POLICY LEARNING IN INFORMATION TECHNOLOGIES
FOR PUBLIC TRANSPORT ENHANCEMENT

GOOD PRACTICES – PUBLIC TRANSPORT AND/OR MULTIMODAL INFORMATION SYSTEMS

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OPEN PUBLIC TRANSPORT DATA

General information

Description

TfL have opened up their public transport data sources to the public. This has enabled 3rd party mobile application developers to use the data to provide a variety of real time traveller information apps (iphone, android, blackberry, mobile windows) for the bus, rail and underground services in London.

As present there are 41 users receiving a live stream of the data direct from TfL's servers, and there are around 35 popular mobile apps developed by third parties using these data streams which are being downloaded by the public. Within this process there are intermediary developers who are taking the raw data from TfL, further processing it, and then selling it on to the app developers.

Backround and Context

London is a large city with a population of around 8 million living within the Greater London area. London has an extensive public transport network including the underground, over-ground rail, and the bus network which consists of around 8,000 buses operating on 700 bus routes with over 19,000 bus stops. London has an extensive range of bus priority measures and the London Oyster Card can be used for contactless payments on all public transport.

London has long had a real time passenger information system at bus stops however this was comprehensively upgraded between 2007 to 2009 when 'iBus' was fitted on London's 8,000 buses. This upgrade included implementing a GPS (Global Positioning System) to track the buses, on bus audio visual outputs, priority at traffic signals and improved bus arrivals information. In October 2011 TfL updated their website to include this live 'Countdown' bus information and they also launched a mobile app.

The information includes actual predicted arrival time for each bus at each of the 19,000 bus stops and not just the approximate 2,500 with real time information signs. In addition TfL are publishing a range of data including real time London Underground data.

Almost immediately developers started to scrape real time bus information off TfL's website for use in their own mobile apps and very quickly in November 2011 TfL responded to this demand and started to work with the developers on providing open bus data. The systems were implemented and data was formally released in an open and free to use API on the 6th June 2012.

Open data can accessed via the TfL website: (www.tfl.gov.uk/developers). To date there are around 41 users who are signed up for the continuous live stream of real time data and there are around 35 good 3rd party apps being downloaded by the public which use this data. In addition there are around 650 subscribers to the non-streaming data.

Policy design details

Policy Design Steps and Timing

The policy objective to provide the real time information for free was agreed in 2010 following the implementation of iBus with delivery through a TfL website and mobile app. The development of this policy in around October/ November 2011 to open up the raw data to 3rd parties including 3rd party app developers was a 'bottom up' change led by the demand for the data.

Actors Involved

- London Mayor's Office – Responsible for setting the strategic policy objectives for London.
- Transport for London (TfL) – TfL are an agency of the London Mayor's Office and have responsibility for the planning and delivery of the majority of London's transport system and services (Fig 1). As a large organization with a range of powers and in-house skills the majority of the policy changes, approvals and design / specification was undertaken in house.
- Cubic – Cubic is a multinational systems and services company and were awarded the Contract by TfL to implement the open data service, taking TfL's raw data, ensuring quality of service, publishing it to live feeds, providing the developer interface for accessing the data and the signing up to the terms and conditions of use.
- App Developers – a range of individuals and small businesses which use the data to deliver a range of apps and added value services to the end users on a range of mobile phone platforms. These were engaged with to ensure that the open data was delivered in a form which could be used by them.

