

# The AGI Foresight Study - The UK Geospatial Industry in 2015

## An Expert Paper

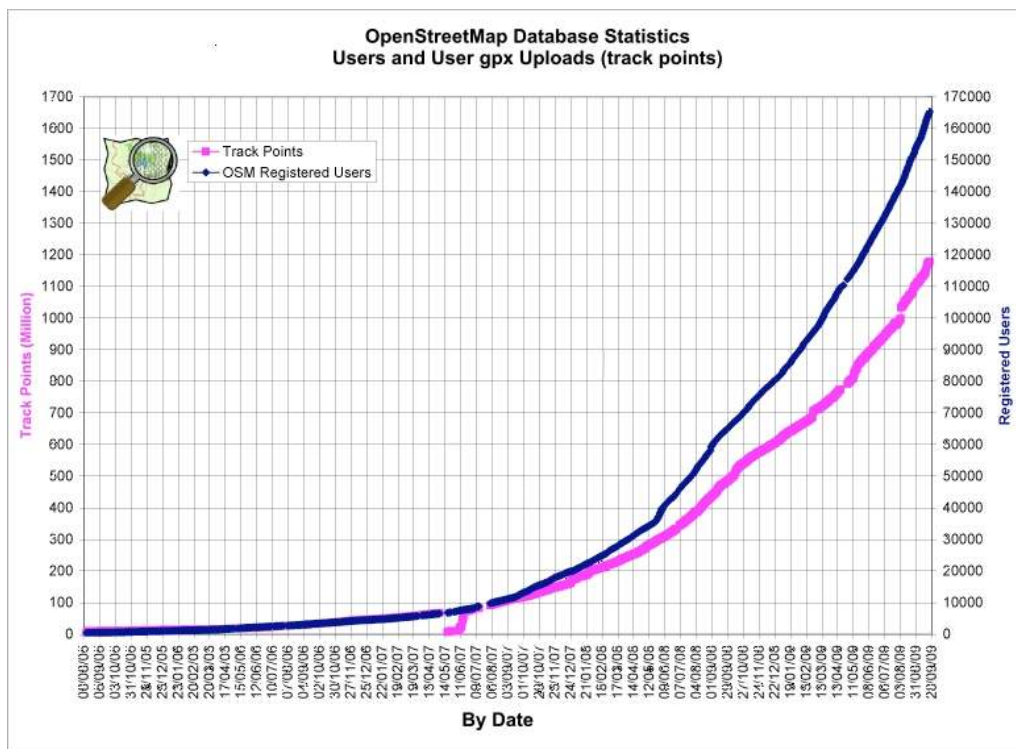


### OpenStreetMap, Crowdsourcing and the SensorWeb

Christopher Osbourne, ITO World

*“Why I ignore all ‘5 year plans’: 5 years ago, YouTube and Twitter didn't exist, and Facebook was only for college kids.” - Clay Shirky*

#### OpenStreetMap



OpenStreetMap stats report run at Sun Oct 18 2009:

Number of users	174823
Number of uploaded GPS points	1229384032
Number of nodes	467418975
Number of ways	34718890
Number of relations	251896

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At the start of 2009, there were ~85,000 OSM users, and by October 18th 2009 there were 174,823 users. While not all users are active, the percentage of users contributing per month is consistent at 8%, and the rate of growth is massive.

Five years ago OpenStreetMap didn't exist, so forecasting the future of crowdsourced data feels particularly futile. However, the UK is predicted to be complete, at the street level, in 14 months time. There will be more than 1,000,000 users in much less than five years time.

In terms of global datasets, there are very few commercial players - NAVTEQ, Tele Atlas and to a lesser extent AND. With the previous acquisition of NAVTEQ and Tele Atlas by Nokia and TomTom, and the as yet un-confirmed deal between Google and AND, it is a partisan world. It is in Nokia and TomTom's interests to restrict the use of their data for activities that would impact on their own development plans, and extract as much revenue from their existing markets. All of this points to serious commercial involvement with the 'open source' alternative, OSM. Over the next five years we can expect to see large investments, in terms of data, code, company time and money from internet and mobile phone companies in OSM. The parallels with Linux and IBM are clear, those who need unrestricted access to geodata but cannot fund their own geodata creation, a la Google, will invest in OSM.

Traveline, the UK's national public transport data partnership, has donated their NaPTAN dataset to OpenStreetMap. With over 346,000 public transport nodes in the database, there is 0% chance that the dataset can be maintained to a completely accurate level with the limited resources available to local authorities to maintain the data. The import of NaPTAN data to OSM, allows for crowdsourced improvements to the data that can be fed back to Traveline at a later date. We can expect much more of the same in the future, from both public sector and commercial organisations.

Leveraging excess cognitive capacity through crowdsourcing will become commonplace.

### **Crowdsourced Data - Sensor Web**

Going back to the opening quote: "5 years ago, YouTube and Twitter didn't exist, and Facebook was only for college kids", we can see how far web2.0 and social applications have come in this short time. The amount of personal information that most of us now feel at ease with sharing is growing at an unprecedented rate. It has even been suggested that Moore's law, may apply to the rate of growth of sharing personal data. If an application can offer a tangible benefit to the user sharing their information, with no perceived loss of control or negative impacts, then they become happy sharing their personal information.

Some have dubbed this 'perkonomics' - it is advantageous for me to share my rough location details with my bank so they don't block my credit card while travelling abroad.

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Mobile phones have become an essential item, an extension of your social and professional life that is indispensable for a modern existence. The smartphone was one of the few 'luxury' items that saw an increase in spending during the recession. Within five years most people will own a GPS enabled smartphone, permanently connecting you to the internet. All of the social, entertainment and practical applications you use are communicating two-ways, there is a transfer of data back to the application provider via the internet. We are all sensors now. Your photographs, tweets, restaurant reviews, the speed at which you are driving are all geocoded data that is being recorded and can be mined and analysed. The increasing development of location enabled mobile applications and the sensor web will create huge new datasets.

This data can be used to maintain existing datasets, smarter marketing, predicting traffic, more intelligent distribution of retail merchandise. Utilising parallel processing techniques in the cloud, such as Map-Reduce, this data mining can occur in real-time.

### Public Sector Information

Over the next few months, the RDF experiments currently going on with data.gov.uk will stimulate a lot of debate about how much PSI should be released to the public domain. In the long term there will be legislation requiring central and local government to publish nearly all data.

I expect that the National Land and Property Gazetteer (NLPG) will become the next 'hot issue' around derived data and licensing in a couple of years.

INSPIRE will make slow progress and ultimately be overtaken by external events.

### My five key points:

- 1) OpenStreetMap to have over one million contributors.
- 2) Large scale investment in OSM from commercial organisations.
- 3) Widespread crowdsourcing of geodata to utilise excess cognitive capacity.
- 4) 'Big data' - huge, real-time, actively/passively crowdsourced datasets from the sensor web.
- 5) Legislation requiring central and local government to release nearly all PSI to the public domain.

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