# Reducing crime through the SafeStats system

Vivienne Avery

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# Responsibility for crime in London


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# SafeStats – London's crime and community safety data portal

- Multi-agency data
- Processed, cleaned, coded
- Used by 300 authorised analysts involved in crime reduction



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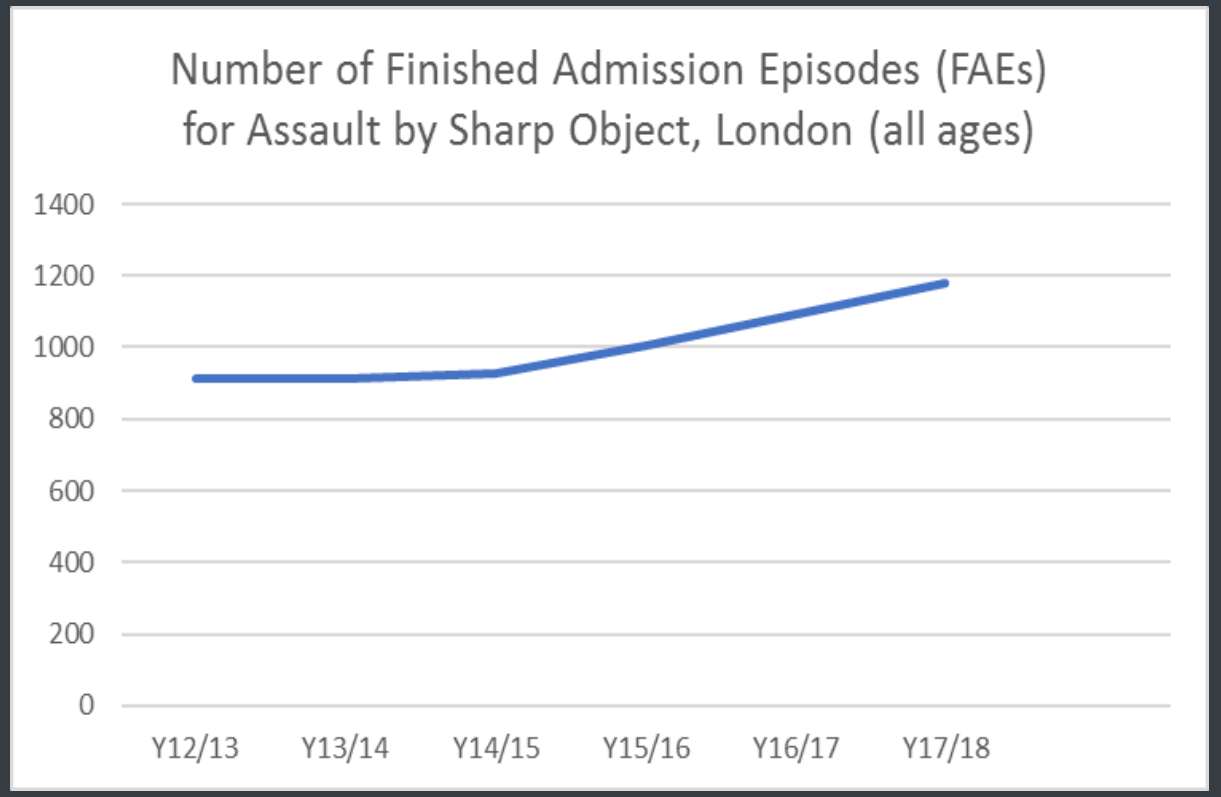
# Safestats 10 years on

- Changing policy landscape
- Increased data regulation
- Range of data users

# Shifting policy landscape



# Changing policy landscape

- Need for multi-agency data to understand complex issues like violence
  - Under-reporting to the police
  - More non-crime data e.g. public health
  - Higher expectations of evidence more data-literate politicians

# Increased data regulation

In 2008

- Legal basis for sharing data with those involved in ‘reducing crime’
- Not personal data
- Simple authorisation for users

# In 2019

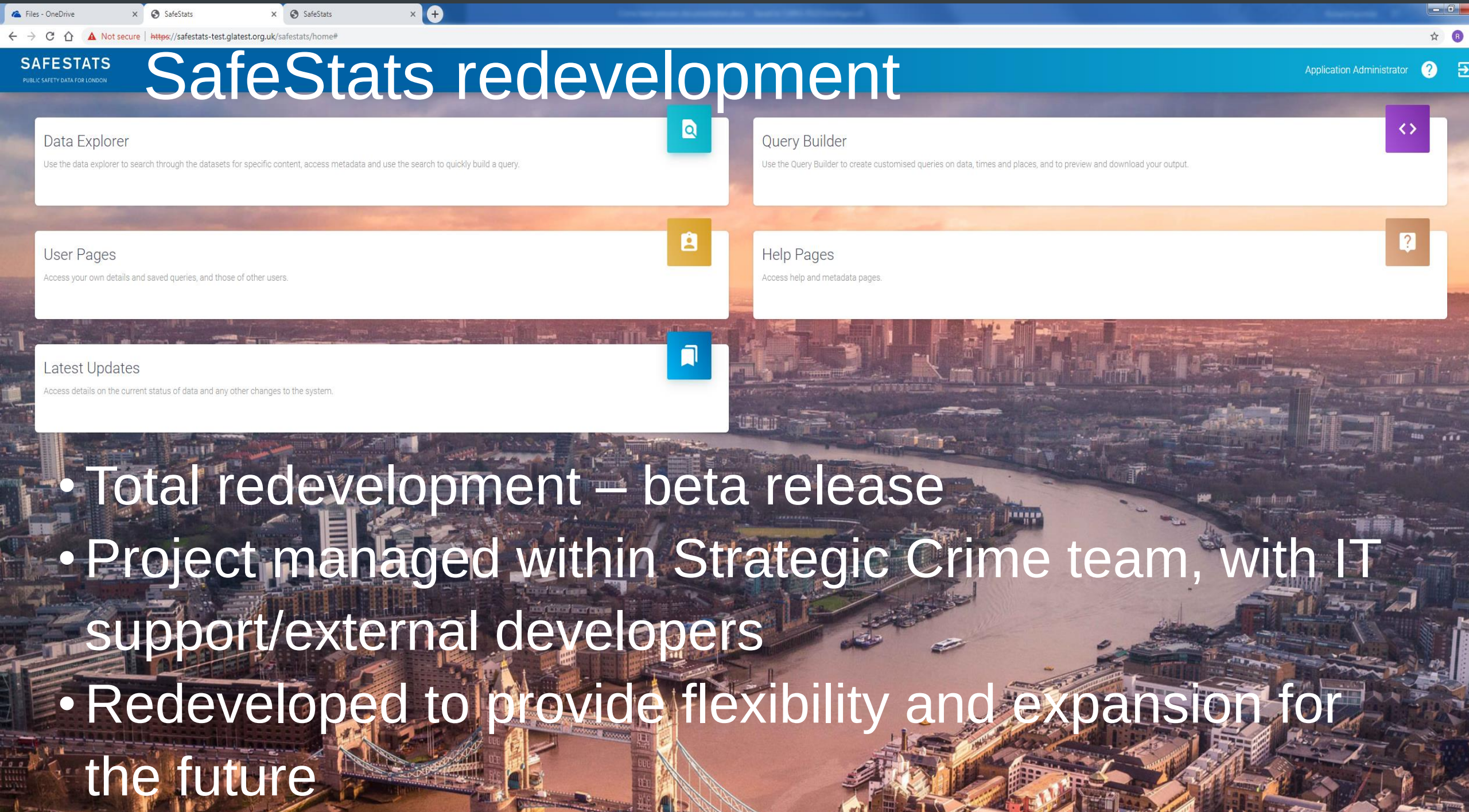
- GDPR has changed how we share data
- No personal details but risk of jigsawing
- Account for public attitudes on data use
- Legal basis and authorisation to use data is more complex

# ICO Sandbox

- Public health approach to violence reduction BUT London-wide data not widely available below Borough level
- Spread across public health, boroughs, police, other agencies
- Working with ICO to explore how we can bring these sources together securely to meet evidence needs

# Data Users

- Used to be expert crime analysts
- Now policy makers,public health analysts, licensing teams, even outside London e.g. Surrey public health team
- Open data on LDN Datastore for those who don’t qualify on basis of ‘reducing crime’




# SafeStats redevelopment

- Total redevelopment – beta release
- Project managed within Strategic Crime team, with IT support/external developers
- Redeveloped to provide flexibility and expansion for the future

# New features to address the issues

- Interactive querying across more fields within multiple datasets
- Optional join of demographic / deprivation data
- Flexibility for new datasets, updated geographies, new themes
- Share analysis with other London analysts
- User authorisation suite

# What is the impact?

- Direct influence on wide variety of strategic and operational uses
- Tactical/Operational use
    - Operation Trafalgar
    - Operation Langbridge

London's West End is arguably the city's most vibrant and popular place to visit, but it brings a series of policing challenges. *Police Professional* looks at how the Metropolitan Police Service used Operation Trafalgar to make significant inroads into the types of crime that were preventing revellers from enjoying the capital's nightlife.

# Heart beat

**Supt Steve Osborn** – I wanted to get analysis expertise and data from people who could quickly take stock of our requirements and then help us to plan our resources over the course of the operation.

In most major cities in the UK, Friday and Saturday nights are among the busiest times of the week for the police. As late-night revellers pour into city centres and the local bars and nightclubs, some drinking to excess, police face a massive task ensuring the area remains peaceful and the night-time economy is kept safe and secure.

London's West End is a prime example. A vast network of bars, clubs, theatres and restaurants in the heart of the city, it attracts people from across the capital, tourists and visitors from neighbouring counties.

It also accounts for five per cent of London's late-night assaults, 11 per cent of its theft from other persons, five per cent of its anti-social behaviour (ASB) on buses, ten per cent of London's female binge drinkers and seven per cent of London's male binge drinkers. This is despite the area comprising only 0.1 per cent of London's geography.

To help combat these problems, Operation Trafalgar was rolled out by the Metropolitan Police Service (MPS). The initiative, which ran from March 2012 until the London Olympic Games opened, was designed to make the West End a safer environment by increasing and improving the police deployment in the area during peak hours. Operation Trafalgar saw officers drafted into the area from other boroughs, increasing police visibility and acting as both a deterrent and reassurance to members of the public.

MPS Superintendent Steve Osborn, who headed the operation, explained: "The West End has two distinct environments, with a day and night-time economy. A lot of people go to the West End for a good night out and to enjoy themselves," he said.

"The area pulls in a lot of people from across London and the Home Counties for a night out and, as a result, we have to manage disorder in the night-time economy."

To implement Operation Trafalgar, Supt Osborn approached Stephen Forgan, senior strategic crime analyst at the Greater London Authority (GLA), to help analyse the data the police and other agencies had collated.

The aim was to enable the police to organise their deployment, target the areas of the West End that saw the most instances of crime or anti-social behaviour and allocate their resources efficiently and flexibly.

To achieve this, a system called 'SafeStats' was introduced which shares London's multi-agency crime and community safety data to help map crime in the area.

Much of this data was built on statistics drawn from the ambulance service, as well as from other sources such as the police's own data, reminiscent of the techniques pioneered in the 'Cardiff Model'. In Cardiff, data from Accident and Emergency (A&E) was used to give a more accurate picture of the nature of crime in the area, especially considering that victims of assault are more likely to contact the ambulance service than the police. They can give precise locations for where an incident may have occurred, what time this occurred and the seriousness of the injuries to help the police to recognise the streets and premises that are posing the biggest threat to safety and security in the area.

Mr Forgan, who spoke about the operation at the International Crime and Intelligence Analysis Conference in Manchester last month, said the use of street mapping in the West End was crucial to Operation Trafalgar's success, with SafeStats becoming a crucial tool to facilitate communication and improve the deployment of officers during peak periods.

"The daytime and night-time economy often brings with it crime problems and other social problems and, despite the small area of the West End, it has historically had its fair share of late-night violence and late-night drinking problems," he said.

"One of the most effective data analysis methods we brought to Operation Trafalgar was our hot-street mapping. The officers found the clarity of pinpointing specific sections of street particularly helpful for communicating and discussing decisions about deployment."

This proved a big help to the operation. Rather than rely on police figures that may not necessarily present the full picture of the problems experienced in the West End – especially as some involved in incidents are drunk and therefore unreliable when discussing time and location with the police afterwards, if they do indeed contact the police at all – the officers had a detailed breakdown of where ambulances were required and at what time they were called out. This meant they could begin to move officers to the right areas at the rights times to provide a quick response and a visible deterrent to offenders operating locally.

Supt Osborn praised the use of SafeStats: "People don't always want to tell the police about an incident but they'll call an ambulance if they need one. So in terms of policing, we are now quite data rich," he said.

> People don't always want to tell the police about an incident but they'll call an ambulance if they need one.

"You would rarely get people who needed treatment who wouldn't get hospital help. A lot had been drinking and don't always remember the location and what happened but from the ambulance data you can get these basic details."

Once the data had been sourced, this could influence the tasks and officer briefings conducted throughout the course of the operation. Officers were deployed according to the colour code each one-hour period had; periods of high demand would be coded red, medium demand orange, and green for the quieter times of the day and night. They found that their periods of high demand were Thursday, Friday and Saturday nights, when up to 350 officers could be deployed to the area, in addition to the 100 who already patrolled it.

They were joined by officers from the MPS mounted branch, with some reallocated to the operation after the football season ended in May and up to 32 horses involved on some evenings. They were used to supplement existing police numbers on high-impact days in what was the biggest-ever crackdown on crime in the West End. The mounted branch is often seen as a 'customer-friendly' approachable side to policing and in this respect helped to engage with the crowds of people in the area and break down barriers between visitors and the police.

**Stephen Forgan** – the officers found the clarity of pinpointing specific sections of street particularly helpful for communicating and discussing decisions about deployment.


