LAYING THE GROUNDWORK

How to deliver infrastructure fit for the modern age

LEVELLING UP THE RAILWAYS
GRANT SHAPPS

A TEST OF RESOLVE
JOHN ARMITT

FORTIFY THE HEALTH SERVICE
ANITA CHARLESWORTH
Ever since the changing of the guard at No 10 last July, there has been an audible change in the mood music about public investment. That is why Prospect began plotting this supplement on Britain’s infrastructure. What we couldn’t have planned, however, is the impeccable timing, because after the Budget in March, we are no longer talking about new mood music, but a radical shift in the tempo.

While emergency relief linked to the coronavirus pandemic stole the headlines, of more enduring significance was the way that Chancellor Rishi Sunak—only weeks into post—committed to a level of public investment which, as his red book boasted, would be “triple the average over the last 40 years,” with a cumulative total of £640bn in capital investment.

Opposition politicians, including Rachel Reeves (p8), reasonably caution that promises have been broken too many times in the past and they want to see spades in the ground before being convinced. But—in principle at least—the commitment now is for, again quoting from the red book, a major rebuilding of “roads, railways, communications, schools, hospitals and power networks” nationwide.

For those of us who have spent years listening to grim lectures by austerity chancellors, it was extraordinary to see the Treasury documentation emphasise how—as Keynesians have long protested in vain—the low level of interest rates provides a historic opportunity to borrow to spend on things that will provide an enduring economic return. Intellectually, the big question is that pressed by the new IPPR chief Carys Roberts and her senior economist Carsten Jung: whether the government will also embrace a shift in fiscal focus from a narrow preoccupation with public debt towards a broader evaluation of public net worth. There is a way to go yet, but the shift announced in the so-called green book rules, which govern the way the costs and benefits of potential investments are appraised, could be the start of such a rethink.

Whether or not this big intellectual shift is followed through on, it’s clear that in the immediate term the new, more relaxed attitude to the purse strings is already with us. There could no better time to hear from the panel of players and experts we have assembled here—including Secretary of State Grant Shapps on transport; Sheffield metro-mayor Dan Jarvis on the cities; and national infrastructure chief John Armitt on long-term strategy. We’ve also got minister Matt Warman on digital infrastructure; doyenne of healthcare policy, Anita Charlesworth, on our hospitals; and China expert Isabel Hilton on the role of Huawei.

For all the immediate challenges coronavirus poses to the economy—and more importantly the country—it is refreshing as well as stimulating to be introducing a symposium that is not about hairshirts and retrenchments, but instead about ideas for rebuilding Britain.
VICTORIAN AMBITION

The government’s new rail strategy explained

GRANT SHAPPS  SECRETARY OF STATE FOR TRANSPORT AND CONSERVATIVE MP FOR WELWYN HATFIELD

The start of this decade has brought with it a level of investment in our railways not seen since the Victorian era. Back then, transforming our infrastructure was just as complex and controversial as it is now, but the foresight and ambition of our predecessors opened this country to what was then unimaginable prosperity.

It is vital that we continue to invest in our railways with a renewed sense of ambition. Communities and businesses right across this country depend on these connections, and if we are to meet our target of net-zero emissions by 2050, a green, clean rail network is essential.

That’s why the government is focused on levelling up this country and providing a railway network that works for all, investing a record £48bn to improve performance and punctuality. If we do not adapt, upgrade and modernise our railways, we will deprive people of opportunity and prosperity.

Let’s look at expansion. Our commitment to HS2 will see a huge increase in capacity on our network, with hundreds of thousands of extra seats and faster journey times too. Northern Powerhouse Rail will build on this, upgrading the north’s rail network and better connecting key towns and cities, from Liverpool to Hull.

These projects must be delivered in a co-ordinated and pragmatic way that maximises benefits to passengers. Our Integrated Rail Plan for the north and the midlands will identify, by the end of the year, the best way to deliver the next major rail schemes such as the Midlands Rail Hub, as quickly and as cost effectively as possible.

But our ambitions aren’t just about these major new schemes. Reopening lines closed during the Beeching cuts of the 1960s will reconnect communities that feel isolated and abandoned.

We’ve seen how important those connections are in places such as Ilkeston in Derbyshire. For 40 years, it was the largest town in England to have an active passenger line passing through it, but no train station. With the reopening of Ilkeston Junction Station in 2017, a lifeline has been restored. Success stories like this underline what is being done right now. But we know reopening lines and committing to new networks can take years. Passengers are keen to know what is being done right now.

If I’ve learned anything in this job so far, it’s that passenger confidence in the network isn’t just determined by new stations and railways, but by people’s lived experience. And often our railways are a victim of their own success, where we sometimes only really notice train services when they’re suddenly not there.

We’ve been clear that we’re not driven by ideology in delivering improvements for passengers. When things are wrong, we take action. That’s why we did not hesitate to take over running the northern rail franchise, following years of abysmal performance for passengers.

There won’t be a quick fix for this complex network, but we’re focused on making the changes that truly improve journeys, including deep-cleaning all the trains, trialling technology to identify crowding pinch-points, and continuing to extend platforms across the northern network to allow for longer trains with more seats.

“We sometimes only really notice train services when they’re suddenly not there”

And when it comes to upgrading our Victorian infrastructure, we must recognise that stations across the network were never designed to meet the needs of passengers in the ways we would expect now. That’s why in the past year we’ve announced that more than 200 stations will benefit from our Access for All programme, including 93 that will have step-free access. I’m delighted that the budget confirmed a further £50m to benefit even more stations, ensuring our network works for everyone.

These are steps in the right direction, but I am aware they’re not enough to solve all the problems we face.

For that reason, I am committed to bringing forward vital sector-wide reforms following the upcoming Williams Rail Review—the first root-and-branch review of the rail industry in a generation. These reforms will put passengers first, end the complicated franchising model and simplify fares to create a more effective system.

2020 must be a year of action on our rail network. We need long-term, transformational reform of a broken system, built on getting the basics right. Simply put, people want trains that run on time.

