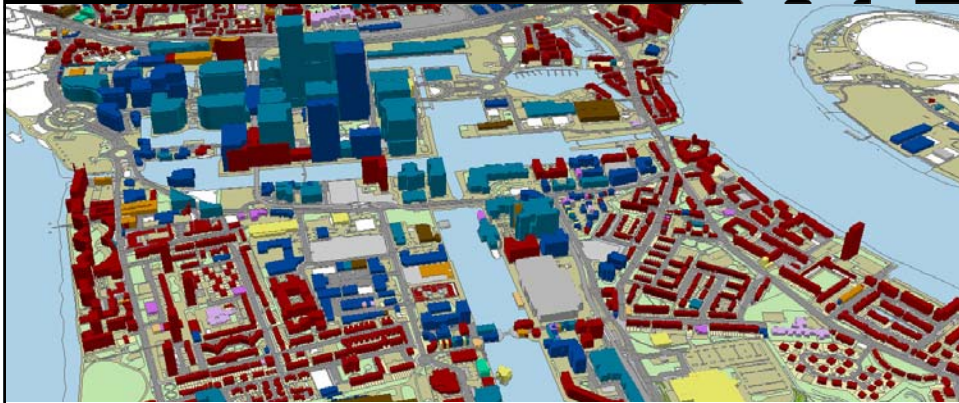


Science and the City



Alan Wilson

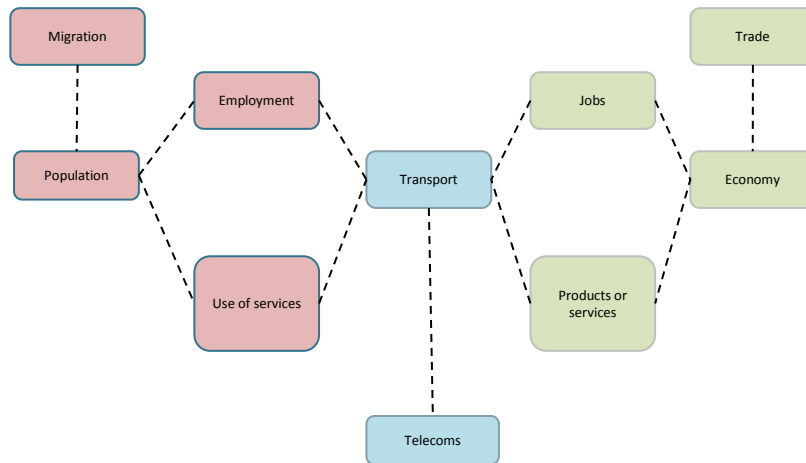
University College London



AIMS

- cities need well-informed plans and evidence-based policies
- much central government policy is implemented at an urban scale
- there is a lot of science that is potentially the basis of being 'well-informed', much of it systematically applied in the private sector but not extensively in the public sector
- it offers an interesting kind of evidence base: by building computer models that represent an existing situation, a 'What if?' forecasting capability can be developed in suitable circumstances – a kind of 'flight simulator'
- so aim to describe what some of this can offer
- examples chosen from my own research field.....

A CITY SYSTEM



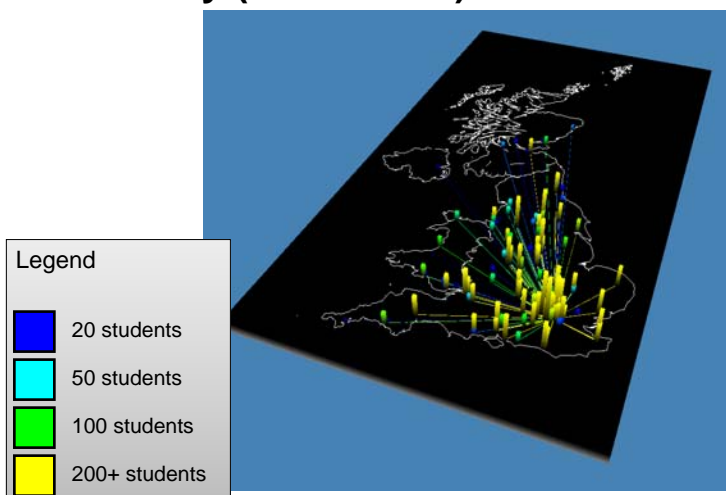
Questions for city leaders

- role in the national (or regional) economy?
- is it competitive with other cities?
- is it prosperous and sustainable?
- good economic development policies?
- skills base?
- stable or shifting population? Migration?
- does it offer adequate jobs for its population?
- housing supply?
- health, education, environment?
- care for the elderly?
- policing, safety?
- transport and telecomms?