**Business change** – premises in Soho closed by police as part of Operation Trafalgar.

They also found that by using data mined through the SafeStats process, they were able to identify the bars and clubs that were the worst culprits for anti-social behaviour and disorder during peak hours. This gave the police the ammunition to approach the premises involved and negotiate ways to improve the situation. In one example, a bar was persuaded to abandon a Monday night student drinks discount after the police discovered a link to assaults near the venue. While there was a commercial loss through ceasing the offer, the data supplied by SafeStats was enough to help force a change in business by the venue. Other affected premises, such as those that operate on problem streets, can be approached and preventative measures put in place; there are opportunities to negotiate with businesses and ask them to review door policies, give staff on the door photographs of people with anti-social behaviour orders (ASBOs) and to improve security at the venue.

Supt Osborn said this all combined to help improve police deployment to the West End.

"SafeStats provided us with the capacity to plan crime-prevention work over the course of Operation Trafalgar," he said. "Typically we are stretched with our local analytical resources, as they are usually needed to respond to an ever-changing set of operational priorities.

"With Operation Trafalgar I wanted to get analysis expertise and data from people who could quickly take stock of our requirements and then help us to plan our resources over the course of the operation. I was particularly keen to impact on the type of incidents, behaviours and circumstances that result in serious injury and an ambulance call-out. In this respect, SafeStats' expertise in using multi-agency data for crime prevention work was crucial."

## Deployment

Once SafeStats had analysed the data and the deployment of officers was organised, it was crucial for the Westminster borough to receive the necessary support from across the MPS to achieve a substantial fall in crime in the West End.

Support for Operation Trafalgar from within the MPS' leadership proved instrumental in obtaining the resources the West End operation required. By using officers from across London to supplement their own resources, they were able to flood the area at the times indicated by the SafeStats analysis and in the right places on a no-cost basis. Supt Osborn says that the ability to do this is a major strength of the MPS and one that was necessary in the context of Operation Trafalgar.

"The operation changed the way support was given to boroughs" said Supt Osborn. "The MPS is good at [policing] large events, but we hadn't done this before at a borough level and it was key to get resources from all of London for this," he said.

The influx of temporary staff from other boroughs, however, brought its own challenges. One of the most significant was the design of the briefing process. With some officers unaccustomed to the geography and intricacies of policing the West End, an extensive briefing programme needed to be designed to give those officers the information they needed. Similarly, as they were normally stationed elsewhere in the city, it meant that some officers spent significant amounts of time travelling to and from the West End.

However, despite these difficulties, the use of officers from other boroughs offered Operation Trafalgar the neces-





Use of combination of historic granular SafeStats data to pinpoint 'hot blocks' of streets in night-time West End for anti-social behaviour

Used for more targeted police patrolling, facilitating a 'single-truth' through data

- 33% reduction in ambulance dispatches
- 62% reduction in reported assaults

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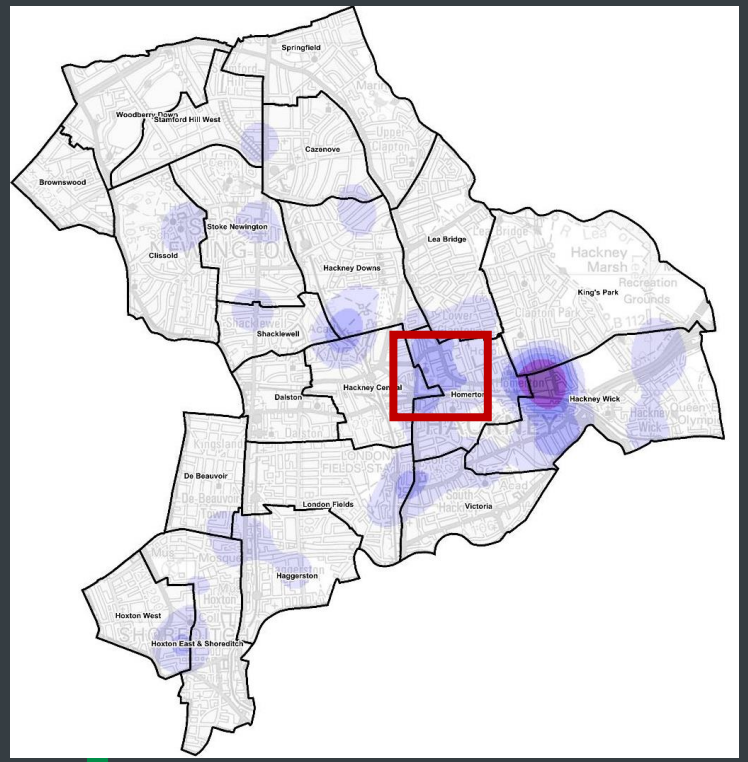
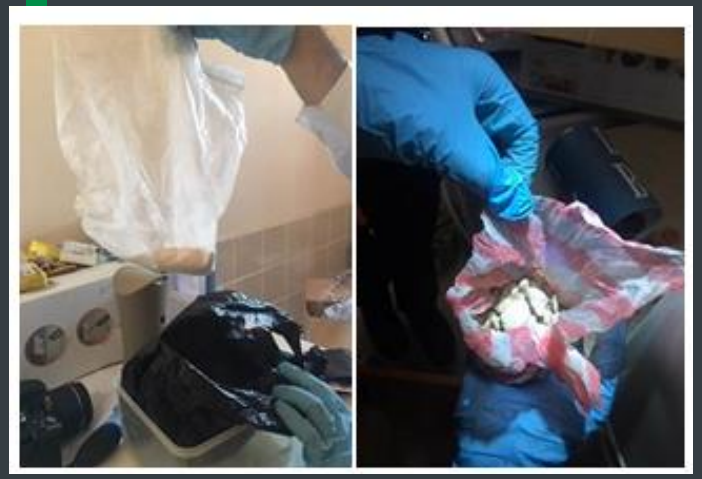
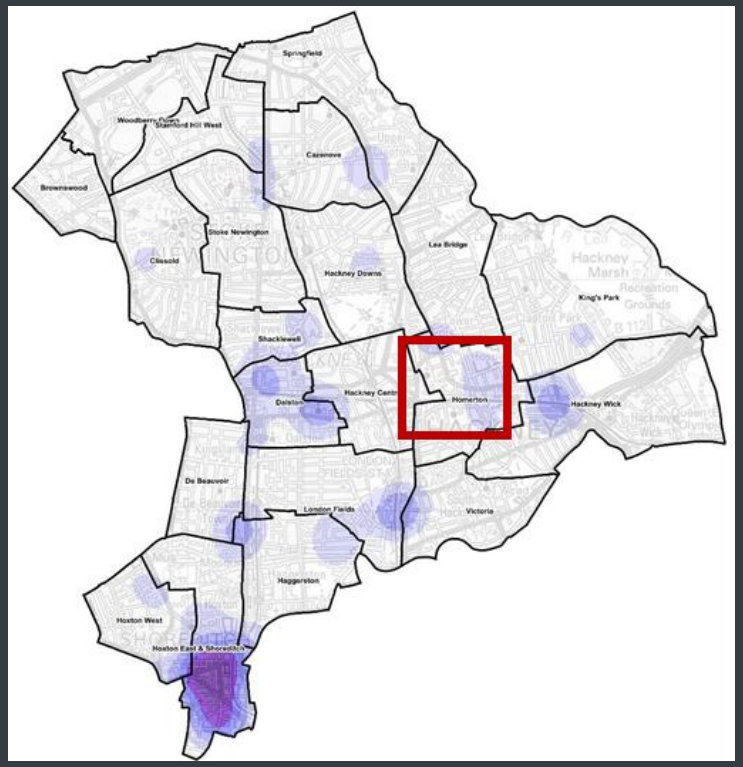
A&E Assaults

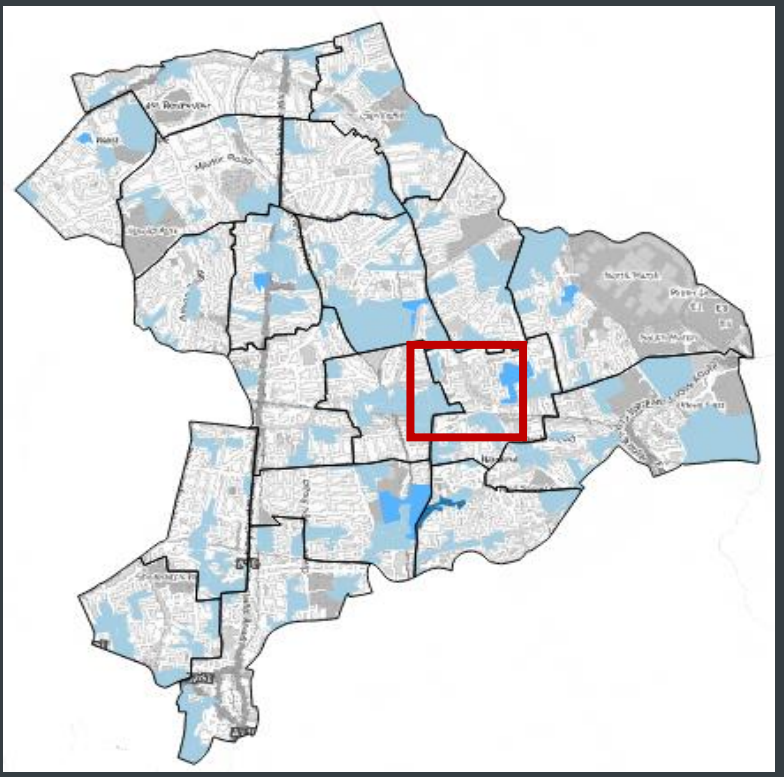


MPS: VAP moderate and serious

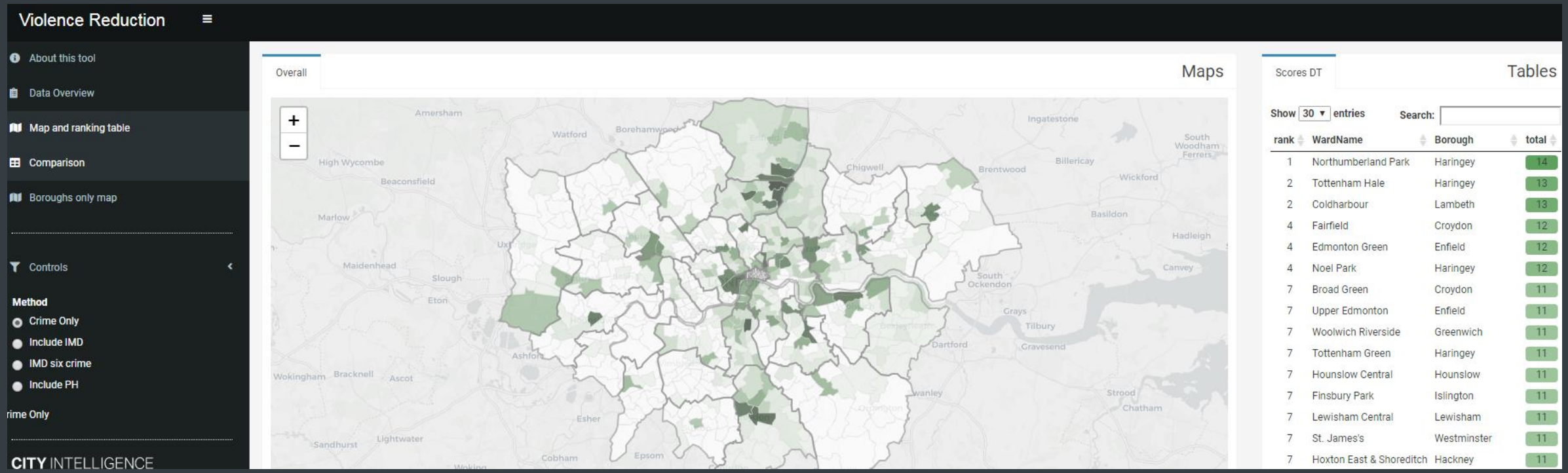



LAS: assault: gun, knife or other serious injury



# Strategic Outputs

- Violence Reduction Unit – added data scientist capability to create a decision support tool.



