

GEODEMOGRAPHICS GOES MOBILE

*Tracking people and things on the move – an
update on the technologies, opportunities
and risks*

Presented by Peter Furness

Geodemographics in a Digital Age:

The Market Research Society

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Topics

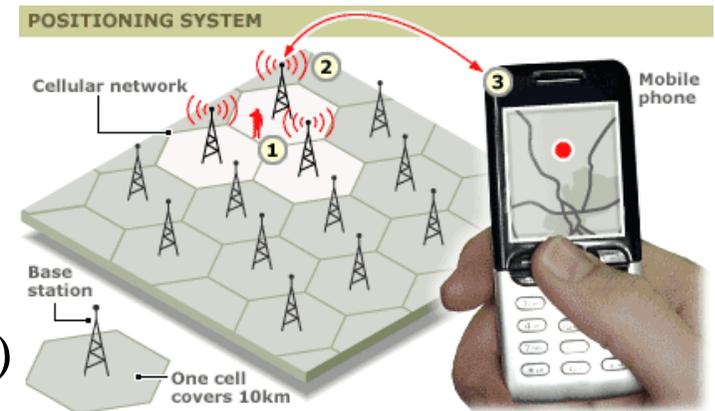
- ◆ The technology
- ◆ The opportunities
 - Vehicle telematics – usage-based and rescue services
 - Health and welfare – fitness monitoring and asset tracking
 - Virtual (and parallel) worlds and ‘augmented reality’
 - Retailing – tracking the customer journey in-store
 - Social media – location enabled networking (in passing only)
- ◆ The risks – privacy, data protection and external threats
- ◆ Some predictions

Further information on many of the topics covered in this presentation may be found at the Real Time page of the Geodemographics Knowledge Base: www.geodemographics.org.uk

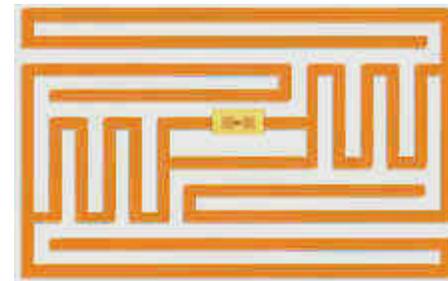
The Technology (1)

◆ Location tracking

- Global Navigation Satellite Systems (GNSS) - GPS and Galileo..and others
- Mobile Phone Station Location
- WiFi positioning
- Bluetooth and SDR beacons
- Digital TV triangulation
- Acoustic sensing
- Radio Frequency Identification (RFID) tagging



◆ Location-aware devices are now ubiquitous



The Technology (2)

◆ Surveillance

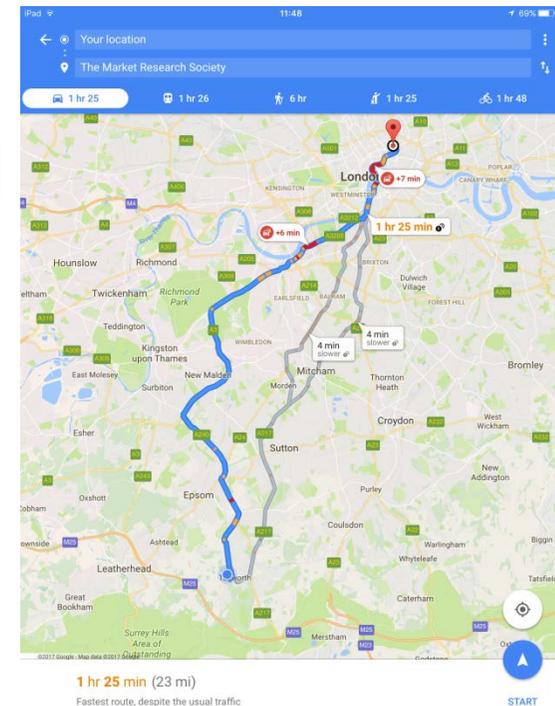
- CCTV (and e.g. ANPR)
- Satellite imaging and remote sensing (e.g. Ursa Space)
- Drone imaging
- Data mined surveillance (e.g. Twitter/Gnip and ‘tweetography’)
- Smart Dust

◆ Virtual worlds – the ‘infrastructure’

- Representing people and things in time and space
 - Cooltown and ‘The Internet of Things’
 - Improbable/Google (SpatialOS)
 - Second Life, ActiveWorlds, MMOGs
- Advanced data visualisation and Virtual Reality
- Semantic Web (and Linked Data)

Telematics

- ◆ Usage-based motor insurance
 - Tracking device fitted in car or smartphone-based
 - Additional services, e.g.
 - Dashboard – to help manage motoring costs and usage
 - Car theft tracking
 - Majority of insurers struggling with analytics
 - USA ahead of UK and Europe
- ◆ eCall, an EU initiative
 - All new cars from April 2018
 - Auto call to 112 with key accident data
- ◆ Traffic forecasting and routefinding
 - Google/Waze, Teletrac/Navman, TrafficAid, ClearFlow (Microsoft)



