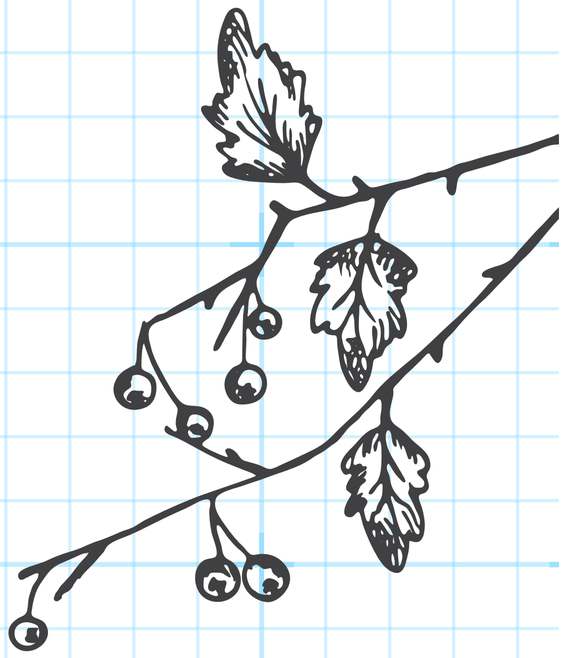
PROJECT OVERVIEW

ASSISTED HOUSE GARDEN MAINTENANCE

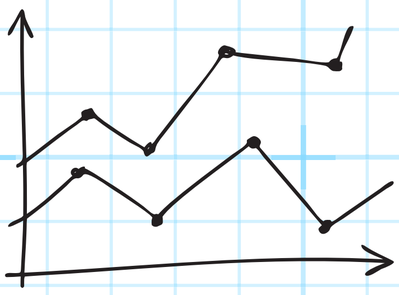


THE ORIGINAL CHALLENGE

GCC offers a free garden trimming service to households where there isn't someone of 'able body'

Its a significant yearly expense, and there was a sense that perhaps some gardens were being serviced that didn't need to be

The system for recording the gardens being cut is legacy and doesn't contain very much or up to date information



WHAT DID YOU FIND?

A lot of people getting their gardens cut do not appear to be eligible, at least 18%, potentially much as 70%

Many of the properties did not match, 4904, mostly as a result of missing UPRNs for properties on council tax

HOW DID YOU TACKLE IT?

We combined the AHGM dataset with housing benefit, council tax and the landlord register to add four classes to the households, probably eligible, questionable eligibility, not elligible and unknown eligibility

The households were classified with a number of criteria, for example is there anybody under 70 in the house? Do the names in AHGM match council tax / housing benefit? Is anybody on disability? Whether these are true or false determined the classification

The resulting dataset was sent over to the AHGM team

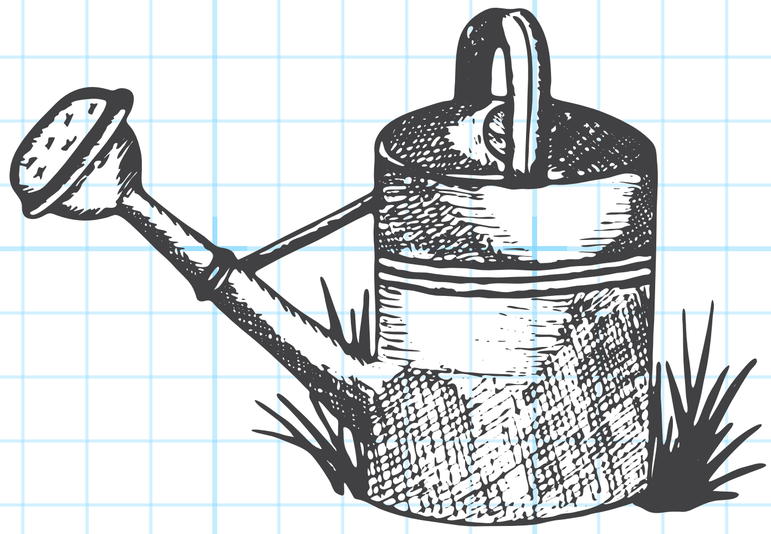
WHAT DO YOU RECOMMEND?