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This government is listening to passengers and communities across the country, who need that stronger spine of transport links to reconnect them and increase access to jobs, education and opportunity. It is crucial that our investment delivers exactly that.
Play a word association game with the term “infrastructure” and it’s a fair bet that the NHS will not be the first thing that springs to mind. The remit of the National Infrastructure Commission, which advises the government, covers transport, energy, water and sewerage, flood defences, digital and communications and waste. Indeed, infrastructure investments in the March Budget included boosts for roads and flood defences.

The Budget was a clear signal of intent. Quite rightly, a package of support was announced to help the country cope with the coronavirus outbreak—now an all-consuming threat. While welcome investment in England’s hospitals was also reaffirmed, this fell short of what is needed. The NHS is as much a crucial part of Britain’s infrastructure as the rail and road network, and the health service’s own infrastructure is in a pretty sorry state.

Compared to other developed countries, the UK spends much less on healthcare capital, which includes spending on new buildings, equipment and IT, maintenance and research and development. Just 0.3 per cent of GDP goes on health infrastructure compared with an average of 0.5 per cent in similar industrial countries. The impact of this lower investment is felt daily in the physical capacity of our services. The UK has just 2.5 hospital beds per 1,000 of the population—13 per cent fewer than in 2010 and less than two-thirds the average of the EU14 group of countries that joined the EU before the 2004 expansion.

Beyond its buildings and beds, access to diagnostic equipment is also low by international standards. The UK has fewer MRI and CT scanners per head than comparable countries; and less than a quarter of the number in Germany. Through the last decade of austerity, the NHS prioritised day-to-day spending pressures and capital investment budgets were raided. Pressures on government capital funding have been compounded by changing attitudes to private finance. Over recent decades major infrastructure projects in the NHS were largely funded by the Private Finance Initiative (PFI) rather than public sector capital investment. Use of PFI declined sharply after 2010 and in 2018 was formally discontinued. This had a significant impact. Between 1999 and 2010, PFI funded 101 completed projects providing around £1bn a year of extra infrastructure investment for the NHS.

The National Audit Office reports that too much of the NHS estate doesn’t meet the demands of a modern health service (14 per cent predates 1948). The £6.5bn backlog of maintenance is large and growing. Research from membership body NHS Providers gives a sense of the impact of this backlog—power failures leading to cancelled outpatient appointments and operations, wards closed due to subsidence, mental health trusts worried about dangerous ligature points across their facilities that put patients at risk.
The NHS also needs more capacity. After decades of declining numbers of hospital beds, the head of the NHS, Simon Stevens, has acknowledged that the health service now needs more beds.

A long-term infrastructure investment plan for the NHS can’t come quickly enough. So far, the government has earmarked £2.7bn towards six new hospital schemes, which will be invested over several years. The current commitment falls well short of what would be needed for UK investment to reach the average of other comparable countries.

To match the international average in England, capital spending would need to rise by at least £2bn a year over the rest of this parliament.

The ambition is for 40 major hospital schemes to proceed over this decade. It’s difficult to provide robust estimates of the cost of 40 hospitals, as the cost of building any individual hospital varies enormously. The average cost of the current six hospital schemes is £450m—if the average cost of the remaining 34 were the same, building 40 hospitals would require around £18bn of dedicated capital investment, phased over the decade. Of course 40 new and improved hospitals would be hugely welcomed, but this needs to be seen in context. It would be a significant increase in NHS infrastructure investment, but still much less than in previous times; in the first three years of the 1962 NHS Hospital Plan, 95 major schemes were completed, while 66 new or substantially remodelled hospitals and 84 other major schemes had been started.

The NHS needs to modernise its hospitals and expand its capacity; but this alone would not be sufficient to deliver effective health care for the 21st century. Alongside the hospital upgrades, the NHS needs major investment in IT infrastructure and more diagnostic equipment. Health Secretary Matt Hancock has made using digital technology and artificial intelligence to transform health and care a priority.

But NHSX (the new body responsible for technology) is clear that the NHS has “hopelessly old laptops and clunky hardware.” “A quarter of NHS providers still have no electronic patient records.”

“**A QUARTER OF NHS PROVIDERS STILL HAVE NO ELECTRONIC PATIENT RECORDS**”

The NHS infrastructure plan also needs to go beyond hospitals and include funding for GP services. The government has agreed hugely ambitious plans to transform general practice, creating new primary care networks employing 26,000 more physiotherapists, pharmacists, paramedics and social prescribers. Without this change the government won’t meet its manifesto commitments to improve access to GP services. But in much of the country, particularly in more deprived areas, this will require funding to expand and modernise the primary care estate. Historically the GP estate has been largely privately funded—as GPs are independent contractors—but it is hard to see a predominately privately financed route working today. Extra public funding will be needed.

Modernising the NHS’s creaking infrastructure is vitally important if the health service is to continue to deliver effective and efficient care, but it also has a wider impact. There is a growing recognition that NHS infrastructure plays a vital role in shaping employment and economic activity. If NHS services move from a small town to the nearby city centre hospital, this can have a substantial effect on the footfall for local shops and businesses. In employment, around one in eight of us work in health and social care—rates that are even higher in more deprived communities. Where those jobs are located, how people from local communities are recruited and how the NHS behaves as an employer all shape life chances and affect local labour markets.

After over a decade of underinvestment in NHS infrastructure, the government’s focus on modernising and upgrading England’s hospitals is welcome. However, the commitments made so far fall short of a comprehensive plan. The funding announced is a modest down payment on the NHS’s infrastructure needs. Expectations for July’s spending review are high.
EXTENDING THE ROLE OF THE STATE

Give the private sector the tools to deliver green projects

PAUL WALLACE FORMER EUROPEAN ECONOMICS EDITOR AT THE ECONOMIST

ike money burning a hole in one’s pocket, historically low interest rates have opened the lock on the Treasury’s coffers. Even though the coronavirus emergency is eclipsing everything else, Boris Johnson promised an “infrastructure revolution” in the election and Rishi Sunak will borrow a lot of money to deliver it. In his first budget the Chancellor of the Exchequer allocated an extra £84bn to departmental capital budgets over five years. By 2022-3 the additional investment will be running at around £20bn a year. But spending more is not enough. A guiding strategy is needed and that is lacking.

