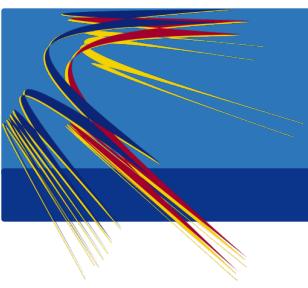


Keeping it personal

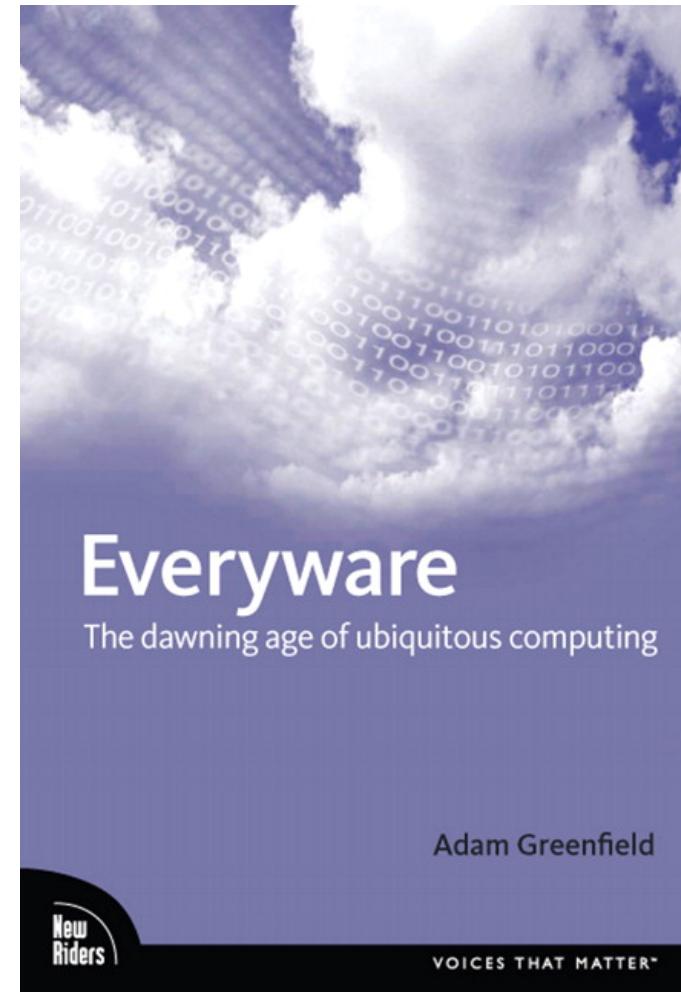
Derek McAuley

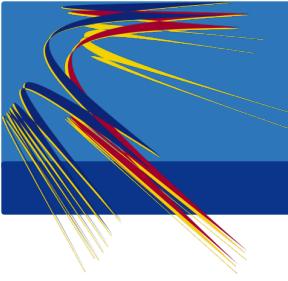
PerCom 2011
23rd March 2011



Contextual Footprint

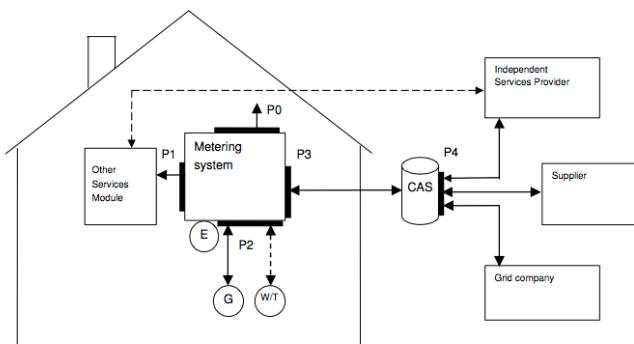
- As we enter an era of ubiquity data increasingly comes from:
 - Buildings, furniture, artefacts, vehicles, clothing, biosensors
- Combined with:
 - Location, context, interactions..
 - ..both virtual and physical
- Our **contextual footprint** blends physical and digital interaction





e.g. energy consumption

- Mandatory smart meters considered invasion of privacy
- Why?
 - Poor security
 - Central services
- But it was supposed to empower the citizen...



[ABOUT](#) [MISSION](#) [WHO WE ARE](#) [SIGN UP](#) [DONATE](#) [CONTACT](#)

« We should allow cameras to cover court proceedings | Main | 'Web Cop' to patrol internet for anti-police comments »

01/14/2010

Privacy concerns scotch Smart Meters plan in Holland

Back at the beginning of December, I wrote a piece and spoke on the radio regarding Ed Miliband's announcement that the government would soon be rolling-out Smart Meters across the UK - and the danger that this posed to the sovereignty of our energy supply and the uncertainties surrounding the information that utility companies would now have immediate access to.



