

HALF-BUILT BRITAIN: UNLOCKING THE NATION'S INFRASTRUCTURE GROWTH PLANS



Construction Plant-hire
Association

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FOREWORD

This report from Oxford Economics provides a timely and insightful assessment of the opportunities and challenges facing the UK's construction and infrastructure sector. It demonstrates that while the government's National Infrastructure Strategy sets a strong direction, delivery will depend on a stable policy environment, predictable pipelines, and a confident supply chain capable of meeting the country's ambitions.

The construction plant-hire sector is at the heart of this effort. It is one of the most capital-intensive parts of the construction industry, providing the machinery, technology, and expertise that make every major project possible. The construction plant-hire sector contributes around £14 billion to UK GVA, supports more than 190,000 skilled jobs, and collectively hold tens of billions of pounds of productive capital in plant and machinery. This investment base is the backbone of Britain's ability to build and grow.

That level of investment in new productive plant and machinery as well as skilled people depends on confidence. Investing in new fleets and equipment is a long-term decision that requires a strong pipeline of work, and a predictable framework for tax, investment allowances, and regulation. Skills training and investment in people are also huge priorities for the sector. Recent changes in areas such as employer National Insurance and proposals to restrict business property relief have increased cost pressures and introduced an existential threat for family-run, capital-intensive firms which make up the vast majority of the supply chain that delivers the projects. Frequent policy changes, however well-intentioned, risk undermining business confidence and reducing the sector's capacity to reinvest, and uncertainty over future costs can delay decisions that are vital to raising productivity and meeting decarbonisation goals.

The report also underlines a wider truth—public investment alone is unlikely to deliver the UK's infrastructure ambitions. Success will ultimately rely on creating the conditions to leverage private capital into projects through new partnership models that share risk, speed up delivery, and reduce the burden on the public balance sheet. Alongside this, reform of planning, regulation, and project delivery will be essential to provide the certainty and efficiency needed to turn ambition into outcomes.

There remains much to be optimistic about. With a consistent policy framework, a stable fiscal environment, and genuine collaboration between government and the private sector, Britain can deliver the modern infrastructure it needs to drive growth and productivity across the wider UK economy. The plant-hire sector stands ready to play its part—providing the capital, skills, and confidence required to turn plans into progress.



Steve Mulholland
Chief Executive, Construction Plant-hire Association

EXECUTIVE SUMMARY

In July 2024, the new UK government was elected on a manifesto commitment to develop a new 10-year infrastructure strategy.¹ Its ambitions are certainly bold: it has identified a pipeline of almost 800 projects amounting to £530 billion of investment over the next decade, of which £285 billion would be publicly funded. This report investigates how these plans will translate into action on the ground through the lens of three major policy releases over the summer of 2025—the Comprehensive Spending Review (CSR), Industrial Strategy, and National Infrastructure Strategy.



Commissioned by the Construction Plant-hire Association, this report analyses which sectors the government has chosen to prioritise its infrastructure spending on and gives an overview of the projects and programmes it intends to take forward. It looks at the impact the infrastructure spending plans may have on the economy's productive potential and economic growth. It then looks at the barriers that may prevent the investment plan being as effective as the government hopes, due to financing constraints, regulation, planning, the efficiency of project delivery, and skill shortages in the construction sector.

THE GOVERNMENT'S PLANS FOR INFRASTRUCTURE

The CSR sets out a clear plan of action, boosting all departments' capital expenditure plans by £95.9 billion or an average of 3.6% a year in real terms between 2023/2024 and 2029/2030. The department that has emerged as the big winner is Energy Security and Net Zero with an annual capital budget increase of 16% in real terms. But others are major beneficiaries such as Defence (up 7.1%), Health and Social Care, and Housing, Communities, and Local Government (both up 3.2%). The Department for Transport's capital budget is planned to increase less but still by 1.9%.

The focus on energy in the CSR is reflected in the National Infrastructure Pipeline. Of the projects with announced capital costs, 39% of the total planned capital cost between 2025/26 and 2034/35 is on energy projects. Energy infrastructure projects also dominate by number. They comprise 298 of the 775 (or 38%) of all the planned projects in the National Infrastructure Pipeline. Transport and water and wastewater are the second and third most numerous at 14% and 13% of total, respectively.

SPENDING WILL DELIVER NATIONAL BENEFITS AND EASE REGIONAL IMBALANCES

Our analysis shows that this additional capital spending could raise long-run output by £315 billion by 2039—around £3.30 for every £1 of public investment. This is driven by the higher total factor productivity from reduced congestion and better connectivity, crowding-in of private investment, and improved resilience across energy, transport, and digital systems.

Regional imbalances underscore the opportunity. Infrastructure investments are likely to deliver the highest returns in economically disadvantaged regions, particularly where transport, housing, and energy constraints are severe. London's productivity is nearly 30% above the UK average, while regions such as Wales, the Midlands, and the North are 10%–15% below the UK average. Targeted investment in lagging regions—improving transport links, expanding energy capacity, and upgrading digital infrastructure—offers some of the highest returns.



UNCERTAIN AND INCOMPLETE INFRASTRUCTURE PIPELINE COULD STALL GROWTH

Despite the positive announcements, the Infrastructure Pipeline is incomplete, creating considerable uncertainty. Fewer than half of the listed projects have capital costs assigned, while almost two-thirds of the 2025/26 budget allocated goes to projects already in operation or under construction. Further out, uncertainty grows, with the share of the capital cost of projects with committed funding falling to 33% by 2030/31.

PPP MODELS CAN ATTRACT SIGNIFICANT PRIVATE CAPITAL SEEKING UK INVESTMENT OPPORTUNITIES

With government finances in a poor state, the government will need to rely heavily on private sector finance if it is to achieve both its infrastructure goals and manage its fiscal position. It will also need to consider the public-private partnership (PPP) models it wants to use to leverage the significant private capital it needs to achieve its infrastructure plans.

This means risk allocation mechanisms need to be rapidly developed and implemented. Getting this right could attract a huge volume of underemployed private capital seeking investment opportunities in the UK infrastructure sector which would unlock a significant boost to growth.

IMPROVED PROJECT DELIVERY, REGULATION, AND PLANNING WILL UNLOCK GROWTH

A key issue for the new government's Infrastructure Strategy is delivery. Announcing pipelines and capital budgets will have little impact on economic growth and the competitiveness of the UK economy, if infrastructure investment delivery is not timely and cost-effective. The government's track record in delivering major infrastructure projects will need significant and urgent improvement if investment plans are to remain on track. Currently, only 14% of the government's strategic projects and programmes remain on track to deliver expected business case objectives.



Complex oversight and a siloed approach to the regulation of infrastructure have historically hindered investment and growth. The government will need to continue to address the thorny issue of restructuring the way in which regulators operate to simplify and streamline oversight across the infrastructure sector. It must also be prepared to deal with the question of whether the public will accept the need to pay more for essential infrastructure-related services such as water and electricity.

Historically, planning has been a significant blocker to infrastructure build and can add significantly to the cost of projects. It remains to be seen whether the government's reforms of planning, including the Planning and Infrastructure Bill currently moving through Parliament, will have the much-needed impact on boosting growth in infrastructure construction.

CHRONIC LABOUR SHORTAGES COULD HAMPER INFRASTRUCTURE DELIVERY

Construction labour shortages are another issue that may hinder the infrastructure build. We project that the 47% of projects and programmes which have a capital cost in the National Infrastructure Pipeline will require approximately 250,000 construction workers each year to complete. The demand for these workers comes on top of the estimated 161,000 workers required to meet the target for 1.5 million new homes by 2029. Adding to the pressure is the projected 500,000 construction worker retiring over the next 10 to 15 years.

ENSURING AMBITION BECOMES REALITY

Looking ahead, the potential for growth and productivity improvement could be huge but the challenges are immense. Construction companies and their supply chain, including firms that supply plant and equipment, have welcomed the government's infrastructure strategy announcements. But there are very significant obstacles that remain and will undoubtedly hinder successful implementation of these infrastructure projects. We have proposed solutions to some of these obstacles. Successful delivery will require establishing new models to attract significant private capital while overhauling planning and regulation to remove delays and ensure projects in the pipeline become reality on the ground.

SECTION 1: INTRODUCTION



In the summer of 2025, the government published three major economic policy announcements (the Comprehensive Spending Review, Industrial Strategy, and National Infrastructure Strategy). They set out its vision for infrastructure spending and its key priorities for its build over the next decade. More details on the plans will be published regularly as the government updates the National Infrastructure Pipeline.

The construction industry and the plant hire sector which serves it will be vital in building the infrastructure. This report commissioned by the Construction Plant-hire Association summarises the government's infrastructure plans. It analyses the impact on the productive potential of the UK economy that the government's additional infrastructure spending could deliver. But it comes with a word of caution: in the past government's infrastructure plans have hit some key barriers which have led to the impact on economic activity being less than had been hoped. This report makes some suggestions as to how those barriers can be avoided to maximise the impact of the infrastructure build on the economy.

This report is organised as follows:

- Section 2 summarises the main areas of infrastructure spending the government has chosen to prioritise in its Comprehensive Spending Review and National Infrastructure Pipeline. It argues greater certainty over whether the projects listed will go ahead would help the construction and plant hire industry deliver the capacity to get the plans built.
- Section 3 investigates how infrastructure spending on different assets classes will likely boost the productive potential of the economy. It analyses how infrastructure spend could address regional imbalances in productivity which hinder economic growth. Lastly, it presents an estimate of how much the additional infrastructure spend announced in the Comprehensive Spending Review will positively impact long run economic output in the UK.
- Section 4 looks at some of the key barriers that explain why previous governments' infrastructure plans have not been successful as they had hoped, and what the current government might do to address these problems.
- Section 5 analyses skill shortages in the construction sector now and in the future and how they may hinder the government's achieving its infrastructure plans.

SECTION 2:

THE GOVERNMENT'S INFRASTRUCTURE PLANS

The first of Labour's five missions for Government was to “kickstart economic growth – to drive growth, rebuild Britain, support good jobs, unlock investment, and improve living standards across the country”. Arguably, the most direct policy lever the government has to impact economic growth is its own expenditure. Its spending on infrastructure projects can stimulate economic activity in the construction sector, and subsequently along its supply chain through its rental of capital equipment and purchases of building materials and other inputs. But this impact is short-term, ending when construction is complete. The more important and longer-lasting impact that expenditure on infrastructure can have is to lower production costs (for example, transport, energy, and digital costs). Infrastructure can therefore raise productivity in many industrial sectors. This offers companies competitive advantage, attracting other companies to collocate in a region offering clustering benefits, thus raising production and the standard of living.



Rory Halles/Alamy stock photo

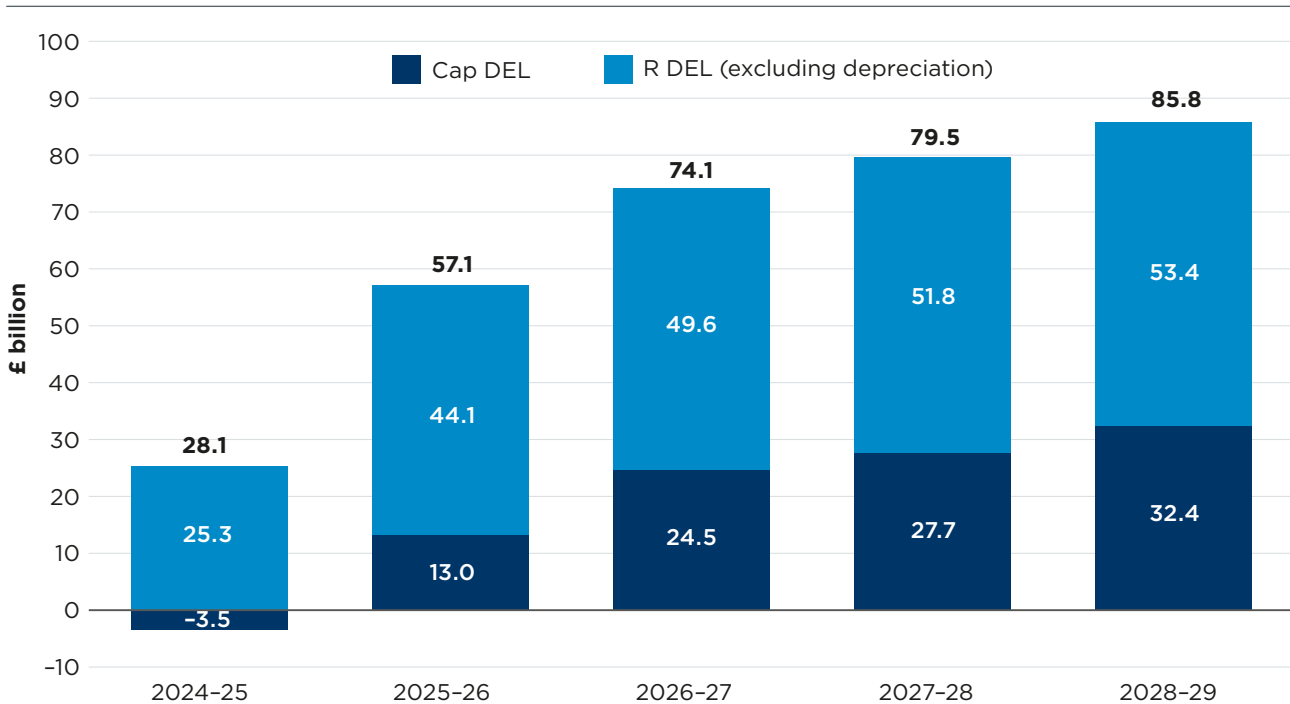
This chapter summarises the announcements the government has made on its infrastructure investment plans for the next decade in its three major policy announcements of the summer. It investigates which sectors the government has chosen to prioritise infrastructure spend on by analysing the National Infrastructure Pipeline. It argues that the Pipeline still leaves the construction and plant hire with considerable uncertainty, which will hamper their investment and future capacity planning to deliver the government's infrastructure plans.

2.1 OVERVIEW OF THE COMPREHENSIVE SPENDING REVIEW

In the Comprehensive Spending Review (CSR), the government announced it plans to raise its spending (as measured by its Department Expenditure Limits (DEL)) to £716.9 billion by 2028-29. To give a sense of scale, this is £85.8 billion (or 14%) more than the last budget set by the previous government in March 2024 (in nominal terms). Operational spend (called revenue or R DEL) is planned to increase by £53.4 billion (Fig. 1) more than the previous government planned to spend by 2028-29 and investment spending (called capital or CAP DEL) is planned to increase by £32.4 billion.

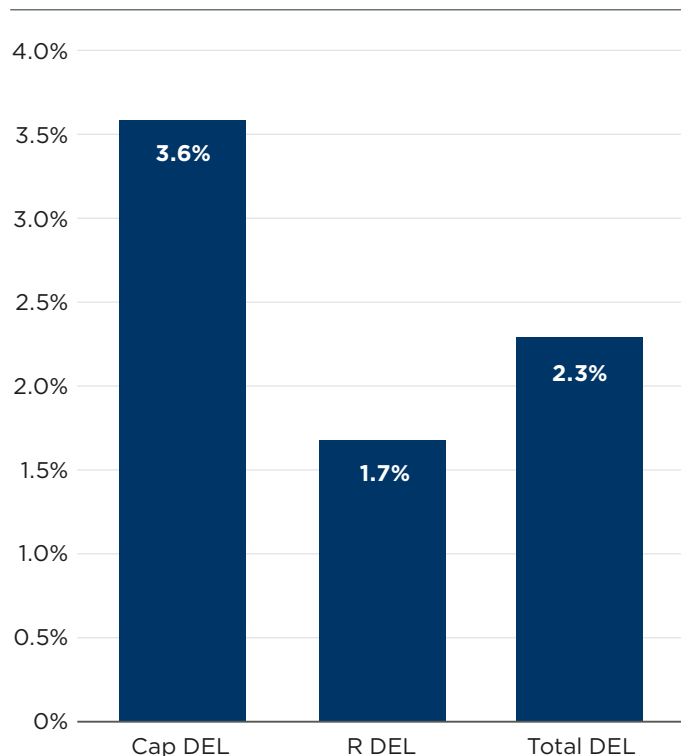
In the CSR, the government raised the Department Expenditure Limits (DEL) on operational spending by more than capital spending in absolute terms. But relative to the existing budget size, the increase in capital spending is planned to outstrip operational spending. In real terms (after allowing for inflation) capital spending is projected to rise by 3.6% on average a year between 2023/24 and 2029/30, more than double the 1.7% growth in operational spending (Fig 2). The faster planned growth in investment spending will stimulate new infrastructure construction.