The headline totals may in any case turn out to be less impressive because governments find it difficult in practice to ramp up spending on capital projects in a hurry. The independent Office for Budget Responsibility, whose economic and fiscal forecasts underpinned the Budget, reckons on past experience that actual investment will fall short of the planned increases by a fifth. Its fiscal projections anticipate an extra £67bn over five years, with the additional investment running at around £16bn a year from 2022-3.

Another reality check is that some boost to infrastructure was necessary simply to compensate for losing access to the European Investment Bank (EIB) through leaving the EU. In the five years before the referendum in 2016, the EIB financed infrastructure projects such as offshore wind farms in Britain worth 29bn euros (£24bn at the then exchange rate).

But what matters more than the precise figures is the use to which the extra money will be put. The government has outlined various specific projects—some small, such as a new fund worth £2.5bn over five years to fill potholes, some big, such as “the fastest and biggest increase” ever in publicly-supported R&D, which will raise it to £22bn in 2024-5. A comprehensive allocation of funding will come in the spending review in July. What is missing as yet is an overarching strategy for what the extra investment is seeking to achieve and how its economic and social objectives will be consistent with environmental goals.

Such a strategy would also need to recognise that transforming Britain’s infrastructure is not just a matter of raising public investment. The privatisations of the 1980s and 1990s shifted responsibility for energy, water and telecoms out of the public sector. Local authorities now build council homes in the low thousands, whereas until the end of the 1970s they built them in the hundreds of thousands. The government’s role in improving Britain’s infrastructure is as much to conduct the orchestra as to play the music.

A straightforward use for the extra public money is to rectify past neglect in parts of the national estate for which the government is wholly responsible, notably the NHS. One reason to worry about Britain’s capacity to cope with the coronavirus pandemic is that it has so few hospital beds per person compared with other health systems in Europe. The NHS is also less well equipped with vital diagnostic kit, such as MRI and CT scanners (see Anita Charlesworth on p3 for more).

The state also needs to intervene where the private sector fails to deliver. Nowhere is that more apparent than in housing. The most effective way to tackle the chronic shortage of affordable homes is for the state to provide more of them, whether directly through councils building new homes or indirectly through increased funding for housing associations. The extra £9.5bn that Sunak found for the affordable homes programme—taking the amount the government will spend on it over five years to £12.2bn, bringing in another £38bn of mainly private investment—is a step in the right direction.

“INVESTING IN INFRASTRUCTURE CAN IMPROVE PRODUCTIVITY—THE MAIN ENGINE OF GDP GROWTH IN THE LONG RUN”

There is also a strong argument that investing in economic infrastructure such as transport can improve productivity, the main engine of GDP growth in the long run. That’s urgently needed after a lost decade in which productivity gains have been negligible. Under the former chancellor Philip Hammond, the government had already committed to spending a lot more on strategic roads over the next few years, with big new projects including the Lower Thames Crossing and upgrading the A66, which crosses the Pennines, to a dual carriageway. Digital networks matter, too. Sunak announced £5bn to support the rollout of broadband to areas of the country that are hardest to reach.

What about Johnson’s politically inspired plan to “level up” the lagging regions of central and northern England through an infrastructure bonanza? Anyone thinking that there is some inherent magic in big transport projects in the north should consider the fate of the underused Humber Bridge. Built to honour a promise made in early 1966 to help Harold Wilson’s Labour government win a vital by-election in Hull, it never made any economic sense.

Transport investment per person is undoubtedly much lower in the midlands and north of England than in London. There is a case for scaling up spending through the planned east-west northern powerhouse rail link and improved commuting services. A determined effort to boost skills in the north may be just as important. Encouragingly, the chancellor has set aside £1.8bn (of which £1.5bn is in England) over five years to refurbish further-education colleges.
Beyond economic, social and regional objectives, an infrastructure strategy must have at its heart a long-term plan for both adapting to and tackling climate change. Only that will breathe life into Johnson’s manifesto pledge to make Britain a net zero economy by 2050. Quite simply there is little point in rushing to build new homes or hospitals that will be environmentally obsolescent within 30 years. Following the recent legal judgment blocking Heathrow expansion, the government will in any case need to demonstrate that its policy for big projects takes into account the pledges it made under the 2015 Paris agreement.

Since global warming is already triggering more extreme weather events, adaptation is increasingly urgent. As this winter’s storms once again demonstrated, one effect is flooding. The government announced a doubling in spending on defences, to £5.2bn over six years. That is welcome but what matters is whether the extra funding is used as part of a coherent plan to tackle flooding, which should encompass the release of land for housebuilding since far too many new houses are being constructed on flood plains.

As well as being hit by more storms, Britain is also having to cope with increasingly hot summers. This calls for further adaptation, such as extra investments in the water industry to cope with prolonged droughts. But though adaptation is essential, the overriding priority must be to launch Britain on an achievable path towards a net zero economy by 2050. One priority will be to generate all power free of carbon emissions, through renewables and nuclear. According to the Committee on Climate Change, this could require renewable generation of 75GW of offshore wind, compared with 10GW currently. This is a prime example of new infrastructure that will be the private sector’s responsibility to build and finance. The government’s role is to ensure a regulatory framework that will induce such investment while also ensuring continuity of supply, given our increasing dependence on naturally fluctuating wind and solar sources.

The shift to clean power will in turn enable the reduction and eventual elimination of carbon emissions by cars and vans, as electric (or hydrogen) vehicles replace the existing fleet. Once again, the government’s main role is to orchestrate this change, for example through the deadline for banning new sales of petrol, diesel or hybrid models, which following an announcement in February is due to be 2035 at the latest. There will also have to be a revolution in the way that homes are heated, phasing out natural gas as well as enhancing their energy efficiency.

As well as masterminding this shift towards a net zero economy, the state must pioneer new technologies that can help. Carbon Capture and Storage (CCS) will be a further essential component of a net zero policy. Sunak has made a start with a plan to invest at least £800m to establish CCS, starting with one site by the mid-2020s, but there is still much more to do.

Britain does need to transform its infrastructure, above all to prepare for a green economy. The state’s role in bringing that about goes beyond pushing up public investment. If the government is to deliver the genuine infrastructure revolution that Britain needs it must set out a long-term plan with clear staging posts for what the private as well as the public sector must do. Otherwise there is a danger that a policy born of opportunism to exploit low interest rates will lack staying power, degenerating into a familiar boom and bust cycle in public investment.
GOING GIGABIT

New networks will revolutionise the digital sphere and the wider economy

MATT WARMAN MINISTER FOR DIGITAL INFRASTRUCTURE

The first days of the internet in the 1990s now seem archaic. The snail’s pace of dial-up meant loading a single web page took up to 10 times longer than it takes today.

