

# Using social media to drive public engagement with open data

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## ABSTRACT

This paper discusses the use of social media as a means for interpreting and engaging users with open government data. As a case study, we describe *FearSquare*, an application that allows people to interact with public UK crime statistics in a way that is specific to their own, individual, everyday life by leveraging the popular social media service FourSquare. Results suggest that coupling FourSquare user location history data with crime data provides some form of added value to an already publically available dataset.

## Categories and Subject Descriptors

H.3.4 [Social Networks]

## General Terms

Design, Human Factors

## Keywords

Social media, public engagement, public data, open data, foursquare, crime

## 1. INTRODUCTION

A number of governments have recently committed to releasing public records into the public domain. The open data movement promises to improve the transparency of government services and improve the ability of citizens to scrutinize the efficiency of the Government. Indeed, the UK government recently published a report emphasising their intention to deliver modern, personalized and sustainable public services through using open data [1].

Unfortunately, open data is typically released in the form of raw data points such as a series of PDF documents or excel spreadsheets. Most citizens lack the knowledge and skills necessary to interact meaningfully with this type of data. If citizens are to genuinely benefit from the release of government data, services must be created and provided that enable interaction with this data in a more accessible manner.

Recently, the UK Government released a public service (<http://www.police.uk>) intended to help people better understand

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crime data in their local area. The website presents a mapped visualization of crime data gathered by the UK police<sup>1</sup>. The website drew huge initial interest, due to the granularity of the data presented. Now UK citizens are able to quickly and easily discover crime statistics for any given address in the country. Through making crime statistics more readily available and open the UK Government are beginning to provide public and transparent services through which UK citizens are able to scrutinize the efficiency of the Government as well as provide a service with which they are able to begin to make their own informed decisions about the areas they live in.

Crucial to the success of the Open Data movement understanding the way in which data should be presented. Different ways of presenting data will encourage different interpretations. For example, the Police.uk website presents data for places, rather than for people. It does not allow for the fact that people commonly travel through a number of different areas on a daily basis. Hence, while a step forward, crime data is not presented in a way that allows for an intuitive understanding of the real levels of crime that *people* are exposed to on a daily basis.

With this in mind, we created a service to provide a more individualized crime statistics. It was possible to use the location history from the users of the FourSquare social network. Foursquare provides a service whereby users are able to ‘check-in’ to places of interest via a mobile device. Check-ins are then recorded as a history and over time the service awards badges for recurring system use. Lindqvist *et al* [3] found that users of the FourSquare network were likely to check-in to places which were representative of every day life such as restaurants, bars and work. With this accurate representation of user’s location habits it was then possible to cross-reference this information with the police.uk crime statistics to provide a more personal crime statistic report.

The application, termed *FearSquare*, allows users to easily acquire a visualisation of crime in places that they live, travel through, or visit. The application takes a user’s FourSquare check-in history and then gathers crime data based on these locations before presenting this information to the user in an easily accessible website. The application was created as part of a study to measure the user’s perception of crime before and after the data has been presented in order to gather a view of the user’s

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<sup>1</sup> Guardian, “Online crime maps crash user weight of 18 million hits an hour”, 1<sup>st</sup> Feb 2011, <http://www.guardian.co.uk/uk/2011/feb/01/online-crime-maps-power-hands-people>

perceived level of crime and the effects of displaying this data to the user. However this paper focuses within an element of this larger study in regards to the usage of social media when engaging users with open data.

## 2. METHOD

FearSquare is driven by the UK Crime statistics, which provide street level crime data through an online resource<sup>2</sup>. Users were able to sign into the FearSquare using their FourSquare account details. They were then given an optional questionnaire regarding their own perceptions of crime as well as estimate the levels of crime for their previous 10 locations that they had checked in to. The results of this questionnaire have yet to be analyzed.

