

**THE INCLUSIVE  
GROWTH  
COMMISSION**

# Physical Capital

1st report of the Inclusive  
Growth Commission

March 2024



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# About the Inclusive Growth Commission

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Since the 2008 financial crash, the UK has experienced a significant growth problem, leaving the economy 22% or £500bn smaller than it would have otherwise been. This 'growth deficit' has exacerbated the effects of another long standing inclusion deficit. The UK is currently the most geographically unequal country in Europe, as well as lagging behind its peers on a number of other inequality and social mobility metrics. These two deficits combine to create an environment of low investment and high inequality, with significant impacts on the funding of public services, levels of taxation, salary levels of workers, and quality of life.

Solving the growth problem is one of the most fundamental missions facing the UK. But growth for growth's sake benefits few and does little in the long-term to reverse deep regional inequalities or prepare UK industries for emerging opportunities. Getting the UK on course for inclusive growth requires a meaningful strategy focussed on overcoming key challenges felt by British people, places and businesses.

We see these challenges as being about access - the ability of employers to access the labour and skills they need to succeed; of entrepreneurs to access the capital they need to burgeon new ideas; of scientists and innovators to access grants, lab space and institutional support needed to develop their ideas; and finally, of everyone to access plentiful, affordable housing in towns and cities connected and powered by world-class physical infrastructure.

In other words, access to:

**Physical Capital**  
**Financial Capital**  
**Human Capital**  
**Knowledge Capital**

The Inclusive Growth Commission is a group of like-minded builders, makers and financiers who came together because of a shared belief that the UK's economic problems - though significant, perhaps more so than many realise - are not insurmountable.

For a number of us, it is our first foray into politics and policy.

Spanning construction, manufacturing, ports, airports, energy and finance, we believe our sectors are key to solving the UK's long-standing problem of under-investment, and to creating productive, well-connected towns and cities with plentiful affordable housing that can become the engines of inclusive growth.

Our most productive towns and cities are places where people move to because they have to, only to spend too much of their pay on expensive housing too small to start a family, while locals are priced out of their homes.

It does not have to be like that.



FORTH PORTS

The Manufacturers' Organisation

NUCLEAR AMRC

## Executive summary

02

Supporters of inclusive growth argue that economic outcomes and societal outcomes are intrinsically linked. As such, addressing issues such as the gender pay gap, educational inequality, intergenerational unfairness, regional growth differences and environmental harm need to be part of the debate around how to best solve the UK's growth problem.

Within this context, the IGC defines inclusive growth as giving more people and places the opportunity to contribute to and benefit from economic progress. Physical capital can contribute to these opportunities being delivered and sustained by being:

- **Productivity-focused.** Higher quality, quickly delivered energy, housing, telecommunications and transport projects can make production processes more efficient and make the movement of people and products easier.
- **Partnership-based.** Recognising that the public and private sectors – and different tiers of Government – need to work together effectively to deliver meaningful change.
- **Long-termist.** Recognising that some growth-enhancing activity is blocked because of short-term vested-interests, political considerations or inadequate policy.

There are two kinds of physical capital which require intervention in order to close the UK's productivity gap:

**Local physical capital:** the infrastructure we use to get people living and travelling to the places they want to be for work or socialising.

The state of local physical capital across the UK is acting as a constraint to the growth of the country's economic hubs. There is a massive shortfall in housing and that housing which does exist tends to be low density, stretching for miles from urban centres.

Low housing density coupled with relatively poor local transport constrains the ability of towns and cities to access the labour they need and limits people's ability to take advantage of the opportunities presented by our economic centres.

The IGC estimates that these factors cost the country's biggest regional cities £44bn in 2019, with that figure likely rising over the coming years.

Standing in the way of addressing these challenges are:

- A lack of housing strategy.
- Overstretched local planning departments, bogged down with complex compliance processes.
- A lack of clear thinking on the green belt.
- Poor coordination between housing and transport development.
- Unnecessarily expensive transport development.

**National physical capital:** the major infrastructure we use to power, connect and supply our places with vital resources and services like water.

Given pressures from the net zero transition, providing energy security and maintaining infrastructure on par with the country's closest competitors, the UK is in store for a massive transformation of its infrastructural environment. However, in recent years, its delivery record on major projects has been extremely poor, dogged by massive delays and overspends.

The IGC estimates that if similar issues are run into when deploying the infrastructure necessary to deliver on the promise of net zero, additional costs could come in as high as £389bn – 15% of the UK's current GDP.

Contributing to these major delivery issues are:

- Out of date and incomplete strategies.
- Concentrated losers and a planning system filled with veto opportunities.
- Needlessly complex and expensive administrative processes.
- Volatile public sector investment.
- Patchy pipelines, preventing the development of supply chains or the accumulation of know-how.

# Recommendations summary

03

## 1.1 A national housing strategy

A national strategy for housing should be drafted. The National Infrastructure Commission's (NIC) remit should be extended to include housing.

## 1.2 Green belt review

Alongside the drafting of a long-term national housing strategy there should be a systematic review of green belt designations at a national level.

## 1.3 From green belt to green fingers

The UK should abandon the arbitrary 'belt' shape of its restrictions on development around towns and cities, mirroring the more innovative approaches to urban sprawl prevention seen in cities like Copenhagen.

## 1.4 Continuing devolution to combined authorities

The funding and powers over transport seen under trailblazer devolution deals should be extended across combined authorities and combined county authorities. A route should be opened to allow local authority planning departments to merge into one office under their combined authority, where they exist.

## 1.5 Regionally Significant Infrastructure Projects (RSIPs)

Combined authorities should be provided with expanded powers to define 'RSIPs' and then deal with the planning applications for such schemes. This will allow schemes of regional significance to be dealt with more quickly and effectively.

## 1.6 Make better use of existing infrastructure

Planning authorities should use Local Development Orders (LDOs) to encourage redevelopment of brownfield and residential sites close to existing or planned transport infrastructure.

## 1.7 Learning from best practice

Local transport infrastructure in some European countries is delivered more cost-effectively, especially in those areas which optimise for deliverability, often through modular design principles and quick delivery. These principles should be more heavily emphasised in project evaluations.

## 2.1 Community benefit mechanisms and limiting veto opportunities

Local residents who bear the brunt of the disbenefits of otherwise beneficial projects should be better brought on-board with major projects through a more systematic approach to community benefit in the NSIP regime. Alongside this, opportunities for effective vetoing of projects should be stripped back.

## 2.2 An 'OBR' for infrastructure

The National Infrastructure Commission (NIC) should see an expansion in its role, giving its 'official verdict' on major infrastructure announcements, as well as playing more of a role as a storehouse of institutional knowledge as the UK's infrastructure is transformed over the coming years.

## 2.3 Stabilising funding

All major infrastructure projects should have ring fenced budgets, controlled by the project managers themselves. These budgets should last at least five years as already happens for National Highways and Network Rail.

# Conclusions

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The recommendations addressing the barriers to local physical capital will work to enhance the productivity of the UK's regional towns and cities, spreading growth more evenly across the country - an extremely valuable prospect in Europe's most geographically unequal country.

In addition to productivity enhancements, the recommendations will work to increase housing supply where it is needed the most, cooling off some of the most overheated housing markets in the country. This will make Brits better able to take advantage of the opportunities presented by towns and cities without being as constrained by exorbitant housing costs - a particularly important factor for the young, amongst whom home ownership is at an all time low.

Local transport networks will be improved, with the cost of delivering system improvements reduced and the coordination between housing and transport policy improved, working towards increasing the accessibility of towns and cities, especially by public transport.

When it comes to national physical capital, the recommendations set out here will dramatically improve the country's capacity to deliver the transformation being asked of its infrastructural environment by the pressures of the net zero transition, energy security concerns and maintaining its place as a competitive economy on the global stage.

The planning system will increasingly work to ensure valuable projects are brought forward and that all are able to share in their benefits. The government will be encouraged to produce more meaningful and timely strategies. The lessons learned from delivering on major projects will be stored and shared effectively and the funding for those projects will be stabilised, providing much needed certainty for delivery bodies and investors alike.

These effects will not just lead to growth, but will reduce inequalities between regions and generations, as well as delivering a more sustainable and secure energy system and economy at large.

# Tables and figures

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**Figure 1:** the UK does not see returns to agglomeration in its cities

**Figure 2:** Birmingham's productivity is 25% lower than it would be with the returns to agglomeration seen in European cities, its lack of accessibility explains 1/3 of this gap

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**Box 1:** Urban planning in Copenhagen

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**Box 2:** South Korea's nuclear deployment successes

# An introduction to inclusive growth and physical capital

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**In the last 20 years, the idea of 'inclusive growth' has gained prominence across the world. Influential international organisations such as the United Nations, World Bank and OECD are all advocates. As are many local councils, businesses, regulators, industry bodies, think tanks and academics in the UK.**

Proponents of inclusive growth argue that an economic model that focuses only on achieving higher growth ignores the fact that many people and places do not benefit from that growth – they do not have access to more opportunity and their living standards are stagnant. The consequence of this exclusion is lower productivity and weaker growth.

Instead, a specific policy programme to broaden the base of those contributing to and benefiting from growth will strengthen the economy and society. For example, train more people to a higher qualification level that can be used in thriving sectors and they can then earn higher wages and businesses can access more skilled labour. It ultimately offers an alternative to the approach to the state waiting for growth to happen to then distribute its proceeds how it sees fit, reducing demand for welfare benefits and health services (among many other things).

In short, making a conscious effort to include the excluded will make us all better-off.

The argument that growth could and should be more inclusive is not controversial – some may have gripes with the language used to describe it, but efforts to get more people to have a meaningful stake in the economy is regarded as fundamentally a good thing to do.