RESEARCH

Research and publications from Big Brother Watch

C CAMPAIGNS

The latest campaigns from Big Brother Watch

M MEDIA ARCHIVE

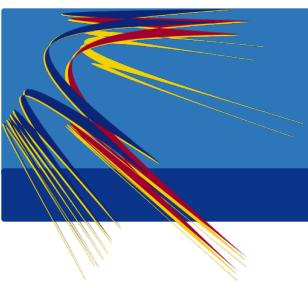
February 2010

January 2010

GUERRILLA STICKER CAMPAIGN



TWITTER UPDATES



...and it's grim

```
PUT /api/12621.csv HTTP/1.1
Host: company.com
X-CompanyApiKey:
42938402803840285237577589259349739842789492739847
923748429234223
User-Agent: othercompany.com equipment
Content-Type: text/csv
Content-Length: 10
Connection: close

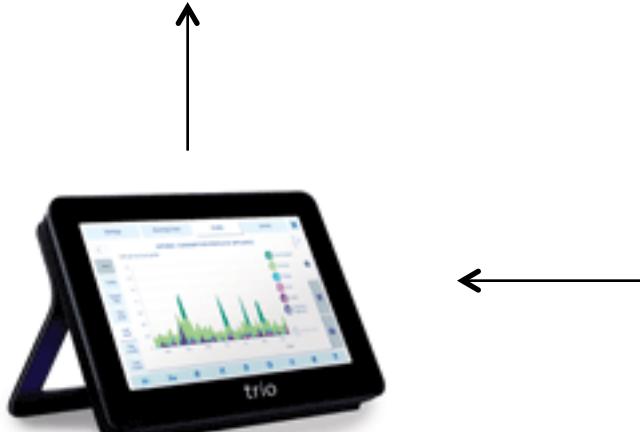
23.80,1649
```

```
HTTP/1.1 200 OK
Server: nginx/0.7.65
Date: Fri, 31 Dec 2010 14:19:59 GMT
Content-Type: text/plain; charset=utf-8
Connection: close
X-CompanyPurgeCache: ((?:/api/v[1-9])?/feeds/12621(?:![0-9])
(?:!.*start=|.*duration=|.*end=|.*time=).*)
X-Runtime: 47
Content-Length: 1
Set-Cookie:
_company_app_session=429384028038402852375775892593
49739; domain=.company.com; path=/; expires=Fri, 31 Dec
2010 14:39:59 GMT; HttpOnly
Cache-Control: max-age=0
Vary: Accept-Encoding
```

According to Wireshark:

- 1 TCP Segment per byte in request
- 1 ACK per byte received
- 34 DUP ACKs
- 287 packets
 - 286 min sized
- Unencrypted
- Payload is
`<temperature>,<watts>`
23.80,1649

Data should not be appropriate..



$$\phi(t)$$

$$\sum_i p_i(t)$$



$$\int_t p_i(t) dt$$

bill_i

Location in Context

From: NottIS (Derek McAuley)

Invite: J.Bond@mi6.gov.uk O.BinLaden@alqueda.org

Subject: Drinks reception

Location: Room A, Universal Imports, London

Start: Fri, 25 Dec 2009 09:00 All-day event

End: Fri, 25 Dec 2009 10:00

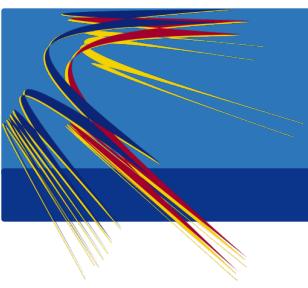
Show all day

All Attendees	Location	Attending
Derek McAuley	Room A	Present
J.Bond@mi6.gov.uk	Universal Imports	On his way
O.BinLaden@alqueda.org	Afghanistan	Not coming