# Local needs

- Joint Strategic Needs Assessments
- Licensing reviews

# Conclusions

- Building data systems for the future is not just about IT projects
- Address multiple data challenges about our work and different sets of expertise
- If a system is useful, user demands become more complex
- But user-led development leads to measurable policy impacts

# Complex urban systems for sustainability and health:

## Rapid environmental strategies assessment

Nici Zimmermann

University College London

30 September 2019

# CUSSH

Complex Urban Systems for Sustainability and Health

wellcome


London


Nairobi


Beijing


Rennes


Kisumu


Ningbo

# Urban context

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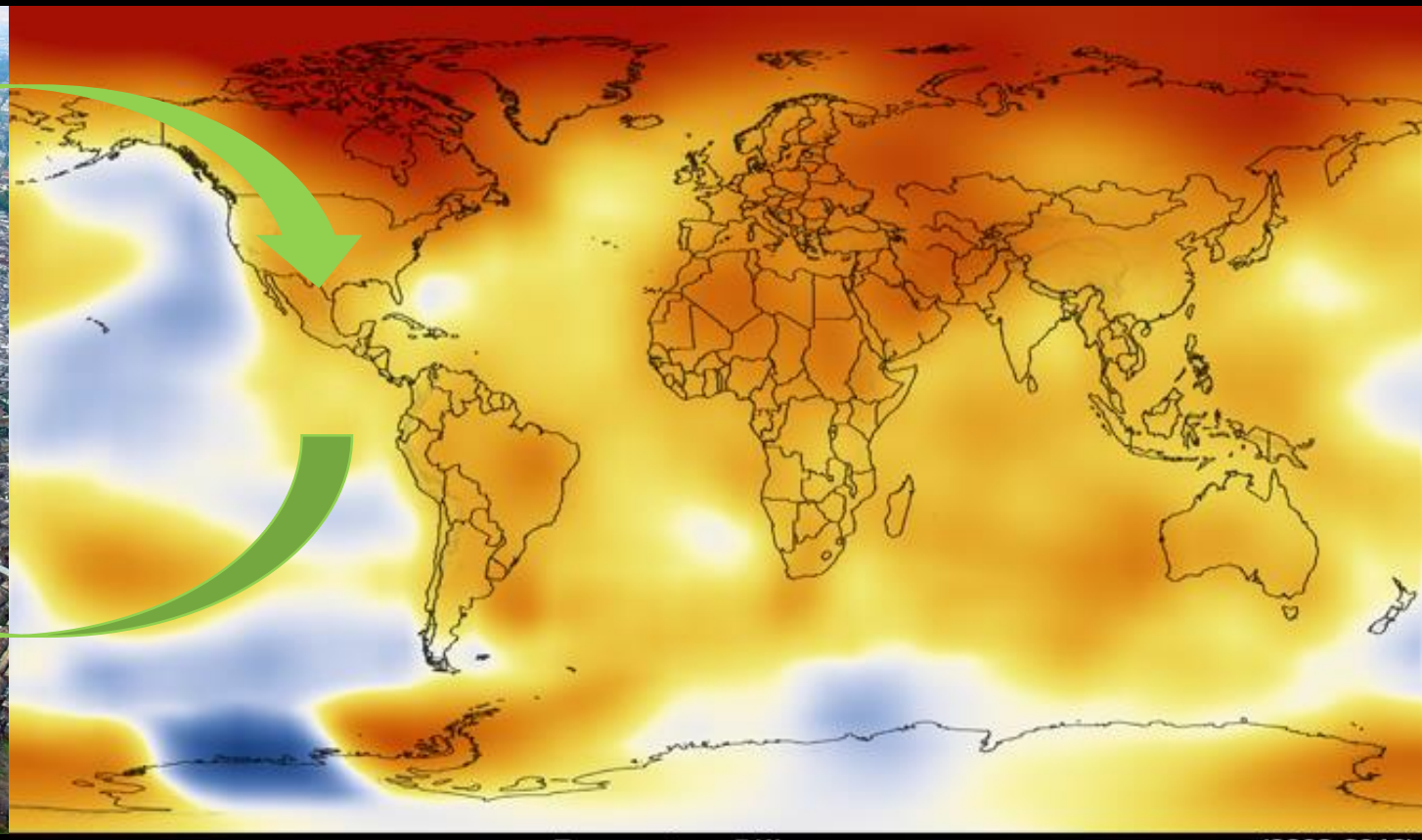

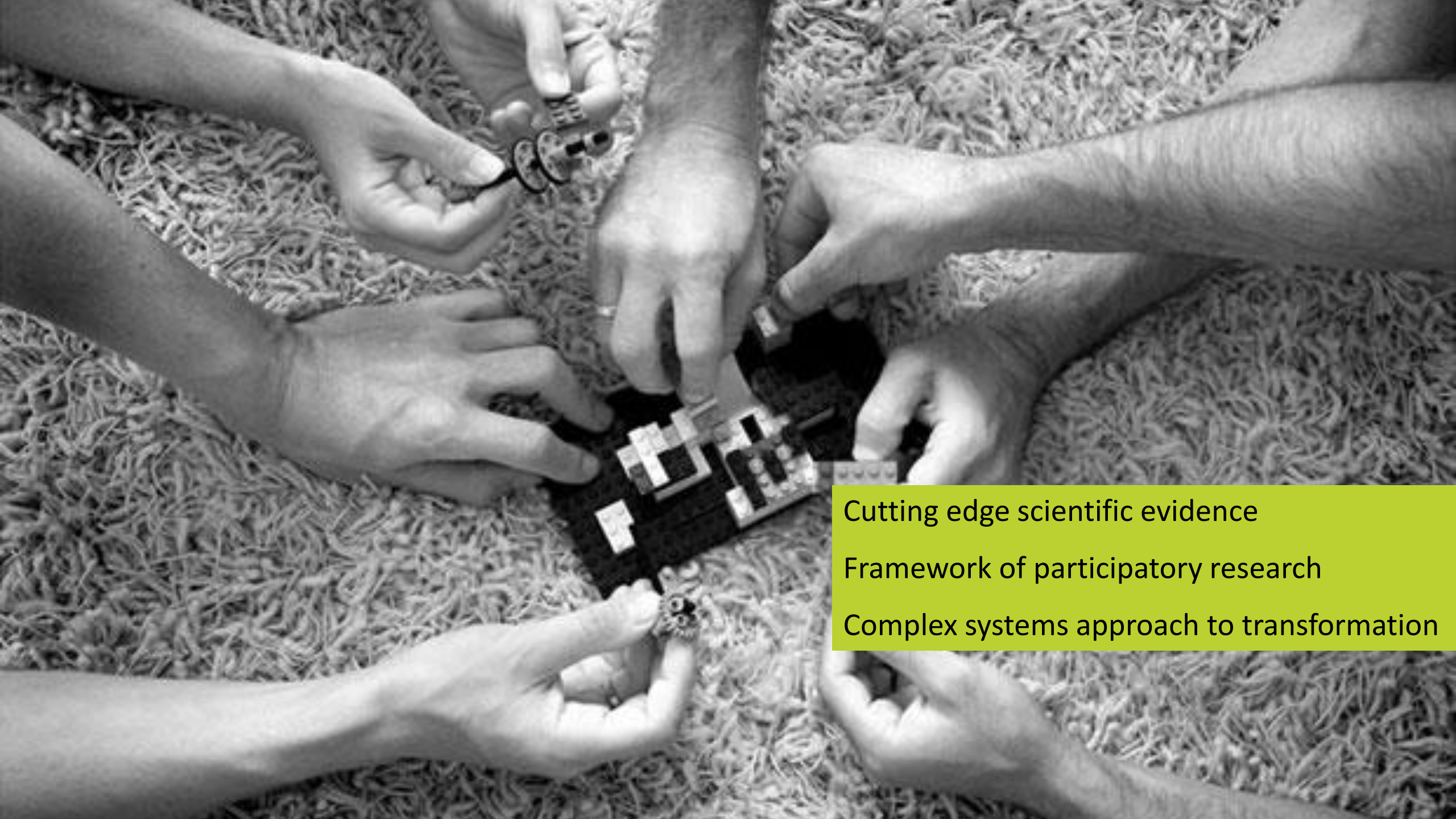

Cutting edge scientific evidence

Framework of participatory research

Complex systems approach to transformation

# Systems thinking

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# Systems thinking

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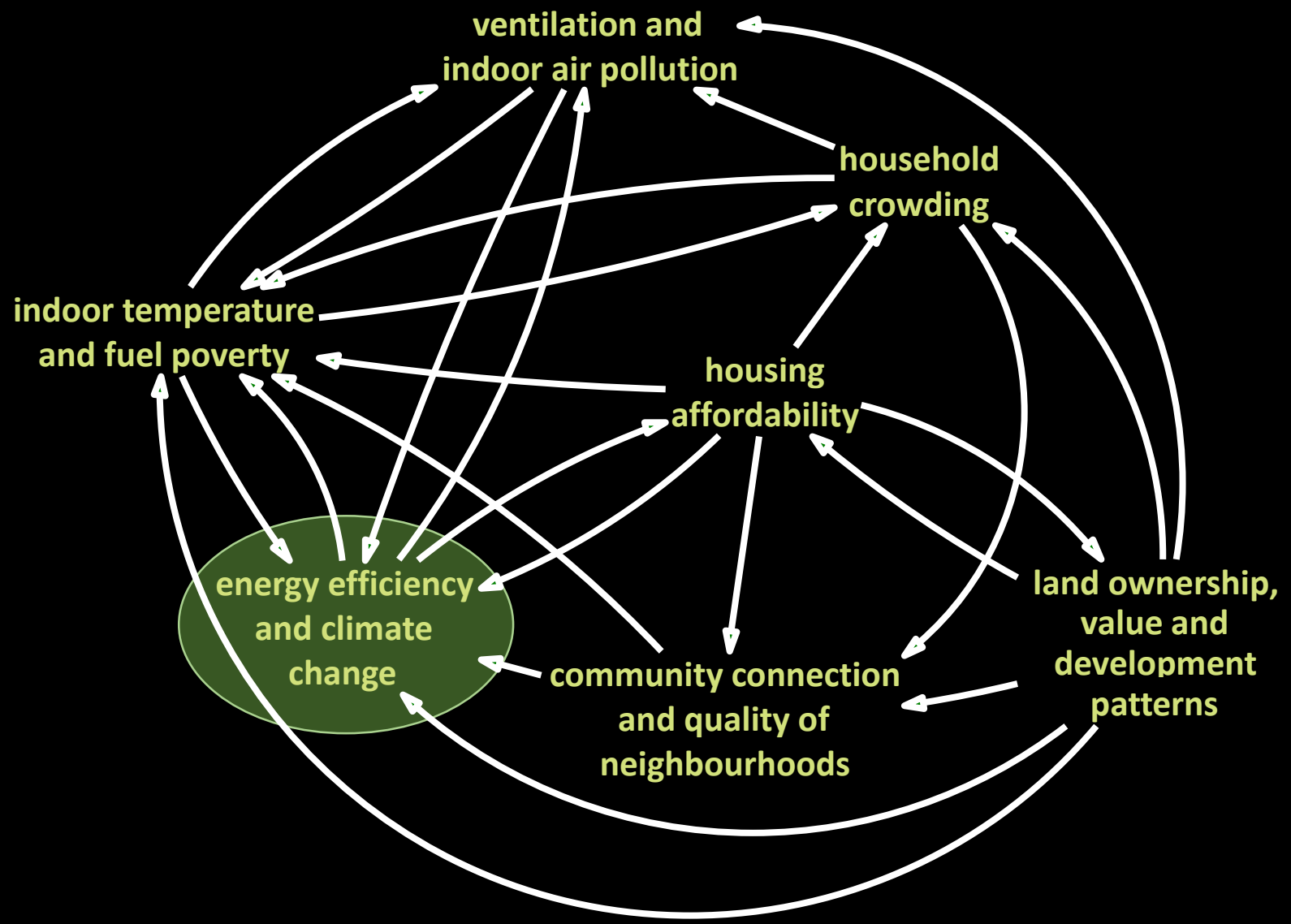

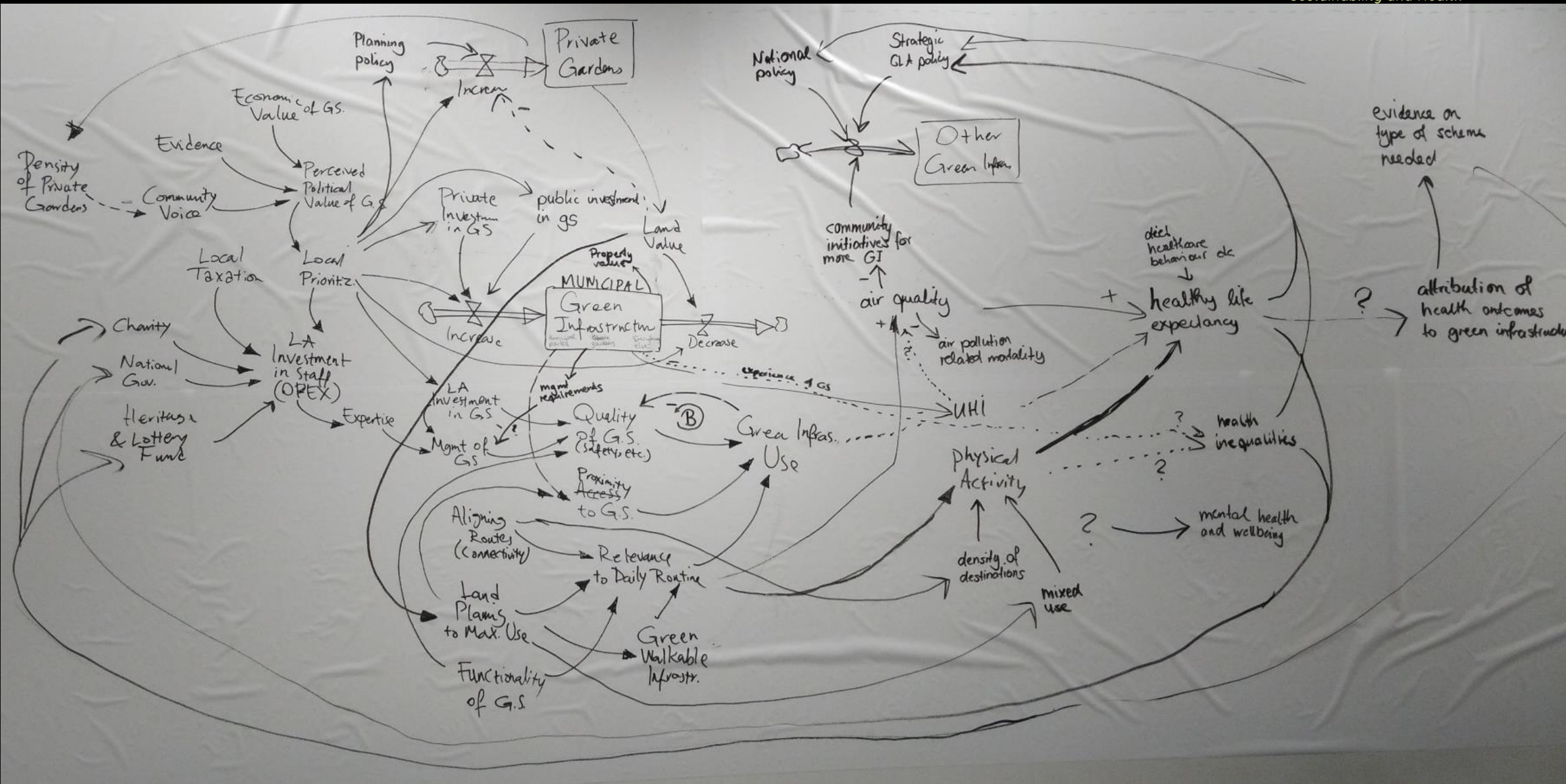
Planning policy
Private Gardens
Increase
Economic Value of GS.
Evidence
Density of Private Gardens
Community Voice
Perceived Political Value of G.S
Private Investment in GS
public investment in gs
Land Value
Property value
Local Taxation
Local Prioritiz.
MUNICIPAL
Green Infrastructure
Increase
Decrease
Charity
National Gov.
Heritage & Lottery Fund
LA Investment in Staff (OPEX)
Expertise
LA Investment in GS
mgmt requirements
Mgmt of GS
Quality of G.S. (safety, etc.)
Proximity Access to G.S.
Green Infras. Use
B
UHI
Aligning Routes (Connectivity)
Relevance to Daily Routine
Land Plans to Max. Use
Functionality of G.S
Green Walkable Infrastr.
National policy
Strategic GI policy
Other Green Infra.
community initiatives for more GI
air quality
air pollution related mortality
diet healthcare behaviour etc
healthy life expectancy
evidence on type of scheme needed
attribution of health outcomes to green infrastructure
health inequalities
physical Activity
density of destinations
mixed use
mental health and wellbeing

