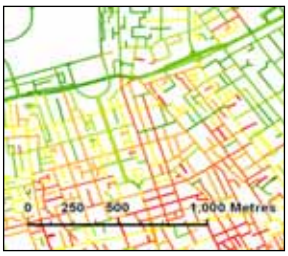
http://www.londonair.org.uk/

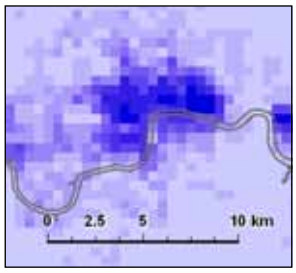
From geometry to geography and back – populating really large spatial data bases and using the model as a visualisation tool for analytic purposes



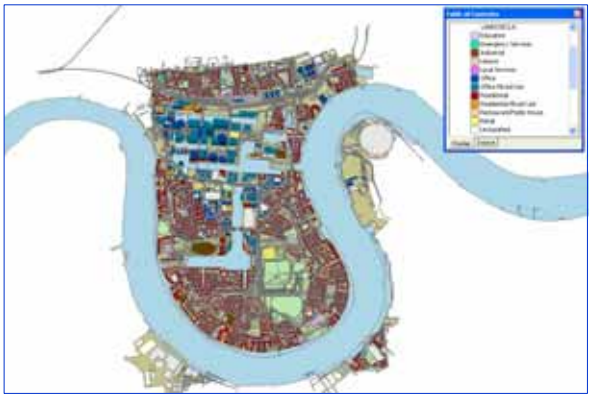


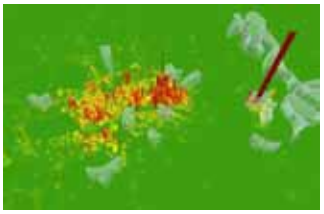




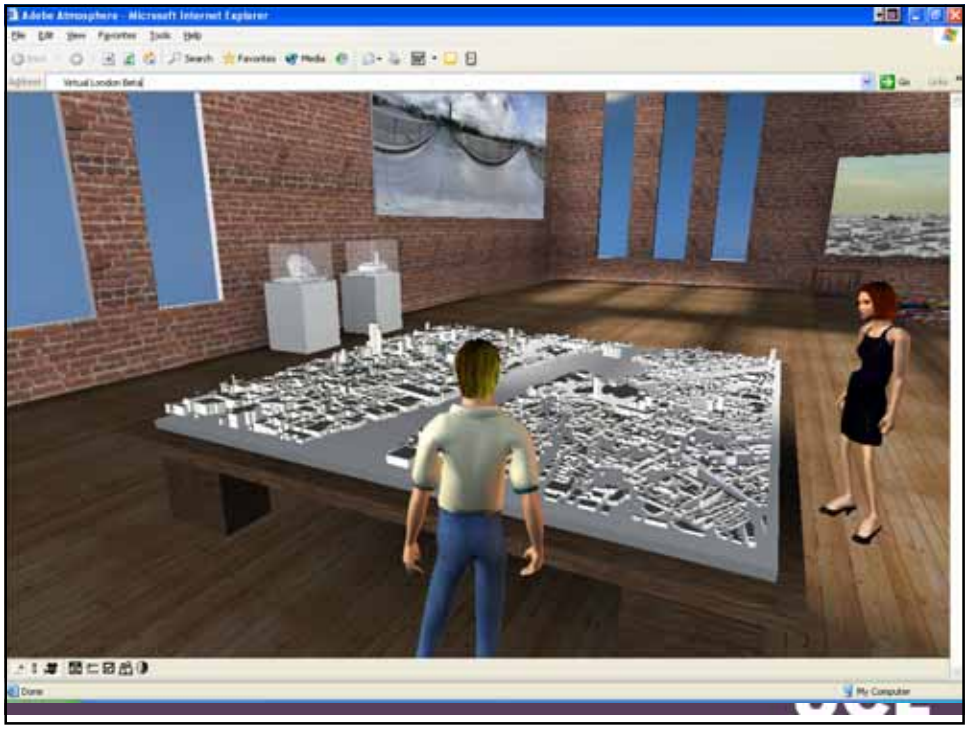


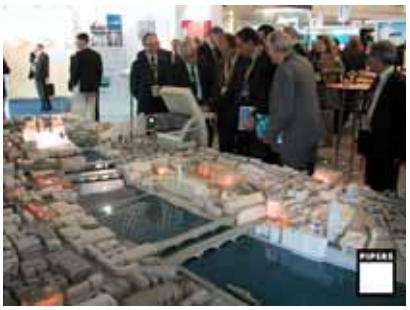
Adding Land Use, Transport and Populations and Aggregating Scales