Fig. 1: Increase in planned Department Expenditure Limits between the CSR in June 2025 and last Conservative Budget in March 2024



Source: Oxford Economics, HM Treasury

Fig. 2: The average real annual growth rate of capital, revenue, and total DEL in the CSR (2023/4 to 2029/30)

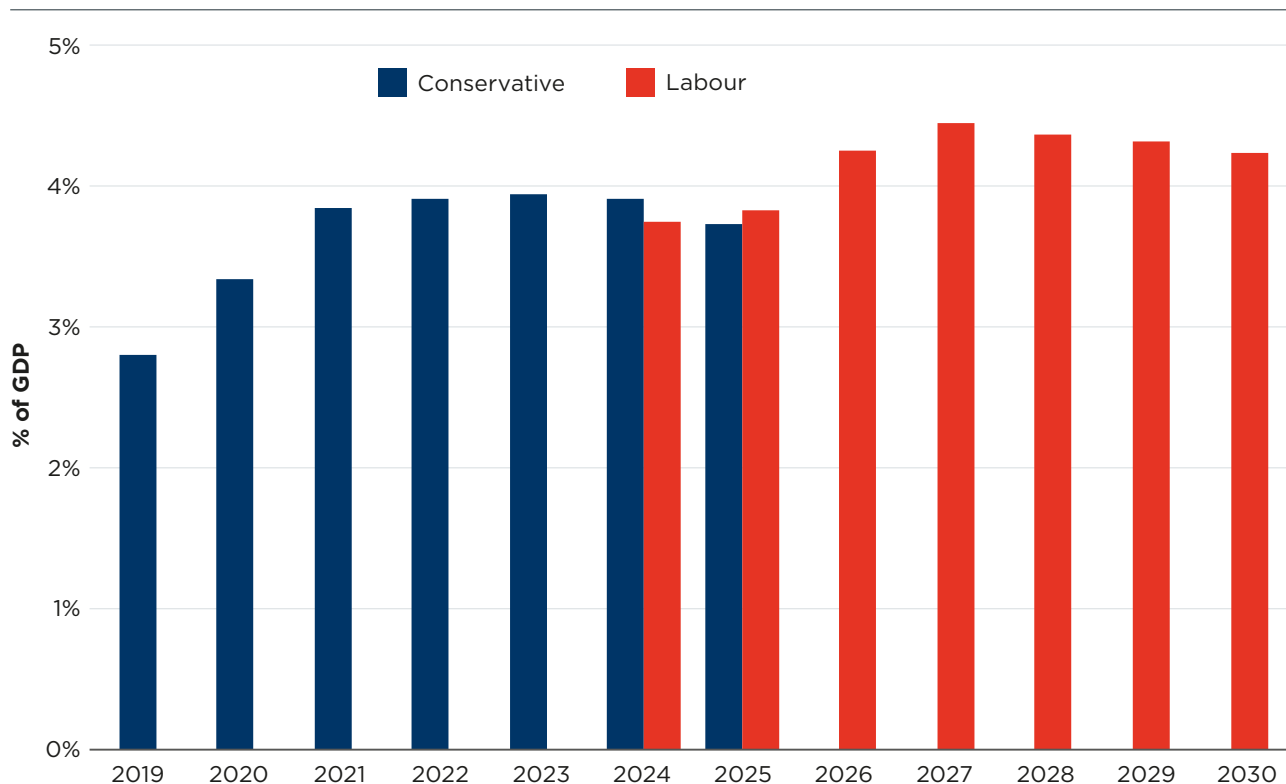


Source: Oxford Economics, HM Treasury

To give a sense of scale, the planned increases in the capital spending budget in the CSR are likely to increase government's spending on infrastructure and other investment slightly as a proportion of GDP relative to the previous government. The CSR projections average just over 4% of GDP, compared to just under 4% at the time of the previous government's plans in the March 2024 Budget (Fig 3).

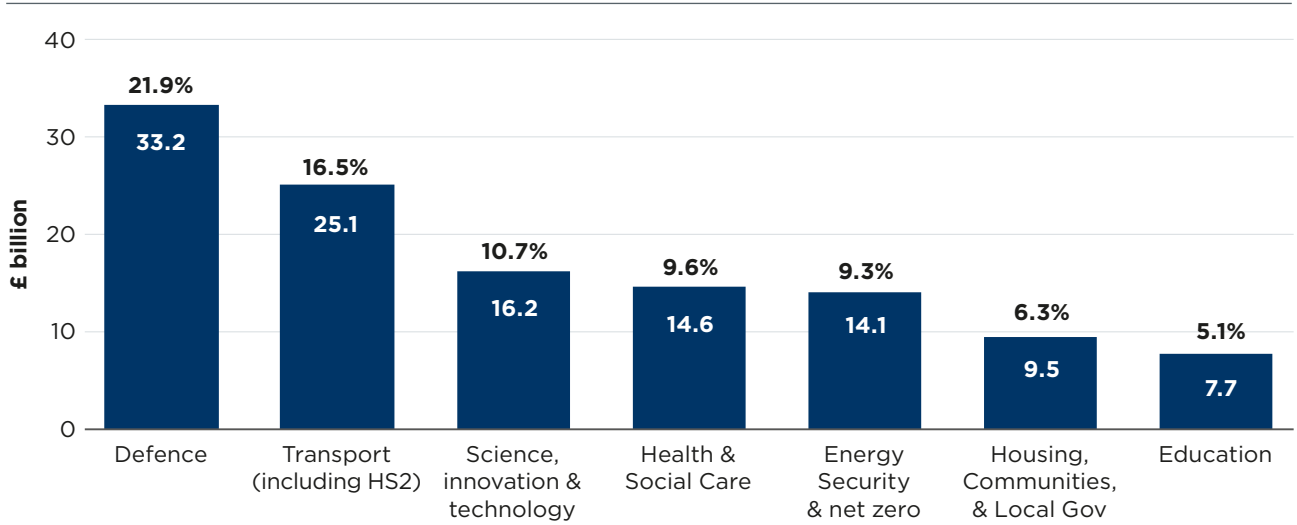
The government's planned capital spending budget is unevenly spread across departments. Defence, Transport, and Science, Innovation & Technology are due to undertake the greatest amount of expenditure (Fig 4). However, spending limits are a poor guide to the impact on new infrastructure build and its potential impact on the construction sector and broader economy. The purchase of capital assets (for example, military equipment) is likely to have limited impact on construction or knock-on impacts onto productivity.

Fig. 3: Capital DEL as a share of GDP (actuals for last government, CSR for the current one)



Source: Oxford Economics, HM Treasury

Fig. 4: Government departments receiving the largest share of the capital spending DEL in 2029/30

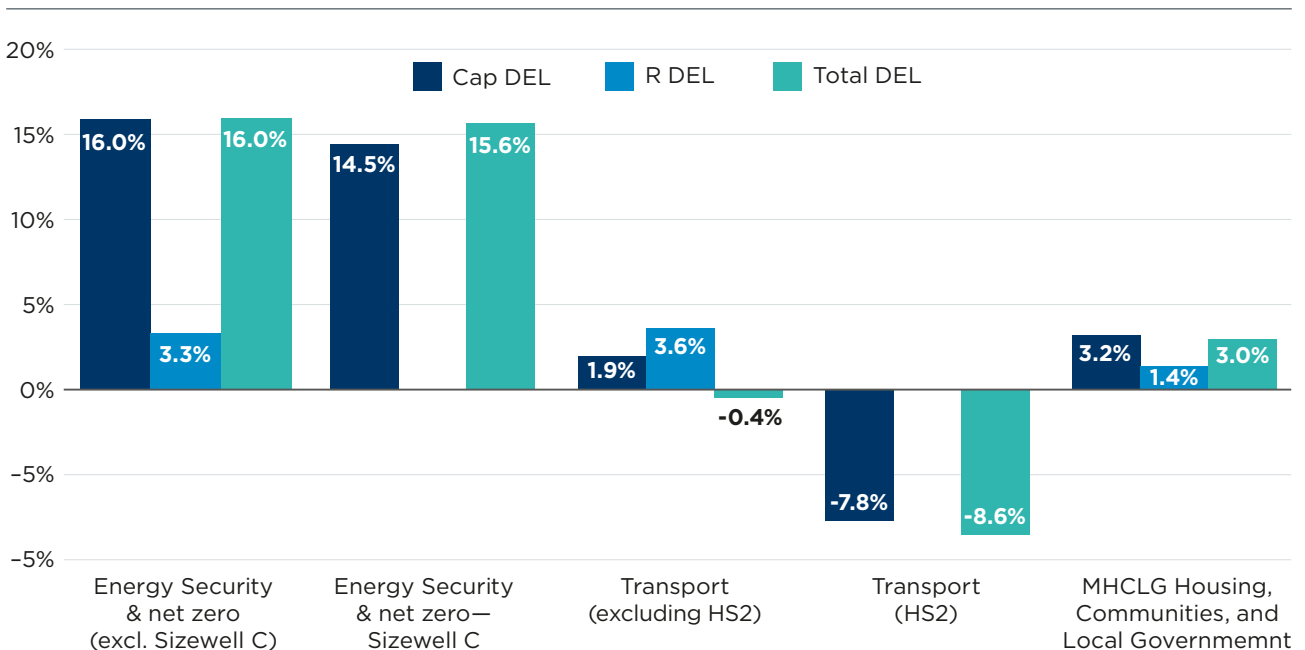


Source: Oxford Economics, HM Treasury

To get an overview of what the CSR means for the UK's infrastructure and the construction sector we can look at the how the DELs have increased in real terms at the three departments which spend a lot on construction (Fig 5). The Department of Transport's (excluding HS2) planned budget is heavily focused on capital—at 73% of total. Between 2023/24 and 2029/30, its capital spending is planned to grow by 1.9% a year in real terms. This is significantly below the 3.6% average planned for

the whole of the government's capital budget. The department's operational spending budget (which includes spending on the repair and maintenance of existing transport assets) fared worse. It is planned to decline in real terms by an annual average of 3.6%. As discussed below, this may be problematic as the existing road and rail network massively exceeds any planned build of new capacity, so failure to adequately maintain this may prove problematic and more costly in the longer run.

Fig. 5: Average annual real growth in large construction spending departments' capital, revenue, and total DEL between 2023/24 and 2029/30

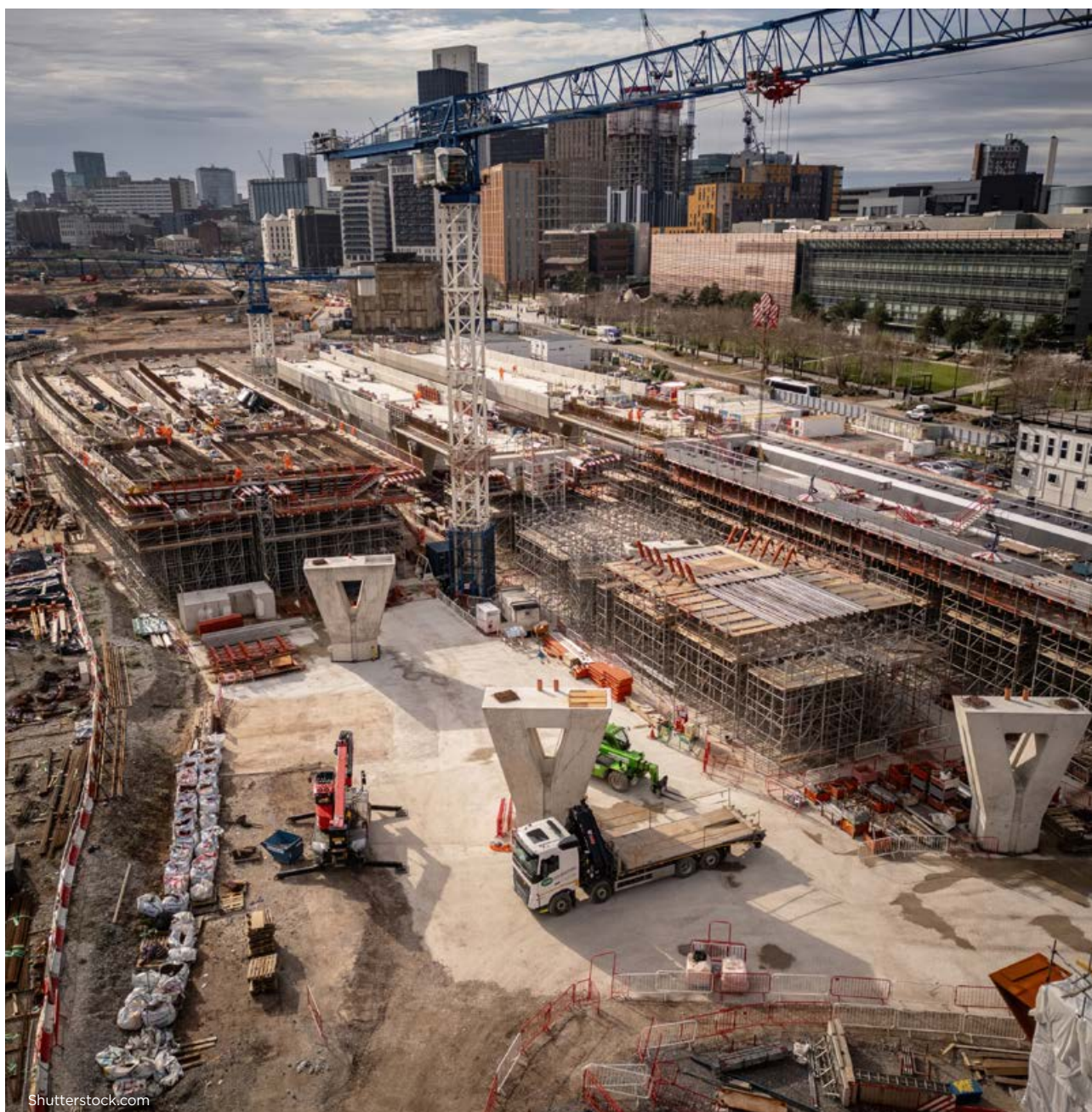


Source: Oxford Economics, HM Treasury

The bigger winner in the CSR was the Department of Energy Security and Net Zero (DESNZ). Its planned budget is split 86% on capital spending and 14% on operational. DESNZ's capital budget is planned to increase by an average of 16.0% a year in real terms between 2023/24 and 2029/30. The planned capital expenditure on the Sizewell C nuclear power station is planned to increase by 14.5%. Overall, the growth in DESNZ's capital budget is nearly 4.5 times the rate of the government's total capital budget. These increases are very significant and easily outstrip the planned increases in the

budgets given to the other departments (including one of the other priorities—Defence—which is planned to grow at an annual average of 7.1%).

It is planned that the Ministry of Housing, Communities, and Local Government, which has responsibility for housing, will spend 67% of its budget on capital spending rather than operational expenditure. Its capital budget is forecast to increase by 3.2% a year in real terms, slightly below the 3.6% average for all departments' capital spending.



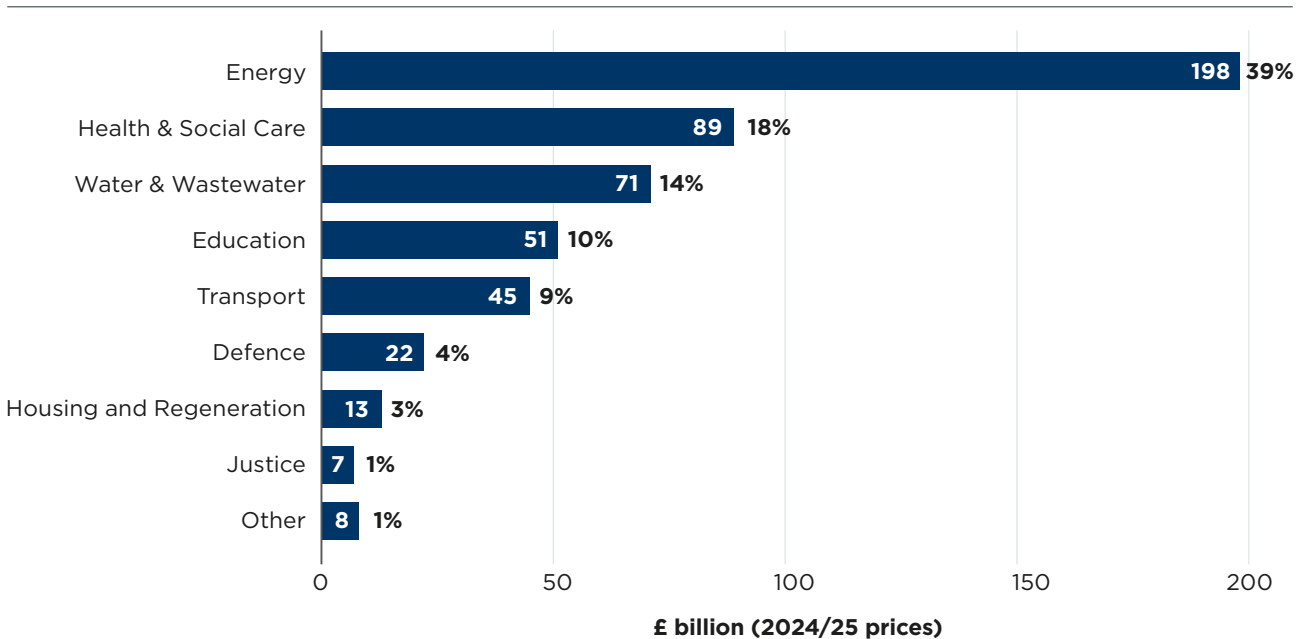
2.2 THE NATIONAL INFRASTRUCTURE PIPELINE

In July, the National Infrastructure and Service Transformation Authority (NISTA) published the first iteration of the Infrastructure Pipeline. It contains the details of the projects and programmes that the departments' capital spending and the private sector will deliver as part of the 10 Year Infrastructure Strategy. The first iteration contains data on around 780 projects and programmes from the public and private sectors. In total this accounts for around £530 billion of investment in specific projects and programmes over the next 10 years, with around £285 billion of this funded by government (all in 2024/25 prices).

“The Pipeline contains £530 billion of investment in specific projects and programmes over the next 10 years, with around £285 billion of this funded by government.”

The July version of the Infrastructure Pipeline is a very incomplete document. Only 47% of the line items listed have a capital cost assigned to them. NISTA's intention is that “data gaps in the Pipeline are expected to be filled via regular updates”.² The first of these is expected in early 2026. As a result, the analysis below is based on the July 2025 version of the Pipeline.