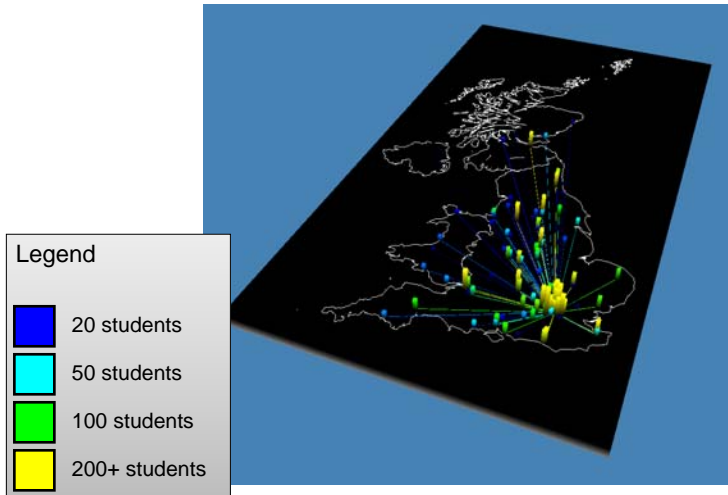
Wicked problems

- inner city regeneration
- 'poor' towns – e.g. seaside towns
- responding to climate change
- unemployment, long-term sickness – benefits issues
- poor quality housing stock; homelessness
- 'failing schools
- variations in levels of health provision: costs in the health service
- crime, prisons
- multiple deprivation
 - long-term unemployment, NEETs
 - failed in, or failed by, the education system

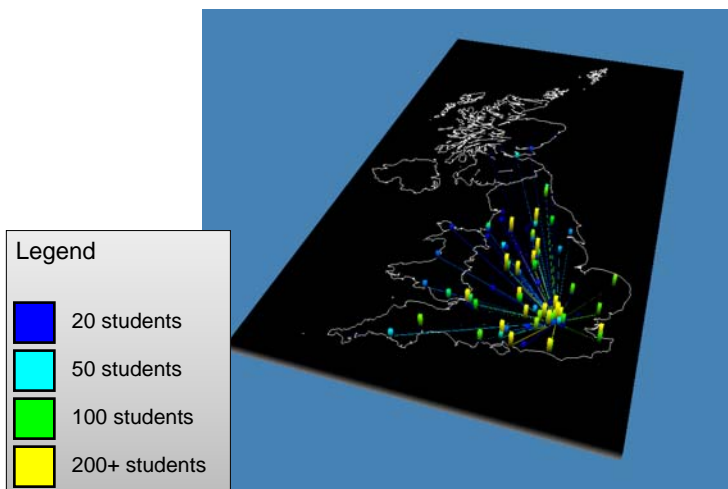
Outer London NUTS2 area student flows to university (all schools)



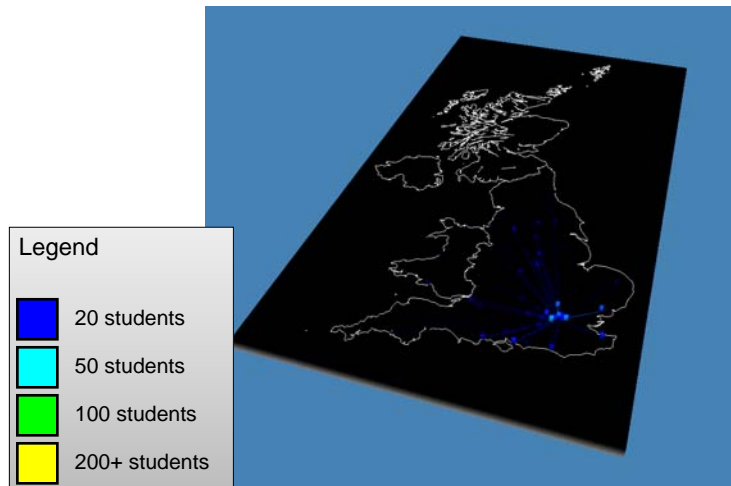
Inner London NUTS2 area student flows to university (all schools)



Inner and Outer London NUTS2 areas student flows to university (Prospering Suburbs)



Inner and Outer London NUTS2 areas student flows to university (Blue Collar Communities)