# Housing, Energy and Wellbeing
# Web-enabled Interactive Simulation Environment

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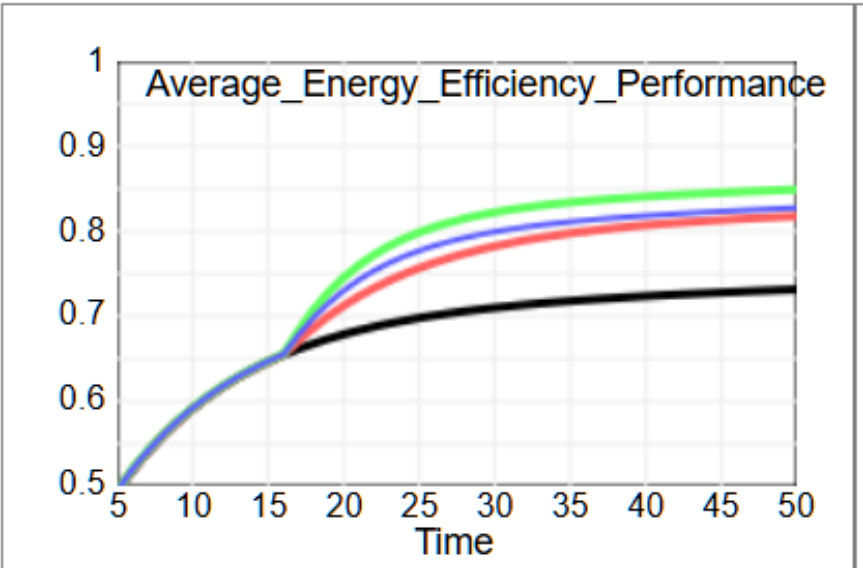
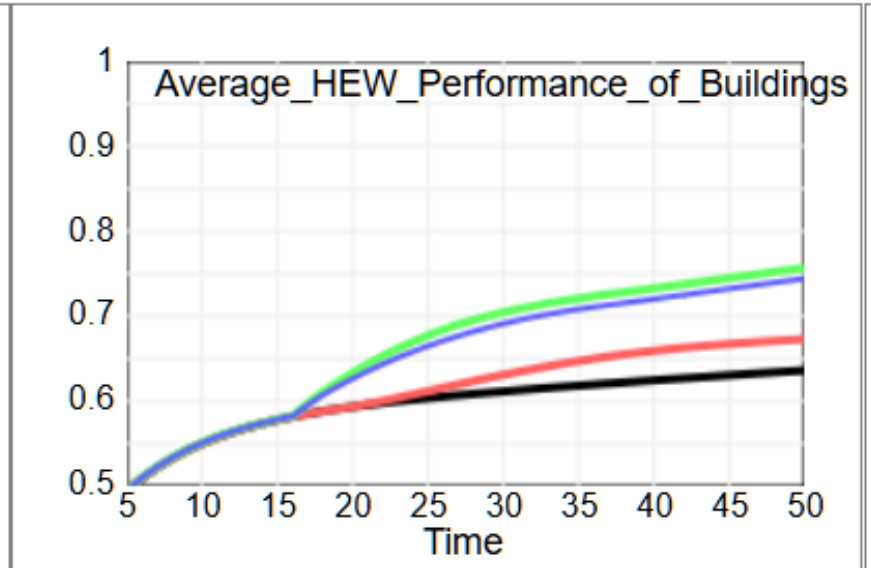
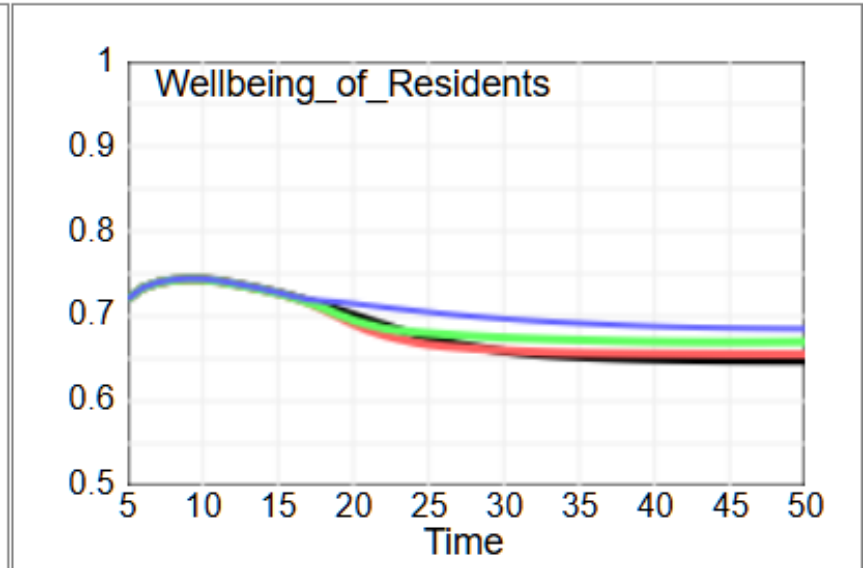
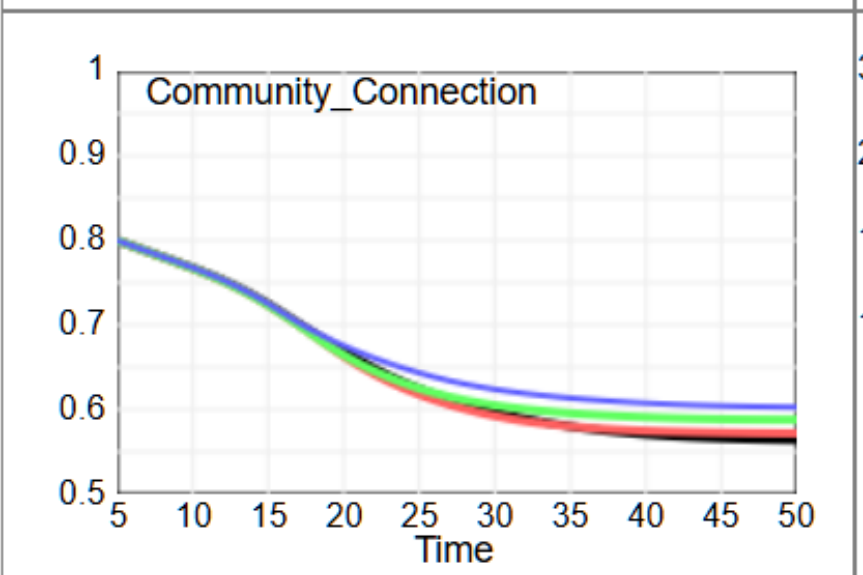
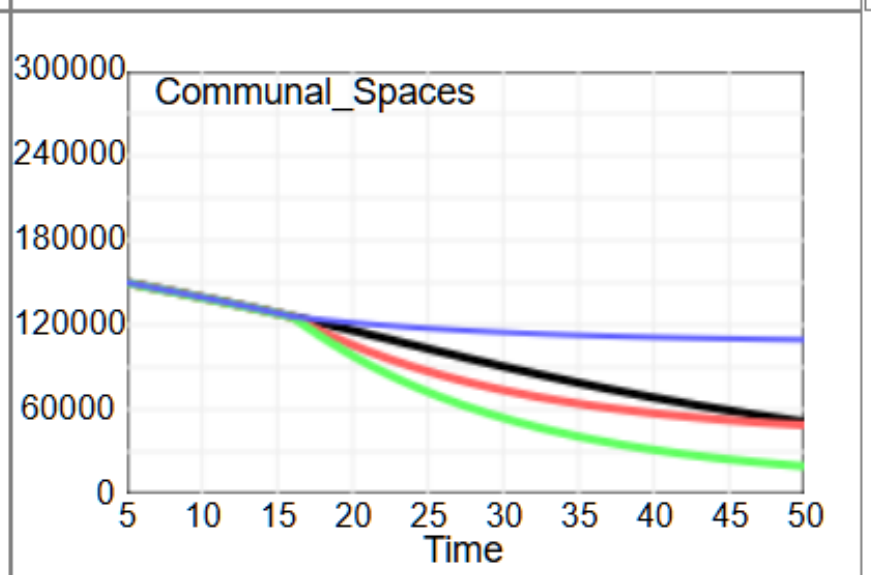
http://www.systo.org/hew_wise.html

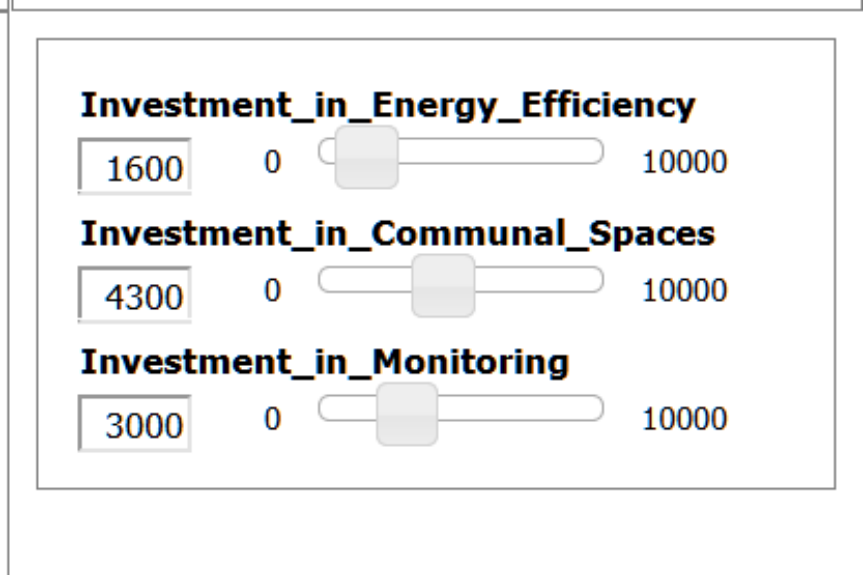


# CRAFT

## Cities Rapid Assessment For Transformation

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Complex Urban Systems for Sustainability and Health

# Selected **10 policy objectives**

**GHG reduction**
and
**health improvement**

Sources: Pixabay

# CRAFT modelling strategy

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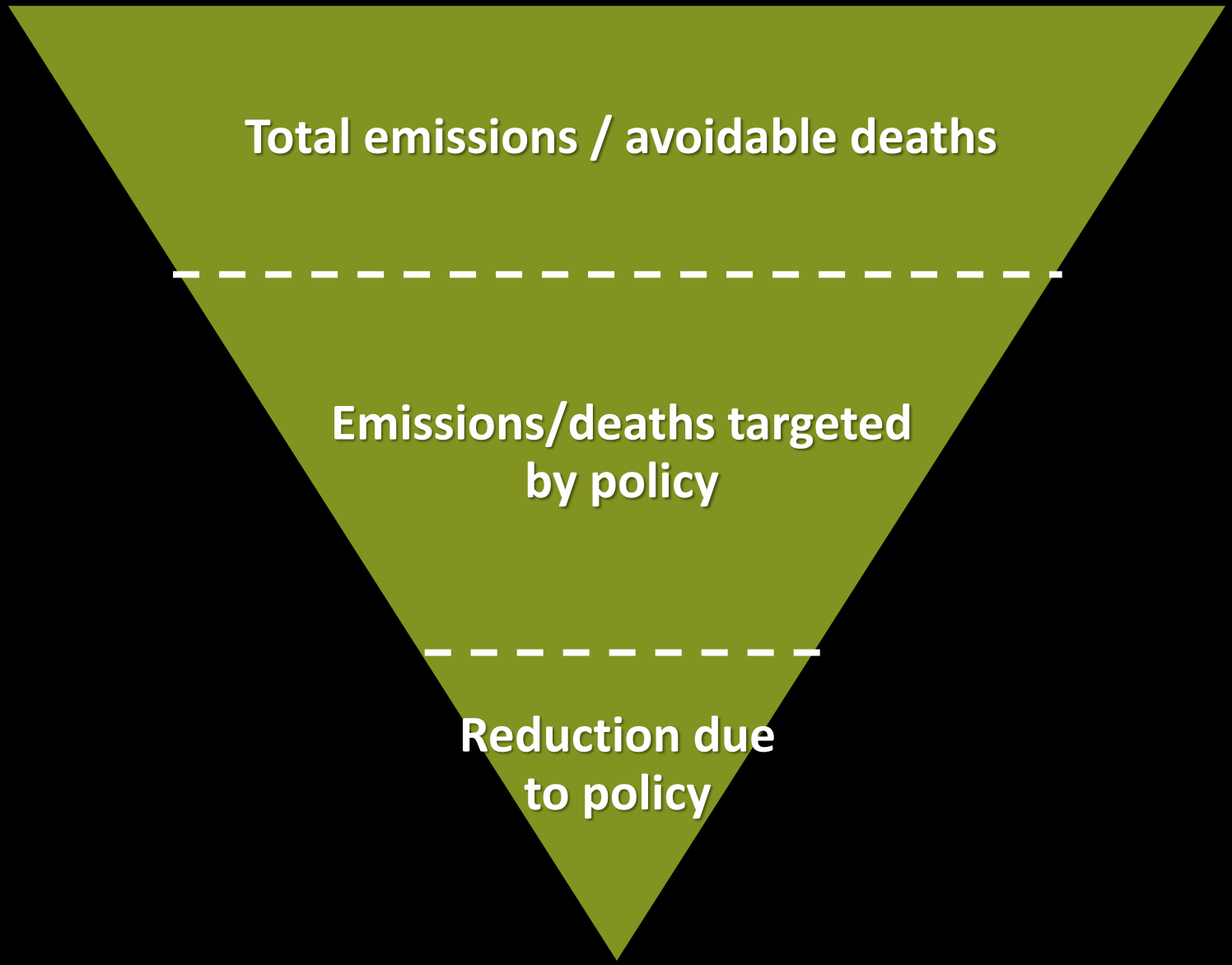