Stop cutting peoples gardens who are demonstrably not eligible

For everyone else, make them re-apply for the service

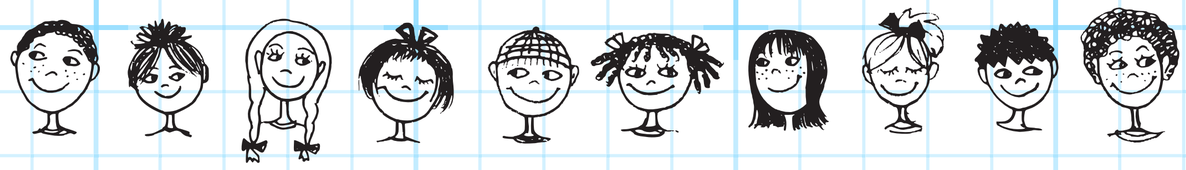
NEXT STEPS

1. The recipients didn't agree with the figures and assumptions made to estimate eligibility
2. They have however been using the dataset to incrementally bring people off the list
3. We could potentially raise the profile of this if we had an incentive, the data and process we used is clear and transparent



PROJECT OVERVIEW

EDUCATION BENEFITS ENTITLEMENT



THE ORIGINAL CHALLENGE

The council offers low income families a stipend for free school meals and clothing for school aged children

Parents apply for the benefit to prove they are elligible, which is a large and costly yearly effort.

By definition, anyone on housing benefit qualifies, so the question was asked, would it be possible to identify children in households on housing benefit and auto entitle them to clothing grant / free school meals?

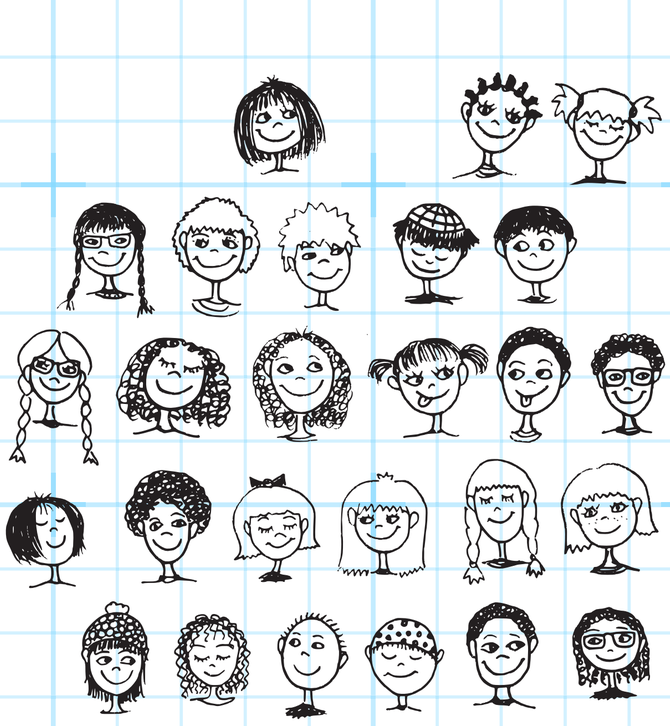
WHAT DID YOU FIND?