Interdependence

- many of the questions are linked:
 - housing problems, which are often seen as problems of housing supply
 - but are actually usually income problems,
 - and income problems are often education/skill problems
 - the wicked education/multiple deprivation problems are in a sense income problems – so there is a vicious circle here
 - the prison problem is a mix of the cycle of deprivation and poor mental health and education facilities in prisons

- there are also some – at first sight – paradoxes: a good cultural environment may generally improve quality of life, may appear to support mainly the better off, but by being attractive to inward investors, might also broaden the employment base for all

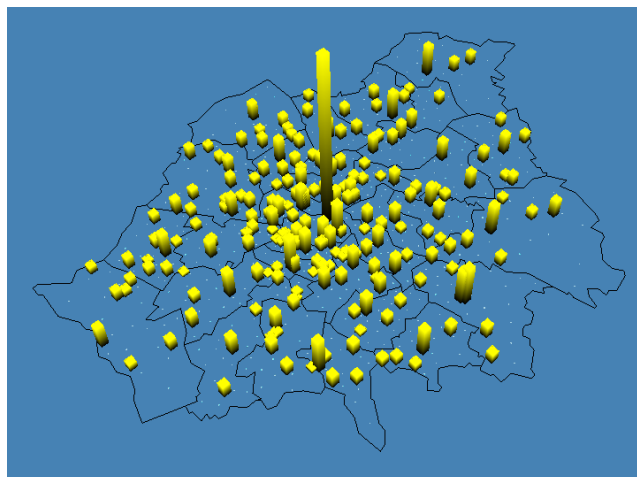
The P-D-A framework

- policy-design-analysis: three kinds of thinking
- e.g. Heathrow third runway
 - policy: on London airports' capacity
 - design: invent the alternatives: Heathrow, Stansted, Luton, Thames Gateway
 - analysis: model existing demand and supply; make some predictions; cost-benefit analysis
- the science is mainly about analysis but is a necessary but not sufficient condition for good planning

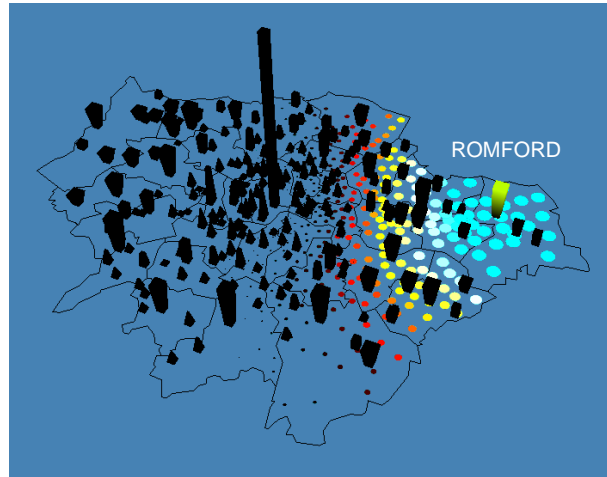
THE SCIENCE

- what is needed has various names:
 - a decision support system
 - an analysis system
 - a planning system
- but must be underpinned by an effective intelligence system
- a GIS can be an effective organiser for this – but this implies taking a wider view of GIS: a table-top GIS with a hierarchical system of pull-down menus to access all the intelligence that is needed? An IGIS!
- a CityIS or a GovIS?
- this would provide the analytical capability that would underpin policy development and design

