location, location and location – funding investment in local infrastructure

Nicholas Falk looks at how planning for housing and infrastructure can be linked together to get better value from public investment, by using multi-criteria analysis to assess strategic options and then by sharing the uplift in land values

Nicholas Falk

Part of Ørestad, a high-density satellite new town at the edge of Copenhagen, where a system of land value capture has been used

The Housing White Paper aims to fix a 'broken housing market', and calls for combined authorities to produce spatial development strategies that will 'join up' housing and infrastructure and 'allocate strategic sites'.[1] There is no shortage of ideas for addressing the housing crisis[2] – but where are the funds going to come from to double housing output and make available the necessary land; and how can we make planning more 'proactive' again when so many local authorities are dispirited and under-staffed?

This article suggests how planning for housing and infrastructure can be linked together to get better value from public investment by using multi-criteria analysis to scope out and assess strategic options. It also proposes sharing the uplift in land values through the setting up of development corporations to promote complex schemes. This follows up earlier articles in *Town & Country Planning* lamenting the weak state of sub-regional planning in the UK and arguing that we need to 'go to scale' in building the housing that the UK desperately needs.[3]

The real challenges

The huge bill of over £500 billion for updating the UK's infrastructure systems set out in reports by McKinsey and Company and the Policy Exchange a few years ago makes it vital to make better choices.[4] As infrastructure is a necessary but not a sufficient condition for economic growth, it needs to be located in the right places if the investment is to pay off. Every surveyor learns that there only three things that matter in property: 'location, location and location'. Yet short-term political pressures and 'silo thinking' make it hard to focus public investment where it will yield the best long-term value.[5] This means not just producing simple short-term economic benefits, but also balancing longer-term social and environmental impacts, and tapping private investment where it is viable.

The consultation report for the previous Mayor of London's infrastructure plan provides some useful data on the expected capital expenditure in London over the next three decades.[6] Even setting health requirements aside, the report still identified a need for capital expenditure on London's infrastructure between 2016 and 2050 of £1.3 trillion. Significantly, housing accounted for 41%, closely followed by transport at 35%, while energy trailed behind at 11%. Studies in both Milton Keynes and Cambridgeshire found similar orders of magnitude of required expenditure, while research into success stories from European cities has shown that they relied on access to low-cost, long-term patient capital.[7]

There is thus no escaping the fact that meeting national objectives such as doubling housing output or raising productivity depends on mobilising much greater levels of local investment than has been achieved in past decades or that government would be willing to fund – and that this will require different delivery mechanisms.

The task is made more complicated by eight 'facts of life':

- Much of the opposition to development, especially housebuilding in the South of England, stems from legitimate concerns over the impact on congestion (and related pollution).[8]
- Private developers and institutional investors will not fund major projects without assurances that infrastructure will be in place.
- Utility companies are also reluctant to commit to new infrastructure until spatial growth plans have been agreed.
- Infrastructure projects in the UK take many years to plan and implement (Crossrail was initiated in the 1940s, for example).
- Existing funding sources, such as the Community Infrastructure Levy (CIL) – which raises between 5% and 20% of the funding required for new infrastructure in an area[9] – cannot fill the investment gap.
- There is little public appetite for increasing taxes, or trusting in commissions of inquiry.
- Land values are a critical part of the equation, but valuation should also take proper account of 'natural capital' and less tangible factors such as beauty and sustainability.[10]
- Rail and cycling suffer in competition with roads when cases are made for investment, owing to the difficulty of assessing the wider benefits (unlike the situation in French cities, for example).[11]

How housing and infrastructure interact

Despite the obvious truism that economic growth and housing are interrelated, there is surprisingly little clear research on how far one shapes the other. Much of the work on 'urban form', while interesting, has been inconclusive.[12] However, there is evidence that the changing 'shape' of cities affects travel patterns.

First, much of the congestion on the roads and railways is caused by people commuting ever further to work, as David Metz has highlighted in a powerful short book, showing that in recent decades travel times have stayed relatively constant while travel distances have increased as services improve.[13] As the public transport system is largely radial, suburban residents use their cars to make orbital journeys, and clog up the high streets of poorer town centres in the process.