We’ve come a long way since then. The internet fuels Britain’s world-leading digital economy which is bigger, by proportion, than those of most other major countries. And we have one of the highest percentages of individual internet use.

This is in no small part because the government has strongly supported the digitalisation of the economy and made sure the business environment is friendly to new innovation.

No surprise, then, that last year venture capital investment in UK tech reached a record high of £10.1bn, up 44 per cent from 2018. The UK is also producing twice as many “unicorns”—billion dollar value digital companies—as Germany and three times as many as France. And the rate of growth of money pouring into our tech sector is outstripping the US and China.

We’re determined to help these sectors expand further as we make the most of new global opportunities, following the UK’s departure from the EU.

We want a digital economy that works for everyone, with the benefits of the digital revolution felt across our whole economy, throughout society, and in all corners of the country. Giving every individual and every business the opportunities, skills and confidence to capitalise on the benefits of digital technology is a key part of the government’s levelling up agenda.

The power of digital is transforming our public services, how we learn and connect, the entertainment we enjoy, and the communities we live in—and this pace of change will only intensify in the future. So as we look forward, the question is how are we going to deliver the digital infrastructure?

The UK needs gigabit-capable broadband and 5G to make the most of the technological opportunities on offer. 5G will fundamentally transform connectivity and give quicker reaction times, ultra-reliability and the ability to transfer far more data than with 4G.

With gigabit-capable networks, consumers will be able to download and upload content at speeds of at least a thousand megabits per second, or one gigabit per second. Gigabit broadband will drive UK economic growth for the next century. Faster and more reliable than the current generation of broadband access, it will increase efficiency and allow companies to innovate in the ways they do business.

The aim is for nationwide gigabit-capable broadband by 2025. We are galvanising broadband operators to get these faster networks built and will pass legislation to bust the barriers, making rollout quicker and easier.

Broadband operators told us one of the biggest obstacles to the UK going gigabit is their difficulty in accessing blocks of flats. So we’ve introduced a new bill to remedy this, which will help get gigabit broadband to an estimated 3.7m people in 180,000 residential buildings. We have also announced new measures to make sure new builds across the country come gigabit-speed ready.

And we’re investing £5bn to make sure people living in the hardest-to-reach areas aren’t left behind, and get hooked up to gigabit speeds at the same time as the rest of us. But as an extra safety net, if you’re currently in an area that is languishing in the digital slow lane, we will give every home and business in the UK the legal right to request a decent broadband connection.

On 5G, we’re investing £200m in a series of testbeds and trials across the UK. These are exploring how 5G can streamline the way we interact with public services and lay the foundations for the industries of the future.

They will spark innovative new services in manufacturing, the Internet of Things, in healthcare, connected and autonomous vehicles, smart cities and smart agriculture.

Mobile coverage is also essential, so we’ve signed a £1bn deal with industry for a Shared Rural Network that will see patchy 4G coverage become a thing of the past. We have also committed to invest up to £65m to spark a tech revolution in countryside communities, to help rural Britain seize the huge opportunities of 5G technology and help creative industries capitalise on the connectivity advances.

The benefits for people and businesses in rural areas will be far reaching. Smart farming, autonomous tractors, enhanced tourism and drone mapping are just some of the exciting benefits which have been demonstrated already thanks to our investment in 5G in rural areas.

It’s not just about digital infrastructure. To capitalise on the tech revolution we need a focus on digital skills, which are an incredible engine of social mobility. They are now as important to employability and participation in modern Britain as English and maths.

We are providing an extra £3bn for a new National Skills Fund to prepare for the economy of the future.

And we will also need to drive growth through pro-innovation regulation. When carefully designed and implemented, regulation drives growth and new ideas. It gives confidence and certainty to innovators and investors and builds trust among consumers.

Earlier this month, we announced the next step in world-leading plans to create the best framework for companies to operate online. With all our work in this field, I’ve no doubt we are well placed to seize all the opportunities technology will bring.
“I’LL TRUST THE GOVERNMENT WHEN WE SEE THE WORK STARTING”

Rachel Reeves is chair of parliament’s Business, Energy and Industrial Strategy Committee. Prospect caught up with her in March to discuss the biggest gaps in Britain’s hardware—and the biggest opportunities to fix them. She called for an energy revolution and warned the government that it faces not only a north-south gap, but a trust gap as well.

The government is now making very consistent noises on its ambitions for infrastructure. Even as an opposition MP, are you beginning to trust that it might deliver? I’ll trust that when we actually see the work starting and so far, we haven’t had commitments to many new investments, let alone had work started. But if that happens, then we’ll certainly welcome it because it will be good for my constituents. Consider, for example, flood defences. We’ve been waiting in Leeds for many years. The government cancelled the flood defence scheme in 2011. We flooded in 2015. And here we are in 2020. And we still have a gap between the money the government is willing to put in and what is needed. So that, for me, is a first and important test of whether it is actually going to invest in northern infrastructure. In sum, there’s still a trust gap, but of course if we see action, then we’re willing to listen.

With everybody talking about infrastructure these days, the conversation normally moves to transport very fast. But which economic sectors do you think offer the biggest opportunities? Energy infrastructure is really important. If we’re going to meet our commitment to net zero by 2050, which I think would be the very latest we can get to net zero, then we need to start investing much more in renewable technologies, including offshore wind, but also onshore wind. Again, the government has kicked this into the long grass—a shame because the UK was a real leader in that. Also important are carbon capture and storage, tidal power, and retrofitting people’s homes so that they are more energy efficient. All of those I think are really important ways to boost infrastructure spending and tackle the climate emergency.
And of course the committee you chair has energy as part of its brief, so could we have a bit more detail on where you think the next big difference could be made? We have already made progress in moving away from coal, but where next on other energy sources?

