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POPULATING OUR TWIN CITIES

SOLUTIONS PAPER

A HILLING

symboli**x**



THE CHALLENGE

BALANCING PRIVACY WITH THE NEED TO KNOW

Spatial data is critical for understanding demographic, travel and health patterns in cities and regions.

But data sources often don't join easily, and obtaining high resolution data has serious privacy risks.

How do you generate data about individuals without exposing real people?

Simple.

You don't use real people.



Twin Cities is a data set and analytics toolkit containing a synthetic Australian population.

It combines open population data^[1], geocoded address data^[2], and statistical models to generate households, families, and individuals.

SYNTHETIC POPULATIONS

Using the same technologies we employ to privacy protect data, and to create precise population weights for social surveys, we created a synthetic population for Australian households. The Twin Cities data set contains complete records of people that never existed, but match census records and any other detail you may need.

Because these simulated individuals come with complete geographies, you can work in the Australian Geographic Standard (ASGS), Local Government Area, or any project specific geometry.

Got "real" clients that you want to be included in the set? We can generate a custom data cube that has your actual client's data as well as the general population.

Do you have a really niche, specific piece of strategy or policy that you want to scenario test on a population? Use Twin Cities—no ethics board required.

Got an idea about how an area might evolve and its needs change? Make a specific synth set. No accidental releases of private data, because the synths never existed (and don't mind anyway!).

SOLUTIONS

WE CAN CUSTOMISE A TWIN CITIES SOLUTION FOR YOU



Visualisation and web apps

- Web-based maps that are fast enough to see ALL the data
- Custom APIs
- Web apps for modelling and scenario building

Custom data science models

- Predicting traffic flux and agent-based local transport models
- Active transport analysis
- Demographic patterns and predictions
- Scenario models





Custom data cubes

Ask us about:

- Available data packs
- Augmenting with your data for a customised data cube

CASE STUDIES



You have a local government area and you plan to alter a route, or a speed limit, and you want to know who and how your constituents are affected. You need family construct data at a household level with associated demographics like school runs, shopping runs, and time of day information.



You have run a very specific, targeted survey, and need to weight it to the unique study area and perform some sensitive corrections. You need targets specific to your geography and population of interest.



You have a digital twin of a region or city but you don't know how people will interact with the public spaces. Twin Cities provides the basis demographics for our custom agent based simulations, so you can add the critical human movement element to Twin City platforms.



You have some interesting data, but can't think of a way of conveying it, without getting tangled in the fact it is a weighted sample with complex stratification. Attribute it to synths in a population, and run visualisations and explorations without worrying about the sampling method.



You have a long lead time on getting services into areas. You are pretty sure how demand for a service relates to a population, but not where the population will be in 25 years... Synths don't mind being moved about, or aged quickly.

Find out more

For demos and information: <u>www.symbolix.com.au/twin-cities</u>

Contact us via: <u>www.symbolix.com.au/contact</u> to discuss your use case



References:

[1] ABS data sets including 2016 Australian Population Census and Journey to Work data
[2] Based on GNAF <u>https://psma.com.au/product/gnaf/</u>