# CRAFT modelling strategy

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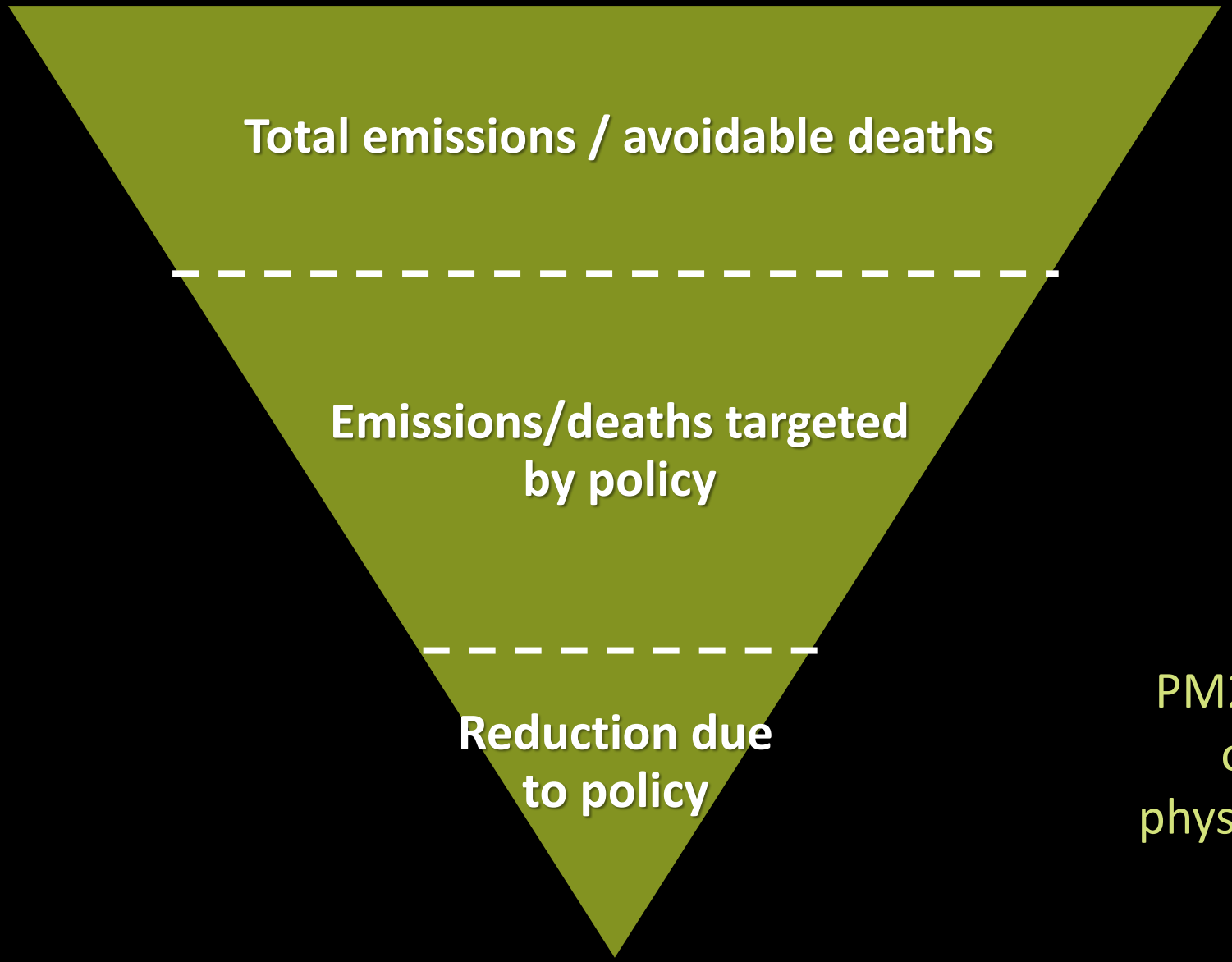
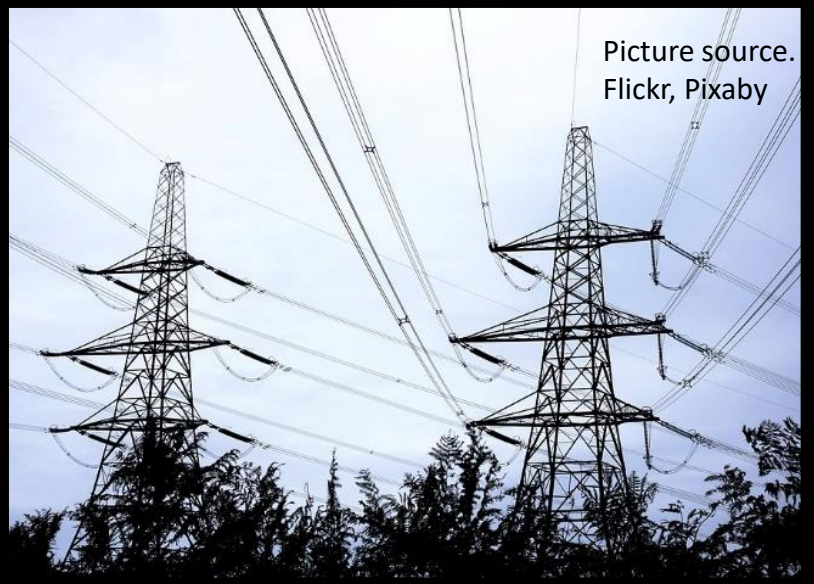



+

PM2.5, $NO_2$, radon, overheating, physical activity, etc.


GHG emissions
GHG emissions

# GHG exposures and emissions


~9,700 (20%)
Premature deaths
~ 7,800
Premature deaths
Picture source.
Flickr

Source. Flickr

# Key findings

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- Implementing these ten policy objectives could
  - **reduce London's GHG emissions by ~90%**
  - **reduce London's environmental disease burden by about 20%** (1,900 deaths in one year)
- Health benefits are not automatic and **modest** for some policies
- Potential for **unintended adverse consequences**
- Actions that **affect the whole population** and lead to **substitution of fossil fuels** for all main activities in a given sector

# Conclusions

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- The CUSSH team works with the GLA to address complexity via systems thinking in the areas with highest potential for transformative change

- Interested in understanding the **use of CRAFT and systems tools in decision-making**

- The selected policies for London have the potential to produce **important environment and health benefits**, but there are differences in the scale

CUSSH
Complex Urban Systems for Sustainability and Health

# Thank you.

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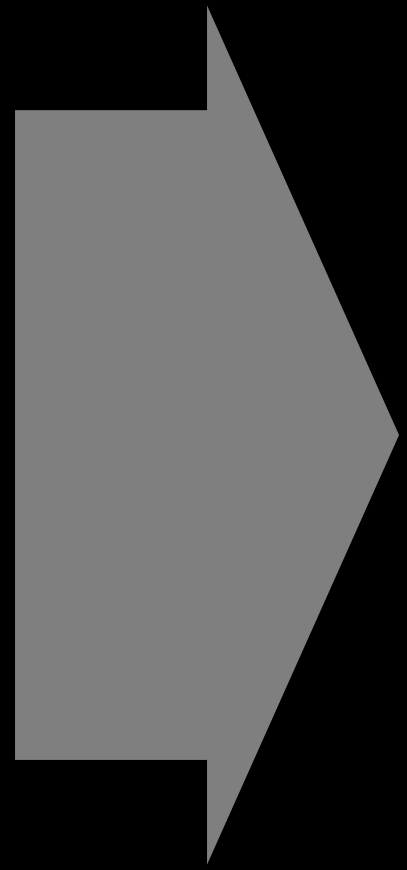
CUSSH
Complex Urban Systems for Sustainability and Health

# Selected **10 policy objectives**

1. Zero emission transport
2. Active travel
3. Building retrofit
4. Heat pumps
5. Heat networks
6. Photovoltaics
7. Grid decarbonisation
8. Green gas in national supply
9. London's green area from 47% to >50%
10. Zero waste city



**GHG reduction**
and
**health improvement**

# Forecasts for an uncertain future

Ben Corr
City Intelligence Unit
Greater London Authority

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# Why this matters

**Strategic planning**

- *How many homes do we need?*
- *Do we build <huge infrastructure project> ?*

**Planning services**

- *How many school places?*
- *How much fare revenue?*

# A wide range of user needs

**Strategic planning**

*“10 million or 12 million people in 2050?”*

**Local service planning**

*“How many four year olds in SE1 next September?”*

# Outline

- The challenges of forecasting

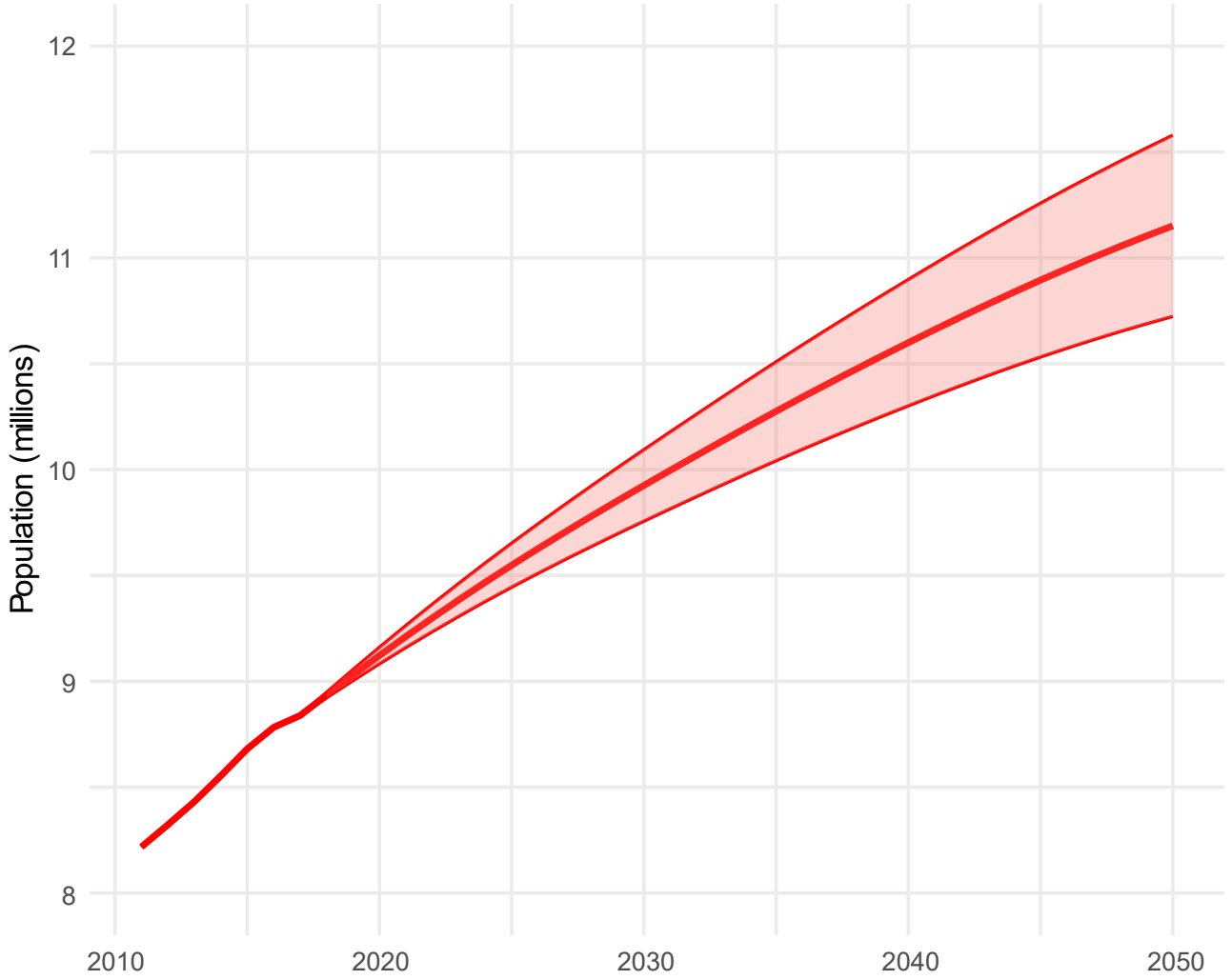
- Working around these
  - Approach 1 - build a better model
  - Approach 2 - build more models

