Location as a Key Enabler for a Digital Society

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Digital Economy is defined by the Research Councils as:

*The novel design or use of information and communication technologies to help transform the lives of individuals, society or business.*

The Digital Economy programme is:

- Cross-Research Council (EPSRC, ESRC, AHRC)
- Funded 2008-2011 for:
  - £80m research – including 3 x £12m hubs
  - £36m training – 8 x DTCs
- Aimed at realising the transformational impact of ICT for all aspects of Business, Society and Government.
What is Horizon?

• A Digital Economy Research Centre at the University of Nottingham comprising:
  – A Digital Economy Hub
    • £20m from RCUK and university
    • Spokes at Cambridge, Reading, Exeter, Brunel
  – A Doctoral Training Centre
    • £15m from RCUK and university
    • 20 PhD students per year for 5 years
  – Was 40 now 90 partner companies
“Every time we register for a new web service, or upload our photos and videos, we are enlarging our own digital footprints”

- This growing digital footprint is a significant part of the digital economy
- It also poses major societal and ethical challenges
The Era of Ubiquity

- **mainframe era** (1970-80s) one computer many people
- **pc era** (1980-90s) one computer per person
- **mobility era** (1990-2000) several computers per person
- **ubiquity era** (2000-...) thousands of computers per person
As we enter an era of ubiquity data increasingly comes from:
- Buildings, furniture, artefacts, vehicles, clothing, biosensors

Combined with:
- Location, context, interactions..
- ..both virtual and physical

Our **contextual footprint** blends physical and digital interaction
Sectors and challenges

Application Sectors
- Transport
- Creative Industries
- Energy
- Service Industries
- ...

Research challenges
- Innovation
- Human
- Infrastructure
A Bad Latitude

If we have to turn it off we won’t turn it on...

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**WE'RE IN A NARROW WINDOW IN WHICH PEOPLE ARE USING GOOGLE LATITUDE, BUT HAVEN'T LEARNT THE HABIT OF TURNING IT OFF WHEN THEY'RE DOING SOMETHING DISCREETLY.**

I WROTE AN APP TO LOG FRIENDS' LOCATIONS AND WORK OUT ADDRESSES AND BUSINESS NAMES.

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**Location in Context**

**25 December 2009**

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<td><a href="mailto:J.Bond@mi6.gov.uk">J.Bond@mi6.gov.uk</a></td>
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<td>On his way</td>
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<td>Afghanistan</td>
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Crowdsourcing Movement

- Process personal movement data to provide generic useful services...
- Transform personal to public service information via aggregation and anonymization
Socially Connected Car Sharing

• Rationale
  – People would like to car share but they don’t
  – Why?
    • Potential negatives: Safety, convenience, reliability
    • But potential positives: environment, cost, social networking

• Existing systems
  – Matchmaking/buddying (e.g. liftshare)
  – Real time location based car sharing (e.g. Avego)

• The Horizon concept: ad-hoc social networks for matching people on a one-off basis
  – For getting people home from a meeting
  – For getting people from one business site to another
  – For impromptu car sharing at a shared location
Behavioural Challenges

• When are people most likely to car share?
• With whom are people happy to car share?
• How do different technologies make car sharing more effective?

• Research approaches:
  • Diary studies:
    asking potential sharers about journeys throughout the day
  • Interviews:
    identifying barriers and opportunities for car sharing
  • Technologies:
    reviewing different technology based solutions to car sharing
Technical Challenges

- Accuracy requirements for location tracking to record journeys and destinations
- Storing large data sets recording journey details
- Naming places
- Integrating social and location based matching requirements
- Matching – how much to automate, and how much to leave to the individual
- Supporting infrastructure and interoperability
Foot-Tracking Location Technology
http://www.horizon.ac.uk

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