Most parents who didn't apply simply didn't know about it

The call volume for delivery was low, and only a small amount of mistakes were made, validating the matching exercise

Significantly reduced costs at CBS for delivering the benefits

In year 2, everybody who was entitled was paid automatically, not just the children who hadn't already applied

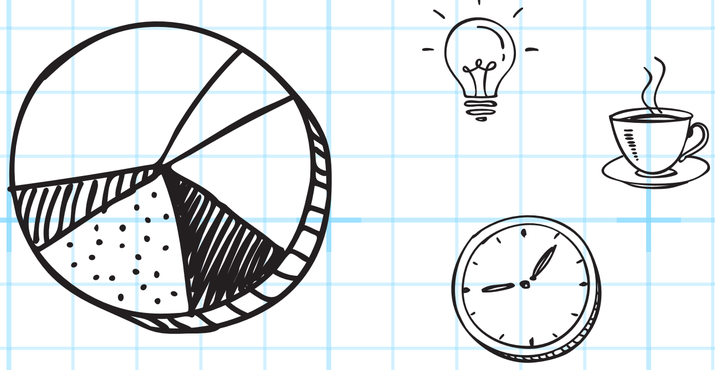


HOW DID YOU TACKLE IT?

A large and robust data matching exercise between SEEMIS (education database) and Housing Benefit records.

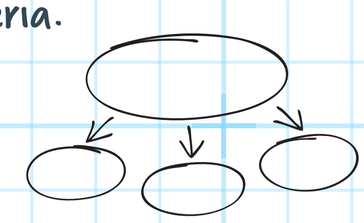
Individual children, their birthdays and addresses were split out, and records compared to see who existed in both sets

Any children who were in both sets, but not already on the benefit were entitled and payed via vouchers that could be cashed at any paypoint location.



WHAT DO YOU RECOMMEND?

Expand auto-entitlement to other areas where we hold meaningful data regarding eligibility criteria.



NEXT STEPS

Automate the matching process and deploy it within CBS.

PROJECT OVERVIEW

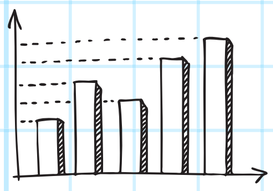
HOUSING STOCK ESTIMATE

THE ORIGINAL CHALLENGE

Every year we present a housing stock estimate to the public

This year the estimates disagreed with the landlords registration team, who didn't think we had as many private landlords as the estimate suggested

The formulation of the housing stock estimate was opaque, with many parties contributing data and manipulated along the way.



WHAT DID YOU FIND?

Similar to the landlords registration project, the estimates suggested that there may be a lot more private landlords than we know about

Additionally, there is a gap of ~7,000 properties on the council tax dataset which we do not currently hold a UPRN for, so can't be matched or tenure determined.

WHAT DO YOU RECOMMEND?

Sort out the UPRN gap for properties on the council tax dataset

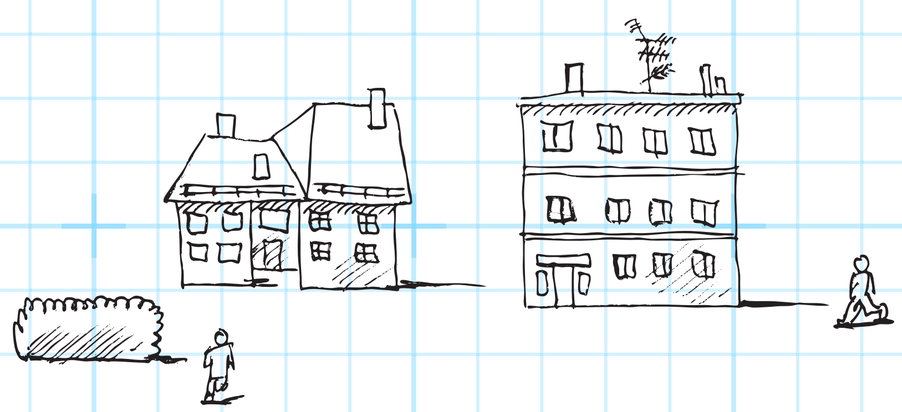
Discuss and implement a version of the new, transparent methodology for estimating tenure as a permanent ongoing exercise.

Publish the estimate on an ongoing basis instead of once a year.

HOW DID YOU TACKLE IT?

Combining the raw datasets from Council Tax, Housing Benefit and the landlords register, we built a transparent approach towards estimating tenure based on the information contained within them.