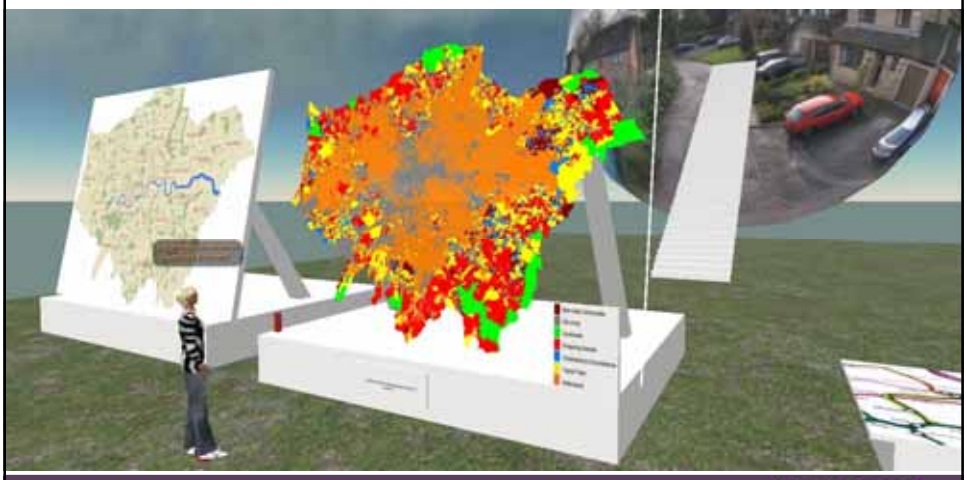


We can show a movie of this

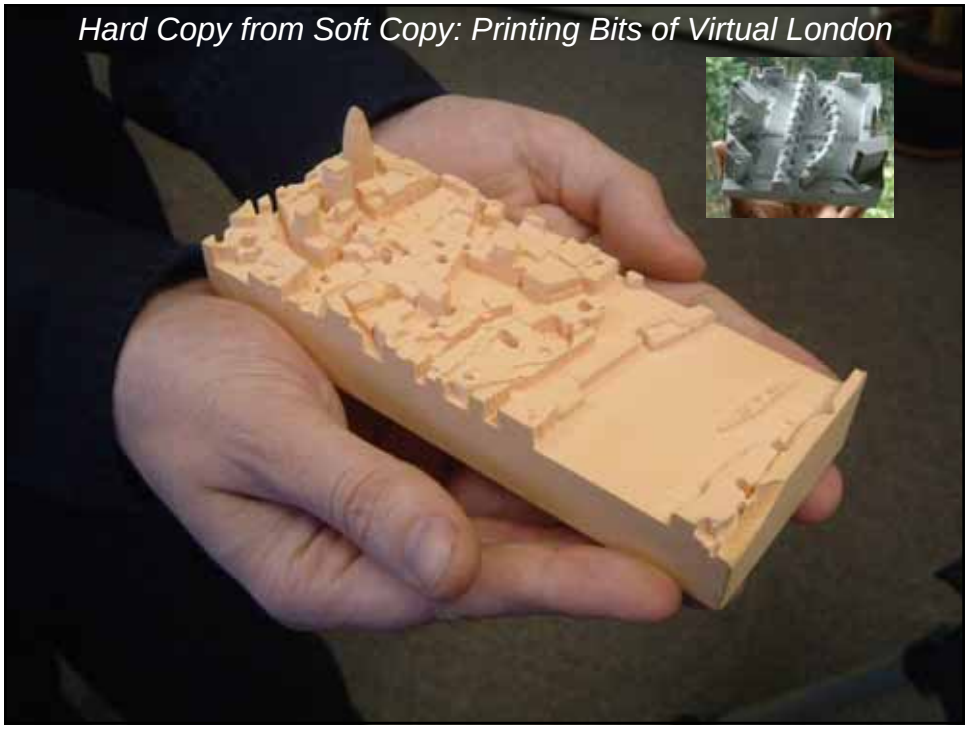




Our recent forays are into ***Second Life*** where maps from our geodemographics project are being ported as 'geographic media' into these virtual worlds ……

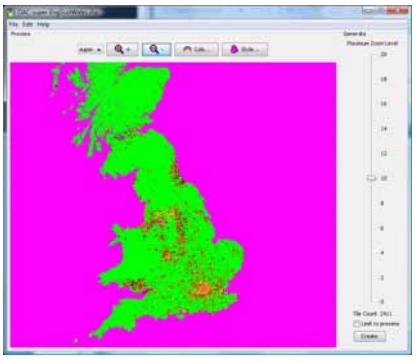


Hard Copy from Soft Copy: Printing Bits of Virtual London