Second, in the South East, many people take well over an hour to commute by rail into Central London, where bus usage has also risen rapidly over the last 20 years. The smaller the town, the more people tend to commute elsewhere to work. The larger university towns are the most self-contained, with higher cycling and walking levels, but also with roads that are congested from people driving to work from elsewhere.

Third, even within a relatively well serviced conurbation such as London and its surroundings, differences in accessibility (both in time and cost) can trap residents in disadvantaged areas, such as North Kent, while low-paid jobs in the centre are taken by immigrants crowded into inadequate housing.

Finally, much of the impacts or benefits from investment in improved inter-city transport are lost in higher house (and land) values as 'knowledge workers' move further away. House prices are

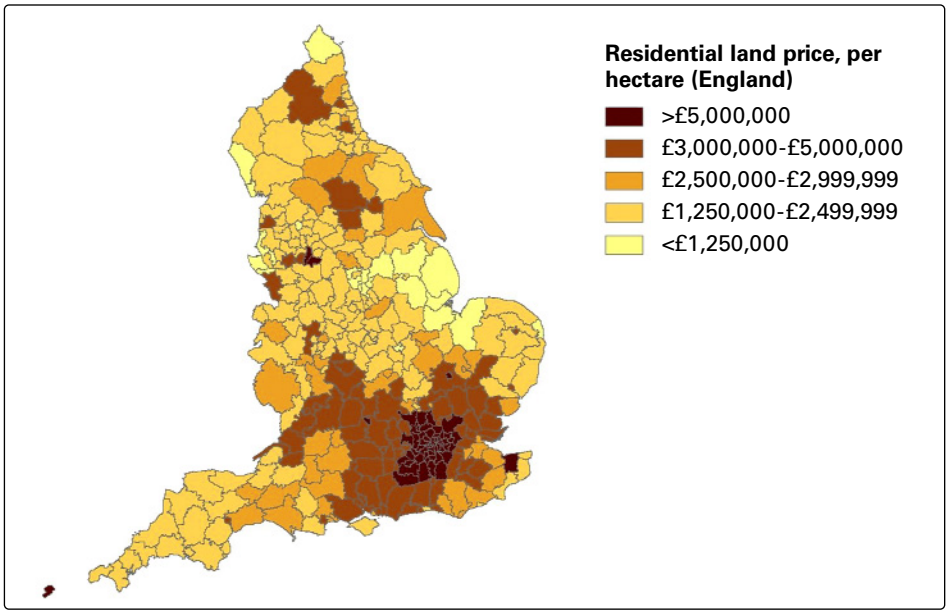

Fig. 1 Residential land price per hectare, England

Source: Presentation by Paul Cheshire, LSE (Property Market Report, 2007)

affected by travel-to-work times, with a clear gradient as distances from major sources of employment such as London increase.[14] Yet, as De Backer argues in an OECD policy paper quoted in a recent edition of *Built Environment*:

> '*When it comes to knowledge, distance does matter ... proximity is crucial ... Indeed technical knowledge, even in the hard sciences, is highly tacit and therefore far more effectively transmitted 'face to face'.*'[15]

In the essay that won the 2014 Wolfson Economics Prize, David Rudlin and I argued that the only practical way of building the number of houses that we need is through sustainable urban extensions or satellites in the places where people most want to live and work, such as Oxford or York.[16] Ebenezer Howard's 'Social City' diagram provided our inspiration. Pete Redman, our financial consultant, has shown that higher returns on investment are possible from urban infill or by extending areas with infrastructure capacity compared with developing new communities from scratch.[17]

Taking a holistic approach involves crossing spatial borders. Transport models such as SATURN[18] are typically used at great cost to justify single projects or road options, without assessing the interrelationships of alternative growth scenarios or transport systems. Local authorities no longer have the staff, budget or ambition to explore spatial growth options properly. But improvements in GIS and mapping techniques have revolutionised the possibilities. So, for example, Transport for London has upgraded its online planning tool, WebCAT, to show how well-connected locations are in terms of transport as well as journey times.[19] Prospective, founded by a team of researchers from the Centre for Advanced Spatial Analysis at University College London, is building software that brings all the environmental constraints together and allows development impacts to be assessed at a sub-national or city region level.[20]