Fig. 6: Planned investment in the National Infrastructure Pipeline over the next 10 years



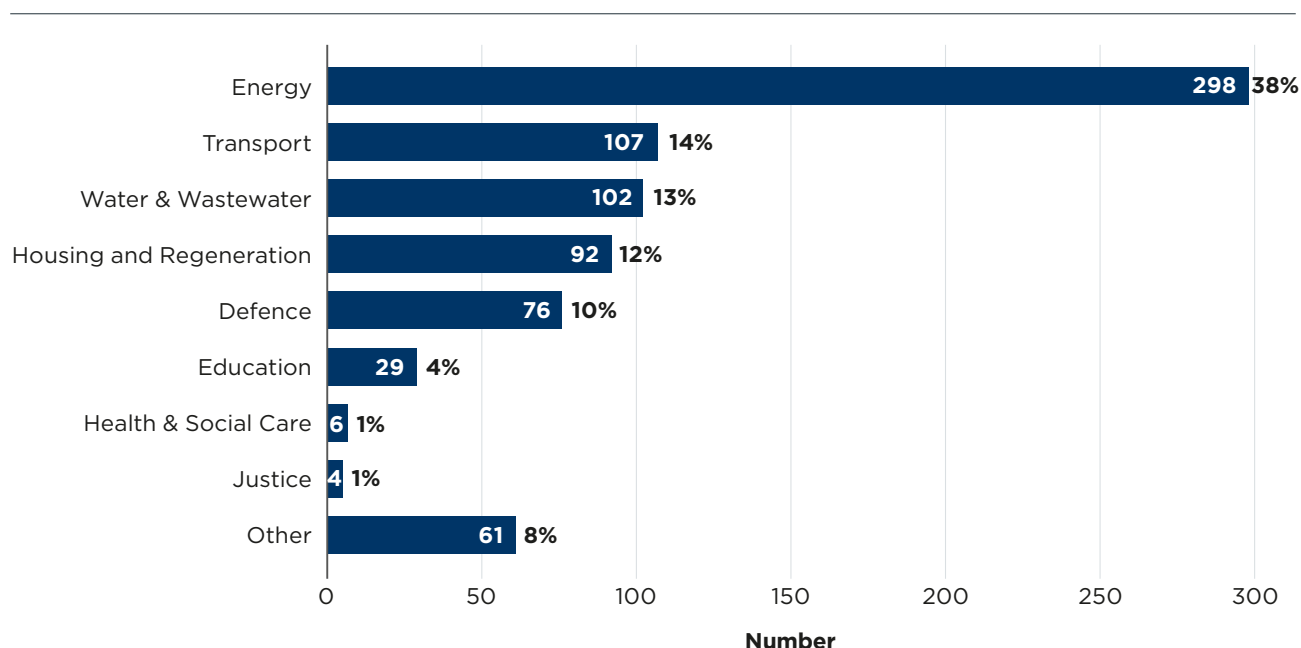
Source: Oxford Economics, NISTA

² National Infrastructure & Service Transformation Authority, 'Infrastructure pipeline: Introduction', 2025. Accessed September 2025.

The focus on energy in the CSR is enacted in the National Infrastructure Pipeline. Of the projects with announced capital costs, 39% of the total planned capital cost between 2025/26 and 2034/35 is on energy projects (Fig. 6). Health and social care and water and wastewater rank second and third at 18% and 14%, respectively.

Energy projects also dominate by number. They comprise 298 of the 775 (or 38%) of all the planned projects in the National Infrastructure Pipeline (Fig. 7). Transport and water and wastewater are the second and third most numerous at 14% and 13% of total.

Fig. 7: Number of projects in the National Infrastructure Pipeline (regardless of whether any capital cost is allocated to them)

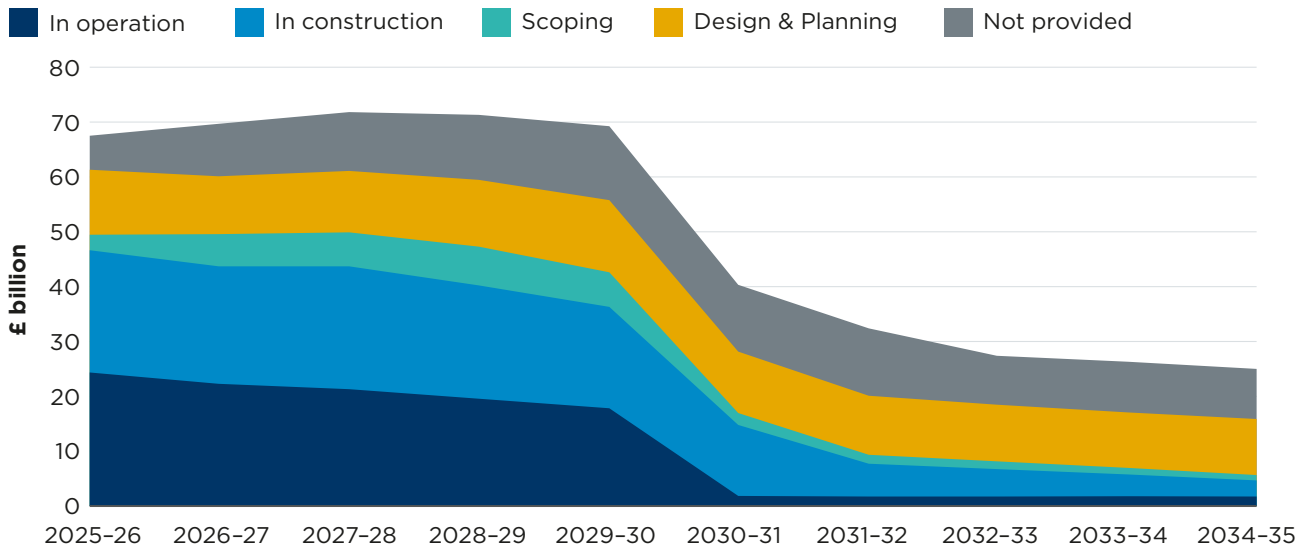


Source: Oxford Economics, NISTA

NISTA describes the Infrastructure Pipeline as “the ten year forward look of investment into major UK capital infrastructure”. Given that political priorities change over time, as politicians react to and shape the future, it perhaps worth cautioning that some of the projects that are currently in the Pipeline will not take place. It is likely some will be replaced by others that are not currently in the Pipeline. But the Pipeline’s contents are the best view we currently have of the infrastructure investment that will likely take place over the next decade. Therefore, our judgement of the spending’s impact on economic growth is based on these figures.

There is more certainty over those projects in the pipeline that are rated as “in operation” or “in construction” will go ahead in their current form and to the existing budget. Projects in these two categories comprise 63% of the projects for which capital budget information is currently available for 2025/26 (Fig. 8). There is a greater likelihood the projects in “scoping”, and “design and planning” phases will change. Unsurprisingly, the further out into the future the Pipeline’s capital costs budget go, the greater the share of the Pipeline’s currently announced budget that is going to be spent on projects which are currently in their early stages.

Fig. 8: Annual planned spend by scheme status for projects with an announced capital cost

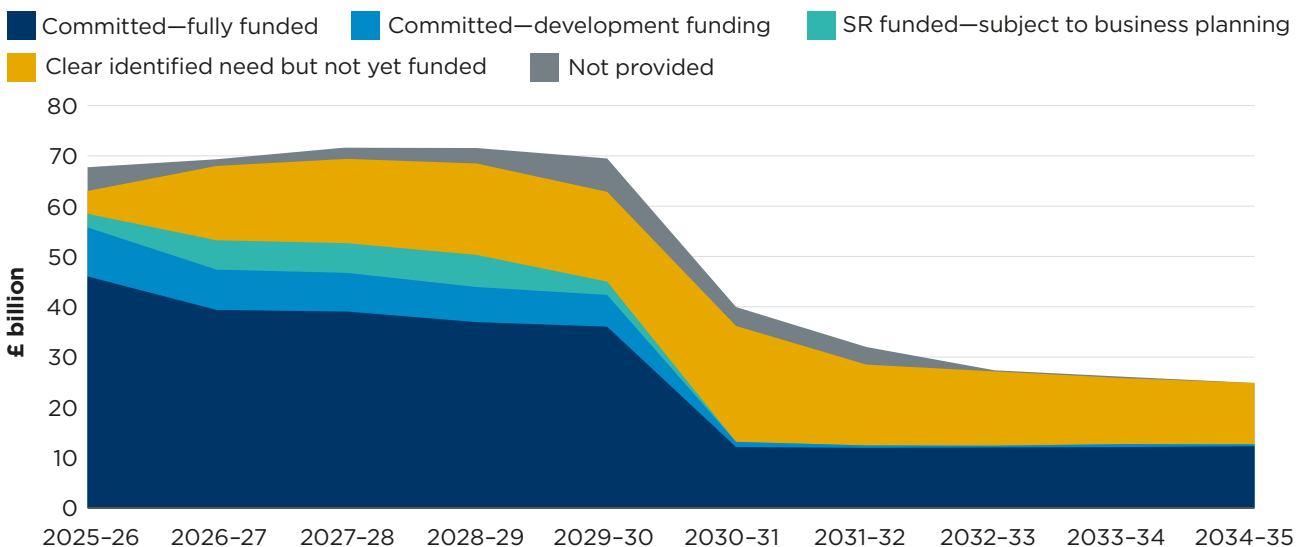


Source: Oxford Economics, NISTA

One of the greatest uncertainties with regard to both public and private funding is the ability to finance the project. For those projects, scheduled to progress in 2025/26, 68% with an announced capital cost were rated as fully funded, with another 14% having committed development funding (Fig. 9). But further out, the share of the capital cost of projects with committed funding declines to a low of 33% in 2030/31.

The construction and the plant hire industry will undertake the build of the government's infrastructure plans. It will welcome the summer's announcements, in particular the National Infrastructure Pipeline, to help it formulate its investment spending and workforce planning so it has the necessary capacity levels to deliver the government's plans. The more clarity the government can give in the National Infrastructure Pipeline, as it evolves, the greater likelihood the industry will have the necessary capacity levels to help it deliver its plans.

Fig. 9: Annual planned spend by status of the expenditure for projects with an announced capital cost



Source: Oxford Economics, NISTA

SECTION 3: INFRASTRUCTURE SPENDING AND ECONOMIC GROWTH

Infrastructure investment is a proven driver of long-run productivity and growth. It expands the economy's productive capacity and improves how efficiently labour and capital are used. Empirical evidence shows that increases in public capital—particularly in transport, energy, and communications—deliver statistically and economically significant gains in long-term output.

This chapter investigates how infrastructure spending boosts the productive potential of the economy. It explores this relationship by infrastructure class. It goes on to investigate why infrastructure quality matters and how infrastructure imbalances can explain differences in regional productivity. Lastly, it estimates the potential productivity dividend from the 2025 Comprehensive Spending Review.



3.1 HOW CAN INFRASTRUCTURE SPENDING HELP?

Infrastructure investment plays a critical role in raising long-run output by expanding the productive capacity of the economy. Investment in infrastructure increases the capital stock, but differently to investments in plant and equipment by businesses, infrastructure also enhances the efficiency with which labour and capital inputs are used, contributing to long-run growth indirectly through higher total factor productivity (TFP).^{3,4}

Infrastructure boosts efficiency through several channels:

- Transport and freight improvements—expansion of port, road, or rail freight capacity allows quicker and cheaper transport of goods, meaning businesses can move goods faster, hold smaller inventories, and get products to market sooner.
- Better maintenance of existing transport networks—well-maintained roads and rail reduce breakdowns and service interruptions, keeping workers and equipment productive rather than idle.
- Digital infrastructure—faster, more reliable broadband and data networks allow firms to adopt digital tools like cloud computing and the Internet of Things, which raise output without requiring more staff or equipment.
- Energy infrastructure—investment in generation, grids, and renewables ensures continuous operations, lowers production costs, and supports long-term efficiency through improved energy security and sustainability.
- Housing and transport links—investment in housing or public transit reduces commuting times and makes it easier for workers to access jobs, improving labour market matching and allowing employees to work more efficiently.

Infrastructure provides benefits that spill over across the economy—including to firms and households that do not directly pay for them. High quality infrastructure projects not only boost short-term demand through construction activity but also raise the economy's potential long-run output by improving connectivity, reducing costs, and ultimately enabling more productive use of labour and capital. As a result, infrastructure investment is regarded as one of the most effective ways the government can support long-run growth and higher living standards.

3 OECD, 'Transport infrastructure investment and economic productivity: A White Paper', 2002.

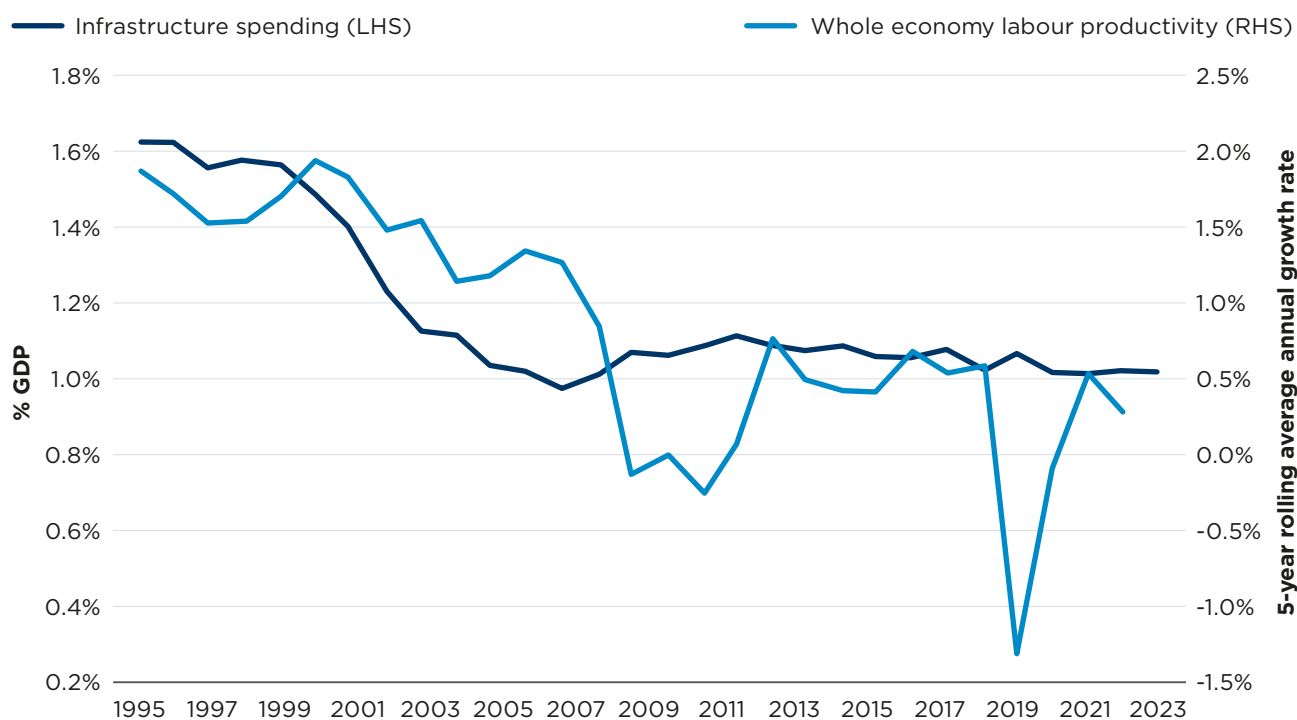
4 Total factor productivity is the efficiency with which labour, capital, and other inputs are combined to produce output.

3.2 INFRASTRUCTURE SPENDING MATTERS FOR LONG-TERM GROWTH

Fig. 10 illustrates the relationship. Since the mid-1990s, a steady decline in UK infrastructure spending as a share of GDP has coincided with a significant decline in labour productivity growth. When the Government announced the 10 Year Infrastructure Strategy, it highlighted that “infrastructure investment has been too erratic and too low in the UK, hampering productivity and wages”.⁵ The co-movement of these series is not coincidental—empirical research and economic thinking finds that infrastructure investment is a key determinant of long-run economic output.

A consistent finding across the research literature is that increases in public capital, particularly in terms of core infrastructure (power, transport, and utilities), lead to statistically and economically significant higher levels of productivity and output in the long run. Bom and Ligthart (2014), synthesise findings from dozens of studies and confirm a positive, economically significant link between public capital and output. The magnitude of the effect varies across studies, reflecting differences in empirical design, infrastructure coverage, and institutional context.⁶

Fig. 10: Decline in UK labour productivity and infrastructure spending, 1995–2024



Source: Oxford Economics, Haver Analytics, ONS

⁵ Gov.UK, 'UK infrastructure: A 10 year strategy', June 2025.

⁶ Pedro Bom and Jenny Ligthart, 'What have we learned from three decades of research on the productivity of public capital?', Journal of Economic Surveys, December 2014.

Core infrastructure lowers the cost of moving goods, services, and information, making transport and communication more efficient. This allows firms to produce more output with the same inputs. In a seminal paper, Aschauer (1989) showed that higher public capital stocks were associated with higher private-sector productivity, reflecting reduced costs and better utilisation of resources.⁷ This stimulated a large number of subsequent studies which confirm that infrastructure not only contributes directly to GDP but also increases the productivity of private investment and labour.⁸

Conversely, underinvestment carries a high cost. Insufficient infrastructure leads to congestion, delays, unreliability, and capacity constraints,

which increase business costs and reduce potential output. As shown by the UK experience in Fig. 10, where lower infrastructure spending has been accompanied by lower productivity over the past three decades. By investing in infrastructure, economies alleviate these constraints, enabling resources to be allocated more efficiently and supporting higher sustained output.

Taken together, the literature shows that infrastructure is not merely a short-term stimulus tool but a structural driver of long-run economic performance. The weakening of productivity growth in the UK is consistent with the observed fall in infrastructure investment—underscoring the importance of maintaining and upgrading public capital to support future growth.



7 David A. Aschauer, 'Public investment and productivity growth in the Group of Seven, *Economic Perspectives*', 1989.

8 James Heintz, 'The Impact of Public Capital on the U.S. Private Economy: New Evidence and Analysis', *International Review of Applied Economics* vol. 24, no. 5, 2010.

3.3 PRODUCTIVITY IMPACT BY INFRASTRUCTURE CLASS



3.3.1 Transport Infrastructure

High-quality transport infrastructure—such as roads, railways, ports, and airports—facilitates the efficient movement of goods and people. By reducing travel times and congestion, it enhances labour mobility. Firms benefit from lower shipping and distribution costs and greater access to input suppliers. The productivity gains are therefore both direct (cost reductions, faster logistics) and indirect (wider labour market matching, improved agglomeration effects in urban centres).⁹



Pictorial Press Ltd/Alamy stock photo

3.3.2 Power Generation and Energy Infrastructure

Reliable, low-cost energy is fundamental for industrial productivity. Power generation infrastructure, including grids and renewable energy installations, enables continuous industrial operations, supports energy-intensive sectors, and reduces operational disruptions.¹⁰ Low-cost and stable electricity supply can directly lower production costs, while investment in cleaner energy sources can have long-term productivity benefits through improved sustainability and energy security.¹¹



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3.3.3 Digital Infrastructure

Digital infrastructure, including broadband, fibre networks, and data centres, drives productivity by enabling faster communication, access to information, and adoption of modern technologies. Strong digital infrastructure can improve firm-level efficiency, support remote working, and facilitate new business models. Unlike physical transport, digital infrastructure can have disproportionate effects on knowledge-intensive sectors and firms that rely heavily on real-time data and AI applications.