Tenure is estimated based on matches between the datasets, and their presence in certain sets, for example any households on the landlords register are clearly privately let. Housing Benefit also requires claimants to declare their tenure.



NEXT STEPS

Currently the project doesn't have a sponsor or anyone interested in taking it forward, so there is no motivation to implement it.

The data team can advocate the approach and use it as a use case for building understanding of our work and the types of approaches that can be taken to improve service with little effort.

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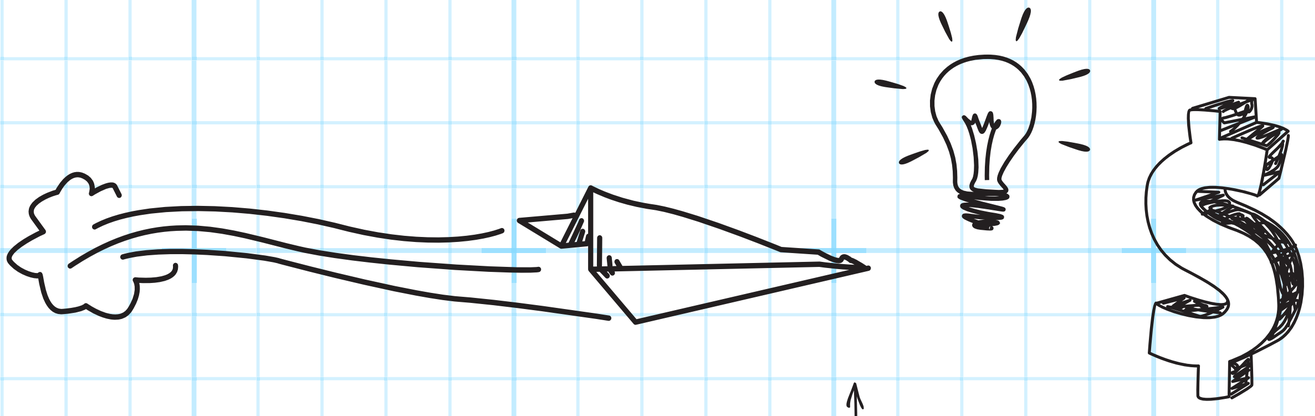
PROJECT OVERVIEW

INSURANCE ANALYSIS



THE ORIGINAL CHALLENGE

GCC pays a £750,000 deductible on its insurance claims every year, meaning that almost all claims come straight out of the overall budget, on top of the fees we pay to the insurer.

An element to the high deductible is poor internal organisation, in the sense that a) we don't estimate or predict likely insurance claims and b) many claims are made as a result of avoidable working practices in the organisation and poor infrastructure in the city.

WHAT DID YOU FIND?

Not much, initially things look more or less as you'd expect them, nothing stands out in particular without a reference point to compare the amount of accidents with

WHAT DO YOU RECOMMEND?

We recommend a deeper investigation into the other types of insurance claims in addition to motor, public and employers liability.

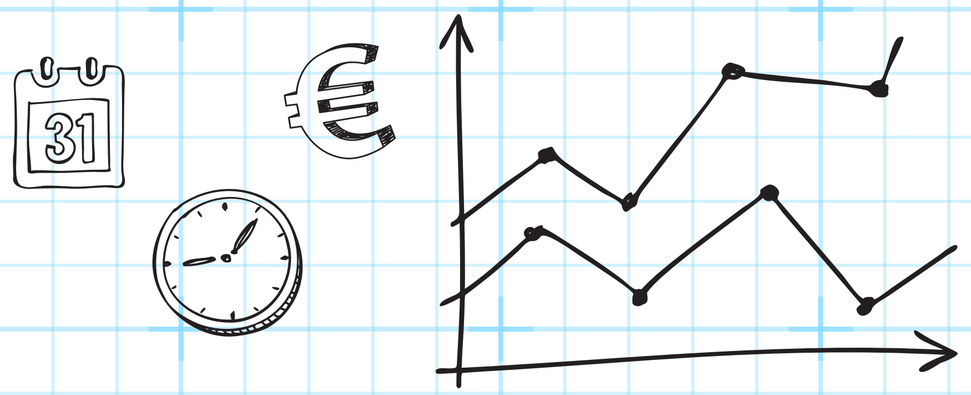
We would also suggest trying two technical approaches, one is a predictive model to estimate the cost of claims once they come in and develop, two to present an optimal offer to claimants for them to drop it, rather than taking it to court.