Work on major national infrastructure projects such as High Speed 2, and work on Oxford-Milton Keynes-Cambridge links, is making clear the importance of local linkages to national projects.[21] URBED's work in Central Oxfordshire, following on from the 2014 Wolfson Economics Prize work, identified simple options for making better use of existing transport capacity through 'Swift Rail', but which require development and infrastructure planning for cities to be aligned.[22] Similar principles can also be used to guide the growth of conurbations such as Sheffield.[23]

Planning has to extend beyond local authority boundaries. Despite what politicians may claim, cities are not simple 'engines' or 'drivers of growth'; any strategic growth plan has to take account of the wider functional urban area. Comparisons between British and continental European cities show that while London is in a class of its own as a 'world city', the UK's provincial cities lag behind their continental counterparts in many aspects, including size.[24] In part this is because skilled staff and managers live elsewhere. Some of the most dynamic 'high-tech' employers, such as Dyson in Malmesbury or Renishaw in Stroud, are based in rural areas.

It is important not only to compare like with like, but also to distinguish between different types of location. The map shown in Fig. 1, taken from a presentation by London School of Economics

economist Paul Cheshire, shows land values for local government areas in England. Data is also available for each local authority area in a recent Department for Communities and Local Government report.[25] The two darker brown areas in the map, where land sells for £3 million per hectare or more, can provide enough land value uplift to meet social and environmental obligations, such as making housing affordable to local people.

How much of that land value uplift can be tapped into? Housing policy expert and market researcher Pete Redman is cautious about capturing land value uplift more generally. He thinks that the UK government is already spending large amounts on infrastructure renewal and improvement. He calculates that we need to spend about £88 billion a year, of which half should be private investment, whereas actual expenditure is a little over £60 billion; and the private contribution is about half of what it should be. He suggests that we could squeeze another £2.5 billion a year – to double the current contribution from the private housing sector. But others think that we might be able to tap into much more institutional finance if we took a more radical approach to property taxation, and took a share in the land before connectivity had been improved. For example the Centre for Progressive Capitalism calculates that:

> '*The significantly lower figure of public land sales means that the potential incremental uplift for infrastructure investment is now £185 bn over the next 20 years, £13 bn more than our initial estimate of £172 bn. The OECD recommends that countries invest around 3.5 per cent of GDP into infrastructure. Prior to the autumn statement the forecast for public sector net investment for the next five years was only 1.7 per cent of GDP. The autumn statement, which announced incremental financing, has boosted this to 2.1 per cent.*'[26]

So sharing in land value uplift could make a major contribution to funding local infrastructure. Studies for Transport for London carried out by KPMG and Savills suggest that as much as £13 billion-£28 billion could be raised towards the cost of eight transport schemes from the uplift in business rates, as well as from 'zonal retention of land value increases' and a 'transport premium charge'; but clearly the situation in London is quite special.[27] URBED's 2014 Wolfson Economics Award submission drew on Ebenezer Howard's 'Social City' ideas, and proposed taking over land on the edge of cities such as Oxford, using low-cost bonds to fund the development of both a metro system to cut congestion and country parks to reduce flooding. This could be achieved through the use of new town development corporation powers, as promoted by the TCPA.

But this only will help cities where housing land values are high (the two areas coloured brown in the map in Fig. 1). House prices determine land values, and therefore development viability. For example, in Cambridgeshire, land in the Cambridge City Council area (which is 45 minutes by rail from King's Cross) is valued at £5.7 million an acre before planning obligations, compared with £1.0 million in East Cambridgeshire (where Ely is growing fast), and only £370,000 in Fenland (where Wisbech is currently too cut off to attract good-quality housing development). Table 1, drawn up by Pete Redman, makes the differences clear. Unless a housing site can deliver at least £750,000 a hectare of uplift (about £300,000 an acre) for essential infrastructure and affordable housing, it will not be viable without subsidy.