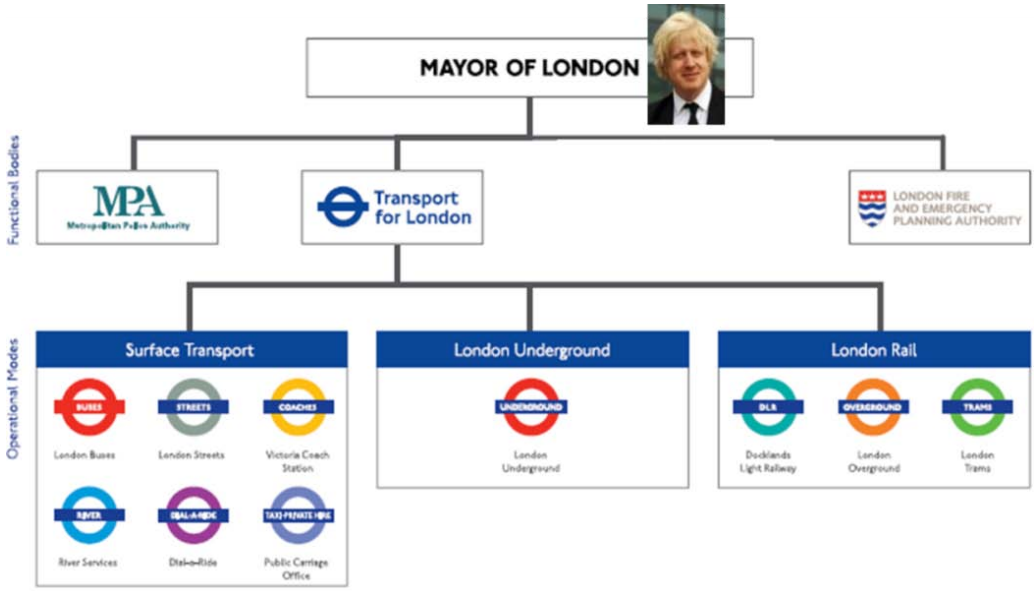

Fig 1 - Overview of TfL's responsibilities

Decision Making Process

The decisions were made by TfL on the advice of Cubic who also incorporated the comments from the API Development Group.

Implementation details

Implementation Steps and Timing

2008/2009 implementation of iBus real time passenger information system. [TfL]
2010 Review of information Policy and agreement that the real time bus data (Countdown data) should be released to the public for free. [TfL]
2011 (Oct) Launch of live bus data on TfL website and TfL mobile application. [TfL]
2011 (Nov) API Developer group set up. [TfL, Developers]
2011/2012 – Development of API's and Developer interface. [TfL, Cubic]
2012 (March) Beta testing of the Open Data API's. [TfL, Developers]
2012 (May) Data published (API). [TfL]
2012 (6th June) Formal Launch of Open Data API. [TfL]

ICT/Infrastructures needed

The key elements of ICT required are:

1. Public Transport 'Countdown' data – this is generated by the real time passenger information system, iBus.
2. Data server with sufficient capacity to accommodate all the requests for data.
3. Web based Developer interface allowing developers to register for access to the data and to set up the data feeds. This also enables TfL to cut the live feeds if there is a problem with the data to avoid the public getting miss information.
4. Mobile apps delivered by 3rd Party developers.

The cost of open data is marginal when compared to the overall cost of the iBus real time system which provides the data. The full system set up including the server, data feeds, developing new API's for the data and web interface cost approximately £300,000.

The cost of the apps sits with 3rd parties and therefore is no cost to the authority. The ongoing cost to support is marginal as the staff responsible for the data server are the same as are responsible for the RTPI system.

Human Resources

TfL have not increased their head count for the open data service as this service falls within the existing team roles associated with the management of the RTPI system and represents only a marginal increase in workload.

Monitoring Procedures

Fig 2 shows the monitoring by TfL which is the number of hits on the server for TfL's website, the SMS mobile messaging service and the open data API. This shows that the open data API has reduced the number of hits on the website by around 50%, as the developers moved to live streaming through the open data API.

Whilst the number of hits on TfL's data servers are recorded, the actual number of users using the data to help make travel choices is not recorded. There is no requirement from TfL that app developers should record the number of hits on their servers from individual users or that these stats should be shared with TfL.

