

The headlines around big infrastructure projects tell a gloomy story. HS2 is the most obvious victim. As Tunde Ajia, veteran megaprojects manager and currently a doctoral researcher at Cranfield University focusing on project complexity, summarises: “A glorious project finally humbled by the UK’s long history of political football, delays, disappointments and spiralling costs.” But it’s not alone. Crossrail arrived two years late. Hinkley Point C is facing cost and schedule overruns. The Scottish Parliament building was 10 times over budget. Add your own example to the list.

But as a recent Boston Consulting Group (BCG) report, *Reshaping British Infrastructure: Global lessons to improve project delivery*, points out, the UK’s challenges are not unique: most developed democracies “must grapple with similar challenges around high labour costs, expensive real estate, dense urban populations and complex public approvals”. Even Germany isn’t faultless,



it adds, with the Berlin Brandenburg Airport project three times over budget and nine years late.

While BCG’s analysis shows the UK doing comparatively well on social infrastructure (e.g., schools and hospitals), on road and rail the UK is a particularly poor performer. On roads, for example, Germany comes top. It completed all its significant road projects on time, while the UK delivered 64% of them late.

“It’s definitely a global issue,” says Andy Murray, Executive Director at the

Major Projects Association. “We’re in good company on this one – and on the really big projects, we’re probably better than many.” True, on the most-costly rail projects (over £1bn), the UK’s unit costs are in the same ballpark as Germany, Spain and France – but only if you exclude Crossrail and the Northern Line extension, says BCG. Those are pretty big exceptions.

As Sam Dumitriu, Head of Policy at campaign group Britain Remade, told *The Telegraph*: “When Britain builds infrastructure... we tend to pay more – a lot more in some cases – than other countries in Europe.” He contrasts the £68m per mile paid for Madrid’s new metro with the £1.4bn per mile for the Elizabeth Line. Yes, it’s apples and pears – but the difference is huge. Diagnosing what plagues UK infrastructure could be the key to helping project managers cure the problem – and avoid the blame if things do go wrong.

GILLIAN PULLINGER/ALAMY

WHY CAN'T THE UK DO INFRASTR

SPOILER: IT'S NOT THE FAULT OF PROJECT MANAGERS. COMPLEX INVESTMENT PROFILES, STICKY PLANNING REGIMES AND FRAGMENTED VALUE CHAINS ALL CONTRIBUTE TO THE PROBLEM. BUT IS THIS DISEASE UNIQUELY BRITISH? RICHARD YOUNG DOES HIS RESEARCH



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Costly complexity

Ajia reckons the UK's problem is partly a question of governance, "with project sponsors often finding themselves navigating a labyrinth of 'good' and 'bad' complexity," he says. Good – 'intrinsic' – complexity is all about technical challenges, scale, the need for innovative solutions and environmental considerations. Project managers are good at handling these – and they're often the fun challenges of the job.

"The 'bad' side refers to complexity not directly related to the engineering or construction tasks but arising from external factors such as political fluctuations, regulatory hurdles, outsourcing challenges, financial ambiguities and shareholder conflicts," Ajia explains. "These add little value." And the UK suffers them in spades.

For instance, eight new reservoirs were built in the UK in the 1980s, two in the 1990s – and just one since then. The industry fragmented on privatisation; scoping requirements for new builds

have needed to address more factors around issues such as sustainability and social impact; and land values have soared. On major projects generally, longer gestations push them into new spending review periods, for example, and the project scope gets re-evaluated. BCG also singles out "gold-plating" – over-rigorous application of regulations, and up-specing, for example – of project scope as a peculiarly British fault.

Scoping sclerosis

A well-crafted mission with clear goals cascades through project planning and decision-making. A common UK problem is disjointed sponsors and stakeholders, leaving projects in a stop-start loop as decisions are recalibrated, scopes amended and budgets shuffled. The emergence of different levels of devolved government – including "levelling up" committees, metro mayors and regional planning bodies – has worsened the problem.

"We do need to ask whether we're being realistic at the outset on costs and time," says Garry Murphy, Director for Infrastructure UK and Head of Project Management at consultancy Turner & Townsend. "Politicians will say a project is going to cost 'x' billions and be finished by this date – and [project managers] get measured against that. Perhaps we should be more realistic about the range, which can narrow as we evolve to maturity."

"When Britain builds infrastructure... we tend to pay more – a lot more in some cases – than other countries in Europe"



The façade of the new Metro de Madrid headquarters, Spain. Main: Escalators up to the ground-level entrance hall at Farringdon Station, Elizabeth Line

On high-profile project 'failures' it's often shifting scope that makes the outcome feel suboptimal. A great example is the Transpennine rail project, green-lit in 2011 with a £290m budget, but which has seen several changes to spec, pushing estimated costs up to £1.0bn. "Without a single UK delivery agency," adds Murray, "you do have these pop-up clients that end up doing a lot of the project work from scratch, and

IT WASN'T ALWAYS THIS WAY...