A further distinction also needs to be made according to the roles of the towns and cities concerned, with industrial towns such as Stoke-on-Trent having quite different needs and potential from

Table 1
Example variations across England in the potential for land value uplift sharing

	Stoke-on-Trent	Peterborough	Reading	Sutton
Average open-market value, £ per hectare	160,000	230,000	300,000	410,000
Density, dwellings per hectare	30	40	60	120
Proportion delivered as affordable housing, %	10	20	25	30
Market sales value, £ per hectare	4,300,000	7,400,000	13,500,000	34,400,000
Less				
Land acquisition and preparation costs, £ per hectare	500,000	700,000	1,700,000	4,200,000
All-in development cost, £ per hectare	3,800,000	5,800,000	10,100,000	25,300,000
Balance for uplift sharing, £ per hectare	**–**	**900,000**	**1,700,000**	**4,900,000**

Source: Pete Redman, Housing Futures Ltd

metropolitan cities such as Manchester.[28] It is in the larger or 'core cities' that metro or tram systems should be viable through user charges. A city such as Leeds is competing in the same league as Lille in France or Leipzig in Germany, but currently lags behind them. Third-tier or metropolitan towns would often benefit from upgrading local transport infrastructure, but the 'whole' impacts on social and environmental capital need to be properly assessed and taken into account.

It can also be helpful to distinguish between central, inner and outer or rural areas, and different shapes of city. Thus linear cities[29] lend themselves to high-quality public transit and 'Swift Rail' services. When it comes to assessing major transport and development projects a 'polycentric' approach to spatial planning that distinguishes between growth and regeneration areas in terms of land or house values is essential.

Where can we best learn from?

As well as examining why cities such as Leeds and Bradford have failed to 'join up' transport and development, the UK should be learning from cities that have used transport to transform their economies and overcome social divides. *Good Cities, Better Lives*,[11] for example, highlights a range of continental European cities that could serve as models for how the UK could achieve better or 'smarter' growth. French cities were selected for the chapter on transport, but similar approaches are used throughout Europe, as the following three examples of 'smarter urbanisation' illustrate.[30] They are all 'regeneration' areas that lost traditional jobs over recent decades and therefore faced the same challenges as large British industrial towns and cities:

- The conurbation of ***Lille*** was transformed not just by securing a railway station on the high-speed line from London to Paris, but also by upgrading the area's local transport system at the same time. In what was known as the 'metropolitan compromise', implemented through a kind of 'city deal', some 80 communes supported the Mayor of Lille in return for upgrades to local transport[31] – including a driverless metro linking the old industrial towns of Roubaix and Tourcoing, an upgraded tram to Roubaix, and an integrated high-quality bus system that knitted the whole agglomeration together. These upgrades were funded in part through the *versement transport*, a charge on the payroll of firms with more than ten employees. The French planning system of *l'aménagement du territoire* starts with consideration of the 'bigger picture' and funds feasibility studies of projects put forward by local councils.
- ***Copenhagen***, a city generally reckoned to be one of the most attractive in Europe, has increased cycling rates to 37% by gradually taking space away from cars. Some of the city's growth is being accommodated in a high-density satellite new town called Ørestad on the way to the airport, and seven minutes from the Central Station. Although growth has not been as rapid as planned, and a major shopping mall had to be built, the uplift in land values was used to fund the first line of the city's metro system. Copenhagen has pioneered land value capture, and sites with planning permission pay property taxes. From 1916 houseowners have paid 2% of the value of their homes, while land rent has ranged from 5% to 10% of GDP. Green fingers are used to concentrate development along transit corridors.
- In ***Rotterdam*** the old port area of Kop van Zuid has been transformed with stylish housing, connected to the centre by the iconic Erasmus Bridge and fast river taxis.[32] The splendid new Rotterdam Centraal railway station symbolises the city's renaissance as a cultural city to rival Amsterdam, and, as well as local metro and tram services, the whole Randstad area (equivalent to Greater London) is tied together through 'Swift Rail' type services. Dutch planning is a model for how to integrate transport and development, with higher densities promoted around the most accessible locations through a simple 'ABC' classification system. Central control is used to ensure that schemes are viable – for example, Rotterdam was not allowed to build a new business park by its airport until the park near Amsterdam's Schipol Airport had been completed. South Amsterdam provides one of the best models of how to integrate transport with mixed high-density development, and should inspire similar efforts at Old Oak Common in London.