We’ve been very good at reducing carbon emissions in power generation, largely, as you say, because of the replacement of coal technologies with offshore wind in the mix. So that's been really positive, we need to do more, but that’s moving in the right direction. But that’s all about electricity. With gas, we haven’t been so successful. I would like to see proper investment in carbon capture and storage, and also more time spent looking at the potential of hydrogen, for example, eventually to replace the gas networks we've got today.

But it’s not enough to think of energy supply in isolation; we also need to factor in demand—the way we use and waste energy. We've been bad at transport and energy efficiency. On transport, I would like to see us move faster towards replacement of internal combustion engines with electric vehicles. And for that we need infrastructure in our communities and on our roads, so that people feel confident that they are able to purchase an electric vehicle knowing that they’ll be able to get from A to B without running out of electricity. On the energy efficiency of our homes, unfortunately the Conservative government has cancelled the requirement for homes to be built to a zero-carbon standard, which I think is very foolish. We need to move back in that direction, but at the same time we need to retrofit our old homes which are incredibly wasteful in terms of energy—and also, of course, in terms of people’s fuel bills.

You are a Leeds MP, and in the north there is sometimes grumbling about a gap in infrastructure spending. Do you see that?

There is a huge gap. For example, Leeds is, I believe, the only big European city that doesn’t have any sort of mass transport system. We've got trains, we've got buses, but we don't have any underground or anything like that. Again, it’s something we’ve been promised in the past, but the government cancelled plans a few years back. And we've also still got the pacer trains—retrofitted buses from the 1980s—on our networks. That is quite a symbol of the huge need for investment in transport.

One thing that is now meant to be coming your way in the next couple of decades is HS2. What is your take on that?

I want it to go ahead, and I think it will, but of course at the moment it is only going to Birmingham. In the north of England, we want to see that commitment, the legislation passed—and the work starting—so that it goes on to Leeds and Manchester as well. And in the meantime, we also need to be getting on with Crossrail for the north, to connect major northern cities.

You are a former Bank of England economist. What do you think the best way is to finance all these exciting infrastructure projects that both you—and perhaps Boris Johnson—want to see?

Well, interest rates are incredibly low, and all the investments we are discussing have a rate of return right into the future. So I think there’s a good case for borrowing to invest in infrastructure, very different from the argument on current expenditure, which really ought to be funded by day-to-day taxation. It’s not only about increasing investment, but also shifting the spending, and so when the government moves to do its comprehensive spending review, we need to make sure that we are prioritising investment specifically in the north of England—because if the government is serious about, in their phrase, “levelling up,” then that's what we are going to need to see.

This interview, conducted in the run-up to the March budget, has been edited for length and clarity.
I

n real life, stories rarely make a clean start or point

to an unambiguous future. Boris Johnson was finally

obliged to decide in January whether to allow the

Chinese technology giant Huawei to participate in the

building of the UK’s 5G network. If he decided against

Huawei, he would antagonise China, whose markets

had been misleadingly dangled in front of voters as

Brexit-bait. If he decided in favour of Huawei, he would

offend the US, a close ally whose markets had also been

paraded as important.

In addition to the external actors, there were pressures

from within his own party’s ranks, along with a steady

accumulation of critical reports on China’s behaviour.

There were the examples of close allies, Australia and New

Zealand, which had both decided against Huawei, and

there was disagreement within the UK’s national security

apparatus. For Johnson it was a “zero cake” moment.

The UK acquired Huawei equipment during the

telecoms upgrade ordered by the Blair government. The

attraction was price and the security risk was ignored until

it was too late. Since then, risk management has dictated

close monitoring of Huawei equipment and software by

UK personnel under the direction of the National Cyber

Security Centre (NCSC).

They have no illusions about the danger that Huawei

presents and readily agree that it is not a trusted supplier,

but they differ from their US counterparts in their

assessment of the risk, finding the US position irrational.

The NCSC argues that lack of diversity of suppliers is

equally a security concern and points out that the US has

neglected to maintain its own capability. For the NCSC,

three suppliers is the magic number, which of necessity

includes Huawei. It further argues that Huawei can be kept

out of core operations and its participation limited.

This chimed almost exactly with what Johnson

announced, to the fury of Donald Trump. Huawei

participation, Johnson said, would be permitted but

limited to 35 per cent of network infrastructure, and it

would not be admitted to sensitive parts of the network or

to core operations.

Leaving aside the technical argument about whether,
in 5G, that is a meaningful distinction—in Australia, they

think not—Johnson’s decision postpones rather than

settles the matter. It is, in fact, a fudge.

Even if we were to stretch our credulity and believe

that Huawei is independent of the Chinese Communist

Party today, as it claims, there are any number of cases

of Chinese companies being seized—either because they

have transgressed politically or become too powerful, or

because it suited the leadership to bring them down. And

given that the UK government did ban China’s second

biggest telecoms supplier, ZTE, on the grounds that it was

too close to the Chinese government, making an exception

for Huawei is illogical.

Johnson’s decision was largely determined by past

mistakes, driven by cost and by fear of offending China.

It would be expensive to rip out and replace Huawei

equipment, but equally importantly, the UK, like the

US, has no domestic capacity to address the risks of

lack of diversity of supply. The second half of the NCSC’s

argument is that the UK must remedy this deficiency for

security reasons, in order to escape our current level of

dependency on a company and a country that all sides

agree is not a friend.

Even in the US, there have been calls for a return to an

industrial strategy, crafted for exactly the same reason. If

the dissenting Tory grandees who want Huawei equipment

removed within three years prevail, they should also insist

that spending money on native capacity is essential for

national security in the 21st century.
This government clearly has high ambitions for how the UK’s infrastructure might support prosperity across the whole country. The recent budget saw significant additional investment in roads, rail and digital networks, representing a large down payment on delivering that political intent. We now need to see the longer-term plan to ensure those aspirations become reality beyond the next five to 10 years.

Rishi Sunak’s first Budget understandably focused on addressing pressing short-term challenges facing the country. However, taking big strategic decisions on longer-term challenges—such as urgently decarbonising our economy—cannot be put off indefinitely.

The plan should be fleshed out in the long-awaited National Infrastructure Strategy, which the government has announced will now be published later this spring. In that document, I hope ministers will take the opportunity to build upon the budget and—crucially—respond meaningfully to the recommendations the Commission made in our National Infrastructure Assessment, published nearly two years ago in July 2018.