When William the Conqueror invaded England in 1066 he took personal ownership of the entire country. His loyal lords would get rights to vast estates and tax peasants or raise militia for his armies. But the land was his. Want to build a castle? A bridge? A road? Knock yourself out.

That's how you solve planning congestion. As the Major Projects Association's Andy Murray points out: "The government took a decision in the 18th century to re-plant the New Forest as a source of timber for the Royal Navy – even though it encroached on the statutory rights of the Commoners."

The Crown still owns lots of land, but private ownership of the patchwork of real estate across the UK severely complicates matters when you want to build something really big. (The government

doesn't even know who owns around 17% of UK land.) And devolved government has meant project managers are often facing national, regional and local government structures that are deeply at odds with each other.

Today's politics is a universe away from feudal overlordship. But the UK's complex planning and political timetables really do hurt infrastructure, even when projects do get off the ground. "As entities adjust to their socio-political and economic surroundings, they acquire a dynamic quality that defies the structured, control-oriented approach commonly associated with conventional project management," says Tunde Ajia.





“It’s true that the construction sector is more fragmented here than elsewhere”

don’t have that institutional memory to draw on.”

Planning problems

One problem that’s acutely felt in the UK is population density. At 272 persons per square kilometre, it’s higher than Germany (232), more than twice that of France (118) and three times that of Spain (92). That means projects are more likely to affect more people. Add in a patchwork of land ownership, and the planning problems are obvious.

Are we a NIMBY nation? In a recent Ipsos poll, 63% of Britons said local community views should be a priority for infrastructure projects even if that causes delays – although 67% also said we are not building critical infrastructure quick enough.

Regulations aren’t helping. In 2023, the *National Infrastructure Assessment* declared: “While the Nationally Significant Infrastructure Projects

planning regime [established in 2008] initially worked well, it has deteriorated in recent years – consenting times have slowed by 65%... to 4.2 years on average, and the rate of judicial review has spiked in recent years to nearly 60% from a long term average of 10%.”

No wonder Shadow Chancellor Rachel Reeves declared in the 2024 Mais Lecture: “Planning dysfunction means that land is costly and inefficiently utilised, making the cost of building infrastructure in the UK significantly higher than in most developed economies.” The government’s 2023 announcement of reforms to the Nationally Significant Infrastructure Projects framework might help – especially around planning – and Reeves intimated Labour would inject further reforms.

But in Germany, which already has simpler planning rules for projects that comply with established parameters, bolder steps have already been taken. After demonstrating rapid infrastructure implementation was possible with new liquefied natural gas terminals to cope with Russian gas sanctions, it now plans to automatically approve applications for infrastructure projects if the relevant authority does not respond in time.

Funding failures

UK overall investment averaged 19% of GDP in the 40 years to 2019 – the lowest in the G7. The Resolution Foundation think-tank estimates that if the UK had met the average investment levels of other advanced economies since 2000, an extra £500bn would have gone into public infrastructure.

The National Infrastructure Commission adds a major issue: funding volatility: “Too often funding decisions are short term, leading to stop-start and underinvestment in maintenance and renewal... One in every six pounds of planned spending [goes] unspent.” Spending reviews are too quick to judge projects; budgets are often allocated to project phases rather than made available for project managers’ evolving needs; and decisions are taken for political reasons.

The need to bring in private investment, even for strategic infrastructure, further complicates things in the UK. “For example, our new nuclear now requires funding from different sources – Chinese investors, teaming up with French owners,” says Murphy. The challenge of aligning public and private funding – with a government struggling to meet even existing commitments – remains a huge drag on major projects.

Convoluting contractors

When the *Financial Times* did a deep dive on UK infrastructure earlier this year, journalist Gill Plimmer picked on the 14-mile Lower Thames Crossing project to illustrate her point, citing the “Russian dolls” of UK contracting as a key reason the scheme is so problematic. With (at least) nine named project consultancies working under the National Highways umbrella, and then countless sub- and sub-sub-contractors, the whole model is, as one commentator put it, “highly transactional”. That’s hampering project managers’ ability to make progress.

“It’s true that the construction sector is more fragmented here than elsewhere,” says Murray. “And many firms do operate with less robust balance sheets. You see big firms operating on a cash-flow basis, paying suppliers on longer terms than they’re taking income in.” That hurts both the contractors’ ability to plan ahead – and

has negative knock-ons for the stability of the sub-contracting supply chain.

