

Spatial Open Data

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Nathan Heazlewood (right) has been working with Auckland Transport supporting initiatives such as encouraging more people to commute using cycles rather than driving. It is hoped that by releasing data as open data other organisations can come up with innovative solutions that will assist with initiatives like this.

Professionals in the Spatial Industry are well aware of the benefits of GIS data. Studies such as the ACIL-Tasman 2009 Report: “Spatial information in the New Zealand economy” as well as other more recent international studies have highlighted this. However one of the key undertakings that underpin this, and something that needs to continue to be enhanced is the sharing of GIS data.

One aspect of GIS that differentiates it from many other branches of technology is that there is a ‘common denominator’ which can be used to bring many disparate datasets together and provides many meaningful relationships between datasets that might otherwise appear to be incompatible. Geography is a common fabric onto which many different types of data can be overlaid and many new insights can be determined, even from seemingly unrelated sources. It is hard to think of many other variables that provide this type of common variable that can be used to relate and compare

many different types of data. I can think of only two that demonstrate this property: the date/time when events happen and US dollars, which can both be used to associate and compare all sorts of different data.

In part due to the common fabric of geography that the spatial industry shares it has been a tradition as old as the industry itself for different organisations to attempt to share data with other organisations. It is generally efficient to try to use data created by someone else as the first course of action when setting up any GIS project.

In the early days of the industry organisations often attempted make money from sharing their data (and some still do). I recall early in my career at DOSLI when the complete NZ Topo Dataset was charged to clients for seven figures, so hardly anyone purchased the entire thing. People used to purchase tiny tiles and specific layers because of the costs.

Case Study: Auckland Transport

Roger Jones, Chief Technology Officer at Auckland Transport is a keen proponent of Open Data. I asked him for some comments on this topic and he said:

“Auckland Transport has been working for several years to make data openly available, enabling third parties to develop new and innovative applications for use by citizens and the travelling public. We have already provided a number of developer API’s (application programme interfaces) and the extension into providing a GIS Interface we believe will provide further opportunity for developers to provide enhanced information and customer facing solutions. Auckland Transport will be working to continually expand on the data that is available.”

Recently I have been working with the GIS Team at Auckland Transport on their new GIS Open Data Portal (released December 2016). The Technology Strategy for Auckland Transport indicates a strong support for the release of Open Data. Auckland Transport recognises the benefits of providing its data as Open Data in terms of its own direct strategic goals, business partners, customers, technology innovators and ultimately for the wider benefit to Auckland ratepayers and transport users. A key objective mentioned in Auckland Transport’s Technology Strategy is: **“enabling collaborative use, reuse, discovery and management of information”** whether it be internally, with partners or with the wider community through channels such as Open Data.

The strategy document highlights the importance of digital technology for a modern transport system:

“A modern transport system requires the technological “glue” to collect, process and utilise data to provide operational effectiveness, efficiency, safety and resilience across all transportation modes and services. Future modes such as semi or fully autonomous vehicles (“driverless cars”), freight drones and mobility as a service (such as carpooling or car/bike sharing), will be reliant on digital technology.”

Auckland Transport has committed to “make it easy for customers to do business with us” and providing Open Data contributes to this.

There are a number of challenges that need to be addressed when considering releasing Open Data:

- Business Owners often want to charge for releasing data. In central and local government this attitude is slowly being changed. While in some cases there may be valid reasons for

organisations wanting to charge for data, many public sector organisations are realising that the public benefits of making data available outweigh the internal costs of publishing that data. It would be useful if the industry could provide more case studies and information to continue this trend.

- Understanding the provenance and accuracy of data that has been sourced from somewhere else is critical for knowing whether that data is fit for the purpose that another organisation has in mind for it. Auckland Transport have recognised this and have attempted to assist Open Data users by including metadata.
- Business Owners are often worried that if their data is not 100% accurate then they may face criticism. Increasingly people are recognising that the likelihood of criticism is low, and there are benefits in utilising crowd-sourced feedback to help improve the quality of the data. I think that criticism is mounting of Business Owners that cling to this excuse when the public would rather have caveated slightly inaccurate data rather than no data at all.

There are multiple Open Data channels that can be used and this can be confusing. Some organisations chose to have their own open data websites, while others effectively outsource this other sites such as Esri ArcGIS Online, Koordinates or LINZ. Each of these approaches have different pros and cons, for example using LINZ Land Data Service means that data is being catalogued with many other datasets with an NZ focus, whereas Esri ArcGIS Online means that those datasets are more visible to an international audience. Auckland Transport also has an API Platform that is intended for all types of IT developers to be able to find data and APIs (including but not specific to GIS). In my view the best approach is to store the data in one place but then set up 'links' from many of the other catalogues to ensure that their audiences can also find the data. The work that Department of Internal Affairs (DIA) is doing with their new version of data.gov.nz and the Comprehensive Knowledge Archive Network (CKAN) API for 'harvesting' links between data repositories is important and more application of this concept is important.

- Many data owners and even a lot of spatial professionals don't fully understand the implications of data licensing and things like the differences between Creative Commons version 3 and version 4. Also many people don't understand what 'derived data' is and the implications of, for example, mixing commercial data with your own data (this could theoretically land you in court!) I think that this is one area that the industry could do with more information about which would lead to better adoption of Open Data principles.

Auckland Transport has been working through many of the issues raised above and is making good progress. There are twenty datasets that are currently available through the Esri ArcGIS Online platform. This solution was chosen partly because of ease of publishing from Auckland Transport's internal systems, but also because there is already an index of 56,000 open data datasets from 3,600 organisations worldwide and therefore there is already a sizable international community utilising this facility and searching for Open Data through it. However, Auckland Transport is keen to ensure that users can also find this data through other channels and therefore work is planned to link this Portal to the Auckland Transport API page at <https://api.at.govt.nz/> and also to the new version of data.govt.nz.

Auckland Transport GIS Open Data Portal can be found here: <http://data.atgis.opendata.arcgis.com/>