# The challenges

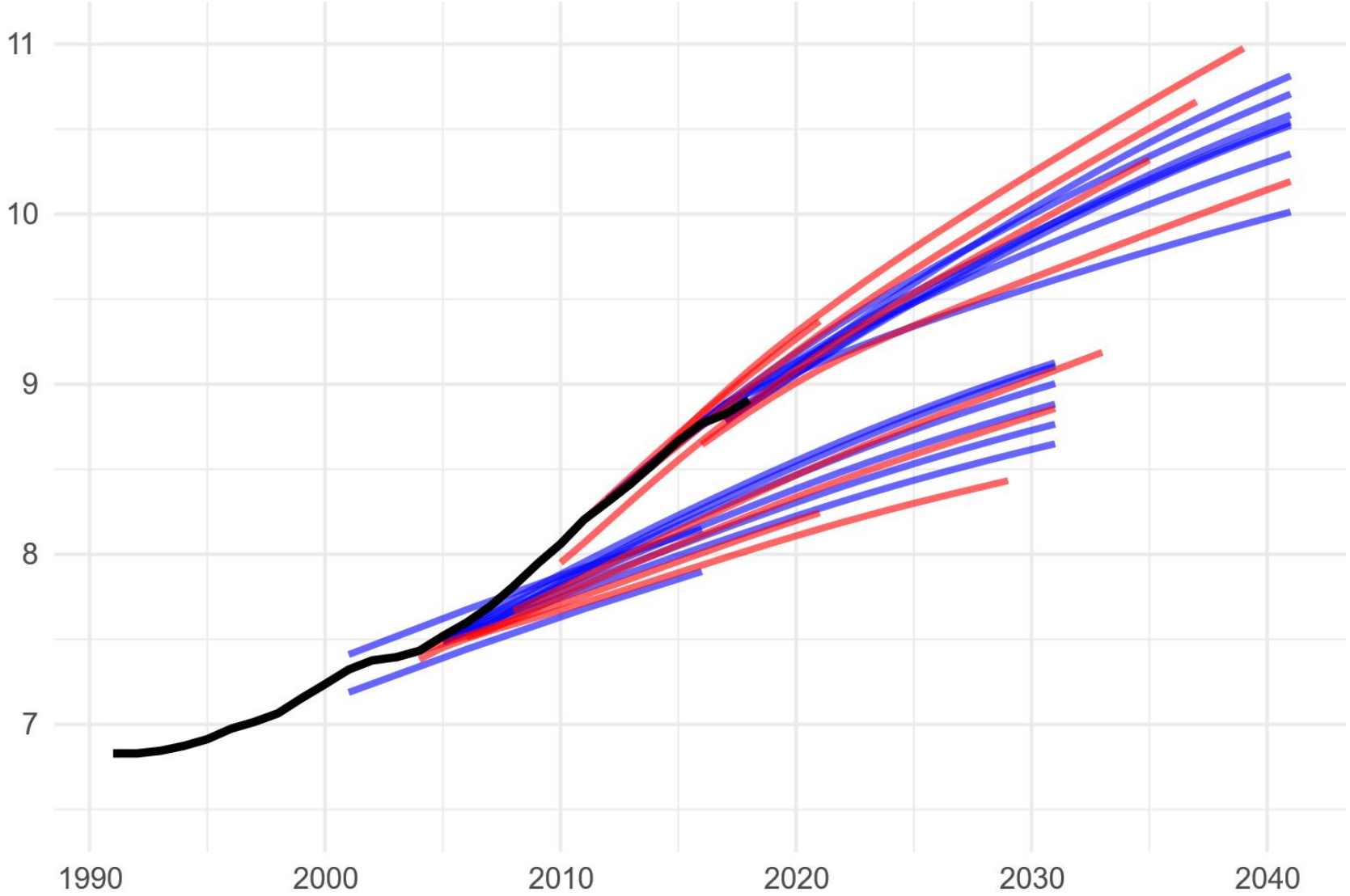
- Inaccurate past data
- Uncertainty about the future
- Incomplete models

# Projecting London's population

- Project forward past demographic trends
- Accounting for variability gives range of outcomes
- Does this capture the true uncertainty?



# Past projections

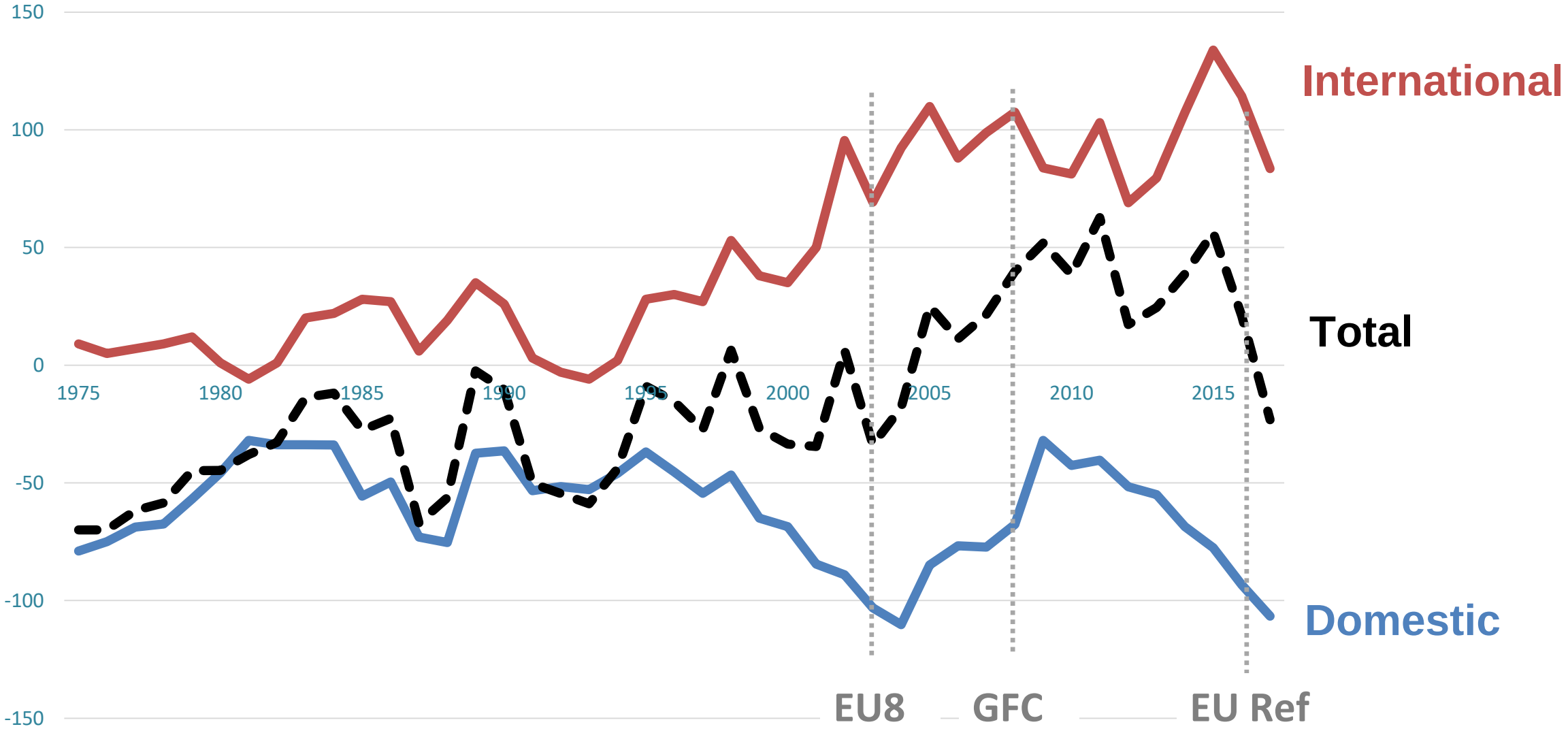


# Sensitivity to error in migration data


**Total flows over the border ≈ 1 Million**

**Total net flow ≈ 0**

# Unanticipated events and impacts

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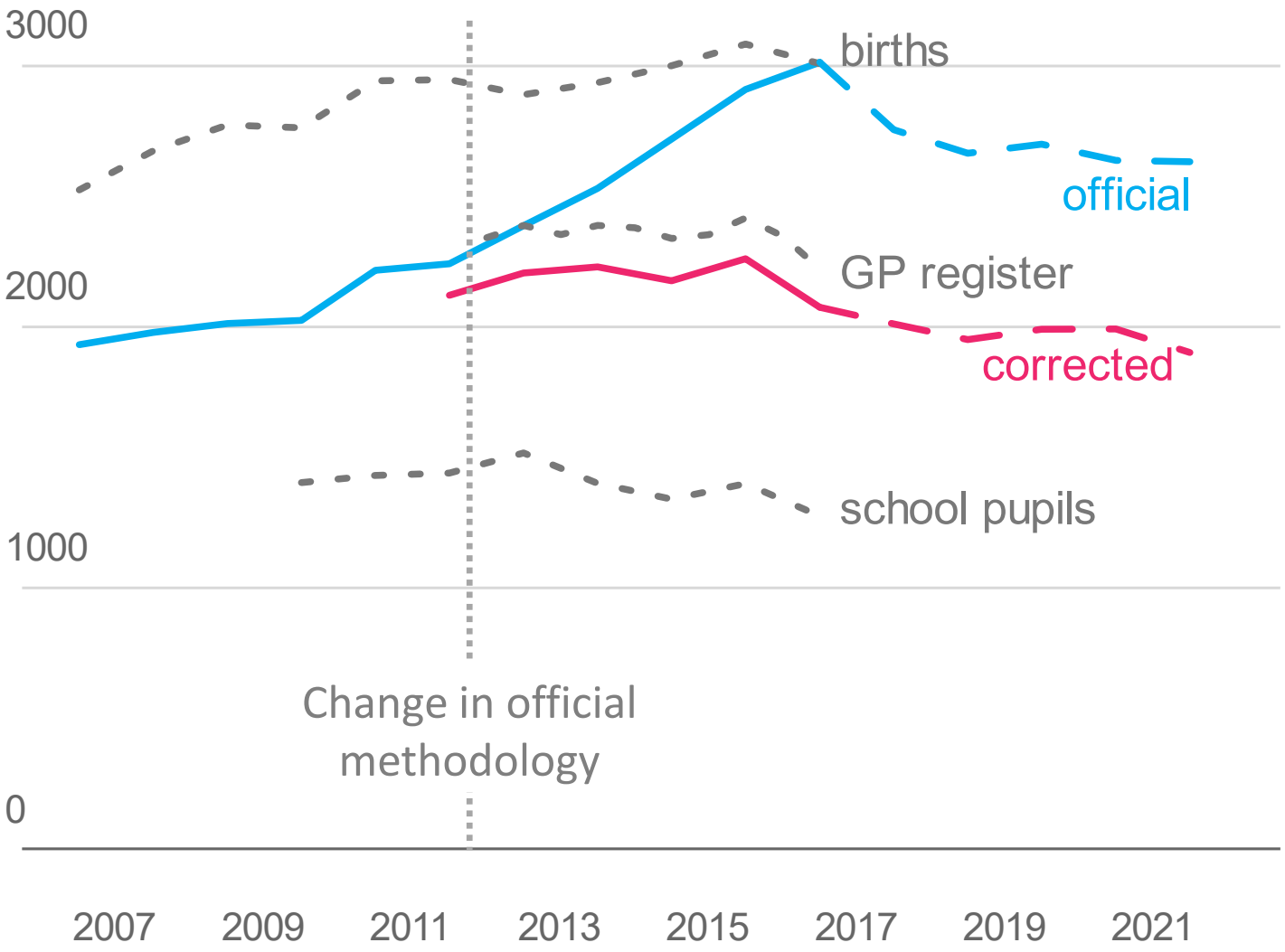
# Approach 1: Build a better model

- Make the inputs more robust
- Improve assumptions about the future
- Account for more drivers of population change

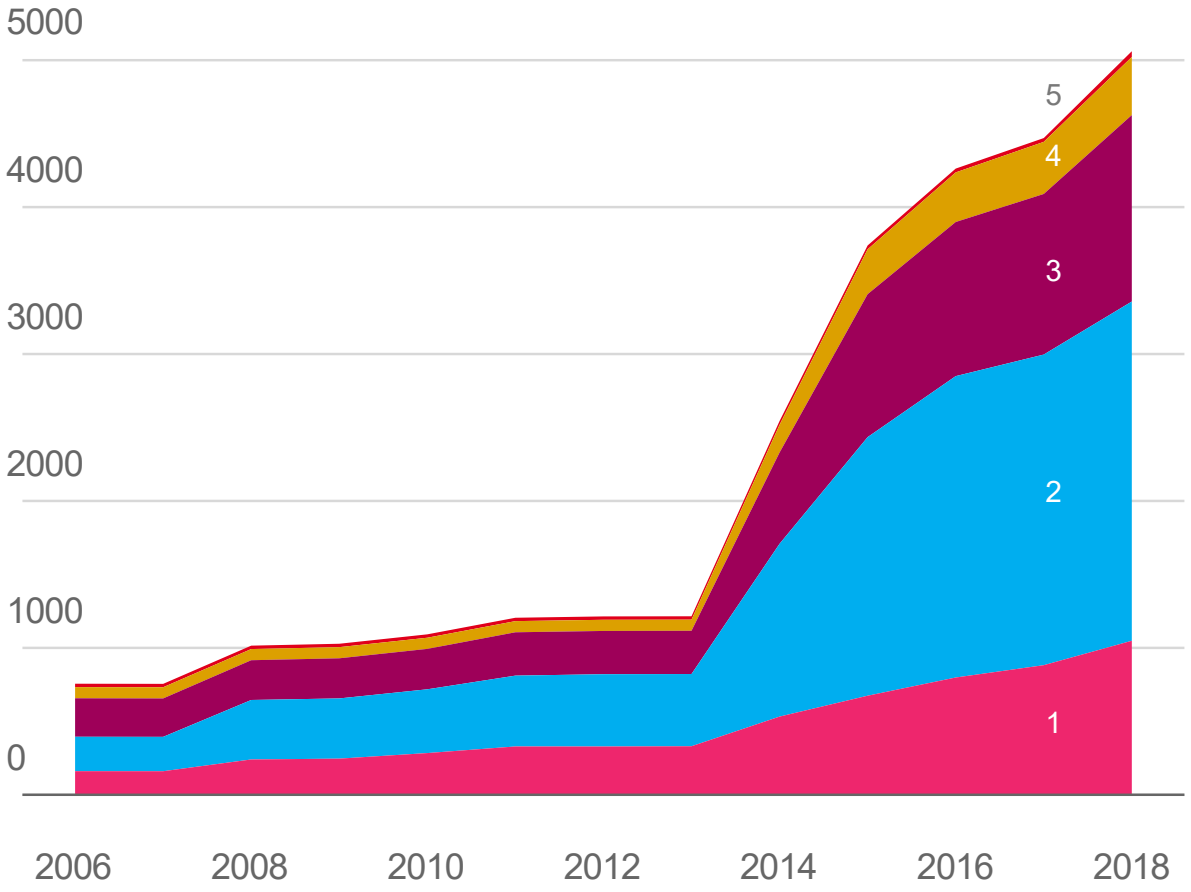
# Using admin data to improve reliability