While large-scale infrastructure projects often attract significant attention, they should not overshadow smaller, targeted investments that may deliver higher productivity returns per unit of expenditure. For example, localised road improvements, small-scale renewable energy projects, or upgrading urban broadband networks can sometimes generate more immediate and widespread productivity gains than multi-billion-pound flagship projects, which may have long gestation periods and risk crowding out other essential investments.

9 Minoo Farhadi, 'Transport infrastructure and long-run economic growth in OECD countries', 2015. Junjie Hong, Zhaofang Chu, and Qiang Wang, 'Transport infrastructure and regional economic growth: evidence from China,' Transportation, Springer, vol. 38(5), 2011. Jiwattanakulpaisarn et al, 'Marginal productivity of expanding highway capacity,' Journal of Transport Economics and Policy, University of Bath, vol. 46(3), 2012. Pradhan and Bagchi, 'Effect of transportation infrastructure on economic growth in India: The VECM approach', Research in Transportation Economics, vol. 38(1), 2013.

10 Rehman and Islam (2023) 'Does energy infrastructure spur total factor productivity (TFP) in middle-income economies? An application of a novel energy infrastructure index'. Singer (2024) 'Complementary inputs and industrial development: can lower electricity prices improve energy efficiency?' Working Paper, Grantham Research Institute, LSE. World Bank Blogs 'How much do we know about the development impacts of energy infrastructure?' Kelsey Jack, March 2022

11 Lixin Kuang, Xiangrong Han, and Guanyu Liu, "The efficiency of energy infrastructure investment and its regional economic impact", International Journal of Environmental Research and Public Health, Volume 20(3), 2023.

3.4 INFRASTRUCTURE QUALITY MATTERS

Infrastructure quality has been highlighted as a key factor in the UK's flatlining productivity growth since 2007. Numerous studies link stagnating productivity to underinvestment and the poor state of the country's infrastructure.¹² In particular, Chadha, Kucuk, and Pabst (2021) noted that the transport system has struggled to meet rising demand, with congestion and unreliability creating significant inefficiencies.¹³ Comparative evidence highlights the scale of the challenge; Arbabi, Mayfield, and McCann (2020) found that urban infrastructure networks in England and Wales provided less effective mobility than those in the Netherlands and Germany.¹⁴

Maintenance of existing infrastructure is crucial for productivity. Deteriorating roads, rail networks, and broadband systems directly reduce efficiency and undermine returns from past investment. At the same time, strategic new builds are necessary to meet future demand and expand capacity. Productivity growth is maximised when both approaches are pursued and coordinated.

The case of the UK demonstrates that quality matters at every level. Poor maintenance or outdated infrastructure limits mobility and increases costs, while countries with higher-quality networks benefit from more efficient connectivity and stronger productivity outcomes. Addressing long-standing deficits in both maintenance and new investment is therefore essential for unlocking sustained productivity growth.



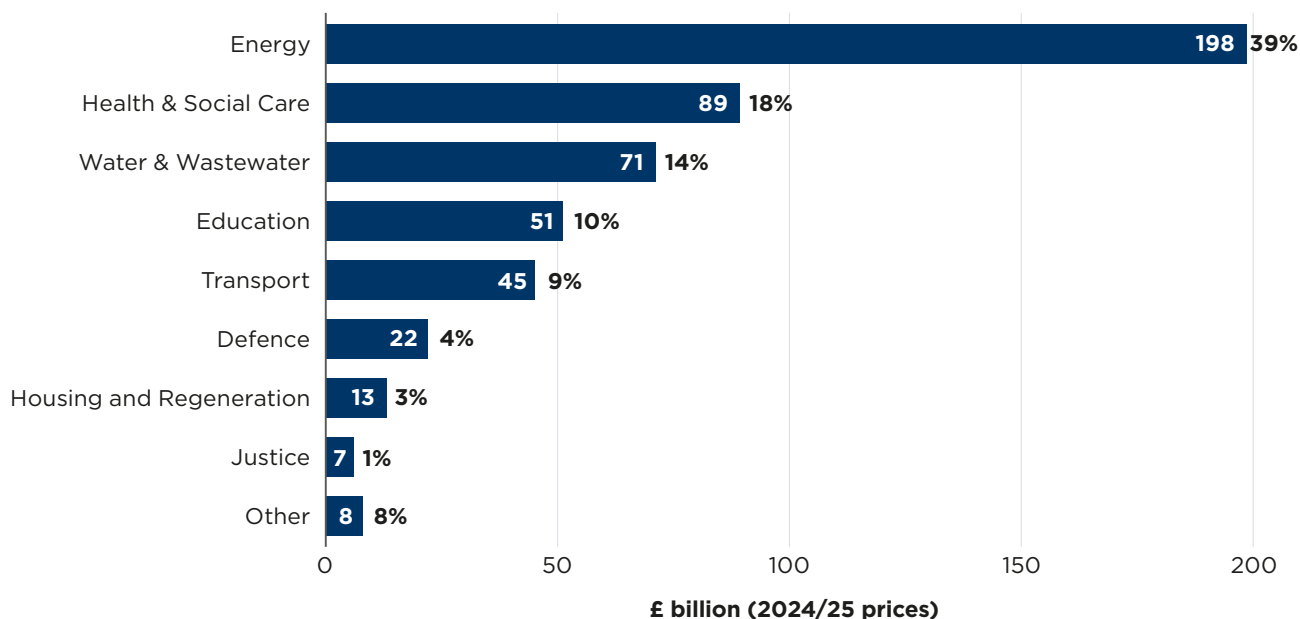
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- 12 Bart van Ark, and Anthony Venables, '[A concerted effort to tackle the UK productivity puzzle](#)', International Productivity Monitor, Vol. 39. 2020. Andrew Haldane, '[The UK's productivity problem: Hub no spokes](#)', Bank of England, 28 June 2018. Timothy Besley, Miguel Coelho, and John Van Reenen, '[Investing for prosperity: Skills, infrastructure and innovation](#)' National Institute Economic Review, Vol. 224, Issue 1, 2013. The UK Productivity Commission, '[Productivity in the UK: Evidence review](#)', 23 June 2022.
- 13 Jagjit S. Chadha, Hande Küçük, and Adrian Pabst, '[Designing a new fiscal framework: Understanding and confronting uncertainty](#)', National Institute of Economic and Social Research Occasional Paper LXI, 2021.
- 14 Hadi Arbabi, Martin Mayfield, and Philip McCann, '[Productivity, infrastructure and urban density—An allometric comparison of three European city regions across scales](#)', Journal of the Royal Statistical Society Series A: Statistics in Society, vol. 183, issue 1, 2020.

3.5 KEY PRIORITIES OF THE UK INFRASTRUCTURE STRATEGY

The UK's National Infrastructure Strategy revolves around three pillars:

1. First, strategy and delivery have been integrated through the creation of NISTA (merging the NIC and IPA), underpinned by the 2025 Teal Book for project delivery and the 2025 Green Book Review to strengthen appraisal.
2. Second, a National Infrastructure Pipeline has been published, containing around 780 projects and programmes and roughly £530 billion of investment over the next 10 years, of which around £285 billion is publicly funded. This provides a forward look but remains incomplete as of its July 2025 version, with only 47% of entries costed and funding certainty fading in later years.
3. Third, the government is seeking to unlock capital and speed up consenting via a Planning and Infrastructure Bill to streamline NSIPs/DCOs, alongside a financing toolkit that blends a refreshed PPP-style model with established approaches (RAB for nuclear, CfDs for renewables, and carbon capture, utilisation, and storage (CCUS) frameworks), supported by financial transactions via the National Wealth Fund. Regulatory reform, most notably in water, aims to improve long-term resilience.

Fig. 11: Planned investment in the National Infrastructure Pipeline over the next 10 years



Source: Oxford Economics, NISTA

This framework lays out promising ideas for growth, including longer horizons, clearer delivery standards, more certain planning, and a broader set of financing routes. However, the current spending mix and pipeline only partially reflect this pro-productivity vision. The CSR tilts strongly toward energy (DESNZ capital up about 16% a year in real terms) while transport capital grows modestly (around 1.9% a year) and transport operations and maintenance decline in real terms.

Fig. 11 shows that, in the costed pipeline, energy accounts for about 39% of planned spend, with health and social care at 18%, and water and wastewater 14%, while transport is only 9%. Funding and delivery risks are prominent, with 46% of the identified pipeline relying on private finance, reduced certainty of funding for later-year projects, and a mixed historic track record of major project delivery. Hence, the direction of the National Infrastructure Strategy is right, but the CSR and pipeline are only partly consistent with a growth-maximising strategy unless the balance of spend, funding certainty, and delivery performance are tightened.

Of the core productivity-enhancing infrastructure classes identified in this report—transport, digital, and energy—energy receives the largest share of planned investment in the UK National Infrastructure Pipeline. The Pipeline and departmental budgets place energy projects at the forefront, supported by an established financing framework. These investments should stabilise energy costs, improve system resilience, and enable industrial decarbonisation—collectively improving productivity across manufacturing and services.

Transport is more weakly positioned within the current Infrastructure Strategy. While several nationally significant projects are progressing, transport's overall share of planned capital spending remains relatively modest. At the same time, the Department for Transport's operations and maintenance budget is set to decline in real terms. This combination risks undermining the performance of existing road and rail networks, leading to longer journey times, higher costs, and reduced labour mobility.

Digital infrastructure is essential to productivity, but just 0.02% of the current pipeline is planned for spending on communications. Given digital networks' centrality to diffusion of AI, cloud, and data-intensive services, the current profile risks underweighting a high-return enabler of growth.

Of the eight industries targeted by the Industrial Strategy for growth (advanced manufacturing; clean energy industries; creative industries; defence; digital and technologies; financial services; life sciences; and professional and business services), the present infrastructure mix strongly supports clean energy industries and, to a degree, defence. It indirectly benefits the remaining sectors through improved energy reliability and general infrastructure quality. However, the relatively small, explicit allocations to transport, digital connectivity, and science infrastructure could hold back the sectors most dependent on high-capacity networks, data infrastructure, and rapid knowledge spillovers. This means the current pipeline is well-aligned with parts of the Industrial Strategy but does not yet fully underpin the knowledge- and service-intensive sectors that drive much of the UK's productivity growth.

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Of the core productivity-enhancing infrastructure classes identified in this report—transport, digital, and energy—energy receives the largest share of planned investment in the UK National Infrastructure Pipeline.

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3.6 REGIONAL PRODUCTIVITY IMBALANCES AND THE ROLE OF INFRASTRUCTURE

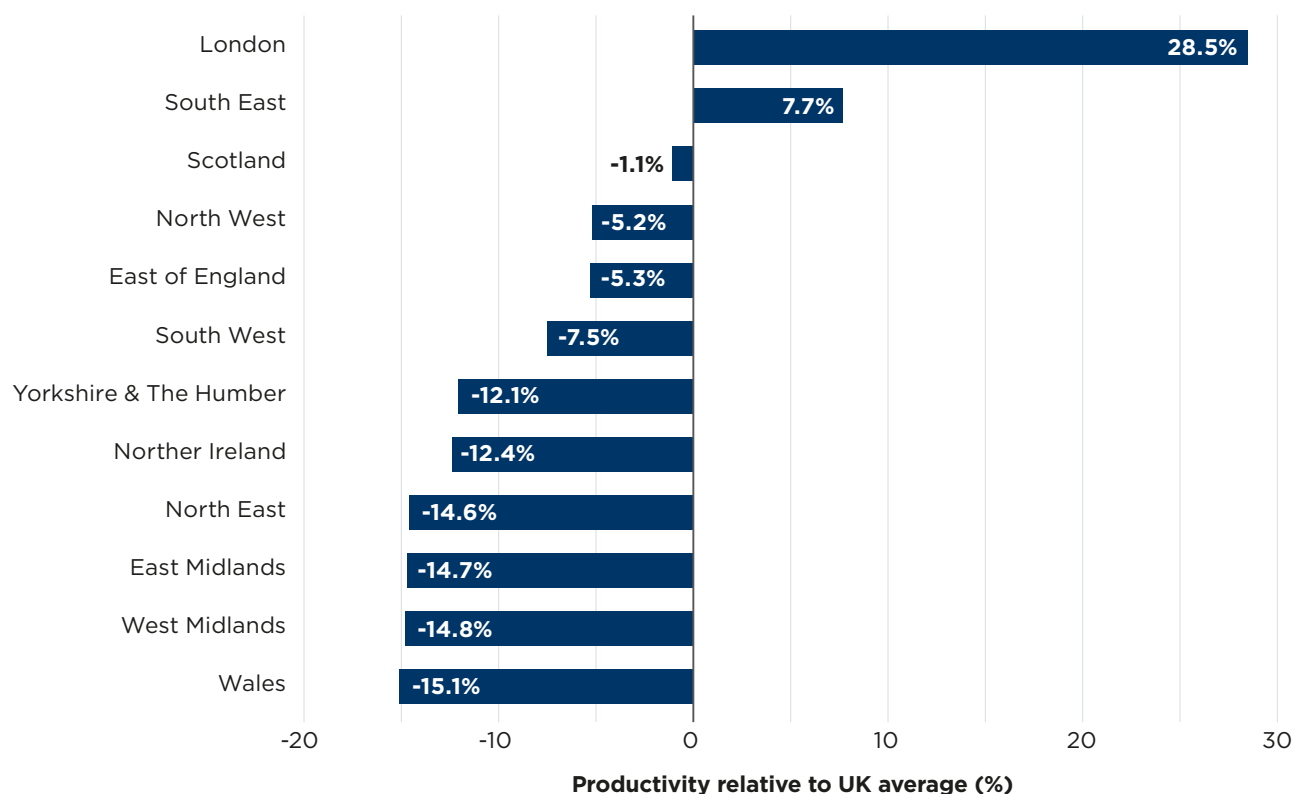
There is an important regional aspect to how infrastructure investment can drive UK national productivity and long-term growth. How and where infrastructure is delivered will determine its national productivity impact.

Productivity performance across the UK is highly uneven. Output per hour worked in London is nearly 30% higher than the national average, while productivity in regions such as Wales, the Midlands, and the North of England lags behind the national average by 10%–15% (Fig. 12). These regional imbalances are a key factor behind the UK's weak aggregate productivity growth.

Narrowing the gap between London and the rest of the country would raise living standards in lower-performing regions and also deliver a material boost to aggregate national output.

One of the main barriers to regional convergence is uneven access to high-quality infrastructure. Regions with stronger transport, digital, and energy networks tend to attract more private investment and experience faster productivity growth. In contrast, weaker connectivity and capacity constraints in other areas raise business costs and limit firms' ability to scale or access markets efficiently.

Fig. 12: Productivity (output per hour worked) relative to UK average by region, 2023



Source: Oxford Economics, ONS

By improving regional connectivity, expanding capacity, and modernising essential public assets, new investment can raise the productivity of both labour and private capital in lagging regions. Over time, this can support a process of catch-up growth, where currently underperforming areas contribute more strongly to national output. In the UK context, this implies that the marginal return to investment is likely to be highest outside London and the South East, where deficiencies in transport, housing, and energy infrastructure remain most binding.

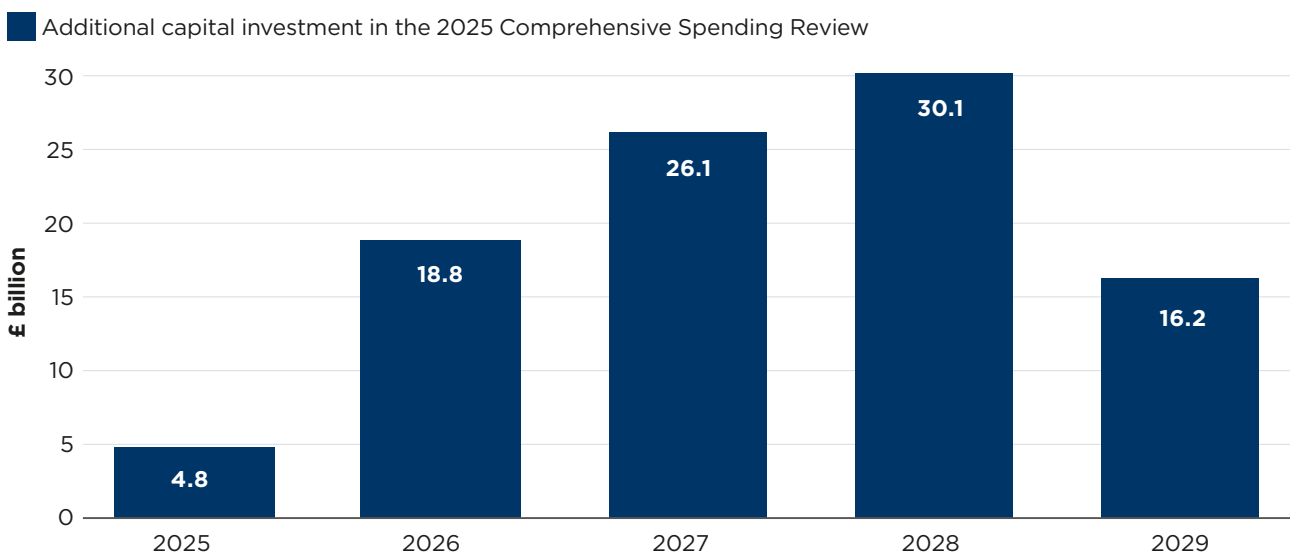
Yet the Pipeline provides limited clarity on regional allocations and gives little reassurance on the protection of operations and maintenance for urban transport systems. To unlock agglomeration benefits, the strategy should prioritise city-focused transport capacity and reliability, complemented by energy and digital upgrades targeted at major urban economies. The Green Book's place-based guidance provides a route to tilt the Pipeline toward the highest-return urban projects.