25 December 2009
9:00 10:00 11:00 12:00 13:00

08:53 live location

Googlezon

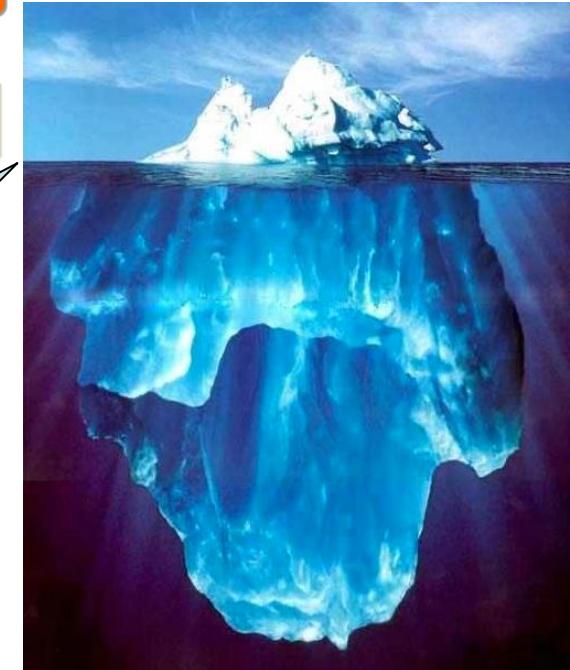


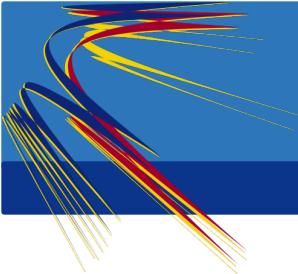
Social networking

- Many “ICT” systems are used for communications not computation
- We humans exist simultaneously in many difference social contexts with different behavioural and temporal characteristics
- Our tools for managing the real complexity of this do not yet exist...



You are here





Socially Connected Car Sharing

- Existing systems
 - Matchmaking/buddying (need to pre-register)
 - Real time location based car sharing (unknown participants)
- Exploring ad-hoc social networks for matching people on a one-off basis

taxi share

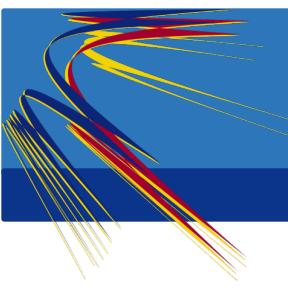
2:03 PM
Page 1/3

TAXI	SPACE	LOCATION	LEAVING	FARE APPROX
1	1 SPACE	East Mids Airport	3 MINS ETA 2:32 PM	£3.60 each
2	2 SPACES	The Victoria Hotel	7 MINS ETA 2:20 PM	£1.40 each
3	FULL	Nottingham Station	13 MINS ETA 2:31PM	£1.70 each

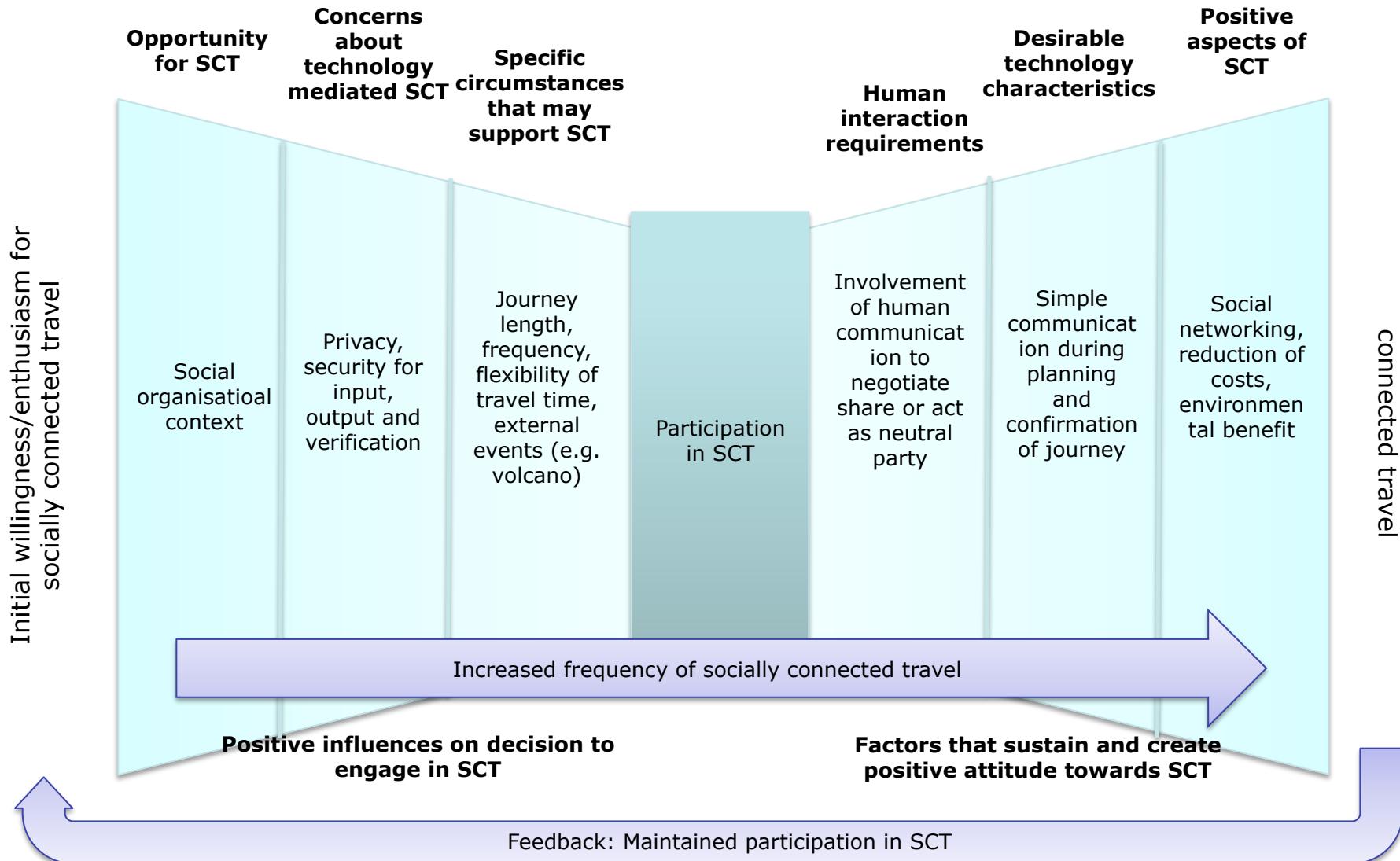
To use the system please text in your reservation to:
07786 202579