Yet there are two factors that prevent inclusive growth from developing beyond rhetoric and into a coherent policy platform:

- **Different policy opinions.** There are a wide variety of views on how growth and inclusivity can be achieved (and precisely what outcomes need to be achieved).
- **Becoming a catch-all term.** Subjects that have been associated with inclusive growth range from wealth inequality to environmental harm, and from the gender pay gap to housing availability.

But there is a clear opportunity to navigate these issues and for inclusive growth to be a central plank of a new government's approach to economic policy and be the basis of new industrial strategy for national and local government to provide cross-sectoral solutions to the UK's economic problems.

# The role of the Inclusive Growth Commission

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The Inclusive Growth Commission's starting point is that:

1. **The UK has a growth problem.** Over the 15 years prior to the financial crisis in 2008, the UK economy grew by around 50%. Over the 15 years following the financial crisis the UK economy only grew by around 20%.
2. **The UK has an inclusivity problem.** Of the ten council areas that have seen their economic output increase the most in the period 1998-2021, six can be found in London.

The IGC's commissioners and organisations have experienced these problems first-hand as:

- **Deliverers** of growth.
- **Leaders** in the adoption of new technologies.
- **Difference** makers in communities across the country.

Within this context, the IGC defines inclusive growth as:

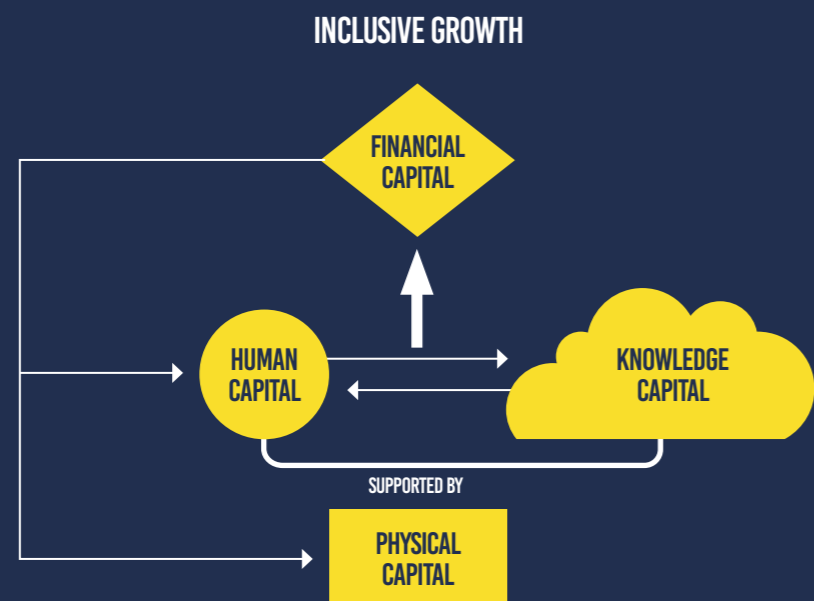
**“GIVING MORE PEOPLE AND PLACES THE OPPORTUNITY TO CONTRIBUTE TO AND BENEFIT FROM ECONOMIC PROGRESS”.**

This definition speaks to two ideas. First, the ultimate objective of inclusivity relates to improving people's lives, but the local institutions and unique characteristics of different places create the environment for this improvement to happen. Second, that contributing to growth is recognised as being as important as benefiting from growth, i.e. inclusivity should not simply be about post-growth redistribution.

The foundation for offering more opportunity to people and places is increased investment in, and therefore increased supply of, the types of capital that contribute most to growth. The IGC focuses on four types in particular, those that are mainstays of the theories around how to generate growth:<sup>1</sup>

1. **Physical capital** - infrastructure, plants and machinery, and housing.
2. **Financial capital** - how companies are funded to grow.
3. **Human capital** - the stock of skills that the workforce has.
4. **Knowledge capital** - the innovation that leads to new ideas being implemented.

This paper focuses on physical capital.



# Physical capital as a driver of inclusive growth

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**The problems preventing the UK from delivering inclusive growth are well-known. It is the inability to design a package of solutions and deliver them that is the barrier to progress. This report focuses on solving the UK's lack of competitiveness when it comes to delivering physical capital.**

These ideas have been designed to meet the following criteria, the purpose of which are to give greater focus to an inclusive growth agenda (rather than it being a catch-all term as described earlier):

- **Productivity-focused.** Recognising that raising productivity is ultimately the route to higher growth. Improving the physical capital of public and private infrastructure can raise productivity. Higher quality, more quickly delivered and more innovative energy, housing, telecommunications and transport projects can make production processes more efficient and make the movement of people and products easier.
- **Partnership-based.** Recognising that the public and private sectors - and different tiers of appropriately-resourced Government - need to work together effectively to deliver meaningful change. All major infrastructure projects require

these partnerships, whether to ensure financing (such as Hinkley Point C Nuclear Power Station), to ensure planning permission is granted (such as HS2), to ensure it is appropriately regulated (telecommunications infrastructure); or to balance risk appropriately between public and private sectors (such as production facilities for novel sustainable fuels)

- **Long-term.** Recognising that some growth-enhancing activity is blocked because of short-term vested-interests, political considerations or inadequate policy. For instance, housing developments are often rejected because they are opposed by a small-minority of vocal people.

It is this criteria that will guide all of the IGC's proposals.

# Introduction

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For the purposes of this report, we think about physical capital in terms of two major buckets.

## Local physical capital

We are defining local physical capital as the infrastructure we use to get people living and travelling to the places they want to be for work or socialising.

If an area is offering opportunities to contribute to and benefit from its economy, well functioning local physical capital will act as a facilitator, allowing people to make the most of those opportunities.

This means that there is enough housing in a given place, such that labour shortages do not act as a binding constraint on that place's growth. The housing supply itself should reflect the needs of the population and its workforce. Further, the transport system should be such that its residential and commercial areas are mutually accessible.

## National physical capital

National physical capital for the commission is the infrastructure we use to power, connect and supply our places with vital resources and services like water.

A well-run national physical capital system would see an energy grid capable of balancing reliability, energy security and environmental responsibility. It will also see a cohesive national transport network, connecting and integrating our towns, cities and regions with each other and key international markets, acting to complement local transport networks.

Key across any part of a national physical capital system, be that in utilities infrastructure or telecoms networks, is planning. Under a well-run system, the planned future of that system is clearly set out, providing the certainty needed for both private and public bodies to invest confidently.

Above all, well-maintained national physical capital will act as a source of a place's international competitiveness and productivity, rather than as a constraint to it.

Here, we will go into depth on both these forms of physical capital, looking at where the UK is currently falling behind with regards to them and how this contributes to the country's productivity shortfall. The core factors behind these problems will be fleshed out and most importantly, a set of recommendations on how they might be overcome will be provided.

# The UK's local physical capital gap

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Poor accessibility to the UK's economic centres limits the size of their populations and labour forces. This makes UK cities less able to benefit from agglomeration effects, vital in contributing to the high productivity common to major settlements, leaving the UK's cities less productive than would be expected given their size.<sup>2</sup>

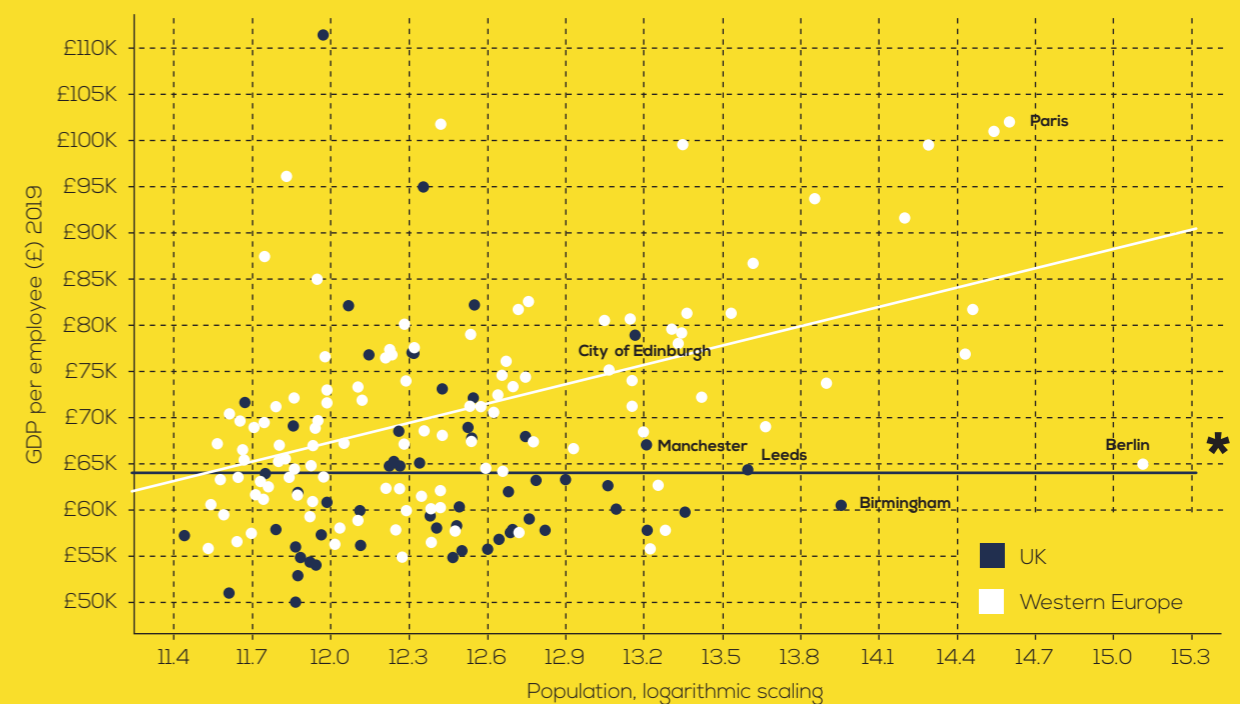
Under the standard theory of agglomeration, it follows that the larger a population centre is, the more potential that centre has for fostering agglomerations and thus more potential to benefit from their productivity-enhancing effects. One study, for example, found that a doubling of the size of a given Japanese city would generate a 10% boost to its nominal wages, largely driven by productivity increases.<sup>3</sup>

While we see such a pattern across European cities, the UK's cities (excluding London) exhibit essentially no returns to agglomeration. In fact, the UK's ten largest cities are 21% less productive than we could expect to see among European cities of a similar size.