For example, we will be looking for further steps to embed and broaden the government’s approach to devolving power and funding to city leaders, for them to invest in local transport improvements. This should include beginning work on a wave of much bigger projects in the 2030s for our fastest-growing and most congested cities.

The £4.2bn for the next five years included in the budget is a good start, but by 2040 urban transport outside London will need £43bn of additional investment to enable regional economic hubs to fulfil their potential. Similarly, the announcement of increased funding for flood protection is welcome. But to be effective, it must be complemented by the introduction of a national flood resilience standard. Enforcing such a standard would focus attention on delivering the long-term solutions required to “level up” resilience across the UK, including a blend of traditional flood defences, green infrastructure and better spatial planning.

And when it comes to the future of our power networks, in addition to recent steps taken to enable greater generation from renewable sources, we need a coherent programme to ensure the evidence is available to make big choices about how to decarbonise our heating systems. We have called for trials of heat pumps and hydrogen heating as soon as possible, including community-level trials of the latter by 2021.

Strategies are only ever as important as the accountability for delivery that sits behind them. This is why the commission has set out four tests that must be met for the government’s strategy to be worthy of the name: it should have a long-term perspective, clear goals and plans to achieve them, a firm funding commitment and a genuine commitment to transformational change.

It’s great for the sector to be in vogue, but the recent heightened interest in the UK’s infrastructure should be the catalyst for long-lasting sound investment rather than a fleeting fashion.

The test of the government’s resolve on that will come in the substance of its National Infrastructure Strategy. I truly hope it will prove worth the wait.

A TEST OF GOVERNMENT RESOLVE
Will the government’s strategy match its high ambitions?

JOHN ARMITT CHAIR, NATIONAL INFRASTRUCTURE COMMISSION
Infrastructure is fundamental at all civic levels, from going about our daily lives to big city growth. The importance of infrastructure has grown in public awareness in the face of tackling climate change challenges, from offering protection against impacts such as flooding to supporting the generation and transmission of renewable energy. However, UK infrastructure and all the vital benefits that it brings, has long been subject to delay, uncertainty and political cycles.

Infrastructure includes a wide portfolio of interdependent building blocks and systems that are critical to, and define patterns of, strategic development. Innovations and evolving technologies have meant that services like telecommunications, transport and utilities are becoming increasingly more intelligent and connected. As such major projects need large investment, require years in planning and construction, and are built to last decades.

The challenges ahead in both mitigating against and adapting to climate change, and the critical role of both existing and future infrastructure in delivering this cannot be understated. It was therefore disappointing that the long-awaited National Infrastructure Strategy, in which a low carbon focus is expected, was not part of the Chancellor of the Exchequers’ Budget 2020 announcement. Whilst there were some welcome green intentions including investment in the electric vehicle charging network and flood defence, the budget was significantly light on measures to meet net zero commitments. In particular a glaring omission, especially given a number of the Conservative party’s election manifesto pledges, was the urgent need to decarbonise the UK’s existing housing. Enhancing the energy efficiency of homes through a range of retrofiting measures and policy instruments is therefore critical, and one of the most cost-effective ways to not only achieve net zero ambitions but to potentially optimise network infrastructure investment.
The National Infrastructure Commission, which provides independent and impartial advice on the UK’s long-term economic infrastructure needs, published the first National Infrastructure Assessment in 2018 which sets out a clear, long-term strategy to 2050. The National Infrastructure Strategy is expected to include the government’s formal response to the Commission’s Assessment recommendations.

For the Government to meet its net-zero 2050 target and to adapt to the irreversible impacts of climate change that we are and will continue to experience, there is little time for delay in making strategic decisions and setting out an ambitious plan that can deliver the UK’s required low carbon and resilient infrastructure both in a timeline and with a clear funding commitment.

The previous government’s policy of reduced public spending led to many areas of the UK becoming dependent on funding from the European Investment Bank (EIB) to deliver critical infrastructure and provide investors with confidence. Given the ambitions of current Government to provide “colossal new investments in infrastructure” as a pillar of its economic approach, we would urge that government match the pre-Brexit levels of EIB/EIF funding through capital investment; establishing a dedicated infrastructure investment bank as a replacement for the EIB, with financing solutions to accelerate low carbon and resilient infrastructure.

Decisions on low carbon infrastructure must in their entirety aim to tackle the challenge of climate change, but must also remain at the target construction cost for the client. While climate change adaptive measures and considerations can be factored into the planning and design of major projects, the project processes of construction, maintenance, and operation can significantly contribute to the inherent mitigating problem; both in embodied and operational carbon emissions. Infrastructure which supports low carbon technologies, must itself be low carbon. Therefore decisions made at the front end of design which seek to enhance carbon savings, and in which the client must ultimately agree too, must be supported by construction cost data.

The recent International Construction Management Standard (www.icms-coalition.org) 2nd Edition, extends the current ICMS into life cycle costs and therefore enables decision-makers to assess the cost impacts of design trade-offs. This is a critical area in achieving sustainable design. A product for example which has a higher capital cost, but a lower life cycle cost, may also have a higher embodied carbon value; giving rise to a carbon lock-in effect. To facilitate that design decision, ICMS 2 provides a tool to approximately assess the optimum cost and drive more whole life-cycle sustainable infrastructure.

As cities continue to push toward greater growth, major global disruptive trends demand smarter and more resilient support systems. ICMS is particularly suited to use in 5D BIM, connecting design and cost decisions, and these emerging technologies will be key in delivering the enhanced infrastructure our economy demands. Infrastructure must not only be planned and designed to adapt to future shock events but must also strive to minimise carbon emissions, both embodied and operational. A balancing act may be required, but equipped with globally benchmarked cost data enhancing transparency in the sector and facilitating investment, front end project decisions can be taken with confidence.
MY FIVE TRANSPORT PRIORITIES

From the local to the international

DAN JARVIS  MAYOR OF THE SHEFFIELD CITY REGION AND LABOUR MP FOR BARNSLEY CENTRAL

Since becoming mayor in 2018, I have put transport at the heart of my efforts to improve people’s lives in South Yorkshire and unlock the economic prosperity that our region— which covers Sheffield, Barnsley, Rotherham and Doncaster—badly needs. A lack of investment in South Yorkshire’s transport infrastructure means it is no longer fit for purpose. What should be an efficient system that benefits passengers is creaking and holding us back, and sustained investment and devolution is needed to turn it around. It is no secret that regions outside of London and the southeast have over time been left behind when it comes to infrastructure spending. But this is not about north versus south, it runs much deeper than that. It is about shared prosperity that benefits the whole country, while ensuring our region has a world-class transport system that our people deserve.

