

# GEODEMOGRAPHICS GOES MOBILE

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

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*Geodemographics in a Digital Age:*

*The Market Research Society*

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# Topics

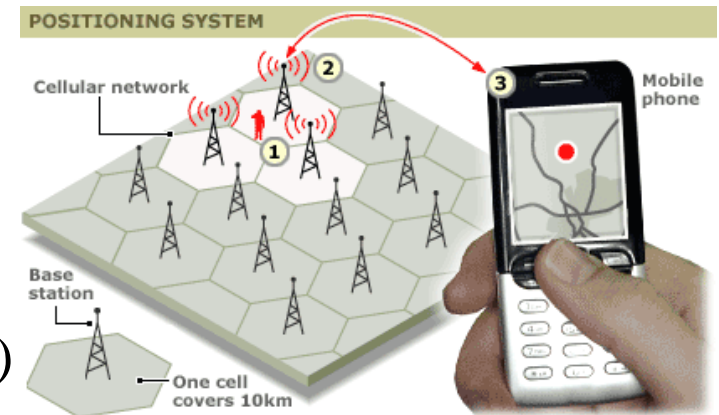
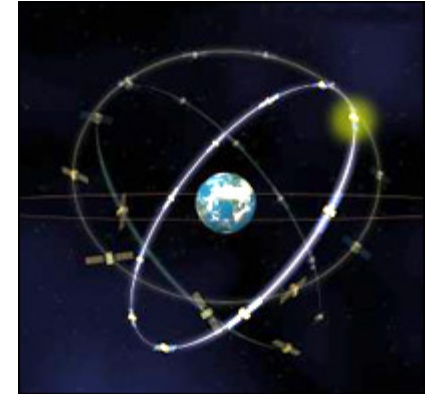
- ◆ The technology
- ◆ The opportunities
  - Vehicle telematics – usage-based and rescue services
  - Health and welfare – fitness monitoring and asset tracking
  - Virtual (and parallel) worlds and ‘augmented reality’
  - Retailing – tracking the customer journey in-store
  - Social media – location 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](http://www.geodemographics.org.uk)

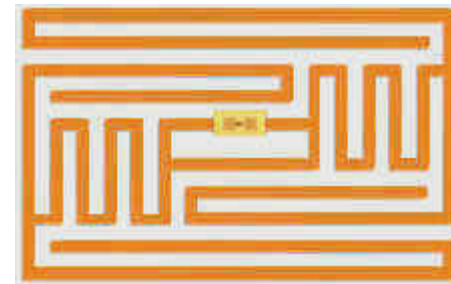
# The Technology (1)

## ◆ 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

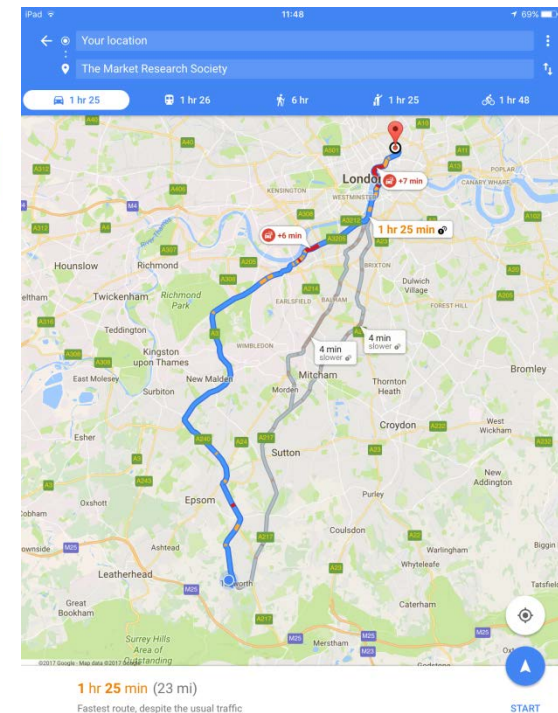
- CCTV (and e.g. ANPR)
- Satellite imaging and remote sensing (e.g. Ursa Space)
- Drone imaging
- Data mined surveillance (e.g. Twitter/Gnip and ‘tweetography’)
- Smart Dust

## ◆ 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

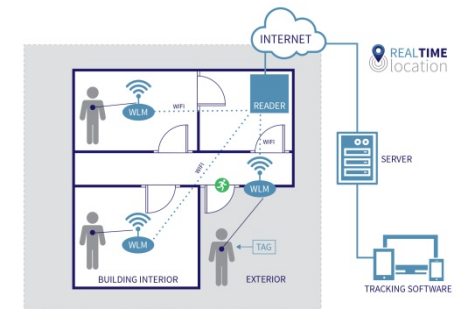
## ◆ Fitness tracking

- 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

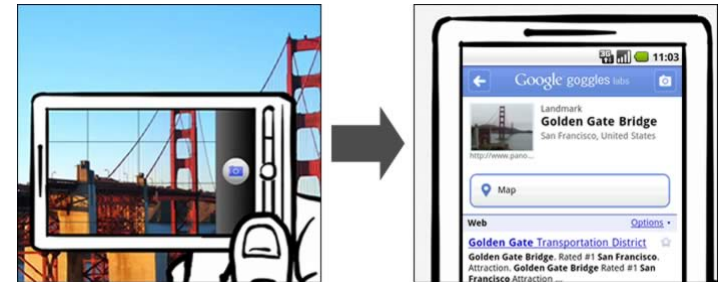






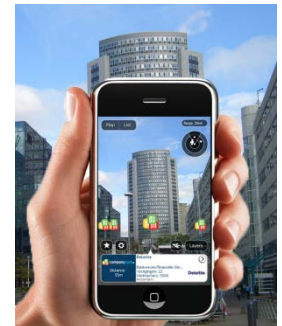
# Augmented Reality

◆ 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

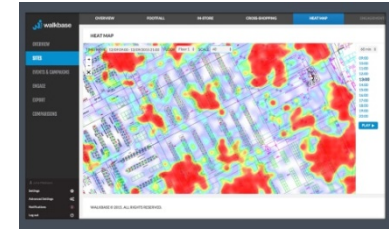
- Led by AC Nielsen with major FMCG and retailers
- Claimed as *‘the first truly scientific measurement of the effectiveness of in-store sales tools such as shelf location and promotional displays’*
- Use of infrared surveillance to track shoppers’ movements and correlate this with sales data
- Suspended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



# Retailing (2)

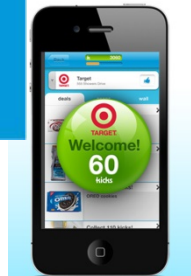
## ◆ Walkbase

- 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.

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