

Case Study: Geographical analysis and modelling of bus passenger potential

Client: Strategic Transport, Cornwall Council

Brief

To use the results of bus user customer segmentation (also delivered by The Data Refinery), and other sources of evidence, to identify areas of Cornwall that have the best chance of attracting new fare-paying customers.

Background

Cornwall Council has secured £10.4m to invest in improving the public transport network, a major element of which is improvements to bus services. To underpin this, the team wanted to get a greater understanding of the location of potential customers, but they needed specialist geographic analysis and modelling expertise to achieve this.

The Data Refinery worked with the transport team to understand the objectives of the project, and recommended the creation of a Passenger Potential Tool and associated mapping. This allows them to explore and understand which areas of Cornwall have the most potential for bus patronage and how that compares to existing routes.

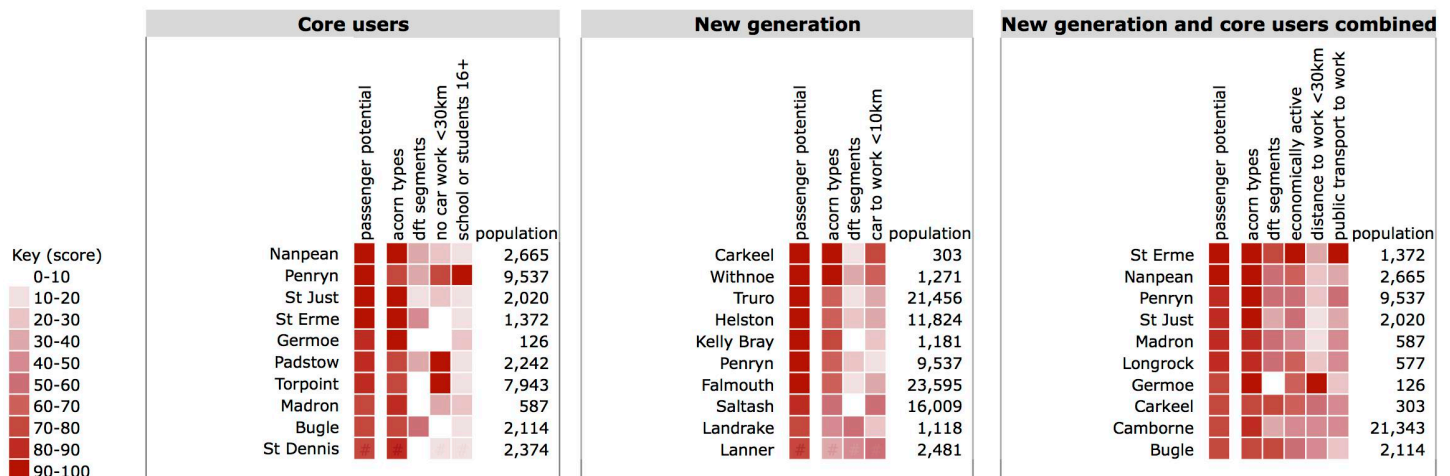
Solution and project outputs

Creation of passenger potential scores for each small area (each with approximately 125 households) and settlement in Cornwall, based upon CACI Acorn customer segmentation results and Census data, with outputs including:

- A model that weights and combines a number of measures (including customer segmentation data) to provide passenger potential score that can be used to identify hotspots not currently served on bus routes
- A tabular heat map presenting scores for all areas in Cornwall (top 10 settlements shown below)
- An excel tool that can be used to filter and sort results, and trace back to individual measures used in the scoring
- Recommendations for how the model could be developed and updated in future
- Strategy advice on the implications for transport planning

Heatmaps // Bus passenger potential by settlement - top 10

(darker cells indicate a higher score)



100 = settlement with the highest proportion of people that meet that criteria

Skills and knowledge demonstrated

- Ability to innovate and find creative methods of drawing out messages from large datasets
- Specialist skills in developing a scoring model that combines over 200,000 cells of data, but provides simple, visual results that are intuitive to understand
- Knowledge and appreciation of spatial planning and geographic hotspot analysis
- Understanding of GIS mapping and ability to work productively with other GIS and data specialists

Client testimonial:

“ Kathryn’s work provided vital and engaging insights into the potential for new bus passengers across Cornwall. She was proactive in managing challenges within this specialist project to ensure deadlines were always met, and where things weren’t possible, other ways of reaching the end goal were presented. Her commitment and passion for this project was evident in the high quality outputs.”

– *Matthew Sidney, Integrated Transport Programme Manager, Cornwall Council*

Other potential applications of this approach

Using geographic analysis and modelling underpinned by customer data, is an effective method of targeting services or predicting demand in different locations. For example:

- Identifying the best location for debt, health and employment support services or centres
- Understanding where place-specific public information campaigns are most likely to reach the target audience
- Tailor services based upon a deeper understanding of the customer types by area