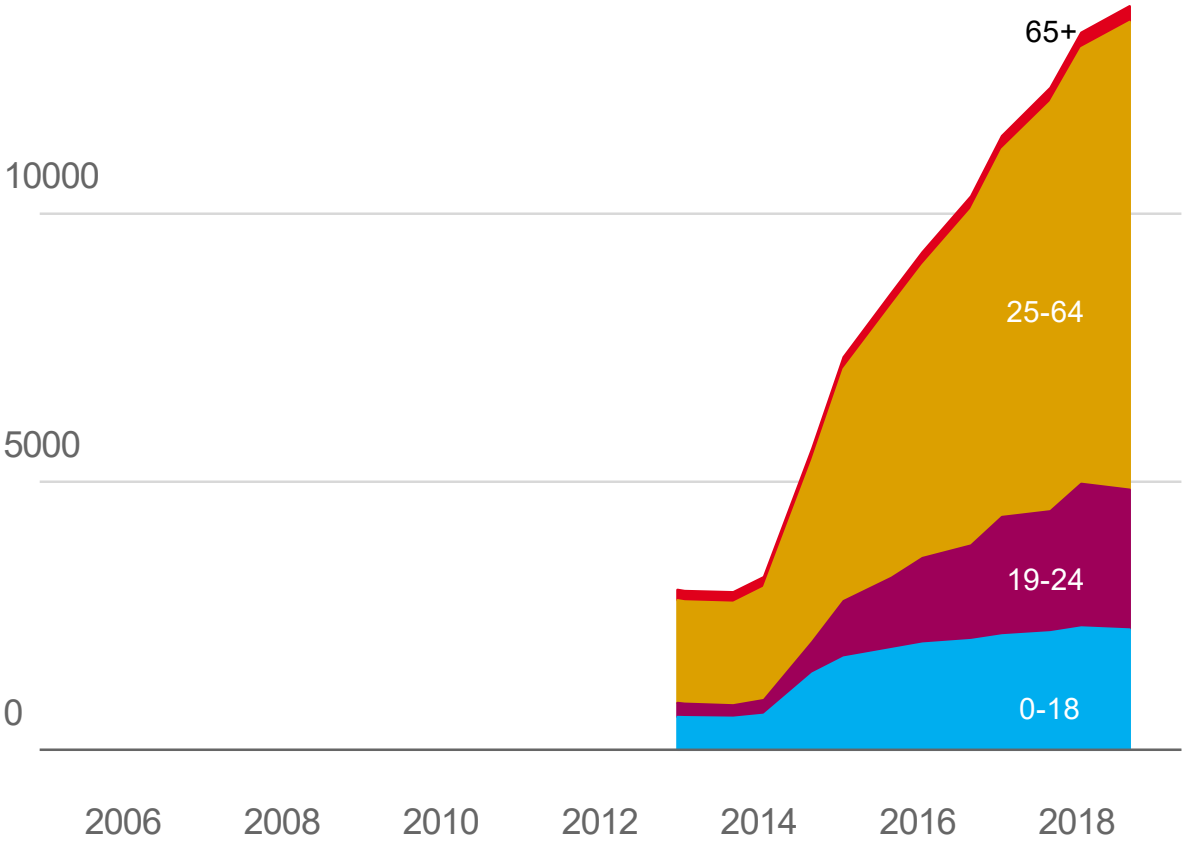

- Monitor official estimates against admin sources
- Identify and correct problems

# Improve assumptions about the future

## Homes by # bedrooms




## GP register by age

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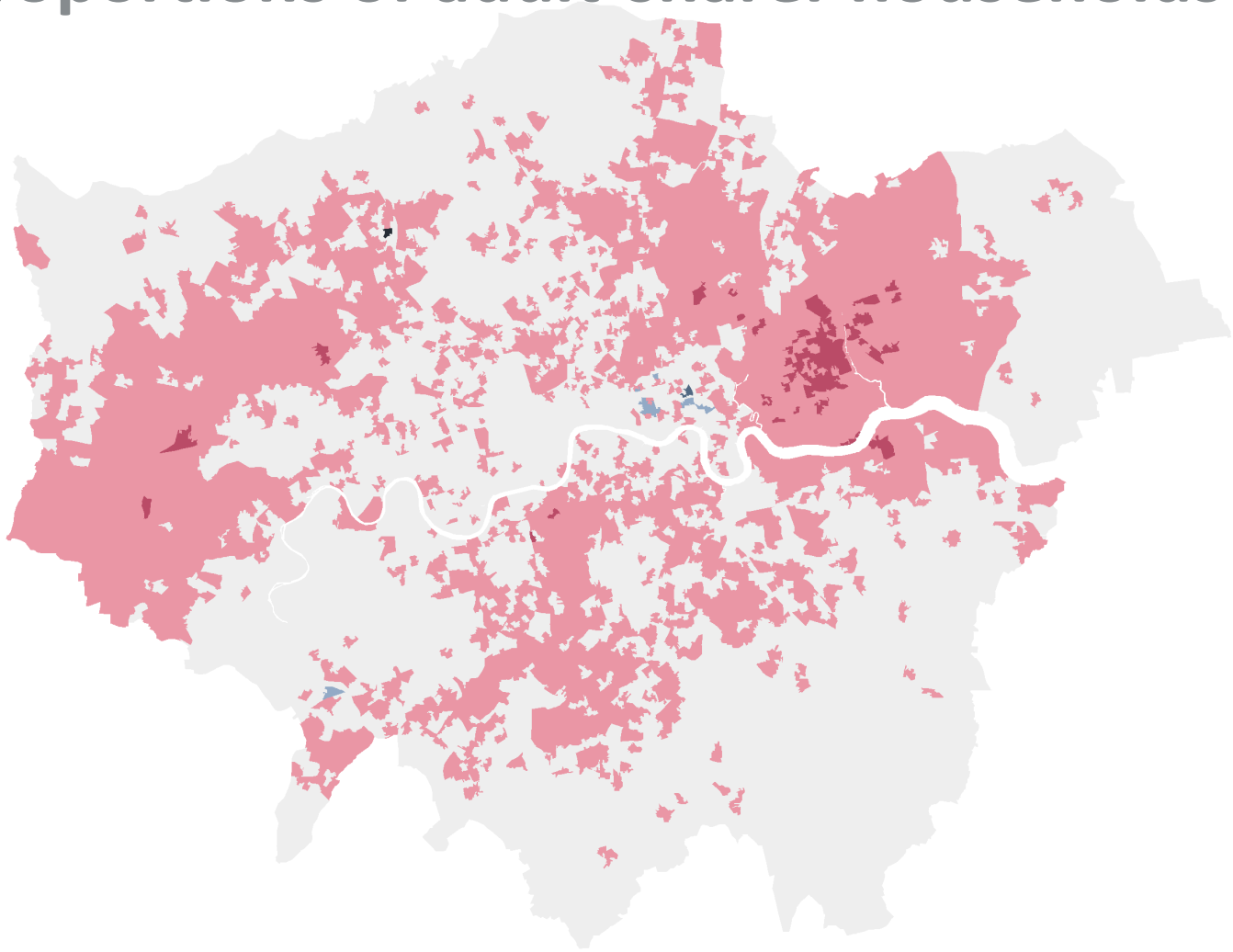
# Improve understanding of drivers and dynamics

## Changing proportions of adult-sharer households




Source data: the Consumer Data Research Centre, UCL

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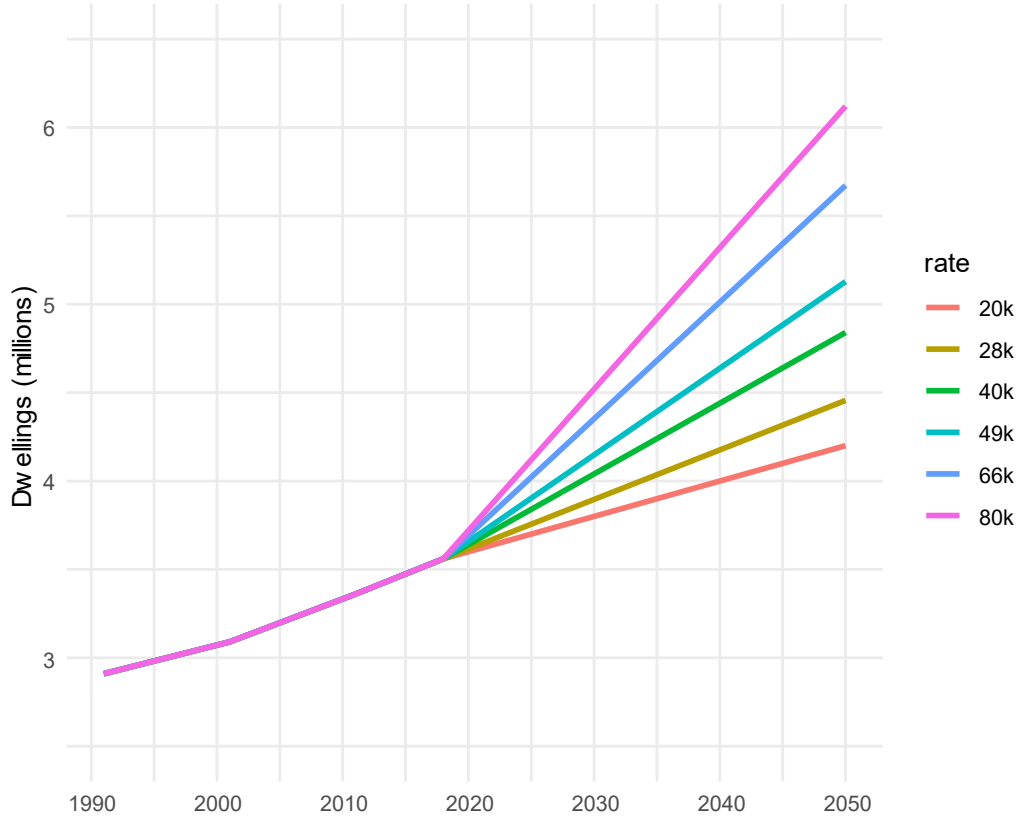
# Approach 2: Build more models

- Combined results of multiple *independent* models more reliable than result from a single model
- Disagreements between models give insights into uncertainty
- It's OK for models to have limitations
  – so long as they're *different* limitations