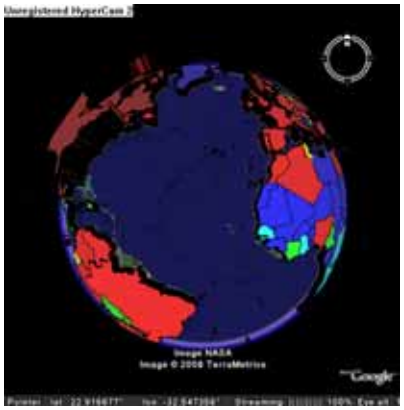


Exemplar 3: The Web, Grid, Cloud –
Sharing, Disseminating, Crowd Sourcing, Participating

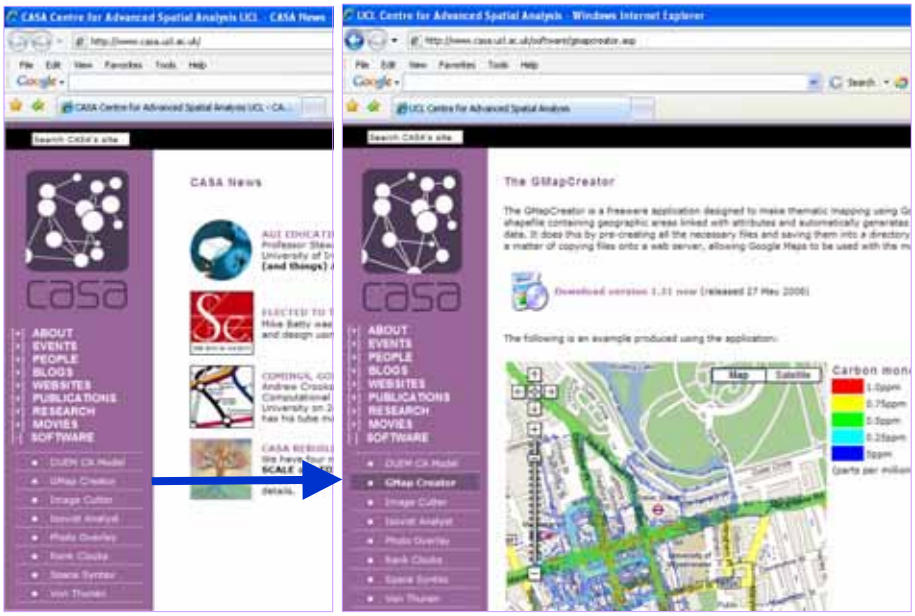
The Google Map Creator creates Google Maps websites from thematic data contained in shapefiles. It effectively layers your map on top of a Google Map or the Google Map