The view among many researchers as to what explains this is that British towns and cities are significantly less accessible to their populations than we see amongst our neighbours.<sup>4</sup> This limits the effective size of their populations and thus limits their potential labour supplies and the returns from important processes such as labour pooling.

This accessibility problem is driven by two factors a) the way the UK has built its housing and b) its transport networks.

Figure 1: the UK does not see returns to agglomeration in its cities



Source: ONS, Eurostat, IGC calculations

\* A strong positive relationship between city population and productivity among European cities implies strong returns to agglomeration. No such relationship is seen in the UK.

A classic feature of UK cities is their low-rise housing, sprawling out for miles. This contrasts with our European counterparts, whose cities are known for their mid-rise housing, allowing for significantly higher population densities close to their economic centres.

With the populations of the UK's towns and cities spread as widely as they are, to provide these populations with similar accessibility levels as Europeans do, the country would have to be home to denser and more extensive local transport networks.

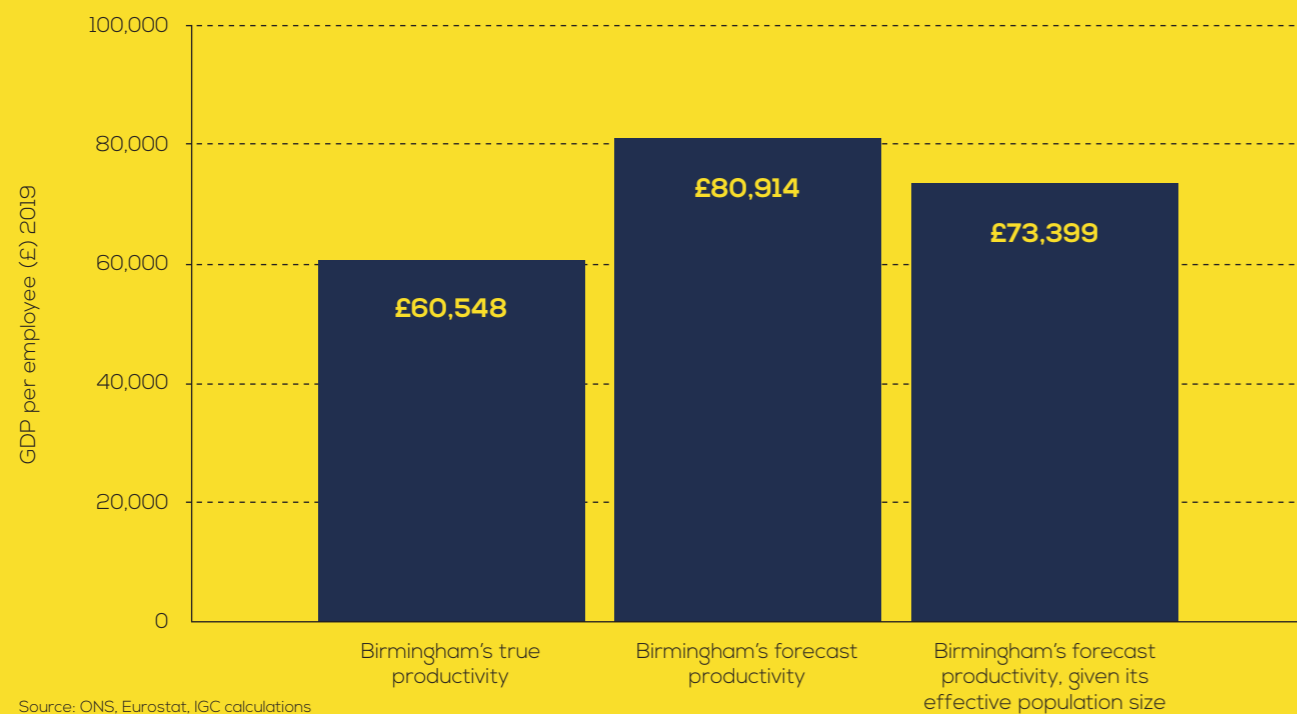
This is not the case. In some places, we see local transport networks of roughly comparable size and scope, but in many others, the UK's local transport networks are lacking.

Tram networks are an illustrative example. France has built 25 tramways over the past 25 years, including in relatively minor towns such as Avignon, which has

a population size similar to Lincoln.<sup>5</sup> The UK, on the other hand, is home to the largest European city with no tram or metro, Leeds. Where such networks do exist, such as in Birmingham, their scope and thus the connectivity they offer are limited compared to European neighbours.<sup>6</sup>

Figure 2 shows Birmingham's true productivity level in 2019, a GDP per worker of just over £60k, compared to what it would be with European style returns to agglomeration - around 1/3 higher. According to research by the Centre for Cities, Birmingham's effective population size, defined as the number of people capable of reaching its city centre in 30 minutes, is only 34% of its overall population - an indicator of its relative inaccessibility.<sup>7</sup> If we predict Birmingham's productivity using this figure, rather than its actual population, the prediction drops to £73k, explaining a third of the overall gap.

**Figure 2:** Birmingham's productivity is 25% lower than it would be with the returns to agglomeration seen in European cities, its lack of accessibility explains 1/3 of this gap



We estimate that were the UK's ten largest regional cities to be seeing similar returns to agglomeration as similarly sized cities in Western Europe, they would

have added approximately £44.2bn more to the UK's GDP in 2019, with Birmingham standing to see its GDP increased by as much as £10.5bn.

**Table 1:** how much would the UK's regional cities gain if they saw Western European returns to agglomeration?

City	Potential agglomeration gains (£bn, 2019)	Potential gains per resident (£, 2019 prices)
Birmingham	10.5	9,115
Glasgow	7.1	11,167
Leeds	6.4	8,010
Sheffield	5.3	9,479
Liverpool	3.8	7,858
Bradford	3.5	6,466
Manchester	3.5	6,357
Bristol	3.4	7,163
Bournemouth	1.9	4,762
Edinburgh	-1.2	-2,240
Total	44.2	

As the population sizes of British cities grow over time, the potential losses from this lack of accessibility will continue to balloon. Holding productivity per worker constant, if we were to see the same accessibility issues as we do today in 2040, the UK could be losing out on just shy of £50bn a year. At our current tax burden, this would mean the Treasury losing out on £17.7bn - more than enough to cover the entirety of the spending on the Home Office.

The obvious solution to this problem would be:

- The densification of housing around our major economic centres.
- Increased house building in the hinterlands around major economic centres.
- The improvement of local transport networks both in towns and cities and between major settlements and their satellites.

So why do we appear to be struggling to do this?



# Barriers for local physical capital

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## A lack of a national housing strategy

Housing is quite obviously a core part of the country's physical infrastructure, on par with our transport networks or energy grid in its importance. Unlike these parts of our physical capital environment, there is no underlying strategy for getting houses built where they are needed most.

The closest documents we have to a strategy are the National Planning Policy Framework,<sup>8</sup> Homes England's Strategic Plan<sup>9</sup> and the many local plans and housing strategies which are drafted across the country's local authorities.

It is also notable that housing is not under the remit of the National Infrastructure Commission, with no central body having responsibility for monitoring the UK's housing needs or for monitoring the progress of government against housing targets.

## Compliance, resource constraints and the discretionary principle

The UK's planners are under immense pressures from the complexity of our administrative processes at a time when their departments face massive cost pressures.

Unlike many of our neighbours, the UK's planning system works under a discretionary principle. That is, almost all planning decisions, whether on the fitting of conservatories or the expansion of airport runways, are made on a case by case basis, rather than being rules-based as is the norm internationally.<sup>10</sup> Per project, this increases the workloads of local planners, the incidence of delays in the planning process and the likelihood of projects being overturned at appeal.

Coupled with the discretionary nature of the planning process is the complexity of many of the assessments required for projects to reach approval. Environmental impact assessments and similar procedures, while performing an important function, are currently set up in ways which lead to the duplication of efforts for both builders and planners, as well as exceedingly long documents for planners to wade through.<sup>12</sup>

Having to assess projects alongside their masses of compliance documents on a case-by-case basis would add stress to any planning department. Today these pressures are all the more acute, with local authority core spending power fallen 27% since 2010.<sup>13</sup> Local planning departments see serious resourcing constraints, leaving many planners essentially occupied with pouring over compliance documents, with relatively little time to plan.