“The UK’s use of complex and often ambiguous contracts can lead to legal disputes and confusion over accountability,” adds Ajia. “An example is the NHS’s Civilian Computer System, which caved from an inundation of indiscriminate contractual changes, technical issues and prolonged stakeholder disputes. And the UK’s outsourcing culture can sometimes result in fragmented responsibility and a diffusion of accountability.”

Skills shortages

“Our European neighbours do have cheaper labour markets and more flexible, available supply chains,” says Murphy. “Then you have to ask: is the industry attracting in enough young people? They want to go into high-tech industries and the traditional professions. Making project management and construction roles ‘sexier’ rather than allowing perceptions that its muddy and dirty – that’s an important mission.”

Interestingly, says Murray, the skills argument might be overplayed. “Tim Stone, Chairman of the Nuclear Industry Association, talked recently about visiting a small modular reactor project in Poland,” he says. “The project office was full of British engineers. They exist; they’re just not working here.” Building a pipeline of predictable, stable, attractive infrastructure projects – and generating what Stone calls “momentum, rather than events” in big project work – would do a huge amount to keep skills here and attract new blood to the profession.

Dealing with the unique barriers to UK infrastructure projects, then, starts to look like a virtuous circle. Solve the scoping and planning issues, and the funding, supply chain and skills might well sort themselves out. The “British disease” need not be terminal.

“The UK’s outsourcing culture can sometimes result in fragmented responsibility”

GLOBAL LESSONS: HOW MEXICO AND NEW ZEALAND ARE TAKING ON THEIR OWN ‘HS2’ MEGAPROJECTS. REPORT BY CONRAD HEINE

TREN MAYA:

A “megaproject of hope” for Mexico’s south-east

Like HS2 was meant to do for England’s north, Mexico’s massive Tren Maya megaproject – a new 1,500km rail line through five states in Mexico’s south-east, with a budget of \$28bn – is designed to boost a long-neglected region. Unlike HS2, Tren Maya benefits from unambiguous government commitment.

Tren Maya is a flagship pet project of ‘AMLO’, Andrés Manuel López Obrador, Mexico’s president, who is standing down at the coming June elections. Described as the “megaproject of hope”, Tren Maya was launched in 2018 as part of Mexico’s National Development Plan, and in line with AMLO’s motto: “For the benefit of all, the poor come first.”

While it is intended to serve tourism, the region’s biggest industry (centred around Cancún and the Caribbean coast on the Yucatán Peninsula), the plan is that it be more than just a railway and open up other opportunities for economic, commercial and social development. It will also move freight and give affordable transport to local inhabitants who are currently poorly served.

Unlike HS2, Tren Maya has progressed with impressive speed. Despite predictions of a 15-year building time, it has taken just five years to get to its current stage, with the first section (from Campeche to Cancún) inaugurated in December 2023 and the rest, optimistically announced for February 2024, expected before the end of the year.

Tren Maya is, however, deeply controversial. It has been dubbed the “megaproject of death” by some for the environmental damage construction has caused in rainforests and its potential to damage the region’s unique and fragile underground caves, aquifers and archaeological sites. Others say the project has been forced through without proper environmental impact assessments or consultation with local inhabitants.

It is a measure of the Mexican government’s commitment to and control of Tren Maya that the overall oversight, as well as part of the construction, rests with SEDENA, Mexico’s Ministry of Defence. Consequently, even though numerous private companies are involved in building the seven sections of Tren Maya, *Project’s* many attempts to speak with the project professionals involved were fruitless.

Military involvement

The military’s involvement has also provoked controversy, especially considering its historic role in repressing Mexico’s population. Étienne von Bertrab, a Mexican-born lecturer in development and planning at University College London, and the coordinator of a book on Tren Maya, points out that it is part of a trend of redirecting the military towards civic purposes, including operation of airports and ports, where corruption has often flourished.

Military involvement, he argues, also boosts security for the project against criminal groups, and keeps the military,



Having opened in December 2023, Cancún Airport station is one of the major termini of Tren Maya

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300,000 strong nationally, busy to boot. The military, he points out, has successfully delivered other projects, such as an airport in Mexico City. “They are very efficient and vertical in their approach.”

Furthermore, Bertrab argues that giving SEDENA a stake in Tren Maya will act as a bulwark against privatisation of the new railway, which reintroduces passenger services to a country where, in the 1990s, the country’s 23,000km-long publicly owned rail network was privatised, seeing passenger trains disappear in favour of freight. Down the line, the hope is that Tren Maya will connect with the existing network, reviving a state-owned passenger network throughout Mexico as contracts expire.