Ultimately the project is more about changing service delivery and process than the data, so the analysis needs to be contextualised as a catalyst for change, with safety as a key component and motivator.

HOW DID YOU TACKLE IT?

We looked at the underlying data for insurance claims and worked out a number of descriptive statistics for claims for motor insurance

These statistics included cost per claim, cost per depot, cost by claim type, time of day, month and week, drivers, cause, own damage claims et cetera.



NEXT STEPS

Continue working with the transformation team on the project

Acquire more data

Build a bit more momentum with the project through reports and presentations

Exploratory data analysis and model building

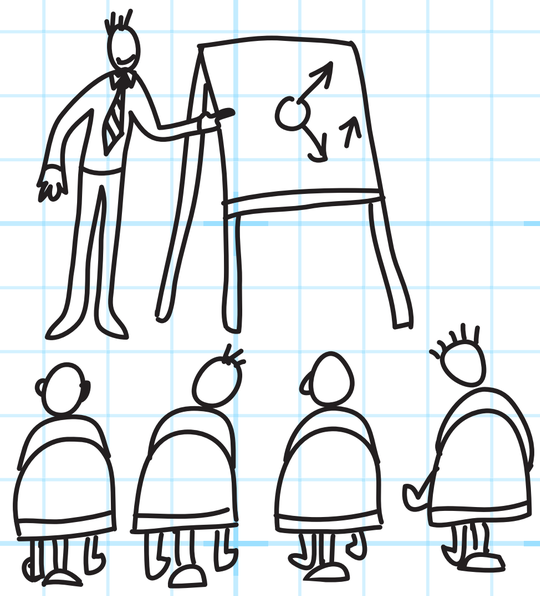
PROJECT OVERVIEW

WORK FORCE PLANNING

THE ORIGINAL CHALLENGE

Corporate HR have spent the last few years developing a system for estimating workforce attrition rates by service

They want to know more detail on who is leaving, specifically segmenting the leavers vs stayers by smaller organisational units



HOW DID YOU TACKLE IT?

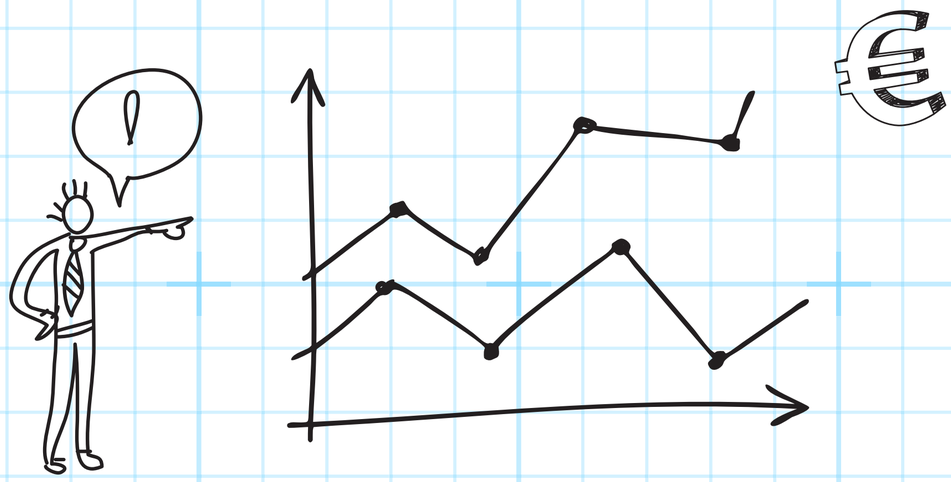
Being more detailed about the stay vs leave breakdown was straightforward, so we have tried to apply a predictive approach to the problem using a range of algorithms, including SVM, Neural Networks, Decision Trees and Random Forests.