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***



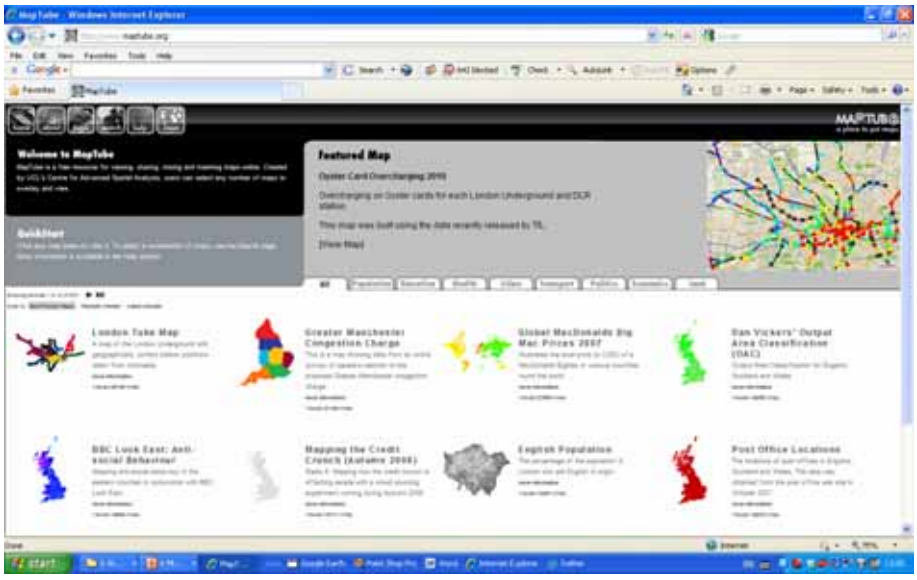
MapTube: a kind of ***YouTube*** + ***Napster***

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

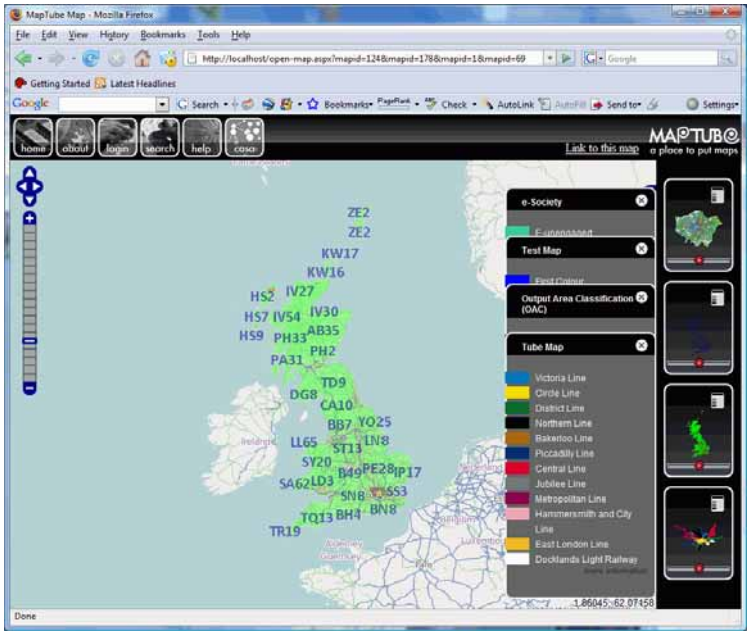
As it sits on a common base – a ***Google Map*** – if they create the map of some place and someone else creates another map of the same place, it would be nice if we or they could compare them as layers