3.7 MEASURING THE PRODUCTIVITY DIVIDEND FROM THE 2025 SPENDING REVIEW

In the CSR, the government announced plans to raise investment spending as measured by Departmental Expenditure Limits (DEL)—by £95.9 billion between 2025 and 2029, relative to investment spending announced in the March 2024 Budget by the previous government. Fig. 13 shows the year-by-year increase in government capital spending, covering only the years for which both the previous budget and the Comprehensive Spending Review provide data.¹⁵

The increase is significant because the UK has faced a prolonged period of weak productivity and sluggish economic growth. Higher public investment expands the economy's long-run productive capacity by increasing and modernising infrastructure, improving efficiency across sectors, and boosting national productivity.

Fig. 13: Public capital investment: 2025 Spending Review vs. 2024 Budget, by year 2025–2029



Source: Oxford Economics, HM Treasury

¹⁵ This figure is expressed in calendar years, rather than fiscal years, to align with the timing assumptions used in the output and growth modelling.

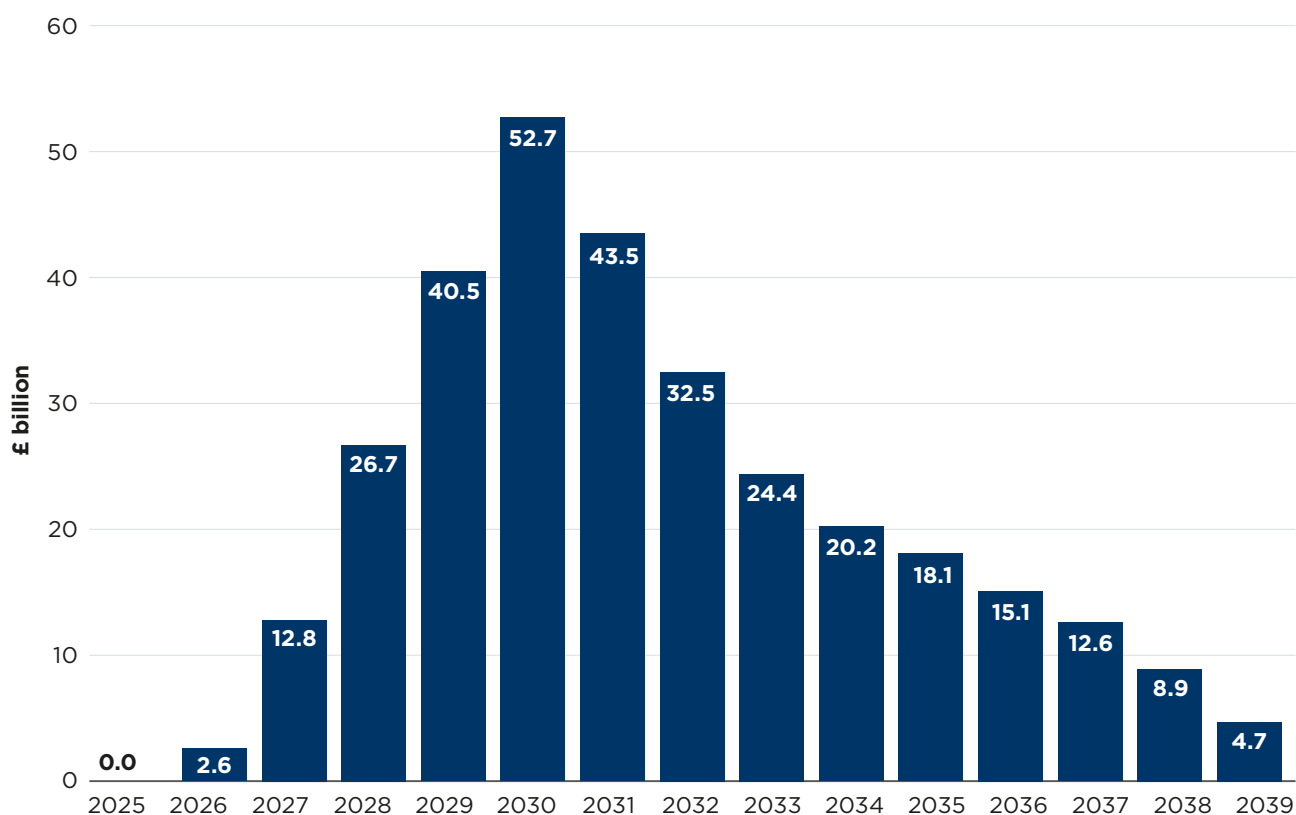
To quantify the productivity impact of higher public investment, we draw on empirical evidence from the economic literature, which finds that a 1% increase in public capital raises long-run market sector output by 1.22%.¹⁶ This estimate captures the main channels through which public investment supports long run growth: higher total factor productivity—as improved infrastructure makes private production more efficient—and crowding-in effects, where higher public capital raises expected returns on investment, stimulating additional private spending.

As shown in Fig. 14, in our modelling we consider that the growth impact of increased public capital spending is not immediate but unfolds gradually over time. Infrastructure and other large-scale projects require several years to move from planning and construction to full operation, and

their productivity effects accumulate as new assets are integrated into production networks. To reflect this, we assume that the full effect materialises over a 10-year horizon, consistent with evidence from the literature on the timing of infrastructure multipliers.¹⁷ Fig. 14 illustrates how the long-run output gains associated with the additional investment depicted in Fig. 13 are expected to emerge progressively over time.

We estimate that the additional £95.9 billion investment announced in the CSR will boost long-run output in the UK by £315.3 billion by 2039. In other words, each pound of additional public capital is expected to generate around £3.30 in long-run output, reflecting the significant productivity and multiplier effects associated with targeted investment in infrastructure and other public assets.

Fig. 14: Long run output gains from higher government investment, 2025–2039

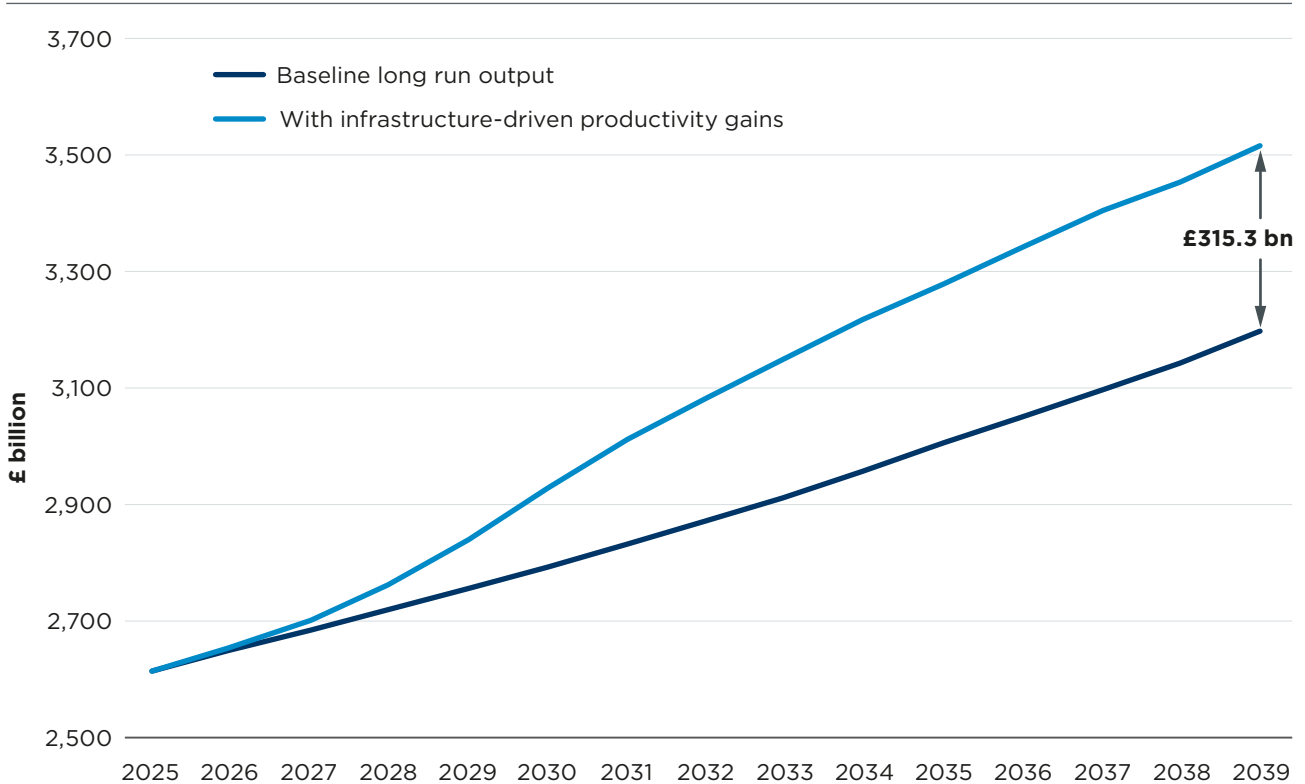


Source: Oxford Economics

¹⁶ Office for Budget Responsibility. 'Public investment and potential output'. August 2024.

¹⁷ Ibid.

Fig. 15: Uplift in UK long run output with infrastructure-driven productivity gains, 2025–2039



Source: Oxford Economics

As discussed in this report, these gains stem from several reinforcing mechanisms. Higher public investment enhances the efficiency and capacity of the UK's capital stock—lowering business costs, reducing congestion, and improving access to markets and skilled labour. It also strengthens the resilience of key systems such as energy, transport, and digital networks, enabling firms to operate more efficiently and with less volatility. Over time, this crowding-in effect supports additional private investment, which compounds the productivity gains and broadens the impact across sectors.

Importantly, the magnitude of the estimated boost underscores the importance of sustained, predictable public investment as a foundation for growth. Unlike short-term stimulus measures, infrastructure spending raises the economy's potential output by lifting total factor productivity—a central driver of long-run living standards. As the UK seeks to close persistent regional productivity gaps and catch-up to its international peers, this increase in public capital formation represents a meaningful step toward a more competitive, resilient, and higher-growth economy.

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... each pound of additional public capital is expected to generate around £3.30 in long-run output...

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SECTION 4:

KEY BARRIERS TO INFRASTRUCTURE BUILD

The scale of the government's investments presented in the CSR and National Infrastructure Pipeline are significant. But the monetary value of the investment announced may be a poor guide to the actual amount of infrastructure that gets built in the future. In part, this reflects the reliance on funding sources which may not be forthcoming and uncertainty over the funding models that will be used. But there are other impediments that may limit infrastructure build including poor regulation and planning. Success will also depend on how well the government and NISTA perform in their project selection and execution of the construction of those projects. The build process still needs to be managed well to ensure best value for money from contractors.

This chapter analyses some of the key issues that will determine whether the implementation of the projects and programmes set out in the National Infrastructure Pipeline will be successful and have the chance to boost economic growth.

The chapter also notes that much of the UK infrastructure is relatively mature. The spend on new infrastructure construction may have a perverse effect if it draws scarce government resources away from repair and maintenance and operation of the existing capital stock.



4.1 FUNDING AND FINANCING INFRASTRUCTURE

The government's new National Infrastructure Strategy, combined with an Industrial Strategy and UK trade policies, has at last provided investors with a sense of direction for UK infrastructure. In recent months, the market has become much more positive towards UK infrastructure, compared with a year or more ago when Britain was derided for its lack of a coherent investment plan to boost growth and to invest in UK infrastructure.

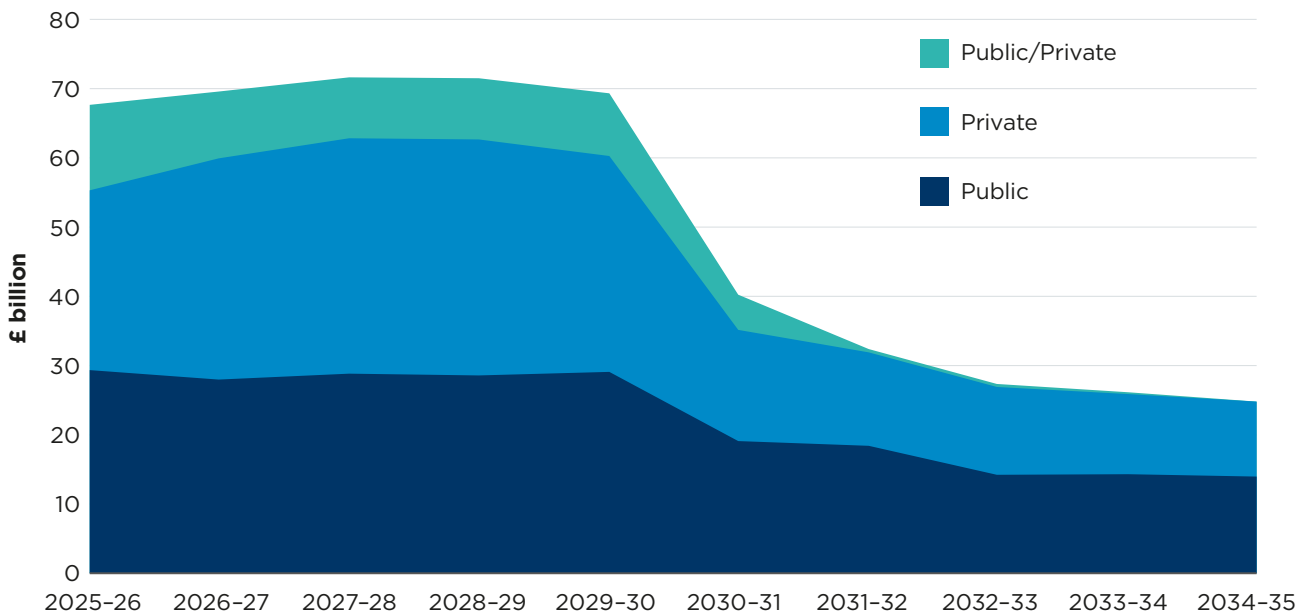
The investment needed over the next 10 years is much higher than the £725 billion set out in the National Infrastructure Plan. The need for private capital is greater than ever, especially when set against the backdrop of the UK's poor record of delivering major national infrastructure and the poor condition of Britain's ageing stock of infrastructure. The state of the public finances and

the government's need to observe its two fiscal rules may increase the reliance of private sector funding even further.¹⁸

To address this, it is hoped that the government will announce a new public-private partnership (PPP) model that will leverage greater amounts of private capital for projects like hospitals and decarbonising the public estate in the 2025 Autumn Budget (which is set for 26 November). A new PPP model is expected to be targeted at projects with identifiable revenue streams as well as social infrastructure.

It remains to be seen how committed the present government is to the use of private capital in public infrastructure to help drive growth.

Fig. 16: Annual planned spend by funding source for National Infrastructure Pipeline projects with an announced capital cost



Source: Oxford Economics, NISTA

18 From HM Treasury, 'A strong fiscal framework: Explaining the government's new fiscal framework and rules', October 2024. "The stability rule: the current budget must be in surplus in 2029-30, until 2029-30 becomes the third year of the forecast period. From that point, the current budget must then remain in balance or in surplus from the third year of the rolling forecast period, where balance is defined as a range: in surplus, or in deficit of no more than 0.5% of GDP." And "The investment rule: a target to ensure debt, defined as Public Sector Net Financial Liabilities (PSNFL), is falling as a share of the economy by 2029-30, until 2029-30 becomes the third year of the forecast period. Debt should then fall by the third year of the rolling forecast period."

The funding of infrastructure in the UK has long been a hotly debated issue. Previous incarnations of the Private-Finance Initiative (both PFI and PF2), originally introduced by Conservative prime minister John Major in 1992 and expanded considerably by the Tony Blair-led Labour government, led to significant off-balance sheet funding for infrastructure assets. PF2 (the replacement to PFI) was eventually cancelled in 2018 by the Conservative government on the grounds that it was not delivering value for money and, at time of cancellation, had not properly been tested in the market.

Under the classic PFI model, the public sector generally either pays charges for the availability of infrastructure assets or (in only a limited number of projects in the UK) collects revenues for the use of the asset which are maintained by special purpose vehicles (SPVs). These SPVs are private sector entities that design, develop, construct, finance, and maintain infrastructure assets, typically over a 20- to 30-year period. There are currently 665 existing PFI projects still in operation in the UK with some nearing hand-back to the public sector, with the entire portfolio expected to be handed back by 2040.¹⁹ There is still expected to be £136 billion in payments across all operational PFI assets in the UK. The hand-back process has become controversial partly because of the lack of information and data about the condition of existing assets and PFI in the UK remains politically highly toxic. There are challenges as to how the expiry of existing PFI contracts may be subject to new procurements to provide continuity of services for end users and to enable built assets to be upgraded to make them fit for the 21st century.

Despite cancellation of the old style PFI and PF2, there continues to be some use of project finance models in the devolved regions of Wales and Scotland. This includes the use of the mutual investment model (MIM) which is widely regarded by many across the industry as an improvement on the highly criticised PFI model for delivering infrastructure investment in Wales.

Lower Thames Crossing (LTC) is also one of the largest infrastructure projects in the government's pipeline where a funding model is currently being developed and is expected to utilise revenues on the existing Dartford Crossing and ultimately the LTC itself to support financing. The form that the engagement with private sector sources of finance remains unclear, despite the advances in the procurement of contracts to build the LTC.

The water sector is expected to see greater private capital in new infrastructure projects, including the new Strategic Resource Options (SRO) programme where there are some 30 projects including new large-scale reservoirs, such as South-East Strategic Reservoir Option (SESRO) near Abingdon and major water transfer projects such as Severn to Thames Transfer. The new Direct Procurement for Customers (DPC) approach used for the Haweswater Aqueduct Resilience Programme (HARP), which has recently reached financial close, is a first of its kind in the water sector and approved by Ofwat for the design, build, finance, and maintenance of the project. HARP is expected to deliver resilient drinking water transport infrastructure for 2.5 million people. It is hoped that the DPC approach may be rolled out more widely in respect of other assets within the SRO programme.

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New PPP models could attract significant volumes of private capital into UK infrastructure, helping to drive wider economic growth.

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¹⁹ Gov.UK, 'PFI and PF2 projects: 2024 Summary Data', 19 February 2025.