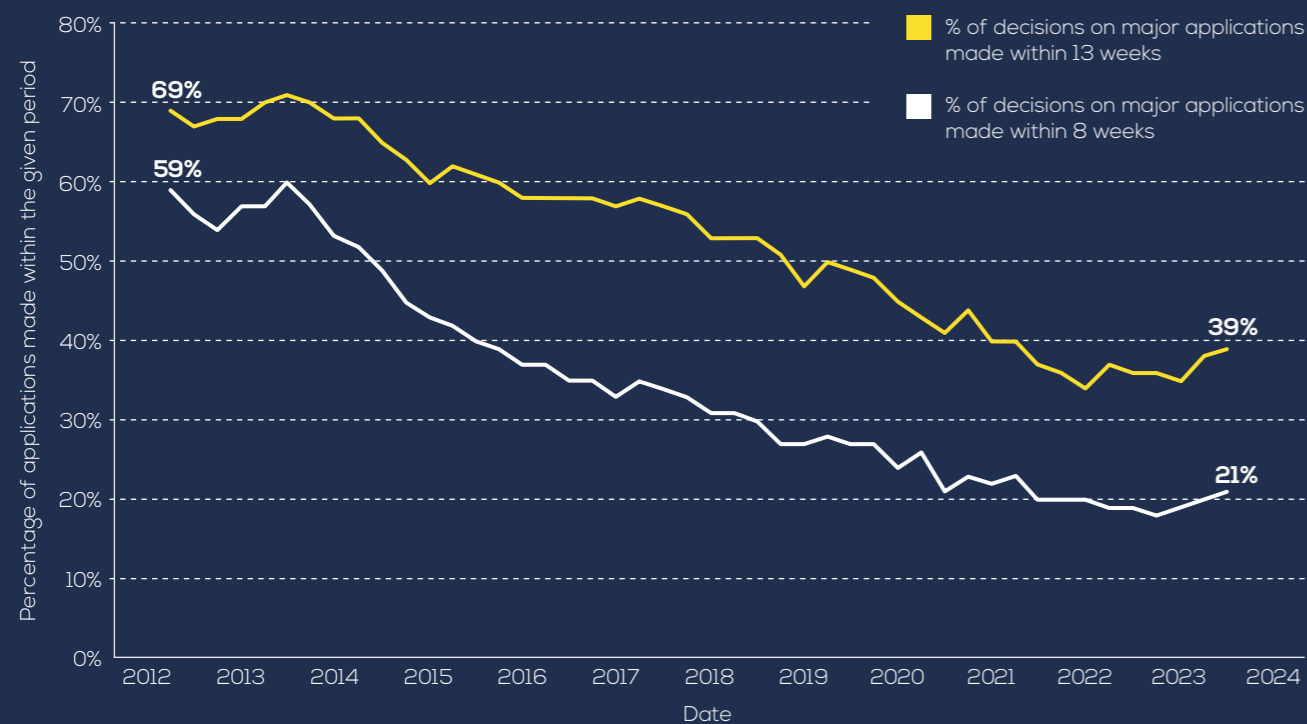
is significantly higher for the tallest developments.<sup>15</sup> In London, many domestic high-rise developments remain unoccupied, acting more as speculative investment assets, rather than homes.

To deliver the scale and variety of housing required to both supply urban clusters with the critical mass of population they require to fully benefit from agglomeration effects,<sup>16</sup> as well as meeting the real housing needs of those populations, cities and their hinterland settlements will need to expand outwards as well as upwards.

Development of this type at any scale is not possible with the current formulation of the UK's greenbelt policy on two counts:

1. Green belt land is designated as a 'ring' around towns and cities, virtually precluding any development, regardless of how valuable it may be on their outskirts.
2. When green belt designations are reviewed, it is often done in a haphazard manner. The NPPF has removed the need for strategic reviews of the green belt and advises local authorities that green belt land should only be released under 'exceptional' circumstances; little guidance exists as to what 'exceptional' would actually entail.<sup>17</sup>

**Figure 3:** the speed at which planning applications receive their decisions has fallen since 2012<sup>11</sup>



Source: DLUHC

## We will have to build outwards as well as upwards

While urban densification will help provide British towns and cities with larger labour pools, it is only part of the housing picture. Cities and their satellite towns will need to see housing expanded outwards, especially along major transport lines.

Densification can be achieved by the replacement of low-rise units with either mid or high-rise housing units, both of which offer their challenges. Achieving mid-rise densification at any pace or scale in most cities would require the demolition of a number of existing units, which would naturally face a high degree of resistance, as well as taking a number of housing units out of circulation in the short run. Some policy packages like street votes may allow for some mid-rise densification over long time horizons,<sup>14</sup> though their scalability is highly questionable.

Building high-rise units can quickly increase density close to city centres, but such development inflates land values significantly, pushing up the value of housing on or near high-rise plots, limiting the viability of the provision of affordable housing and pushing the value of many properties out of range for even those earning good salaries. In Manchester, value gaps in housing units three years ago measured in the vicinity of £20,000, this has since increased to £30,000 and

A functional approach to the greenbelt boundary review process would strongly discourage developments where they are of little social or economic value and would prevent access to recreation space or act as a threat to the local natural environment. On the other hand, they should encourage review where greenbelt land is both:

1. Not currently delivering on its promise of controlling urban sprawl, preserve nature and biodiversity, provide recreational space or spaces of aesthetic and cultural value AND
2. Clearly acting as a binding constraint to the economic and social wellbeing of a place.

The lack of clarity provided under the current approach delivers little of this.

## Planning housing and transport together

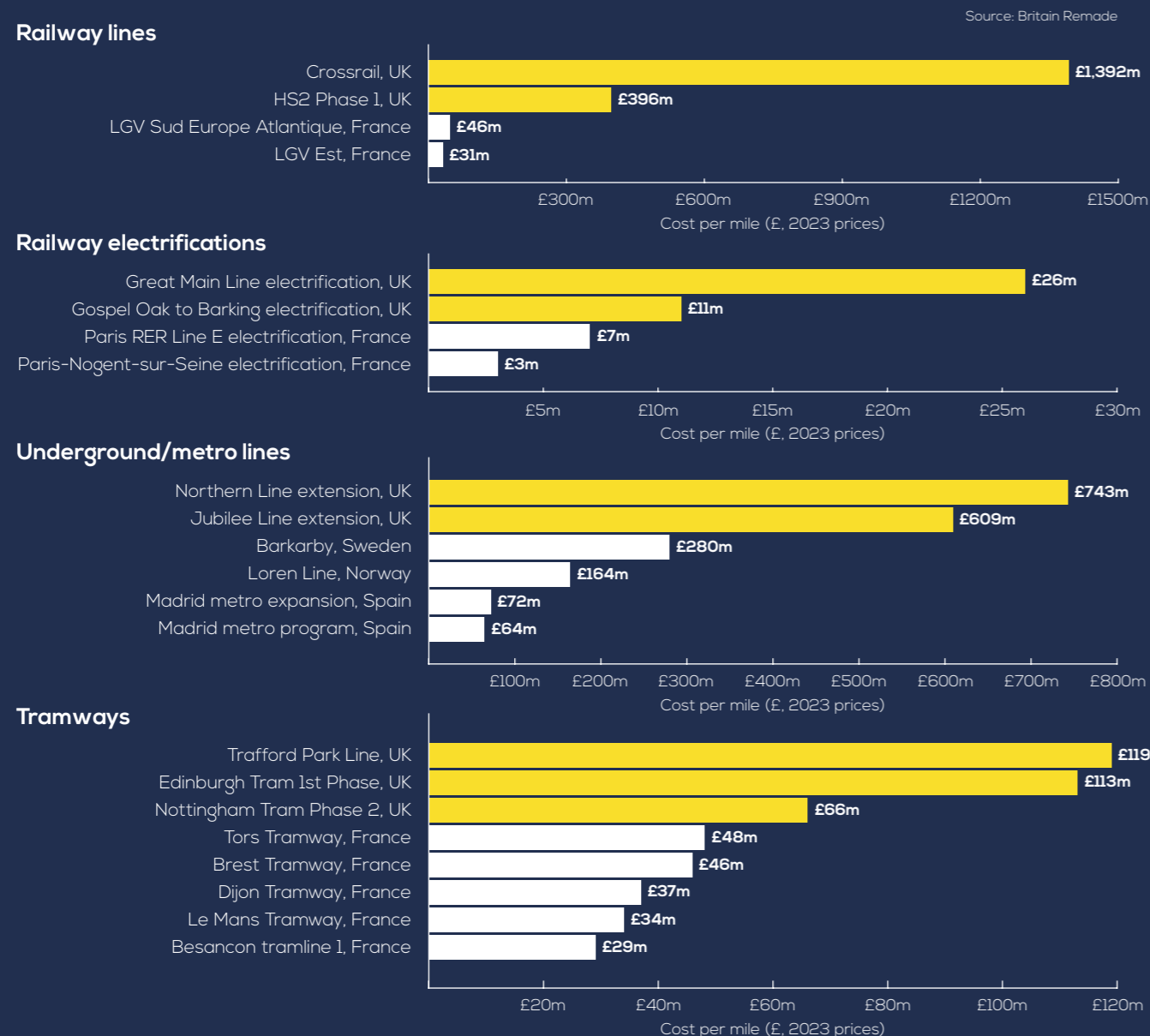
Housing and transport are clearly highly complementary to one another, with their parallel development necessary for the long-run economic health of the UK's places. For this to be done effectively, it must be that both local transport and housing strategies are kept in alignment and delivered in coordination. It is also necessary that the incentives facing local government when it comes to housing and transport development are aligned - that the potential benefits an authority can gain from approving housing developments flows directly towards complementary transport developments and vice versa.

At present, patchy local transport funding, often requiring the bidding on central government funding pots, makes the alignment of strategy and delivery with other arms of local government particularly difficult.

### Expensive development

Data collected by Britain Remade shows that the cost of deployment of rail, tram, metro and road schemes in the UK is dramatically higher than those seen across comparable European countries, in particular the Scandinavian nations, France and Spain.<sup>18</sup>

**Figure 4:** the cost of rail, metro and tram developments in the UK and European comparators<sup>19</sup>



These high costs add yet more friction to the process of local transport development, limiting what can be achieved with what are often stretched or patchy budgets.

# Recommendations: local physical capital

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## 1.1 A clarified national housing strategy

A unified national strategy for housing should be drafted, taking into account the evolving needs of the UK's population and economy in the long-run. To aid in the development of a coherent strategy, the National Infrastructure Commission's (NIC) remit should be extended to include housing, with housing included in its National Infrastructure Assessments (NIAs).

An initial housing needs assessment, spearheaded by the NIC, must be carried out and published prior to the formulation of this strategy.

Housing stands apart from the other pieces of infrastructure assessed under prior NIAs, with it being the only kind of infrastructure directly sold to the public. As such, much more careful consideration of the economics of its development will need to be taken into account than with other infrastructure types.