The novelty of this approach over an average attrition rate is that its sensitive to changes in the underlying conditions presented by the data, and give corporate HR a better tool for planning hires.

WHAT DID YOU FIND?

Through the exploratory data analysis (EDA) process, we investigated the elements of the attrition dataset that had the most impact on determining leaving vs staying, and created new features that helped explain why people left

Most interestingly, we built a small model that predicted 'expected salary' for staff, and found that people who were overpaid were much more likely to leave than those who were underpaid.

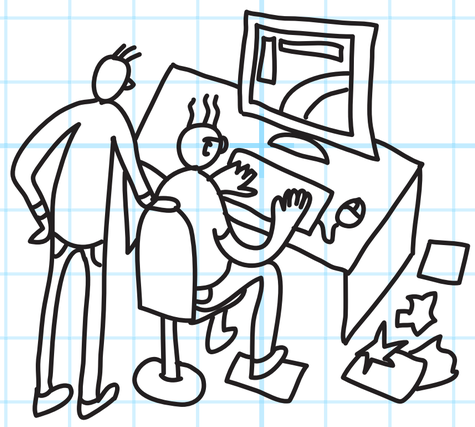


NEXT STEPS

Further optimisation of the model to get it performing well (currently successfully predicting ~60% of the leavers

Build a web service around it that the HR team can input new data to.

Deploy it



WHAT DO YOU RECOMMEND?

1.
2.
3.

Once we have developed the predictor to the point where its performing well, we aim to present this to Corporate HR and suggest we deploy it as a web service on Azure, ingesting new data from SAP and producing predicted leavers.

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PROJECT OVERVIEW

LANDLORD REGISTER

THE ORIGINAL CHALLENGE

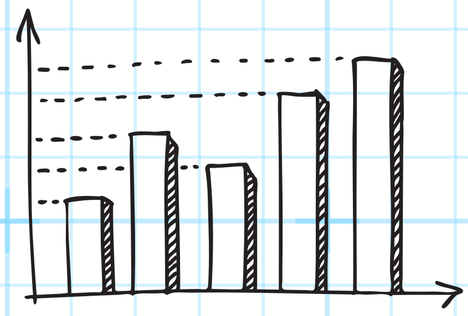
Landlord registration team wanted some analysts back from CBS

Data team offered support in analysing their datasets with regards to 'expired landlords'

Central government applying pressure on local authorities on reducing the number of expired or unregistered landlords as they are associated with issues like abuse of vulnerable people, human trafficking, overcrowding etc.

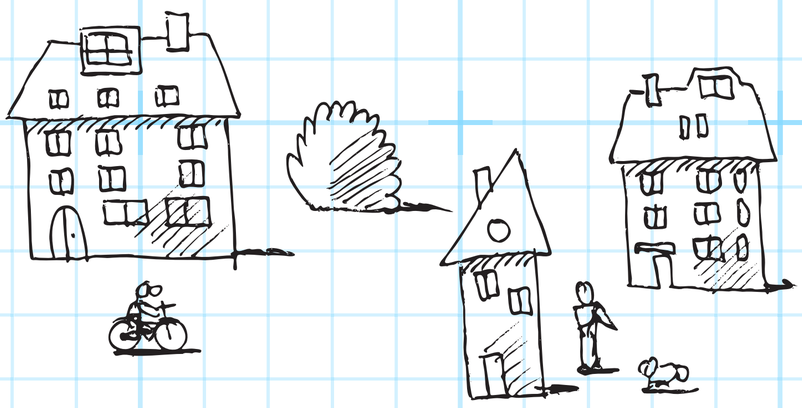
Existing process for discovering expired landlords was insufficient to proactively target and reduce the number of expired landlords

Identifying and registering unknown / expired landlords present a significant revenue source for the council



WHAT DO YOU RECOMMEND?