Recently, the government has discussed a PPP-style programme of some 200 primary healthcare projects where local authorities provide land, and private investors deliver facilities and services. This would follow in the footsteps of a range of different healthcare and other local authority joint partnership projects procured in parallel to the original PFI.

Apart from PPP models for financing infrastructure, the National Infrastructure Strategy includes a wide range of alternative private finance models that blend public and private investment in infrastructure.

The Regulated Asset Base (RAB) model has been successfully used in the water sector and has been more recently introduced into the large-scale nuclear energy sector where government is co-funding projects such as the new Sizewell C nuclear power station in Suffolk and Thames Tideway, which has recently entered operational service procured using a private financed infrastructure provider to finance and manage delivery of the construction. Despite the previous government highlighting the adaptability of the Tideway model, it remains to be seen whether there is any appetite among procurers or investors to see it adapted to other forms of infrastructure.

Contracts for difference (CfD) has been widely used to support the development of renewable energy (particularly offshore wind energy projects), providing revenue certainty for investors.

Other financing models are used to support new infrastructure aimed at decarbonising the UK economy, such as for CCUS, which is set to be a growth market for the infrastructure sector. The National Infrastructure Bank is also involved in co-investing with private capital to de-risk projects, especially in clean energy and digital infrastructure.

The new Financial Transactions (FT) model was introduced in the government's new 2025 Infrastructure Strategy as a mechanism for government to invest in financial assets such as loans to private sector companies to support infrastructure investment and with the FT model aligning with the fiscal rule targeting net financial debt. The National Wealth Fund is a primary vehicle for complex or large-scale FTs.

Equity returns are also an essential element of private sector investment where returns of between 6.5% and 12% have been typical in the past.

Consideration also needs to be given to the repair, maintenance, and upkeep of an ageing public estate (schools, hospitals, roads, and prisons, etc.) where there is currently an estimated £49 billion backlog in asset repair and maintenance. The condition of some existing assets across the public estate requires significant investment. There are currently 174 schools and 41 hospitals affected by RAAC (Reinforced Autoclaved Aerated Concrete) where the repair bill is expected in the billions. Some 72% of highway structures such as bridges and road tunnels are over 45 years old and will require significant ongoing repair and maintenance. Nationalisation of UK railway services is expected to be completed over the next two years while the UK rail network requires significant ongoing maintenance. Rolling up the maintenance backlog into PPP structures could alleviate pressure on public financing but remains politically difficult.

The PFI and PF2 programmes were far from perfect but delivered over 700 infrastructure projects and programmes of hospitals and schools across the UK with a capital value of £57 billion. Other countries—notably Australia and Canada—continue to successfully use PFI and PPP. The need for a new PPP project financing model that can help leverage significant capital into UK infrastructure will be critical to deliver the National Infrastructure Strategy and to support growth.

4.2 INFRASTRUCTURE REGULATION

There is a plethora of over 100 different regulatory bodies involved in UK infrastructure. Complex regulatory oversight and a siloed approach to the regulation of infrastructure is hindering investment and growth and the sectoral economic regulators are currently subject to further government review following the Cunliffe Review.²⁰

The primary purpose of infrastructure regulators is to regulate natural monopolies and industries where large economies of scale exist such as airport operators, water companies, and other monopolistic utilities that provide services to the public.

The government announced in July 2025 that Ofwat, the water sector regulator, would be replaced by a new, single, powerful regulator. The new body will merge the functions undertaken by Ofwat with some of the functions of the Environment Agency, Natural England, and the Drinking Water Inspectorate. The new regulator will oversee the entire water system.

Regulators are involved in reviewing infrastructure investment plans for the companies operating in the sectors they regulate, and they have a direct impact on investment programmes. However, there has been increasing criticism of the role of regulators in focusing too much on short-term price controls rather than ensuring long-term resilience of the UK's infrastructure to new factors such as climate change. Long-term planning is essential for infrastructure and the government's National Infrastructure Strategy has been very welcomed by the infrastructure sector. It has been a refreshing departure from previous shorter-term planning.

Although these issues affecting UK infrastructure are recognised (and regulators are currently under review) there is a need to restructure the way regulators operate to simplify and streamline regulatory oversight across the infrastructure sector. There is a need for longer-term planning and a realisation that ageing infrastructure will require much greater levels of maintenance, upgrade, and adaptation to provide greater resilience against future climate-related shocks. In addition, with a growing population, there is also a need for much greater capacity in areas such as water and electricity generation. The UK has not built a major reservoir in the past 30 years. Scaling back investment plans in areas such as water infrastructure to meet shorter-term price controls has not always helped. In addition, regulators are not always able to embrace innovation in areas such as procurement of new infrastructure assets, because of competition and other regulatory constraints.

²⁰ Independent Water Commission, '[Final report](#)', 21 July 2025.



There has been criticism of fragmentation and lack of coordination with multiple regulators that have overlapping duties which has led to confusion, inefficiency, and a lack of accountability. This has particularly been the case in the water sector.²¹

Poor quality regulatory oversight has been a factor contributing to crisis in some sectors such as Thames Water where underinvestment has led to significant sewage pollution and environmental damage. National Audit Office (NAO) and Parliament have found that Ofwat and the Environment Agency failed to drive necessary investment by water companies, resulting in environmental damage, supply risks, and an erosion in public trust.²² Criticism has also been levelled at Ofgem for allowing financially weak suppliers to enter the energy market that caused massive taxpayer bailouts during the energy price spikes in 2021-2022 when dozens of suppliers collapsed, costing taxpayers billions.²³

There has been growing calls in the UK for the reform of existing sectoral economic regulators within a highly fragmented infrastructure regulatory system. Currently, there are over 100 regulatory bodies, many with overlapping duties, inconsistent powers, and unclear accountability. This has led to poor regulatory oversight and uncertainty for both consumers and infrastructure investors.²⁴

Investors would benefit from clearer and more streamlined accountability for infrastructure regulation, which could provide a boost to investment and growth. An integrated regulatory oversight of the infrastructure sector could simplify regulation and help provide a necessary system-wide view of infrastructure. Although there has been some movement on infrastructure regulation by government, it remains to be seen how regulatory reform will progress. The use of arm's length bodies might be a potential solution to improve the regulatory landscape.

A key question for government and regulators is whether the public will accept the need to pay more for essential infrastructure-related services such as water and electricity. Increasing expenditure to deal with environmental protections and increased system resilience will undoubtedly raise consumer bills.

21 Independent Water Commission, '[Final report](#)', 21 July 2025.

22 National Audit Office, '[Regulating for investment and outcomes in the water sector](#)', 25 April 2025.

23 UK Parliament, '[Energy pricing and the future of the energy market; Third report of session 2022-23](#)', 26 July 2022.

24 The Infrastructure Forum. <https://www.infrastructure.cc>

4.3 INFRASTRUCTURE PLANNING

The Planning and Infrastructure Bill currently making its way through Parliament is aimed at streamlining and simplifying planning for infrastructure and housing and boosting economic growth—the government's number one objective.

Critics have long argued that planning has been a significant blocker to growth including the process for gaining Development Consent Orders (DCO) for Nationally Significant Infrastructure Projects (NSIPs). The complexity of the process requires significant levels of expertise to navigate. The level of uncertainty attached to planning is of key concern to investors and does not help achieve the government's growth objective.

Complexity and significant uncertainty in the planning process can lead to significant cost pressures on projects. For example, consents often have to be obtained while the design maturity of projects is not advanced and where buildability has not been thoroughly tested.

Planning for large and complex infrastructure (including large scale strategic housing projects) has historically been beset by problems associated with judicial review (JR) where pressure groups and objectors that do not agree with proposed infrastructure and housing can challenge the planning process, delaying and even causing the cancellation of critical national infrastructure. This is often the case after significant initial costs and investments have been sunk into projects.

There have been many high-profile cases where JR challenges have caused very significant delays and frustrated the process of bringing forward important and nationally significant projects. These include building and improving key bottlenecks in the UK's strategic road network where there have been significant JR challenges to projects such as the controversial A303 Stonehenge Tunnel, the expansion of Heathrow Airport to build a new third runway, and Sizewell C Nuclear Power Station.

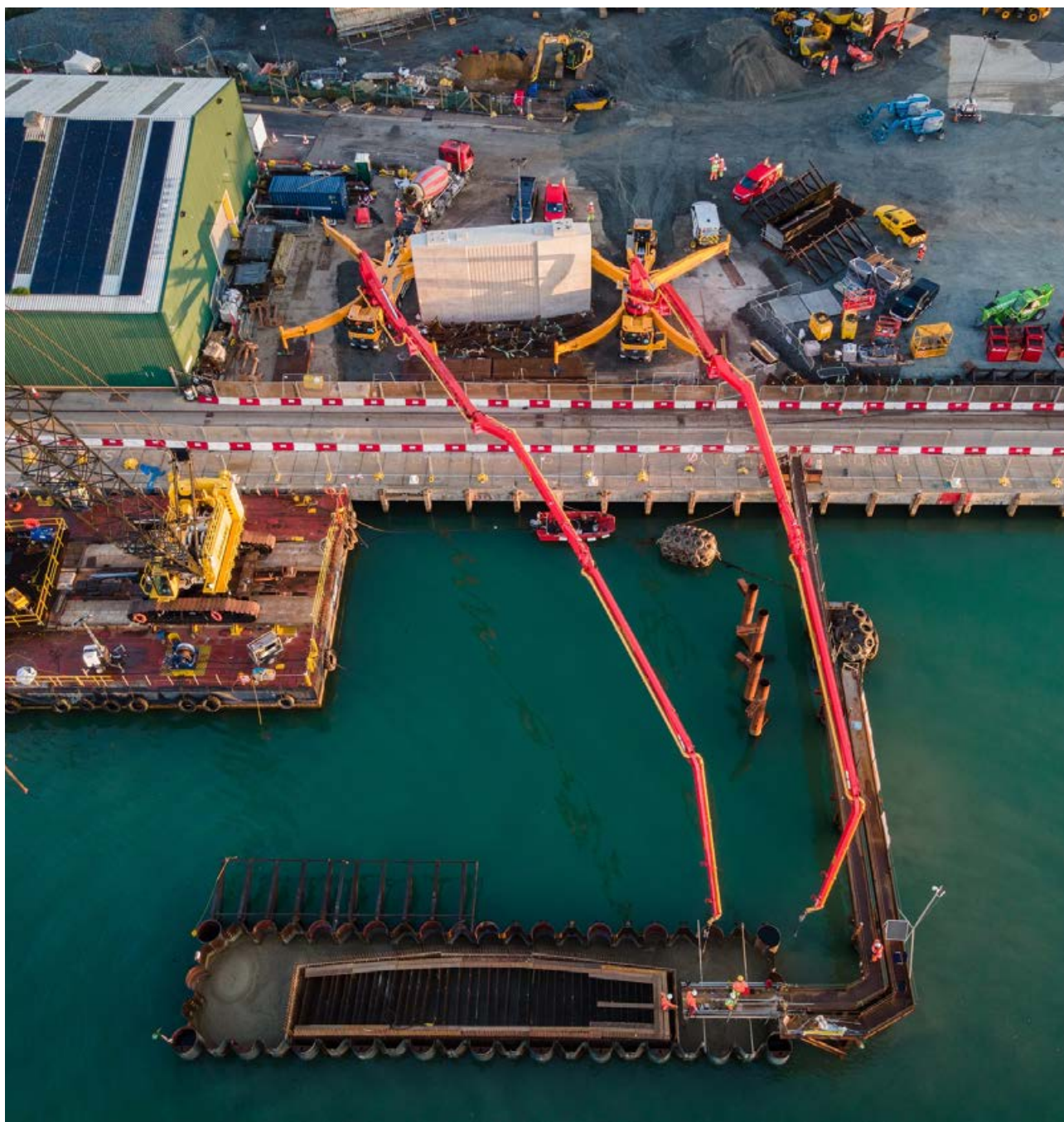
The planned reforms to the NSIP system and measures outlined in the Bill aim to improve the planning process and help support the government's broader growth objectives. The Bill has reached the Report Stage in the parliamentary process at the time of writing.

Further measures aimed at reforming JR and improving the DCO process could help the Bill to avoid costly delays and challenges to significant investments in infrastructure during the planning process. Preventing or narrowing JR challenges that cause significant uncertainty is a delicate balance but to improve investor confidence the government needs to grasp this thorny issue. In relation to JR reform, the Infrastructure Forum (TIF) Planning Working Group has suggested to government that it would be helpful if DCOs relating to projects that are of critical national importance were confirmed by Parliament. The resulting Act of Parliament would be immune from JR challenge.

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Infrastructure projects that are of critical national importance could be confirmed by Parliament. The resulting Act of Parliament would be immune from challenge via Judicial Review.

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A measure also suggested by TIF's Planning Working Group aimed at improving the DCO process would be to reinforce the fact that DCOs provide a one-stop shop for all consents required for projects such as environmental permits, waste permits, highway permits, and construction consents. This would reduce the complexity of the consenting and overall delivery process and help improve investor confidence.

Planning is a politically charged issue for government, but improvements and streamlining of planning will be important to improving investor certainty and growth. Much remains to be seen as to how far government will go in reforming and streamlining planning to help improve investor confidence and spur growth. An additional Planning Bill has been mooted to help streamline infrastructure planning as government would like to get the current Bill passed through the parliamentary process as quickly as possible.

4.4 INFRASTRUCTURE AND PROJECT DELIVERY

A key issue for the new government's Infrastructure Strategy is delivery. Failure to deliver infrastructure investment in a timely and cost-effective manner will impact economic growth and the competitiveness of the UK economy.

The high-profile and abrupt cancellation of HS2 by the last government and the damning report on HS2 delivery failures have seriously undermined investor confidence in UK infrastructure.²⁵ Delivery is not necessarily solely about construction, but about how projects are initiated and managed by government, including the scoping and planning of projects. There is a need for much greater oversight, governance, and control over major capital programmes and projects.

The government's decision to combine the National Infrastructure Commission (NIC) and Infrastructure and Projects Authority (IPA) to form the National Infrastructure and Service Transformation Authority (NISTA) in April 2025 helped to bring together the separate functions of strategic planning and delivery expertise for infrastructure within government.

The creation of NISTA has been very much welcomed by the infrastructure sector as a positive step in reforming government's track record in the delivery of the Government Major Projects Portfolio (GMPP) which is overseen by NISTA. GMPP includes a wide range of infrastructure and service delivery projects aimed at enhancing public services and driving economic growth. There are 213 major projects in GMPP with a total estimated whole life cost of £996 billion which includes 68 major infrastructure projects.²⁶

The government's track record in managing major infrastructure programmes and projects is mixed. Projects often go over budget and

take much longer to deliver than planned which impacts negatively on public finances and delays benefits to public services and consequently stalls economic growth. The latest NISTA Annual Report confirms that only 14% of major projects are rated green, meaning that they are expected to meet their business case objectives.

The construction industry's productivity has been stagnant for decades which makes construction more expensive than it need be. Over the last two decades or more between 1997 and 2024 construction productivity has fallen by an average of -0.1% each year. Over the same period, the productivity of manufacturing grew by 3.5% and the whole economy by 0.9%. It now takes a larger workforce to build the same output in real terms, which makes construction more expensive than it need be and has led to a downward spiral of low margins and low investment.

Construction productivity remains a key concern to government. A 1% improvement in productivity across the construction industry can make a huge difference. This would be especially impactful if sustained every year over the next 10 years.

Artificial Intelligence (AI) is set to transform the productivity of the construction industry, which brings with it many difficult challenges in the digitalisation of a sector that is largely used to operating in silos and where data and information are not generally standardised or machine-readable.

Standardisation and using AI and technology to drive industrialised construction could create a step-change in productivity. This requires much greater levels of collaboration across a fragmented and heavily siloed industry where design is largely separated from production.

²⁵ James Stewart, 'Major transport projects governance and assurance review: The HS2 experience', 18 June 2025.

²⁶ National Infrastructure and Service Transformation Authority, Cabinet Office, and HM Treasury, 'Major projects data - GOV. UK', August 2013; updated August 2025.

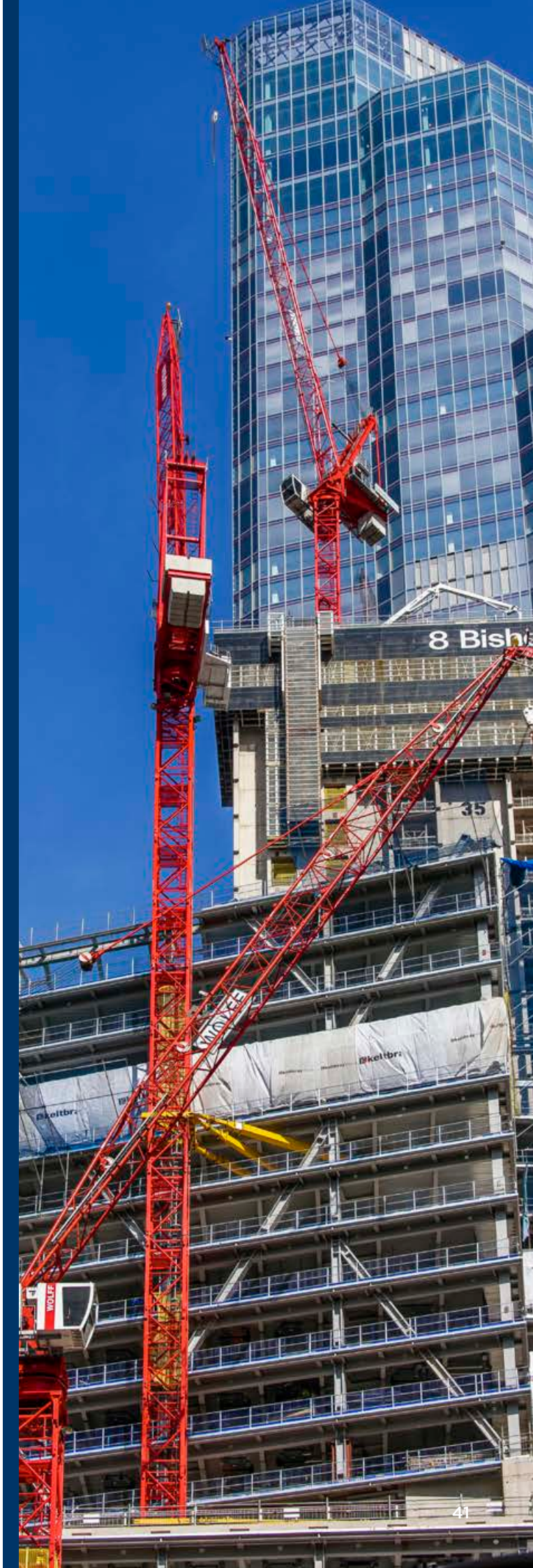
Greater policy and guidance on project delivery are also very welcome by the infrastructure sector. The Teal Book is the government's guide to project delivery, published on 1 April 2025 when NISTA became operational. The Teal Book fills a critical gap in UK government guidance by focusing on the effective delivery of infrastructure and major projects. It reflects lessons learned from past project failures and aims to drive world-class delivery standards across government.