This assessment should cover core considerations of how the changing shape of the UK's population is likely to affect housing needs in different regions. Extra consideration should be given to:

- **Where housing markets are currently most overheated**, as pointed to by the magnitude of the premiums charged above and beyond construction and materials costs via house prices - a core indicator of the artificial overheating of housing markets.<sup>20</sup> In 2020, the total value of these premiums across the UK, in other words a measure of exactly how much underbuilding has distorted house prices across the country, totalled £4tn. That's the equivalent of 40% of the country's entire balance sheet and around twice its GDP.<sup>21</sup>

- **Where a lack of housing is acting as a binding constraint to growth.** As seen in the analysis above, housing supply and the limited scope of local transport networks effectively limits the population size and productivity of some of the UK's most important economic centres. Such effects should be accounted for in the assessment, alongside some identification of areas where either densification or the expansion of supply in satellite settlements could relieve these pressures.

- **Where existing transport infrastructure is not accompanied by housing.** A number of railway stations, with good connections to major settlements are currently isolated across the country, with little housing nearby, with the surrounding land often designated as part of the greenbelt. This is a clear waste of their potential in supporting connectivity across the country. Modelling undertaken at the Centre for Cities has shown that the release of this land for housing development could provide between 795,000 and 994,000 new homes.<sup>22</sup>

Upon the completion of the initial assessment, the strategy should be produced by the NIC and Homes England, setting out clear, short, medium and long-term targets for meeting the housing needs across the UK's regions and settlements. These targets should cover more than just required housing numbers, but go into detail on the forms of housing and spatial distribution of development which would best meet local needs.

The responsibility for the delivery of the strategy should sit centrally, in No. 10, enhancing the prospect for cross-government coordination on its implementation. Progress against these targets will be monitored by the NIC, with its powers and capabilities expanded as per recommendation 2.1. The NIC will update targets as per its National Infrastructure Needs Assessment cycle.

## 1.2 Green belt review

Alongside the drafting of a long-term national housing strategy should be a systematic review of green belt designations.

As part of this review, a framework for the identification of those parts of the greenbelt which are most fit for redesignation should be developed. The core considerations of this framework should be based on the assessment of:

- Whether an area's current designation is delivering on the promise of greenbelt to control urban sprawl, preserve nature and biodiversity, provide recreational space or spaces of aesthetic and cultural value.
- Whether the area's current designation as greenbelt is a) contributing to an overheating of the local housing market and b) acting as a binding constraint to the improvement of economic or social wellbeing in its surrounding area.

The review should provide recommendations of those areas most fit for the re-designation of greenbelt land for development where the current designation both fails to deliver on the promised benefits of the greenbelt AND acts as a clear binding constraint to economic and social development. In identifying those areas which do fit these criteria, significant clarification will be provided as to which areas of the greenbelt are not fit for redevelopment.

## 1.3 From green belt to green fingers

The UK should abandon the essentially arbitrary 'belt' shape of its restrictions on development around towns and cities, mirroring the more innovative approaches to urban sprawl prevention seen in cities like Copenhagen.

Many countries have pursued policies which limit the urban sprawl of their major cities, with the benefits of maintaining access to green spaces and areas for recreation of obvious value. In essentially all cases, this is achieved by preventing the development of the land on the outskirts of towns and cities. What differs in the UK's case to some of the more innovative

implementations of such policies is the shape of this area.

Copenhagen has been widely praised for its 'green finger' approach to urban sprawl prevention. Here, instead of a ring surrounding the city, there are finger shaped designations which stretch out from the centre on which development is prohibited. The land between these green fingers is still defined as suitable for commercial and residential development. In forming city plans in these ways, access to green space and open air is maintained for city residents and even enhanced in some cases, whilst the ability for the city to continue to grow to meet the housing needs of its residents is also catered for (see Box 1).<sup>23</sup>

The UK's approach to urban sprawl prevention does little to strike such a balance, with any outward expansion essentially cut off, contributing to the dramatic overheating of urban housing markets. In addition, much of the green belt land surrounding cities is inaccessible to residents, limiting the benefit they can derive from it.

The UK should adopt an approach to urban sprawl prevention which abandons the essentially arbitrary 'belt' shaped restriction around its towns and cities. Instead, land close to major transport passageways and around hinterland settlements should be slowly released for development, aiming towards the creation of development corridors. Development on these corridors should be focussed largely on residential units, with emphasis on the enhancing of access to and maintaining of the green space adjacent to developments.

It should be noted here that such a policy may be helpful in speeding up the delivery of affordable housing in particular. While discussion is constantly made of the need to develop on brownfield sites, the cost of doing so given contamination and other such issues, can often limit the viability of supplying affordable units on such developments. These problems may be side-stepped through the introduction of development corridors.

## Box 1: Urban planning in Copenhagen

Copenhagen's 'Finger Plan' was devised in 1947, providing a strategy for the future development of the Copenhagen metropolitan area. The core idea of the plan was that Copenhagen should develop across five 'fingers,' each of which would center on an S-train commuter line, extending from central Copenhagen - the 'palm' of the hand. In between these fingers would be wedges of land set aside for agriculture and recreational use.<sup>24</sup>

In setting out the plan for Copenhagen in such a way, the city's housing supply has been able to expand over time along each of the fingers. At the same time, the plan maintains easy access to open space for the city's residents, with all suburbs bordered on two sides by a wedge of green space.

The plan itself was devised by Copenhagen's private Urban Planning Lab in the period following the Second World War, gaining significant support from local, regional, and national government officials in addition to a number of civil society groups. After garnering broad-based support, the scheme was implemented by a group of planners at the semi-independent Regional Planning Office.<sup>25</sup>

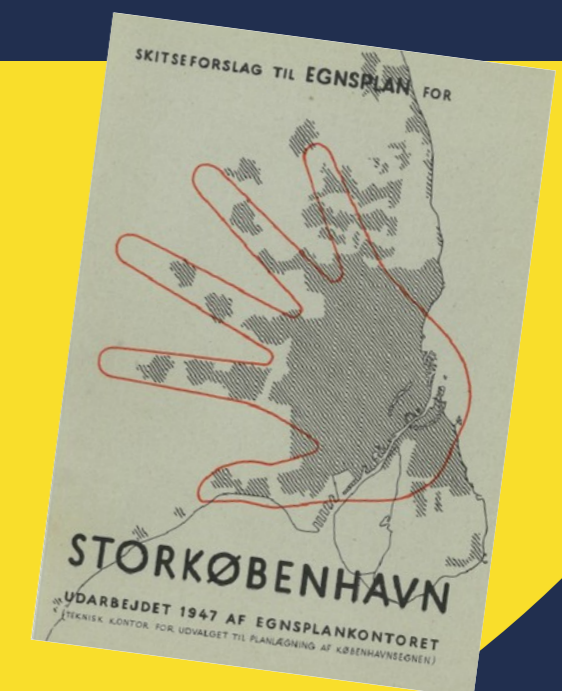
The plan itself has remained a core feature of urban planning in Copenhagen ever since, developing alongside the changing needs of the city. With the centering of each finger on an S-train line, the 'fingers' have acted as an important coordination mechanism between local housing and transport policy over the long-term.

In 1992, the Ørestad Act was adopted, which set in motion the development of a sixth finger, which would stretch to the island of Amager. The island had been left out of the initial plan and saw poor infrastructure and transport connections, leaving it under-developed compared to the original five fingers. The area became home to a new metro-link, connecting it to central Copenhagen and eventually became home to the Ørestad Link, connecting Copenhagen with Malmö, essentially extending Copenhagen's sixth finger into Sweden.<sup>26</sup>

Today, Ørestad is among the most modern and best connected parts of Copenhagen.

**Figure 5:** 1947 poster, illustrating the Copenhagen 'finger plan' to the Danish public

Source: Li, Han-ru<sup>27</sup>



## 1.4 Continuing devolution to combined authorities

The funding and powers over transport seen under trailblazer devolution deals should be extended across combined authorities and combined county authorities. A route should be opened to allow local authority planning departments to merge into one office under their combined authority, where they exist.

The greater influence over transport spending seen in level four and trailblazer devolution deals allows for more stable long-term planning within authorities, allowing for the development of better integrated transport networks. This longer-term strategy stability also makes the crucial integration of housing and transport planning significantly easier.

These powers, along with the more flexible funding for affordable housing and brownfield redevelopment included under the trailblazer deals should become a key feature of devolution across combined authorities.

One of the binding constraints facing planning in the UK is the resource pressure facing local authority planning departments.

In addition to a further devolution of powers over transport to combined authorities, within the standard devolution packages, a route should be opened which would allow local authority planning departments to merge into one office under their given combined authority. To note, this should be a voluntary process, decided upon between local authorities and combined authorities.

Where mergers occur, the planning responsibilities of local authorities should be transferred to combined authorities, becoming a statutory responsibility for that authority. Some proportion of revenue from the Infrastructure Levy should also be absorbed by the combined authority involved in the merger.

This will allow for departments to take advantage of economies of scale across their operations, reducing pressure on individual planners.

Economies of scale may also be taken advantage of in Infrastructure Levy revenues. Under the current local authority model, revenues in most local authorities are likely to be too small to deliver any significant infrastructure developments. In pooling revenues across a combined authority, there will be a much wider range of potential projects, particularly with regards to transport.

The merger of departments will also reduce the degree of potential fragmentation in planning policy

across combined authority areas, where the interests of the wider combined authority and particular local authority leaderships may diverge.

## 1.5 Regionally Significant Infrastructure Projects (RSIPs)

Combined Authorities should be provided with expanded powers to define 'RSIPs,' which then go via the Combined Authority for planning consent rather than its host local authority.

There are a number of projects which are not necessarily of national significance, but are large and provide wide-ranging benefits on a county or regional level.

The scale of such projects often lies far outside what is normally seen day-to-day by local authority planning departments, with projects of such a size often only appearing every few years. In these cases, demands and expertise on local planners can dramatically outstrip what is normally experienced, leading to significant delays in processing.