The government has spoken about “levelling up” the economy—and ending the scandal of our imbalanced transport infrastructure spending is key to making that happen. In the budget, we secured £166m of investment in response to our Transforming Cities Fund (TCF) bid to begin rebuilding our network. It will make a real difference to people in South Yorkshire: reducing journey times, cutting congestion and improving punctuality and reliability. It means we’ll see improvements like a new tram stop at the Magna Science Adventure Centre in Rotherham, and the first ever direct public transport link between Barnsley and Doncaster by bus rapid transit.

But there is much more to do, and I have ambitions to create a joined-up, world-class travel network, so that getting around South Yorkshire and the north is easy and efficient. The national conversation about transport in the north is dominated by HS2 and Northern Powerhouse Rail, which are important. But transport in the north is dominated by HS2 and Northern Powerhouse Rail, which are important. But it is in regional connections, across networks, where passengers and businesses will see the maximum benefits of investments.

The first place to start is our buses. I have asked my parliamentary colleague Clive Betts to review how we can revitalise our bus network, which is crucial to both social and economic mobility. Annual bus journeys per person in places outside London have fallen by 40 per cent and this trend is replicated in South Yorkshire. Over 6,500 people have taken part and the review will give us a blueprint to reverse the decline. Its findings will be published soon, but the recommendations will need to be backed up by serious government investment to deliver the transformation that passengers want to see.

The second priority is renewing and extending Sheffield’s Supertram, which has connected people to jobs, schools and culture for 25 years. It is synonymous with Sheffield as a city, but I want to see Supertram benefitting Rotherham, Doncaster and Barnsley too.

The third is rail. My Integrated Rail Plan is a vision of how South Yorkshire will be better connected by both high-speed and conventional rail networks in the future. The plan recognises that, while the benefits of national investment in HS2 and Northern Powerhouse Rail should be maximised, there needs to be ongoing, complementary investment in the local and regional rail and road networks. By doing this, the plan can best improve capacity, reliability, affordability, and journey times for communities and businesses. I have asked the chancellor to release resources so that I can develop a detailed business case that will enable us to re-open railway lines, closed as part of the 1960s Beeching cuts. This will breathe new life into former coal-mining and steel towns, connecting people in Chesterfield, Stocksbridge, Askern, Knottingley, Barnsley and Wakefield to each other across South Yorkshire.

The fourth is opening up South Yorkshire internationally. I want to improve connectivity to Doncaster Sheffield Airport, opening up South Yorkshire’s thriving economy to the rest of the UK and the world. A new railway station on the East Coast Mainline would achieve this, help create up to 73,000 jobs, and provide more sustainable travel by reducing the significant number of journeys currently made to airports outside of South Yorkshire by its residents.

The fifth is making sure getting around is as easy on foot and bike as it is on public transport. I appointed Sarah Storey as my Active Travel Commissioner to explore how we can make this a reality. Moving more improves both our physical and mental health. Small changes, such as walking to the shops or cycling to work, can have a big impact on us as individuals and on our society. Half of our TCF funding will be used to improve walking and cycling routes, which will bring benefits to our communities, including improved health and wellbeing.

All these projects play a significant role in connecting our region. But without funding, our economy will be held back from its full potential and our climate will continue to decline, which is one of the most urgent challenges we face in order to prevent further damage to the planet. By improving connectivity, people can make better choices about how they travel, thereby reducing reliance on cars, cleaning up the air that we breathe and making our streets more pleasant places to be.

My plans to transform South Yorkshire’s transport network shows the power of devolution and how mayors can make a difference to people’s lives, the economy and the planet. I have set out the scale of ambition required to achieve this in South Yorkshire. Now we need the government to give us the tools and funding to get on with the job.
Chancellor Rishi Sunak said in his March Budget speech: “We need to build the infrastructure that will lay the foundations for a new century of prosperity. We need to grab the opportunity to upgrade, to improve, to enhance, to level up.” Accordingly, the new government has promised to increase gross capital spending by £90bn over the parliament, bringing investment levels back to the average in rich economies and to higher levels than 2010-1.

In short, infrastructure is back in fashion. This will be good for growth. But it also matters because if infrastructure investment is done well, economic justice and prosperity can go hand in hand. The government can strategically invest in gaps not filled by the market, and in doing so increase growth and reduce inequalities. Infrastructure investment can connect so-called “left-behind” places to growth opportunities elsewhere.

And green infrastructure will be essential to help the government meet its 2050 net-zero target. But for these benefits to materialise, the government must assess and make decisions in the right way.

But the 21st-century economy requires a different type of investment too. Growth will likely come from knowledge industries, services, science, creativity and care. Government investment needs to put in place the infrastructure to support the private sector to take advantage of the growth opportunities in those fields.

This is why a debate has emerged on what should be considered infrastructure in a modern economy. Increasingly, research in this area also focuses on “social infrastructure,” such as educational and healthcare buildings. Yet, this still often relates to physical structures. In the case of investing in a science cluster, it is not the buildings that boost future benefits, but the people in it. The Office for National Statistics has acknowledged that such “human capital” as well as “natural capital” might have to be included in infrastructure decisions. But current policy practice is still far away from using such a definition.

Another weakness in the apparatus of good decision-making is the metric used to assess the value of an infrastructure project. In the 1980s and 90s, a focus of the government’s fiscal policy was to reduce the amount of gross debt, regardless of what this debt was “used for.” This led to the privatisation of many state-owned companies and the sale of assets such as social housing, as the revenue from sales could be used to achieve a lower debt figure. This approach completely disregarded the value of government assets, including direct future revenue streams as well as other potential economic and social impacts of keeping those assets in public hands.