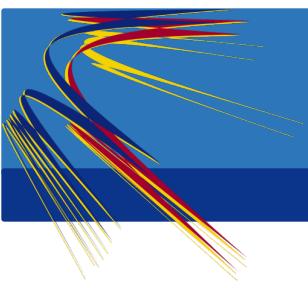
horizon
DIGITAL ECONOMY RESEARCH





Influences and Sustainers

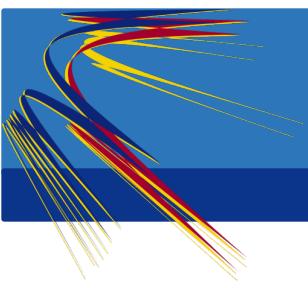




Trajectories

- From previous urban gaming work - experiences are defined by three kinds of trajectories
 - Canonical – the designers plan or intent
 - Participant – what an individual actually does
 - Historic – a particular account of what happened after the event
- How can we relate this to everyday life?
- ...and things...





Contextual footprint of objects

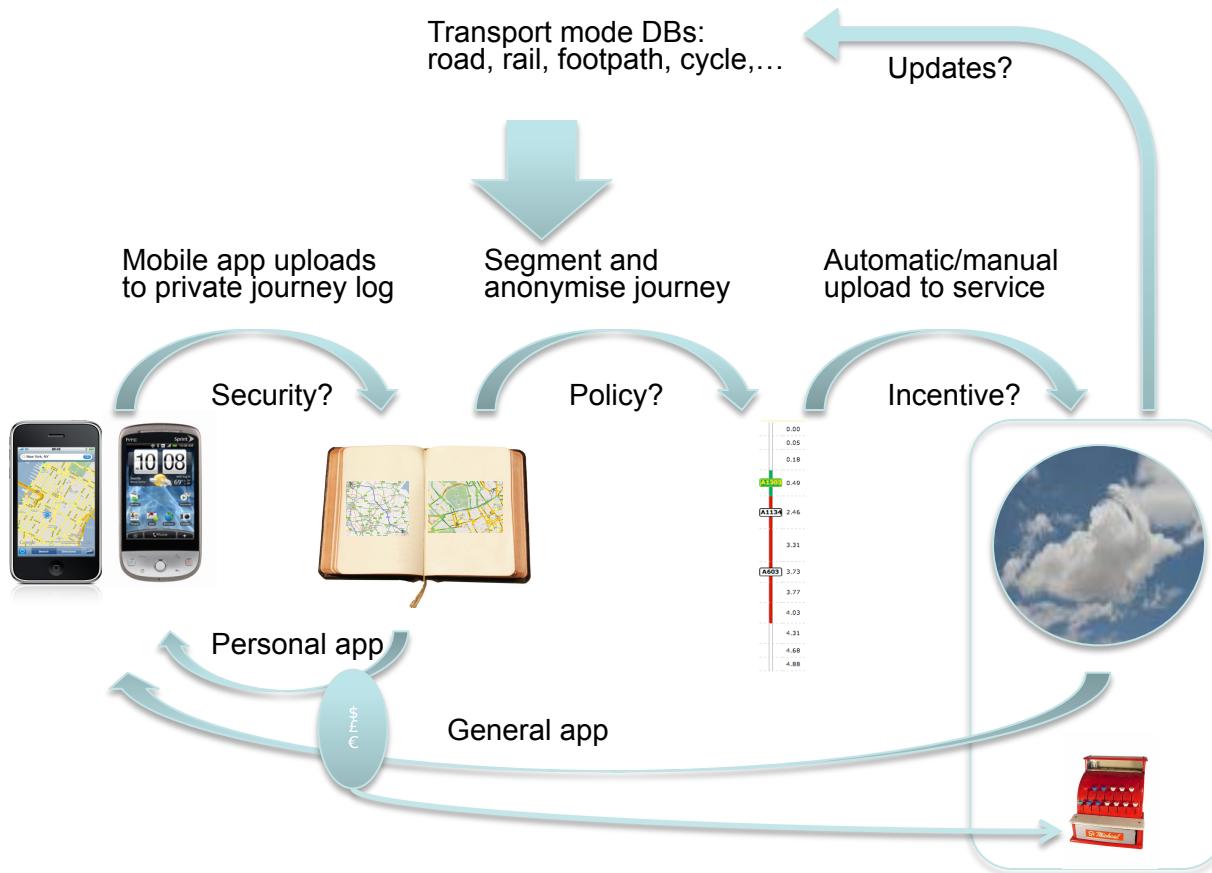
- Objects that take on a digital life of their own:
 - Souvenirs
 - Collectibles
 - Buildings(!)
- How do their trajectories intersect with people?
- And we may not even know it...
...fiducials by design