The 'host' local authorities for projects of this scale often house the majority of their knock-on 'disbenefits', but only a share of the benefits, skewing the decision making processes towards disapproval and delay.

Combined authorities cover much wider geographic areas, meaning they will tend to absorb more of the benefits of a major project than a local authority can. Given this and the fact that combined authorities hold responsibility over the drafting of their regions' Strategic Economic Plans, projects which are aligned to the strategic priorities for a given region, but potentially concentrated costs, have a greater chance of navigating a combined authority planning department than a local one.

If we assume that combined authority planning departments are not 'merged' departments as set out in recommendation 1.4, they will tend to be less occupied by smaller, day-to-day planning applications, providing a greater flexibility for setting aside resources to form specialised capabilities in processing RSIP applications. Further, in having teams engaged with what are seen as big or important schemes, it may be easier for them to attract skilled planners than local authority planning departments.

In the cases of both 'unmerged' and 'merged' planning departments, funding settlements for combined authorities should reflect the increased resource pressures on their planning teams.

## 1.6 Make better use of existing infrastructure

We echo the recommendation of the Centre for Cities,<sup>28</sup> suggesting that planning authorities should use Local Development Orders (LDOs) to encourage redevelopment of brownfield and residential sites close to existing or planned transport infrastructure.

Given the complementary nature of housing and transport infrastructure, more could be done to encourage densification close to important transport networks, as well as the build out of housing close to well connected rural rail stations, which have seen little nearby development on account of greenbelt designations.

Local Development Orders (LDOs) offer an alternative to traditional planning permissions, being more focused on specific rules. These orders allow local authorities to set certain conditions, such as height restrictions, density, and developer contributions. When applied to a piece of land, LDOs significantly decrease the risk for builders.

By targeting brownfield and residential areas well-connected to public transport, particularly those near stations, local authorities can gradually transform these areas from low-rise to mid-rise structures. This change enhances access to public transport by enabling more people to live in proximity to it.

To further encourage the concomitant development of housing and transport and the uptake of the approach highlighted above, the release of transport funding from central government to local government, should be made conditional on the application of LDOs.

## 1.7 Learning from best practice

Local transport infrastructure in some European countries is delivered more cost-effectively, especially in those areas which optimise for deliverability, often through modular design principles and quick delivery. These principles should be more heavily emphasised in project evaluations.

The high costs of local transport development in the UK stem from a number of complex causes. Coordination failures within and across delivery organisations. Delays themselves create more opportunities for projects to be re-designed over and over, either through internal pressure or from dissatisfied community groups.

These issues are not unique to the UK. In some of the better performing countries when it comes to

transport delivery, such as Spain or the Nordics, the design principles chosen across projects help to mitigate some of these risks.

Common across some of the most cheaply and efficiently delivered local transport systems there are a two common principles which have been identified as arising:

### Modularity

Whether in the remarkably quick Madrid metro expansion, French tram networks or Nordic railway development, the most efficient local transport network improvements use repeatable designs and tried and tested technologies.<sup>29</sup>

On paper, specialised architectural designs or the latest tech might be forecast to save money and improve service in the long run. However, the organisational challenges which come with them often lead to delays and cost spiralling. Cost spirals and delays on one project also reduce authorities' ability to deliver, or even consider, the rest of their pipelines.

### Speed

Putting deliverability and most important speed of delivery first has proven to cut costs in the long-run. This cuts the risk of delay and redesign once projects are up and running, among the main factors in the UK's high transport delivery costs.

A key example here would be the delivery of Madrid's metro expansion. When planning the project, city leaders decided on the optimal time for the delivery window and then calculated the exact number of boring machines and teams that would be required to complete the project within that timespan.

These boring machines were working 24/7, with community groups having been brought on board with constant, high-pace construction by being offered the option for either a quick three year or longer eight year delivery period for the project.<sup>30</sup>

Guidance on transport development should be shaped to more heavily emphasise these principles, with the deliverability of local transport projects being more heavily weighted in project evaluations.

# The UK's national physical capital gap

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When it comes to our national physical capital, the infrastructure we use to power, connect and supply our places with vital resources and services, the problem is somewhat simpler.

The UK is facing a period in which it will be called on to provide massive transformations of its infrastructure across energy, transport, water, telecommunications and more in response to the challenges of:

- Making good on its net zero commitments.
- Providing energy security in an increasingly uncertain world.
- Shoring up the climate resilience of large parts of its infrastructure.
- Maintaining international competitiveness in a rapidly changing technological environment.

These challenges together will likely see the biggest change to the UK's physical infrastructure since the industrial revolution. If this were not a big enough challenge, the UK's recent delivery and planning experience with infrastructure has been dogged by massive delays and expense.

Figure 6 below shows the construction cost of major infrastructure pieces in the UK compared to a sample of Western and Northern European countries, all of which were under construction after 2010. As can be seen, the cost either per gigawatt of energy infrastructure installed or per mile of transport infrastructure installed within the UK far outstretches what is seen among its European comparators.

Offshore wind installations in the North Sea come out as 18.5% more expensive to install in the UK than amongst European operators. This figure jumps to 51% when it comes to nuclear capacity. Figures are at their worst when it comes to the cost of installing metros, undergrounds and other rapid transport systems, which come in at an average of 2.6 times higher per mile in the UK compared to a selection of European projects.

By comparing the UK's costs with those seen in West and North European countries, we can be reasonably sure that labour and raw materials costs are similar across projects of similar types. What, as will be discussed below, appears to be behind the UK's extremely high infrastructure costs compared to other nations is the quality of its delivery processes, racked with complex administrative processes and structured in a way that major delays are all but guaranteed.

Repeating such poor cost performance over the mass of major infrastructure projects required over the coming decades will be incredibly costly to the UK economy.

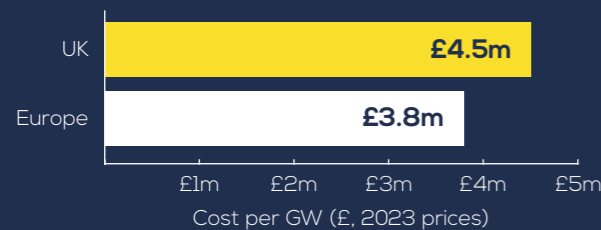
Taking the net zero transition as an example, the commission projects that the construction costs of bringing the UK's current energy generation capacity in line with that which was outlined in the Climate Change Committee's balanced net zero pathway<sup>32</sup> should likely come in at £480bn, though could be as high as £750bn.

This figure only includes the estimated construction costs of the energy generation infrastructure itself and does not include the grid infrastructure or other complementary investments required to make it fully operational. The estimates themselves do not include assumptions around significant delays or delivery issues.

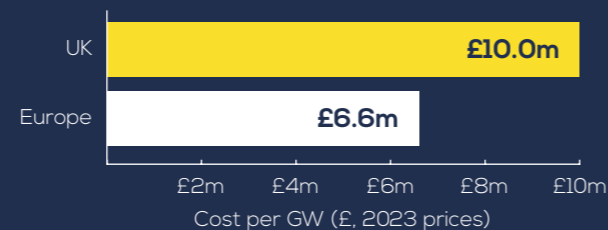
Were a cost gap similar in size to that seen in offshore wind deployment felt across the board as the UK makes its net zero transition, **it could increase costs by between £89bn and £139bn (3.6% and 5.6% of current UK GDP)**. If an experience as racked with delays as that seen in nuclear deployment, **the figure could increase to between £248bn and £389bn (9.9% and 15.5% of current UK GDP)**.

**Figure 6:** construction costs across in the UK and Western and Northern Europe<sup>31</sup>

## Offshore wind



## Nuclear power



## Railway projects



## Metros and rapid transit systems



## Tram systems



Source: Britain Remade, IGC calculations

# Barriers for local physical capital

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## Our strategies are out of date and filled with gaps

The Nationally Significant Infrastructure Projects (NSIPs) regime initially performed well, but has deteriorated in more recent years. Consenting times have increased 65% and the rate of judicial review has increased six-fold, adding massive delays, cost and uncertainty to the process of getting major projects off the ground.<sup>33</sup>

This has arisen, in large part because National Policy Statements (NPSs) – which accompanied the introduction of the NSIP regime – have not been updated, nor has supplementary guidance been provided in the interim.

With a changing regulatory environment and new legislation being introduced around infrastructure and key areas like the net zero transition, NPSs quickly go out of date. This reduces clarity and increases the need for review throughout the NSIP process.

Many NPSs lack key pieces of detail which would help bring forward the most valuable projects through the NSIP process. The NIC points to a lack of reference to spatial plans reducing clarity over the need cases for projects and their alignment to the infrastructure system's current configuration.<sup>34</sup>

Many have also suggested that a lack of clear timelines in government strategy documents e.g. no clarity on exactly how much nuclear capacity should be installed and when, leaves little for supply chains and investors to rally around.<sup>35</sup>

## Concentrated losers and veto opportunities

The benefits of national physical capital are, as the name would suggest, national. Many of the potential disbenefits of the projects are local.

This is a dual problem. On the one hand, it would clearly be in the country's interest to have all its population bought into the benefits of infrastructure improvements. On the other, dissatisfaction among community groups can lead them to effectively block

the progress of what would be otherwise beneficial projects.

Even when it comes to NSIPs, the UK's planning system provides multiple points of essential veto power for groups wishing to slow down or frustrate the progress of a project. Groups can challenge the quality of consultations or processes such as Environmental Impact Assessments, often by triggering judicial reviews. This not only significantly delays the progress of projects through the planning process – even if the claim is ultimately unsuccessful – but given that project teams cannot be easily disbanded, it can add astronomical costs.