Joining up investment plans

With relatively low levels of investment in the UK compared with other parts of Northern Europe, even more difficult transport choices have to be made. This is crucial if 'know-how cities' such as Oxford and Cambridge, or the area of West London around Heathrow, are to compete globally and attract private finance on the scale needed. By contrast, efforts to regenerate older industrial areas such as in Stoke-on-Trent or Bradford cannot be accomplished through major transport projects alone, such as High Speed 2. Instead, a portfolio of public investment needs to be backed up by measures to make urban living much more attractive and create good-quality new jobs.

Making decisions by ranking transport projects using a relatively crude cost-benefit analysis is far too simplistic (although the WebTAG process has tried to take account of different factors). Studies such as that undertaken by the National Infrastructure Commission for the Cambridge-Milton Keynes-Oxford corridor are a great improvement, but there is a need to grapple with the problems of

intra-city transport links too. The full range of options or scenarios for 'smarter urbanisation' need to be assessed. The best returns will come through the public sector buying up land before plans have been worked out, as the World Bank has argued in its excellent recent book on land value capture.[33]

The potential uplift in land values, which is the government's preferred method of assessing value for money, should help us make better investment decisions, such as where to locate a new generation of Garden Cities or sustainable urban extensions.[34] Influential research by Thomas Piketty, and also by Tony Atkinson, has revealed how much of the wealth in the UK is bound up in housing – this has been illustrated in the useful chart produced by Michael Edwards, shown in Fig. 2.[35] Escalating house prices are blamed for reinforcing inter-generation inequalities and diverting funds from investment in industry.

Areas with high land values could raise bonds to 'pool land' on complex sites (as the Housing White Paper suggests) and hence contribute to upgrading local transit systems that would improve life for all.[36] They could make serviced plots available on a leasehold basis, like London's 'great estates', so that long-term investors such as pensioners could share in ground rents on rising values, and small builders could have a better chance of playing their part in the housebuilding market. Community land trusts could then act as stewards of the public realm (like the prototypes in Letchworth and Milton Keynes).

The National Infrastructure Commission, through its role in assessing major projects and infrastructure capacity, may hold the key. Techniques such as agent-based modelling offer a possible way forward, and certainly deserve to be tested.[37] So, too, does policy-led multi-criteria analysis.[38] Multi-criteria analysis in a historic city like Oxford would consider not just time saved in getting to work, but also the impact of different transport investments on the growth of jobs and housing, which would be reflected in land values. A full analysis would also assess the social benefits to be gained through increasing the earnings of people living in the poorer parts of East Oxford, and in improving air quality and health more generally. This would require further research to support 'judgement in establishing objectives and criteria, as well as estimating the relative importance of weights and in judging the contribution of each option to each performance criterion.'[39]

Fixing broken delivery systems

The challenges that the UK faces in upgrading its worn-out infrastructure are technically and politically complex. But tackling them is crucial if the country is to respond to the likely loss of confidence and community wellbeing after Brexit. This will require more than just a few grand projects such as High Speed 2; instead, it means, as the Eddington Transport Study recommended, enabling a range of small projects to go ahead that offer better value.[40] For this we need a planning and development system which addresses local constraints through action plans or strategies that mobilise private investment and community enterprise for inclusive growth and 'smarter urbanisation' at a sub-regional scale.

With the government starting to recognise the need for radical change, the time should be ripe for a breakthrough in planning and assessing projects

