UK e-Social Science: Achievements and Future Prospects

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Overview

- Summary of UK e-Social Science research programme.
- Review of challenges for e-Social Science.
Programme Aims

- Enable social scientists to develop methods and tools they need to address new research challenges.
- Investigate barriers to adoption and help UK e-Science programme achieve its objectives.
Research Challenges

1. Global Economic Performance, Policy and Management
2. Health and Wellbeing
3. Understanding Individual Behaviour
4. New Technology, Innovation and Skills
5. Environment, Energy and Resilience
6. Security, Conflict and Justice
7. Social Diversity and Population Dynamics
Research Agenda

■ Applications:
  - Tackle substantive problems by developing e-Infrastructure to enhance existing research methods and stimulate new ones
  - Encourage interdisciplinary research partnerships

■ Social shaping:
  - Socio-technical factors in development and use of e-Infrastructure
  - Pathways to facilitate transfer of innovations to wider social science community
Quantitative Analysis Tools

- GWR* doesn’t scale well with number of observations.
- multiR - parallel version of R - reduces time from weeks to hours.

*GWR = geographically weighted regression
Visualisation Tools
Visualisation Tools

Mapping the credit crunch

Post categories: All stories in production
Jennifer Tracey | 12:53 UK time, Tuesday, 29 April 2008

We like this idea of crowdsourcing - where we recruit you in an act of journalism to help us create a picture of an aspect of UK life.

On the blog last week we mentioned that we wanted to experiment with mood maps. We're working with CASA (Centre for Advanced Spatial Analysis) based at the University College London, who've developed MapTube, a map-sharing website.

In a totally unscientific study that makes no claims to be anything other than a (potentially) interesting experiment, we want to create a mood map of the credit crunch. And we hope to use it to inform our journalism.

We're asking you what single factor is hurting you most about the credit crunch?

Follow this link to the MapTube website to take part
Welcome to MapTube
MapTube is a free resource for viewing, sharing, mixing and mashing maps online. Created by UCL’s Centre for Advanced Spatial Analysis, users can select any number of maps to overlay and view.

QuickStart
Click any map below to view it. To select a combination of maps, use the Search page. More information is available in the Help section.

Showing records 1 to 12 of 495:

Featured Map

MPs’ Expenses 2007/8
This map shows MPs’ expenses for April 2007 to March 2008 taken from the data published on the UK Parliament website. The map is coloured according to total allowance expenditure (excluding travel expenses) and is clickable to see the breakdown for each constituency [view map]

Popular Maps  Recently Viewed  Latest Uploads

Criminal Damage
London Profiler Criminal Damage
more Information
Viewed 205 times

BBC Look East: Employment Mood Map
Mapping the region’s mood on employment in the eastern counties in conjunction with BBC Look East
more Information
Viewed 580 times
Virtual Research Environments

- A collaboration space for social scientists.
- A means to share scientific resources across a diverse community.
- Integrates aspects of the Social and Semantic Web.

www.ourspaces.net
Social Simulation

- National e-Infrastructure for Social Simulation project (NeISS):
  - Introduce social scientists to new ways of thinking about social problems, provide new services and tools to support them
  - Enable researchers to create workflows to run simulations, visualise and analyse results, publish for future discovery, sharing and re-use
  - Facilitate development and sharing of social simulation resources, encourage cooperation between model developers and researchers
  - Foster adoption of simulation as research method, and as decision support tool in public and private sectors
NeISS Overview

- Growing demand for social simulation.
- Applications:
  - Economics, geography, sociology
  - Health sciences, politics, anthropology
- Methods:
  - Agent-based models
  - Microsimulation
- Impact:
  - Theory to policy
  - Analysis, projection, forecasting, scenarios
Simulation of Epidemics

Ferguson et al, Nature, 2005
Urban Simulation

- Can we project the population of a city forwards in time over a 25 year period?
  - Technically and intellectually demanding
  - Policy relevant:
    - housing, transport, health care, education, ...

- Three components:
  - Population reconstruction
  - Dynamic simulation
  - Activity and behaviour modelling
Transport

Population and average speed changes in Leeds from 2001 to 2031
Traffic Intensity = Traffic load / Road capacity

* Traffic Intensity = Traffic load / Road capacity
## Relevance to Strategic Priorities

<table>
<thead>
<tr>
<th>ESRC priority research areas</th>
<th>e-Social Science Nodes</th>
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<tbody>
<tr>
<td></td>
<td>DAMES</td>
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<tr>
<td>Succeeding in the Global Economy</td>
<td>++</td>
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<tr>
<td>Energy, Environment &amp; Climate Change</td>
<td>+</td>
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<tr>
<td>Education for Life</td>
<td>+</td>
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<tr>
<td>Understanding Individual Behaviour</td>
<td>+</td>
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<td>Population Change</td>
<td>+</td>
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<tr>
<td>International Relations and Security</td>
<td>+</td>
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<tr>
<td>Religion, Ethnicities &amp; Society</td>
<td>+</td>
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</tbody>
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ISGC 2010
Supporting Research Lifecycle

e-Social Science projects cover whole of research lifecycle

- Literature search
- Literature review
- Data discovery
- Data collection/re-use
- Data preparation
- Data integration
- Data security
- Analysis
- Visualisation
- Publication

- NaCTeM
- PolicyGrid
- DReSS
- LifeGuide

- eStat
- GeoVUE
- CQeSS
- eLab
- MoSeS
- MiMeG
- Obesity e-Lab
- DAMES

ISGC 2010
International Cooperation

INFN (IT)
CESNET (CZ)
UoM (UK)
HealthGrid (FR)
AdMU (PH)
ANU (AU)
ASGC (TW)
ASTI (PH)
HAIH (TH)
IDA (SG)
IOIT-HCM (VN)
ITB (ID)
NECTEC (TH)
UPM (MY)
MIMOS (MY)
EUAsiaGrid

Applications

- High Energy Physics Applications (ATLAS, CMS) (INFN)
- Computational Chemistry (CESNET)
- Mitigation of natural disasters (ASGC)
- Bioinformatics and Biomedics (HealthGrid)
- Social Simulation (UoM)
- Promoting new scientific communities to the use of the Grid
Challenges I

- New sources of data offer a rich resource for social research:
  - Web (news sites, wikis, blogs, …)
  - digital communications (email, newsgroups, speech, SMS, …)
  - administrative (health records, …)
  - transactional records (purchases, …)

- Need to harness powerful, new tools such as data and text mining if this 'born digital' data is to exploited
Challenges II

- **Wide adoption and maximum impact:**
  - Potential adopters must:
    - be aware of e-Social Science
    - appreciate its benefits
    - be willing to invest in new skills
    - have access to appropriate facilities and support

- **e-Uptake project:**
  - identifying recurring, widespread barriers
  - devising training-based interventions
Understanding Users

- Interest in e-Social Science uniform across discipline areas and research methods.
- 33% ‘early adopters’
- 43% ‘interested’
- 10% ‘unengaged’
- 8% ‘sceptics’

http://www.informaworld.com/smpp/title~content=t713442842
Finally …

Thanks to:

Peter Halfpenny, Dave De Roure, Marina Jirotka, Anne Trefethen, Mark Birkin, Andy-Hudson-Smith, Richard Milton and many more

www.merc.ac.uk
www.eresearchsouth.ac.uk/uk-e-social-science