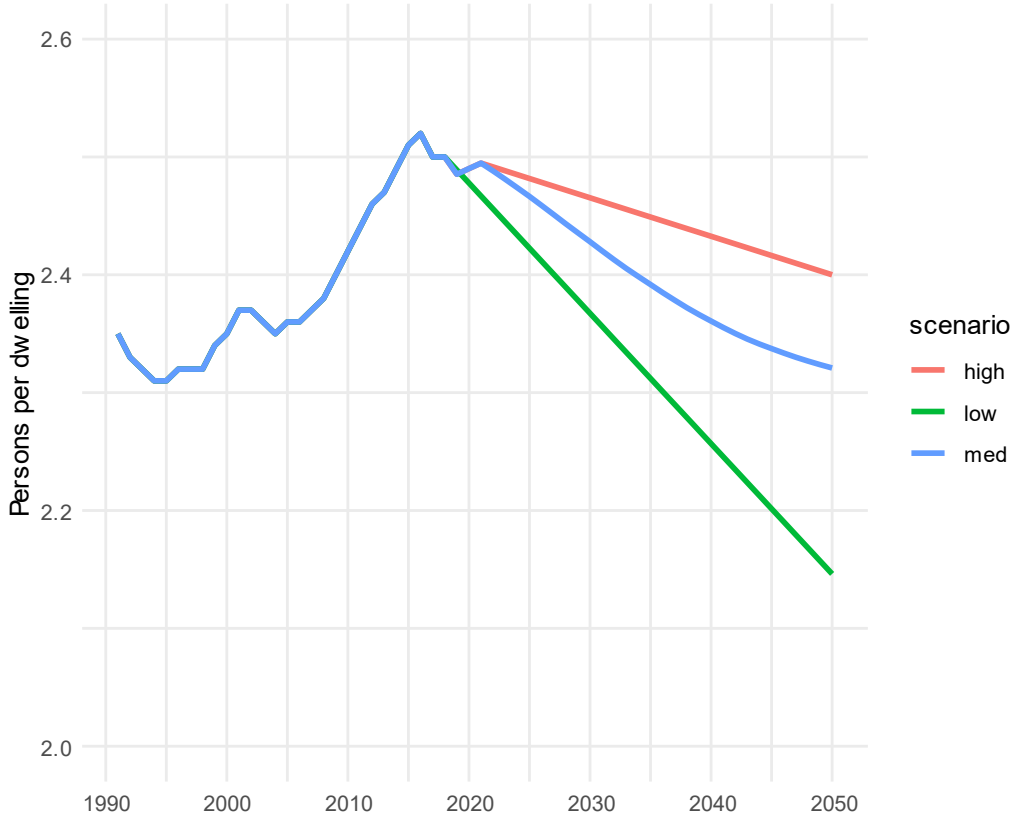
# Housing-led projections

- **Population linked to scenarios of housing and occupation**

## Homes




## Average people per home

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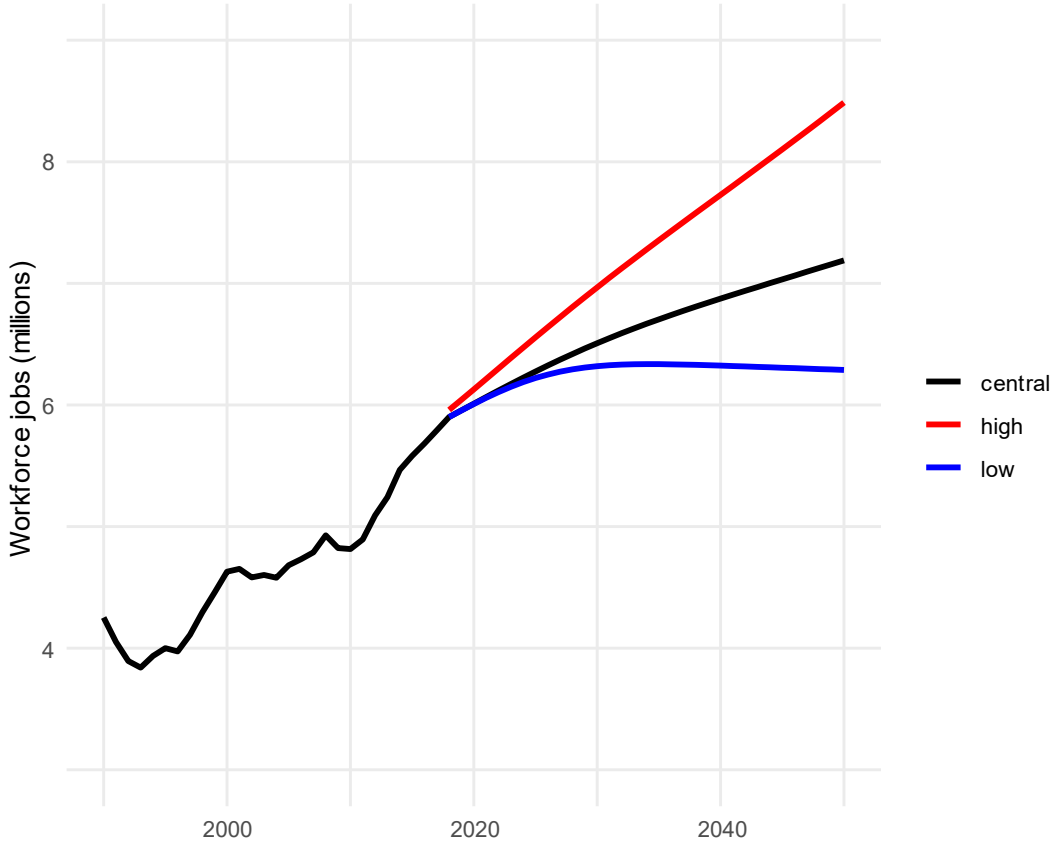
# Employment-led projections

**Population linked to scenarios of GVA growth and jobs**

## Jobs




## Unemployment rate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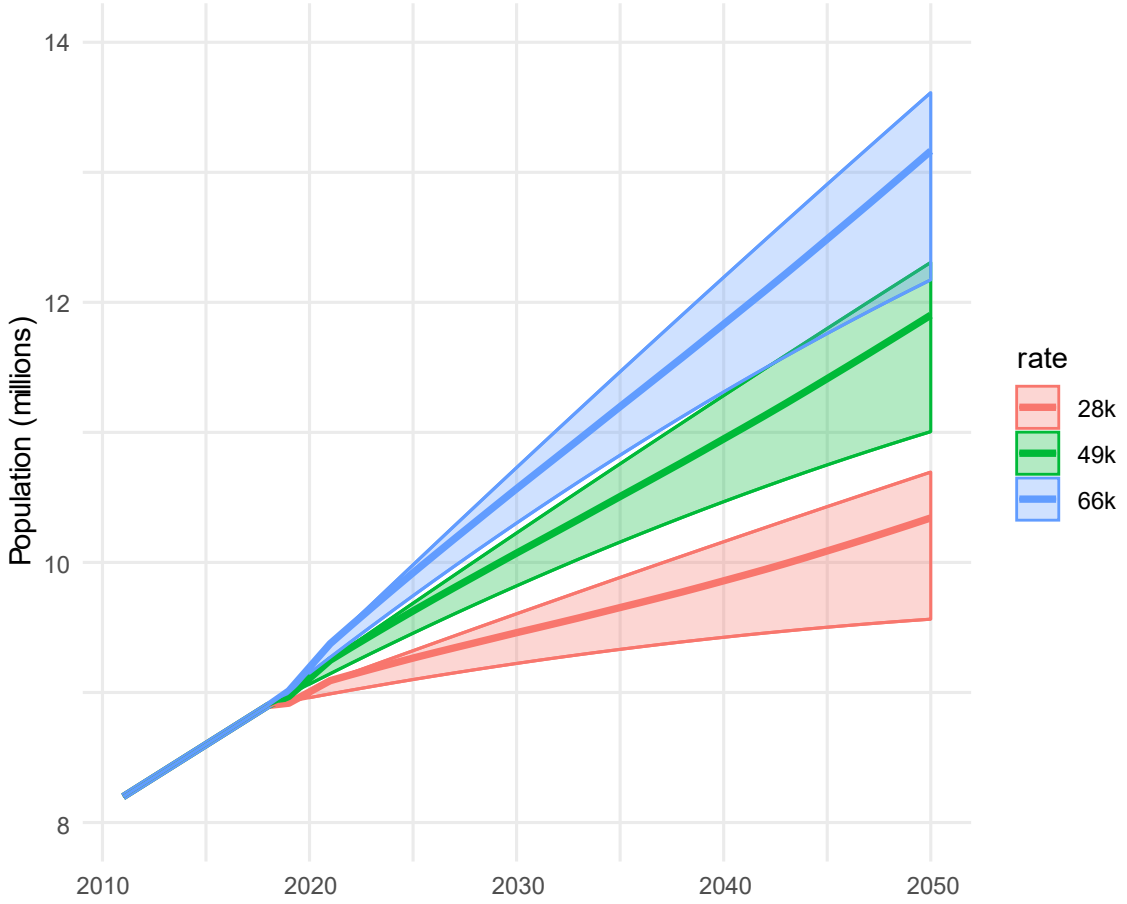
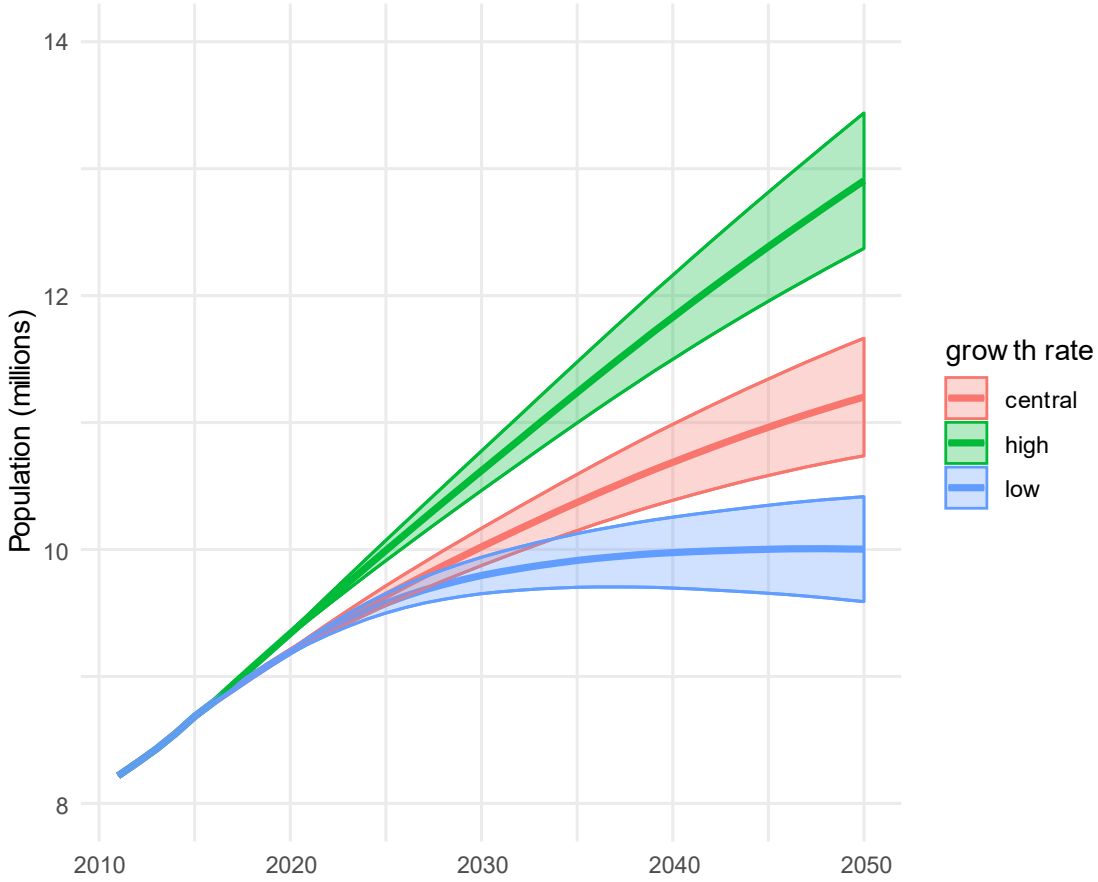
# Develop a projection *ensemble*

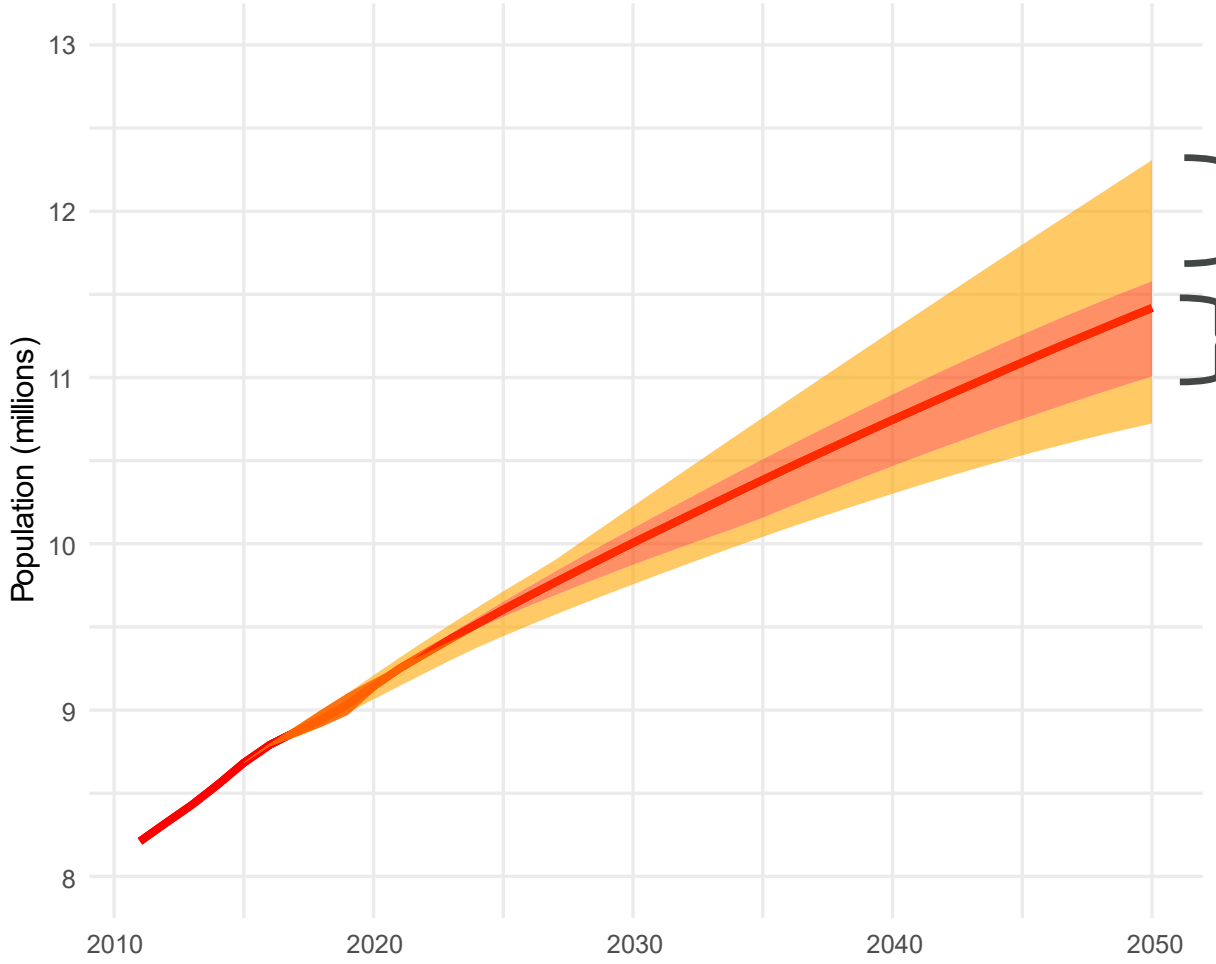
## Housing-led




## Employment-led



# Combining multiple model results




outside range of some models

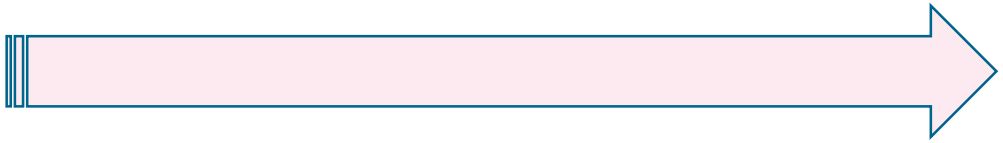
consistent with all models

# Conclusions

- We can improve performance by diversifying the data sources and methods we use

- A *many model* approach can help us understand and communicate uncertainty better

# Projection pipeline



**Base inputs**

- Census
- ONS estimates
- School census
- GP registrations
- LDD & SHLAA
- OS Codepoint
- House/rental prices
- Travel times & PTAL
- CDRC consumer data

**Estimation models**

- Population
- Housing stock
- Housing delivery rates
- Households
- Population synthesis
- Spatial interaction

**Model inputs**

- Reconciled population
- Housing stock
- Local contextual factors
- Synthetic population
- Projected jobs
- Potential housing delivery

**Projection models**

- Probabilistic trend
- Employment-led
- Systems Dynamics
- Spatial choice
- Housing-unit
- Agent Based

**Outputs**

- Projection outputs
- Tailored output products
- Users
- Users
- Users

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