The application then retrieved the 10 most recent check-in locations for that individual user and used the longitude and latitude of each check-in location to locate the relating street level crime statistics. The crime statistics that were presented to the user were that of crimes against a person and therefore the crime categories of; Anti-social behaviour, theft and violent crime were used.

The user was then presented with the each of the 10 check-in locations along with the number of crimes that have occurred on that street within a given month for each crime category. If the user had filled out the previous survey they were then prompted with additional questions relating to their perception of crime after they had gained the new knowledge of the levels of crime in their check-in locations.

Users were then presented with a *FearPoint* score that is determined by the type of crimes and the number of those crimes that occurred within the previous 10 check-in locations. This FearPoint score was available within a leader board with the top 50 highest scoring users as well as the top 25 highest scoring streets.

## 3. RESULTS AND DISCUSSION

The focus of this study is on motivating engagement with the UK crime dataset. As such, engagement can be measured in two ways. First, we will identify the number of people who used the application, as this gives an indication of whether people are interested in the idea of linking social media with government crime data. Secondly, we will report the number of return visits to the site, which will serve as an indication of how useful people found it.

The FearSquare application received 22,855 visits (11<sup>th</sup> April – 22<sup>nd</sup> Aug '11) with a total of 1,965 Foursquare users who logged into the application with their FourSquare details. Of those initial 22,855 visitors, 2070 returned more than once. This suggests that all users returned to the site approximately once. However, there is undoubtedly a small group of power users [2] who engages with the application a huge number of times.

It was found that 77.4% of users were male participants with 20.35% female, 2.23% undisclosed. Interestingly, this ratio is notably different to that of Foursquare's claim of 60% (male) - 40% (female) [3]. The proportion of females using FearSquare is almost half that of females using Foursquare, which could suggest that females have less interest in crime rates, or it could be a case of females being less engaged in technology.

FearSquare quickly gained attention across both online and traditional media with articles from sources such as Time

Magazine, Discovery Channel (Canada) and New Scientist<sup>3</sup>. The keyword [www.fearsquare.com](http://www.fearsquare.com) was also found to be trending on twitter receiving 3523 tweets (containing the word FearSquare) within the first 2 weeks of its release (13<sup>th</sup> April – 27<sup>th</sup> April 2011). It quickly became apparent that Foursquare users from other countries, including those in the EU and Americas, were taking a very keen interest in the FearSquare application as seen in Table 1, despite the fact that, due to reliance on UK crime statistics, it could only return useful information for UK users.

**Table 1.** Visitor statistics by country

Position	Country	Visits
1 <sup>st</sup>	France	6403
2 <sup>nd</sup>	United States	4055
3 <sup>rd</sup>	United Kingdom	3980
4 <sup>th</sup>	Brazil	1957
5 <sup>th</sup>	Canada	1079

Notably FearSquare has received interest from 128 different countries with the most visitors from France and United States. In addition to Brazil being the 4<sup>th</sup> most popular place of residence of FearSquare users a significant amount of press interest originated from the country. This may be due to the high crime rates and perception of crime in Brazil [4].

The intention of this study was to examine whether social media can provide a unique and interesting way of engaging people with open government data. Due to the huge interest generated by the FearSquare application, it appears that people would like to engage with open data sets in a way that is integrated with existing social media. Indeed, the crime data was already available online in an accessible format. Participants' choice to use FearSquare demonstrates that the application generated some added value to the data. We suggest that this added value is the ability to visualize and interact with public UK crime statistics, in a way that is specific to their own everyday life. Future work aims to examine whether particular types of people are more likely to use these services, as well as whether FearSquare itself had any impact upon participants perception of crime in their own lives.

## 4. REFERENCES

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<sup>2</sup> HM Government, Police API, <<http://www.police.uk/api/docs/>>

<sup>3</sup> Fearsquare in the media  
<[http://lisc.lincoln.ac.uk/social\\_games/fearsquare\\_game](http://lisc.lincoln.ac.uk/social_games/fearsquare_game)>