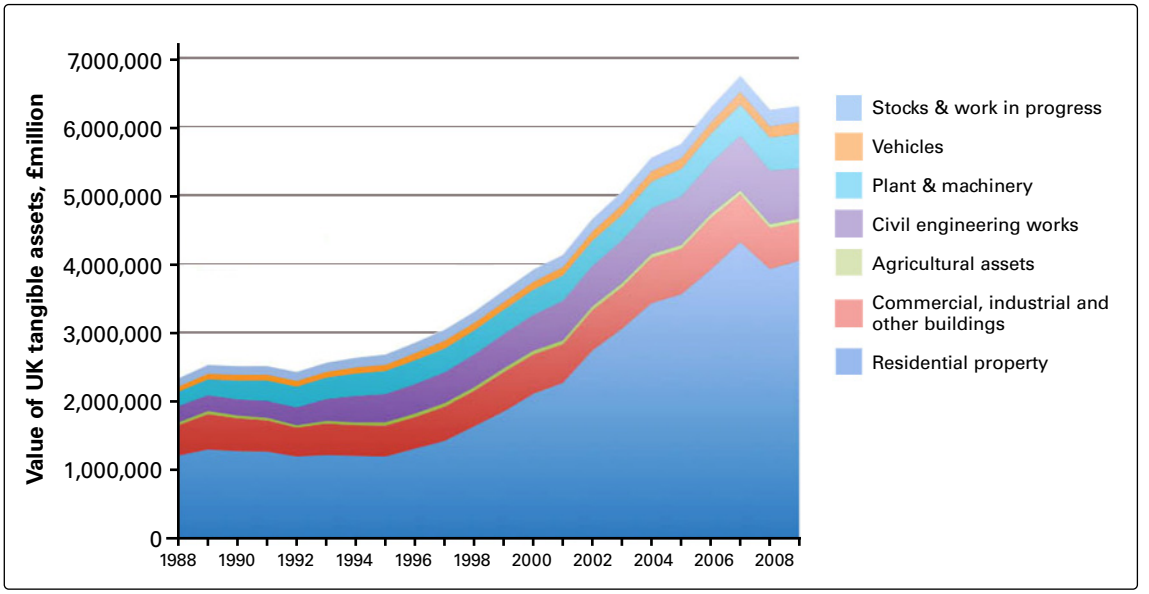

Fig. 2 UK tangible assets, 1988-2009

Source: M Edwards: *Prospects for Land, Rent and Housing in UK Cities*,[35] based on ONS non-financial balance sheets

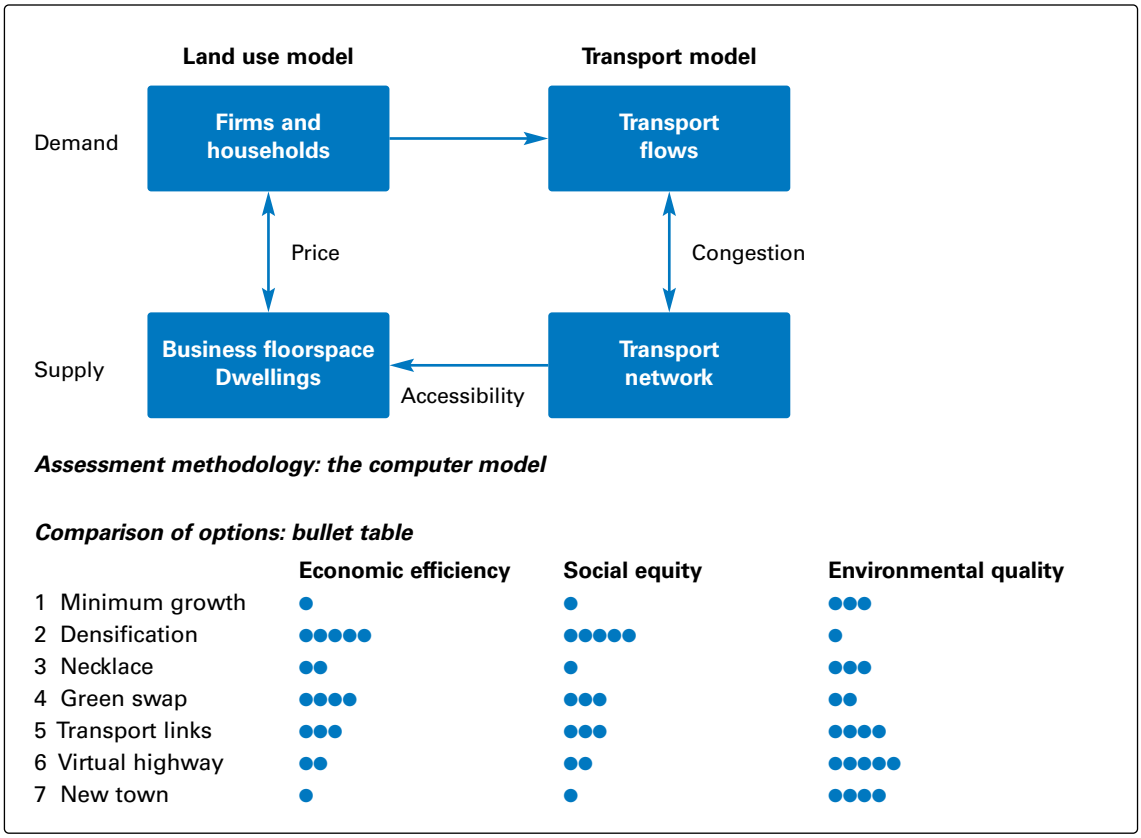

Fig. 3 Cambridge Futures methodology and evaluation of options

Source: Cambridge Futures[44]

against the 'three Es' by which strategic planning can be judged:[41]