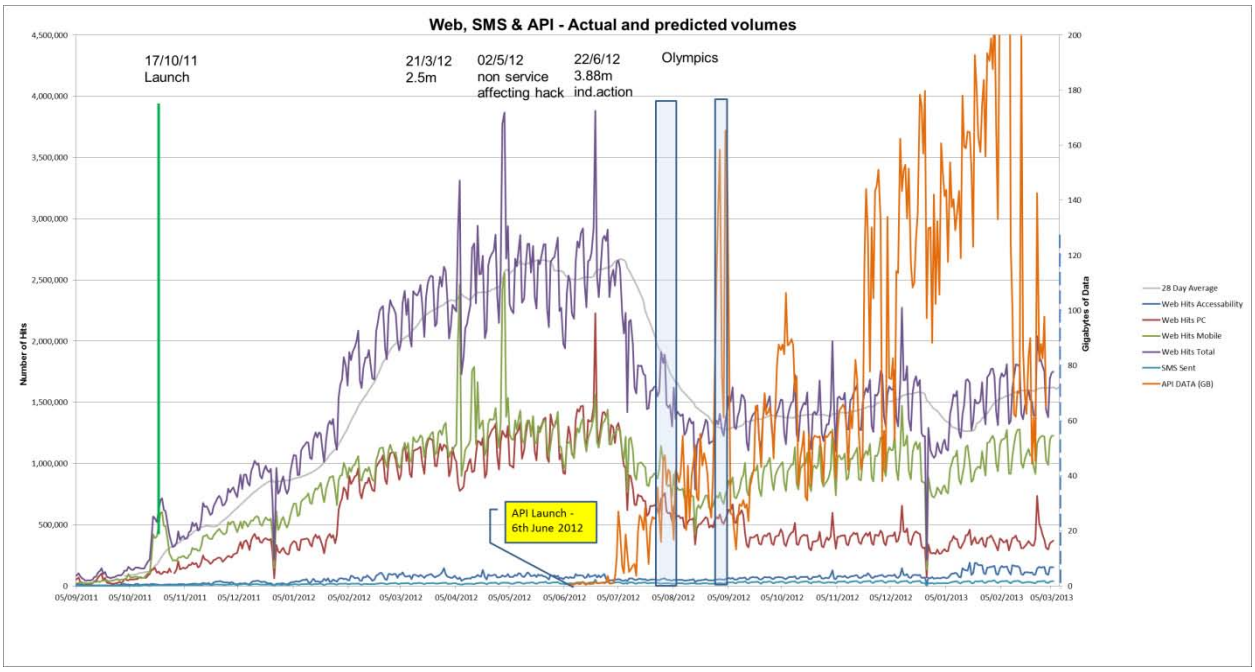

Fig 2 - Monitoring of bus data requests

Supporting Mechanism

Awareness/Information Campaigns

TfL undertook a marketing campaign for the launch of their iBus data through the website and their own app which was very successful in generating demand. This included marketing at the bus stops, at the website and through direct marketing to oyster card users.

TfL do not provide marketing or endorse the 3rd party apps.

Partnerships/Key Supporting Stakeholders

The active interest by 3rd party application developers to develop apps without any TfL funding was key to the success of the policy.

Results

Expected vs Actual Benefits

The main policy was based around the delivery of the TfL website and TfL app and hence the extensive demand from the app developers exceeded this expectation. This has meant that there is a far wider choice for travelers to access TfL data at no additional cost to TfL which is a significant benefit.

The risk of opening up data to 3rd parties which may then use it in a negative way with regards to the delivery of London Bus services has not been realised to date.

Quantitative Results Achieved

The implementation of the Open Data service has resulted in around 35 good quality apps being developed at no cost to TfL.

Key Considerations

Lessons Learned

The main lessons learned are:

1. There was a large amount of interest from 3rd parties to use TfL's data to provide mobile apps to the market without any TfL funding and hence there was a real value of providing open data as the cost of providing it is marginal when compared to the cost of the systems generating it.
2. The market will deliver apps to the main market for travel information but will not necessarily deliver apps for all users. For example, TfL have recently launched a competition with a prize for the development of an app for mobility impaired people (ie disabled, those carrying heavy luggage, those with small children and the elderly) as the market has not yet delivered an app for these travellers.

Primary Obstacles

The primary obstacles to providing TfL data for free was whether it had a value and hence could be sold, either the data or advertising around the data provision. However no good monitary model could be indentified and the policy decision taken was for the data to be distributed for free.

With regards to then opening up the data to the developer market, TfL was very much 'pushing at an open door' given the developer demand for the data.

Critical Success Factors

Critical to the success was the strong developer demand for data which meant that apps were developed at no cost to TfL, and the quality requirements to ensure that only timely data is distributed to the public. Also critical was the extensive investment in iBus which provides the robust and reliable dataset on which the apps rely.

Transferability Considerations

London is a very large city in Europe with very few parallels in terms of size and this size is likely to have an influence on the availability of a suitable developer market. Hence engaging with the local developer market to determine interest and the type of data to be released is a consideration in determining whether open data should be supplied. TfL has been happy to open the data up with only limited restrictions as to its use and this approach may not be suitable depending on local and national policies. Where there is not a strong developer market, this may not necessarily mean that open data should not be provided. Limited funding from the authority, such as through a competition or challenge funding, could be provided to 'pump prime' the market in a more cost effective way than just providing all the apps centrally.

Up-scaling Considerations

There are no significant scaling factors to be considered.

Contact

Through Simon Beasley at Reading Borough Council