After the 1990s, the approach was somewhat broadened, with the aim being to reduce net government...
debt: the value of government debt minus the value of easily sold “liquid assets” that the government owns. Often these assets are the government’s cash holdings, or when the government owns shares in companies, such as when it bought shares of banks during the financial crisis. Why did governments start to take such easy-to-sell assets into account when thinking about debt? The reason was that when they got into trouble with their debt, they could easily sell off those assets and repay their debt with the receipts. This thinking meant that governments usefully took into account some of their assets in decisions over investment. The problem with this approach was that it only included easy-to-sell assets and ignored some of the investments that are most useful for the economy such as hospitals, schools, or social housing, precisely because they cannot easily be sold.

Therefore, there is a strong economic case for adopting the notion of public sector net worth. This would enshrine in government thinking the notion that public investments should be encouraged if they generate value. This can include public investment in physical infrastructure (from public transport to hospitals) as well as non-physical infrastructure (such as research and development).

When we take public sector net worth as the relevant measure of the health of the public finances, the results of decisions taken to reduce public debt come into stark relief. The UK performs poorly internationally, and actually has negative public sector net worth right now. No one in the private or third sector would consider this to be successful financial management—or indeed, only consider one side of the balance sheet.

There are many candidates for smart spending to generate value. To reach its own 2050 net-zero target, the government will need to commit an average of £33bn in climate investment each year of this parliament, primarily on physical infrastructure such as electrifying transport, insulating homes and switching to renewable power. The rewards for these investments will be multiple—including greater efficiency, lower heating costs, and ultimately a sustainable economy.

So, too, the government should invest in non-physical assets, such as skills—including where workers are at risk of being left behind from the transition to net zero. Rather than having a tangible asset value, such investments boost future growth which improves the governments’ balance sheet.

Sunak is right that the time has come to “upgrade, to improve, to enhance, to level up.” But we also need to upgrade our economic thinking. Infrastructure is more than just buildings. We need to invest in people, in places and in communities. And we need a fiscal framework that acknowledges that public investment can create valuable assets for future prosperity and justice.

Because they are so economically useful, any fiscal paradigm should allow for such investments in illiquid assets because they can be good for the economy and can generate a future revenue stream in increased taxes. Global economic institutions have already adopted this idea. Both the IMF and the OECD have said that many countries across the world can afford increases in public investment, including in infrastructure, precisely because it grows the economy. They have highlighted that—when spent well—such investments can pay for themselves, through future tax receipts.

“THE UK HAS NEGATIVE PUBLIC SECTOR NET WORTH—NO ONE IN THE PRIVATE SECTOR WOULD CONSIDER THIS SUCCESSFUL FINANCIAL MANAGEMENT”
THE FOUNDATIONS OF NET ZERO

Infrastructure to drive the energy transition

NICK BUTLER  FINANCIAL TIMES COLUMNIST AND VISITING PROFESSOR, KING’S COLLEGE LONDON

The energy transition, now formally written into UK law through the commitment to deliver net zero carbon emissions by 2050, relies for its success on many different elements—including effective regulation, fiscal penalties and incentives, voluntary behavioural change and technical progress through advances in science and engineering. All are possible and the subject of active debate. None of these elements can succeed, however, unless we have the infrastructure in place to allow their potential to be utilised.

Three different examples illustrate what is necessary. The first is the electrification of most of the transport system, starting with light vehicles such as cars and vans. The government is committed to ending the licensing of cars with internal combustion engines by 2035 or earlier. New models are being offered and prices are falling. The technology of batteries is advancing each year and the driving range offered by them is growing. An electric vehicle is now a viable option for many motorists. But the infrastructure is not in place. Over 100 local authority areas still have less than 10 public charging devices per 100,000 people and even in the major cities charging points are limited and sporadically located.

Despite much debate and growing public interest in using electric vehicles, and despite good progress in some areas, interoperability between the different charging devices has not been made mandatory and the challenge of matching the growth of new charging systems, particularly rapid chargers, with the necessary reinforcement of the grid has not been agreed, let alone delivered.

The strength and resilience of the power grid is crucial not just in relation to the increased use that will come as the number of electric vehicles grows but also because of the changing pattern of power supply. The costs of producing power from electricity has fallen dramatically—according to one study of large-scale sources, down by over 88 per cent for solar and by 69 per cent for wind over the last decade. The use of renewables has grown steadily. In the third quarter of last year wind and solar provided 40 per cent of the UK electricity supply. But the potential is constrained by the intermittency of the sources on which they rely. The wind does not always blow. That creates a requirement for back-up supplies that usually means using natural gas. The cost of having gas power available (if not always in use) adds to the costs of using renewables and limits their potential contribution.

The infrastructure gap is for grid-level storage that can cover the intermittency and thereby multiply the productivity of every investment in wind and solar. The technology is within reach and being applied at a small scale, but the overall requirement of matching the technology and resilience of the grid to a changing energy mix has not yet been given the priority it deserves.

The third opportunity is different, and focused on technology that still needs to be developed and tested at scale. The energy transition cannot rely on electricity alone. Some elements of energy consumption need a new generation of renewable supplies beyond wind and solar. The best bets are heat pumps and hydrogen. Both are alternatives to the natural gas that currently meets 69 per cent of the UK’s heating requirements. The two sources of hydrogen—either using capture and storage technology to remove the carbon from natural gas or through electrolysis—need to be tested at scale in particular communities to confirm the viability of the technology and its safety.

Hydrogen could also be used in industry and as the basis for fuels for trucks and other vehicles. Over time these could provide the alternative for existing maritime fuels. There is a strong case for creating the necessary infrastructure around coastal hubs—for instance on the North Sea coast, where offshore wind supplies could be harnessed in the production process.

All these steps will require a major transformation of existing infrastructure. Although the latest UK budget demonstrated some renewed interest in carbon capture technology, the level of investment and coordination required to match the challenge is far greater than anything we have yet seen.

There are many other possible examples of the requirement for changes and improvements in infrastructure to meet the needs of a decarbonising economy. None are without costs, and the allocation of those costs remains the subject of an unresolved and contested debate. Many of the steps are interlinked and co-ordination is essential. The critical step now is to develop an agreed strategy for delivering the target of net-zero, which provides a basis for decision-making at all levels and encourages the necessary investment by individuals, businesses and the various parts of government. Infrastructure must be at the heart of such a strategy. The need for a coherent and credible infrastructure plan has never been greater.