As for the environmental concerns, Bertrab acknowledges

they are genuine. However, he also points out that, during construction, routes have been altered and tracks built on elevated platforms to mitigate damage to environmental and archaeological sites, and the project has also included the creation of ecological reserves and more than 400 passages for wildlife.

Out of poverty

Other benefits have included the creation of jobs and a rail industry building trains in the region. The UN Development Programme has estimated it will help lift many out of poverty in the region. Tren Maya is indeed more than just a train – the project also includes housing, urban renewal and infrastructure provision in many neglected cities and towns along the route, as well as affordable transport provision where there previously was little or none.

Whether Tren Maya will achieve its promised benefits remains to be seen – but as a transformative rail project for a region that has seen the light of day in prompt time, its contrast with HS2 is marked.

AUCKLAND’S CITY RAIL LINK: A transformative project for New Zealand’s largest city

At 3.45km in length, Auckland’s City Rail Link (CRL) is nowhere near HS2’s scale. Yet New Zealand’s first underground metro rail network is the country’s largest infrastructure project ever. The two-way twin tunnels up to 42m below the centre of the country’s largest city will close a gap in Auckland’s network between the current terminus and existing lines, adding two new stations and transforming a third. Funded by Auckland Council and New Zealand’s government, completion is projected for late 2025, after which transport agencies will take over and get the trains running (wisely perhaps, that date is not yet specified).

CRL’s benefits have been clear from the start: it doubles Auckland’s rail capacity, shortens journeys and better connects the city and sprawling suburbs (as well as a host of economic and environmental benefits). Still, in a rapidly growing city (population 1.7 million) that

is choked with traffic and where non-road transport projects often go nowhere (a long-planned light rail network was cancelled recently), it took “enormous political courage” by Auckland’s then mayor to lead on starting things in 2011 before national government support was guaranteed, says Dr Sean Sweeney, CRL’s CEO.

CRL has forged ahead since. As a project, it is defined by clear benefits and absence of scope creep. Dr Sweeney points to only one major scope change since digging commenced – a shift from six- to nine-carriage trains, forcing changes to stations, for capacity and future-proofing reasons.

A sense of realism

CRL benefits from relatively simple partnerships – its main part is handled by the ‘Link Alliance’ of seven partners, including CRL Ltd, established in 2017 to deliver the project. Dr Sweeney, a New Zealander with a background in Australian infrastructure, came on board in 2018 and immediately set about a “major refit” of the project management. A review was commissioned to “prove that the numbers were wrong”, team members were changed and the “basics” were put in place – “management of time, costs, risks and scope”.

As with HS2, there have been delays, and budget has ballooned – although nowhere near “blowout”, Dr Sweeney stresses. The NZ\$5.5bn current cost is well above the original estimate of around NZ\$3bn, and reflects inflation, pandemic costs, the lack of a project pipeline in NZ that affects labour and the supply chain, and political realism. “Projects need a ‘3’ in front to get started... it was always going to cost more... governments don’t cancel projects once they have started.” (Observers of HS2 may beg to differ.)

A sense of realism is part of CRL’s success, suggests Nicolas Reid, Principal Public Transport Planner at MRCagney, a local transport



Tunnels up to 42m below the centre of the country’s largest city will close a gap in Auckland’s network

“It bucks the historical trend [of grand, yet cancelled transit projects in Auckland] by delivering a mountain of benefits”

consultancy. CRL lacks the load of scope creep and additional infrastructure to chase marginal benefits: instead, it builds on the simplest route possible, with the minimum necessary infrastructure. “It is the best project for Auckland because it is the one that Auckland is actually building... it bucks the historical trend [of grand, yet cancelled transit projects in Auckland] by delivering a mountain of benefits and improvements, albeit imperfectly, at a perfectly viable scope and price.”

A pipeline is needed

Now, Reid hopes for a similar approach from future much-needed transport projects to “deliver the benefits within a decade”. Dr Sweeney asserts that a pipeline of

large projects is needed, to fill many gaps, cope with growth, build skills, lower costs, and improve project management in general. Lessons have been learned – for example, from the inevitable retrofitting disruption in the city centre, which crippled many small businesses and caused media outrage, much like HS2 around Euston. This is something that future projects need to plan for better, he suggests.

With CRL on track to becoming a sunset project, Dr Sweeney is confident the benefits will be transformative, not just as the “backbone to a major metro heavy rail system”, but also to a part of the central city that includes major universities, venues and businesses but has previously lacked stations and connections. And although the increased capacity will expose issues further along the lines – from the many level crossings that regularly delay road traffic throughout Auckland – Dr Sweeney sees CRL as “a brand-new engine for a wider network”. With its focus on benefits, clear scope and realistic ambitions, CRL – albeit at a far smaller scale – offers a lesson to HS2.