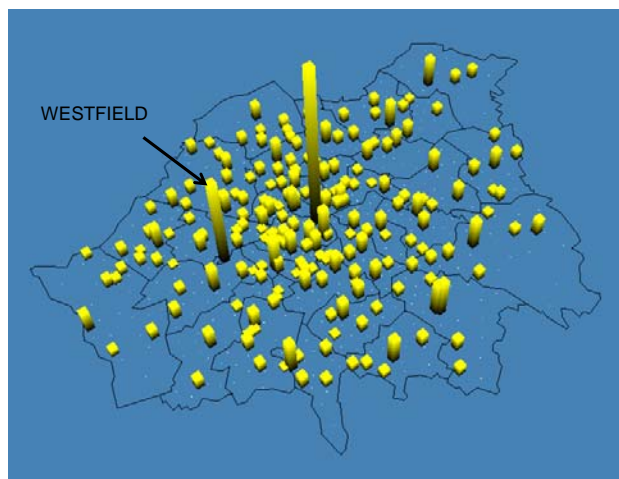
An example: London retail centres



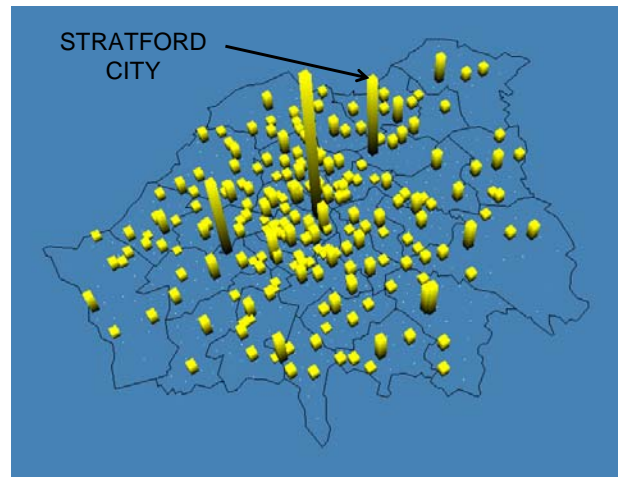
Ward-level consumer flows to Romford town centre retail



London with Westfield London retail centre



London with proposed Stratford City retail centre



- it is possible to build these models for very fine levels of detail
 - by consumer type
 - by store type
 - for types of goods
- so the science is well known and well tested
- this kind of system is systematically employed – at both centre and store level - by major retailers; its value in this context is proven
- could it be applied in more challenging public sector areas?

WHAT COULD BE DONE?

- regional and urban growth (BERR, HMT)
 - PSA target to equalise GDP per capita across regions
 - what would be the maximum rate of UK growth if London and the SE were allowed to grow unconstrained?
 - regional growth targets depend on the big cities; can the cities achieve their targets without progressing inner city issues?
 - what would a system of targets look like?

Education (DCSF, DIUS)

- a rich data base now potentially available
- policy question: how to combine secondary schools into 'federations' to embrace 'failing' schools
- analysis to explore the Government's 'choice' agenda?
- what does the Government's HE widening access agenda mean for schools, choices of A-levels etc?
- access to HE: should all small towns have universities?
- all of these issues could be analysed with analogues of the retail model

Health (DoH)

- the sector is data rich but disorganised
- the geography of GP delivery?
- the polyclinics controversy?
- the hierarchy of tertiary (university hospitals), secondary (general hospitals) and primary (GP surgeries)
 - in terms of accessibility, emergencies vs elective etc.
- performance indicators two ways round: the delivery unit and the residential area
 - e.g. dental services

Housing (CLG)

- home ownership: the housing market, the planning system etc.
- the private rental market
- the social housing market
- do we understand the balance between these sectors and the relationship to other issues like employment
- where does homelessness fit in??

Others.....

- food and environment (**DEFRA**): food prices, petrol prices, supermarket deserts,...
- benefits, pensions, care of the elderly (**DWP, DoH**): staggering costs to the Government; some good reports (Turner, Sutherland); microsimulation?
- criminal justice system (**HO, DoJ, DCSF, DIUS**): CJS information after NOMIS?
- transport (**DoT**), energy (**DEE**), culture (**DCMS**)

Joining up: tackling wicked problems

- income-employment-education-skills: poor income generates poor diet, poor health, poor performance in education, inadequate housing, need for social welfare support, and, at the extreme, drugs-related crime: so???
- the planning system: connects transport and land use with economic strategies and service provision. Does it?????
- social mobility – see ‘income’ above
- NB: much of this analysis demands a common data base

WHERE ARE WE NOW?

- no good CityIS or GovIS anywhere?
- some good model applications, especially in transport
- but, mostly not applied, and the different areas are not joined-up
- most Government approaches in silos:
 - Government Departments
 - distinct analysis professions in the Civil Service
- local government better than this in a number of instances
- but typically:
 - alternatives not systematically explored
 - no effective cost-benefit analysis

WHY?

- wanting ‘answers’ too quickly
 - though if the groundwork was done and a CityIS existed, there could be quick responses to many policy questions
- lack of capacity in quantitative social science
 - (NB Sainsbury’s ‘analysis’ department currently employ seven graduates for the Leeds University School of Geography!)
 - a problem that ESRC has been tackling

CONCLUDING COMMENTS

- who will design, produce and use a good City IS and deliver 'science for cities'????
- it is not a resources issue – because there are scale economies to be achieved by integrating across government departments, and, potentially, by providing a service for local government – so the exercise isn't repeated 160 times. A major challenge is implied by this analysis!

- if we had the analysis – the 'intelligence', then we would be ready to start on the wicked problems: think of something like the human genome project. Scientists are good at tackling big problems head on. Somehow, we are not doing this with the wicked problems' list.
- there is a case for recognising this agenda as 'big science' – a CERN for cities!