## Administrative processes unnecessarily increase overheads

Administrative processes such as Environmental Impact Assessments frontload huge costs to major projects. Applications for a single project, such as the Thames Tideway Tunnel, can encompass more than 60,000 pages, a length that surpasses Shakespeare's entire collection by thirtyfold and incurred a cost of £800m in public funds before any actual construction began.<sup>36</sup>

These assessments are drafted from scratch on each project, with the majority of the responsibility lying with the applicant body. This leads to significant effort duplications and inefficiencies across projects.

Given that little clear guidance exists regarding exactly what a good consultation process would look like, what the standard mitigations for particular risks might be or what amount of evidence would be appropriate to back claims, many applicants attempt to insure against the risk of judicial review by undertaking extremely lengthy and expensive consultations and other such processes.

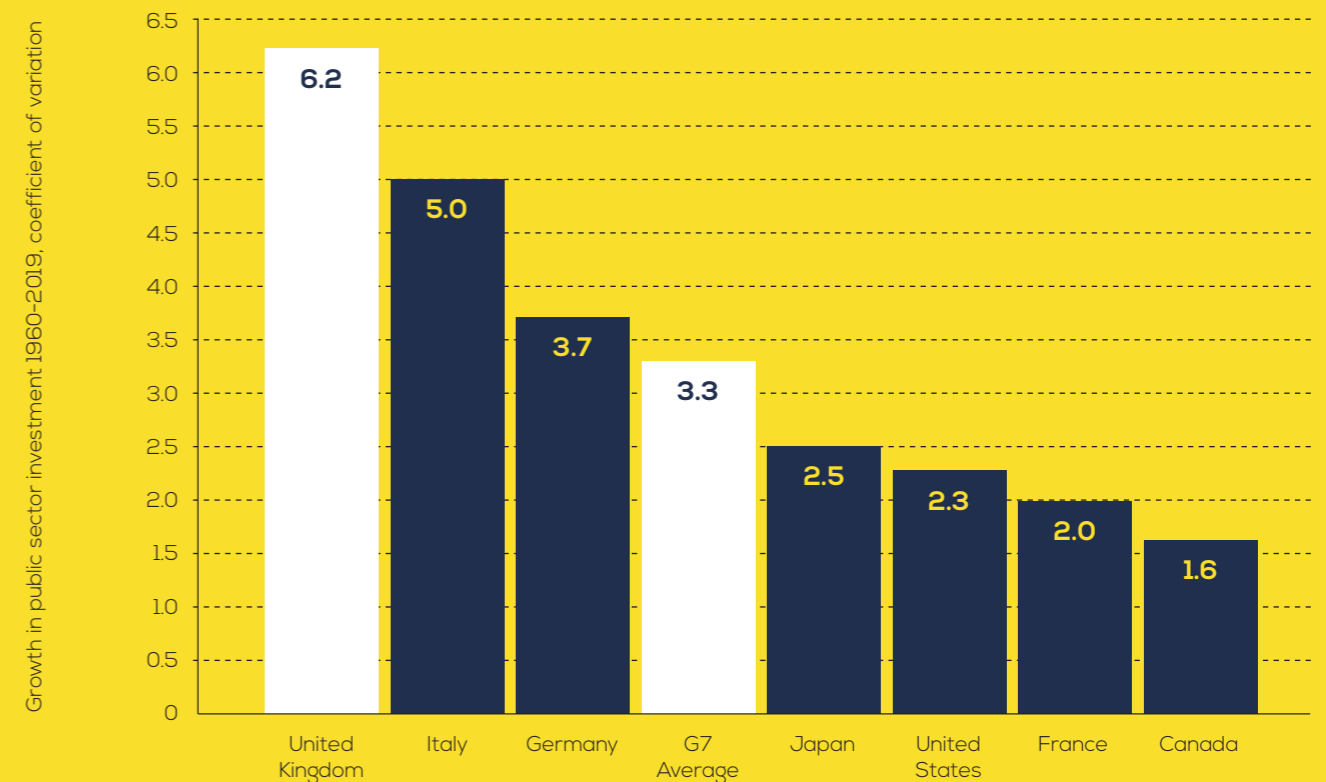
Where projects are taken to review (60% of them are currently), all these costs multiply.

## Spending on major projects is too volatile

Capital expenditure in the UK is six times more volatile than revenue spending, with only one in every six pounds of planned investment actually spent.<sup>37</sup> This is not the case with other countries, with the UK's investments significantly more volatile than many of its closest comparators.

Figure 7 shows the coefficient of variation, a measure of volatility, for public sector investment growth across the G7. As can be seen, the UK has by far the most volatile investment record, with its coefficient of variation almost twice the G7 average. In fact, the UK has seen the second most volatile public sector investment record among all advanced economies, beaten only by Denmark.

Figure 7: the UK has the most volatile public investment growth in the G7<sup>38</sup>



Source: IMF Investment and Capital Stock Dataset

Some progress has been made in separating out the budgets of major projects from the tumult of departmental budgets, but these ring fenced budgets are often still held within departments, requiring projects to constantly re-apply for further tranches of funds.

These factors increase uncertainty for supply chains and investors, discouraging them from backing the

UK's commitments. Where money is actually being spent, a divorce of control over the management of projects and its long-term funding pots makes its planning especially difficult, something particularly acute with large projects and the many contingencies which go with them.

## We don't do enough big projects to be good at them

Major infrastructure projects are not uniquely difficult to deliver in the UK – they're a struggle for countries across the world, with the so called "Iron Law" of megaprojects being that they come in over budget, over time, under benefits, over and over again.<sup>39</sup> However the UK does seem to be especially bad.

Very few countries perform well across the board when it comes to big infrastructure projects, though some do particularly well in certain areas, such as the Netherlands when it comes to flood defences or South Korea when it comes to nuclear capacity.<sup>40</sup>

The leaders across different infrastructure types tend to deliver that infrastructure regularly (as part of a 'programme'), at scale and using standardised designs. In doing so, the massive fixed costs of developing the specialist supply chain capabilities required for such major projects can be spread across a greater number of projects. With programmes of multiple infrastructure projects set in motion (rather than just isolated projects), those supply chain capabilities are able to be kept in operation over the long-term.

Perhaps most importantly, a well coordinated programme of infrastructure projects allows for institutions and companies to learn from experience and improve delivery with each iteration – something pointed to by the University of Oxford's Prof. Bent Flyvberg as being one of the most important factors in bringing the costs of mega projects down.<sup>41</sup>

None of the above has been a feature of the UK's approach to major infrastructure in the past decade. Pipelines have consisted of isolated one-of-a-kind projects, requiring massive investment in specialised supply chain capabilities, which later deteriorate without projects for them to be put towards in the pipeline.

One-off isolated projects are particularly difficult to learn from, not least because teams inevitably disband when the project ends run out, taking with them any new institutional know-how and learnings acquired.

## Box 2: South Korea's nuclear deployment success

South Korean nuclear capacity currently stands at 26GW (2GW more than the UK's current ambition for 2050), with a further 2GW in construction domestically.

The first nuclear reactor in South Korea began construction in 1971. The reactor, a Kori-1, was designed and built by the US operator Westinghouse on a turnkey contract. It started up in 1977 and achieved commercial operation in 1978. After this there was a burst of activity, with eight reactors under construction in the early 1980s, largely on turnkey contracts with foreign suppliers.<sup>42</sup>

Throughout the process of deploying the country's first reactors, Korean workers were encouraged to work closely with staff from the American, French and Canadian companies brought in for the initial deployment program. Concurrently, the Korean government undertook a number of investments in increasing resources available for nuclear-relevant research and courses at universities, which eventually emerged into the country's now formidable nuclear R&D base.

Thanks to the growing domestic knowledge base developed over the course of the initial deployment

program, KEPCO was able to develop its own standardised nuclear power plant design, known today as the OPR-1000.

Deployment has continued at scale since the 1980s, with multi-plant pipelines being the norm. Throughout the deployment process, it was ensured that all critical components and fuel would be fabricated domestically.<sup>43</sup>

In deploying consistently and at scale, the country has been able to take advantage of economies of scale and the benefits of 'learning-by-doing' across its programs, cutting down on the often extremely high costs of nuclear deployment. Recent Korean nuclear deployment has come in at around a fifth of the cost per gigawatt of the UK's.<sup>44</sup>

Continuous deployment in particular has meant that the Korean supply chain has maintained its capabilities decade-by-decade, contrasting with the UK's experience, where skills and institutional knowledge appear to deplete quickly between deployments.

# Recommendations: national physical capital

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## 2.1 Community benefit mechanisms and limiting veto opportunities

Local residents who bear the brunt of the disbenefits of otherwise beneficial projects should be better brought on-board with major projects through a more systematic approach to community benefit in the NSIP and RSIP (introduced in recommendation 1.5) regimes. Alongside this, opportunities for effective vetoing of projects should be stripped back.

There are no clear policy frameworks on community benefit mechanisms which guide decision making by business or inform them of the wants and needs of local areas. A coordinated approach which:

- Sees local or combined authorities develop an understanding of the local needs which could be met by community benefit mechanisms during the drafting of their local plans.
- Standardises funding models for community benefit.
- Provides a clear list of 'off the shelf' benefit options for communities and local government to choose from.

Could make it easier for businesses and communities to effectively bargain over development.

The appropriate funding model is likely to vary depending on the type of project and the kind of disruption it generates for local residents. For projects only likely to generate disbenefits over a shorter period, most likely during their construction, it is most appropriate to fund a one-off payment either directly negotiated between local authorities and developers or set as a fixed proportion of capital expenditure.

In cases where disbenefits, like reductions in house prices or increased noise pollution, are more long-lived, longer term funding and benefit approaches may be appropriate. In these cases, fiscal zoning could offer potential as a tool.<sup>45</sup> Under such an approach, residents of an affected area could be offered a reduction in their council tax rates, with the owner of the given infrastructure piece responsible for compensating the local authority housing the project on any lost revenue.

In addition to the introduction of improved community benefit mechanisms, standards around risk mitigation and consultation should be clarified in order to both improve the standard of project applications, as well as closing opportunities for project progress to be effectively vetoed.