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



www.maptube.org



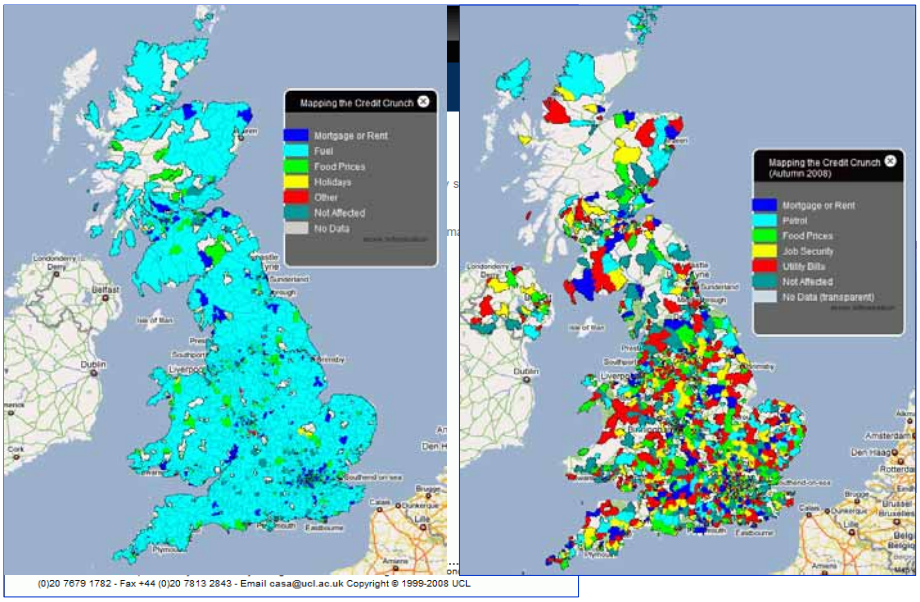
<u>Pulling pictures</u> – pulling spatial data – crowd-sourcing

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

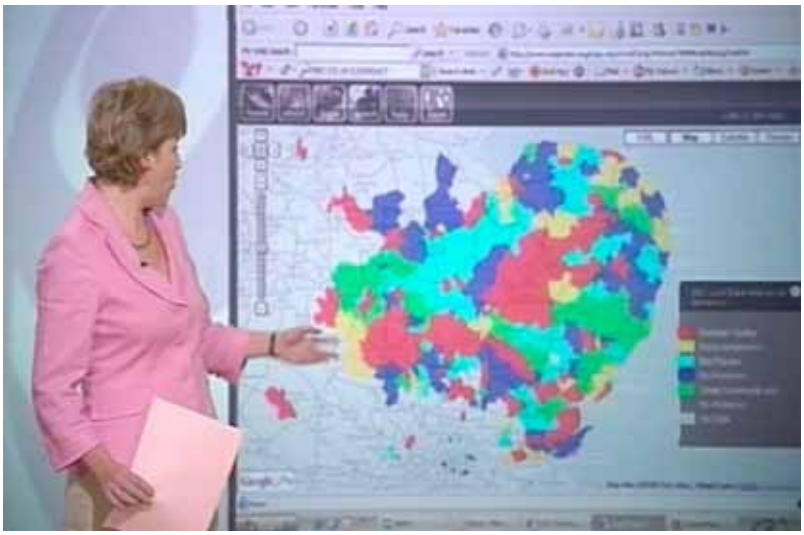
Then our server issues a request to scan the continually refreshed database and rebuilds the map on the fly so to speak, every half hour, using GMapCreator etc