The 2025 Green Book Review is also a major reform of how the UK government appraises public investment. The Green Book is HM Treasury's guidance for assessing the costs, benefits, and risks of policies, programmes, and projects. The review was launched to address concerns that the appraisal process was overly focused on benefit-cost ratios (BCRs), lacked clarity on transformational change, and failed to support place-based investment.

Overcoming the challenges of delivering the government's Infrastructure Strategy efficiently is not a quick fix. What is required is steady and sustained incremental change that will improve delivery and help boost investor confidence and economic growth.

The high turnover of construction industry ministerial positions for an industry that remains critical to the growth of the UK economy has not helped. From 2019 to late 2021 the position of construction minister changed at least five times, with one minister holding the position for less than one month, according to *Building* and the average tenure for a housing minister has also been very low.²⁷ A senior Cabinet level appointment of Secretary of State for Infrastructure or other Cabinet level appointment, overseeing infrastructure, housing, and construction, could elevate the role of infrastructure within government and bring together a highly fragmented sector.

²⁷ Building, 'A revolving door: construction ministers in the past five years', 23 September 2021.



SECTION 5: WILL CONSTRUCTION LABOUR SHORTAGES HAMPER THE INFRASTRUCTURE BUILD?

One issue that may derail the government's infrastructure plans are skill shortages in the construction sector. In this chapter, we estimate the number of construction workers the currently costed plans in the Infrastructure Pipeline will require and review the evidence on skill shortages.



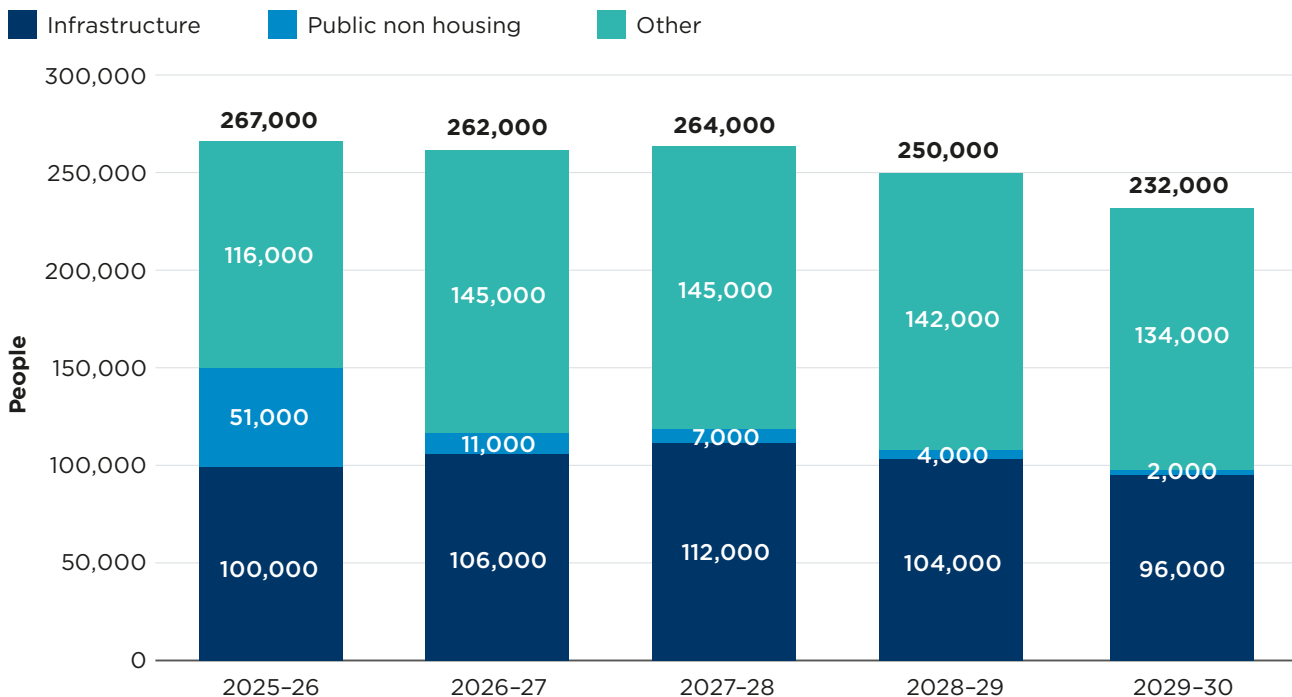
5.1 CAPITAL COSTS IN THE NATIONAL INFRASTRUCTURE PIPELINE IMPLY NEED FOR 250,000 WORKERS

To estimate the construction workers required to implement the infrastructure strategy we review NISTA's latest infrastructure pipeline.²⁸ For the 47% of projects for which there are capital spend data, we estimate the impact on construction activity from the investment spending figures using weights published by the CITB in 2023.²⁹ We then modelled the associated employment requirement in the construction sector using an economic model based on input-output tables and sectoral productivity data.

Our projections suggest that approximately 250,000 construction workers are required each year to complete the projects with a capital cost

allocated to them in the NISTA infrastructure pipeline. By way of comparison, this is nearly 10% of the construction workforce in 2024, as estimated by the CITB.³⁰ Fig. 17 illustrates the projected employment needs by type of spending in the NISTA pipeline. Not all the projects in the NISTA pipeline are strictly infrastructure. For example, public non-housing covers projects such as school and hospital construction, as well as defence and nuclear decommissioning. Defence and nuclear decommissioning projects will require specialist construction skills. The Other category includes various public housing schemes amongst other items.

Fig. 17: Construction employment needs by construction type



Source: Oxford Economics, HM Treasury

²⁸ NISTA pipeline published in July 2025.

²⁹ CITB and Whole Life Consultants, 'Local construction skills needs for Scotland: Demand analysis. Technical Annex', July 2023.

³⁰ CITB and Oxford Economics, 'The Construction Workforce Outlook, The United Kingdom', 2025.

This estimate of 250,000 additional construction workers needed to fulfil the National Infrastructure Pipeline which have capital cost allocated to them will likely be an underestimate of its full impact. This is because the NISTA pipeline does not include all the construction activity that falls under the UK's 10-year Infrastructure Strategy. For example,

1. As outlined in Chapters 2 and 4, the July version of the infrastructure pipeline is incomplete, with only 47% of line items listed having a capital cost assigned to them.
2. The UK government's housing target is part of the UK's 10-year Infrastructure Strategy; however, only public housing projects are included in the NISTA pipeline.³¹ Public housebuilding makes up a small proportion of UK housebuilding with nearly 80% of housing completions occurring through private

enterprises in the last decade. For context, the CITB estimate that to meet the government's 1.5 million new homebuilding target, 161,000 new workers are needed which represents a 30% increase in the existing home building workforce.³²

3. In the NISTA pipeline, some major infrastructure projects are excluded; for example, some infrastructure projects in Northern Ireland, Scotland, and Wales are excluded as they are devolved and are not under the responsibility of the UK government.

It is difficult to estimate how much of an underestimate our projection of 250,000 workers a year is likely to be. This is for all the reasons discussed in Chapter 4 which suggest some of the projects will not go ahead—or not as currently envisaged.



³¹ Public housebuilding makes up a very small proportion of total housebuilding projects

³² CITB, 'Construction Industry Training Board-Written Evidence (NTP0020)', House of Lords Built Environment Committee, 9 May 2025.

5.2 WE EXPECT THAT WIDESPREAD SKILLS SHORTAGES IN THE CONSTRUCTION SECTOR WILL HINDER THE DELIVERY OF INFRASTRUCTURE PROJECTS

The estimated need for in excess of 250,000 construction workers a year to deliver on the government's infrastructure strategy, plus those required to meet the 1.5 million new homebuilding target in England and Wales may pose further challenges. Several data sources suggest the UK's construction sector currently faces labour shortages and there are reasons to believe these may get worse.³³

5.2.1 Evidence on the current level of skill shortages in the construction sector

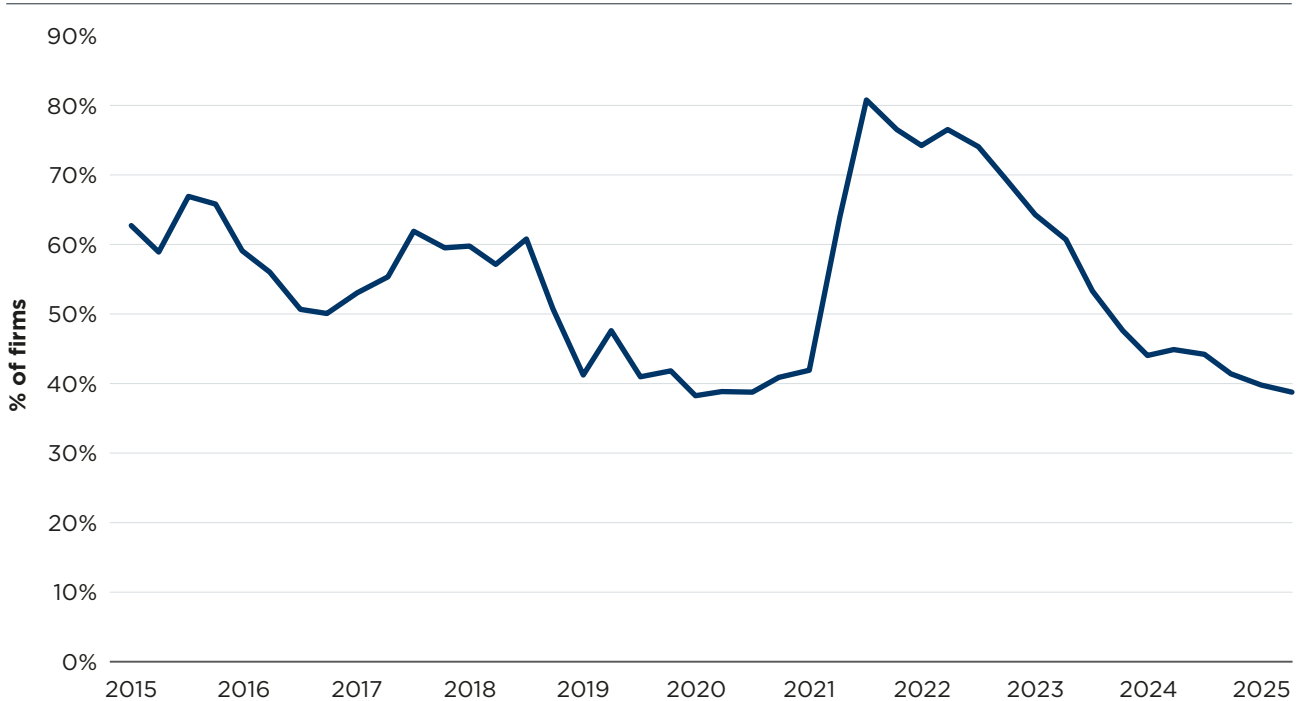
The Royal Institution of Chartered Surveyors (RICS) undertakes a quarterly survey of construction firms in the UK. One of the questions it asks is about factors limiting their output levels. In 2025Q2, 39% of the construction firms surveyed reported that labour shortages were a factor

limiting activity (Fig. 18).³⁴ This was the third most frequently cited answer after financial constraints and planning and regulation.

The survey also digs into the type of construction skills where the shortages are most acute. In 2025Q2, more firms reported shortages of quantity surveyors (41% of the firms surveyed) and other professional labour (37%). In 2025Q2 just under a third of firms reported shortages in bricklayers, carpenters, plumbers, and electricians.

Relative to other parts of the UK economy, skill shortages are particularly severe in the construction sector. ONS 2024 data suggest that over half of current vacancies in the construction sector cannot be filled due to a lack of required skills—the highest rate of any sector.³⁵

Fig. 18: Percentage of construction firms that said a shortage of labour was limiting their activity levels



Source: Oxford Economics, Royal Institute of Chartered Surveyors

33 This includes data from the Royal Institution of Chartered Surveyors (RICS), the Office for National Statistics (ONS) and the Construction Industry Training Board (CITB).

34 RICS, 'UK construction outlook stable with infrastructure leading growth amidst ongoing challenges', 7 August 2025.

35 HM Treasury, 'Government unleashed next generation of construction workers to build 1.5 million homes', March 2025.

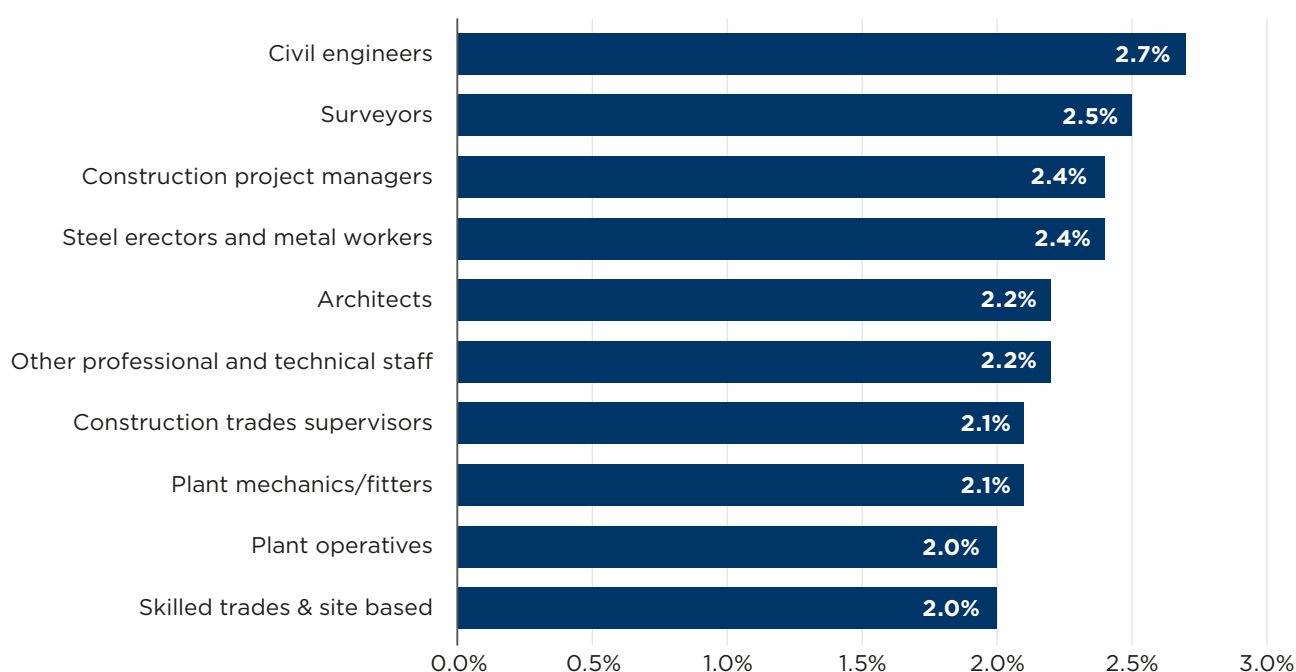
5.2.2 Future level of skill shortages

Going forward, worker shortages are expected to persist. With nearly a quarter of the construction workforce in the 50–64 age range, the sector will lose nearly 500,000 workers to retirement in the next 10 to 15 years.³⁶

The CITB estimates that 48,000 additional construction workers are needed every year in the 2025–29 period.³⁷ This accounts for the demand for labour and the expected churn of workers in the industry. The report identifies that there

is a growing requirement for skilled trades and operatives with almost half (46%) of the total projected workforce increase by 2029 forecast to be in skilled trades. Regarding demand in the plant hire sector specifically, plant operatives are in relatively strong demand, ranking in the top third of construction occupations for future demand (Fig. 19). Occupations that are required for infrastructure projects also appear to be particularly in strong demand; civil engineers and surveyors are the occupations with the strongest expected future demand.

Fig. 19: Extra workers required as a % 2024 workforce, CITB estimates, by top 10 occupational groups



Source: Oxford Economics, CITB

³⁶ Office for National Statistics. Annual Population Survey.

³⁷ CITB and Oxford Economics, 'The Construction Workforce Outlook, The United Kingdom', 2025.