Power of crowds – Haiti mapping



Crowdsourcing Movement



- Process personal movement data to provide generic useful services...
- Transform personal to public service information via aggregation and anonymization
- Is that what happens today?

Crowdsourcing Corpora



Mobile app
uploads to
“cloud”



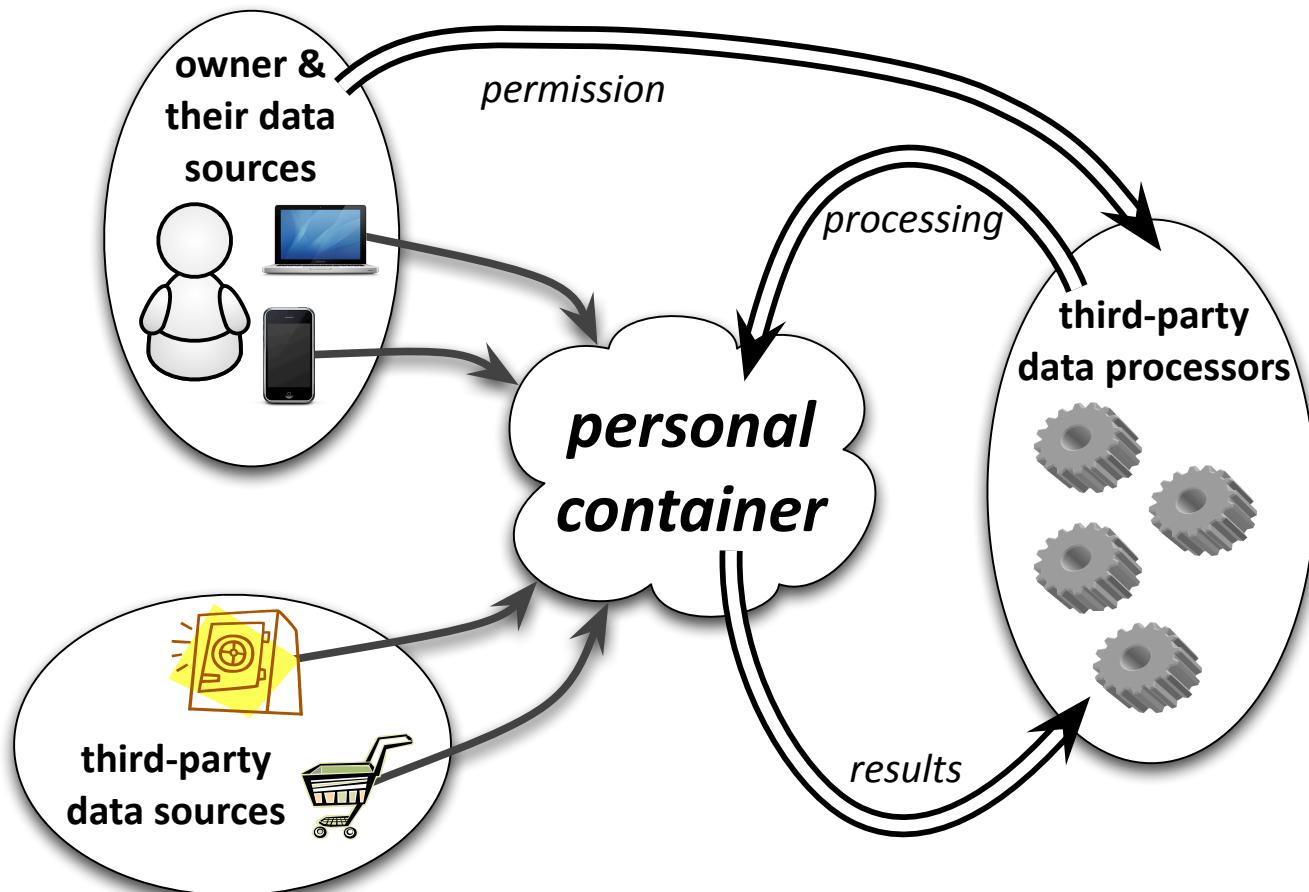
Improved
contextual
phrasebook



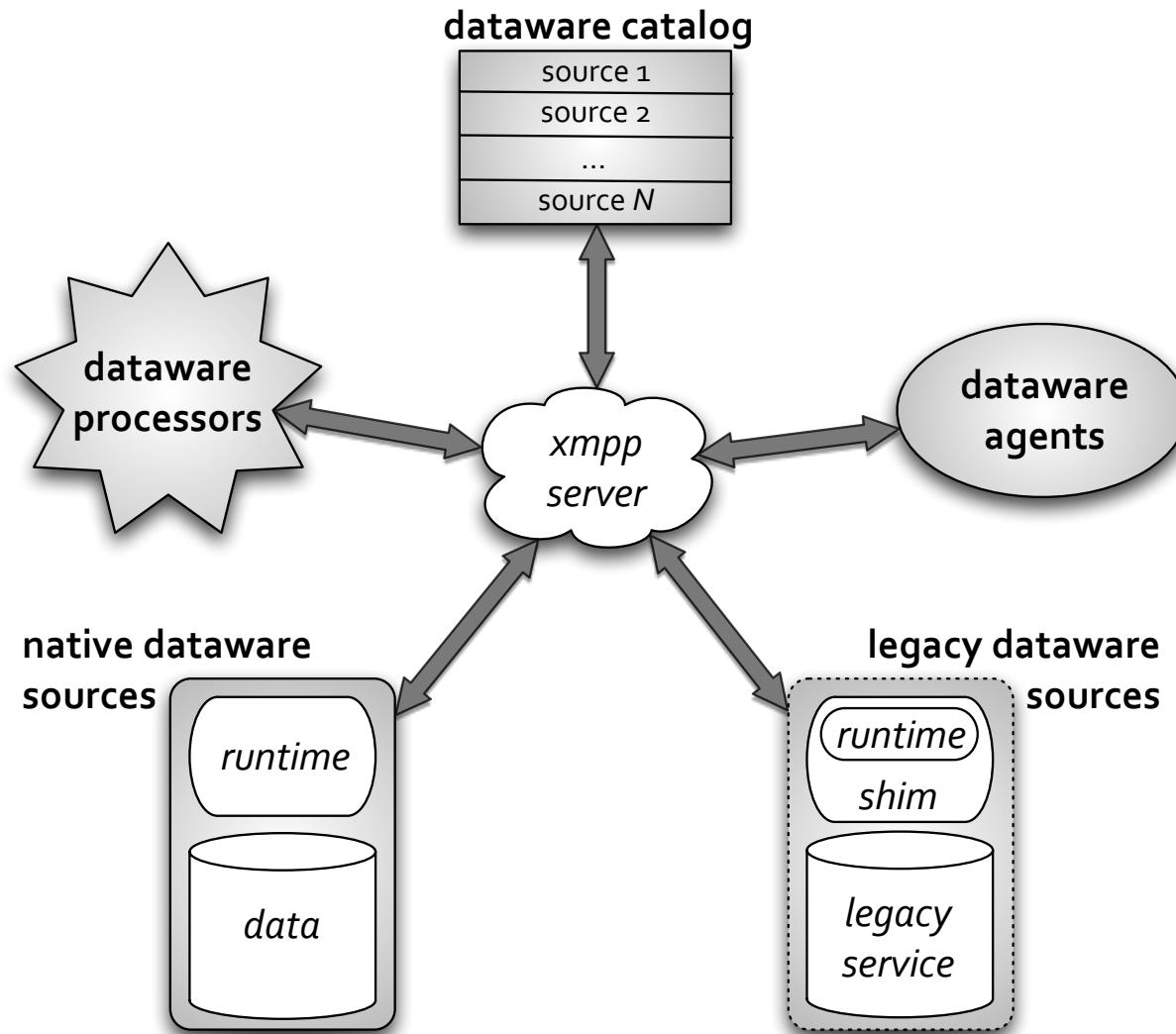
Learned
writings

- Start with contextual corpus
- Add entries and refine frequencies based on use
- Improve corpus
- Perform for lots of contexts...