1. A comprehensive compliance approach in collaboration with CBS is necessary. The numbers are way outside the acceptable boundaries.
2. Take all the expired, and 'estimated tenure' PLL records, and contact them individually to determine their true tenure, and understand the nature of their situation
3.



HOW DID YOU TACKLE IT?

Joined the landlord register with housing benefit and council tax datasets via UPRN's to determine the "estimated tenure" of households in the city.

WHAT DID YOU FIND?

Over 8,000 properties on council tax to not have UPRN's, thus can't be matched with any other system

There were as many as 10,000 properties showing estimated tenure as Private Landlord, but did not appear on the register

1,700 expired landlords that matched across between the sets, much more than they expected.

NEXT STEPS

We supplied the data, estimated tenure, final figures and recommendations to the landlord register team.

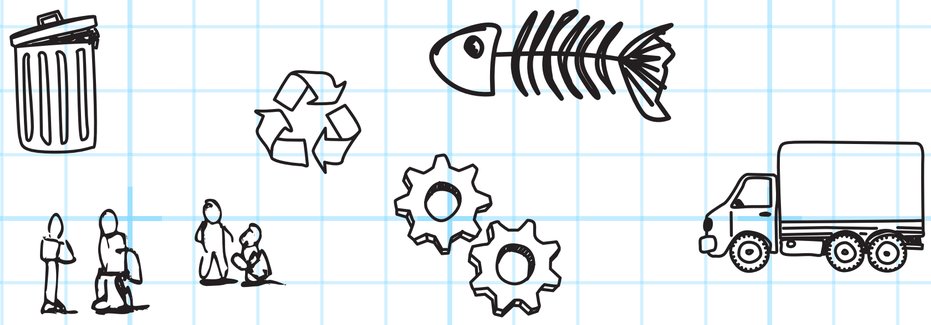
We have had several follow up meetings with them regarding the issue, and emphasised the risks involved with carrying on with business as usual

To date, nothing has been done.

To progress, the issue needs to be brought to someone who has an interest in dealing with it.

PROJECT OVERVIEW

REFUSE COLLECTION



THE ORIGINAL CHALLENGE

LES is updating its refuse collection practices

In particular, replacing bins in the backcourts across the city

What do we know about the backcourts?

Why are so many bin collections missed?

How much refuse capacity do we have?

HOW DID YOU TACKLE IT?

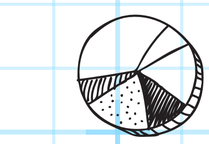
Deep dive into the existing backcourt data holdings

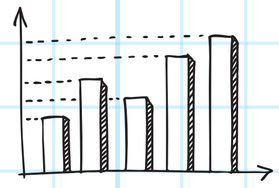
Review updated research on backcourt bin capacity

Review remedy cases for missed bins

WHAT DID YOU FIND?

1. Backcourt survey (BCS) didn't meet any reasonable data standards
2. Significant processing work was needed to get the set into a format that could be considered data and/or machine readable
3. Huge discrepancies in the listed bin capacity between the original survey and the new - 80,000L for ~600 sites out of a total 20,000. Meaning if that was consistent across all sites, we'd either added ~3 million litres of capacity in 4 years, or one or both of the data sets were wrong.





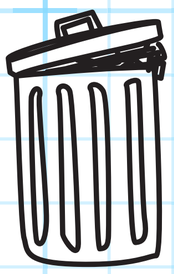
We have no institutional idea whatsoever about the relative state, capacity or condition of the backcourts

If we want to have a well managed service, we need to have a consistent and updated picture of the backcourts, with a well defined data model.

WHAT DO YOU RECOMMEND?

We developed a robust data model for data collection relating to the backcourt and presented it back to the bin replacement project team and GIS

We recommended this be used in any new survey undertakings.



NEXT STEPS

Some of the recommendations with regards to data input for a new survey process were included, but not all