5.3 REASONS BEHIND THE SKILL SHORTAGES IN THE CONSTRUCTION SECTOR

These labour shortages are down to several factors:

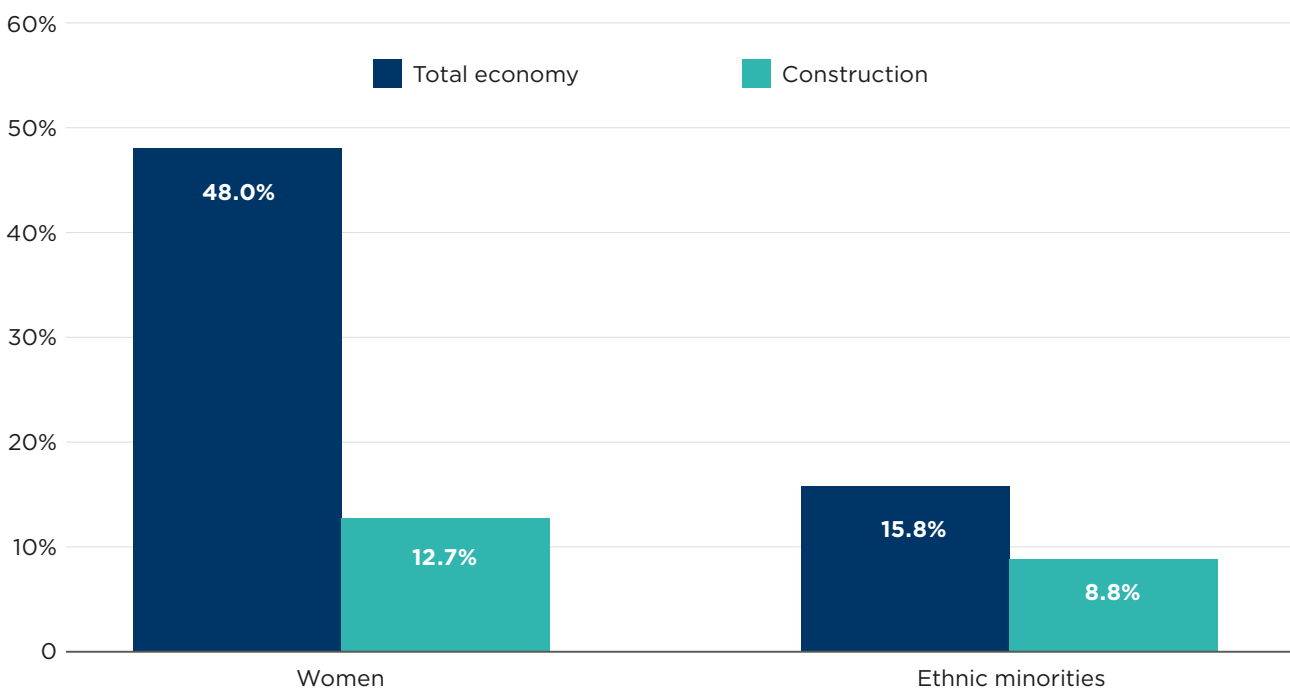
5.3.1 Low participation of certain groups

Both women and ethnic minorities are underrepresented in the construction workforce. With both these groups making up a large portion of the population, failing to attract them limits available talent. The 2021 census suggests that only 13% of people employed in the construction are women (Fig. 20). Moreover, data from the annual population survey show that while 16% of total persons employed in the UK

were from an ethnic minority background, only 9% of the construction workforce were from an ethnic minority background.

Even modest increases in participation of these groups would substantially increase the available labour supply. For example, if participation of women increased by 20%—so female participation became 15% of the total construction workforce—this would increase construction employment in England and Wales by 61,000 people. This would go a long way towards fulfilling expected hiring needs.

Fig. 20: Female and ethnic minority participation in construction sector vs whole economy



Source: Oxford Economics, ONS

“

39% of construction firms surveyed reported that labour shortages were a factor limiting activity.

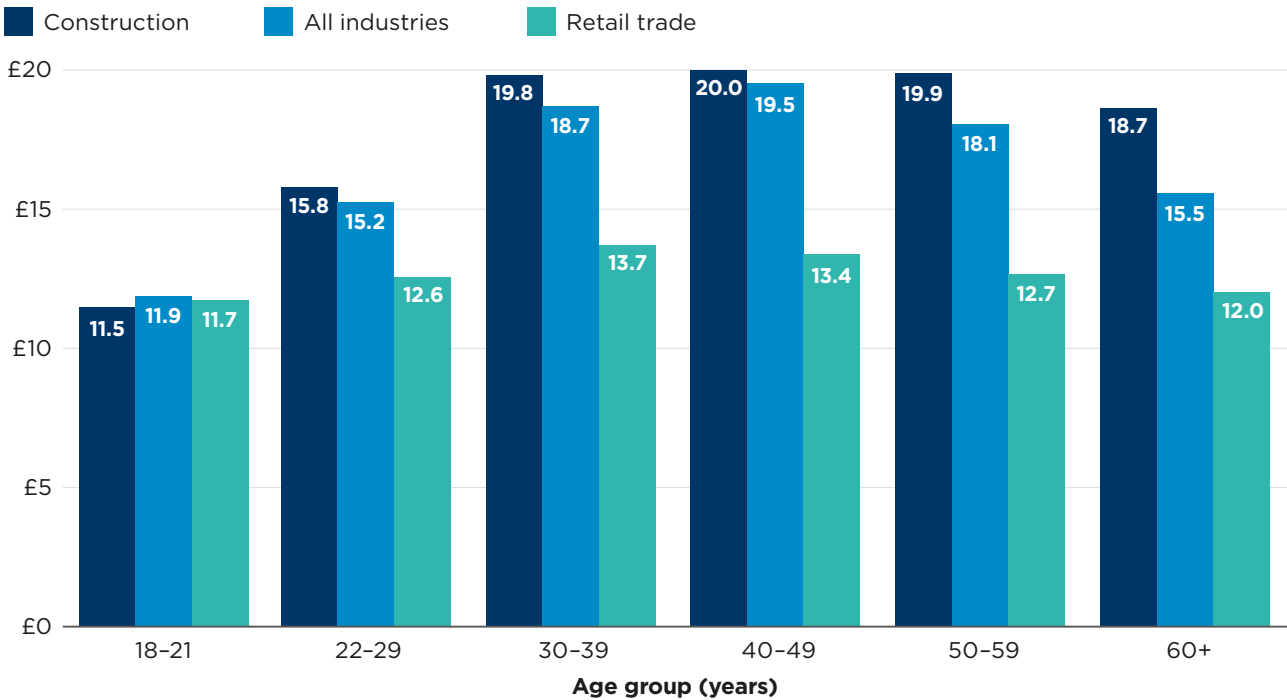
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5.3.2 Low appetite of school leavers and younger workers to join the sector

The construction sector appears to have issues recruiting workers at the start of their career. Nearly half (47%) of apprentices leave the construction sector before completing their apprenticeship.³⁸ One factor behind this is likely to be relatively uncompetitive wages for younger workers. Analysis of ONS Employee Earnings data for 2024 suggests that construction is a well-paid industry overall with median pay higher than all jobs. However, for those aged 18–21 years, hourly pay in construction was 2% lower than in retail and 3% lower for all jobs. This indicates that immediate rather than long-term pay concerns

combined with competition from other sectors could be putting individuals off from entering the sector. Moreover, the time taken between training and earning tends to be longer in the construction sector in comparison to jobs in organisations such as Amazon. This is likely to further contribute to the perception amongst younger people that construction is not an attractive sector to work in. Interestingly, 10 years ago, construction work paid 11% more than the retail sector for those aged 18–21 years. That construction entry-level pay has declined over time relative to other sectors, may have increased perceptions amongst young people that the sector is not attractive.

Fig. 21: Hourly pay by age and industry, 2024 (excluding overtime)



Source: Oxford Economics, ONS

38 British Association of Construction Heads (BACH), 'Construction apprenticeship achievement rates crisis: Good practice solutions', September 2025.

5.3.3 Difficulty in recruiting overseas workers

UK construction companies face increased difficulties associated with hiring overseas workers. Data from the Labour Force Survey show that the share of migrant workers in the construction workforce has fallen to 9.8% in 2021 from 10.2% in 2020 and 10.7% in 2018. There are several reasons for this. In the early 2000s, the accession of many eastern European economies to the EU brought many workers from those countries to the UK. However, post-Brexit, construction firms now face administrative and financial costs as well as minimum salary thresholds when recruiting workers from overseas. Moreover, for many overseas workers, moving to the UK is not as financially attractive

as it once was due to narrowing pay differentials. For instance, our estimates suggest that while real earnings in Poland have increased by 80% in the last 20 years, they have only increased by 3% in the UK.

Moreover, despite significant recruitment shortages, the administrative burden associated with recruiting overseas workers means that construction firms appear to struggle using the existing visa system to fill worker gaps. Currently only 7% of construction firms have signed up as sponsors for work visas.³⁹ Given that construction work often consists of temporary contracts and has many self-employed workers, the existing visa system appears not to be fit for purpose.



39 CITB, 'Migration and construction', June 2023.

5.4 PROPOSALS TO ALLEVIATE CONSTRUCTION WORKER SHORTAGES

5.4.1 Improving recruitment and skills

A number of measures have been put forward to boost entry and retention of workers into the construction sector. An alternative would be to boost the productivity of the existing construction workforce. We suggest three routes to achieve this:

- 1. Encourage school leavers to join the construction industry** through measures such as introducing trades on the school curricula and improving the quality of vocational training provision (including apprenticeship course provision). The provision of shorter, more targeted courses would enable people to gain essential skills more quickly and would shorten the time taken to earning competitive wages. This would allow the construction sector to compete more effectively with employers like Amazon, where training programmes enable workers to begin earning competitive wages almost immediately.
- 2. Increased participation amongst women/ethnic minorities** is likely to help to solve skills/recruitment gaps. Programmes in schools and colleges that challenge stereotypes and show that construction does not only require “heavy labour” but diverse skills such as design and digital skills as well as project management is likely to broaden the sectors appeal.

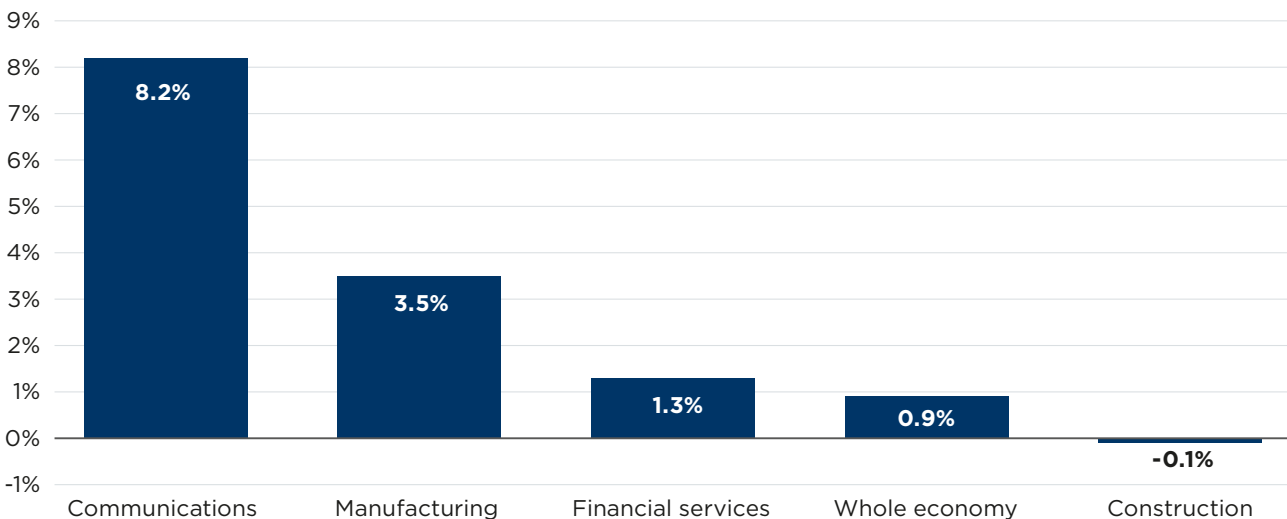
3. Lower the administrative burden associated with firms employing individuals with visas.

An ambitious option would be to design a special visa scheme for construction workers (as exists for agricultural workers or health and care workers). For example, foreign construction workers could receive a general construction sector visa to work for a wide range of registered construction firms, rather than being tied simply to one employer. Moreover, construction firms could get pre-approval for a given number of work visas, without having to specify in advance exactly who will get them, and then register staff once they are hired, making the process easier. Unlike a normal work visa, any such special scheme would not necessarily include the scope to apply for indefinite leave to remain after five years.

5.4.2 Policies to improve productivity

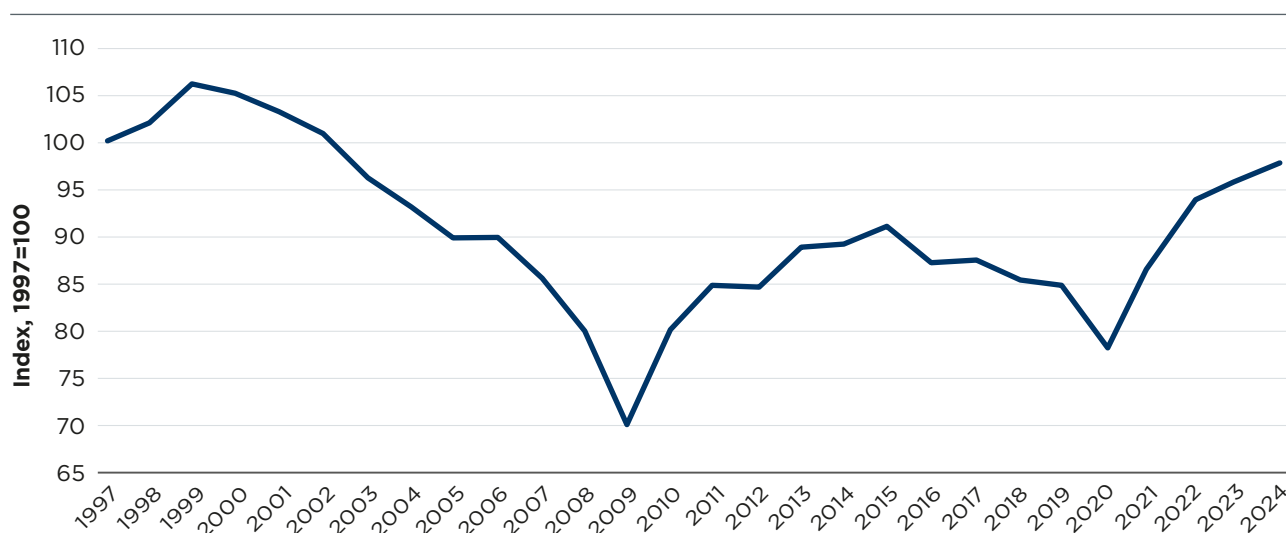
Since the turn of the millennium, construction productivity has lagged behind the rest of the UK economy. UK construction productivity growth fell by an average of 0.1% each year between 1997 and 2024 (Fig. 22). This contrasts with the manufacturing sector which grew by 3.5% per annum and the whole UK economy which grew by 0.9% per annum.

Fig. 22: Change in labour productivity, 1997–2024



Source: Oxford Economics, ONS

Fig. 23: Labour productivity over time, construction sector



Source: Oxford Economics, ONS

Although labour productivity in the construction sector has picked up in recent years it is still below 1997 levels (Fig. 23). Through increasing the efficiency of labour, improvements to productivity of the sector would go a long way to resolving recruitment and skills gaps.

We outline below several technologies whose successful implementation would boost the sectors productivity.⁴⁰

- 1. Modern Methods of Construction (MMC):** range of innovative building techniques. Instead of relying solely on on-site, labour-intensive construction; MMC involves off-site manufacturing, prefabrication, and advanced technologies.
- 2. Artificial intelligence:** can help to predict and prevent safety incidents, optimise scheduling, and coordinate human-machine collaboration.
- 3. Automation/robots:** for example, bricklaying machines and autonomous earthmovers can perform tasks faster than humans at high levels of precision. Drones can be used to effectively survey project sites and automated equipment can perform excavation, demolition, and basic safety inspections.

- 4. Other digital technologies:** virtual reality/building information modelling (BIM) can help the customer visualise the entire project digitally before breaking ground, making it much easier to adjust plans and timelines as the project evolves.

Although it is chiefly for the construction industry itself to make decisions about which technologies to adopt, government can play an important facilitating role. For example, with regards to MMC there is a role for government to support scaling up MMC through mandating greater use of MMC in government housing projects.⁴¹ For these technologies to be effectively integrated into the construction sector, a significant proportion of the workforce will need to be upskilled, with digital competencies becoming an increasingly critical requirement.

⁴⁰ CRH, 2025. 'Innovation in construction: Paving the way for productivity and safety', 14 February 2025.

⁴¹ House of Lords, "Modern methods of construction in housing", January 2024.

SECTION 6: METHODOLOGICAL NOTE

METHODOLOGY TO ESTIMATE THE IMPACT ON LONG-RUN OUTPUT OF HIGHER PUBLIC CAPITAL INVESTMENT.

We use data on capital Departmental Expenditure Limits (DEL) from the March 2024 budget and the 2025 CSR to measure the increase in capital expenditure attributable to the 2025 CSR. For the years covered by both budgets (i.e. 2023-24 to 2028-29), we align the financial year spending to calendar years and calculate the percentage increase in spending in each year covered by the budgets.

To estimate the impact of this additional investment on long run output we draw on findings from OBR's paper: 'Public investment and potential output', which estimates that a 1% increase in public capital raises long-run market sector

output by 1.22%.⁴² We apply this elasticity to UK potential output data and forecasts from 2023 to 2039 from Oxford Economics' proprietary Global Economic Model, which serves as the baseline long run output.⁴³ This allows us to estimate the total increase in potential output associated with each year's additional capital spending.

We assume that the growth effects of investment do not occur immediately but rather unfold gradually over time. We consider that the full effect materialises over a 10-year horizon, consistent with evidence from the OBR paper on the timing of infrastructure multipliers.



42 Neetha Suresh, Rachel Ghaw, Ronnie Obeng-Osei and Tom Wickstead, 'Public investment and potential output', Office for Budget Responsibility Discussion paper No.5, August 2024.

43 Oxford Economics, 'Global Economic Model'.

METHODOLOGY TO ESTIMATE HOW MANY CONSTRUCTION WORKERS THE NATIONAL INFRASTRUCTURE PIPELINE PROJECTS WITH CAPITAL COST DATA WOULD NEED

To estimate the construction workers required to implement the infrastructure strategy we review NISTA's latest infrastructure pipeline.⁴⁴ For the 47% of projects for which there are capital spend data, we estimate the impact on construction activity from the investment spending figures using weights published by the CITB and Whole Life Consultants in 2023.⁴⁵

We then modelled the associated employment from the approximate £50 billion annual spend on construction, using an economic model based on OECD's Inter-Country Input-Output tables and ONS sectoral productivity data.

⁴⁴ NISTA pipeline published in July 2025.

⁴⁵ CITB and Whole Life Consultants, 'Local construction skills needs for Scotland: Demand analysis', July 2023.





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