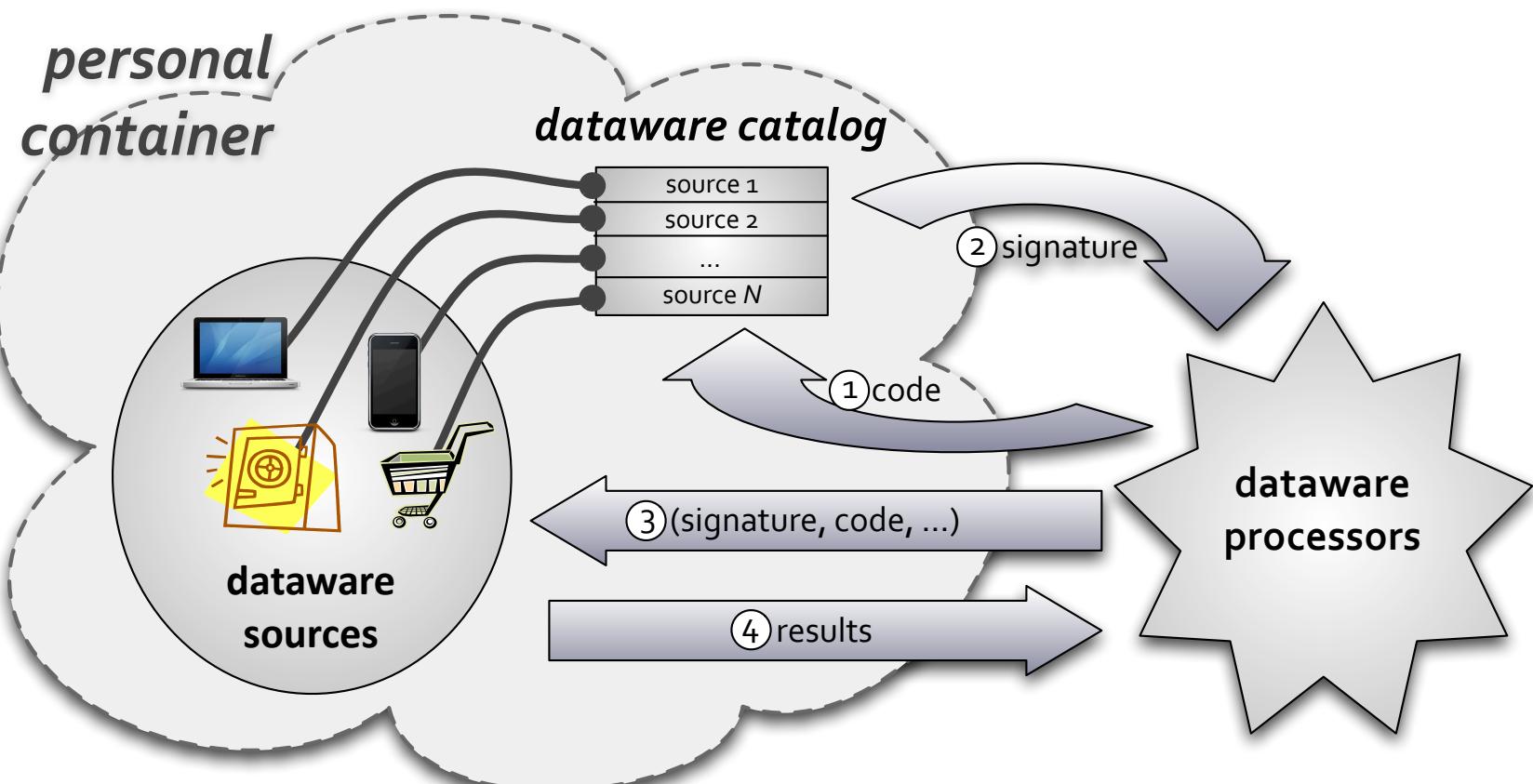
Dataware



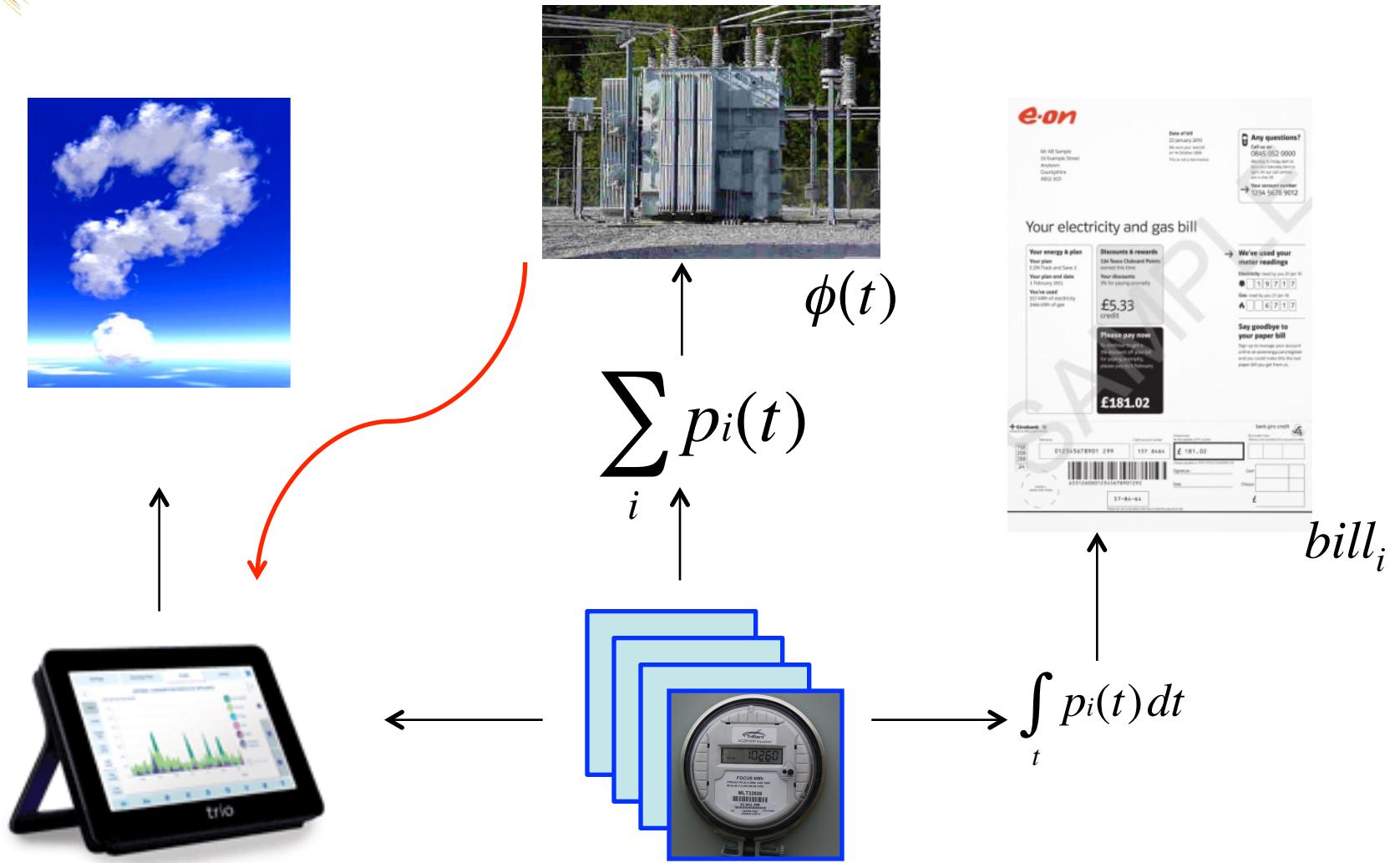
Implementation

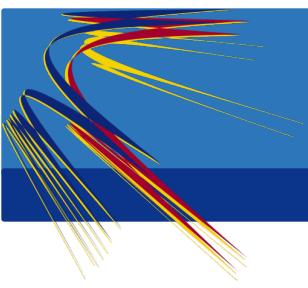


Processing



Personal feedback...

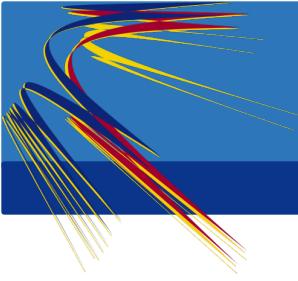




Personal priorities...

Don't let the energy company kill the Bearded Dragon





<http://www.horizon.ac.uk>



Questions?

Derek.McAuley@nottingham.ac.uk