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



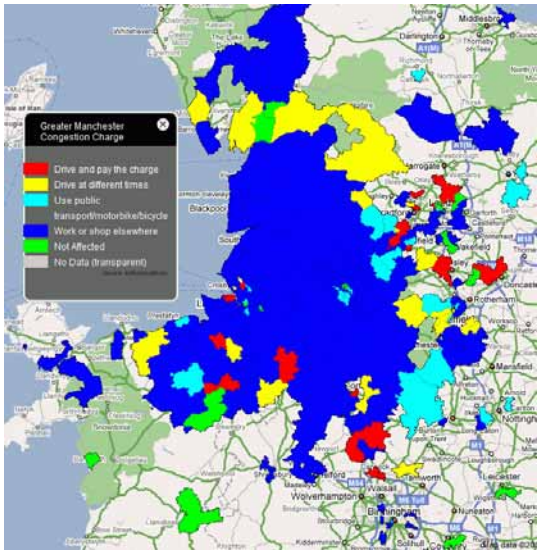
http://www.maptube.org/creditcrunch/

BBC Look East: Anti-Social Behaviour

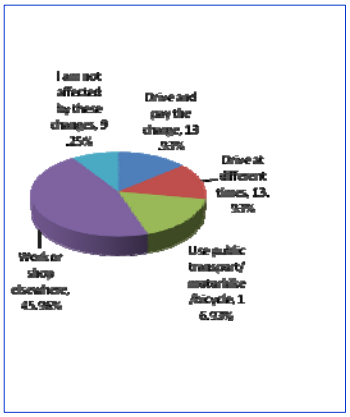


http://www.maptube.org/lookeast

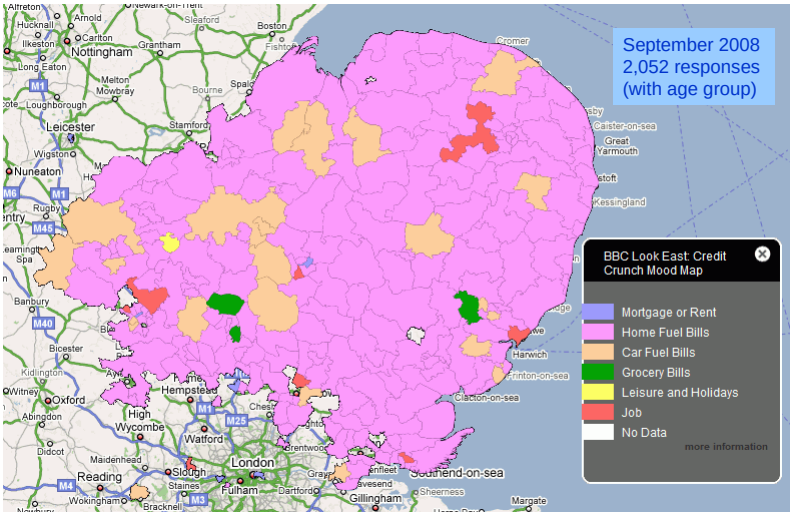
Manchester Congestion Charge



15,902 responses
October to December 2008

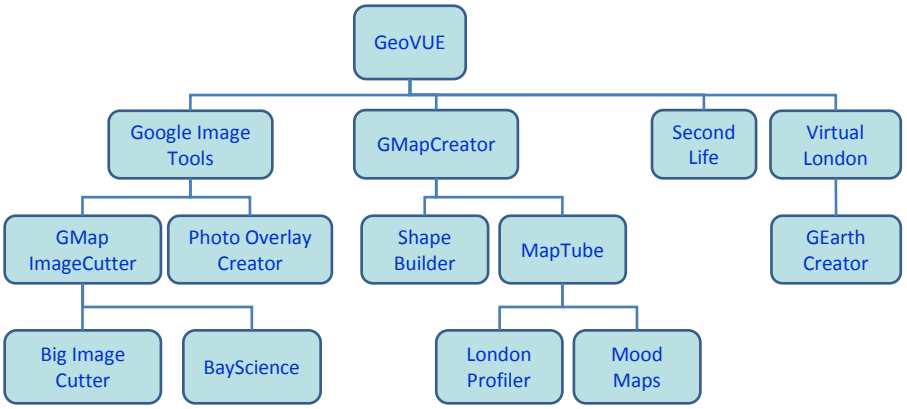


BBC Look East: Credit Crunch



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

GeoVUE Family Tree



Exemplar 4: High Level Web and Hand-Held Interfaces, Sensing and Apps

Some of our more speculative work, we begin with sensing using GPS and then look at real time interaction mapping using social media, and then conclude by noting our work on online data sets such as smart card data on public transport.