Health and Welfare

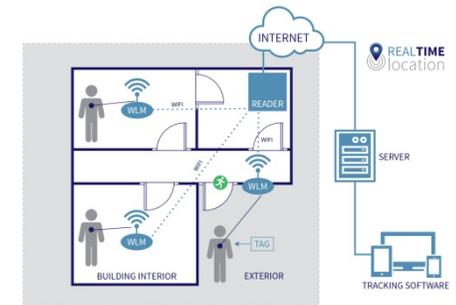
◆ Fitness tracking

- Wearables for the ‘quantified self’ –
 - Track vital metrics – movement, heart, sleep e.g. Fitbit, Apple (Watch, Health App)
 - Potential integration with public health systems
 - Corporate/Workplace – ‘sitting is the new smoking’, e.g. BP, SAP
- Fertile territory for Machine Learning
 - E.g. ‘Human Activity Recognition Using Smartphones’ SmartLab, <https://pdfs.semanticscholar.org/83de/43bc849ad3d9579ccf540e6fe566ef90a58e.pdf>



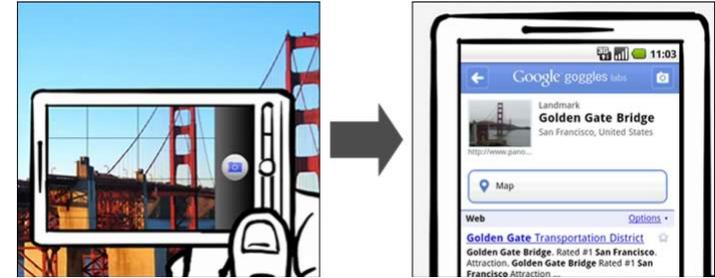
◆ Asset tracking in hospitals

- Boston Hospitals (2005)
 - Real Time Location Tracking System (RTLS) - RFID based
 - Tracking equipment, staff, patients and medication in real-time
 - Improved patient care and more effective use of resources
- RTLS also now in use at some UK health trusts, e.g. United Lincolnshire Hospitals, East Kent Hospitals



Augmented Reality

◆ Augmenting a view of the real world with computer generated imagery and data



◆ Examples:

- Google Tango
- Layar
- DBpedia Mobile
- Magic Leap
- Many others coming...



Retailing – Tracking the Customer Journey In-store

◆ PathTracker pilot

- Wharton Management School with Sorensen Associates, using PathTracker® technology
 - Shopping trolleys with RFID tags
 - Use of video technology
- Analysis of the patterns followed by grocery shoppers
- Sorensen acquired by TNS in 2007 (now part of Kantar)

◆ P.R.I.S.M. (Pioneering Research for an In-Store Metric) Project

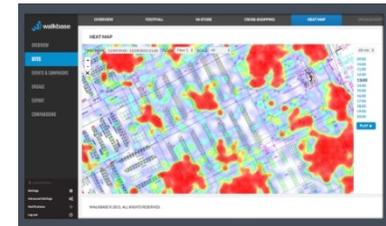
- Led by AC Nielsen with major FMCG and retailers
- Claimed as *‘the first truly scientific measurement of the effectiveness of in-store sales tools such as shelf location and promotional displays’*
- Use of infrared surveillance to track shoppers’ movements and correlate this with sales data
- Suspended 2009 after withdrawal of Walmart



Retailing (2)

◆ Walkbase

- Monitors smartphone wifi ‘pings’
- Behavioural analysis and profiling, queue management, staffing optimisation, triggering, etc..
- Clients include Morrisons, Topshop, M&S



◆ Shopkick

- App-based
- Responds to iBeacon bluetooth, and/or audio signal in store (both more accurate than GPS)
- ‘Kick’ rewards for entering store and for scanning products using smartphone camera
- Clients include Best Buy, Macy’s, P&G, Starbucks, TJ Maxx



◆ Apple and Google about to launch indoor location services for retailers

The Risks - Privacy & Data Protection

- ◆ Increasing public concern about surveillance technologies, and data security but..
 - General acceptance that data has to be exchanged in order to receive innovative and cost-effective products and services but..
 - This requires companies to be faultless over privacy and data protection, otherwise customers will just walk away
 - Many consumers are naïve about over-sharing
- ◆ Cyber and infrastructure threats
- ◆ Some big (and nasty) surprises coming...



Some Predictions

- ◆ Rapid evolution of all the applications discussed
- ◆ Emergence of new players specialising in analytics for the real time spatial world
- ◆ Someone will pick up the ‘Cooltown’ baton and seize the initiative to lay down a global infrastructure:
 - Google? Apple? Microsoft? Amazon? Tencent?
 - ...Or, perhaps, it will emerge naturally via the Semantic Web (and Linked Data)?

References

1. Further information on many of the topics covered in this presentation may be found at the Real Time page of the Geodemographics Knowledge Base <https://www.geodemographics.org.uk/realtime>
2. ‘Real Time Geodemographics: New Services and Business Opportunities (and Risks) from Analysing People in Time and Space’, Furness, P., Journal of Direct, Data and Digital Marketing Practice, Vol.10, No.2, Pp 104-115.
3. ‘Linking Spatial Data from the Web’, Becker, C., Furness, P., Journal of Direct, Data and Digital Marketing Practice, Vol.11, No.4, Pp 317-323.

Peter Furness

furnesspm@gmail.com

@geometerman