- ***Effectiveness and environment:*** Does it work (to produce desired results)?
- ***Efficiency and economy:*** Is it being delivered economically (to minimise waste)?
- ***Equity:*** Is it fair to all concerned (to promote social inclusion)?

Strategic planning could be as simple as 'ABC':[42]

- ***A: Ambition – creating a vision for quality growth:*** The first stage in creating spatial growth strategies is for groups of adjoining local authorities to work together to plan to build housing where the infrastructure is adequate, or can be improved economically. The London Society's recent White Paper, *Re/Shaping London*,[43] shows how that can be done in Outer West London, where Hounslow, Ealing and Brent need to collaborate with Hillingdon and Slough to make the most of the opportunities.

  For example, it makes sense to take over large brownfield and under-used sites such as the Northolt airfield, which could become a Garden City for the 21st century. This is a location that already has three London Underground stations and will benefit from the spare transport capacity released when Crossrail opens. Fig. 3[44] shows how the initial planning was carried out within the 'Cambridge Futures 1' study and then release appropriate sites.
- ***B: Brokerage – mobilising enough resources:*** The next stage is to harness land values. Unless land can be mobilised in the right locations and at the right cost, the numbers will never add up, and good sites will lie dormant. 'Charging' property-owners for their share of the cost of upgrading local infrastructure is probably the best way of raising enough public finance in the current political climate.[45] It would also seem fair to charge those who 'sit on' land with planning permission for the opportunity costs of delay, as is done in Copenhagen. This needs to form part of a proper reappraisal of our anachronistic council tax and business rate systems.

  The justification for rethinking property taxes is that our major cities will face tougher competition in the wake of Brexit, with institutions putting investments on hold and companies expanding elsewhere. So, if full value is to be secured from transport investment in and around Heathrow, for example, then resources also need to go into

landscaping and opening up access to areas currently scarred by gravel pits and monoculture. Upgrading the Colne Valley Country Park that runs from Rickmansworth through to Heathrow could compensate for taking land out of the green belt and extending the airport runways.

- ***C: Continuity – rebuilding local capacity:*** Finally, as the Housing White Paper rightly recognises, planning needs to be positive and strategic, not just regulatory and defensive. Combined authorities should be taking the lead, using their powers to establish joint ventures or development corporations. 'Charters for quality growth', as used in Cambridgeshire,[46] can unite warring authorities and help to build a 'shared vision' between communities and developers who might otherwise waste time fighting.

  But plans or charters will only be trusted if there are bodies with the necessary skills and resources to turn visions into reality. This means hiring the necessary staff to provide a degree of certainty. Interestingly, Croydon Council has gone from using a joint venture with a major builder to building its own homes through a wholly owned subsidiary company, Brick by Brick, that employs 12 people and uses low-cost finance and land that the council owns to make affordable housing viable.

Meeting the aspirations of the Housing White Paper requires appropriate delivery mechanisms and funding sources. For example, development corporations or joint ventures could use 'growth bonds' to leverage public investment in related infrastructure. But given all the uncertainties in the world, we need real leadership to overcome vested interests.

The housing crisis (and Brexit) should be used to overcome some of the disparities in our society through integrated development and transport planning. Such an approach should 'trump' property interests by sharing the uplift in land values more fairly.[47] If, on the other hand, we fail to build housing in the places they are most needed, the nation will lag ever further behind, as inequalities deepen and hope for a better life dissolves.

● **Dr Nicholas Falk** *founded URBED in 1976, and is now Executive Director of The URBED Trust, with major projects in Oxford and India (www.urbedtrust.com). This is the last in a series of articles by the author in Town & Country Planning on strategic planning. The views expressed are personal.*

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