Our 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.

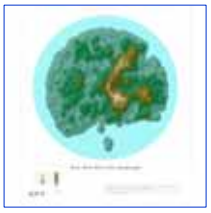
I have backups as the network here runs slow but let me try to show you these examples from our web site, first www.casa.ucl.ac.uk

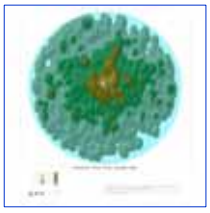
But in case I can't…

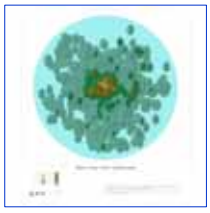
Enough of me and onto the real stuff…how do we do this stuff, how do we present and communicate it to ourselves and to others.

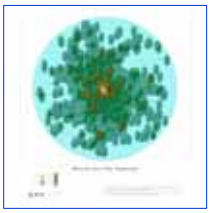
And like everyone else we are working with geocodes data from social networks

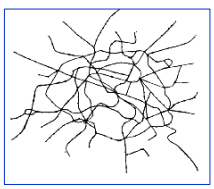
Many traffic data sets – Oyster card, Garmin GPS and so on but here we will look at Tweets – the Tweet-o-Meter

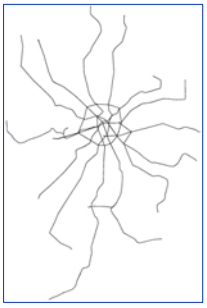

New York


London

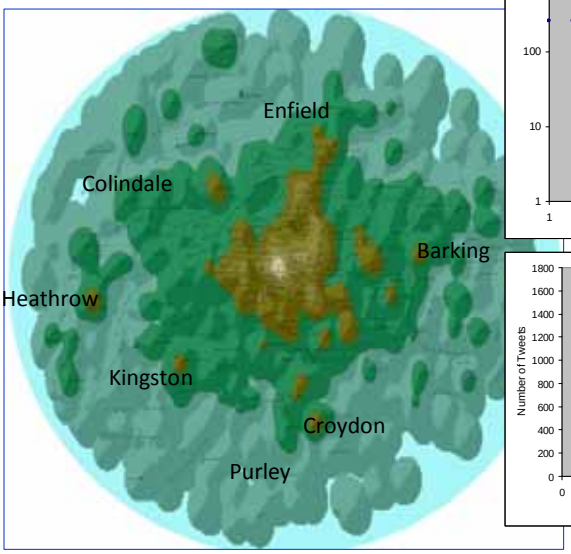

Paris

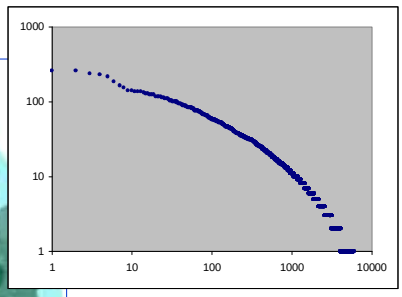

Moscow

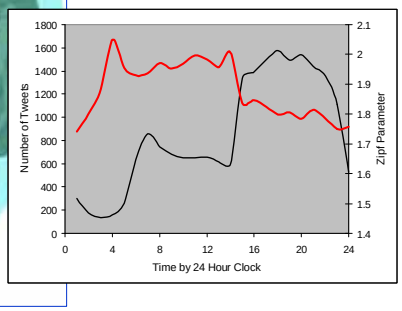




London







Futures – Online Collaboratories

Merging real time with long time data

Layer upon layer of software and data will dominate the future (as it has since digital computation was invented). Icon will merge with symbolic?

Visualization is all important to understand complexity, to communicate, for participation, …

Fragmentation of theory, policy, software…. Or a reaction? Stitching real time to long time, routine to strategic

The Development of Collaboratories?

Thanks
Any Questions?

www.casa.ucl.ac.uk

www.ComplexCity.info