This can be done by:

- **Setting out clear guidance on the extent of public consultation required**, with protection from legal challenges where standards have been met.
- **Setting out clear standards on mitigations**. It is common to see challenges arise to projects around claims of poor mitigation of e.g. environmental impacts. In many cases, both standard risks and appropriate mitigations are well known. Where projects meet with set standards on mitigations, they should be protected from legal challenge.
- **Introduce balanced scorecards as a method for weighing up project disputes prior to them being escalated**. These scorecards should weigh up the relative severity of concerns raised in response to projects against the potential benefits and other factors surrounding projects prior to them being escalated to e.g. judicial review. Balanced scorecards have already been successfully implemented as a tool in government procurement processes.<sup>46</sup>

## 2.2 An 'OBR' for infrastructure

The National Infrastructure Commission (NIC) should see a significant expansion in its capabilities and functions. The NIC would be set up to oversee the massive transformation of the country's infrastructure which will need to be seen over the coming years. It should act to both monitor the government's compliance with its own commitments, providing an 'official verdict' on all major infrastructure announcements, as well as being a storehouse of institutional knowledge throughout that process.

To do this, the NIC should be given the responsibility of holding the government to account for the timeliness and quality of its planning documents. This would include ensuring that National Policy Statements are delivered at least every five years, as well as the

development of a clear set of standards for such strategy documents – a Green Book for planning.

As the OBR does alongside any fiscal event, the expanded NIC should publish formal responses to such infrastructure-focussed strategy documents, as well as any announcements from government on proposed infrastructure developments. These responses should cover the alignment of the proposals to both the government's own strategies and the needs outlined by the latest National Infrastructure Assessment, as well as the quality of the proposals themselves with regards to the detail of their planning and deliverability.

While the current government has committed to refreshing all National Policy Statements and has suggested that they should be refreshed every five years, there is no mechanism through which they can be kept to this ambition, especially across parliaments. This would run the risk in a decade of the NSIP regime landing in exactly the same place as it is currently.

Given that many of the processes required to keep the country's infrastructure fit for hitting net zero targets will run for decades, this is not a risk worth taking.

To help in keeping NPSs up-to-date over this period, the Commission echoes the NIC's recommendation for the introduction of a modular system of updates to the NPS regime, ensuring that the statements can be quickly updated in response to regulatory changes.

In addition to overseeing the quality of government planning and strategy, the NIC should take on an increased role as a storehouse of institutional knowledge as the UK's infrastructural landscape transforms over the coming decades.

Much of the literature on the delivery of major infrastructure projects has shown that one of the biggest factors in bringing down costs and improving delivery processes is learning-by-doing. Given the scale of transformation the country's infrastructure will see over the coming years, the lessons learned are likely to be massive. Formalising the NIC's role as a storehouse for and communicator of this expertise across projects may see billions saved and years cut off delivery timelines.

Both the NIC and the Infrastructure and Projects Authority (IPA) already play this role to some degree. Experts from the IPA, for example, will provide advice to project teams on how they might best approach the delivery of their projects.<sup>47</sup> Though this advice is often valuable, it is often given on a one-off basis, without long-term relationships built between delivery teams and institutional experts.

To maximise effectiveness in both collecting learnings across different projects and communicating this accumulated expertise across other schemes, much closer ties between the NIC and delivery programmes will be required, which will also likely require a significant expansion in the resources provided to the NIC.

Finally, with the NIC's role in infrastructure delivery already expanded significantly, it may be helpful for some proposed functions for other institutions to be moved under its remit, enabling the Commission to become a 'one-stop-shop' for infrastructure delivery.

The most notable of these functions would be ownership over the data sharing platform for environmental data proposed to be held under DEFRA in the second National Infrastructure Assessment.<sup>48</sup>

Under the proposal, the platform would serve the purpose of centralising much of the information required to carry out environmental impact and other assessments, from detailed environmental data from across the country to a library of historic and natural environment mitigations for different infrastructure types. With the NIC's expanded role as a storehouse of institutional information regarding planning and delivery, it would be the natural home of such a platform.

Care should be taken to ensure that where the NIC does absorb functions currently held by other institutions that it becomes the sole holder of these responsibilities, reducing the risks of complicating the UK's institutional landscape further and of the unnecessary doubling of efforts.



# References

## 2.3 Stabilising funding

Major infrastructure projects should have ring fenced budgets, independent of those of the departments they sit under. These budgets should last at least five years, with the exact length of settlement periods negotiated between delivery bodies and central government.

As noted above, the UK's public sector spending on infrastructure is notably volatile compared to our neighbours. Some of this volatility has been generated historically by housing project spending under departmental capital budgets. When any project under a department overspends, this impacts on the funds left in that department's capital budget for other projects.

Some progress has been made recently by setting aside ring fenced budgets for major infrastructure pieces for at least five years including the Road Investment Strategy programme and Project Gigabit.

The Commission suggests a further expansion of budget ring fencing for major infrastructure pieces above a certain value.

Large infrastructure projects are notoriously difficult to plan for and to deliver on time. Current practice, even where budgets have been ring fenced, sees final ownership over funding for major projects still held within government departments, with project teams having to re-apply for tranches of funds from their pots at multiple points over the course of their schemes. This adds further complexity to planning processes, as well as occasionally incentivising inefficient practices targeted at the release of funds, rather than the effective delivery of projects.<sup>49</sup>

The budgets of infrastructure projects above a certain value should be ring fenced, provided with a fixed expenditure limit for a period of at least five years in much the same way that departmental expenditures are set. This budget should be managed by appointed project teams and delivery bodies, rather than sitting within government departments.

A similar approach was successfully implemented in the delivery of the physical infrastructure for the London 2012 Olympic Games, with the Olympic Delivery Authority provided with its own core budget to manage. To ensure budgetary prudence on the part of the body, a contingency budget was held outside of its control, with any applications to that contingency coming under the scrutiny of the Government Olympic Executive.

In cases where project budgets are devolved in such a way, in return for increased independence, there should be a greater degree of transparency and accountability taken on by project teams. Given that such devolved budgets essentially mirror those provided to Whitehall departments, a similar quality of reporting to departments should be expected of project teams.

- 1 For example, these forms of capital feature in the Government's Levelling Up White Paper, but are also features of the Arrow growth model.
- 2 Tom Forth (2015): 'The most important graph in British Economics.'
- 3 Tabuchi, T. and A. Yoshida (2000): "Separating Urban Agglomeration Economies in Consumption and Production." *Journal of Urban Economics* 48: 70-84.
- 4 Rodrigues, G. & A. Breach (2021): 'Measuring up: Comparing public transport in the UK and Europe's biggest cities.' Centre for Cities.
- 5 Dimitriu, S. (2023): 'Britain's infrastructure is too expensive.'
- 6 Rodrigues, G. & A. Breach (2021): 'Measuring up: Comparing public transport in the UK and Europe's biggest cities.' Centre for Cities.
- 7 Breach, A. (2022): 'A plan to fix public transport in Birmingham.' Centre for Cities.
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# Appendix 1: methodology note



## Estimation of returns to agglomeration

To provide an estimate of how the returns to agglomeration differed between UK and European cities, 2019 data on city population size, city GDP and employee numbers were collected from Eurostat and the ONS. The countries included in the European sample are Belgium, Denmark, Germany, France, the Netherlands, Austria and Sweden.

Note, the figures correspond to the core city areas, not their full metropolitan areas. For UK cities, figures at the local authority level were used for each city. GDP figures are expressed in GBP in 2019 prices. The returns to agglomeration are modelled by regressing GDP per employee on the natural logarithm of city population size. It is assumed that the returns to agglomeration correspond to the coefficient on the logarithm of population size.

Predictions for UK city productivity per employee are generated by simply fitting the relationship estimated from the European sample to UK city population data. From this, a predicted GDP for each city can be calculated by multiplying the predicted GDP per employee by the employee numbers for each city. The 'lost' GDP for each city is the difference between true GDP and this estimated figure.

## Estimation of losses from poor net zero delivery performance

Estimates of the cost of repeating poor delivery performance on net zero infrastructure are drawn from the Climate Change Committee's 'balanced path' for decarbonisation. From the balanced path, we derive assumptions of what the energy generation mix will be in 2050, as well as the country's current capacity across each energy source. The mix used in the final figures is as follows: 65GW offshore wind, 60GW onshore wind, 85GW solar, 10GW nuclear, 10GW BECCS/other biofuels, 55GW hydrogen. This mix only reflects analysis undertaken for the Sixth Carbon Budget and will differ from that implied by other strategy documents e.g. the British Energy Security Strategy.

Cost projections for the construction and pre-development costs for each energy source were taken from the Department for Energy Security & Net Zero's Electricity Generation Costs (2023) dataset. From these figures, costs per GW of installed capacity across a lowest-possible, central and highest-possible cost scenario were constructed for each energy source by varying both the projected dates of infrastructure delivery and the extent of costs per GW (within the ranges provided by DESNZ).

From these figures, estimates of the probable range of construction costs for the remaining energy generation capacity required to meet the balanced pathway energy mix were derived. These figures do not include any of the costs of adjoining grid improvements or other extra infrastructure costs which would necessarily be incurred in the process. Assumptions around the need to replace existing infrastructure were not factored into the calculations.

These figures represent a set of central estimates of construction/delivery costs without the effects of significant disruptions, delays and cost overruns which have been typical of delivery in the UK's recent history. Estimates of the cost of poor delivery performance quoted in the paper are generated by applying the proportional 'cost gap' per GW of installed nuclear and offshore wind capacity between the UK and a sample of European comparators.

In the case of nuclear capacity, the included comparators are France and Finland, for offshore wind, the comparators are Germany, Belgium, France, the Netherlands and the Scandinavian nations. Only offshore wind developments over 100GW, installed after 2001 were considered.

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